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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

E-health multimedia services and applications –
Interoperability compliance testing of personal health
systems (HRN, PAN, LAN, TAN and WAN)

**Conformance of ITU-T H.810 personal health
devices: PAN/LAN/TAN interface Part 10:
Transcoding for Bluetooth low energy (BLE):
Manager**

Recommendation ITU-T H.850



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Recommendation ITU-T H.850

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 10: Transcoding for Bluetooth low energy (BLE): Manager

Summary

Recommendation ITU-T H.850 is a transposition of Continua Test Tool DG2013, Test Suite Structure & Test Purposes, PAN-LAN-TAN Interface; Part 10: PHD Transcoding Whitepaper. Manager (Version 1.2, 2014-01-24), that was developed by the Continua Health Alliance. A number of versions of this specification existed before transposition.

This Recommendation includes an electronic attachment with the protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A.

History

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Electronic attachment: This Recommendation includes an electronic attachment with the protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A.

Introduction

This Recommendation is a transposition of Continua Test Tool DG2013, Test Suite Structure & Test Purposes, PAN-LAN-TAN Interface; Part 10: PHD Transcoding Whitepaper. Manager (Version 1.2, 2014-01-24), that was developed by the Continua Health Alliance. A number of versions of this specification existed before transposition and these can be found in the table below.

Version	Date	Revision history
1.0	2012-10-05	Initial release
1.1	2013-05-24	Initial release for Test Tool DG2012. It uses "TSS&TP_DG2011_LP-PAN_PART_10_v1.0.doc" as a baseline and it adds new features included in [b-CDG 2012] (BPM and HR profiles).
1.2	2014-01-24	Initial release for Test Tool DG2013. It uses "TSS&TP_DG2012_LP-PAN_PART_10_v1.1.doc" as a baseline and it adds new features included in [b-ITU-T H.810 (2013)]: <ul style="list-style-type: none">• Add glucose meter BLE• Add BLE SSP support• Add NFC new transport• Add INR device specialization

Recommendation ITU-T H.850

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 10: Transcoding for Bluetooth low energy (BLE): Manager

1 Scope

The scope of this Recommendation¹ is to provide a test suite structure and the test purposes (TSS & TP) for the PAN/LAN/TAN interface based on the requirements defined in the Continua Design Guidelines (CDG) [ITU-T H.810 (2015)]. The objective of this test specification is to provide a high probability of air interface interoperability between different devices.

TSS and TP for the PAN/LAN/TAN interface have been divided into ten parts. Each part is listed below. This Recommendation covers Part 10.

- **Part 1:** Optimized exchange protocol [ISO/IEEE 11073-20601A] Agent
- **Part 2:** Optimized exchange protocol [ISO/IEEE 11073-20601A] Manager
- **Part 3:** Continua design guidelines. Agent
- **Part 4:** Continua design guidelines. Manager
- **Part 5:** Device specializations. Agent. This document is divided into 14 subparts:
 - **Part 5A:** Weighing scales
 - **Part 5B:** Glucose meter
 - **Part 5C:** Pulse oximeter
 - **Part 5D:** Blood pressure monitor
 - **Part 5E:** Thermometer
 - **Part 5F:** Cardiovascular fitness and activity monitor
 - **Part 5G:** Strength fitness equipment
 - **Part 5H:** Independent living activity hub
 - **Part 5I:** Adherence monitor
 - **Part 5J:** Insulin pump (Future development)
 - **Part 5K:** Peak flow
 - **Part 5L:** Body composition analyzer
 - **Part 5M:** Basic electrocardiograph
 - **Part 5N:** International normalized ratio monitor
- **Part 6:** Device specializations. Manager
- **Part 7:** Continua design guidelines. Agent BLE
- **Part 8:** Continua design guidelines. Manager BLE
- **Part 9:** Personal health devices transcoding white paper. Agent
- **Part 10: Personal health devices transcoding white paper. Manager**

¹ This Recommendation includes an electronic attachment with the protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T H.810 (2015)] Recommendation ITU-T H.810 (2015), *Interoperability design guidelines for personal health systems*.
- [ITU-T H.810 (2016)] Recommendation ITU-T H.810 (2016), *Interoperability design guidelines for personal health systems*.
- [Bluetooth PHDT v1.4] Bluetooth SIG (2013), *Personal Health Devices Transcoding White Paper, v1.4*.
<https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539>
- [Bluetooth PHDT v1.5] Bluetooth SIG (2014), *Personal Health Devices Transcoding White Paper, v1.5*.
<https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=272346>
- [ISO/IEEE 11073-20601A] ISO/IEEE 11073-20601:2010, *Health informatics – Personal health device communication – Part 20601: Application profile – Optimized exchange protocol*, including ISO/IEEE 11073-20601:2010 Amd 1:2015.
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with
<http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=63972>
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<http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol3_FT_2012-08-16.pdf>
- [ISO/IEEE 11073-104xx] ISO/IEEE 11073-104xx (in force), *Health informatics – Personal health device communication – Device specialization*.
NOTE – Shorthand to refer to the collection of device specialization standards that utilize [b-ISO/IEEE 11073-20601], where xx can be any number from 01 to 99 inclusive.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 agent [ISO/IEEE 11073-20601A]: A node that collects and transmits personal health data to an associated manager.

3.1.2 manager [ISO/IEEE 11073-20601A]: A node receiving data from one or more agent systems. Some examples of managers include a cellular phone, health appliance, set top box, or a computer system.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATS	Abstract Test Suite
CDG	Continua Design Guidelines
DUT	Device Under Test
GUI	Graphical User Interface
INR	International Normalized Ratio
IUT	Implementation Under Test
LSB	Least Significant Bit
MDS	Medical Device System
MSB	Most Significant Bit
NFC	Near Field Communication
PAN	Personal Area Network
PCD	Patient Care Device
PCO	Point of Control and Observation
PCT	Protocol Conformance Testing
PHD	Personal Healthcare Device
PHDC	Personal Healthcare Device Class
PHM	Personal Health Manager
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation extra Information for Testing
SABTE	Sleep Apnoea Breathing Therapy Equipment
RACP	Record Access Control Point
SDP	Service Discovery Protocol
SOAP	Simple Object Access Protocol
TCRL	Test Case Reference List
TCWG	Test and Certification Working Group
TP	Test Purposes
TSS	Test Suite Structure
USB	Universal Serial Bus
WDM	Windows Driver Model

5 Conventions

In this text, the uppercase letter L is used as the symbol for litre.

Several of the test purposes in Annex A refer to "WAN PCD-01 messages"; these messages are specified in the patient care device (PCD) technical framework defined in [IHE PCD TF 1], [IHE PCD TF 2] and [IHE PCD TF 3]. Similarly, the "IEEE 11073 Objects and Attributes" are defined in [ISO/IEEE 11073-104xx].

The key words "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "MAY", "MAY NOT" in this Recommendation are to be interpreted as in [b-ETSI SR 001 262].

- SHALL is equivalent to 'must' or 'it is required to'.
- SHALL NOT is equivalent to 'must not' or 'it is not allowed'.
- SHOULD is equivalent to 'it is recommended to'.
- SHOULD NOT is equivalent to 'it is not recommended to'.
- MAY is equivalent to 'is permitted'.
- MAY NOT is equivalent to 'it is not required that'.

NOTE – The above-mentioned key words are capitalized for illustrative purposes only and they do not appear capitalized within this Recommendation.

Reference is made in the ITU-T H.800-series of Recommendations to different versions of the Continua Design Guidelines (CDG) by a specific designation. The list of terms that may be used in this Recommendation is provided in Table 1.

Table 1 – List of designations associated with the various versions of the CDG

CDG release	Transposed as	Version	Description	Designation
2016 plus errata	[ITU-T H.810 (2016)]	6.1	Release 2016 plus errata noting all ratified bugs [ITU-T H.810 (2016)].	–
2016	–	6.0	Release 2016 of the CDG including maintenance updates of the CDG 2015 and additional guidelines that cover new functionalities.	Iris
2015 plus errata	[ITU-T H.810 (2015)]	5.1	Release 2015 plus errata noting all ratified bugs [ITU-T H.810 (2015)].	–
2015	–	5.0	Release 2015 of the CDG including maintenance updates of the CDG 2013 and additional guidelines that cover new functionalities.	Genome
2013 plus errata	[ITU-T H.810 (2013)]	4.1	Release 2013 plus errata noting all ratified bugs [b-ITU-T H.810 (2013)].	–
2013	–	4.0	Release 2013 of the CDG including maintenance updates of the CDG 2012 and additional guidelines that cover new functionalities.	Endorphin
2012 plus errata	–	3.1	Release 2012 plus errata noting all ratified bugs [b-CDG 2012].	–
2012	–	3.0	Release 2012 of the CDG including maintenance updates of the CDG 2011 and additional guidelines that cover new functionalities.	Catalyst
2011 plus errata	–	2.1	CDG 2011 integrated with identified errata.	–

Table 1 – List of designations associated with the various versions of the CDG

CDG release	Transposed as	Version	Description	Designation
2011	–	2.0	Release 2011 of the CDG including maintenance updates of the CDG 2010 and additional guidelines that cover new functionalities [b-CDG 2011].	Adrenaline
2010 plus errata	–	1.6	CDG 2010 integrated with identified errata	–
2010	–	1.5	Release 2010 of the CDG with maintenance updates of the CDG Version 1 and additional guidelines that cover new functionalities [b-CDG 2010].	1.5
1.0	–	1.0	First released version of the CDG [b-CDG 1.0].	–

6 Test suite structure

The test purposes (TP) for the PAN/LAN/TAN interface have been divided into the groups and subgroups specified below. Annex A describes the TPs for subgroups 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5 and 2.4.6 (shown in bold).

- Group 1: Agent (AG)
 - Group 1.1: Transport (TR)
 - Subgroup 1.1.1: Design guidelines: Common (DGC)
 - Subgroup 1.1.2: USB design guidelines (UDG)
 - Subgroup 1.1.3: Bluetooth design guidelines (BDG)
 - Subgroup 1.1.4: Pulse oximeter design guidelines (PODG)
 - Subgroup 1.1.5: Cardiovascular design guidelines (CVDG)
 - Subgroup 1.1.6: Activity hub design guidelines (HUBDG)
 - Subgroup 1.1.7: ZigBee design guidelines (ZDG)
 - Subgroup 1.1.8: Glucose meter design guidelines (GLDG)
 - Subgroup 1.1.9: Bluetooth low energy design guidelines (BLEDG)
 - Subgroup 1.1.10: Basic electrocardiograph design guidelines (ECGDG)
 - Subgroup 1.1.11: NFC design guidelines (NDG)
 - Group 1.2: 20601: Optimized exchange protocol (OXP)
 - Subgroup 1.2.1: PHD domain information model (DIM)
 - Subgroup 1.2.2: PHD service model (SER)
 - Subgroup 1.2.3: PHD communication model (COM)
 - Group 1.3: Devices class specializations (CLASS)
 - Subgroup 1.3.1: Weighing scales (WEG)
 - Subgroup 1.3.2: Glucose meter (GL)
 - Subgroup 1.3.3: Pulse oximeter (PO)
 - Subgroup 1.3.4: Blood pressure monitor (BPM)
 - Subgroup 1.3.5: Thermometer (TH)
 - Subgroup 1.3.6: Cardiovascular (CV)

- Subgroup 1.3.7: Strength (ST)
- Subgroup 1.3.8: Activity hub (HUB)
- Subgroup 1.3.9: Adherence monitor (AM)
- Subgroup 1.3.10: Insulin pump (IP) (Future development)
- Subgroup 1.3.11: Peak flow (PF)
- Subgroup 1.3.12: Body composition analyzer (BCA)
- Subgroup 1.3.13: Basic electrocardiograph (ECG)
- Subgroup 1.3.14: International normalized ratio (INR)
- Subgroup 1.3.15: Sleep apnoea breathing therapy equipment (SABTE)
- Group 1.4: Personal health device transcoding whitepaper (PHDTW)
 - Subgroup 1.4.1: Whitepaper general requirements (GEN)
 - Subgroup 1.4.2: Whitepaper thermometer requirements (TH)
 - Subgroup 1.4.3: Whitepaper blood pressure requirements (BPM)
 - Subgroup 1.4.4: Whitepaper heart rate requirements (HR)
 - Subgroup 1.4.5: Whitepaper glucose meter requirements (GL)
 - Subgroup 1.4.6: Whitepaper weight scale requirements (WS)
- Group 2: Manager (MAN)
 - Group 2.1: Transport (TR)
 - Subgroup 2.1.1: Design guidelines: Common (DGC)
 - Subgroup 2.1.2: USB design guidelines (UDG)
 - Subgroup 2.1.3: Bluetooth design guidelines (BDG)
 - Subgroup 2.1.4: Cardiovascular design guidelines (CVDG)
 - Subgroup 2.1.5: Activity hub design guidelines (HUBDG)
 - Subgroup 2.1.6: ZigBee design guidelines (ZDG)
 - Subgroup 2.1.7: Bluetooth low energy design guidelines (BLEDG)
 - Subgroup 2.1.8: NFC design guidelines (NDG)
 - Group 2.2: 20601: Optimized exchange protocol (OXP)
 - Subgroup 2.2.1: General (GEN)
 - Subgroup 2.2.2: PHD domain information model (DIM)
 - Subgroup 2.2.3: PHD service model (SER)
 - Subgroup 2.2.4: PHD communication model (COM)
 - Group 2.3: Devices class specializations (CLASS)
 - Subgroup 2.3.1: Weighing scales (WEG)
 - Subgroup 2.3.2: Glucose meter (GL)
 - Subgroup 2.3.3: Pulse oximeter (PO)
 - Subgroup 2.3.4: Blood pressure monitor (BPM)
 - Subgroup 2.3.5: Thermometer (TH)
 - Subgroup 2.3.6: Cardiovascular (CV)
 - Subgroup 2.3.7: Strength (ST)
 - Subgroup 2.3.8: Activity hub (HUB)
 - Subgroup 2.3.9: Adherence monitor (AM)

- Subgroup 2.3.10: Insulin pump (IP) (Future development)
- Subgroup 2.3.11: Peak flow (PF)
- Subgroup 2.3.12: Body composition analyser (BCA)
- Subgroup 2.3.13: Basic electrocardiograph (ECG)
- Subgroup 2.3.14: International normalized ratio (INR)
- Subgroup 2.3.15: Sleep apnoea breathing therapy equipment (SABTE)
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 - **Subgroup 2.4.3: Whitepaper blood pressure requirements (BPM)**
 - **Subgroup 2.4.4: Whitepaper heart rate requirements (HR)**
 - **Subgroup 2.4.5: Whitepaper glucose meter requirements (GL)**
 - **Subgroup 2.4.6: Whitepaper weight scale requirements (WS)**

7 Electronic attachment

The protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A can be downloaded from <http://handle.itu.int/11.1002/2000/12067>.

In the electronic attachment, letters "C" and "I" in the column labelled "Mandatory" are used to distinguish between "PICS" and "PIXIT" respectively during testing. If the cell is empty, the corresponding PICS is "independent". If the field contains a "C", the corresponding PICS is dependent on other PICS, and the logical expression is detailed in the "SCR_Expression" field. The SCR static conformance review (SCR) is used in the test tool to assert whether the PICS selection is consistent.

Annex A

Test purposes

(This annex forms an integral part of this Recommendation.)

A.1 TP definition conventions

The test purposes (TPs) are defined according to the following rules:

- **TP Id:** This is a unique identifier (TP/<TT>/<DUT>/<GR>/<SGR>/<XX> – <NNN>). It is specified according to the naming convention defined below:
 - Each test purpose identifier is introduced by the prefix "TP".
 - <TT>: This is the test tool that will be used in the test case.
 - PAN: Personal area network (Bluetooth or USB)
 - LAN: Local area network (ZigBee)
 - PAN-LAN: Personal area network (Bluetooth or USB) – Local area network (ZigBee)
 - LP-PAN: Low power personal area network (Bluetooth low energy)
 - TAN: Touch area network (NFC)
 - PLT: Personal area network (Bluetooth or USB) – Local area network (ZigBee) – Touch area network (NFC)
 - <DUT>: This is the device under test.
 - AG: PAN/LAN/TAN agent
 - MAN: PAN/LAN/TAN manager
 - <GR>: This identifies a group of test cases.
 - <SGR>: This identifies a subgroup of test cases.
 - <XX>: This identifies the type of testing.
 - BV: Valid behaviour test
 - BI: Invalid behaviour test
 - <NNN>: This is a sequential number that identifies a test purpose.
- **TP label:** This is the TP's title.
- **Coverage:** This contains the specification reference and clause to be checked by the TP.
 - Spec: This indicates the earliest version of the specification from which the testable items to be checked by the TP were included.
 - Testable item: This contains testable items to be checked by the TP
- **Test purpose:** This is a description of the requirements to be tested.
- **Applicability:** This contains the PICS items that define if the test case is applicable or not for a specific device. When a TP contains an "ALL" in this field it means that it applies to the device under test within that scope of the test (specialization, transport used, etc).
- **Other PICS:** This contains additional PICS items (apart from the PICS specified in the Applicability row) which are used within the test case implementation and can modify the final verdict. When this row is empty, it means that only the PICS specified in the Applicability row are used within the test case implementation.
- **Initial condition:** This indicates the state to which the DUT needs to be moved at the beginning of TC execution.

- **Test procedure:** This describes the steps to be followed in order to execute the test case
- **Pass/Fail criteria:** This provides criteria to decide whether the DUT passes or fails the test case.

A.2 Subgroup 2.4.1 – Whitepaper General requirements (GEN)

TP Id		TP/LP-PAN/MAN/PHDTW/GEN/BV-000		
TP label		Whitepaper. MDS Object - Handle Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 1; O		
Test purpose		<p>Check that:</p> <p>Manager does not include MDS Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes MDS Object – Handle attribute in transcoder output, then its value shall be set to 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in Manager transcoder output for the MDS object – Handle attribute 		
Pass/Fail criteria		In step 4, the MDS object – Handle attribute is not present; however, if it is present, its value is 0.		
Notes		<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_ID_HANDLE (2337) ❑ Attribute-type: INT-U16 ❑ Attribute-value: 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>		

TP Id		TP/LP-PAN/MAN/PHDTW/GEN/BV-001		
TP label		Whitepaper. MDS Object - System-Model Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 2; M	String Conv 1; M	String Conv 2; M
		MDS Conv 1; M	MDS Conv 2; M	MDS Conv 3; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Model Number String and Manufacturer Name String characteristics into MDS Object – System-Model attribute</p> <p>[AND]</p>		

	Manager transcodes odd length string by appending a zero (0x00) byte to the end of the string, and incrementing the string length field
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Manufacturer name string (0x2A29) <ul style="list-style-type: none"> • Format: utf8s • Value: AT4wireless (string char, odd length) b. Model number string (0x2A24) <ul style="list-style-type: none"> • Format: utf8s • Value: Mod.12 (string char, even length) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), force the manager under test to read the Manufacturer name string and Model number string characteristics. 5. The simulated agent sends the measurement to the manager under test. 6. Check in manager transcoder output for the MDS object – System-Model attribute.
Pass/Fail criteria	In step 6, the MDS object – System-Model attribute is present, its value matches with BLE Manufacturer name string and Model number string characteristics values, and character strings have even lengths (i.e., transcoder appends padding byte 0x00 to odd length strings).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes System-Model attribute is present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_MODEL (2344) <input type="checkbox"/> Attribute-type: SEQUENCE {manufacturer (OCTET STRING), model-number (OCTET STRING)}. OCTET STRING is restricted to printable ASCII characters (0x20 – 0x7E) and even length (padding with 0x00 character) <input type="checkbox"/> Attribute-value: <ol style="list-style-type: none"> i. manufacturer: AT4wireless (string char) or 00 0C 41 54 34 77 69 72 65 6C 65 73 73 00 (hex) [Note that 0x00 0x0C is the string length] ii. model-number: Mod.12 (string char) or 00 06 4d 6f 64 2e 31 32 (hex) [Note that 0x00 0x06 is the string length] b) WAN PCD-01 message PCD-01 message includes two segments like these with a System-Model attribute value (check OBX-5 in both segments): OBX ? ST 531969^MDC_ID_MODEL_NUMBER^MDC 1.0.0.a AT4wireless R OBX ? ST 531970^MDC_ID_MODEL_MANUFACTURER^MDC 1.0.0.b Mod.12 R

TP Id	TP/LP-PAN/MAN/PHDTW/GEN/BV-002		
TP label	Whitepaper. MDS Object - System-Id Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	Common MDS 3; M	MDS Conv 4; M

Test purpose	Check that: Manager transcodes System ID characteristic into MDS Object – System-Id attribute
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. System ID (0x2A23) <ul style="list-style-type: none"> • Format: uint40, uint24 (64 bits) • Value: 11 22 33 44 AA BB CC DD 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), force the manager under test to read System ID characteristics. 5. The simulated agent sends the measurement to the manager under test. 6. Check in manager transcoder output for the MDS object – System-Id attribute
Pass/Fail criteria	In step 6, the MDS object – System-Id attribute is present and its value matches the BLE System ID characteristic value.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes System-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_ID (2436) <input type="checkbox"/> Attribute-type: OCTET STRING restricted to EUI-64 <input type="checkbox"/> Attribute-value: 11 22 33 44 AA BB CC DD (hex) <p>b) WAN PCD-01 message</p> <p>If the simulated agent implements a Thermometer profile then the PCD-01 message includes a segment like this with the System-Id attribute value (check OBX-18):</p> <pre>OBX ? 528392^MDC_DEV_SPEC_PROFILE_TEMP^MDC 1 X 1122334455 AABBCCDD^EUI-64</pre> <p>If the simulated agent implements a Blood pressure profile then the PCD-01 message includes a segment like this with the System-Id attribute value (check OBX-18):</p> <pre>OBX ? 528391^MDC_DEV_SPEC_PROFILE_BP^MDC 1 X 1122334455 AABBCCDD^EUI-64</pre> <p>If the simulated agent implements a Heart rate profile then the PCD-01 message includes a segment like this with the System-Id attribute value (check OBX-18):</p> <pre>OBX ? 528384^MDC_DEV_SPEC_PROFILE_HYDRA^MDC 1 X 1122334455 AABBCCDD^EUI-64</pre> <p>If the simulated agent implements a Glucose profile then the PCD-01 message includes a segment like this with the System-Id attribute value (check OBX-18):</p> <pre>OBX ? 528384^MDC_DEV_SPEC_PROFILE_GLUCOSE^MDC 1 X 1122334455 AABBCCDD^EUI-64</pre>

TP Id		TP/LP-PAN/MAN/PHDTW/GEN/BV-003		
TP label		Whitepaper. MDS Object - Production-Specification Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 5; M	String Conv 1; M	String Conv 2; M
		MDS Conv 6; M	MDS Conv 7; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Serial Number String, Hardware Revision String, Software Revision String and Firmware Revision String characteristics into MDS Object – Production-Specification attribute</p> <p>[AND]</p> <p>Manager transcodes odd length string by appending a zero (0x00) byte to the end of the string, and incrementing the string length field</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Serial number string (0x2A25) <ul style="list-style-type: none"> • Format: utf8s • Value: SN 2468 (string char, odd length) b. Hardware revision string (0x2A27) <ul style="list-style-type: none"> • Format: utf8s • Value: HW 13579 (string char, even length) c. Software revision string (0x2A28) <ul style="list-style-type: none"> • Format: utf8s • Value: SW new-vers (string char, odd length) d. Firmware revision string (0x2A26) <ul style="list-style-type: none"> • Format: utf8s • Value: FW v1.23 (string char, even length) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), force the manager under test to read the Serial number string, Hardware revision string, Software revision string and Firmware revision string characteristics. 5. The simulated agent sends the measurement to the manager under test. 6. Check in manager transcoder output for the MDS object – Production-Specification attribute 		
Pass/Fail criteria		In step 6, the MDS object – Production-Specification attribute is present, its value matches with the BLE Serial number string, Hardware revision string, Software revision string and Firmware revision string characteristics values, and character strings have even lengths (i.e., transcoder appends padding byte 0x00 to odd length strings).		
Notes		<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Production-Specification attribute is present:</p>		

	<ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_ID_PROD_SPECN (2349) ❑ Attribute-type: SEQUENCE OF [{spec-type (INT-U16), component-id (PrivateOid), prod-spec (OCTET STRING)}, {...}]. OCTET STRING is restricted to printable ASCII characters (0x20 – 0x7E) and even length (padding with 0x00 character) ❑ Attribute-value: (note that elements order may be different) <ul style="list-style-type: none"> i. Element: <ul style="list-style-type: none"> • spec-type: 1 (dec) • component-id: 0 (dec) • prod-spec: SN 2468 (string char) or 00 08 53 4E 20 32 34 36 38 00 (hex) [Note that 0x00 0x08 is the string length] ii. Element: <ul style="list-style-type: none"> • spec-type: 3 (dec) • component-id: 0 (dec) • prod-spec: HW 13579 (string char) or 00 08 48 57 20 31 33 35 37 39 (hex) [Note that 0x00 0x08 is the string length] iii. Element: <ul style="list-style-type: none"> • spec-type: 4 (dec) • component-id: 0 (dec) • prod-spec: SW new-vers (string char) or 00 0C 53 57 20 6E 65 77 2D 76 65 72 73 00 (hex) [Note that 0x00 0x0C is the string length] iv. Element: <ul style="list-style-type: none"> • spec-type: 5 (dec) • component-id: 0 (dec) • prod-spec: FW v1.23 (string char) or 00 08 46 57 20 76 31 2E 32 33 (hex) [Note that 0x00 0x08 is the string length] <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes four segments like these with Production-Specification attribute value (check OBX-5 in four segments):</p> <pre>OBX ? ST 531972^MDC_ID_PROD_SPEC_SERIAL^MDC 1.0.0.a SN 2468 R OBX ? ST 531974^MDC_ID_PROD_SPEC_HW^MDC 1.0.0.b HW 13579 R OBX ? ST 531975^MDC_ID_PROD_SPEC_SW^MDC 1.0.0.c SW new-vers R OBX ? ST 531976^MDC_ID_PROD_SPEC_FW^MDC 1.0.0.d FW v1.23 R</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GEN/BV-004		
TP label		Whitepaper. MDS Object - Date-and-Time Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	MDS Conv 8; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Date Time characteristic into MDS Object – Date-and-Time attribute [AND]</p> <p>Manager transcodes the Bluetooth Date Time characteristic format to Absolute Time format [AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_001 OR C_MAN_BLE_003		

	OR C_MAN_BLE_007)
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Date Time (0x2A08) <p>Value: April 8th, 2012, 19:45:05</p> <ol style="list-style-type: none"> i. Field: Year <ul style="list-style-type: none"> • Format: uint16 • Value: 2012 ii. Field: Month <ul style="list-style-type: none"> • Format: uint8 • Value: 4 iii. Field: Day <ul style="list-style-type: none"> • Format: uint8 • Value: 8 iv. Field: Hours <ul style="list-style-type: none"> • Format: uint8 • Value: 19 v. Field: Minutes <ul style="list-style-type: none"> • Format: uint8 • Value: 45 vi. Field: Seconds <ul style="list-style-type: none"> • Format: uint8 • Value: 5 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), force the manager under test to read the Date Time characteristic. 5. The simulated agent sends the measurement to the manager under test. 6. Check in manager transcoder output for the MDS object – Date-and-Time attribute
Pass/Fail criteria	In step 6, the MDS object – Date-and-Time attribute is present, its value matches with Date-and-Time characteristic values and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Date-and-Time attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_ABS (2439) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec)

	<ul style="list-style-type: none"> • month: 04 (hex) or 4 (dec) • day: 08 (hex) or 8 (dec) • hour: 19 (hex) or 25 (dec) • minute: 45 (hex) or 69 (dec) • second: 05 (hex) or 5 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-5):</p> <pre>OBX ? DTM 67975^MDC_ATTR_TIME_ABS^MDC 1.0.0.a 20120408194505+0000 R 20120408194505+0000</pre>
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TP Id	TP/LP-PAN/MAN/PHDTW/GEN/BV-006		
TP label	Whitepaper. MDS Object - Battery-Level Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	Common MDS 12; M	
Test purpose	Check that: Manager transcodes Battery Level characteristic into MDS Object – Battery-Level attribute		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Battery level (0x2A19) <ul style="list-style-type: none"> • Format: uint8 • Value: 75 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), force the manager under test to read the Battery level characteristic. 5. The simulated agent sends the measurement to the manager under test. 6. Check in manager transcoder output for the MDS object – Battery-Level attribute. 		
Pass/Fail criteria	In step 6, the MDS object – Battery-Level attribute is present and its value matches with the BLE Battery-Level characteristic value.		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes Battery-Level attribute is present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_VAL_BATT_CHARGE (2460) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: 75 b) WAN PCD-01 message PCD-01 message includes a segment like this with a Battery-Level attribute value (check 		

	OBX-5): OBX ? NM 67996^MDC_ATTR_VAL_BATT_CHARGE^MDC 1.0.0.a 75 262688^MDC_DIM_PERCENT^MDC R current_date_time
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A.3 Subgroup 2.4.2 – Whitepaper Thermometer requirements (TH)

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-000		
TP label	Whitepaper. Thermometer MDS Object - System-Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Specific MDS 1; M	
Test purpose	Check that: Manager does not include MDS Object – System-Type attribute in transcoder output.		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type attribute. 		
Pass/Fail criteria	In step 4, the MDS object – System-Type attribute is not present.		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type attribute is not present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE (2438) <input type="checkbox"/> Attribute-type: TYPE <input type="checkbox"/> Attribute-value: <NOT PRESENT> <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a System-Type attribute value (67974^MDC_ATTR_SYS_TYPE^MDC).</p>		

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-001		
TP label	Whitepaper. Thermometer MDS Object - Dev-Configuration-Id Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Specific MDS 2; M	
Test purpose	Check that: Manager includes MDS Object – Dev-Configuration-Id attribute in transcoder output. [AND] Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (Extended Configuration)		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state		

Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state) 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – Dev-Configuration-Id attribute
Pass/Fail criteria	In step 4, the MDS object – Dev-Configuration-Id attribute is present and its value is inside the range 0x4000 - 0x7FFF.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes Dev-Configuration-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex) <p>b) WAN PCD-01 message</p> <p>According to [b-ITU-T H.810 (2013)], the Dev-Configuration-Id shall not be transmitted in the PCD-01 message; therefore it is not possible to check this attribute.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-002		
TP label	Whitepaper. Thermometer MDS Object - System-Type-Spec-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	Common MDS 15; M	TH Specific MDS 3; M
Test purpose	<p>Check that:</p> <p>Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.</p> <p>[AND]</p> <p>System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_TEMP, Version 1)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute 		
Pass/Fail criteria	In step 4, the MDS object – System-Type-Spec-List attribute is present and its value is (MDC_DEV_SPEC_PROFILE_TEMP, Version 1).		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes System-Type-Spec-List attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650) 		

	<ul style="list-style-type: none"> ❑ Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}] ❑ Attribute-value: <ul style="list-style-type: none"> • type: MDC_DEV_SPEC_PROFILE_TEMP or 4104 (dec) or 10 08 (hex) • version: 1 (dec) or 00 01 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a System-Type-Spec-List attribute value (check OBX-5):</p> <p>OBX ? NM 68186^MDC_ATTR_SYS_TYPE_SPEC_LIST^MDC 1.0.0.a </p> <p>528392^MDC_DEV_SPEC_PROFILE_TEMP^MDC R</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-003		
TP label		Whitepaper. MDS Object - Reg-Cert-Data-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 14; M	Regulatory Conv 1; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. IEEE 11073-20601 [ISO/IEEE 11073-20601A] Regulatory Certification Data List (0x2A2A) <ul style="list-style-type: none"> • Format: reg-cert-data-list (opaque structure) • Value: 00 02 00 12 02 01 00 08 04 00 00 01 00 02 80 08 02 02 00 02 80 00 (hex) <ol style="list-style-type: none"> i. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 04 (hex) - minor-IG-version: 00 (hex) - certified-devices: 80 08 (hex). BLE Thermometer ii. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent.		

	<p>4. When the pairing has been completed (connection state), force the manager under test to read the IEEE 11073-20601 Regulatory Certification Data List characteristic.</p> <p>5. The simulated agent sends the measurement to the manager under test.</p> <p>6. Check in manager transcoder output for the MDS object – Reg-Cert-Data-List attribute</p>
Pass/Fail criteria	In step 6, the MDS object – Reg-Cert-Data-List attribute is present and its value matches with the IEEE 11073-20601 Regulatory Certification Data List characteristic value.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Reg-Cert-Data-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635) ❑ Attribute-type: SEQUENCE OF [{auth-body-and-struct-type, auth-body-data}, {...}] ❑ Attribute-value: 00 02 00 12 02 01 00 08 04 00 00 01 00 02 80 08 02 02 00 02 80 00 (hex) [Note that 0x00 0x02 is the number of elements in the sequence and 0x00 0x12 is the length of the sequence] <ul style="list-style-type: none"> i. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 04 (hex) - minor-IG-version: 00 (hex) - certified-devices: 80 08 (hex). BLE Thermometer ii. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):</p> <pre>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a 2^auth-body-continua R OBX ? ST 532352^MDC_REG_CERT_DATA_CONTINUA_VERSION^MDC 1.0.0.a.x 4.0 R OBX ? NA 532353^MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST^MDC 1.0.0.a.y 32776 R OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.b 2^auth-body-continua R OBX ? CWE 532354^MDC_REG_CERT_DATA_CONTINUA_REG_STATUS^MDC 1.0.0.b.z 1^unregulated-device(0) R</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-004		
TP label	Whitepaper. Thermometer Body Temperature Object - Handle Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable	TH Numeric 1; O	

items	
Test purpose	Check that: Manager does not include Body Temperature Object – Handle Attribute in transcoder output [OR] If manager includes Body Temperature Object – Handle attribute in transcoder output, then its value shall be different than 0
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 5. Check in manager transcoder output for the Body temperature object – Handle attribute
Pass/Fail criteria	In step 5, the Body temperature object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	Possible values in typical points of observation after transcoder output are: <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes Handle attribute is not present, or if it is present then: <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 b) WAN PCD-01 message PCD-01 message does not include segments with a Handle attribute value.

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-005		
TP label	Whitepaper. Body Temperature Object - Type and Metric-Id Attributes 1		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Numeric 2; M	TH Numeric 3; M
Test purpose	<p>Check that:</p> <p>Manager includes Body Temperature Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_TEMP_BODY}</p> <p>[AND]</p> <p>IF Temperature Type field of Temperature Measurement characteristic is not present and Temperature Type characteristic is not present too THEN Body Temperature Object – Metric-Id attribute is set to MDC_TEMP_BODY</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included b. Temperature type (0x2A1D): This characteristic is not present 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 5. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes 		
Pass/Fail criteria	<p>In step 5, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}.</p> <p>In step 5, the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_BODY.</p>		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes 		

	<p>Type attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Body temperature object ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351) ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} ❑ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex) <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Body temperature object ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347) ❑ Attribute-type: INT-U16 ❑ Attribute-value: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX[?][NM]150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6 268192^MDC_DIM_DEGC^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-006		
TP label		Whitepaper. Body Temperature Object - Type and Metric-Id Attributes 2		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	TH Numeric 2; M	TH Numeric 3; M	TH Numeric 4; M
Test purpose		<p>Check that:</p> <p>Manager includes Body Temperature Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_TEMP_BODY}</p> <p>[AND]</p> <p>IF Temperature Type field of Temperature Measurement characteristic is present THEN manager transcodes this field into Body Temperature Object –Metric-Id attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Temperature Type field is included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • Format: 8 bit • Value: Several values are checked in this test case <p>b. Temperature type (0x2A1D): This characteristic is not present.</p> <ol style="list-style-type: none"> 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the field Temperature Type set to Armpit (0x01). 5. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 6. The simulated agent sends the measurement to the manager under test with the field Temperature Type set to Body (general) (0x02). 7. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 8. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Ear (usually earlobe) (0x03). 9. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 10. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Finger (0x04). 11. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 12. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Gastro-intestinal tract (0x05). 13. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 14. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Mouth (0x06). 15. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 16. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Rectum (0x07). 17. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 18. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Toe (0x08). 19. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 20. The simulated agent sends the measurement to the manager under test with field Temperature Type set to Tympanum (ear drum) (0x09). 21. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes.
<p>Pass/Fail criteria</p>	<p>In step 5, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_AXILLA.</p> <p>In step 7, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_BODY.</p>

	<p>In step 9, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY} and Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_EAR</p> <p>In step 11, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_FINGER.</p> <p>In step 13, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_GIT.</p> <p>In step 15, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_ORAL.</p> <p>In step 17, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_RECT.</p> <p>In step 19, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_TOE.</p> <p>In step 21, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_TYMP.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex) <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_TEMP_AXILLA or 57380 (dec) or E0 24 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 188452^MDC_TEMP_AXILLA^MDC 1.0.0.a 35.6 268192^MDC_DIM_DEGC^MDC R [[current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex) <p>Metric-Id attribute is present:</p>

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- ❑ Attribute-type: code (INT-U16)
- ❑ Attribute-value: code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|150364^MDC_TEMP_BODY^MDC|1.0.0.a|35.7|
268192^MDC_DIM_DEGC^MDC||||R|||20120716145210+0000
```

In step 9, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351)
- ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- ❑ Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- ❑ Attribute-type: code (INT-U16)
- ❑ Attribute-value: code: MDC_TEMP_EAR or 57356 (dec) or E0 0C (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|188428^MDC_TEMP_EAR^MDC|1.0.0.a|35.9|
268192^MDC_DIM_DEGC^MDC||||R|||20120716145310+0000
```

In step 11, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351)
- ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- ❑ Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- ❑ Attribute-type: code (INT-U16)
- ❑ Attribute-value: code: MDC_TEMP_FINGER or 57360 (dec) or E0 10 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|188432^MDC_TEMP_FINGER^MDC|1.0.0.a|36.1|
268192^MDC_DIM_DEGC^MDC||||R|||20120716145410+0000
```

In step 13, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- Attribute-type: code (INT-U16)
- Attribute-value: code: MDC_TEMP_GIT or 57384 (dec) or E0 28 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|188456^MDC_TEMP_GIT^MDC|1.0.0.a|36.3|  
268192^MDC_DIM_DEGC^MDC||||R|||20120716145510+0000
```

In step 15, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- Attribute-type: code (INT-U16)
- Attribute-value: code: MDC_TEMP_ORAL or 57352 (dec) or E0 08 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|188424^MDC_TEMP_ORAL^MDC|1.0.0.a|36.5|  
268192^MDC_DIM_DEGC^MDC||||R|||20120716145610+0000
```

In step 17, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- ❑ Attribute-type: code (INT-U16)
- ❑ Attribute-value: code: MDC_TEMP_RECT or 57348 (dec) or E0 04 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|188420^MDC_TEMP_RECT^MDC|1.0.0.a|36.7|
268192^MDC_DIM_DEGC^MDC||||R|||20120716145710+0000
```

In step 19, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351)
- ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- ❑ Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- ❑ Attribute-type: code (INT-U16)
- ❑ Attribute-value: code: MDC_TEMP_TOE or 57376 (dec) or E0 20 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|188448^MDC_TEMP_TOE^MDC|1.0.0.a|36.9|
268192^MDC_DIM_DEGC^MDC||||R|||20120716145810+0000
```

In step 21, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351)
- ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- ❑ Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)

Metric-Id attribute is present:

- ❑ Object: Body temperature object
- ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
- ❑ Attribute-type: code (INT-U16)
- ❑ Attribute-value: code: MDC_TEMP_TYMP or 19320 (dec) or 4B 78 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|150392^MDC_TEMP_TYMP^MDC|1.0.0.a|37.1|
268192^MDC_DIM_DEGC^MDC||||R|||20120716145910+0000
```

TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-007		
TP label		Whitepaper. Body Temperature Object - Type and Metric-Id Attributes 3		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	TH Numeric 2; M	TH Numeric 3; M	TH Numeric 4; M
Test purpose		<p>Check that:</p> <p>Manager includes Body Temperature Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_TEMP_BODY}</p> <p>[AND]</p> <p>IF Temperature Type characteristic is present THEN manager transcodes this characteristic into Body Temperature Object – Metric-Id attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included b. Temperature type (0x2A1D) <ul style="list-style-type: none"> • Type: 8 bit • Value: 0x01 (Armpit) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), force the manager under test to read the Temperature type characteristic. 5. The simulated agent sends the measurement to the manager under test. 6. Check in manager transcoder output for the Body temperature object – Type and Metric-Id attributes. 		
Pass/Fail criteria		In step 6, the Body temperature object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_TEMP_BODY}, and the Body temperature object – Metric-Id attribute is present and its value is MDC_TEMP_AXILLA.		
Notes		Possible values in typical points of observation after transcoder output are:		

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex) <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_TEMP_AXILLA or 57380 (dec) or E0 24 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 188452^MDC_TEMP_AXILLA^MDC 1.0.0.a 35.6 268192^MDC_DIM_DEGC^MDC R current_date_time </pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-008		
TP label		Whitepaper. Body Temperature Object - Metric-Spec-Small Attribute 1		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	TH Numeric 5; M	TH Numeric 6; M	
Test purpose		<p>Check that:</p> <p>When Measurement Interval characteristic is not present then the Manager transcoder sets Body Temperature Object – Metric-Spec-Small attribute to 0xF040 (mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-agent-initiated)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature Measurement Value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp 		

	<ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>v. Field: Temperature Type</p> <ul style="list-style-type: none"> • This field is not included <p>b. Measurement interval (0x2A21): This characteristic is not present.</p> <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Body temperature object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Body temperature object – Metric-Spec-Small attribute is present and its value is 0xF040.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-009		
TP label	Whitepaper. Body Temperature Object - Metric-Spec-Small Attribute 2		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Numeric 5; M	TH Numeric 6; M
Test purpose	<p>Check that:</p> <p>When Measurement Interval characteristic is present and its value is 0 then the Manager transcoder sets Body Temperature Object – Metric-Spec-Small attribute to 0xF040 (mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-agent-initiated)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</p> <p>a. Temperature measurement (0x2A1C)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included <p>ii. Field: Temperature Measurement Value (Celsius)</p>		

	<ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant <p>iii. Field: Temperature Measurement Value (Fahrenheit)</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>v. Field: Temperature Type</p> <ul style="list-style-type: none"> • This field is not included <p>b. Measurement interval (0x2A21)</p> <ul style="list-style-type: none"> • Format: uint16 • Value: 0 <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), force the manager under test to read the Measurement interval characteristic.</p> <p>5. The simulated agent sends the measurement to the manager under test.</p> <p>6. Check in manager transcoder output for the Body temperature object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 6, the Body temperature object – Metric-Spec-Small attribute is present and its value is 0xF040.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-010		
TP label	Whitepaper. Body Temperature Object - Metric-Spec-Small Attribute 3		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Numeric 5; M	TH Numeric 6; M
Test purpose	<p>Check that:</p> <p>When Measurement Interval characteristic is present and its value is different than 0 then the Manager transcoder sets Body Temperature Object – Metric-Spec-Small attribute to 0x4040 (mss-avail-stored-data, mss-acc-agent-initiated)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).		

	<p>2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</p> <p>a. Temperature measurement (0x2A1C)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included <p>ii. Field: Temperature Measurement Value (Celsius)</p> <ul style="list-style-type: none"> • Format: FLOAT • Value: Not relevant <p>iii. Field: Temperature Measurement Value (Fahrenheit)</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>v. Field: Temperature Type</p> <ul style="list-style-type: none"> • This field is not included <p>b. Measurement interval (0x2A21)</p> <ul style="list-style-type: none"> • Format: uint16 • Value: 30 <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), force the manager under test to read the Measurement interval characteristic.</p> <p>5. The simulated agent sends the measurement to the manager under test.</p> <p>6. Check in manager transcoder output for the Body temperature object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 6, the Body temperature object – Metric-Spec-Small attribute is present and its value is 0x4040.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: 40 40 (hex) or BITS mss-avail-stored-data(1), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-011		
TP label		Whitepaper. Body Temperature Object - Unit-Code Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	TH Numeric 7; M	TH Numeric 8; M	
Test purpose		Check that:		

	<p>Manager includes Body Temperature Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Temperature Measurement Value (Celsius) field of Temperature Measurement characteristic is present THEN Body Temperature Object – Unit-Code attribute is set to MDC_DIM_DEGC</p> <p>[AND]</p> <p>IF Temperature Measurement Value (Fahrenheit) field of Temperature Measurement characteristic is present THEN Body Temperature Object – Unit-Code attribute is set to MDC_DIM_FAHR</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: 35.6 iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included 5. Check in manager transcoder output for the Body temperature object – Unit-Code attribute. 6. The simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0011 (MSB → LSB). Temperature measurement value in units of Fahrenheit, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • This field is not included

	<ul style="list-style-type: none"> iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • Format: FLOAT • Value: 98.1 iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Body temperature object – Unit-Code attribute.</p>
Pass/Fail criteria	<p>In step 5, the Body temperature object – Unit-Code attribute is present and its value is MDC_DIM_DEGC.</p> <p>In step 7, the Body temperature object – Unit-Code attribute is present and its value is MDC_DIM_FAHR.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_DEGC or 6048 (dec) or 17 A0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6 268192^MDC_DIM_DEGC^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_FAHR or 4416 (dec) or 11 40 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 98.1 266560^MDC_DIM_FAHR^MDC R 20120801095012+0000</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/TH/BV-012		
TP label	Whitepaper. Body Temperature Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Numeric 10; M	Date-Time Conv 2; M
Date-Time Conv 4; M		Date-Time Conv 5; M	
Test purpose	Check that: Manager transcodes Time Stamp field of Temperature Measurement characteristic into Body		

	<p>Temperature Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: 36.2 iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included 5. Check in manager transcoder output for the Body temperature object – Absolute-Time-Stamp attribute.
Pass/Fail criteria	In step 5, the Body temperature object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field of the Temperature measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec)

	<ul style="list-style-type: none"> • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 36.2 268192^MDC_DIM_DEGC^MDC R 20120802103927+0000</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-013	
TP label		Whitepaper. Body Temperature Object - Simple-Nu-Observed-Value Attribute 1	
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Numeric 11; M	Float Type 1; C
Test purpose		<p>Check that:</p> <p>Manager transcodes Temperature Measurement Value field of Temperature Measurement characteristic into Body Temperature Object - Simple-Nu-Observed-Value attribute</p>	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002	
Other PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.	
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: 35.6 iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant 	

	<ul style="list-style-type: none"> v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0011 (MSB → LSB). Temperature measurement value in units of Fahrenheit, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • This field is not included iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • Format: FLOAT • Value: 98.2 iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In step 5, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value matches with the Temperature Measurement Value (Celsius) field of the Temperature measurement characteristic (35.6).</p> <p>In step 7, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value matches with the Temperature Measurement Value (Fahrenheit) field of the Temperature measurement characteristic (98.2).</p>
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 36 52 40 (hex) or FC 05 6E A0 (hex) or FD 00 8B 10 (hex) or FE 00 0D E8 (hex) or FF 00 01 64 (hex) or 35.6 (dec) <ul style="list-style-type: none"> b) WAN PCD-01 message <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6 268192^MDC_DIM_DEGC^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)

	<ul style="list-style-type: none"> ❑ Attribute-type: FLOAT ❑ Attribute-value: FB 95 D7 60 (hex) or FC 0E FB F0 (hex) or FD 01 7F 98 (hex) or FE 00 26 5C (hex) or FF 00 03 D6 (hex) or 98.2 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <p>OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 98.2 266560^MDC_DIM_FAHR^MDC R 20120802105712+0000</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-014		
TP label		Whitepaper. Body Temperature Object - Simple-Nu-Observed-Value Attribute 2		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	TH Numeric 11; M	Float Type 1; C	Float Type 2; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Temperature Measurement Value field of Temperature Measurement characteristic into Body Temperature Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF), NRes (0x00800000), +INFINITY (0x007FFFFE) and -INFINITY (0x00800002)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> b. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: 35.6 iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included 5. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute. 		

6. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Temperature measurement (0x2A1C)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included
 - ii. Field: Temperature Measurement Value (Celsius)
 - Format: FLOAT
 - Value: 00 7F FF FF (hex). Special value: NaN
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Temperature Type
 - This field is not included
7. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute.
8. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Temperature measurement (0x2A1C)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included
 - ii. Field: Temperature Measurement Value (Celsius)
 - Format: FLOAT
 - Value: 00 08 00 00 (hex). Special value: NRes
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Temperature Type
 - This field is not included
9. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute.
10. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Temperature measurement (0x2A1C)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included
 - ii. Field: Temperature Measurement Value (Celsius)
 - Format: FLOAT
 - Value: 00 07 FF FE (hex). Special value: +INFINITY

	<ul style="list-style-type: none"> iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included <p>11. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute.</p> <p>12. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: 00 08 00 02 (hex). Special value: -INFINITY iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included <p>13. Check in manager transcoder output for the Body temperature object – Simple-Nu-Observed-Value attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 35.6.</p> <p>In step 7, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFFFF.</p> <p>In step 9, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x00800000.</p> <p>In step 11, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFE.</p> <p>In step 13, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x00800002.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body temperature object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 36 52 40 (hex) or FC 05 6E A0 (hex) or FD 00 8B 10 (hex) or FE 00 0D E8 (hex) or FF 00 01 64 (hex) <ul style="list-style-type: none"> b) WAN PCD-01 message <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6 268192^MDC_DIM_DEGC^MDC R current_date_time </pre>

In step 7, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Simple-Nu-Observed-Value attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
- Attribute-type: FLOAT
- Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value)

b) WAN PCD-01 message

PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150364^MDC_TEMP_BODY^MDC) because it has a special value and these values are not included in the PCD-01 message.

In step 9, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Simple-Nu-Observed-Value attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
- Attribute-type: FLOAT
- Attribute-value: 00 08 00 00 (hex) or NRes (note that a decimal value is not allowed)

b) WAN PCD-01 message

PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150364^MDC_TEMP_BODY^MDC) because it has a special value and these values are not included in the PCD-01 message.

In step 11, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Simple-Nu-Observed-Value attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
- Attribute-type: FLOAT
- Attribute-value: 00 7F FF FE (hex) or +INFINITY (note that a decimal value is not allowed)

b) WAN PCD-01 message

PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150364^MDC_TEMP_BODY^MDC) because it has a special value and these values are not included in the PCD-01 message.

In step 13, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Simple-Nu-Observed-Value attribute is present:

- Object: Body temperature object
- Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
- Attribute-type: FLOAT
- Attribute-value: 00 08 00 02 (hex) or -INFINITY (note that a decimal value is not allowed)

b) WAN PCD-01 message

PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150364^MDC_TEMP_BODY^MDC) because it has a special value and these values are not included in the PCD-01 message.

TP Id		TP/LP-PAN/MAN/PHDTW/TH/BV-015		
TP label		Whitepaper. Temperature measurement value		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	TH Numeric 10; M
		TH Numeric 11; M		
Test purpose		Check that: Manager processes correctly the Temperature Measurement Value (Celsius), Temperature Measurement Value (Fahrenheit) and Time Stamp fields of Temperature Measurement characteristic		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_001		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Thermometer profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) <ul style="list-style-type: none"> • Format: FLOAT • Value: 35.8 iii. Field: Temperature Measurement Value (Fahrenheit) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 v. Field: Temperature Type <ul style="list-style-type: none"> • This field is not included 5. Check that the manager accepts the measurement and decodes its value properly (temperature measurement value, temperature units and time stamp). 6. The simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> b. Temperature measurement (0x2A1C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0011 (MSB → LSB). Temperature measurement value in units of Fahrenheit, Time Stamp field is included and Temperature Type field is not included ii. Field: Temperature Measurement Value (Celsius) 		

	<ul style="list-style-type: none"> • This field is not included <p>iii. Field: Temperature Measurement Value (Fahrenheit)</p> <ul style="list-style-type: none"> • Format: FLOAT • Value: 98.2 <p>iv. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:09:05 <p>v. Field: Temperature Type</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check that the manager accepts the measurement and decodes its value properly (temperature measurement value, temperature units and time stamp).</p>
Pass/Fail criteria	<p>In step 5, the manager under test shows the following temperature measurement 35.8 °C with the time stamp '2012-08-02 11:08:25'.</p> <p>In step 7, the manager under test shows the following temperature measurement 97.9F with the time stamp '2012-08-02 11:09:05'.</p>
Notes	

A.4 Subgroup 2.4.3 – Whitepaper Blood pressure requirements (BP)

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-000		
TP label	Whitepaper. Blood Pressure MDS Object - System-Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	BPM Specific MDS 1; M	
Test purpose	<p>Check that:</p> <p>Manager does not include MDS Object – System-Type attribute in transcoder output.</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type attribute. 		
Pass/Fail criteria	In step 4, the MDS object – System-Type attribute is not present.		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type attribute is not present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE (2438) <input type="checkbox"/> Attribute-type: TYPE <input type="checkbox"/> Attribute-value: <NOT PRESENT> <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a System-Type attribute value (67974^MDC_ATTR_SYS_TYPE^MDC).</p>		

TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-001		
TP label		Whitepaper. Blood Pressure MDS Object - Dev-Configuration-Id Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	BPM Specific MDS 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes MDS Object – Dev-Configuration-Id attribute in transcoder output.</p> <p>[AND]</p> <p>Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (Extended Configuration)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – Dev-Configuration-Id attribute. 		
Pass/Fail criteria		In step 4, the MDS object – Dev-Configuration-Id attribute is present and its value is inside the range 0x4000 - 0x7FFF.		
Notes		<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Dev-Configuration-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex) <p>b) WAN PCD-01 message</p> <p>According to [b-ITU-T H.810 (2013)], the Dev-Configuration-Id shall not be transmitted in the PCD-01 message; therefore it is not possible to check this attribute.</p>		

TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-002		
TP label		Whitepaper. Blood Pressure MDS Object - System-Type-Spec-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 15; M	BPM Specific MDS 3; M	
Test purpose		<p>Check that:</p> <p>Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.</p> <p>[AND]</p> <p>System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_BP, Version 1)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		

Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute.
Pass/Fail criteria	In step 4, the MDS object – System-Type-Spec-List attribute is present and its value is (MDC_DEV_SPEC_PROFILE_BP, Version 1).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type-Spec-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650) ❑ Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}] ❑ Attribute-value: <ul style="list-style-type: none"> • type: MDC_DEV_SPEC_PROFILE_BP or 4103 (dec) or 10 07 (hex) • version: 1 (dec) or 00 01 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this (check OBX-3):</p> <p>OBX ? 528391^MDC_DEV_SPEC_PROFILE_BP ^MDC 1 X System-Id </p>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-003		
TP label	Whitepaper. Blood Pressure MDS Object - Reg-Cert-Data-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	Common MDS 14; M	Regulatory Conv 1; M
Test purpose	<p>Check that:</p> <p>Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A) <ul style="list-style-type: none"> • Format: reg-cert-data-list (opaque structure) • Value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 07 02 02 00 02 80 00 (hex) <ol style="list-style-type: none"> i. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) 		

	<ul style="list-style-type: none"> • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 07 (hex). BLE Blood Pressure ii. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with simulated agent.</p> <p>4. When the pairing has been completed (connection state), force the manager under test to read the IEEE 11073-20601 Regulatory Certification Data List characteristic.</p> <p>5. The simulated agent sends the measurement to the manager under test.</p> <p>6. Check in manager transcoder output for the MDS object – Reg-Cert-Data-List attribute.</p>
Pass/Fail criteria	In step 6, the MDS object – Reg-Cert-Data-List attribute is present and its value matches with the IEEE 11073-20601 Regulatory Certification Data List characteristic value.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Reg-Cert-Data-List attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635) <input type="checkbox"/> Attribute-type: SEQUENCE OF [{auth-body-and-struct-type, auth-body-data}, {...}] <input type="checkbox"/> Attribute-value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 07 02 02 00 02 80 00 (hex) [Note that 0x00 0x02 is the number of elements in the sequence and 0x00 12 is the length of the sequence] <ul style="list-style-type: none"> i. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 07 (hex). BLE Blood Pressure ii. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):</p> <pre>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a 2^auth-body-continua R</pre>

	<p>OBX ? ST 532352^MDC_REG_CERT_DATA_CONTINUA_VERSION^MDC 1.0.0.a.x 5.1 R</p> <p>OBX ? NA 532353^MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST^MDC 1.0.0.a.y 32775 R</p> <p>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.b 2^auth-body- continua R</p> <p>OBX ? CWE 532354^MDC_REG_CERT_DATA_CONTINUA_REG_STATUS^MDC 1.0.0.b.z 1^unregulated-device(0) R</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-004		
TP label	Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Handle Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	BP Numeric 1; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Systolic/Diastolic/Map Compound Numeric Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Systolic/Diastolic/Map Compound Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-005		
TP label	Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	BP Numeric 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes Systolic/Diastolic/Map Compound Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_PRESS_BLD_NONINV}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: 		

	<p>a. Blood pressure measurement (0x2A35)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_PRESS_BLD_NONINV}.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}

	<ul style="list-style-type: none"> □ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_PRESS_BLD_NONINV or 18948 (dec) or 4A 04 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute (check OBX-3):</p> <p>OBX ? 150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a X [[current_date_time].</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-006		
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	BP Numeric 3; M		
Test purpose		<p>Check that:</p> <p>Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) 		

	<ul style="list-style-type: none"> • This field is not included <p>viii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-007		
TP label	Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Metric-Structure-Small Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	BP Numeric 4; M	
Test purpose	<p>Check that:</p> <p>Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Structure-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Structure-Small is set to {0x03, 0x03} (ms-struct-compound-fix, 3).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).		

	<p>2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</p> <p>a) Blood pressure measurement (0x2A35)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included <p>ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Metric-Structure-Small attribute.</p>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Metric-Structure-Small attribute is present and its value is {0x03, 0x03} (ms-struct-compound-fix, 3).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_STRUCT_SMALL (2675)

	<ul style="list-style-type: none"> ❑ Attribute-type: SEQUENCE {ms-struct (INT-U8), ms-comp-no (INT-U8)} ❑ Attribute-value: <ul style="list-style-type: none"> • ms-struct Element: 03 (hex), ms-struct-compound-fix(3) • ms-comp-no Element: 03 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Structure-Small attribute value.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-008		
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Metric-Id-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	BP Numeric 5; M		
Test purpose		<p>Check that:</p> <p>Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Id-List attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Id-List is set to {MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, MDC_PRESS_BLD_NONINV_MEAN}.</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) 		

	<ul style="list-style-type: none"> This field is not included <p>viii. Field: Time Stamp</p> <ul style="list-style-type: none"> Format: Date and Time Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> This field is not included <p>x. Field: User ID</p> <ul style="list-style-type: none"> This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Metric-Id-List attribute.</p>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Metric-Id-List attribute is present and its value is {MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, MDC_PRESS_BLD_NONINV_MEAN}.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id-List attribute is present:</p> <ul style="list-style-type: none"> Object: Systolic/Diastolic/Map compound numeric object Attribute-id: MDC_ATTR_ID_PHYSIO_LIST (2678) Attribute-type: SEQUENCE OF [{OID-Type(INT-U16)}] Attribute-value: 00 03 00 06 4A 05 4A 06 4A 07 (hex) [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence] <ul style="list-style-type: none"> First Element: 4A 05 (hex) or 18949 (dec) Second Element: 4A 06 (hex) or 18950 (dec) Third Element: 4A 07 (hex) or 18951 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes three segments like these with a Metric-Id-List attribute values (check OBX-3 in three segments):</p> <pre>OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100 266016^MDC_DIM_MMHG^MDC R</pre> <pre>OBX ? NM 150022^MDC_PRESS_BLD_NONINV_DIA^MDC 1.0.a.y 70 266016^MDC_DIM_MMHG^MDC R</pre> <pre>OBX ? NM 150023^MDC_PRESS_BLD_NONINV_MEAN^MDC 1.0.a.z 80 266016^MDC_DIM_MMHG^MDC R</pre>

TP Id		TP/LP-PAN/MAN/PHDTW/BP/BV-009		
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Unit-Code Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	BP Numeric 6; M	BP Numeric 7; M	

Test purpose	<p>Check that:</p> <p>Manager includes Systolic/Diastolic/Map Compound Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Blood Pressure Measurement Compound Value - Systolic (mmHg), Diastolic (mmHg) and Mean Arterial Pressure (mmHg) fields of Blood Pressure Measurement characteristic are present THEN Systolic/Diastolic/Map Compound Numeric Object – Unit-Code attribute is set to MDC_DIM_MMHG</p> <p>[AND]</p> <p>IF Blood Pressure Measurement Compound Value - Systolic (kPa), Diastolic (kPa) and Mean Arterial Pressure (kPa) fields of Blood Pressure Measurement characteristic are present THEN Systolic/Diastolic/Map Compound Numeric Object – Unit-Code attribute is set to MDC_DIM_KILO_PASCAL</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 100.0 iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 70.0 iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 80.0 v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)

- This field is not included
- viii. Field: Time Stamp
- Format: Date and Time
 - Value: Not relevant
- ix. Field: Pulse Rate
- This field is not included
- x. Field: User ID
- This field is not included
- xi. Field: Measurement Status
- This field is not included
5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute.
6. The simulated agent sends the measurement to the manager under test with the following value:
- a. Blood pressure measurement (0x2A35)
- i. Field: Flags
- Format: 8 bit
 - Value: 0000 0011 (MSB → LSB). Blood pressure measurement value in units of kPa and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included
- ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)
- This field is not included
- iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)
- This field is not included
- iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)
- This field is not included
- v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)
- Format: SFLOAT
 - Value: 13.33
- vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)
- Format: SFLOAT
 - Value: 9.33
- vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)
- Format: SFLOAT
 - Value: 10.67
- viii. Field: Time Stamp
- Format: Date and Time
 - Value: Not relevant
- ix. Field: Pulse Rate
- This field is not included
- x. Field: User ID
- This field is not included
- xi. Field: Measurement Status

	<ul style="list-style-type: none"> This field is not included <p>7. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute.</p>
Pass/Fail criteria	<p>In step 5, the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute is present and its value is MDC_DIM_MMHG.</p> <p>In step 7, the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute is present and its value is MDC_DIM_KILO_PASCAL.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> Object: Systolic/Diastolic/Map compound numeric object Attribute-id: MDC_ATTR_UNIT_CODE (2454) Attribute-type: INT-U16 Attribute-value: MDC_DIM_MMHG or 3872 (dec) or 0F 20 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes three segments like these with Unit-Code attribute value (check OBX-6 in three segments):</p> <pre>OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre> <pre>OBX ? NM 150022^MDC_PRESS_BLD_NONINV_DIA^MDC 1.0.a.y 70 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre> <pre>OBX ? NM 150023^MDC_PRESS_BLD_NONINV_MEAN^MDC 1.0.a.z 80 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre> <p>Note that " [current_date_time]" is optional at the end of each segment because the date and time can be specified in the parent segment (OBX ? 150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a X [current_date_time])</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> Object: Systolic/Diastolic/Map compound numeric object Attribute-id: MDC_ATTR_UNIT_CODE (2454) Attribute-type: INT-U16 Attribute-value: MDC_DIM_KILO_PASCAL or 3843 (dec) or 0F 03 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes three segments like these with Unit-Code attribute value (check OBX-6 in three segments):</p> <pre>OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 13.33 265987^MDC_DIM_KILO_PASCAL^MDC R [current_date_time]</pre> <pre>OBX ? NM 150022^MDC_PRESS_BLD_NONINV_DIA^MDC 1.0.a.y 9.33 265987^MDC_DIM_KILO_PASCAL^MDC R [current_date_time]</pre> <pre>OBX ? NM 150023^MDC_PRESS_BLD_NONINV_MEAN^MDC 1.0.a.z 10.67 265987^MDC_DIM_KILO_PASCAL^MDC R [current_date_time]</pre> <p>Note that " [current_date_time]" is optional at the end of each segment because the date and time can be specified in the parent segment (OBX ? 150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a X [current_date_time])</p>

TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-010		
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	BP Numeric 9; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Time Stamp field of Blood Pressure Measurement characteristic into Systolic/Diastolic/Map Compound Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state) 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 100.0 iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 70.0 iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 80.0 v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field of the Blood pressure measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX[? 150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a X 20120802103927+0000</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-011		
TP label	Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Compound-Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	BP Numeric 10; M	Short Float Type 1; C
Test purpose	Check that:		

	Manager transcodes Blood Pressure Systolic, Diastolic and Map Value fields of Blood Pressure Measurement characteristic into Systolic/Diastolic/Map Compound Numeric Object - Compound-Basic-Nu-Observed-Value attribute
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 100.0 iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 70.0 iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 80.0 v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status

	<ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <p>a. Blood pressure measurement (0x2A35)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0011 (MSB → LSB). Blood pressure measurement value in units of kPa, Time Stamp field is included and Pulse Rate, User ID and measurement Status fields are not included <p>ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)</p> <ul style="list-style-type: none"> • This field is not included <p>iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 13.33 <p>vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 9.33 <p>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</p> <p>viii. Format: SFLOAT</p> <ul style="list-style-type: none"> • Value: 10.67 <p>ix. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>x. Field: Pulse Rate</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value matches with the blood pressure measurement value (mmHg) fields of the Blood pressure measurement characteristic (Systolic: 100.0, Diastolic:70.0, MAP: 80.0).</p> <p>In step 7, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value matches with the blood pressure measurement value (kPa) fields of the Blood pressure measurement characteristic (Systolic: 13.33, Diastolic:9.33, MAP: 10.67).</p>

<p>Notes</p>	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Compound-Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Systolic/Diastolic/Map compound numeric object ❑ Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677) ❑ Attribute-type: SEQUENCE OF [{SFLOAT}] ❑ Attribute-value: 00 03 00 06 xx xx yy yy zz zz (hex), where 'xx xx' is the Systolic value, 'yy yy' is the Diastolic value and 'zz zz' is the MAP value [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence] <ul style="list-style-type: none"> • Systolic: F3 E8 (hex) or 00 64 (hex) or 10 0A (hex) or 20 01 (hex) or 100.0 (dec) • Diastolic: F2 BC (hex) or 00 46 (hex) or 10 07 (hex) or 70.0 (dec) • MAP: F3 20 (hex) or 00 50 (hex) or 10 08 (hex) or 80.0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes three segments like these with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre> <pre>OBX ? NM 150022^MDC_PRESS_BLD_NONINV_DIA^MDC 1.0.a.y 70 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre> <pre>OBX ? NM 150023^MDC_PRESS_BLD_NONINV_MEAN^MDC 1.0.a.z 80 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre> <p>Note that "[current_date_time]" is optional at the end of each segment because the date and time can be specified in the parent segment (OBX ? 150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a X [current_date_time])</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Systolic/Diastolic/Map compound numeric object ❑ Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677) ❑ Attribute-type: SEQUENCE OF [{SFLOAT}] ❑ Attribute-value: 00 03 00 06 E5 35 E3 A5 E4 2B (hex) [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence] <ul style="list-style-type: none"> • Systolic: E5 35 (hex) or 13.33 (dec) • Diastolic: E3 A5 (hex) 9.33 (dec) • MAP: E4 2B (hex) 10.67 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes three segments like these with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 13.33 265987^MDC_DIM_KILO_PASCAL^MDC R [current_date_time]</pre> <pre>OBX ? NM 150022^MDC_PRESS_BLD_NONINV_DIA^MDC 1.0.a.y 9.33 265987^MDC_DIM_KILO_PASCAL^MDC R [current_date_time]</pre> <pre>OBX ? NM 150023^MDC_PRESS_BLD_NONINV_MEAN^MDC 1.0.a.z 10.67 265987^MDC_DIM_KILO_PASCAL^MDC R [current_date_time]</pre> <p>Note that "[current_date_time]" is optional at the end of each segment because the date and</p>
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	time can be specified in the parent segment(OBX ? 150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a X [current_date_time])
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TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-012		
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Compound-Basic-Nu-Observed-Value Attribute 2		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	BP Numeric 10; M	Short Float Type 1; C	Short Float Type 2; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Blood Pressure Systolic, Diastolic and Map Value fields of Blood Pressure Measurement characteristic into Systolic/Diastolic/Map Compound Numeric Object - Compound-Basic-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 100.0 iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 70.0 iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 80.0 v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included 		

- vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)
 - This field is not included
 - viii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - ix. Field: Pulse Rate
 - This field is not included
 - x. Field: User ID
 - This field is not included
 - xi. Field: Measurement Status
 - This field is not included
5. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.
6. The simulated agent sends the measurement to the manager under test with the following value:
- a. Blood pressure measurement (0x2A35)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included
 - ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)
 - Format: SFLOAT
 - Value: 07 FF (hex). Special value: NaN
 - iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)
 - Format: SFLOAT
 - Value: 07 FF (hex). Special value: NaN
 - iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)
 - Format: SFLOAT
 - Value: 07 FF (hex). Special value: NaN
 - v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)
 - This field is not included
 - vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)
 - This field is not included
 - vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)
 - This field is not included
 - viii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - ix. Field: Pulse Rate
 - This field is not included
 - x. Field: User ID
 - This field is not included

- xi. Field: Measurement Status
 - This field is not included
7. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.
 8. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Blood pressure measurement (0x2A35)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included
 - ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)
 - Format: SFLOAT
 - Value: 08 00 (hex). Special value: NRes
 - iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)
 - Format: SFLOAT
 - Value: 08 00 (hex). Special value: NRes
 - iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)
 - Format: SFLOAT
 - Value: 08 00 (hex). Special value: NRes
 - v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)
 - This field is not included
 - vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)
 - This field is not included
 - vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)
 - This field is not included
 - viii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - ix. Field: Pulse Rate
 - This field is not included
 - x. Field: User ID
 - This field is not included
 - xi. Field: Measurement Status
 - This field is not included
9. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.
10. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Blood pressure measurement (0x2A35)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and

	<p>measurement Status fields are not included</p> <ul style="list-style-type: none"> ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>11. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</p> <p>12. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 08 02 (hex). Special value: -INFINITY iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 08 02 (hex). Special value: -INFINITY iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT
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	<ul style="list-style-type: none"> • Value: 08 02 (hex). Special value: -INFINITY <p>v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>13. Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value is 100.0 for Systolic, 70.0 for Diastolic and 80.0 for MAP.</p> <p>In step 7, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value is 0x07FF for Systolic, Diastolic and MAP.</p> <p>In step 9, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value is 0x0800 for Systolic, Diastolic and MAP.</p> <p>In step 11, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value is 0x07FE for Systolic, Diastolic and MAP.</p> <p>In step 13, the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute is present and its value is 0x0802 for Systolic, Diastolic and MAP.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Compound-Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677) <input type="checkbox"/> Attribute-type: SEQUENCE OF [{SFLOAT}] <input type="checkbox"/> Attribute-value: 00 03 00 06 xx xx yy yy zz zz (hex), where ‘xx xx’ is the Systolic value, ‘yy yy’ is the Diastolic value and ‘zz zz’ is the MAP value [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence] <ul style="list-style-type: none"> • Systolic: F3 E8 (hex) or 00 64 (hex) or 10 0A (hex) or 20 01 (hex) or 100.0 (dec) • Diastolic: F2 BC (hex) or 00 46 (hex) or 10 07 (hex) or 70.0 (dec) • MAP: F3 20 (hex) or 00 50 (hex) or 10 08 (hex) or 80.0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100 266016^MDC_DIM_MMHG^MDC R [current_date_time]</pre>

OBX|?|NM|150022^MDC_PRESS_BLD_NONINV_DIA^MDC|1.0.a.y|70|
266016^MDC_DIM_MMHG^MDC||||R||||[current_date_time]

OBX|?|NM|150023^MDC_PRESS_BLD_NONINV_MEAN^MDC|1.0.a.z|80|
266016^MDC_DIM_MMHG^MDC||||R||||[current_date_time]

Note that "[current_date_time]" is optional at the end of each segment because the date and time can be specified in the parent segment

(OBX|?|150020^MDC_PRESS_BLD_NONINV^MDC|1.0.a||||X||||[current_date_time])

In step 7, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Compound-Basic-Nu-Observed-Value attribute is present:

- Systolic/Diastolic/Map compound numeric object
- Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677)
- Attribute-type: SEQUENCE OF [{SFLOAT}]
- Attribute-value: 00 03 00 06 07 FF 07 FF 07 FF (hex) [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence]
 - Systolic: 07 FF (hex) or NaN (note that is not allowed a decimal value)
 - Diastolic: 07 FF (hex) or NaN (note that is not allowed a decimal value)
 - MAP: 07 FF (hex) or NaN (note that is not allowed a decimal value)

b) WAN PCD-01 message

PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150021^MDC_PRESS_BLD_NONINV_SYS^MDC, 150022^MDC_PRESS_BLD_NONINV_DIA^MDC and 150023^MDC_PRESS_BLD_NONINV_MEAN) because they have a special value and these values are not included in the PCD-01 message.

In step 9, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Compound-Basic-Nu-Observed-Value attribute is present:

- Systolic/Diastolic/Map compound numeric object
- Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677)
- Attribute-type: SEQUENCE OF [{SFLOAT}]
- Attribute-value: 00 03 00 06 08 00 08 00 08 00 (hex) [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence]
 - Systolic: 08 00 (hex) or NRes (note that a decimal value is not allowed)
 - Diastolic: 08 00 (hex) or NRes (note that a decimal value is not allowed)
 - MAP: 08 00 (hex) or NRes (note that a decimal value is not allowed)

b) WAN PCD-01 message

PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150021^MDC_PRESS_BLD_NONINV_SYS^MDC, 150022^MDC_PRESS_BLD_NONINV_DIA^MDC and 150023^MDC_PRESS_BLD_NONINV_MEAN) because they have a special value and these values are not included in the PCD-01 message.

In step 11, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Compound-Basic-Nu-Observed-Value attribute is present:

- Systolic/Diastolic/Map compound numeric object
- Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677)
- Attribute-type: SEQUENCE OF [{SFLOAT}]
- Attribute-value: 00 03 00 06 07 FE 07 FE 07 FE (hex) [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence]

	<ul style="list-style-type: none"> • Systolic: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed) • Diastolic: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed) • MAP: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150021^MDC_PRESS_BLD_NONINV_SYS^MDC, 150022^MDC_PRESS_BLD_NONINV_DIA^MDC and 150023^MDC_PRESS_BLD_NONINV_MEAN) because they have a special value and these values are not included in the PCD-01 message.</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Compound-Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Systolic/Diastolic/Map compound numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC (2677) <input type="checkbox"/> Attribute-type: SEQUENCE OF [{SFLOAT}] <input type="checkbox"/> Attribute-value: 00 03 00 06 08 02 08 02 08 02 (hex) [Note that 0x00 0x03 is the number of elements in the sequence and 0x00 06 is the length of the sequence] <ul style="list-style-type: none"> • Systolic: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) • Diastolic: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) • MAP: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (150021^MDC_PRESS_BLD_NONINV_SYS^MDC, 150022^MDC_PRESS_BLD_NONINV_DIA^MDC and 150023^MDC_PRESS_BLD_NONINV_MEAN) because they have a special value and these values are not included in the PCD-01 message.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-013		
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Blood Pressure measurement value		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Short Float Type 1; C	Date-Time Conv 1; M	BP Numeric 9; M
		BP Numeric 10; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Blood Pressure Measurement Compound Value (mmHg), Blood Pressure Measurement Compound Value (kPa) and Time Stamp fields of Blood Pressure Measurement</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_003		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: 		

	<ul style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 100.0 iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 70.0 iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 80.0 v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included 5. Check that the manager accepts the measurement and decodes its value properly (measurement values, units and time stamp). 6. The simulated agent sends the measurement to the manager under test with the following value: <ul style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0011 (MSB → LSB). Blood pressure measurement value in units of kPa and Time Stamp fields are included, Pulse Rate, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • This field is not included iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • This field is not included
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	<ul style="list-style-type: none"> iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • This field is not included v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 13.33 vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 9.33 vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • Format: SFLOAT • Value: 10.67 viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:09:05 ix. Field: Pulse Rate <ul style="list-style-type: none"> • This field is not included x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>7. Check that the manager under test accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p>
Pass/Fail criteria	<p>In step 5, the manager under test shows the following measurement: 100.0 mmHg for Systolic, 70.0 mmHg for Diastolic and 80.0 mmHg for MAP, with the time stamp '2012-08-02 11:08:25'.</p> <p>In step 7, the manager under test shows the following measurement 13.33 kPa for Systolic, 9.33 kPa for Diastolic and 10.67 kPa for MAP, with the time stamp '2012-08-02 11:09:05'.</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-014		
TP label	Whitepaper. Pulse Rate Object - Handle Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	PR Numeric 1; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Pulse Rate Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Pulse Rate Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).		

	<p>2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</p> <p>a. Blood pressure measurement (0x2A35)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included <p>ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>x. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Pulse rate object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Pulse rate object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object

	<ul style="list-style-type: none"> ❑ Attribute-id: MDC_ATTR_ID_HANDLE (2337) ❑ Attribute-type: INT-U16 ❑ Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-015		
TP label	Whitepaper. Pulse Rate Object - Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	PR Numeric 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes Systolic Pulse Rate Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_PULS_RATE_NON_INV}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp 		

	<ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>x. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>4. Check in manager transcoder output for the Pulse rate object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Pulse rate object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_PULS_RATE_NON_INV}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_PULS_RATE_NON_INV or 18474 (dec) or 48 2A (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 49546^MDC_PULS_RATE_NON_INV^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-016		
TP label	Whitepaper. Pulse Rate Object - Metric-Spec-Small Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	PR Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes Pulse Rate Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of 		

	<p>interest for this test case is:</p> <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 5. Check in manager transcoder output for the Pulse rate object – Metric-Spec-Small attribute.
Pass/Fail criteria	In step 4, the Pulse rate object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object

	<ul style="list-style-type: none"> ❑ Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) ❑ Attribute-type: BITS-16 ❑ Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-017		
TP label	Whitepaper. Pulse Rate Object - Unit-Code Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	PR Numeric 4; M	
Test purpose	<p>Check that:</p> <p>Manager includes Pulse Rate Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Blood Pressure Measurement – Pulse Rate field of Blood Pressure Measurement characteristic is present THEN Pulse Rate Object – Unit-Code attribute is set to MDC_DIM_BEAT_PER_MIN</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp field and Pulse Rate field are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) 		

	<ul style="list-style-type: none"> • This field is not included <p>vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>ix. Field: Pulse Rate</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 110.0 <p>x. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Pulse rate object – Unit-Code attribute.</p>
Pass/Fail criteria	In step 5, the Pulse rate object – Unit-Code attribute is present and its value is MDC_DIM_BEAT_PER_MIN.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_BEAT_PER_MIN or 2720 (dec) or 0A A0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 149546^ MDC_PULS_RATE_NON_INV ^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-018			
TP label	Whitepaper. Pulse Rate Object - Absolute-Time-Stamp Attribute			
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	PR Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Time Stamp field of Blood Pressure Measurement characteristic into Pulse Rate Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005			

Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 110.0 x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included 5. Check in manager transcoder output for the SystolicPulse rate object – Absolute-Time-Stamp attribute.
Pass/Fail criteria	In step 5, the Pulse rate object – Absolute-Time-Stamp attribute is present, its value matches

	with the Time Stamp field of the Blood pressure measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? NM 149546^MDC_PULS_RATE_NON_INV^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN^MDC R 20120802103927+0000</p>

TP Id	TP/LP-PAN/MAN/PHDTW/BPM/BV-019		
TP label	Whitepaper. Pulse Rate Object - Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	PR Numeric 7; M	Short Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager transcodes Blood Pressure Measurement – Heart Rate field of Blood Pressure Measurement characteristic into Pulse Rate Object - Simple-Nu-Observed-Value attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood Pressure Measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags 		

	<ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included <ol style="list-style-type: none"> ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 110.0 x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>5. Check the output of the manager transcoder for the Pulse rate object – Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	In step 5, the Heart rate object – Basic-Nu-Observed-Value attribute is present and its value matches with the Blood Pressure Measurement – Heart Rate Value (bpm) field of the Blood pressure measurement characteristic (110).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec) b) WAN PCD-01 message <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p>

		OBX ? NM 149546^ MDC_PULS_RATE_NON_INV ^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN^MDC R current_date_time]		
TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-020		
TP label		Whitepaper. Pulse Rate Object - Basic-Nu-Observed-Value Attribute 2		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	PR Numeric 7; M	Short Float Type 1; C	Short Float Type 2; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Blood Pressure Measurement- Heart rate field of Blood Pressure Measurement characteristic into Heart Rate Object - Basic-Nu-Observed-Value attribute [AND]</p> <p>Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_;;MAN_BLE_005		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 110.0 x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed-Value attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FF (hex). Special value: NaN x. Field: User ID <ul style="list-style-type: none"> • This field is not included
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- xi. Field: Measurement Status
 - This field is not included
- 7. Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed-Value attribute.
- 8. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Blood pressure measurement (0x2A35)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included
 - ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)
 - Format: SFLOAT
 - Value: Not relevant
 - iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)
 - Format: SFLOAT
 - Value: Not relevant
 - iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)
 - Format: SFLOAT
 - Value: Not relevant
 - v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa)
 - This field is not included
 - vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa)
 - This field is not included
 - vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)
 - This field is not included
 - viii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - ix. Field: Pulse Rate
 - Format: SFLOAT
 - Value: 08 00 (hex). Special value: NRes
 - x. Field: User ID
 - This field is not included
 - xi. Field: Measurement Status
 - This field is not included
- 9. Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed-Value attribute.
- 10. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Blood pressure measurement (0x2A35)
 - i. Field: Flags
 - Format: 8 bit

	<ul style="list-style-type: none"> • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included <ol style="list-style-type: none"> ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>11. Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed-Value attribute.</p> <p>12. The simulated agent sends the measurement to the manager under test with the following value:</p> <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant
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	<ul style="list-style-type: none"> iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 08 02 (hex). Special value: -INFINITY x. Field: User ID <ul style="list-style-type: none"> • This field is not included xi. Field: Measurement Status <ul style="list-style-type: none"> • This field is not included <p>13. Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed-Value attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Pulse rate object – Basic-Nu-Observed-Value attribute is present and its value is 110.</p> <p>In step 7, the Pulse rate object – Basic-Nu-Observed-Value attribute is present and its value is 0x07FF.</p> <p>In step 9, the Pulse rate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.</p> <p>In step 11, the Pulse rate object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.</p> <p>In step 13, the Pulse rate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Pulse rate object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX[? NM 149546^MDC_PULS_RATE_NON_INV^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN^MDC R current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p>

	<p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Pulse rate object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: 07 FF (hex) or NaN (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Pulse rate object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: 08 00 (hex) or NRes (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Pulse rate object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: 07 FF (hex) or +INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Pulse rate object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Simple-Nu-Observed-Value attribute value (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and these values are not included in the PCD-01 message.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/BPM/BV-021		
TP label		Whitepaper. Pulse Rate measurement value		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable	Short Float Type 1; C	Date-Time Conv 1; M	PR Numeric 6; M

	items	PR Numeric 7; M	
Test purpose	Check that: Manager processes correctly the Pulse Rate Value (bpm) and Time Stamp fields of Blood Pressure Measurement		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Blood pressure profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Blood pressure measurement (0x2A35) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User ID and measurement Status fields are not included ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg) <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant v. Field: Blood Pressure Measurement Compound Value – Systolic (kPa) <ul style="list-style-type: none"> • This field is not included vi. Field: Blood Pressure Measurement Compound Value – Diastolic (kPa) <ul style="list-style-type: none"> • This field is not included vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa) <ul style="list-style-type: none"> • This field is not included viii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 ix. Field: Pulse Rate <ul style="list-style-type: none"> • Format: SFLOAT • Value: 110.0 x. Field: User ID <ul style="list-style-type: none"> • This field is not included 		

	<p>xi. Field: Measurement Status</p> <ul style="list-style-type: none"> This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (pulse rate measurement value, pulse rate units and time stamp).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following measurement Pulse Rate = 110 beats per minute (bpm) with the time stamp '2012-08-02 10:39:27'.
Notes	

A.5 Subgroup 2.4.4 – Whitepaper Heart-rate requirements (HR)

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-000		
TP label	Whitepaper. Heart Rate MDS Object - System-Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Specific MDS 1; M	
Test purpose	<p>Check that:</p> <p>Manager does not include MDS Object – System-Type attribute in transcoder output.</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. Check in manager transcoder output for the MDS object – System-Type attribute. 		
Pass/Fail criteria	In step 4, the MDS object – System-Type attribute is not present.		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type attribute is not present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE (2438) <input type="checkbox"/> Attribute-type: TYPE <input type="checkbox"/> Attribute-value: <NOT PRESENT> <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a System-Type attribute value (67974^MDC_ATTR_SYS_TYPE^MDC).</p>		

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-001		
TP label	Whitepaper. Heart Rate MDS Object - Dev-Configuration-Id Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Specific MDS 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes MDS Object – Dev-Configuration-Id attribute in transcoder output.</p> <p>[AND]</p>		

	Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (Extended Configuration)
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – Dev-Configuration-Id attribute.
Pass/Fail criteria	In step 4, the MDS object – Dev-Configuration-Id attribute is present, its value is inside the range 0x4000 - 0x7FFF.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes Dev-Configuration-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex) <p>b) WAN PCD-01 message</p> <p>According to [b-ITU-T H.810 (2013)], the Dev-Configuration-Id shall not be transmitted in the PCD-01 message; therefore it is not possible to check this attribute.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-002		
TP label	Whitepaper. Heart Rate MDS Object - System-Type-Spec-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	Common MDS 15; M	HR Specific MDS 3; M
Test purpose	<p>Check that:</p> <p>Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.</p> <p>[AND]</p> <p>System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_ECG, Version 1), (MDC_DEV_SPEC_PROFILE_HF_CARDIO, Version 1), (MDC_DEV_SUB_SPEC_PROFILE_HR, Version 1)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute. 		
Pass/Fail criteria	In step 4, the MDS object – System-Type-Spec-List attribute is present, its value is		

	(MDC_DEV_SPEC_PROFILE_ECG, Version 1), (MDC_DEV_SUB_SPEC_PROFILE_HR, Version 1).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type-Spec-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650) ❑ Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}] ❑ Attribute-value: <ul style="list-style-type: none"> • type: MDC_DEV_SPEC_PROFILE_ECG or 4102 (dec) or 10 06 (hex) • version: 1 (dec) or 00 01 (hex) • type: MDC_DEV_SUB_SPEC_PROFILE_HR or 4237 (dec) or 10 8D (hex) • version: 1 (dec) or 00 01 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes two segments like these (check OBX-3 in the first segment and OBX-5 in the second):</p> <pre>OBX ? 528384^MDC_DEV_SPEC_PROFILE_HYDRA^MDC 1 X [System-Id] OBX ? CWE 68186^MDC_ATTR_SYS_TYPE_SPEC_LIST^MDC 1.0.0.a 528390^MDC_DEV_SPEC_PROFILE_ECG^MDC~ 528525^MDC_DEV_SUB_SPEC_PROFILE_HR^MDC R</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-003		
TP label	Whitepaper. Heart Rate MDS Object - Reg-Cert-Data-List Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	Common MDS 14; M	Regulatory Conv 1; M
Test purpose	Check that: Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A) <ul style="list-style-type: none"> • Format: reg-cert-data-list (opaque structure) • Value: 00 02 00 14 02 01 00 0A 05 01 00 04 80 06 80 8D 02 02 00 02 80 00 (hex) <ol style="list-style-type: none"> i. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05(hex) 		

	<ul style="list-style-type: none"> - minor-IG-version: 01(hex) - certified-devices: 80 06 80 8D (hex). BLE ECG and BLE Heart Rate <p>ii. Element:</p> <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent.</p> <p>4. When the pairing has been completed (connection state), force the manager under test to read the IEEE 11073-20601 Regulatory Certification Data List characteristic.</p> <p>5. The simulated agent sends the measurement to the manager under test.</p> <p>6. Check in manager transcoder output for the MDS object – Reg-Cert-Data-List attribute.</p>
Pass/Fail criteria	In step 6, the MDS object – Reg-Cert-Data-List attribute is present and its value matches with the IEEE 11073-20601 Regulatory Certification Data List characteristic value.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Reg-Cert-Data-List attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635) <input type="checkbox"/> Attribute-type: SEQUENCE OF [{auth-body-and-struct-type, auth-body-data}, {...}] <input type="checkbox"/> Attribute-value: 00 02 00 14 02 01 00 0A 05 01 00 02 00 04 80 06 80 8D 02 02 00 02 80 00 <p>i. Reg-Cert-Data Element:</p> <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05(hex) - minor-IG-version: 01(hex) - certified-devices: 80 06 80 8D (hex). BLE ECG and BLE Heart Rate <p>ii. Reg-Cert-Data Element:</p> <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in four segments):</p> <pre>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a 2^auth-body-continua R OBX ? ST 532352^MDC_REG_CERT_DATA_CONTINUA_VERSION^MDC 1.0.0.a.x 5.1 R</pre>

	OBX ? NA 532353^MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST^MDC 1.0.0.a.y 32774~32909 R OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.b 2^auth-body-continua R OBX ? CWE 532354^MDC_REG_CERT_DATA_CONTINUA_REG_STATUS^MDC 1.0.0.b.z 1^unregulated-device(0) R
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TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-004		
TP label	Whitepaper. Heart Rate MDS Object - Tick Resolution Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Specific MDS 5; M	
Test purpose	Check that: Manager includes MDS Object – Tick Resolution attribute in transcoder output.		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are present, Energy Expended field is not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • Format: List of uint16 • Value: Not relevant 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 5. Check in manager transcoder output for the MDS object – Tick Resolution attribute. 		
Pass/Fail criteria	In step 5, the MDS object – Tick Resolution attribute is present and its value is 1024 ticks per second.		
Notes	Possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes		

	<p>Tick Resolution attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_TICK_RES (2693) ❑ Attribute-type: FLOAT ❑ Attribute-value: 00 00 04 00 (hex) or FF 00 28 00 (hex) or FE 01 90 00 (hex) or FD 0F A0 00 (hex) or FC 9C 40 00 (hex) or 1024 (dec) <p>b) WAN PCD-01 message</p> <p>OBX ? NM 68229^MDC_ATTR_TICK_RES^MDC 1.0.0.a 1024 265842^MDC_DIM_PER_SEC^MDC R</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/HR/BV-005	
TP label		Whitepaper. Heart Rate Measurement Object - Handle Attribute	
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Numeric 1; O	
Test purpose		<p>Check that:</p> <p>Manager does not include Heart rate Measurement Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Heart Rate Measurement Object – Handle attribute in transcoder output, then its value shall be different than 0</p>	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004	
Other PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.	
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, RR-Interval and Energy Expended fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 	

	5. Check in manager transcoder output for the Heart rate measurement object – Handle attribute.
Pass/Fail criteria	In step 5, the Body temperature object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> ❑ Object: Heart rate measurement object ❑ Attribute-id: MDC_ATTR_ID_HANDLE (2337) ❑ Attribute-type: INT-U16 ❑ Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-006		
TP label	Whitepaper. Heart Rate Measurement Object - Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Numeric 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes Heart Rate Measurement Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_ECG_HEART_RATE_INSTANT}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, RR-Interval and Energy Expended fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the 		

	<p>simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Heart rate measurement object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Heart rate measurement object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_ECG_HEART_RATE_INSTANT}.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Heart rate measurement object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_ECG_HEART_RATE_INSTANT or 21982 (dec) or 55 DE (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC 1.0.0.a 90 264864^MDC_DIM_BEAT_PER_MIN^MDC R</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-007		
TP label	Whitepaper. Heart Rate Measurement Object - Metric-Spec-Small Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes Heart Rate Measurement Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0x4040} (mss-avail-stored-data, mss-acc-agent-initiated).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, RR-Interval and Energy Expended fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant 		

	<ul style="list-style-type: none"> iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Heart rate measurement object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Heart rate measurement object – Metric-Spec-Small attribute is present and its value is {0x4040} (mss-avail-stored-data, mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Heart rate measurement object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: 40 40 (hex) or BITS mss-avail-stored-data(1), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-008		
TP label	Whitepaper. Heart Rate Measurement Object - Unit-Code Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Numeric 4; M	
Test purpose	<p>Check that:</p> <p>Manager includes Heart Rate Measurement Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>Heart Rate Measurement Object – Unit-Code attribute is set to MDC_DIM_BEAT_PER_MIN</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 		

	<ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format is included, Energy Expended and RR-Interval fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: 90 iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Heart rate measurement object – Unit-Code attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Heart rate measurement value in uint16 format field is included, Energy Expended and RR-Interval fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • This field is not included iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • Format: uint16 • Value: 110 iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Heart rate measurement object – Unit-Code attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Heart rate measurement object – Unit-Code attribute is present and its value is MDC_DIM_BEAT_PER_MIN.</p> <p>In step 7, the Heart rate measurement object – Unit-Code attribute is present and its value is MDC_DIM_BEAT_PER_MIN.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Heart rate measurement object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_BEAT_PER_MIN or 2720 (dec) or 0A A0 (hex) <ul style="list-style-type: none"> b) WAN PCD-01 message

	<p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6): OBX ? NM 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC 1.0.0.a 90 264864^MDC_DIM_BEAT_PER_MIN ^MDC R [current_date_time]</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Heart rate measurement object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_BEAT_PER_MIN or 2720 (dec) or 0A A0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6): OBX ? NM 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN ^MDC R [current_date_time]</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/HR/BV-009	
TP label		Whitepaper. Heart Rate Measurement Object - Simple-Nu-Observed-Value Attribute	
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Numeric 6; M	
Test purpose		Check that: Manager transcodes Heart Rate Measurement Value field of Heart Rate Measurement characteristic into Heart Rate Measurement Object - Simple-Nu-Observed-Value attribute	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004	
Other PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.	
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0000 (MSB → LSB). Heart Rate Measurement Value in uint8 format field is included, Energy Expended and RR-Interval fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: 90 iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included 	

	<ul style="list-style-type: none"> iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Heart rate measurement object – Simple-Nu-Observed-Value attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Heart rate measurement value in uint16 format field is included, Energy Expended and RR-Interval fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • This field is not included iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • Format: uint16 • Value: 110 iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Heart rate measurement object – Simple-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In step 5, the Heart rate measurement object – Simple-Nu-Observed-Value attribute is present and its value matches with the Heart Rate Measurement Value (INT-U8) field of the Heart rate measurement characteristic (90).</p> <p>In step 7, the Heart rate measurement object – Simple-Nu-Observed-Value attribute is present and its value matches with the Heart Rate Measurement Value (INT-U16) field of the Heart rate measurement characteristic (110).</p>
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Heart rate measurement object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 00 00 00 5A (hex) or 90 (dec) [Note that exponent value for this FLOAT value must be 0] <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC 1.0.0.a 90 264864^MDC_DIM_BEAT_PER_MIN^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Heart rate measurement object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)

	<ul style="list-style-type: none"> ❑ Attribute-type: FLOAT ❑ Attribute-value: 00 00 00 6E (hex) or 110 (dec) [Note that exponent value for this FLOAT value must be 0] <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <p>OBX ? NM 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC 1.0.0.a 110 264864^MDC_DIM_BEAT_PER_MIN ^MDC R [current_date_time]</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-010		
TP label	Whitepaper. RR-Interval Object - Handle Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	RR Numeric 1; O	
Test purpose	<p>Check that:</p> <p>Manager does not include RR-Interval Object – Handle Attribute in transcoder output [OR]</p> <p>If manager includes RR-Interval Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • Format: List of uint16 • Value: Not relevant 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test. 5. Check in manager transcoder output for the RR-Interval object – Handle attribute. 		

Pass/Fail criteria	In step 5, the RR-Interval object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: RR-Interval object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-011		
TP label	Whitepaper. RR-Interval Object - Type Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	RR Numeric 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes RR-Interval Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_ECG_TIME_PD_RR_GL}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • Format: List of uint16 • Value: Not relevant 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 		

	<p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the RR-Interval object – Type attribute.</p>
Pass/Fail criteria	In step 5, the RR-Interval object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_ECG_TIME_PD_RR_GL}.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: RR-Interval object ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351) ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} ❑ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_ECG_TIME_PD_RR_GL or 16168 (dec) or 3F 28 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes two segments like these with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 147240^MDC_ECG_TIME_PD_RR_GL^MDC 1.0.0.a 600 268992^MDC_DIM_TICK^MDC R [[current_date_time]] OBX ? NM 147240^MDC_ECG_TIME_PD_RR_GL^MDC 1.0.0.b 900 268992^MDC_DIM_TICK^MDC R [[current_date_time]]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-012		
TP label	Whitepaper. RR-Interval Object - Metric-Spec-Small Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	RR Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes RR-Interval Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0x5440} (mss-avail-stored-data, mss-acc-agent-initiated, mss-msmt-btb-metric, mss-msmt-aperiodic).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 		

	<ul style="list-style-type: none"> • Value: Not relevant <p>iii. Field: Heart Rate Measurement Value (uint16)</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Energy Expended</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: RR-Interval</p> <ul style="list-style-type: none"> • Format: List of uint16 • Value: Not relevant <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the RR-Interval object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the RR-Interval object – Metric-Spec-Small attribute is present and its value is {0x5440} (mss-avail-stored-data, mss-acc-agent-initiated, mss-msmt-btb-metric, mss-msmt-aperiodic).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: RR-Interval object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: 54 40 (hex) or BITS mss-avail-stored-data(1), mss-msmt-aperiodic (3), mss-msmt-btb-metric (5), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-013		
TP label	Whitepaper. RR-Interval Object - Unit-Code Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	RR Numeric 5; M	
Test purpose	<p>Check that:</p> <p>Manager includes RR-Interval Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>RR-Interval Object – Unit-Code attribute is set to MDC_DIM_TICK</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Heart rate profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 3. The manager under test initiates a discovery process (scanning state). It discovers the 		

	<p>simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value:</p> <p>i. Heart rate measurement (0x2A37)</p> <p> i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included <p> ii. Field: Heart Rate Measurement Value (uint8)</p> <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant <p> iii. Field: Heart Rate Measurement Value (uint16)</p> <ul style="list-style-type: none"> • This field is not included <p> iv. Field: Energy Expended</p> <ul style="list-style-type: none"> • This field is not included <p> v. Field: RR-Interval</p> <ul style="list-style-type: none"> • Format: List of uint16 • Value: Not relevant <p>5. Check in manager transcoder output for the RR-Interval object – Unit-Code attribute.</p>
Pass/Fail criteria	In step 5, the RR-Interval object – Unit-Code attribute is present and its value is MDC_DIM_TICK.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: RR Interval object ❑ Attribute-id: MDC_ATTR_UNIT_CODE (2454) ❑ Attribute-type: INT-U16 ❑ Attribute-value: MDC_DIM_TICK or 6848 (dec) or 1A C0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes two segments like these with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 147240^ MDC_ECG_TIME_PD_RR_GL^MDC 1.0.0.a 600 268992^ MDC_DIM_TICK ^MDC R [current_date_time]</pre> <pre>OBX ? NM 147240^ MDC_ECG_TIME_PD_RR_GL^MDC 1.0.0.b 900 268992^ MDC_DIM_TICK ^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-014		
TP label	Whitepaper. RR-Interval Object -Simple-Nu-Observed-Value Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	RR Numeric 6; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes the variable-size RR-Interval field of Heart Rate Measurement characteristic into RR-Interval Object - Simple-Nu-Observed-Value attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		

Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • Format: List of uint16 • Value: {600, 900} 5. Check in manager transcoder output for the RR-Interval object – Compound-Simple-Nu-Observed-Value attribute.
Pass/Fail criteria	In step 5, the RR-Interval object – Simple-Nu-Observed-Value attribute is present and its value matches with RR-Interval field of Heart rate measurement {600, 900}.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present two times:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: RR-Interval object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • First occurrence: 00 00 02 58 (hex) or FF 00 17 70 (hex) or FE 00 EA 60 (hex) or FD 09 27 C0 (hex) or FC 5B 8D 80 (hex) or 600 (dec) • Second occurrence: 00 00 03 84 (hex) or FF 00 23 28 (hex) or FE 01 5F 90 (hex) or FD 0D BB A0 (hex) or FC 89 54 40 (hex) or 900 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 147240^MDC_ECG_TIME_PD_RR_GL^MDC 1.0.0.a 600 268992^MDC_DIM_TICK ^MDC R current_date_time]</pre>

	OBX ? NM 147240^MDC_ECG_TIME_PD_RR_GL^MDC 1.0.0.b 900 268992^ MDC_DIM_TICK ^MDC R [current_date_time]
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TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-015		
TP label	Whitepaper. Heart Rate measurement value		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	HR Numeric 6; M	
Test purpose	Check that: Manager processes correctly the Rate Measurement Value field of Heart Rate Measurement characteristic		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_004		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, Energy Expended and RR-Interval fields are not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: 90 iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included 5. Check that the manager accepts the measurement and decodes its value properly (pulse rate measurement). 6. The simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Heart rate measurement value in uint16 format is included, Energy Expended and RR-Interval fields are not included 		

	<ul style="list-style-type: none"> ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • This field is not included iii. Field: Heart Rate Measurement Value (uint16) <ul style="list-style-type: none"> • Format: uint16 • Value: 110 iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • This field is not included <p>7. Check that the manager accepts the measurement and decodes its value properly (pulse rate measurement).</p>
Pass/Fail criteria	<p>In step 5, the manager under test shows the following measurement Heart Rate = 90 beats per minute (bpm).</p> <p>In step 7, the manager under test shows the following measurement Heart Rate = 110 beats per minute (bpm).</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/HR/BV-016		
TP label	Whitepaper. RR-Interval measurement value		
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	RR Numeric 6; M	
Test purpose	<p>Check that:</p> <p>Manager processes correctly the RR-Interval field of Heart Rate Measurement characteristic</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a profile (device specialization) supported by the manager under test; it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Heart rate measurement (0x2A37) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are present, Energy Expended field is not included ii. Field: Heart Rate Measurement Value (uint8) <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant iii. Field: Heart Rate Measurement Value (uint16) 		

	<ul style="list-style-type: none"> • This field is not included iv. Field: Energy Expended <ul style="list-style-type: none"> • This field is not included v. Field: RR-Interval <ul style="list-style-type: none"> • Format: List of uint16 • Value: {600, 900} 5. Check that the manager accepts the measurement and decodes its value properly (RR-Interval measurement value).
Pass/Fail criteria	In step 5, the manager under test shows the following measurements: <ul style="list-style-type: none"> • Measurement #1: RR-Interval = 586 ms or 600 ticks (1 tick = 1/1024 s) • Measurement #2: RR-Interval = 879 ms or 900 ticks (1 tick = 1/1024 s)
Notes	

A.6 Subgroup 2.4.5 – Whitepaper Glucose requirements (GL)

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-000		
TP label	Whitepaper. Glucosemeter MDS Object - System-Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Specific MDS 1; M	
Test purpose	Check that: Manager does not include MDS Object – System-Type attribute in transcoder output.		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records by performing a writing operation in the Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type attribute. 		
Pass/Fail criteria	In step 4, the MDS object – System-Type attribute is not present.		
Notes	Possible values in typical points of observation after transcoder output are: <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes System-Type attribute is not present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE (2438) <input type="checkbox"/> Attribute-type: TYPE <input type="checkbox"/> Attribute-value: <NOT PRESENT> b) WAN PCD-01 message PCD-01 message does not include segments with a System-Type attribute value (67974^MDC_ATTR_SYS_TYPE^MDC). 		

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-001		
TP label		Whitepaper. Glucosemeter MDS Object - Dev-Configuration-Id Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Specific MDS 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes MDS Object – Dev-Configuration-Id attribute in transcoder output.</p> <p>[AND]</p> <p>Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (Extended Configuration)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – Dev-Configuration-Id attribute. 		
Pass/Fail criteria		In step 4, the MDS object – Dev-Configuration-Id attribute is present and its value is inside the range 0x4000 - 0x7FFF.		
Notes		<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Dev-Configuration-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS object <input type="checkbox"/> Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex) <p>b) WAN PCD-01 message</p> <p>According to [b-ITU-T H.810 (2013)], the Dev-Configuration-Id shall not be transmitted in the PCD-01 message; therefore it is not possible to check this attribute.</p>		

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-002		
TP label		Whitepaper. Glucosemeter MDS Object - System-Type-Spec-List Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	Common MDS 15; M	GL Specific MDS 3; M	
Test purpose		<p>Check that:</p> <p>Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.</p> <p>[AND]</p> <p>System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_GLUCOSE, Version 2)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		

Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 3. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test. 4. Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute.
Pass/Fail criteria	In step 4, the MDS object – System-Type-Spec-List attribute is present and its value is (MDC_DEV_SPEC_PROFILE_GLUCOSE, Version 2).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes System-Type-Spec-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650) ❑ Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}] ❑ Attribute-value: <ul style="list-style-type: none"> • type: MDC_DEV_SPEC_PROFILE_GLUCOSE or 4113 (dec) or 10 11 (hex) • version: 2 (dec) or 00 02 (hex) <p>b) WAN PCD-01 message PCD-01 message includes a segment like this (check OBX-3): OBX ? 528401^MDC_DEV_SPEC_PROFILE_GLUCOSE^MDC 1 X [[System-Id]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-003		
TP label	Whitepaper. Glucosemeter MDS Object - Reg-Cert-Data-List Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	Common MDS 14; M	Regulatory Conv 1; M
Test purpose	<p>Check that:</p> <p>Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A) <ul style="list-style-type: none"> • Format: reg-cert-data-list (opaque structure) • Value: 00 02 00 12 02 01 00 08 05 00 00 01 00 02 80 11 02 02 00 02 80 00 (hex) <ol style="list-style-type: none"> i. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) 		

	<ul style="list-style-type: none"> • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 11 (hex). BLE Glucosemeter <p>ii. Element:</p> <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent.</p> <p>4. When the pairing has been completed (connection state), force the manager under test to read the IEEE 11073-20601 Regulatory Certification Data List characteristic.</p> <p>5. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and simulated agent sends the measurement to the manager under test.</p> <p>6. Check in manager transcoder output for the MDS object – Reg-Cert-Data-List attribute.</p>
Pass/Fail criteria	In step 6, the MDS object – Reg-Cert-Data-List attribute is present and its value matches with the IEEE 11073-20601 Regulatory Certification Data List characteristic value.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Reg-Cert-Data-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS object ❑ Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635) ❑ Attribute-type: SEQUENCE OF [{auth-body-and-struct-type, auth-body-data}, {...}] ❑ Attribute-value: 00 02 00 12 02 01 00 08 05 00 00 01 00 02 80 11 02 02 00 02 80 00 (hex) [Note that 0x00 0x02 is the number of elements in the sequence and 0x00 0x12 is the length of the sequence] <ul style="list-style-type: none"> i. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 11 (hex). BLE Glucosemeter ii. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):</p> <p>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a </p>

	<p>2^auth-body-continua R</p> <p>OBX ? ST 532352^MDC_REG_CERT_DATA_CONTINUA_VERSION^MDC 1.0.0.a.x 5.1 R</p> <p>OBX ? NA 532353^MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST^MDC 1.0.0.a.y 32785 R</p> <p>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.b </p> <p>2^auth-body-continua R</p> <p>OBX ? CWE 532354^MDC_REG_CERT_DATA_CONTINUA_REG_STATUS^MDC 1.0.0.b.z 1^unregulated-device(0) R</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-004		
TP label	Whitepaper. Glucosemeter Blood Glucose Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 1; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Blood Glucose Object – Handle Attribute in transcoder output [OR]</p> <p>If manager includes Blood Glucose Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type 		

	<ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state)</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Blood glucose object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Blood glucose object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-005		
TP label	Whitepaper. Glucosemeter Blood Glucose Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes Blood Glucose Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to different values depending on Type field value</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</p> <p>a. Glucose measurement (0x2A18)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor 		

	<p style="text-align: center;">Status Annunciation fields are not included</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Several values are checked in this test case viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <ol style="list-style-type: none"> 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the field Type set to Capillary Whole blood (0x01). 5. Check in manager transcoder output for the Blood glucose object – Type. 6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Capillary Plasma (0x02). 7. Check in manager transcoder output for the Blood glucose object – Type. 8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Venous Whole blood (0x03). 9. Check in manager transcoder output for the Blood glucose object – Type. 10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Venous Plasma (0x04). 11. Check in manager transcoder output for the Blood glucose object – Type. 12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Arterial Whole blood (0x05). 13. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the Check in manager transcoder output for the Blood glucose object – Type. 14. The manager under test requests the simulated agent to report stored records writing an
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	<p>operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Arterial Plasma (0x06).</p> <p>15. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the Check in manager transcoder output for the Blood glucose object – Type.</p> <p>16. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Undetermined Whole blood (0x07).</p> <p>17. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the Check in manager transcoder output for the Blood glucose object – Type.</p> <p>18. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Undetermined Plasma (0x08).</p> <p>19. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the Check in manager transcoder output for the Blood glucose object – Type.</p> <p>20. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Interstitial Fluid (ISF) (0x09).</p> <p>21. Check in manager transcoder output for the Blood glucose object – Type.</p> <p>22. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with field Type set to Control Solution (0x0A).</p> <p>23. Check in manager transcoder output for the Blood glucose object – Type.</p>
Pass/Fail criteria	<p>In step 5, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_CAPILLARY_WHOLEBLOOD}.</p> <p>In step 7, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_CAPILLARY_PLASMA}.</p> <p>In step 9, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_VENOUS_WHOLEBLOOD}.</p> <p>In step 11, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_VENOUS_PLASMA}.</p> <p>In step 13, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD}.</p> <p>In step 15, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_ARTERIAL_PLASMA}.</p> <p>In step 17, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD}.</p> <p>In step 19, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_UNDETERMINED_PLASMA}.</p> <p>In step 21, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_ISF}.</p> <p>In step 23, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_CONTROL}.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value:

- partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
- code: MDC_CONC_GLU_CAPILLARY_WHOLEBLOOD or 29112 (dec) or 71 B8 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|160184^MDC_CONC_GLU_CAPILLARY_WHOLEBLOOD^MDC|1.0.0.a|160|
264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]
```

In step 7, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Blood glucose object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_CONC_GLU_CAPILLARY_PLASMA or 29116 (dec) or 71 BC (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|160188^MDC_CONC_GLU_CAPILLARY_PLASMA^MDC|1.0.0.a|160|
264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]
```

In step 9, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Blood glucose object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_CONC_GLU_VENOUS_WHOLEBLOOD or 29120 (dec) or 71 C0 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

```
OBX|?|NM|160192^MDC_CONC_GLU_VENOUS_WHOLEBLOOD^MDC|1.0.0.a|160|
264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]
```

In step 11, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Blood glucose object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_CONC_GLU_VENOUS_PLASMA or 29124 (dec) or 71 C4 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

OBX|?|NM|160196^MDC_CONC_GLU_VENOUS_PLASMA^MDC|1.0.0.a|160|264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]

In step 13, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Blood glucose object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD or 29128 (dec) or 71 C8 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

OBX|?|NM|160200^MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD^MDC|1.0.0.a|160|264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]

In step 15, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Blood glucose object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_CONC_GLU_ARTERIAL_PLASMA or 29132 (dec) or 71 CC (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

OBX|?|NM|160204^CONC_GLU_ARTERIAL_PLASMA^MDC|1.0.0.a|160|264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]

In step 17, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Type attribute is present:

- Object: Blood glucose object
- Attribute-id: MDC_ATTR_ID_TYPE (2351)
- Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
- Attribute-value:
 - partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
 - code: MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD or 29292 (dec) or 72 6C (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):

OBX|?|NM|160364^MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD^MDC|1.0.0.a|160|264274^MDC_DIM_MILLI_G_PER_DL^MDC||||R||||[current_date_time]

In step 19, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

	<p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_CONC_GLU_UNDETERMINED_PLASMA or 29296 (dec) or 72 70 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 160 264274^MDC_DIM_MILLI_G_PER_DL^MDC R [current_date_time]</pre> <p>In step 21, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_CONC_GLU_ISF or 29140 (dec) or 71 D4 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 160212^MDC_CONC_GLU_ISF^MDC 1.0.0.a 160 264274^MDC_DIM_MILLI_G_PER_DL^MDC R [current_date_time]</pre> <p>In step 23, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_CONC_GLU_CONTROL or 29136 (dec) or 71 D0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 160208^MDC_CONC_GLU_CONTROL^MDC 1.0.0.a 160 264274^MDC_DIM_MILLI_G_PER_DL^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-006		
TP label		Whitepaper. Glucosemeter Blood Glucose Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 3; M		
Test purpose		Check that:		

	<p>Manager includes Blood Glucose Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-a-periodic mss-msmt-a-periodic mss-acc-agent-initiated).</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test. 5. Check in manager transcoder output for the Blood glucose numeric object – Metric-Spec-Small attribute.

Pass/Fail criteria	In step 5, the Blood glucose numeric object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Blood glucose numeric object ❑ Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) ❑ Attribute-type: BITS-16 ❑ Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-007		
TP label	Whitepaper. Glucosemeter Blood Glucose Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 4; M	
Test purpose	<p>Check that:</p> <p>Manager includes Blood Glucose Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Glucose Concentration Value (kg/L) field of Glucose Measurement characteristic is present THEN Blood Glucose Object – Unit-Code attribute is set to MDC_DIM_MILLI_G_PER_DL</p> <p>[AND]</p> <p>IF Glucose Concentration Value (mol/L or mmol/L) field of Glucose Measurement characteristic is present THEN Blood Glucose Object – Unit-Code attribute is set to MDC_DIM_MILLI_MOLE_PER_L</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included 		

	<ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Blood glucose object – Unit-Code attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement (0x2A18) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0110 (MSB → LSB). Glucose concentration in units of mol/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • This field is not included vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vii. Field: Type
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	<ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Blood glucose object – Unit-Code attribute.</p>
Pass/Fail criteria	<p>In step 5, the Blood glucose object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_G_PER_DL.</p> <p>In step 7, the Blood glucose object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_MOLE_PER_L.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_MILLI_G_PER_DL or 2130 (dec) or 08 52 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 160264274^MDC_DIM_MILLI_G_PER_DL ^MDC R current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_MILLI_MOLE_PER_L or 4722 (dec) or 12 72 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 9266866^MDC_DIM_MILLI_MOLE_PER_L^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-008		
TP label	Whitepaper. Glucosemeter Blood Glucose Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 5; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Blood Glucose Object - Absolute-Time-Stamp attribute [AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p>		

	[AND] The fraction of seconds in Absolute Time at transcoder output is 0
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location and Time Offset fields are included, Sensor Status Annunciation field is not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included 5. Check in manager transcoder output for the Blood glucose object – Absolute-Time-Stamp attribute.
Pass/Fail criteria	In step 5, the Blood glucose object – Absolute-Time-Stamp attribute is present, its value

	matches with the Base Time field in conjunction with the Time Offset and a fraction of seconds which is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 160 264274^MDC_DIM_MILLI_G_PER_DL^MDC R 20120802125927+0000</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-009		
TP label	Whitepaper. Glucosemeter Blood Glucose Object - Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 6; M	Short Float Type 1; C
Test purpose	Check that: Manager transcodes Glucose Concentration Value field of Glucose Measurement characteristic into Blood Glucose Object - Basic-Nu-Observed-Value attribute		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 		

	<ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> i. Format: Date and Time <ul style="list-style-type: none"> • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.0016 kg/L (160 mg/dL) vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Blood glucose object– Basic-Nu-Observed-Value attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement (0x2A18) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000110 (MSB → LSB). Glucose concentration units of mol/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L
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	<ul style="list-style-type: none"> • This field is not included <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Value: 0.009 mol/L (9 mmol/L) <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In step 5, the Blood glucose object – Basic-Nu-Observed-Value attribute is present and its value matches with the Glucose measurement value (kg/L) field of the Glucose measurement characteristic: 0.0016 kg/L (160 mg/dL).</p> <p>In step 7, the Blood glucose object – Basic-Nu-Observed-Value attribute is present and its value matches with the Glucose Measurement Value (mol/L) field of the Glucose Measurement characteristic: 0.009 mol/L (9 mmol/L).</p>
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: F6 40 (hex) or 160 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 160.0 264274^MDC_DIM_MILLI_G_PER_DL ^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: E3 84 (hex) or 9 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic -Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 9.0 266866^MDC_DIM_MILLI_MOLE_PER_L^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-010
TP label	Whitepaper. Glucosemeter Blood Glucose Object - Basic-Nu-Observed-Value Attribute 2

Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 6; M	Short Float Type 1; C	Short Float Type 2; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Glucose Concentration field of Glucose Measurement characteristic into Blood Glucose Object – Basic-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007			
Other PICS				
Initial condition	The manager under test and the simulated agent are in the standby state.			
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.0016 kg/L (160 mg/dL) vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble 			

	<ul style="list-style-type: none"> • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed-Value attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:</p> <p>a. Glucose measurement (0x2A18)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Base Time</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FF(hex). Special value: NaN <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed-Value attribute.</p> <p>8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:</p> <p>a. Glucose measurement (0x2A18)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included <p>ii. Field: Sequence number</p>
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- Format: uint16
 - Value: Not relevant
 - iii. Field: Base Time
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Time Offset
 - This field is not included
 - v. Field: Glucose Concentration - units of kg/
 - Format: SFLOAT
 - Value: 00 80 (hex). Special value: NRes
 - vi. Field: Glucose Concentration - units of mol/L
 - This field is not included
 - vii. Field: Type
 - Format: nibble
 - Value: Undetermined Plasma (0x08)
 - viii. Field: Sample Location
 - Format: nibble
 - Value: Not relevant
 - ix. Field: Sensor Status Annunciation
 - This field is not included
9. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed-Value attribute.
10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:
- a. Glucose measurement (0x2A18)
- i. Field: Flags
 - Format: 8 bit
 - Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included
 - ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Base Time
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Time Offset
 - This field is not included
 - v. Field: Glucose Concentration - units of kg/L
 - Format: SFLOAT
 - Value: 07 FE (hex). Special value: +INFINITY
 - vi. Field: Glucose Concentration - units of mol/L
 - This field is not included
 - vii. Field: Type

	<ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>11. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed-Value attribute.</p> <p>12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:</p> <p>a. Glucose measurement (0x2A18)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Base Time</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 08 02 (hex). Special value: -INFINITY <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>13. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed-Value attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Blood glucose object – Basic-Nu-Observed-Value attribute is present and its value is 0.0016 kg/L (160 mg/dL).</p> <p>In step 7, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FF.</p> <p>In step 9, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.</p>

	<p>In step 11, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.</p> <p>In step 13, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: F6 40 (hex) or 160 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX[? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 160.0 264274^MDC_DIM_MILLI_G_PER_DL ^MDC R current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FF(hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 08 00 (hex) or NRes (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value</p>

	<p>(160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Blood glucose object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC) because it has a special value and these values are not included in the PCD-01 message.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-011		
TP label		Whitepaper. Glucosemeter measurement value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 5; M	GL Numeric 6; M	Short Float Type 1; C
		Date-Time Conv 1; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Glucose Measurement Value (kg/L), Glucose Measurement Value (mol/L) and Base Time fields of Glucose Measurement characteristic</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor Status Annunciation fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 		

	<ul style="list-style-type: none"> iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.0016 kg/L (160 mg/dL) vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager under test accepts the measurement and decodes its value properly (glucose measurement value, glucose units and base time).</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement (0x2A18) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000111 (MSB → LSB). Glucose concentration in units of mol/L Type and Sample Location and Time Offset fields are included, Sensor Status Annunciation field is not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:09:05 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • This field is not included vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Value: 0.009 mol/L (9 mmol/L) vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Undetermined Plasma (0x08) viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble
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	<ul style="list-style-type: none"> • Value: Not relevant ix. Field: Sensor Status Annunciation • This field is not included <p>7. Check that the manager under test accepts the measurement and decodes its value properly (glucose measurement value, glucose units and base time).</p>
Pass/Fail criteria	<p>In step 5, the manager under test shows the following glucose measurement 160.0 mg/dL with the time stamp '2012-08-02 11:08:25'.</p> <p>In step 7, the manager under test shows the following glucose measurement 9.0 mmol/L with the time stamp '2012-08-02 13:09:05'.</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-012		
TP label	Whitepaper. Glucosemeter HbA1c Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 7; O	
Test purpose	<p>Check that:</p> <p>Manager does not include HbA1c Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes HbA1c Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester 		

	<ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the HbA1c object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the HbA1c object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: HbA1c numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-013		
TP label	Whitepaper. Glucosemeter HbA1c Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 8; M	
Test purpose	<p>Check that:</p> <p>Manager includes HbA1c Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_SCADA MDC_CONC_HBA1C}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	1. The simulated agent is configured with a Glucose profile (device specialization); it has a		

	<p>measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <ol style="list-style-type: none"> 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. 5. Check in manager transcoder output for the HbA1c object – Type attribute.
Pass/Fail criteria	In step 5, the HbA1c object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_HBA1C}.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes

	<p>Type attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: HbA1c object ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351) ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} ❑ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_CONC_HBA1C or 29148 (dec) or 71 DC (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1 262688^MDC_DIM_PERCENT^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-014		
TP label		Whitepaper. Glucosemeter HbA1c Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 8a; M		
Test purpose		<p>Check that:</p> <p>Manager includes HbA1c Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal 		

	<ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>4. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>5. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>6. Check in manager transcoder output for the HbA1c numeric object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the HbA1c numeric object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: HbA1c numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-015		
TP label	Whitepaper. Glucosemeter HbA1c Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 9; M	
Test purpose	<p>Check that:</p> <p>Manager includes HbA1c Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p>		

	HbA1c Object – Unit-Code attribute is set to MDC_DIM_PERCENT
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c

	<ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>5. Check in manager transcoder output for the HbA1c object – Unit-Code attribute.</p>
Pass/Fail criteria	In step 5, the HbA1c object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: HbA1c object ❑ Attribute-id: MDC_ATTR_UNIT_CODE (2454) ❑ Attribute-type: INT-U16 ❑ Attribute-value: MDC_DIM_PERCENT or 544 (dec) or 02 20 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1 262688^MDC_DIM_PERCENT^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-016		
TP label	Whitepaper. Glucosemeter HbA1c Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 10; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into HbA1c Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags 		

- Format: 8 bit
 - Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location and Time Offset fields are included. Sensor Status Annunciation field is not included and Context Information follows
- ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Base Time
 - Format: Date and Time
 - Value: August 2nd, 2012, 10:59:27
 - iv. Field: Time Offset
 - Format: sint16
 - Value: 120 minutes
 - v. Field: Glucose Concentration - units of kg/L
 - Format: SFLOAT
 - Value: Not relevant
 - vi. Field: Glucose Concentration - units of mol/L
 - This field is not included
 - vii. Field: Type
 - This field is not included
 - viii. Field: Sample Location
 - This field is not included
 - ix. Field: Sensor Status Annunciation
 - This field is not included
- b. Glucose measurement context (0x2A34)
- i. Field: Flags
 - Format: 8 bit
 - Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included
 - ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Extended Flags
 - This field is not included
 - iv. Field: Carbohydrate ID
 - This field is not included
 - v. Field: Carbohydrate
 - This field is not included
 - vi. Field: Meal
 - This field is not included
 - vii. Field: Tester
 - This field is not included
 - viii. Field: Health

	<ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant 5. Check in manager transcoder output for the HbA1c object – Absolute-Time-Stamp attribute.
Pass/Fail criteria	In step 5, the HbA1c object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	Possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Absolute-Time-Stamp attribute is present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: HbA1c object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) b) WAN PCD-01 message PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14): OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1 262688^MDC_DIM_PERCENT^MDC R 20120802125927+0000

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-017		
TP label	Whitepaper. Glucosemeter HbA1c Object - Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 11; M	Short Float Type 1; C
Test purpose	Check that:		

	Manager transcodes HbA1c field of Glucose Measurement Context characteristic into HbA1c Object - Basic-Nu-Observed-Value attribute
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included

	<p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 5.1 % <p>5. Check in manager transcoder output for the HbA1c object– Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	In step 5, the HbA1c object – Basic-Nu-Observed-Value attribute is present and its value matches with the HbA1c Value field of Glucose measurement context characteristic: 5.1 %.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: HbA1c object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: F0 33 (hex) or E1 FE (hex) or 5.1 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1 262688^MDC_DIM_PERCENT^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-018		
TP label	Whitepaper. Glucosemeter HbA1c Object - Basic-Nu-Observed-Value Attribute 2		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 11; M	Short Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager transcodes HbA1c field of Glucose Measurement Context characteristic into HbA1c Object – Basic-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit 		

	<ul style="list-style-type: none"> • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included <ol style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • Format: SFLOAT • Value: 5.1 % <p>5. Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is:</p> <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags
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	<ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FF(hex). Special value: NaN <p>7. Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value attribute.</p> <p>8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is:</p> <p>a. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • This field is not included
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- vii. Field: Tester
 - This field is not included
- viii. Field: Health
 - This field is not included
- ix. Field: Exercise Duration
 - This field is not included
- x. Field: Exercise Intensity
 - This field is not included
- xi. Field: Medication ID
 - This field is not included
- xii. Field: Medication
 - This field is not included
- xiii. Field: HbA1c
 - Format: SFLOAT
 - Value: 00 80 (hex). Special value: NRes

9. Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value attribute.

10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is:

a. Glucose measurement context (0x2A34)

- i. Field: Flags
 - Format: 8 bit
 - Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included
- ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
- iii. Field: Extended Flags
 - This field is not included
- iv. Field: Carbohydrate ID
 - This field is not included
- v. Field: Carbohydrate
 - This field is not included
- vi. Field: Meal
 - This field is not included
- vii. Field: Tester
 - This field is not included
- viii. Field: Health
 - This field is not included
- ix. Field: Exercise Duration
 - This field is not included
- x. Field: Exercise Intensity

	<ul style="list-style-type: none"> • This field is not included <ul style="list-style-type: none"> xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY <p>11. Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value attribute.</p> <p>12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is:</p> <ul style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • Format: SFLOAT
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	<ul style="list-style-type: none"> Value: 08 02 (hex). Special value: -INFINITY <p>13. Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In step 5, the HbA1c object – Basic-Nu-Observed-Value attribute is present and its value is 5.1 %.</p> <p>In step 7, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FF.</p> <p>In step 9, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.</p> <p>In step 11, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.</p> <p>In step 13, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> Object: HbA1c object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: F0 33 (hex) or E1 FE (hex) or 5.1 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1 262688^MDC_DIM_PERCENT^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> Object: HbA1c object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: 07 FF(hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160220^MDC_CONC_HBA1C^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> Object: HbA1c object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: 08 00 (hex) or NRes (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160220^MDC_CONC_HBA1C^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p>

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: HbA1c object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160220^MDC_CONC_HBA1C^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: HbA1c object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (160220^MDC_CONC_HBA1C^MDC) because it has a special value and these values are not included in the PCD-01 message.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-019		
TP label		Whitepaper. Glucosemeter HbA1c value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 10; M	GL Numeric 11; M	Short Float Type 1; C
		Date-Time Conv 1; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the HbA1c Value (%) and Base Time fields of Glucose Measurement Context characteristic</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags 		

	<ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset fields and Sensor Status Annunciation field are not included and Context Information follows <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Base Time</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0100 0000 (MSB → LSB). HbA1c field is included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and Extended Flags fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p>
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	<ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: 5.1 % <p>5. Check that the manager accepts the measurement and decodes its value properly (HbA1c value, HbA1c units and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following HbA1c 5.1 % with the time stamp '2012-08-02 11:08:25'.
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-020		
TP label	Whitepaper. Glucosemeter Context Exercise Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 12; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Context Exercise Object – Handle Attribute in transcoder output [OR]</p> <p>If manager includes Context Exercise Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant 		

	<ul style="list-style-type: none"> iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant x. Field: Exercise Intensity <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context exercise object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context exercise object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	Possible values in typical points of observation after transcoder output are: <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <ul style="list-style-type: none"> Handle attribute is not present, or if it is present then: <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context exercise numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 b) WAN PCD-01 message <ul style="list-style-type: none"> PCD-01 message does not include segments with a Handle attribute value.

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-021
TP label	Whitepaper. Glucosemeter Context Exercise Object - Type Attribute

Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 13; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Exercise Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_PHD_DM MDC_CTXT_GLU_EXERCISE}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant x. Field: Exercise Intensity <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included 		

	<p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context exercise object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Context exercise object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_GLU_EXERCISE}.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> Object: Context exercise object Attribute-id: MDC_ATTR_ID_TYPE (2351) Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} Attribute-value: <ul style="list-style-type: none"> partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) code: MDC_CTXT_GLU_EXERCISE or 29152 (dec) or 71 E0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33 262688^MDC_DIM_PERCENT^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-022		
TP label	Whitepaper. Glucosemeter Context Exercise Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 13a; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Exercise Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</p> <p>a. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> Format: 8 bit Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester- 		

	<p>Health, Medication ID, Medication Value and HbA1c fields are not included</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant x. Field: Exercise Intensity <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context exercise numeric object – Metric-Spec-Small attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Context exercise numeric object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).</p>
<p>Notes</p>	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context exercise numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9),

	<p>mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE</p> <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-023		
TP label	Whitepaper. Glucosemeter Context Exercise Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 14; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Exercise Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>Context Exercise Object – Unit-Code attribute is set to MDC_DIM_PERCENT</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant x. Field: Exercise Intensity <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context exercise object – Unit-Code attribute.</p>
Pass/Fail criteria	In step 5, the Context exercise object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context exercise object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_PERCENT or 544 (dec) or 02 20 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33 262688^MDC_DIM_PERCENT^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-024			
TP label	Whitepaper. Glucosemeter Context Exercise Object - Absolute-Time-Stamp Attribute			
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 15; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Exercise Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009			
Other PICS				

Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location and Time Offset fields are included. Sensor Status Annunciation field is not included and Context Information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • This field is not included viii. Field: Sample Location <ul style="list-style-type: none"> • This field is not included ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included b. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value, Hb1Ac, and Extended Flags fields are not included ii. Field: Sequence number

	<ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context exercise object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 6, the Context exercise object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context exercise object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec)

	<ul style="list-style-type: none"> • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33 262688^MDC_DIM_PERCENT^MDC R 20120802125927+0000</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-025		
TP label	Whitepaper. Glucosemeter Context Exercise Object - Measure-Active-Period Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 16; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Exercise Duration value field of Glucose Measurement Context characteristic into Context Exercise Object - Measure-Active-Period attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal 		

	<ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • Format: uint16 • Value: 666 seconds <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context exercise object – Measure-Active-Period attribute.</p>
Pass/Fail criteria	In step 5, the Context exercise object – Measure-Active-Period attribute is present and its value is 666 seconds.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Measure-Active-Period attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context exercise object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_PD_MSMT_ACTIVE (2649) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 666 (dec) or 0000029A (hex) [Note that exponent value for this FLOAT value must be 0] <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes two segments like these, one of them with a Measure-Active-Period attribute value (check OBX-5 in MDC_ATTR_TIME_PD_MSMT_ACTIVE segment):</p> <pre>OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33 262688^MDC_DIM_PERCENT^MDC R [current_date_time] OBX ? NM 68185^MDC_ATTR_TIME_PD_MSMT_ACTIVE^MDC 1.0.0.a.b 666.0 264320^MDC_DIM_SEC^MDC R</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-026		
TP label	Whitepaper. Glucosemeter Context Exercise Object - Basic-Nu-Observed-Value Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 17; M	Short Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager transcodes Exercise Intensity value field of Glucose Measurement Context characteristic into Context Exercise Object - Basic-Nu-Observed-Value attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			

Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant x. Field: Exercise Intensity <ul style="list-style-type: none"> • Format: uint8 • Value: 33% xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included 5. Check in manager transcoder output for the Context exercise object – Basic-Nu-Observed-Value attribute.
Pass/Fail criteria	In step 5, the Context exercise object – Basic-Nu-Observed-Value attribute is present and its

	value matches with the Exercise Intensity Value field of Glucose measurement context characteristic: 33%.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context exercise object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 33 (dec) or 00000021 (hex) [Note that exponent value for this FLOAT value must be 0] <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33.0 262688^MDC_DIM_PERCENT^MDC R current_date_time </pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-027		
TP label	Whitepaper. Glucosemeter Context Exercise value		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 15; M	GL Numeric 17; M
		Date-Time Conv 1; M	Short Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager processes correctly the Context Exercise Value (%) and Base Time fields of Glucose Measurement Context characteristic</p>		
Applicability	C_MAN_BLE_000 AND AND C_MAN_BLE_007 AND C_MAN_BLE_009		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset fields and Sensor Status Annunciation field are not included and Context Information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 		

- Value: Not relevant
- iii. Field: Base Time
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:08:25
- iv. Field: Time Offset
 - This field is not included
- v. Field: Glucose Concentration - units of kg/L
 - Format: SFLOAT
 - Value: Not relevant
- vi. Field: Glucose Concentration - units of mol/L
 - This field is not included
- vii. Field: Type
 - Format: nibble
 - Value: Not relevant
- viii. Field: Sample Location
 - Format: nibble
 - Value: Not relevant
- ix. Field: Sensor Status Annunciation
 - This field is not included
- b. Glucose measurement context (0x2A34)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Medication ID, Medication Value and HbA1c fields are not included
 - ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Extended Flags
 - This field is not included
 - iv. Field: Carbohydrate ID
 - This field is not included
 - v. Field: Carbohydrate
 - This field is not included
 - vi. Field: Meal
 - This field is not included
 - vii. Field: Tester
 - This field is not included
 - viii. Field: Health
 - This field is not included
 - ix. Field: Exercise Duration
 - Format: uint16
 - Value: Not relevant
 - x. Field: Exercise Intensity

	<ul style="list-style-type: none"> • Format: uint8 • Value: 33% <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (Context exercise value, Context exercise units and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following Context exercise 33 % with the time stamp '2012-08-02 11:08:25'.
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-028		
TP label	Whitepaper. Glucosemeter Context Medication Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 18; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Context Medication Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Context Medication Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</p> <p>a. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p>		

	<ul style="list-style-type: none"> • This field is not included <ul style="list-style-type: none"> vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context exercise object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context medication object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Medication numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-029		
TP label	Whitepaper. Glucosemeter Context Medication Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 19; M	

Test purpose	<p>Check that:</p> <p>Manager includes Context Medication Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_PHD_DM MDC_CTXT_MEDICATION}</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included

	<p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context medication object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Context medication object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_MEDICATION}.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> Object: Context exercise object Attribute-id: MDC_ATTR_ID_TYPE (2351) Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} Attribute-value: <ul style="list-style-type: none"> partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) code: MDC_CTXT_MEDICATION or 29188 (dec) or 72 04 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX[? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.17 263890^MDC_DIM_MILLI_G^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-030		
TP label	Whitepaper. Glucosemeter Context Medication Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 20; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Medication Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</p> <p>a. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> Format: 8 bit Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, 		

	<p>Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context Medication numeric object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Context Medication numeric object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	Possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Metric-Spec-Small attribute is present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Medication numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)

	<ul style="list-style-type: none"> ❑ Attribute-type: BITS-16 ❑ Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-031		
TP label	Whitepaper. Glucosemeter Context Medication Object - Metric-Id Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 21; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Medication Object – Metric-Id attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to different values depending on Medication ID field value</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration 		

	<ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • Format: uint8 • Value: Several values are checked in this test case <p>xii. Field: Medication - units of kilograms</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>xiii. Field: Medication - units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Medication ID field set to 0x01 = Rapid acting insulin) to the manager under test.</p> <p>5. Check in manager transcoder output for the Context Medication numeric object – Metric-Id attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Medication ID field set to 0x02 = Short acting insulin) to the manager under test.</p> <p>7. Check in manager transcoder output for the Context Medication numeric object – Metric-Id attribute.</p> <p>8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Medication ID field set to 0x03 = Intermediate acting insulin) to the manager under test.</p> <p>9. Check in manager transcoder output for the Context Medication numeric object – Metric-Id attribute.</p> <p>10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Medication ID field set to 0x04 = Long acting insulin) to the manager under test.</p> <p>11. Check in manager transcoder output for the Context Medication numeric object – Metric-Id attribute.</p> <p>12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Medication ID field set to 0x05 = Pre-mixed insulin) to the manager under test.</p> <p>13. Check in manager transcoder output for the Context Medication numeric object – Metric-Id attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_RAPIDACTING.</p> <p>In step 7, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_SHORTACTING.</p> <p>In step 9, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_INTERMEDIATEACTING.</p> <p>In step 11, the Context medication object – Metric-Id attribute is present and its value is</p>

	<p>MDC_CTXT_MEDICATION_LONGACTING.</p> <p>In step 13, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_PREMIX.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_CTXT_MEDICATION_RAPIDACTING or 29192 (dec) or 72 08 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.17 263890^MDC_DIM_MILLI_G^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_CTXT_MEDICATION_SHORTACTING or 29196 (dec) or 72 0C (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417804^MDC_CTXT_MEDICATION_SHORTACTING^MDC 1.0.0.a 0.18 263890^MDC_DIM_MILLI_G^MDC R [current_date_time]</pre> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_CTXT_MEDICATION_INTERMEDIATEACTING or 29200 (dec) or 72 10 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417808^MDC_CTXT_MEDICATION_INTERMEDIATEACTING^MDC 1.0.0.a 0.19 263890^MDC_DIM_MILLI_G^MDC R [current_date_time]</pre> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_CTXT_MEDICATION_LONGACTING or 29204 (dec) or 72 14 (hex)

	<p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417812^MDC_CTXT_MEDICATION_LONGACTING^MDC 1.0.0.a 0.20 263890^MDC_DIM_MILLI_G^MDC R [current_date_time]</pre> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context medication object ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347) ❑ Attribute-type: code (INT-U16) ❑ Attribute-value: code: MDC_CTXT_MEDICATION_PREMIX or 29208 (dec) or 72 18 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417816^MDC_CTXT_MEDICATION_PREMIX^MDC 1.0.0.a 0.21263890^MDC_DIM_MILLI_G^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-032		
TP label		Whitepaper. Glucosemeter Context Medication Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 22; M		
Test purpose		<p>Check that:</p> <p>Manager includes Context Medication Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Medication Value (kg) field of Glucose Measurement Context characteristic is present THEN Context Medication Object – Unit-Code attribute is set to MDC_DIM_MILLI_G</p> <p>[AND]</p> <p>IF Medication Value (l) field of Glucose Measurement Context characteristic is present THEN Context Medication Object – Unit-Code attribute is set to MDC_DIM_MILLI_L</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of 		

	<p>kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context medication object – Unit-Code attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is:</p> <ul style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0011 0000 (MSB → LSB). Medication ID and Medication in units of litres fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16
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	<ul style="list-style-type: none"> • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Context medication object – Unit-Code attribute.</p>
Pass/Fail criteria	<p>In step 5, the Context medication object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_G.</p> <p>In step 7, the Context medication object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_L.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_MILLI_G or 1746 (dec) or 06 D2 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.17 263890^MDC_DIM_MILLI_G^MDC R current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p>

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_MILLI_L or 1618 (dec) or 06 52 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.05 263762^MDC_DIM_MILLI_L^MDC R current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-033		
TP label		Whitepaper. Glucosemeter Context Medication Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 23; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Medication Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location and Time Offset fields are included Sensor Status Annunciation field is not included and Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 		

	<ul style="list-style-type: none"> • Value: Not relevant <p>iii. Field: Base Time</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included
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	<ul style="list-style-type: none"> xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context medication object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 6, the Context medication object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.17 263890^MDC_DIM_MILLI_G^MDC R 20120802125927+0000</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-034		
TP label	Whitepaper. Glucosemeter Context Medication Object - Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 24; M	Short Float Type 1; C
Test purpose	Check that: Manager transcodes Medication value field of Glucose Measurement Context characteristic into Context Medication Object - Basic-Nu-Observed-Value attribute		

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.00000017 kg (0.17 mg)

	<ul style="list-style-type: none"> xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context medication object– Basic-Nu-Observed-Value attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0011 0000 (MSB → LSB). Medication ID and Medication in units of litres fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.00005 litres (0.05 ml) xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>7. Check in manager transcoder output for the Context medication object– Basic-Nu-</p>
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	Observed-Value attribute.
Pass/Fail criteria	<p>In step 5, the Context medication object – Basic-Nu-Observed-Value attribute is present and its value matches with the Medication Value field of the Glucose measurement context characteristic: 0.17 mg.</p> <p>In step 7, the Context medication object – Basic-Nu-Observed-Value attribute is present and its value matches with the Medication Value field of the Glucose measurement context characteristic: 0.05 ml.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context medication object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: E0 11 (hex) or 0.17 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <p>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.17 263890^MDC_DIM_MILLI_G ^MDC R [[current_date_time]</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context medication object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: E0 05 (hex) or 0.05 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <p>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.05 263762^MDC_DIM_MILLI_L^MDC R [[current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-035		
TP label	Whitepaper. Glucosemeter Context Medication Object - Basic-Nu-Observed-Value Attribute 2		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 24; M	Short Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager transcodes Medication field of Glucose Measurement Context characteristic into Context Medication Object – Basic-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)</p>		
	Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010	
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).		

2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
 - a. Glucose measurement context (0x2A34)
3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).
4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test:
 - a. Glucose measurement context (0x2A34)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included
 - ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Extended Flags
 - This field is not included
 - iv. Field: Carbohydrate ID
 - This field is not included
 - v. Field: Carbohydrate
 - This field is not included
 - vi. Field: Meal
 - This field is not included
 - vii. Field: Tester
 - This field is not included
 - viii. Field: Health
 - This field is not included
 - ix. Field: Exercise Duration
 - This field is not included
 - x. Field: Exercise Intensity
 - This field is not included
 - xi. Field: Medication ID
 - Format: uint8
 - Value: 0x01 (Rapid action insulin)
 - xii. Field: Medication - units of kilograms
 - Format: SFLOAT
 - Value: 0.00000017 kg (0.17 mg)
 - xiii. Field: Medication - units of litres
 - This field is not included
 - xiv. Field: HbA1c
 - This field is not included
5. Check in manager transcoder output for the Context medication object – Basic-Nu-Observed-Value attribute.

6. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Glucose measurement context (0x2A34)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included
 - ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Extended Flags
 - This field is not included
 - iv. Field: Carbohydrate ID
 - This field is not included
 - v. Field: Carbohydrate
 - This field is not included
 - vi. Field: Meal
 - This field is not included
 - vii. Field: Tester
 - This field is not included
 - viii. Field: Health
 - This field is not included
 - ix. Field: Exercise Duration
 - This field is not included
 - x. Field: Exercise Intensity
 - This field is not included
 - xi. Field: Medication ID
 - Format: uint8
 - Value: 0x01 (Rapid action insulin)
 - xii. Field: Medication - units of kilograms
 - Format: SFLOAT
 - Value: 07 FF (hex). Special value: NaN
 - xiii. Field: Medication - units of litres
 - This field is not included
 - xiv. Field: HbA1c
 - This field is not included
7. Check in manager transcoder output for the Context medication object – Basic-Nu-Observed-Value attribute.
8. The simulated agent sends the measurement to the manager under test with the following value:
 - a. Glucose measurement context (0x2A34)
 - i. Field: Flags
 - Format: 8 bit

	<ul style="list-style-type: none"> • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included <ol style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 00 80 (hex). Special value: NRes xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>9. Check in manager transcoder output for the Context medication object – Basic-Nu-Observed-Value attribute.</p> <p>10. The simulated agent sends the measurement to the manager under test with the following value:</p> <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16
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	<ul style="list-style-type: none"> • Value: Not relevant <ul style="list-style-type: none"> iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>11. Check in manager transcoder output for the Context medication object – Basic-Nu-Observed-Value attribute.</p> <p>12. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included
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	<ul style="list-style-type: none"> v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xv. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xvi. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 08 02 (hex). Special value: -INFINITY xvii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xviii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>13. Check in manager transcoder output for the Context medication object – Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In step 5, the Context medication object – Basic-Nu-Observed-Value attribute is present and its value is 0.17 mg.</p> <p>In step 7, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FF.</p> <p>In step 9, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.</p> <p>In step 11, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.</p> <p>In step 13, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: E0 11 (hex) or 0.17 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a 0.17 263890^MDC_DIM_MILLI_G ^MDC R current_date_time]</pre>

	<p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FF(hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 08 00 (hex) or NRes (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context medication object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a special value and these values are not included in the PCD-01 message.</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-036
TP label	Whitepaper. Glucosemeter Context Medication value

Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 23; M	GL Numeric 24; M	Short Float Type 1; C
		Date-Time Conv 1; M		
Test purpose	<p>Check that:</p> <p>Manager processes correctly the Context Medication Value (kg), Context Medication Value (l) and Base Time fields of Glucose Measurement Context characteristic</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_010			
Other PICS				
Initial condition	The manager under test and the simulated agent are in the standby state.			
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location are included, Time Offset and Sensor Status Annunciation fields are not included and Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation 			

	<ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.00000017 kg (0.17 mg) xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (Context Medication value, Context Medication units and base time).</p> <p>6. The simulated agent sends the Glucose measurement followed by the Glucose measurement context to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement (0x2A18) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L,
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	<p>Type and Sample Location are included, Time Offset and Sensor Status Annunciation fields are not included and Context information follows</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant i. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:09:05 ii. Field: Time Offset <ul style="list-style-type: none"> • This field is not included iii. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant iv. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included v. Field: Type <ul style="list-style-type: none"> • This field is not included vi. Field: Sample Location <ul style="list-style-type: none"> • This field is not included vii. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0011 0000 (MSB → LSB). Medication ID and Medication in units of litres fields are included, and Carbohydrate ID, Carbohydrate, Meal, Tester-Health, Exercise Duration and Exercise Intensity and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included
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	<ul style="list-style-type: none"> x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • Format: uint8 • Value: 0x01 (Rapid action insulin) xii. Field: Medication - units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Field: Medication - units of litres <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.00005 litres (0.05 ml) xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>7. Check that the manager accepts the measurement and decodes its value properly (Context Medication value, Context Medication units and base time).</p>
Pass/Fail criteria	<p>In step 5, the manager under test shows the following Context Medication 0.17 mg with the time stamp '2012-08-02 11:08:25'.</p> <p>In step 7, the manager under test shows the following Context Medication 0.05 ml with the time stamp '2012-08-02 11:09:05'.</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-037		
TP label	Whitepaper. Glucosemeter Context Carbohydrates Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 25; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Context Carbohydrates Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Context Carbohydrates Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 		

	<ul style="list-style-type: none"> • Value: Not relevant <ul style="list-style-type: none"> iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Blood glucose object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context carbohydrates object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	Possible values in typical points of observation after transcoder output are: <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <ul style="list-style-type: none"> Handle attribute is not present, or if it is present then: <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 b) WAN PCD-01 message <ul style="list-style-type: none"> PCD-01 message does not include segments with a Handle attribute value.

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-038		
TP label		Whitepaper. Glucosemeter Context Carbohydrates Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 26; M		
Test purpose		<p>Check that:</p> <p>Manager includes Context Carbohydrates Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_PHD_DM MDC_CTXT_GLU_CARB}</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <ol style="list-style-type: none"> 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. 5. Check in manager transcoder output for the Context carbohydrates object – Type attribute.
Pass/Fail criteria	In step 5, the Context carbohydrates object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_GLU_CARB}.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) • code: MDC_CTXT_GLU_CARB or 29156 (dec) or 71 E4 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a 75 263872^MDC_DIM_G^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-039		
TP label	Whitepaper. Glucosemeter Context Carbohydrates Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 27; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Carbohydrates Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags 		

	<ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included <ol style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <ol style="list-style-type: none"> 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. 5. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Spec-Small attribute.
Pass/Fail criteria	In step 5, the Context carbohydrate numeric object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	Possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes

		Metric-Spec-Small attribute is present: <ul style="list-style-type: none"> ❑ Object: Context carbohydrates numeric object ❑ Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) ❑ Attribute-type: BITS-16 ❑ Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE b) WAN PCD-01 message PCD-01 message does not include segments with a Metric-Spec-Small attribute value.		
TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-040		
TP label		Whitepaper. Glucosemeter Context Carbohydrates Object - Metric-Id Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 28; M		
Test purpose		Check that: Manager includes Context Carbohydrate Object – Metric-Id attribute in transcoder output. [AND] Type is set to different values depending on Carbohydrate ID field value		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Several values are checked in this test case v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester 		

	<ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Medication – units of kilograms</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Medication – units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x01 = Breakfast) to the manager under test.</p> <p>5. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x02 = Lunch) to the manager under test</p> <p>7. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</p> <p>8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x03 = Dinner) to the manager under test</p> <p>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</p> <p>10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x04 = Snack) to the manager under test</p> <p>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</p> <p>12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x05 = Drink) to the manager under test.</p> <p>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</p> <p>14. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x06 = Supper) to the manager under test.</p> <p>15. Check in manager transcoder output for the Context carbohydrate numeric object –</p>
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	<p>Metric-Id attribute.</p> <p>16. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID field set to 0x07 = Brunch) to the manager under test.</p> <p>17. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_BREAKFAST.</p> <p>In step 7, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_LUNCH.</p> <p>In step 9, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_DINNER.</p> <p>In step 11, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_SNACK</p> <p>In step 13, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_DRINK.</p> <p>In step 15, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_SUPPER.</p> <p>In step 17, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_BRUNCH.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrate object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_CTXT_GLU_CARB_BREAKFAST or 29160 (dec) or 71 E8 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrate object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347) <input type="checkbox"/> Attribute-type: code (INT-U16) <input type="checkbox"/> Attribute-value: code: MDC_CTXT_GLU_CARB_LUNCH or 29164 (dec) or 71 EC (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417772^MDC_CTXT_GLU_CARB_LUNCH^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [current_date_time]</pre> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrate object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_PHYSIO (2347)

	<ul style="list-style-type: none"> ❑ Attribute-type: code (INT-U16) ❑ Attribute-value: code: MDC_CTXT_GLU_CARB_DINNER or 29168 (dec) or 71 F0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417776^MDC_CTXT_GLU_CARB_DINNER^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [[current_date_time]</pre> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context carbohydrate object ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347) ❑ Attribute-type: code (INT-U16) ❑ Attribute-value: code: MDC_CTXT_GLU_CARB_SNACK or 29172 (dec) or 71 F4 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417780^MDC_CTXT_GLU_CARB_SNACK^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [[current_date_time]</pre> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context carbohydrate object ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347) ❑ Attribute-type: code (INT-U16) ❑ Attribute-value: code: MDC_CTXT_GLU_CARB_DRINK or 29176 (dec) or 71 F8 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417784^MDC_CTXT_GLU_CARB_DRINK^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [[current_date_time]</pre> <p>In step 15, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context carbohydrate object ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347) ❑ Attribute-type: code (INT-U16) ❑ Attribute-value: code: MDC_CTXT_GLU_CARB_SUPPER or 29180 (dec) or 71 FC (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417788^MDC_CTXT_GLU_CARB_SUPPER^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [[current_date_time]</pre> <p>In step 17, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Id attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context carbohydrate object
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	<ul style="list-style-type: none"> ❑ Attribute-id: MDC_ATTR_ID_PHYSIO (2347) ❑ Attribute-type: code (INT-U16) ❑ Attribute-value: code: MDC_CTXT_GLU_CARB_BRUNCH or 29184 (dec) or 72 00 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):</p> <pre>OBX ? NM 8417792^MDC_CTXT_GLU_CARB_BRUNCH^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R current_date_time </pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-041		
TP label		Whitepaper. Glucosemeter Context Carbohydrates Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 29; M		
Test purpose		<p>Check that:</p> <p>Manager includes Context Carbohydrates Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Carbohydrate Value (kg) field of Glucose Measurement Context characteristic is present THEN Context Carbohydrate Object – Unit-Code attribute is set to MDC_DIM_X_G</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Meal 		

	<ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Medication – units of kilograms</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Medication – units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <p>This field is not included</p> <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context carbohydrate object – Unit-Code attribute</p>
Pass/Fail criteria	In step 5, the Context carbohydrate object – Unit-Code attribute is present and its value is MDC_DIM_X_G
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_X_G or 1728 (dec) or 06 C0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-042		
TP label	Whitepaper. Glucosemeter Context Carbohydrates Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 30; M	Date-Time Conv 2; M
Date-Time Conv 4; M		Date-Time Conv 5; M	
Test purpose	Check that: Manager transcodes Base Time field in conjunction with Time Offset field of Glucose		

	<p>Measurement characteristic into Context Carbohydrate Object - Absolute-Time-Stamp attribute [AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format [AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location and Time Offset fields are included Sensor Status Announcement field is not included and Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • This field is not included viii. Field: Sample Location <ul style="list-style-type: none"> • This field is not included ix. Field: Sensor Status Announcement

	<ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context carbohydrate object – Absolute-Time-Stamp attribute.</p>
<p>Pass/Fail criteria</p>	<p>In step 5, the Context carbohydrate object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.</p>
<p>Notes</p>	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object

	<ul style="list-style-type: none"> ❑ Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) ❑ Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) ❑ Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R 20120802125927+0000</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-043		
TP label		Whitepaper. Glucosemeter Context Carbohydrates Object - Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 31; M	Short Float Type 1; C	
Test purpose		Check that: Manager transcodes Carbohydrate value field of Glucose Measurement Context characteristic into Context Carbohydrate Object - Basic-Nu-Observed-Value attribute		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included 		

	<ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.130 kg vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context carbohydrate object– Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	In step 5, the Context carbohydrate object – Basic-Nu-Observed-Value attribute is present and its value matches with Carbohydrate Value field of Glucose measurement context characteristic: 130 g.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 0082 (hex) or F514 (hex) or 130 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a </pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-044		
TP label	Whitepaper. Glucosemeter Context Carbohydrates Object - Basic-Nu-Observed-Value Attribute 2		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 31; M	Short Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager transcodes Carbohydrate field of Glucose Measurement Context characteristic into Context Carbohydrate Object – Basic-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 0.130 kg vi. Field: Meal <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</p> <p>6. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FF (hex). Special value: NaN vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration
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	<ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity • This field is not included xi. Field: Medication ID • This field is not included xii. Medication – units of kilograms • This field is not included xiii. Medication – units of litres • This field is not included xiv. Field: HbA1c • This field is not included <p>7. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</p> <p>8. The simulated agent sends the measurement to the manager under test with the following value:</p> <p>a. Glucose measurement context (0x2A34)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 00 80 (hex). Special value: NRes vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included
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	<ul style="list-style-type: none"> xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>9. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</p> <p>10. The simulated agent sends the measurement to the manager under test with the following value:</p> <ul style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 07 FE (hex). Special value: +INFINITY vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c
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	<ul style="list-style-type: none"> • This field is not included <p>11. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</p> <p>12. The simulated agent sends the measurement to the manager under test with the following value:</p> <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • Format: SFLOAT • Value: 08 02 (hex). Special value: -INFINITY vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>13. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In step 5, the Context carbohydrate object – Basic-Nu-Observed-Value attribute is present and its value is 130 g.</p> <p>In step 7, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present</p>

	<p>and its value is 0x07FF.</p> <p>In step 9, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.</p> <p>In step 11, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.</p> <p>In step 13, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 0082 (hex) or F514 (hex) or 130 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FF(hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 08 00 (hex) or NRes (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context carbohydrates object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) <input type="checkbox"/> Attribute-type: SFLOAT <input type="checkbox"/> Attribute-value: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed)

	<p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC) because it has a special value and these values are not included in the PCD-01 message.</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Basic -Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context carbohydrates object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) ❑ Attribute-type: SFLOAT ❑ Attribute-value: 08 02 (hex) or -INFINITY (note that a decimal value is not allowed) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Basic -Nu-Observed-Value attribute value (8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC) because it has a special value and these values are not included in the PCD-01 message.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-045		
TP label		Whitepaper. Glucosemeter Context Carbohydrates value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	Short Float Type 1; C	Date-Time Conv 1; M	GL Numeric 30; M
		GL Numeric 31; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Context Carbohydrate Value (kg) and Base Time fields of Glucose Measurement Context characteristic</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location are included, Time Offset and Sensor Status Annunciation fields are not included and Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant 		

- iii. Field: Base Time
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:08:25
- iv. Field: Time Offset
 - This field is not included
- v. Field: Glucose Concentration - units of kg/L
 - Format: SFLOAT
 - Value: Not relevant
- vi. Field: Glucose Concentration - units of mol/L
 - This field is not included
- vii. Field: Type
 - Format: nibble
 - Value: Not relevant
- viii. Field: Sample Location
 - Format: nibble
 - Value: Not relevant
- ix. Field: Sensor Status Annunciation
 - This field is not included
- b. Glucose measurement context (0x2A34)
 - i. Field: Flags
 - Format: 8 bit
 - Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate is included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included
 - ii. Field: Sequence number
 - Format: uint16
 - Value: Not relevant
 - iii. Field: Extended Flags
 - This field is not included
 - iv. Field: Carbohydrate ID
 - Format: uint8
 - Value: 0x01 (Breakfast)
 - v. Field: Carbohydrate - units of kilograms
 - Format: SFLOAT
 - Value: 0.130 kg
 - vi. Field: Meal
 - This field is not included
 - vii. Field: Tester
 - This field is not included
 - viii. Field: Health
 - This field is not included
 - ix. Field: Exercise Duration
 - This field is not included

	<ul style="list-style-type: none"> x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (Context carbohydrates value, Context carbohydrates units and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following Context carbohydrate 130 g with the time stamp '2012-08-02 11:08:25'.
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-046		
TP label	Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 1; O	
Test purpose	<p>Check that:</p> <p>Manager does not include Device & Sensor Annunciation Enumeration Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Device & Sensor Annunciation Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_012		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00001010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Sensor Status Annunciation fields are included. Time Offset field is not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time 		

	<ul style="list-style-type: none"> • Value: Not relevant <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • Format: 16bit • Value: Not relevant <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Device & Sensor annunciation enumeration object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Device & Sensor annunciation enumeration object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Device & Sensor annunciation enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-047		
TP label	Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes Device & Sensor Annunciation Enumeration Object – Type attribute in transcoder output.</p> <p>[AND]</p>		

	Type is set to { MDC_PART_PHD_DM MDC_GLU_METER_DEV_STATUS }
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_012
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00001010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Sensor Status Annunciation fields are included. Time Offset field is not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • Format: 16bit • Value: Not relevant 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement to the manager under test. 5. Check in manager transcoder output for the Device & Sensor annunciation enumeration object – Type attribute.
Pass/Fail criteria	In step 5, the Device & Sensor annunciation enumeration object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_GLU_METER_DEV_STATUS }.

Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Device & Sensor annunciation enumeration object ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351) ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} ❑ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) • code: MDC_GLU_METER_DEV_STATUS or 29144 (dec) or 71D8 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <p>OBX[?][NM] 8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^device-battery-low(0) R [current_date_time]</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-048	
TP label		Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object - Metric-Spec-Small Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 3; M	
Test purpose		<p>Check that:</p> <p>Manager includes Device & Sensor Annunciation Enumeration Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_012	
Other PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.	
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00001010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, and Sensor Status Annunciation fields are included. Time Offset field is not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset 	

	<ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • Format: 16bit • Value: Not relevant <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Device & Sensor annunciation enumeration object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Device & Sensor annunciation enumeration object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Device & Sensor annunciation enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-049		
TP label	Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 4; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Device & Sensor Annunciation Enumeration Object - Absolute-Time-Stamp attribute</p>		

	<p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_012
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00001011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Time Offset fields and Sensor Status Annunciation field are included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation

	<ul style="list-style-type: none"> • Format: 16bit • Value: Not relevant <p>5. Check in manager transcoder output for the Device & Sensor annunciation enumeration object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 5, the Device & Sensor annunciation enumeration object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Device & Sensor annunciation enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? NM 8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^device-battery-low(0) R 20120802125927+0000</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-050		
TP label	Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object - Enum-Observed-Value-Basic-Bit-Str Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 5; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Sensor Status Annunciation value field of Glucose Measurement characteristic into Device & Sensor Annunciation Enumeration Object - Enum-Observed-Value-Basic-Bit-Str attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_012		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 		

	<ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00001010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, and Sensor Status Annunciation fields are included. Time Offset field is not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • Format: 16bit • Value: Several values are checked in this test case <ol style="list-style-type: none"> 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000000000001 0x0001 (MSB → LSB) = device battery low] to the manager under test. 5. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000000000010 0x0002 (MSB → LSB) = sensor malfunction] to the manager under test. 7. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000000000100 0x0004 (MSB → LSB) = sample size insufficient, not enough blood or control solution] to the manager under test. 9. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute.
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	<ol style="list-style-type: none"> 10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 000000000001000 0x0008 (MSB → LSB) = stripo insertion error] to the manager under test. 11. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000000010000 0x0010 (MSB → LSB) = strip type is incorrect] to the manager under test. 13. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 14. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000000100000 0x0020 (MSB → LSB) = sensor result higher than device can process] to the manager under test. 15. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 16. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000001000000 0x0040 (MSB → LSB) = sensor result lower than device can process] to the manager under test. 17. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 18. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000010000000 0x0080 (MSB → LSB) = ambient temperature too high for a valid test/result] to the manager under test. 19. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 20. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000000100000000 0x0100 (MSB → LSB) = ambient temperature too low for a valid test/result] to the manager under test. 21. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 22. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000001000000000 0x0200 (MSB → LSB) = reading was interrupted and/or strip was pulled too soon] to the manager under test. 23. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute. 24. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sensor Status Annunciation ID field set to 0000010000000000 0x0400 (MSB → LSB) = general device fault] to the manager under test. 25. Check in manager transcoder output for the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute.
<p>Pass/Fail criteria</p>	<p>In step 5, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: device-battery-low(0) → 0x8000.</p> <p>In step 7, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-malfunction(1) → 0x4000.</p>

	<p>In step 9, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-sample-size-insufficient(2) → 0x2000.</p> <p>In step 11, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-strip-insertion(3) → 0x1000.</p> <p>In step 13, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-strip-type-incorrect(4) → 0x0800.</p> <p>In step 15, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-result-too-high(5) → 0x0400.</p> <p>In step 17, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-result-too-low(6) → 0x0200.</p> <p>In step 19, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-temp-too-high(7) → 0x0100.</p> <p>In step 21, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-temp-too-low(8) → 0x0080.</p> <p>In step 23, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-read-interrupt(9) → 0x0040.</p> <p>In step 25, the Device & Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute is present and its value matches with the Sensor Status Annunciation Value field of the Glucose measurement characteristic: sensor-gen-fault(10) → 0x0020.</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Basic-Bit-Str attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Device & Sensor annunciation enumeration object ❑ Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662) ❑ Attribute-type: BITS-16 ❑ Attribute-value: 32768 (dec) or 0x8000 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check</p> <pre>OBX ? NM 8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^device-battery-low(0) R current_date_time]</pre> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Basic-Bit-Str attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Device & Sensor annunciation enumeration object ❑ Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662) ❑ Attribute-type: BITS-16 ❑ Attribute-value: 16384 (dec) or 0x4000 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check</p> <pre>OBX ? NM 8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^sensor-malfunction(1) R current_date_time]</pre>

In step 9, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 8192 (dec) or 0x2000 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

```
OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-sample-size-insufficient(2)|||R||[current_date_time]
```

In step 11, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 4096 (dec) or 0x1000 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

```
OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-strip-insertion(3)|||R||[current_date_time]
```

In step 13, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 2048(dec) or 0x0800 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

```
OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-strip-type-incorrect(4)|||R||[current_date_time]
```

In step 15, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 1024 (dec) or 0x0400 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

```
OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-result-too-
```

high(5)|||||R|||current_date_time] 1^(5)

In step 17, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 512(dec) or 0x0200 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-result-too-low(6)|||||R|||current_date_time]

In step 19, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 256 (dec) or 0x0100 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-temp-too-high(7)|||||R|||current_date_time]

In step 21, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 128 (dec) or 0x0080 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

OBX|?|NM| 8417752^MDC_GLU_METER_DEV_STATUS^MDC|1.0.0.a|1^sensor-temp-too-low(8)|||||R|||current_date_time]

In step 23, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Basic-Bit-Str attribute is present:

- Object: Device & Sensor annunciation enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)
- Attribute-type: BITS-16
- Attribute-value: 64 (dec) or 0x0040 (hex)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check

	<p>OBX ? NM 8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^sensor-read-interrupt(9) R [[current_date_time]</p> <p>In step 25, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Basic-Bit-Str attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Device & Sensor annunciation enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: 32 (dec) or 0x0020 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str attribute value. Check</p> <p>OBX ? NM 8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^device-gen-fault(10) R [[current_date_time]</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-051		
TP label		Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 4; M	GL Enumeration 5; M	Date-Time Conv 1; M
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Device & Sensor Annunciation Value and Base Time fields of Glucose Measurement characteristic</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_012		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00001010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, and Sensor Status Annunciation fields are included. Time Offset field is not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time 		

	<ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • Format: 16bit • Value: device battery low (0000000000000001 MSB → LSB) <p>5. Check that the manager accepts the measurement and decodes its value properly (sensor status annunciation and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following 'Sensor Status Annunciation' device battery low (0000000000000001) with the time stamp '2012-08-02 11:08:25'.
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-052		
TP label	Whitepaper. Glucosemeter Context Meal Enumeration Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 6; 0	
Test purpose	<p>Check that:</p> <p>Manager does not include Context Meal Enumeration Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Context Meal Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_013		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Meal is included and Carbohydrate ID, 		

	<p>Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context meal enumeration object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context meal enumeration object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context meal enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16

	<ul style="list-style-type: none"> □ Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message PCD-01 message does not include segments with a Handle attribute value.</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-053		
TP label	Whitepaper. Glucosemeter Context Meal Enumeration Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 7; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Meal Enumeration Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_PHD_DM MDC_CTXT_GLU_MEAL }</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_013		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity 		

	<ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Medication – units of kilograms</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Medication – units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context meal enumeration object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Context meal enumeration object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_GLU_MEAL }.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context meal object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) • code: MDC_CTXT_GLU_MEAL or 29256 (dec) or 7248 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3): OBX)?[CWE]8417864^MDC_CTXT_GLU_MEAL^MDC 1.0.0.7 8417868^ MDC_CTXT_GLU_MEAL_PREPRANDIAL^MDC R [current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-054		
TP label	Whitepaper. Glucosemeter Context Meal Enumeration Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 8; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Meal Enumeration Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048 (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual)}.</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_013		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		

<p>Test procedure</p>	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. 5. Check in manager transcoder output for the Context meal enumeration object – Metric-Spec-Small attribute.
<p>Pass/Fail criteria</p>	<p>In step 5, the Context meal enumeration object – Metric-Spec-Small attribute is present and</p>

	its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context meal numeric object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-055		
TP label	Whitepaper. Glucosemeter Context Meal Enumeration Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 9; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Meal Enumeration Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_013		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, 		

	<p>Type and Sample Location and Time Offset fields are included. Sensor Status Annunciation field is not included. Context information follows</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • Format: uint8 • Value: Not relevant vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health
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	<ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration • This field is not included x. Field: Exercise Intensity • This field is not included xi. Field: Medication ID • This field is not included xii. Medication – units of kilograms • This field is not included xiii. Medication – units of litres • This field is not included xiv. Field: HbA1c • This field is not included <p>5. Check in manager transcoder output for the Context meal enumeration object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 5, the Context meal enumeration object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context meal object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value:</p> <pre>OBX ? CWE 8417864^MDC_CTXT_GLU_MEAL^MDC 1.0.0.7 8417868^ MDC_CTXT_GLU_MEAL_PREPRANDIAL^MDC R 20120802125927+0000</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-056		
TP label	Whitepaper. Glucosemeter Context Meal Enumeration Object - Enum-Observed-Value-Simple-OID Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 10; M	

Test purpose	Check that: Manager transcodes Context Meal value field of Glucose Measurement Context characteristic into Context Meal Enumeration Object - Enum-Observed-Value-Simple-OID attribute
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_013
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • Format: uint8 • Value: Several values are checked in this test case vii. Field: Tester <ul style="list-style-type: none"> • This field is not included viii. Field: Health <ul style="list-style-type: none"> • This field is not included ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).

	<ol style="list-style-type: none"> 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context [Meal field set to 0x01 = Preprandial (before meal)] to the manager under test. 5. Check in manager transcoder output for the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute. 6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Meal field set to 0x02 = Postprandial (after meal)] to the manager under test. 7. Check in manager transcoder output for the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute. 8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Meal field set to 0x03 = Fasting] to the manager under test. 9. Check in manager transcoder output for the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute. 10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Meal field set to 0x04 = Casual] to the manager under test. 11. Check in manager transcoder output for the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute. 12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Meal field set to 0x05 = Bedtime] to the manager under test. 13. Check in manager transcoder output for the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute.
<p>Pass/Fail criteria</p>	<p>In step 5, the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Meal Value field of the Glucose measurement context characteristic: 0x1 (preprandial – before meal).</p> <p>In step 7, the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Meal Value field of the Glucose measurement context characteristic: 0x2 (postprandial – after meal).</p> <p>In step 9, the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Meal Value field of the Glucose measurement context characteristic: 0x3 (fasting).</p> <p>In step 11, the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Meal Value field of the Glucose measurement context characteristic: 0x4 (casual – snacks, drinks etc.).</p> <p>In step 13, the Context meal enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Meal Value field of the Glucose measurement context characteristic: 0x5 (bedtime).</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes Enum-Observed-Value-Simple-OID attribute is present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context meal enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_MEAL_PREPRANDIAL (29260) or 1 (dec) b) WAN PCD-01 message <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =</p>

8417868^MDC_CTXT_GLU_MEAL_PREPRANDIAL^MDC

In step 7, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Simple-OID attribute is present:

- Object: Context meal enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
- Attribute-type: OID-Type(INT-U16)
- Attribute-value: MDC_CTXT_GLU_MEAL_POSTPRANDIAL (29264) or 2 (dec)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =

8417872^MDC_CTXT_GLU_MEAL_POSTPRANDIAL^MDC

In step 9, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Simple-OID attribute is present:

- Object: Context meal enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
- Attribute-type: OID-Type(INT-U16)
- Attribute-value: MDC_CTXT_GLU_MEAL_FASTING (29268) or 3 (dec)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =

8417876^MDC_CTXT_GLU_MEAL_FASTING^MDC

In step 11, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Simple-OID attribute is present:

- Object: Context meal enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
- Attribute-type: OID-Type(INT-U16)
- Attribute-value: MDC_CTXT_GLU_MEAL_CASUAL (29272) or 4 (dec)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =

8417880^MDC_CTXT_GLU_MEAL_CASUAL^MDC

In step 13, possible values in typical points of observation after transcoder output are:

a) IEEE 11073 Objects and Attributes

Enum-Observed-Value-Simple-OID attribute is present:

- Object: Context meal enumeration object
- Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
- Attribute-type: OID-Type(INT-U16)
- Attribute-value: MDC_CTXT_GLU_MEAL_BEDTIME (29300) or 5 (dec)

b) WAN PCD-01 message

PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =

8417908^MDC_CTXT_GLU_MEAL_BEDTIME^MDC

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-057		
TP label		Whitepaper. Glucosemeter Context Meal Enumeration Object value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 9; M	GL Enumeration 10; M	Date-Time Conv 1; M
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Context Meal Value and Base Time fields of Glucose Measurement and Glucose Measurement Context characteristics</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_013		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset fields and Sensor Status Annunciation field are not included and Context Information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location 		

	<ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0010 (MSB → LSB). Meal field is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value, Extended Flags and HbA1c fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • Format: uint8 • Value: preprandial – before meal (1) <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Health</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (Meal value and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following Meal preprandial – before meal (MDC_CTXT_GLU_MEAL_PREPRANDIAL or 29260) with the time stamp '2012-08-02 11:08:25'.
Notes	

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-058		
TP label		Whitepaper. Glucosemeter Context Sample Location Enumeration Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 11; O		
Test purpose		<p>Check that:</p> <p>Manager does not include Context Sample Location Enumeration Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Context Sample Location Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included. Time Offset and Sensor Status Annunciation fields are not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • Value: Not relevant v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included 		

	<p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Context Sample Location Enumeration object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context Sample Location Enumeration object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-059		
TP label	Whitepaper. Glucosemeter Context Sample Location Enumeration Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 12; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Sample Location Enumeration Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_PHD_DM MDC_CTXT_GLU_SAMPLELOCATION }</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</p> <p>a. Glucose measurement (0x2A18)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included. Time Offset and Sensor Status Annunciation fields are not included. Context information does not follow <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Base Time</p>		

	<ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>iv. Field: Time Offset</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Glucose Concentration - units of kg/L</p> <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant <p>vi. Field: Glucose Concentration - units of mol/L</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Type</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Sample Location</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement to the manager under test.</p> <p>5. Check in manager transcoder output for the Context Sample Location Enumeration object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Context Sample Location Enumeration object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_GLU_SAMPLELOCATION }.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) • code: MDC_CTXT_GLU_SAMPLELOCATION or 29236 (dec) or 7234 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <p>OBX ? ? 8417844^MDC_CTXT_GLU_SAMPLELOCATION^MDC 1.0.0.a [value]] 263872^MDC_DIM_G^MDC R current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-060		
TP label	Whitepaper. Glucosemeter Context Sample Location Enumeration Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 13; M	

Test purpose	<p>Check that:</p> <p>Manager includes Context Sample Location Enumeration Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048 (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual)}.</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included. Time Offset and Sensor Status Annunciation are not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement to the manager under test. 5. Check in manager transcoder output for the Context Sample Location Enumeration

	object – Metric-Spec-Small attribute.
Pass/Fail criteria	In step 5, the Context Sample Location Enumeration object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context Sample Location Enumeration object ❑ Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) ❑ Attribute-type: BITS-16 ❑ Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-061		
TP label	Whitepaper. Glucosemeter Context Sample Location Enumeration Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 14; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Sample Location Enumeration Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit 		

	<ul style="list-style-type: none"> • Value: 00000011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Time Offset fields are included. Sensor Status Annunciation field is not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context Sample Location Enumeration object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 5, the Context Sample Location Enumeration object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec)

	<ul style="list-style-type: none"> • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? ? 8417844^MDC_CTXT_GLU_SAMPLELOCATION^MDC 1.0.0.a 130 263872^MDC_DIM_G^MDC R 20120802 125927+0000</p>
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TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-062		
TP label	Whitepaper. Glucosemeter Context Sample Location Enumeration Object - Enum-Observed-Value-Simple-OID Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 15; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Context Sample Location value field of Glucose Measurement Context characteristic into Context Sample Location Enumeration Object - Enum-Observed-Value-Simple-OID attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included. Time Offset and Sensor Status Annunciation fields are not included. Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location 		

	<ul style="list-style-type: none"> • Format: nibble • Value: Several values are checked in this test case <p>ix. Field: Sensor Status Annunciation</p> <ul style="list-style-type: none"> • This field is not included <ol style="list-style-type: none"> 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sample Location ID field set to 0x01 = Finger] to the manager under test. 5. Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute. 6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sample Location ID field set to 0x02 = Alternate Site Test (AST)] to the manager under test. 7. Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute. 8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sample Location ID field set to 0x03 = Earlobe] to the manager under test. 9. Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute. 10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sample Location ID field set to 0x04 = Control Solution] to the manager under test. 11. Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute.
Pass/Fail criteria	<p>In step 5, the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Sample Location Value field of the Glucose measurement characteristic: 0x1 (finger).</p> <p>In step 7, the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Sample Location Value field of the Glucose measurement characteristic: 0x2 (alternate site test).</p> <p>In step 9, the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Sample Location Value field of the Glucose measurement characteristic: 0x3 (earlobe).</p> <p>In step 11, the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Sample Location Value field of the Glucose measurement characteristic: 0x4 (control solution).</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_SAMPLELOCATION_FINGER (29240) or 1 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-3 = 8417848^MDC_CTXT_GLU_SAMPLELOCATION_FINGER^MDC</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p>

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_SAMPLELOCATION_AST (29244) or 2 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-3 = 8417852^MDC_CTXT_GLU_SAMPLELOCATION_AST^MDC</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_SAMPLELOCATION_EARLOBE (29248) or 3 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-3 = 8417856^MDC_CTXT_GLU_SAMPLELOCATION_EARLOBE^MDC</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Sample Location Enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_SAMPLELOCATION_CTRLsolution(29252) or 4 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-3 = 8417860^MDC_CTXT_GLU_SAMPLELOCATION_CTRLsolution^MDC</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-063		
TP label		Whitepaper. Glucosemeter Context Sample Location Enumeration Object value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 14; M	GL Enumeration 15; M	Date-Time Conv 1; M
Test purpose		Check that: Manager processes correctly the Context Sample Location Value and Base Time fields of Glucose Measurement characteristic		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_014		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		

<p>Test procedure</p>	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement [Sample Location field set to 0x0001 = Finger] followed by the Glucose measurement context to the manager under test: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00000010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included. Time Offset and Sensor Status Annunciation fields are not included. Context information does not follow ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: finger (0001 MSB → LSB) ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included 5. Check that the manager accepts the measurement and decodes its value properly (sample location and base time).
<p>Pass/Fail criteria</p>	<p>In step 5, the manager under test shows the following Sample Location finger (MDC_CTXT_GLU_SAMPLELOCATION_FINGER or 29240) with the time stamp '2012-08-02 11:08:25'.</p>
<p>Notes</p>	

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-064		
TP label		Whitepaper. Glucosemeter Context Tester Enumeration Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 16; O		
Test purpose		<p>Check that:</p> <p>Manager does not include Context Tester Enumeration Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Context Tester Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_015		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID 		

	<ul style="list-style-type: none"> • This field is not included <p>xii. Medication – units of kilograms</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Medication – units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context tester enumeration object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context tester enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-065		
TP label	Whitepaper. Glucosemeter Context Tester Enumeration Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 17; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Tester Enumeration Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_PHD_DM MDC_CTXT_GLU_TESTER }</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_015		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</p> <p>a. Glucose measurement context (0x2A34)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, 		

	<p>Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included</p> <ul style="list-style-type: none"> ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context tester enumeration object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_GLU_TESTER }.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Tester object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351)

	<ul style="list-style-type: none"> ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} ❑ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) • code: MDC_CTXT_GLU_TESTER or 29276 (dec) or 72 5C (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ?[CWE 8417884^MDC_CTXT_GLU_TESTER^MDC 1.0.0.7 8417888^ MDC_CTXT_GLU_TESTER_SELF^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-066	
TP label		Whitepaper. Glucosemeter Context Tester Enumeration Object - Metric-Spec-Small Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 18; M	
Test purpose		<p>Check that:</p> <p>Manager includes Context Tester Enumeration Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048 (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual)}.</p>	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_015	
Other PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.	
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble 	

	<ul style="list-style-type: none"> • Value: Not relevant <p>viii. Field: Health</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Medication – units of kilograms</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Medication – units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context tester enumeration object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context tester enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-067		
TP label	Whitepaper. Glucosemeter Context Tester Enumeration Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 19; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	Check that: Manager transcodes Base Time field in conjunction with Time Offset field of Glucose		

	<p>Measurement characteristic into Context Tester Enumeration Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_015
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Time Offset fields are included. Sensor Status Annunciation field is not included. Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble

	<ul style="list-style-type: none"> • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included b. Glucose measurement context (0x2A34) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context tester enumeration object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	Possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes

	<p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Context tester enumeration object ❑ Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) ❑ Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) ❑ Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value:</p> <pre>OBX ? CWE 8417884^MDC_CTXT_GLU_TESTER^MDC 1.0.0.7 8417888^ MDC_CTXT_GLU_TESTER_SELF^MDC R 20120802125927+0000</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-068		
TP label		Whitepaper. Glucosemeter Context Tester Enumeration Object - Enum-Observed-Value-Simple-OID Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 20; M		
Test purpose		<p>Check that:</p> <p>Manager transcodes Context Tester value field of Glucose Measurement Context characteristic into Context Tester Enumeration Object - Enum-Observed-Value-Simple-OID attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_015		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags 		

	<ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Several values are checked in this test case viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context [Tester field set to 0x01 = Self] to the manager under test.</p> <p>5. Check in manager transcoder output for the Context tester enumeration object - Enum-Observed-Value-Simple-OID attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Tester field set to 0x02 = Health Care Professional] to the manager under test.</p> <p>7. Check in manager transcoder output for the Context tester enumeration object - Enum-Observed-Value-Simple-OID attribute.</p> <p>8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Tester field set to 0x03 = Lab test] to the manager under test.</p> <p>9. Check in manager transcoder output for the Context tester enumeration object - Enum-Observed-Value-Simple-OID attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Tester Value field of the Glucose measurement context characteristic: 0x1 (self).

	<p>In step 7, the Context tester enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Tester Value field of the Glucose measurement context characteristic: 0x2 (Health Care Professional).</p> <p>In step 9, the Context tester enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Tester Value field of the Glucose measurement context characteristic: 0x3 (Lab test).</p>
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context tester enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_TESTER_SELF (29280) or 1 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 = 8417888^MDC_CTXT_GLU_TESTER_SELF^MDC</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context tester enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_TESTER_HCP (29284) or 2 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 = 8417892^MDC_CTXT_GLU_TESTER_HCP^MDC</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context tester enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_TESTER_LAB (29288) or 3 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 = 8417896^MDC_CTXT_GLU_TESTER_LAB^MDC</p>

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-069		
TP label		Whitepaper. Glucosemeter Context Tester Enumeration Object value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 19; M	GL Enumeration 20; M	Date-Time Conv 1; M
Test purpose		Check that: Manager processes correctly the Context Tester Value and Base Time fields of Glucose		

	Measurement and Glucose Measurement Context characteristics
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_015
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset fields and Sensor Status Annunciation field are not included and Context Information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ol style="list-style-type: none"> ii. Format: Date and Time <ul style="list-style-type: none"> • Value: August 2nd, 2012, 11:08:25 iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included b. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags

	<ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester and Health fields are included and Carbohydrate ID, Carbohydrate, Meal, Exercise Duration and Exercise Intensity, Medication ID, Medication Value, Extended Flags and HbA1c fields are not included <p>ii. Field: Sequence number</p> <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant <p>iii. Field: Extended Flags</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Carbohydrate ID</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Carbohydrate</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Meal</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • Format: nibble • Value: self (0001 MSB → LSB) <p>viii. Field: Health</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Medication</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (Tester value and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following Tester self (MDC_CTXT_GLU_TESTER_SELF or 29280) with the time stamp '2012-08-02 11:08:25'.
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-070		
TP label	Whitepaper. Glucosemeter Context Health Enumeration Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 21; O	
Test purpose	Check that: Manager does not include Context Health Enumeration Object – Handle Attribute in transcoder output		

	[OR] If manager includes Context Health Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_016
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucosemeter profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included

	<p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context health enumeration object – Handle attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object – Handle attribute is not present; however, if it is present then its value is different to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context health enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value other than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Handle attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-071		
TP label	Whitepaper. Glucosemeter Context Health Enumeration Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 22; M	
Test purpose	<p>Check that:</p> <p>Manager includes Context Tester Enumeration Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to { MDC_PART_PHD_DM MDC_CTXT_GLU_HEALTH }</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_016		
Other PICS			
Initial condition	The manager under test and the simulated agent are in the standby state.		
Test procedure	<p>1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable).</p> <p>2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</p> <p>a. Glucose measurement context (0x2A34)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context health enumeration object – Type attribute.</p>
Pass/Fail criteria	In step 5, the Context tester enumeration object – Type attribute is present and its value is { MDC_PART_PHD_DM MDC_CTXT_GLU_HEALTH }.
Notes	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context Health object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex) • code: MDC_CTXT_GLU_HEALTH or 29212 (dec) or 72 1C (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):</p> <pre>OBX ? CWE 8417820 ^MDC_CTXT_GLU_HEALTH^MDC 1.0.0.7 8417824 ^</pre>

	MDC_CTXT_GLU_HEALTH_MINOR ^MDC R [current_date_time]
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-072	
TP label		Whitepaper. Glucosemeter Context Health Enumeration Object - Metric-Spec-Small Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 23; M	
Test purpose		<p>Check that:</p> <p>Manager includes Context Health Enumeration Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF048 (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual)}.</p>	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_016	
Other PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.	
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included 	

	<ul style="list-style-type: none"> x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test.</p> <p>5. Check in manager transcoder output for the Context health enumeration object – Metric-Spec-Small attribute.</p>
Pass/Fail criteria	In step 5, the Context health enumeration object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context health enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with a Metric-Spec-Small attribute value.</p>

TP Id	TP/LP-PAN/MAN/PHDTW/GL/BV-073		
TP label	Whitepaper. Glucosemeter Context Health Enumeration Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 24; M	Date-Time Conv 2; M
Date-Time Conv 4; M		Date-Time Conv 5; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Health Enumeration Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_016
Other PICS	
Initial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Time Offset fields are included. Sensor Status Annunciation field is not included. Context information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:59:27 iv. Field: Time Offset <ul style="list-style-type: none"> • Format: sint16 • Value: 120 minutes v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included b. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit

	<ul style="list-style-type: none"> • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Medication – units of kilograms <ul style="list-style-type: none"> • This field is not included xiii. Medication – units of litres <ul style="list-style-type: none"> • This field is not included xiv. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check in manager transcoder output for the Context health enumeration object – Absolute-Time-Stamp attribute.</p>
Pass/Fail criteria	In step 5, the Context health enumeration object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose measurement characteristic and the fraction of seconds is set to 0.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context tester enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value:

	<ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 12 (hex) or 18 (dec) • minute: 59 (hex) or 89 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value:</p> <pre>OBX ?[CWE] 8417820^MDC_CTXT_GLU_HEALTH^MDC 1.0.0.7 8417824^MDC_CTXT_GLU_HEALTH_MINOR^MDC R 20120802125927+0000</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-074		
TP label		Whitepaper. Glucosemeter Context Health Enumeration Object - Enum-Observed-Value-Simple-OID Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 25; M		
Test purpose		<p>Check that:</p> <p>Manager transcodes Context Health value field of Glucose Measurement Context characteristic into Context Health Enumeration Object - Enum-Observed-Value-Simple-OID attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_016		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement context (0x2A34) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester-Health is included and Meal, Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate - units of kilograms <ul style="list-style-type: none"> • This field is not included vi. Field: Meal 		

	<ul style="list-style-type: none"> • This field is not included <p>vii. Field: Tester</p> <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant <p>viii. Field: Health</p> <ul style="list-style-type: none"> • Format: nibble • Value: Several values are checked in this test case <p>ix. Field: Exercise Duration</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Exercise Intensity</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Medication ID</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Medication – units of kilograms</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Medication – units of litres</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: HbA1c</p> <ul style="list-style-type: none"> • This field is not included <p>3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state).</p> <p>4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context [Health field set to 0x01 = Minor health issues] to the manager under test.</p> <p>5. Check in manager transcoder output for the Context HealthEnumeration object - Enum-Observed-Value-Simple-OID attribute.</p> <p>6. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Health field set to 0x02 = Major Health Issues] to the manager under test.</p> <p>7. Check in manager transcoder output for the Context HealthEnumeration object - Enum-Observed-Value-Simple-OID attribute.</p> <p>8. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Health field set to 0x03 = Menses] to the manager under test.</p> <p>9. Check in manager transcoder output for the Context HealthEnumeration object - Enum-Observed-Value-Simple-OID attribute</p> <p>10. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Health field set to 0x04 = Under stress] to the manager under test.</p> <p>11. Check in manager transcoder output for the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute.</p> <p>12. The manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement context [Health field set to 0x05 = No health issues] to the manager under test.</p> <p>13. Check in manager transcoder output for the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute.</p>
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<p>Pass/Fail criteria</p>	<p>In step 5, the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Health Value field of the Glucose measurement context characteristic: 0x1 (Minor health issues).</p> <p>In step 7, the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Health Value field of the Glucose measurement context characteristic: 0x2 (Major health issues).</p> <p>In step 9, the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Health Value field of Glucose measurement context characteristic: 0x3 (Menses).</p> <p>In step 11, the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Health Value field of Glucose measurement context characteristic: 0x4 (Under stress).</p> <p>In step 13, the Context health enumeration object - Enum-Observed-Value-Simple-OID attribute is present and its value matches with the Context Health Value field of Glucose measurement context characteristic: 0x5 (No health issues).</p>
<p>Notes</p>	<p>In step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context health enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_HEALTH_MINOR (29216) or 1 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 = 8417824^MDC_CTXT_GLU_HEALTH_MINOR^MDC</p> <p>In step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context HealthEnumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_HEALTH_MAJOR (29220) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 = 8417828^MDC_CTXT_GLU_HEALTH_MAJOR^MDC</p> <p>In step 9, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context HealthEnumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_HEALTH_MENSES(29224) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 = 8417832^MDC_CTXT_GLU_HEALTH_MENSES^MDC</p> <p>In step 11, possible values in typical points of observation after transcoder output are:</p>

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context health enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_HEALTH_STRESS (29228) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =</p> <p>8417836^MDC_CTXT_GLU_HEALTH_STRESS^MDC</p> <p>In step 13, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Enum-Observed-Value-Simple-OID attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Context health enumeration object <input type="checkbox"/> Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633) <input type="checkbox"/> Attribute-type: OID-Type(INT-U16) <input type="checkbox"/> Attribute-value: MDC_CTXT_GLU_HEALTH_NONE (29232) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with an Enum-Observed-Value-Simple-OID attribute value. Check OBX-2 = CWE AND OBX-5 =</p> <p>8417840^MDC_CTXT_GLU_HEALTH_NONE^MDC</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-075		
TP label		Whitepaper. Glucosemeter Context Health Enumeration Object value		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Enumeration 24; M	GL Enumeration 25; M	Date-Time Conv 1; M
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Context Health Value and Base Time fields of Glucose Measurement and Glucose Measurement Context characteristics</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_016		
Other PICS				
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol style="list-style-type: none"> 1. The simulated agent is configured with a Glucose profile (device specialization); it has a measurement ready to be sent and it is in the advertising state (it is discoverable). 2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) b. Glucose measurement context (0x2A34) 3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent (initiating state). 4. When the pairing has been completed (connection state), the manager under test requests the simulated agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context to the manager under test. The measurement of interest for this test case are: <ol style="list-style-type: none"> a. Glucose measurement (0x2A18) 		

	<ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset fields and Sensor Status Annunciation field are not included and Context Information follows ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Base Time <ul style="list-style-type: none"> iii. Format: Date and Time <ul style="list-style-type: none"> • Value: August 2nd, 2012, 11:08:25 iv. Field: Time Offset <ul style="list-style-type: none"> • This field is not included v. Field: Glucose Concentration - units of kg/L <ul style="list-style-type: none"> • Format: SFLOAT • Value: Not relevant vi. Field: Glucose Concentration - units of mol/L <ul style="list-style-type: none"> • This field is not included vii. Field: Type <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Sample Location <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant ix. Field: Sensor Status Annunciation <ul style="list-style-type: none"> • This field is not included <p>b. Glucose measurement context (0x2A34)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8 bit • Value: 0000 0100 (MSB → LSB). Tester and Health fields are included and Carbohydrate ID, Carbohydrate, Meal, Exercise Duration and Exercise Intensity, Medication ID, Medication Value, Extended Flags and HbA1c fields are not included ii. Field: Sequence number <ul style="list-style-type: none"> • Format: uint16 • Value: Not relevant iii. Field: Extended Flags <ul style="list-style-type: none"> • This field is not included iv. Field: Carbohydrate ID <ul style="list-style-type: none"> • This field is not included v. Field: Carbohydrate <ul style="list-style-type: none"> • This field is not included vi. Field: Meal <ul style="list-style-type: none"> • This field is not included
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	<ul style="list-style-type: none"> vii. Field: Tester <ul style="list-style-type: none"> • Format: nibble • Value: Not relevant viii. Field: Health <ul style="list-style-type: none"> • Format: nibble • Value: minor health issues (0001 MSB → LSB) ix. Field: Exercise Duration <ul style="list-style-type: none"> • This field is not included x. Field: Exercise Intensity <ul style="list-style-type: none"> • This field is not included xi. Field: Medication ID <ul style="list-style-type: none"> • This field is not included xii. Field: Medication <ul style="list-style-type: none"> • This field is not included xiii. Field: HbA1c <ul style="list-style-type: none"> • This field is not included <p>5. Check that the manager accepts the measurement and decodes its value properly (Health value and base time).</p>
Pass/Fail criteria	In step 5, the manager under test shows the following Health minor health issues (MDC_CTXT_GLU_HEALTH_MINOR or 29216) with the time stamp '2012-08-02 11:08:25'.
Notes	

A.7 Subgroup 2.4.6: Whitepaper Weight scale requirements (WS)

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-000		
TP label	Whitepaper. Weight Scale MDS Object - System-Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	WS Specific MDS 1; M	
Test purpose	Check that: Manager does not include MDS Object – System-Type attribute in transcoder output.		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 3. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test 4. Check in Manager transcoder output the MDS Object – System-Type attribute 		
Pass/Fail criteria	In Step 4, the MDS Object – System-Type attribute is not present		
Notes	Possible values in typical points of observation after transcoder output are:		

	<p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type attribute is not present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS Object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE (2438) <input type="checkbox"/> Attribute-type: TYPE <input type="checkbox"/> Attribute-value: <NOT PRESENT> <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with System-Type attribute value (67974^MDC_ATTR_SYS_TYPE^MDC)</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-001		
TP label		Whitepaper. Weight Scale MDS Object - Dev-Configuration-Id Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Common MDS 17; M		
Test purpose		<p>Check that:</p> <p>Manager includes MDS Object – Dev-Configuration-Id attribute in transcoder output.</p> <p>[AND]</p> <p>Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (Extended Configuration)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial Condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state) 3. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test 4. Check in Manager transcoder output the MDS Object – Dev-Configuration-Id attribute 		
Pass/Fail criteria		In Step 4, the MDS Object – Dev-Configuration-Id attribute is present, its value is inside the range 0x4000 - 0x7FFF		
Notes		<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Dev-Configuration-Id attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS Object <input type="checkbox"/> Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628) <input type="checkbox"/> Attribute-type: INT-U16 		

	<ul style="list-style-type: none"> ❑ Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex) <p>b) WAN PCD-01 message</p> <p>According to Continua DG, the Dev-Configuration-Id shall not be transmitted in PCD-01 message, therefore it is not possible to check this attribute.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-002		
TP label		Whitepaper. Weight Scale MDS Object - System-Type-Spec-List Attribute [Profile Scale]		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Common MDS 15; M	WS Specific MDS 2; M	
Test purpose		<p>Check that:</p> <p>Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.</p> <p>[AND]</p> <p>System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_SCALE, Version 1)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND (NOT C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). It exposes only the Weight Scale Service. 2. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 3. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test 4. Check in Manager transcoder output the MDS Object – System-Type-Spec-List attribute 		
Pass/Fail criteria		In Step 4, the MDS Object – System-Type-Spec-List attribute is present, its value is (MDC_DEV_SPEC_PROFILE_SCALE, Version 1)		
Notes		<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type-Spec-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS Object ❑ Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650) ❑ Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}] ❑ Attribute-value: <ul style="list-style-type: none"> • type: MDC_DEV_SPEC_PROFILE_SCALE, 4111 (dec) or 10 0F (hex) • version: 1 (dec) or 00 01 (hex) <p>b) WAN PCD-01 message</p>		

	PCD-01 message includes a segment like this (check OBX-3): OBX ? 528399^MDC_DEV_SPEC_PROFILE_SCALE^MDC 1 X [System-Id]
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TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-002_A		
TP label	Whitepaper. Weight Scale MDS Object - System-Type-Spec-List Attribute [Profile BCA]		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Common MDS 15; M	WS Specific MDS 2; M
Test purpose	<p>Check that:</p> <p>Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.</p> <p>[AND]</p> <p>System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_BCA, Version 1)</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND C_MAN_BLE_018		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). It exposes both Weight Scale Service and Body Composition Service 2. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 3. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test 4. Check in Manager transcoder output the MDS Object – System-Type-Spec-List attribute 		
Pass/Fail criteria	In Step 4, the MDS Object – System-Type-Spec-List attribute is present, its value is (MDC_DEV_SPEC_PROFILE_BCA, Version 1).		
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>System-Type-Spec-List attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: MDS Object <input type="checkbox"/> Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650) <input type="checkbox"/> Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}] <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • type: MDC_DEV_SPEC_PROFILE_BCA, 4116 (dec) or 10 14 (hex) • version: 1 (dec) or 00 01 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this (check OBX-3):</p> <p>OBX ? 528404^MDC_DEV_SPEC_PROFILE_BCA ^MDC 1 X [System-Id]</p>		

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-003		
TP label		Whitepaper. Weight Scale MDS Object - Reg-Cert-Data-List Attribute [Profile Scale]		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Common MDS 14; M	Regulatory Conv 1; M	
Test purpose		Check that: Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND (NOT C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). It exposes only the Weight Scale Service. 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A) <ul style="list-style-type: none"> • Format: reg-cert-data-list (opaque structure) • Value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 0F 02 02 00 02 80 00 (hex) <ol style="list-style-type: none"> i. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 0F (hex) BTLE Weight Scale. ii. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent 4. When the pairing has been completed (Connection state), force Manager under test to read IEEE 11073-20601 Regulatory Certification Data List characteristic 5. Check in Manager transcoder output the MDS Object – Reg-Cert-Data-List attribute 		
Pass/Fail criteria		In Step 5, the MDS Object – Reg-Cert-Data-List attribute is present and its value matches with IEEE 11073-20601 Regulatory Certification Data List characteristic value		
Notes		Possible values in typical points of observation after transcoder output are:		

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Reg-Cert-Data-List attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: MDS Object ❑ Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635) ❑ Attribute-type: SEQUENCE OF [{auth-body-and-struct-type, auth-body-data}, {...}] ❑ Attribute-value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 0F 02 02 00 02 80 00 (hex) [Note that 0x00 0x02 is the number of elements in the sequence and 0x00 0x12 is the length of the sequence] <ul style="list-style-type: none"> i. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 0F (hex). BTLE Weight Scale. ii. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):</p> <pre>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a 2^auth-body-continua R OBX ? ST 532352^MDC_REG_CERT_DATA_CONTINUA_VERSION^MDC 1.0.0.a.x 5.1 R OBX ? NA 532353^MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST^MDC 1.0.0.a.y 32783 R OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.b 2^auth-body-continua R OBX ? CWE 532354^MDC_REG_CERT_DATA_CONTINUA_REG_STATUS^MDC 1.0.0.b.z 1^unregulated-device(0) R</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-003_A		
TP label		Whitepaper. Weight Scale MDS Object - Reg-Cert-Data-List Attribute [Profile BCA]		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Common MDS 14; M	Regulatory Conv 1; M	
Test purpose		Check that:		

	Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND C_MAN_BLE_018
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A) <ul style="list-style-type: none"> • Format: reg-cert-data-list (opaque structure) • Value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 14 02 02 00 02 80 00 (hex) iii. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices: 80 14 (hex). BTLE Body Composition. iv. Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent 4. When the pairing has been completed (Connection state), force Manager under test to read IEEE 11073-20601 Regulatory Certification Data List characteristic 5. Check in Manager transcoder output the MDS Object – Reg-Cert-Data-List attribute
Pass/Fail criteria	In Step 6, the MDS Object – Reg-Cert-Data-List attribute is present and its value matches with IEEE 11073-20601 Regulatory Certification Data List characteristic value
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes Reg-Cert-Data-List attribute is present: <ul style="list-style-type: none"> ❑ Object: MDS Object ❑ Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635) ❑ Attribute-type: SEQUENCE OF [{auth-body-and-struct-type, auth-body-data}, {...}] ❑ Attribute-value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 14 02 02 00 02 80 00 (hex) [Note that 0x00 0x02 is the number of elements in the sequence and 0x00 0x12 is the length of the sequence]

	<ul style="list-style-type: none"> iii. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex) auth-body-continua(2) - auth-body-struct-type: 01 (hex). continua-version-struct(1) • auth-body-data: <ul style="list-style-type: none"> - major-IG-version: 05 (hex) - minor-IG-version: 01 (hex) - certified-devices 80 14 (hex). BTLE Body Composition. iv. Reg-Cert-Data Element: <ul style="list-style-type: none"> • auth-body-and-struct-type: <ul style="list-style-type: none"> - auth-body: 02 (hex). auth-body-continua(2) - auth-body-struct-type: 02 (hex). continua-reg-struct(2) • auth-body-data: <ul style="list-style-type: none"> - regulation-bit-field: 80 00 (hex). Unregulated device <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):</p> <pre>OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a 2^auth-body-continua R OBX ? ST 532352^MDC_REG_CERT_DATA_CONTINUA_VERSION^MDC 1.0.0.a.x 5.1 R OBX ? NA 532353^MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST^MDC 1.0.0.a.y 32788 R OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.b 2^auth-body-continua R OBX ? CWE 532354^MDC_REG_CERT_DATA_CONTINUA_REG_STATUS^MDC 1.0.0.b.z 1^unregulated-device(0) R</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-004		
TP label		Whitepaper. Weight Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Weight Numeric 1; 0		
Test purpose		<p>Check that:</p> <p>Manager does not include Weight Numeric Object – Handle Attribute in transcoder output [OR]</p> <p>If Manager includes Weight Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a		

	<p>measurement ready to be sent and it is in Advertising state (it is discoverable).</p> <p>2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</p> <p>a. Weight Measurement (0x2A9D)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Weight Numeric Object – Handle attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value different than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Handle attribute value</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-005		
TP label		Whitepaper. Weight Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Weight Numeric 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes Weight Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_ACTUAL}</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, BMI, Height and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included 3. Manager under test initiates discovery process (Scanning state), it discovers the 		

	<p>Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Weight Numeric Object – Type attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_MASS_BODY_ACTUAL}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_MASS_BODY_ACTUAL or 57664 (dec) or E1 40 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Type attribute (check OBX-3): OBX ? 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a X [current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-006		
TP label	Whitepaper. Weight Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Weight Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes Weight Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 		

	<ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Weight Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message PCD-01 message does not include segments with Metric-Spec-Small attribute value</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-007		
TP label		Whitepaper. Weight Numeric Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Weight Numeric 4; M	Weight Numeric 5; M	
Test purpose		<p>Check that:</p> <p>Manager includes Weight Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Weight (Kg) field of Weight Measurement characteristic is present THEN Weight Numeric Object – Unit-Code attribute is set to MDC_DIM_KILO_G</p> <p>[AND]</p> <p>IF Weight (lb) field of Weight Measurement characteristic is present THEN Weight Numeric Object – Unit-Code attribute is set to MDC_DIM_LB</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Weight Numeric Object – Unit-Code attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ul style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0011 (MSB → LSB). Weight Measurement Value in units of Pounds and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • This field is not included iii. Field: Weight (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Weight Numeric Object – Unit-Code attribute</p>
Pass/Fail criteria	<p>In Step 5, the Weight Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G</p> <p>In Step 7, the Weight Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454)

	<ul style="list-style-type: none"> <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_KILO_G or 1731 (dec) or 06 C3 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a XX 263875^MDC_DIM_KILO_G^MDC R [[current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_LB or 1760 (dec) or 06 E0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a XX 263904^MDC_DIM_LB^MDC R [[current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-008		
TP label		Whitepaper. Weight Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Weight Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Time Stamp field of Weight Measurement characteristic into Weight Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_024 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable).		

	<p>2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</p> <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Weight Numeric Object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Weight Measurement characteristic and fraction of seconds is set to 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value:

	<ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a XX X 20120802103927+0000</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-009		
TP label		Whitepaper. Weight Numeric Object - Simple-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Weight Numeric 7; M	Float Type 1; C	
Test purpose		<p>Check that:</p> <p>Manager transcodes Weight Value field of Weight Measurement characteristic into Weight Numeric Object - Simple-Nu-Observed-Value attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) 		

	<ul style="list-style-type: none"> • Format: UINT16 • Value: 16000 (80.0 kg) <p>iii. Field: Weight (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>iv. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>v. Field: Height (m)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Height (in)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: BMI (kg/m²)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed-Value attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <p>a. Weight Measurement (0x2A9D)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0011 (MSB → LSB). Weight Measurement Value in units of Pounds, Time Stamp field is included and Height, BMI and User ID fields are not included <p>ii. Field: Weight (Kg)</p> <ul style="list-style-type: none"> • This field is not included <p>iii. Field: Weight (lb)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: 17600 (176.0 lb) <p>iv. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>v. Field: Height (m)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Height (in)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: BMI (kg/m²)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed-Value attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Weight Measurement Value (Kg) fields of Weight Measurement characteristic (80.0)

	In Step 7, the Weight Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Weight Measurement Value (lb) fields of Weight Measurement characteristic (176.0)
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 7A 12 00 (hex) or FC 0C 35 00 (hex) or FD 01 38 80 (hex) or FE 00 1F 40 (hex) or FF 00 03 20 (hex) or 00 00 00 50 (hex) or 01 00 00 08 (hex) or 80.0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 80.0 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FC 1A DB 00 (hex) or FD 02 AF 80 (hex) or FE 00 44 C0 (hex) or FF 00 06 E0 (hex) or 00 00 00 B0 (hex) or 176 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 176.0 263904^MDC_DIM_LB^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-010
TP label	Whitepaper. Weight Numeric Object - Simple-Nu-Observed-Value Attribute 2

Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Weight Numeric 7; M	Float Type 1; C	Float Type 2; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Weight Value field of Weight Measurement characteristic into Weight Numeric Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF).</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)			
Other PICS				
Initial condition	The Manager under test and the Simulated Agent are in Standby state			
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: 16000 (80.0 kg) iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included 			

	<p>5. Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed-Value attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: FF FF (hex). Unsuccessful measurement iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • This field is not included viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed-Value attribute</p>
<p>Pass/Fail criteria</p>	<p>In Step 5, the Weight Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 80.0.</p> <p>In Step 7, the Weight Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFFFF.</p>
<p>Notes</p>	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 7A 12 00 (hex) or FC 0C 35 00 (hex) or FD 01 38 80 (hex) or FE 00 1F 40 (hex) or FF 00 03 20 (hex) or 00 00 00 50 (hex) or 01 00 00 08 (hex) or 80.0 (dec)

	<p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 80.0 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188736^MDC_MASS_BODY_ACTUAL^MDC) because it has a special value and this value is not included in PCD-01 message.</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-011		
TP label		Whitepaper. Weight Numeric Object - Weight Measurement value		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	Weight Numeric 6; M
		Weight Numeric 7; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Weight Measurement Value (Kg), Weight Measurement Value (lb) and Time Stamp fields of Weight Measurement</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_024 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case are: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 		

4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Weight Measurement (0x2A9D)
 - i. Field: Flags
 - Format: 8bit
 - Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, Height, BMI and User ID fields are not included
 - ii. Field: Weight (Kg)
 - Format: UINT16
 - Value: 16000 (80.0 kg)
 - iii. Field: Weight (lb)
 - This field is not included
 - iv. Field: Time Stamp
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:08:25
 - v. Field: Height (m)
 - This field is not included
 - vi. Field: Height (in)
 - This field is not included
 - vii. Field: BMI (kg/m²)
 - This field is not included
 - viii. Field: User ID
 - This field is not included

5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)

6. Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Weight Measurement (0x2A9D)
 - i. Field: Flags
 - Format: 8bit
 - Value: 0000 0011 (MSB → LSB). Weight Measurement Value in units of Pounds and Time Stamp fields are included, Height, BMI and User ID fields are not included
 - ii. Field: Weight (Kg)
 - This field is not included
 - iii. Field: Weight (lb)
 - Format: UINT16
 - Value: 17600 (176.0 lb)
 - iv. Field: Time Stamp
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:09:05
 - v. Field: Height (m)
 - This field is not included
 - vi. Field: Height (in)

	<ul style="list-style-type: none"> • This field is not included <p>vii. Field: BMI (kg/m²)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p>
Pass/Fail criteria	<p>In Step 5, the manager under test shows the following measurement: 80.0 Kg, with timestamp '2012-08-02 11:08:25'</p> <p>In Step 7, the manager under test shows the following measurement 176.0 lbs, with timestamp '2012-08-02 11:09:05'</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-012		
TP label	Whitepaper. Height Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Height Numeric 1; 0	
Test purpose	<p>Check that:</p> <p>Manager does not include Height Numeric Object – Handle Attribute in transcoder output [OR]</p> <p>If manager includes Height Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE 019		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID fields is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Height Numeric Object – Handle attribute</p>
Pass/Fail criteria	In Step 5, the Height Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value different than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Handle attribute value</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-013		
TP label		Whitepaper. Height Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Height Numeric 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes Height Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_LEN_BODY_ACTUAL}</p>		

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE 019
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test 5. Check in Manager transcoder output the Height Numeric Object – Type attribute
Pass/Fail criteria	In Step 5, the Height Numeric Object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_LEN_BODY_ACTUAL}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Type attribute is present:</p>

	<ul style="list-style-type: none"> ❑ Object: Height Numeric Object ❑ Attribute-id: MDC_ATTR_ID_TYPE (2351) ❑ Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} ❑ Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_LEN_BODY_ACTUAL or 57668 (dec) or E1 44 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Type attribute (check OBX-3): OBX ? 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a X [current_date_time]</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-014		
TP label		Whitepaper. Height Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Height Numeric 3; M		
Test purpose		Check that: Manager includes Height Numeric Object – Metric-Spec-Small attribute in transcoder output. [AND] Metric-Spec-Small is set to {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE_019		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp 		

	<ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>v. Field: Height (m)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>vi. Field: Height (in)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: BMI (kg/m²)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>viii. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Height Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the Height Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF048} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-manual).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-manual(12) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Metric-Spec-Small attribute value</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-015		
TP label	Whitepaper. Height Numeric Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Height Numeric 4; M	Height Numeric 5; M
Test purpose	Check that: Manager includes Weight Numeric Object – Unit-Code attribute in transcoder output.		

	<p>[AND]</p> <p>IF Height (m) field of Weight Measurement characteristic is present THEN Height Numeric Object – Unit-Code attribute is set to MDC_DIM_CENTI_M</p> <p>[AND]</p> <p>IF Height (in) field of Weight Measurement characteristic is present THEN Height Numeric Object – Unit-Code attribute is set to MDC_DIM_INCH</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE_019
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included

	<p>5. Check in Manager transcoder output the Height Numeric Object – Unit-Code attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1011 (MSB → LSB). Weight Measurement Value in units of pound, Time Stamp, Height in units of inch and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • This field is not included iii. Field: Weight (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Height Numeric Object – Unit-Code attribute</p>
Pass/Fail criteria	<p>In Step 5, the Height Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_CENTI_M</p> <p>In Step 7, the Height Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_INCH</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes Unit-Code attribute is present: <ul style="list-style-type: none"> <input type="checkbox"/> Object: Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_CENTI_M or 1297 (dec) or 05 11 (hex) b) WAN PCD-01 message PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):

	<p>OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a XX 263441^MDC_DIM_CENTI_M^MDC R [current_date_time]</p> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_INCH or 1376 (dec) or 05 60 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <p>OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a XX 263520^MDC_DIM_INCH^MDC R [current_date_time]</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-016		
TP label		Whitepaper. Height Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Height Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Time Stamp field of Weight Measurement characteristic into Height Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE_019 AND C_MAN_BLE_024		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 		

	<p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:</p> <p>a. Weight Measurement (0x2A9D)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Height Numeric Object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In Step 5, the Height Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Weight Measurement characteristic and fraction of seconds is set to 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec)

	<ul style="list-style-type: none"> • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a XX X 20120802103927+0000</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-017	
TP label		Whitepaper. Height Numeric Object - Simple-Nu-Observed-Value Attribute 1	
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Height Numeric 7; M	Float Type 1; C
Test purpose		<p>Check that:</p> <p>Manager transcodes Height Value field of Weight Measurement characteristic into Height Numeric Object - Simple-Nu-Observed-Value attribute</p>	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE 019	
Other PICS			
Initial condition		The Manager under test and the Simulated Agent are in Standby state	
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant 	

	<ul style="list-style-type: none"> iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: 1800 (1.80 m) vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Height Numeric Object – Simple-Nu-Observed-Value attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ul style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1011 (MSB → LSB). Weight Measurement Value in units of Pounds, Time Stamp, Height in units of inch and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • This field is not included iii. Field: Weight (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • Format: UINT16 • Value: 709 (70.9 in) vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Height Numeric Object – Simple-Nu-Observed-Value attribute</p>
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Pass/Fail criteria	<p>In Step 5, the Height Numeric Object – Simple-Nu-Observed-Value (cm) attribute is present and its value matches with Height Value (m) field of Weight Measurement characteristic (1.80)</p> <p>In Step 7, the Height Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Height Value (in) field of Weight Measurement characteristic (70.9)</p>
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FC 1B 77 40 (hex) or FD 02 BF 20 (hex) or FE 00 46 50 (hex) or FF 00 07 08 (hex) or 00 00 00 B4 (hex) or 01 00 00 12 (hex) or 180.0 (dec) <p>b) WAN PCD-01 message PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a 180.0 263441^MDC_DIM_CENTI_M^MDC R current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 6C 2F 50 (hex) or FC 0A D1 88 (hex) or FD 01 14 F4 (hex) or FE 00 1B B2 (hex) or FF 00 02 C5 (hex) or 70.9 (dec) <p>b) WAN PCD-01 message PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a 70.9 263520^MDC_DIM_INCH^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-018
TP label	Whitepaper. Height Numeric Object - Simple-Nu-Observed-Value Attribute 2

Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Height Numeric 7; M	Float Type 1; C	Float Type 2; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Height Value field of Weight Measurement characteristic into Height Numeric Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF).</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE_019			
Other PICS				
Initial condition	The Manager under test and the Simulated Agent are in Standby state			
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: 1800 (1.80 m) vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant 			

	<ul style="list-style-type: none"> viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Height Numeric Object – Simple-Nu-Observed-Value attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ul style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, Height, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: FF FF (hex). Unsuccessful measurement vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Height Numeric Object – Simple-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In Step 5, the Height Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 180.0.</p> <p>In Step 7, the Height Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFFFF.</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <ul style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT

	<ul style="list-style-type: none"> <input type="checkbox"/> Attribute-value: FC 1B 77 40 (hex) or FD 02 BF 20 (hex) or FE 00 46 50 (hex) or FF 00 07 08 (hex) or 00 00 00 B4 (hex) or 01 00 00 12 (hex) or 180.0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a 180 263441^MDC_DIM_CENTI_M^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188740^MDC_LEN_BODY_ACTUAL^MDC) because it has a special value and this value is not included in PCD-01 message</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-019		
TP label		Whitepaper. Height Numeric Object - Height value		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	Height Numeric 6; M
		Height Numeric 7; M		
Test purpose		Check that: Manager processes correctly the Height Value (cm), Height Value (in) and Time Stamp fields of Weight Measurement		
Applicability		C_MAN_BLE_000 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE 019 AND C_MAN_BLE_024		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case are: 		

- a. Weight Measurement (0x2A9D)
3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)
 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Weight Measurement (0x2A9D)
 - i. Field: Flags
 - Format: 8bit
 - Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included
 - ii. Field: Weight (Kg)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Weight (lb)
 - This field is not included
 - iv. Field: Time Stamp
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:08:25
 - v. Field: Height (m)
 - Format: UINT16
 - Value: 1800 (1.80 m)
 - vi. Field: Height (in)
 - This field is not included
 - vii. Field: BMI (kg/m²)
 - Format: UINT16
 - Value: Not relevant
 - viii. Field: User ID
 - This field is not included
 5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)
 6. Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Weight Measurement (0x2A9D)
 - i. Field: Flags
 - Format: 8bit
 - Value: 0000 1011 (MSB → LSB). Weight Measurement Value in units of pound, Time Stamp, Height in units of inch and BMI fields are included, User ID field is not included
 - ii. Field: Weight (Kg)
 - This field is not included
 - iii. Field: Weight (lb)
 - Format: UINT16
 - Value: Not relevant

	<ul style="list-style-type: none"> iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:09:05 v. Field: Height (m) <ul style="list-style-type: none"> • This field is not included vi. Field: Height (in) <ul style="list-style-type: none"> • Format: UINT16 • Value: 709 (70.9 in) vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p>
Pass/Fail criteria	<p>In Step 5, the manager under test shows the following measurement: 180 cm, with timestamp '2012-08-02 11:08:25'</p> <p>In Step 7, the manager under test shows the following measurement 70.9 in, with timestamp '2012-08-02 11:09:05'</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-020		
TP label	Whitepaper. Body Mass Index Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	BMI Numeric 1; O	
Test purpose	<p>Check that:</p> <p>Manager does not include BMI Numeric Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes BMI Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags 		

	<ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID fields is not included <ol style="list-style-type: none"> ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the BMI Numeric Object – Handle attribute</p>
Pass/Fail criteria	In Step 5, the BMI Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> a) IEEE 11073 Objects and Attributes <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: BMI Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value different than 0 b) WAN PCD-01 message <p>PCD-01 message does not include segments with Handle attribute value</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-021		
TP Label		Whitepaper. Body Mass Index Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	BMI Numeric 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes BMI Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_RATIO_MASS_BODY_LEN_SQ}</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included 		

	<p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the BMI Numeric Object – Type attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_RATIO_MASS_BODY_LEN_SQ}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: BMI Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_RATIO_MASS_BODY_LEN_SQ or 57680 (dec) or E1 50 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Type attribute (check OBX-3):</p> <p>OBX ? 188752^MDC_RATIO_MASS_BODY_LEN_SQ^MDC 1.0.a XX X [current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-022		
TP label	Whitepaper. Body Mass Index Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	BMI Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes BMI Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF042} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-calculation).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: 		

	<p>a. Weight Measurement (0x2A9D)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the BMI Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the BMI Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF042} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-calculation).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: BMI Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 42 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-calculation(14) set to TRUE and remaining BITS set to FALSE

	b) WAN PCD-01 message PCD-01 message does not include segments with Metric-Spec-Small attribute value
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-023		
TP label		Whitepaper. Body Mass Index Numeric Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	BMI Numeric 4; M	BMI Numeric 5; M	
Test purpose		<p>Check that:</p> <p>Manager includes BMI Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF BMI (Kg/m²) field of Weight Measurement characteristic is present THEN BMI Numeric Object – Unit-Code attribute is set to MDC_DIM_KG_PER_M_SQ</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) 		

	<ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>vi. Field: Height (in)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: BMI (kg/m²)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>viii. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Height Numeric Object – Unit-Code attribute</p>
Pass/Fail criteria	In Step 5, the BMI Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KG_PER_M_SQ
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: BMI Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_KG_PER_M_SQ or 1952 (dec) or 07 A0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188752^MDC_RATIO_MASS_BODY_LEN_SQ^MDC 1.0.a XX 264096^MDC_DIM_KG_PER_M_SQ^MDC R current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-024		
TP label	Whitepaper. Body Mass Index Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	BMI Numeric 6; M	Date-Time Conv 2; M
		Date-Time Conv 4; M	Date-Time Conv 5; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Time Stamp field of Weight Measurement characteristic into BMI Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020 AND C_MAN_BLE_024
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included 5. Check in Manager transcoder output the BMI Numeric Object – Absolute-Time-Stamp attribute
Pass/Fail criteria	In Step 5, the BMI Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Weight Measurement characteristic and fraction of seconds is set to 0
Notes	Possible values in typical points of observation after transcoder output are:

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: BMI Numeric Object ❑ Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) ❑ Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) ❑ Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? 188752^MDC_RATIO_MASS_BODY_LEN_SQ^MDC 1.0.a X 20120802103927+0000</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-025		
TP label		Whitepaper. Body Mass Index Numeric Object - Simple-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	BMI Numeric 7; M	Float Type 1; C	
Test purpose		Check that: Manager transcodes BMI Value field of Weight Measurement characteristic into BMI Numeric Object - Simple-Nu-Observed-Value attribute		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 		

	<p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:</p> <p>a. Weight Measurement (0x2A9D)</p> <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI <ul style="list-style-type: none"> • Format: UINT16 • Value: 247 (24.7) viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the BMI Numeric Object – Simple-Nu-Observed-Value attribute</p>
Pass/Fail criteria	In Step 5, the BMI Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with BMI Value (kg/m ²) field of Weight Measurement characteristic (24.7)
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: BMI Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FF 00 00 F7 (hex) or 24.7 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p>

	OBX ? NM 188752^MDC_RATIO_MASS_BODY_LEN_SQ^MDC 1.0.a 24.7 264096^MDC_DIM_KG_PER_M_SQ^MDC R [[current_date_time]]
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-027		
TP label		Whitepaper. BMI Numeric Object – BMI value		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	BMI Numeric 6; M
		BMI Numeric 7; M		
Test purpose		Check that: Manager processes correctly the BMI Value (kg/m ²) and Time Stamp fields of Weight Measurement		
Applicability		C_MAN_BLE_000 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020 AND C_MAN_024		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case are: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 		

	<ul style="list-style-type: none"> v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UINT16 • Value: 247 (24.7) viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p>
Pass/Fail criteria	In Step 5, the manager under test shows the following measurement: 24.7 kg/m ² , with timestamp '2012-08-02 11:08:25'
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-028		
TP label	Whitepaper. Body Fat Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Body Fat Numeric 1; 0	
Test purpose	Check that: Manager does not include Body Fat Numeric Object – Handle Attribute in transcoder output [OR] If manager includes Body Fat Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) 		

	<ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>iii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>iv. Field: Fat Free Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Fat Free Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Soft Lean Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Soft Lean Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Body Water Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Body Water Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Basal Metabolism</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Muscle Percentage</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Muscle Mass</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: Impedance</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xv. Field: Height</p> <ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Body Fat Numeric Object – Handle attribute</p>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p>

	<ul style="list-style-type: none"> ❑ Object: Body Fat Numeric Object ❑ Attribute-id: MDC_ATTR_ID_HANDLE (2337) ❑ Attribute-type: INT-U16 ❑ Attribute-value: Any value different than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Handle attribute value</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-029		
TP label		Whitepaper. Body Fat Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Fat Numeric 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes Body Fat Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_BODY_FAT}</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) 		

	<ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Body Fat Numeric Object – Type attribute</p>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_BODY_FAT}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Fat Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_BODY_FAT or 57676 (dec) or E1 4C (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Type attribute (check OBX-3):</p> <p>OBX ? 188748^MDC_BODY_FAT^MDC 1.0.a X current_date_time]</p>

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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-030		
TP label		Whitepaper. Body Fat Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Fat Numeric 3; M		
Test purpose		<p>Check that:</p> <p>Manager includes Body Fat Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF042} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-calculation).</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Body Fat Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF042} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated mss-cat-calculation).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Fat Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 42 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9), mss-cat-calculation(14) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Metric-Spec-Small attribute value</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-031	
TP label	Whitepaper. Body Fat Numeric Object - Unit-Code Attribute	
Coverage	Spec	[Bluetooth PHDT v1.5]

	Testable items	Body Fat Numeric 4; M	Body Fat Numeric 5; M	
Test purpose	<p>Check that:</p> <p>Manager includes Body Fat Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Body Fat Percentage (%) field of Body Composition Measurement characteristic is present THEN Body Fat Numeric Object – Unit-Code attribute is set to MDC_DIM_PERCENT</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018			
Other PICS				
Initial condition	The Manager under test and the Simulated Agent are in Standby state			
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) 			

	<ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism • This field is not included xi. Field: Muscle Percentage • This field is not included xii. Field: Muscle Mass • This field is not included xiii. Field: Impedance • This field is not included xiv. Field: Weight • This field is not included xv. Field: Height • This field is not included xvi. Field: User ID • This field is not included <p>5. Check in Manager transcoder output the Body Fat Numeric Object – Unit-Code attribute</p>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Fat Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_PERCENT or 544 (dec) or 02 20 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188748^MDC_BODY_FAT^MDC 1.0.a XX 262688^MDC_DIM_PERCENT^MDC R [current_date_time]</pre>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-032		
TP label		Whitepaper. Body Fat Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Fat Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		Check that:		

	<p>Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Body Fat Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_025
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included

	<ul style="list-style-type: none"> x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Body Fat Numeric Object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Body Composition Measurement characteristic and fraction of seconds is set to 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Fat Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX ? 188748^MDC_BODY_FAT^MDC 1.0.a X 20120802103927+0000</pre>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-033	
TP label		Whitepaper. Body Fat Numeric Object - Simple-Nu-Observed-Value Attribute 1	
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Body Fat Numeric 7; M	Float Type 1; C
Test purpose		Check that: Manager transcodes Body Fat Percentage Value field of Body Composition Measurement characteristic into Body Fat Numeric Object - Simple-Nu-Observed-Value attribute	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018	
Other PICS			
Initial condition		The Manager under test and the Simulated Agent are in Standby state	
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: 125 (12.5 %) iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) 	

	<ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute</p>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Body Fat Percentage Value (%) field of Body Composition Measurement characteristic (12.5)
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Fat Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FF 00 00 7D (hex) or 12.5 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188748^MDC_BODY_FAT^MDC 1.0.a 12.5 262688^MDC_DIM_PERCENT^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-034
TP label	Whitepaper. Body Fat Numeric Object - Simple-Nu-Observed-Value Attribute 2

Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Fat Numeric 7; M	Float Type 1; C	Float Type 2; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Body Fat Percentage Value field of Body Composition Measurement characteristic into Body Fat Numeric Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF).</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018			
Other PICS				
Initial condition	The Manager under test and the Simulated Agent are in Standby state			
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: 125 (12.5 %) iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included 			

- ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID
 - This field is not included
5. Check in Manager transcoder output the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute
6. Simulated Agent sends the Measurement to Manager under test with the following value:
- a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: FF FF (hex). Unsuccessful measurement
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - This field is not included
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)

	<ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute</p>
Pass/Fail criteria	<p>In Step 5, the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 12.5.</p> <p>In Step 7, the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFF.</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Body Fat Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FA BE BC 20 (hex) or FB 13 12 D0 (hex) or FC 01 E8 48 (hex) or FD 00 30 D4 (hex) or FE 00 04 E2 (hex) or FF 00 00 7D (hex) or 12.5 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188748^MDC_BODY_FAT^MDC 1.0.a 12.5 262688^MDC_DIM_PERCENT^MDC R [[current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p>

	<ul style="list-style-type: none"> ❑ Body Fat Numeric Object ❑ Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) ❑ Attribute-type: FLOAT ❑ Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188748^MDC_BODY_FAT^MDC) because it has a special value and this value is not included in PCD-01 message</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-035		
TP label		Whitepaper. Body Fat Numeric Object – Body Fat Percentage value		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	Body Fat Numeric 6; M
		Body Fat Numeric 7; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Body Fat Percentage Value and Time Stamp fields of Body Composition Measurement</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_025		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case are: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 		

	<ul style="list-style-type: none"> • Value: 125 (12.5 %) <ul style="list-style-type: none"> iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p>
Pass/Fail criteria	In Step 5, the manager under test shows the following measurement: 12.5 %, with timestamp '2012-08-02 11:08:25'
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-036		
TP label	Whitepaper. Fat Free Mass Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Fat Free Numeric 1; O	

Test purpose	<p>Check that:</p> <p>Manager does not include Fat Free Mass Numeric Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Fat Free Mass Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included

	<ul style="list-style-type: none"> xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Handle attribute</p>
Pass/Fail criteria	In Step 5, the Fat Free Mass Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value different than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Handle attribute value</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-037		
TP label		Whitepaper. Fat Free Mass Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Fat Free Numeric 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes Fat Free Mass Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_FAT_FREE}</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021		
Other PICS				

Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID

	<ul style="list-style-type: none"> This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Type attribute</p>
Pass/Fail criteria	In Step 5, the Fat Free Mass Numeric Object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_MASS_BODY_FAT_FREE}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_MASS_BODY_FAT_FREE or 57684 (dec) or E1 54 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Type attribute (check OBX-3): OBX ? 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a X [current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-038		
TP label	Whitepaper. Fat Free Mass Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Fat Free Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes Fat Free Mass Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<p>1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable).</p> <p>2. Simulated Agent implements several BTLE characteristics. The characteristic of interest</p>		

for this Test Case is:

a. Body Composition Measurement (0x2A9C)

i. Field: Flags

- Format: 16bit
- Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included

ii. Field: Body Fat Percentage (%)

- Format: UINT16
- Value: Not relevant

iii. Field: Time Stamp

- Format: Date and Time
- Value: Not relevant

iv. Field: Fat Free Mass (kg)

- Format: UINT16
- Value: Not relevant

v. Field: Fat Free Mass (lb)

- This field is not included

vi. Field: Soft Lean Mass (kg)

- This field is not included

vii. Field: Soft Lean Mass (lb)

- This field is not included

viii. Field: Body Water Mass (kg)

- This field is not included

ix. Field: Body Water Mass (lb)

- This field is not included

x. Field: Basal Metabolism

- This field is not included

xi. Field: Muscle Percentage

- This field is not included

xii. Field: Muscle Mass

- This field is not included

xiii. Field: Impedance

- This field is not included

xiv. Field: Weight

- This field is not included

xv. Field: Height

- This field is not included

xvi. Field: User ID

- This field is not included

3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)

	<p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the Height Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Metric-Spec-Small attribute value</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-039		
TP label	Whitepaper. Fat Free Mass Numeric Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Fat Free Numeric 4; M	Fat Free Numeric 5; M
Test purpose	<p>Check that:</p> <p>Manager includes Fat Free Mass Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Fat Free Mass (kg) field of Body Composition Measurement characteristic is present THEN Height Numeric Object – Unit-Code attribute is set to MDC_DIM_KILO_G</p> <p>[AND]</p> <p>IF Fat Free Mass (lb) field of Body Composition Measurement characteristic is present THEN Height Numeric Object – Unit-Code attribute is set to MDC_DIM_LB</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 		

3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)
4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - Format: UINT16
 - Value: Not relevant
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID

	<ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Unit-Code attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <p>a. Body Composition Measurement (0x2A9C)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included <p>ii. Field: Body Fat Percentage (%)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>iii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>iv. Field: Fat Free Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>v. Field: Fat Free Mass (lb)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>vi. Field: Soft Lean Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Soft Lean Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Body Water Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Body Water Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Basal Metabolism</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Muscle Percentage</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Muscle Mass</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: Impedance</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xv. Field: Height</p> <ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p>
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	<ul style="list-style-type: none"> This field is not included <p>7. Check in Manager transcoder output the Fat Free Mass Numeric Object – Unit-Code attribute</p>
Pass/Fail criteria	<p>In Step 5, the Fat Free Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G</p> <p>In Step 7, the Fat Free Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> Object: Fat Free Mass Numeric Object Attribute-id: MDC_ATTR_UNIT_CODE (2454) Attribute-type: INT-U16 Attribute-value: MDC_DIM_KILO_G or 1731 (dec) or 06 C3 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> Object: Fat Free Mass Numeric Object Attribute-id: MDC_ATTR_UNIT_CODE (2454) Attribute-type: INT-U16 Attribute-value: MDC_DIM_LB or 1760 (dec) or 06 E0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX 263904^MDC_DIM_LB^MDC R [current_date_time]</pre>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-040
TP label	Whitepaper. Fat Free Mass Numeric Object - Absolute-Time-Stamp Attribute

Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Fat Free Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose	<p>Check that:</p> <p>Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Fat Free Mass Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021 AND C_MAN_BLE_025			
Other PICS				
Initial condition	The Manager under test and the Simulated Agent are in Standby state			
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) 			

	<ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In Step 5, the Fat Free Mass Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Body Composition Measurement characteristic and fraction of seconds is set to 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec)

	<p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX X 20120802103927+0000</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-041		
TP label		Whitepaper. Fat Free Mass Numeric Object - Simple-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Fat Free Numeric 7; M	Float Type 1; C	
Test purpose		<p>Check that:</p> <p>Manager transcodes Fat Free Mass Value field of Body Composition Measurement characteristic into Fat Free Mass Numeric Object - Simple-Nu-Observed-Value attribute</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) 		

- Format: UINT16
 - Value: 12800 (64.0 kg)
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID
 - This field is not included
5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute
6. Simulated Agent sends the Measurement to Manager under test with the following value:
- a. Body Composition Measurement (0x2A9C)
- i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 0100 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - This field is not included

	<ul style="list-style-type: none"> v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: 14080 (140.8 lb) vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute</p>
<p>Pass/Fail criteria</p>	<p>In Step 5, the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Fat Free Mass Value (kg) field of Body Composition Measurement characteristic (64.0)</p> <p>In Step 7, the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Fat Free Mass Value (lb) field of Body Composition Measurement characteristic (140.8)</p>
<p>Notes</p>	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 61 A8 00 (hex) or FC 09 C4 00 (hex) or FD 00 FA 00 (hex) or FE 00 19 00 (hex) or FF 00 02 80 (hex) or 00 00 00 40 (hex) or 64.0 (dec)

	<p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a 64.0 263875^MDC_DIM_KILO_G^MDC R [[current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB D6 D8 00 (hex) or FC 15 7C 00 (hex) or FD 02 26 00 (hex) or FE 00 37 00 (hex) or FF 00 05 80 (hex) or 140.8 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a 140.8 263904^MDC_DIM_LB^MDC R [[current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-042		
TP label		Whitepaper. Fat Free Mass Numeric Object - Simple-Nu-Observed-Value Attribute 2		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Fat Free Numeric 7; M	Float Type 1; C	Float Type 2; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Fat Free Mass Value field of Body Composition Measurement characteristic into Fat Free Mass Numeric Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF).</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable).		

2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:
 - a. Body Composition Measurement (0x2A9C)
3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)
4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - Format: UINT16
 - Value: 12800 (64.0 kg)
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height

	<ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <p>a. Body Composition Measurement (0x2A9C)</p> <p>i. Field: Flags</p> <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included <p>ii. Field: Body Fat Percentage (%)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant <p>iii. Field: Time Stamp</p> <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant <p>iv. Field: Fat Free Mass (kg)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: FF FF (hex). Unsuccessful measurement <p>v. Field: Fat Free Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>vi. Field: Soft Lean Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>vii. Field: Soft Lean Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>viii. Field: Body Water Mass (kg)</p> <ul style="list-style-type: none"> • This field is not included <p>ix. Field: Body Water Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Basal Metabolism</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Muscle Percentage</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Muscle Mass</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: Impedance</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xv. Field: Height</p>
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	<ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute</p>
Pass/Fail criteria	<p>In Step 5, the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 64.0.</p> <p>In Step 7, the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFFFF.</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 61 A8 00 (hex) or FC 09 C4 00 (hex) or FD 00 FA 00 (hex) or FE 00 19 00 (hex) or FF 00 02 80 (hex) or 00 00 00 40 (hex) or 64.0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a 64.0 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188756^MDC_MASS_BODY_FAT_FREE^MDC) because it has a special value and this value is not included in PCD-01 message</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-043		
TP label		Whitepaper. Fat Free Mass Numeric Object - Fat Free Mass value		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	Fat Free Numeric 6; M
		Fat Free Numeric 7; M		
Test purpose		Check that: Manager processes correctly the Fat Free Mass Value (kg), Fat Free Mass Value (lb) and Time Stamp fields of Body Composition Measurement		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_021 AND C_MAN_BLE_025		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 0100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: 12800 (64.0 kg) v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included 		

- vii. Field: Soft Lean Mass (lb)
 - This field is not included
- viii. Field: Body Water Mass (kg)
 - This field is not included
- ix. Field: Body Water Mass (lb)
 - This field is not included
- x. Field: Basal Metabolism
 - This field is not included
- xi. Field: Muscle Percentage
 - This field is not included
- xii. Field: Muscle Mass
 - This field is not included
- xiii. Field: Impedance
 - This field is not included
- xiv. Field: Weight
 - This field is not included
- xv. Field: Height
 - This field is not included
- xvi. Field: User ID
 - This field is not included

5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)

6. Simulated Agent sends the Measurement to Manager under test with the following value:

a. Body Composition Measurement (0x2A9C)

- i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 0100 0011 (MSB → LSB), Body Fat Percentage in units of %, Time Stamp and Fat Free Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
- ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
- iii. Field: Time Stamp
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:09:05
- iv. Field: Fat Free Mass (kg)
 - This field is not included
- v. Field: Fat Free Mass (lb)
 - Format: UINT16
 - Value: 14080 (140.8 lb)
- vi. Field: Soft Lean Mass (kg)
 - This field is not included

	<ul style="list-style-type: none"> vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p>
Pass/Fail criteria	<p>In Step 5, the manager under test shows the following measurement: 64.0 kg, with timestamp '2012-08-02 11:08:25'</p> <p>In Step 7, the manager under test shows the following measurement 140.8 lbs, with timestamp '2012-08-02 11:09:05'</p>
Notes	

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-044		
TP label	Whitepaper. Soft Lean Mass Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Soft Lean Numeric 1; 0	
Test purpose	<p>Check that:</p> <p>Manager does not include Soft Lean Mass Numeric Object – Handle Attribute in transcoder output</p> <p>[OR]</p> <p>If manager includes Soft Lean Mass Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022		
Other PICS			

Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID

	<ul style="list-style-type: none"> This field is not included <ol style="list-style-type: none"> Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test Check in Manager transcoder output the Soft Lean Mass Numeric Object – Handle attribute
Pass/Fail criteria	In Step 5, the Soft Lean Mass Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <ol style="list-style-type: none"> IEEE 11073 Objects and Attributes Handle attribute is not present, or if it is present then: <ul style="list-style-type: none"> Object: Soft Lean Mass Numeric Object Attribute-id: MDC_ATTR_ID_HANDLE (2337) Attribute-type: INT-U16 Attribute-value: Any value different than 0 WAN PCD-01 message PCD-01 message does not include segments with Handle attribute value

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-045		
TP label	Whitepaper. Soft Lean Mass Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Soft Lean Numeric 2; M	
Test purpose	<p>Check that:</p> <p>Manager includes Soft Lean Mass Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_SOFT_LEAN}</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> Field: Flags <ul style="list-style-type: none"> Format: 16bit 		

	<ul style="list-style-type: none"> • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Type attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Type attribute is present and its value is

	{MDC_PART_SCADA, MDC_MASS_BODY_SOFT_LEAN}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_MASS_BODY_SOFT_LEAN or 57688 (dec) or E1 58 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Type attribute (check OBX-3): OBX ? 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a X current_date_time]</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-046		
TP label	Whitepaper. Soft Lean Mass Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Soft Lean Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes Soft Lean Mass Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included 		

	<ul style="list-style-type: none"> ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the Soft Lean Mass Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	Possible values in typical points of observation after transcoder output are:

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Metric-Spec-Small attribute value</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-047		
TP label		Whitepaper. Soft Lean Mass Numeric Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Soft Lean Numeric 4; M	Soft Lean Numeric 5; M	
Test purpose		<p>Check that:</p> <p>Manager includes Soft Lean Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Soft Lean Mass (Kg) field of Body Composition Measurement characteristic is present THEN Soft Lean Mass Numeric Object – Unit-Code attribute is set to MDC_DIM_KILO_G</p> <p>[AND]</p> <p>IF Soft Lean Mass (lb) field of Body Composition Measurement characteristic is present THEN Soft Lean Mass Numeric Object – Unit-Code attribute is set to MDC_DIM_LB</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit 		

- Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - This field is not included
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - Format: UINT16
 - Value: Not relevant
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID
 - This field is not included
5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Unit-Code attribute
6. Simulated Agent sends the Measurement to Manager under test with the following value:
- a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit

	<ul style="list-style-type: none"> • Value: 0000 0000 1000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Unit-Code attribute.</p>
Pass/Fail criteria	<p>In Step 5, the Soft Lean Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G</p> <p>In Step 7, the Soft Lean Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p>

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_KILO_G or 1731 (dec) or 06 C3 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a XX 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_LB or 1760 (dec) or 06 E0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a XX 263904^MDC_DIM_LB^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-048		
TP label		Whitepaper. Soft Lean Mass Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Soft Lean Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Soft Lean Mass Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p>		

	[AND] The fraction of seconds in Absolute Time at transcoder output is 0
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism

	<ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In Step 5, the Soft Lean Mass Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Body Composition Measurement characteristic and fraction of seconds is set to 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) <input type="checkbox"/> Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <pre>OBX ? 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a X 20120802103927+000 0</pre>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-049	
TP label		Whitepaper. Soft Lean Mass Numeric Object - Simple-Nu-Observed-Value Attribute 1	
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Soft Lean Numeric 7; M	Float Type 1; C
Test purpose		Check that: Manager transcodes Soft Lean Mass Value field of Body Composition Measurement characteristic into Soft Lean Mass Numeric Object - Simple-Nu-Observed-Value attribute	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022	
Other PICS			
Initial condition		The Manager under test and the Simulated Agent are in Standby state	
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: 8760 (43.8 kg) vii. Field: Soft Lean Mass (lb) 	

- This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID
 - This field is not included
5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute
6. Simulated Agent sends the Measurement to Manager under test with the following value:
- a. Body Composition Measurement (0x2A9C)
- i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 1000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - This field is not included
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - Format: UINT16
 - Value: 9640 (96.4 lb)

	<ul style="list-style-type: none"> viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	<p>In Step 5, the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Soft Lean Mass Value (kg) field of Body Composition Measurement characteristic (43.8)</p> <p>In Step 7, the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Soft Lean Mass Value (lb) field of Body Composition Measurement characteristic (96.4).</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 42 D5 60 (hex) or FC 06 AE F0 (hex) or FD 00 AB 18 (hex) or FE 00 11 1C (hex) or FF 00 01 B6 (hex) or 43.8 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a 43.8 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p>

	<p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 93 18 40 (hex) or FC 0E B5 A0 (hex) or FD 01 78 90 (hex) or FE 00 25 A8 (hex) or FF 00 03 C4 (hex) or 96.4 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <p>OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a 96.4 263904^MDC_DIM_LB^MDC R [[current_date_time]</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-050		
TP label		Whitepaper. Soft Lean Mass Numeric Object - Simple-Nu-Observed-Value Attribute 2		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Soft Lean Numeric 7; M	Float Type 1; C	Float Type 2; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Soft Lean Mass Value field of Body Composition Measurement characteristic into Soft Lean Mass Numeric Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF)</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 		

- i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
- ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
- iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
- iv. Field: Fat Free Mass (kg)
 - This field is not included
- v. Field: Fat Free Mass (lb)
 - This field is not included
- vi. Field: Soft Lean Mass (kg)
 - Format: UINT16
 - Value: 8760 (43.8 kg)
- vii. Field: Soft Lean Mass (lb)
 - This field is not included
- viii. Field: Body Water Mass (kg)
 - This field is not included
- ix. Field: Body Water Mass (lb)
 - This field is not included
- x. Field: Basal Metabolism
 - This field is not included
- xi. Field: Muscle Percentage
 - This field is not included
- xii. Field: Muscle Mass
 - This field is not included
- xiii. Field: Impedance
 - This field is not included
- xiv. Field: Weight
 - This field is not included
- xv. Field: Height
 - This field is not included
- xvi. Field: User ID
 - This field is not included

5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute

6. Simulated Agent sends the Measurement to Manager under test with the following value:
 a. Body Composition Measurement (0x2A9C)

	<ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: FF FF (hex). Unsuccessful measurement vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute.</p>
Pass/Fail criteria	In Step 5, the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 43.8.

	In Step 7, the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFFFF.
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 42 D5 60 (hex) or FC 06 AE F0 (hex) or FD 00 AB 18 (hex) or FE 00 11 1C (hex) or FF 00 01 B6 (hex) or 43.8 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN ^MDC 1.0.a 43.8 263875^MDC_DIM_KILO_G ^MDC R [current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188760^MDC_MASS_BODY_SOFT_LEAN^MDC) because it has a special value and this value is not included in PCD-01 message</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-051		
TP label	Whitepaper. Soft Lean Mass Numeric Object – Soft Lean Mass value		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Float Type 1; C	Date-Time Conv 1; M
		Soft Lean Numeric 7; M	Soft Lean Numeric 6; M
Test purpose	<p>Check that:</p> <p>Manager processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement</p>		

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025
Other PICS	
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: 8760 (43.8 kg) vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage

- This field is not included
- xii. Field: Muscle Mass
 - This field is not included
- xiii. Field: Impedance
 - This field is not included
- xiv. Field: Weight
 - This field is not included
- xv. Field: Height
 - This field is not included
- xvi. Field: User ID
 - This field is not included

5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)

6. Simulated Agent sends the Measurement to Manager under test with the following value:

a. Body Composition Measurement (0x2A9C)

- i. Field: Flags
 - Format: 16bit
 - Value: 0000 0000 1000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
- ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
- iii. Field: Time Stamp
 - Format: Date and Time
 - Value: August 2nd, 2012, 11:09:05
- iv. Field: Fat Free Mass (kg)
 - This field is not included
- v. Field: Fat Free Mass (lb)
 - This field is not included
- vi. Field: Soft Lean Mass (kg)
 - This field is not included
- vii. Field: Soft Lean Mass (lb)
 - Format: UINT16
 - Value: 9640 (96.4 lb)
- viii. Field: Body Water Mass (kg)
 - This field is not included
- ix. Field: Body Water Mass (lb)
 - This field is not included
- x. Field: Basal Metabolism
 - This field is not included
- xi. Field: Muscle Percentage

	<ul style="list-style-type: none"> • This field is not included <p>xii. Field: Muscle Mass</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: Impedance</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xv. Field: Height</p> <ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp).</p>
Pass/Fail criteria	<p>In Step 5, the manager under test shows the following measurement: 43.8 kg, with timestamp '2012-08-02 11:08:25'</p> <p>In Step 7, the manager under test shows the following measurement: 96.4 lbs, with timestamp '2012-08-02 11:09:05'</p>
Notes	

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-052		
TP label		Whitepaper. Body Water Mass Numeric Object - Handle Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Water Numeric 1; O		
Test purpose		<p>Check that:</p> <p>Manager does not include Body Water Numeric Object – Handle Attribute in transcoder output [OR]</p> <p>If manager includes Body Water Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included 		

	<ul style="list-style-type: none"> ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Body Water Numeric Object – Handle attribute</p>
Pass/Fail criteria	In Step 5, the Body Water Numeric Object – Handle attribute is not present or, if it is present then its value is different than 0
Notes	Possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes

	<p>Handle attribute is not present, or if it is present then:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_HANDLE (2337) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: Any value different than 0 <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Handle attribute value</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-053		
TP label		Whitepaper. Body Water Mass Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Water Numeric 2; M		
Test purpose		<p>Check that:</p> <p>Manager includes Body Water Numeric Object – Type attribute in transcoder output.</p> <p>[AND]</p> <p>Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_WATER}</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Body Water Numeric Object – Type attribute</p>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_MASS_BODY_WATER}
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Type attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_ID_TYPE (2351) <input type="checkbox"/> Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)} <input type="checkbox"/> Attribute-value: <ul style="list-style-type: none"> • partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex) • code: MDC_MASS_BODY_WATER or 57692 (dec) or E1 5C (hex) <p>b) WAN PCD-01 message</p>

	PCD-01 message includes a segment like this with Type attribute (check OBX-3): OBX ? 188764^MDC_MASS_BODY_WATER^MDC 1.0.a X [current_date_time]
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TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-054		
TP label	Whitepaper. Body Water Mass Numeric Object - Metric-Spec-Small Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Body Water Numeric 3; M	
Test purpose	<p>Check that:</p> <p>Manager includes Body Water Numeric Object – Metric-Spec-Small attribute in transcoder output.</p> <p>[AND]</p> <p>Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included 		

	<ul style="list-style-type: none"> viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)</p> <p>4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</p> <p>5. Check in Manager transcoder output the Body Water Numeric Object – Metric-Spec-Small attribute</p>
Pass/Fail criteria	In Step 5, the Body Water Numeric Object – Metric-Spec-Small attribute is present and its value is {0xF040} (mss-avail-intermittent mss-avail-stored-data mss-upd-aperiodic mss-msmt-aperiodic mss-acc-agent-initiated).
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Metric-Spec-Small attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630) <input type="checkbox"/> Attribute-type: BITS-16 <input type="checkbox"/> Attribute-value: F0 40 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9) set to TRUE and remaining BITS set to FALSE <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segments with Metric-Spec-Small attribute value</p>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-055		
TP label		Whitepaper. Body Water Mass Numeric Object - Unit-Code Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Water Numeric 4; M	Body Water Numeric 5; M	
Test purpose		<p>Check that:</p> <p>Manager includes Body Water Numeric Object – Unit-Code attribute in transcoder output.</p> <p>[AND]</p> <p>IF Body Water Mass (Kg) field of Body Composition Measurement characteristic is present THEN Body Water Numeric Object – Unit-Code attribute is set to MDC_DIM_KILO_G</p> <p>[AND]</p> <p>IF Body Water Mass (lb) field of Body Composition Measurement characteristic is present THEN Body Water Numeric Object – Unit-Code attribute is set to MDC_DIM_LB</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included 		

- vi. Field: Soft Lean Mass (kg)
 - This field is not included
- vii. Field: Soft Lean Mass (lb)
 - This field is not included
- viii. Field: Body Water Mass (kg)
 - Format: UINT16
 - Value: Not relevant
- ix. Field: Body Water Mass (lb)
 - This field is not included
- x. Field: Basal Metabolism
 - This field is not included
- xi. Field: Muscle Percentage
 - This field is not included
- xii. Field: Muscle Mass
 - This field is not included
- xiii. Field: Impedance
 - This field is not included
- xiv. Field: Weight
 - This field is not included
- xv. Field: Height
 - This field is not included
- xvi. Field: User ID
 - This field is not included

5. Check in Manager transcoder output the Body Water Numeric Object – Unit-Code attribute

6. Simulated Agent sends the Measurement to Manager under test with the following value:

b. Body Composition Measurement (0x2A9C)

- xvii. Field: Flags
 - Format: 16bit
 - Value: 0000 0001 0000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Fat Free Mass, Impedance, Weight, Height and User ID fields are not included
- xviii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
- xix. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
- xx. Field: Fat Free Mass (kg)
 - This field is not included
- xxi. Field: Fat Free Mass (lb)
 - This field is not included

	<ul style="list-style-type: none"> xxii. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included xxiii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included xxiv. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included xxv. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant xxvi. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xxvii. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xxviii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xxix. Field: Impedance <ul style="list-style-type: none"> • This field is not included xxx. Field: Weight <ul style="list-style-type: none"> • This field is not included xxxi. Field: Height <ul style="list-style-type: none"> • This field is not included xxxii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Body Water Numeric Object – Unit-Code attribute.</p>
Pass/Fail criteria	<p>In Step 5, the Body Water Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G</p> <p>In Step 7, the Body Water Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_KILO_G or 1731 (dec) or 06 C3 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a XX 263875^MDC_DIM_KILO_G^MDC R [current_date_time]</pre>

	<p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Unit-Code attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_UNIT_CODE (2454) <input type="checkbox"/> Attribute-type: INT-U16 <input type="checkbox"/> Attribute-value: MDC_DIM_LB or 1760 (dec) or 06 E0 (hex) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):</p> <pre>OBX ? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a XX 263904^MDC_DIM_LB^MDC R [current_date_time]</pre>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-056		
TP label		Whitepaper. Body Water Mass Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Water Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
		Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		<p>Check that:</p> <p>Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Body Water Numeric Object - Absolute-Time-Stamp attribute</p> <p>[AND]</p> <p>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</p> <p>[AND]</p> <p>The fraction of seconds in Absolute Time at transcoder output is 0</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023 AND C_MAN_BLE_025		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the 		

	<p>Measurement to Manager under test with the following value:</p> <p>a. Body Composition Measurement (0x2A9C)</p> <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 10:39:27 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in Manager transcoder output the Body Water Numeric Object – Absolute-Time-Stamp attribute</p>
Pass/Fail criteria	In Step 5, the Body Water Numeric Object – Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Body Composition Measurement characteristic and

	fraction of seconds is set to 0
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Absolute-Time-Stamp attribute is present:</p> <ul style="list-style-type: none"> ❑ Object: Body Water Numeric Object ❑ Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448) ❑ Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)} (BCD encoding) ❑ Attribute-value: <ul style="list-style-type: none"> • century: 20 (hex) or 32 (dec) • year: 12 (hex) or 18 (dec) • month: 08 (hex) or 8 (dec) • day: 02 (hex) or 2 (dec) • hour: 10 (hex) or 16 (dec) • minute: 39 (hex) or 57 (dec) • second: 27 (hex) or 39 (dec) • sec-fractions: 00 (hex) or 0 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):</p> <p>OBX ? 188764^MDC_MASS_BODY_WATER^MDC 1.0.a X 20120802103927+0000</p>

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-057		
TP label	Whitepaper. Body Water Mass Numeric Object - Simple-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.5]	
	Testable items	Body Water Numeric 7; M	Float Type 1; C
Test purpose	<p>Check that:</p> <p>Manager transcodes Body Water Mass Value field of Body Composition Measurement characteristic into Body Water Numeric Object - Simple-Nu-Observed-Value attribute</p>		
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 		

3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)
4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit
 - Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - This field is not included
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - Format: UINT16
 - Value: 9500 (47.5 kg)
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID
 - This field is not included

5. Check in Manager transcoder output the Body Water Numeric Object – Simple-Nu-Observed-Value attribute
6. Simulated Agent sends the Measurement to Manager under test with the following value:
 - a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit
 - Value: 0000 0001 0000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Fat Free Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - This field is not included
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - This field is not included
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - This field is not included
 - ix. Field: Body Water Mass (lb)
 - Format: UINT16
 - Value: 10450 (104.5 lb)
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage
 - This field is not included
 - xii. Field: Muscle Mass
 - This field is not included
 - xiii. Field: Impedance
 - This field is not included
 - xiv. Field: Weight
 - This field is not included
 - xv. Field: Height
 - This field is not included
 - xvi. Field: User ID
 - This field is not included
7. Check in Manager transcoder output the Body Water Numeric Object – Simple-Nu-

	Observed-Value attribute.
Pass/Fail criteria	<p>In Step 5, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Body Water Mass Value (kg) field of Body Composition Measurement characteristic (47.5)</p> <p>In Step 7, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present and its value matches with Body Water Mass Value (lb) field of Body Composition Measurement characteristic (104.5).</p>
Notes	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 48 7A B0 (hex) or FC 07 3F 78 (hex) or FD 00 B9 8C (hex) or FE 00 12 8E (hex) or FF 00 01 DB (hex) or 47.5 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a 47.5 263875^MDC_DIM_KILO_G^MDC R current_date_time]</pre> <p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Object: Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 9F 74 50 (hex) or FC 0F F2 08 (hex) or FD 01 98 34 (hex) or FE 00 28 D2 (hex) or FF 00 04 15 (hex) or 104.5 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a 104.5 263904^MDC_DIM_LB^MDC R current_date_time]</pre>

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-058		
TP label		Whitepaper. Body Water Mass Numeric Object - Simple-Nu-Observed-Value Attribute 2		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Water Numeric 7; M	Float Type 1; C	Float Type 2; M
Test purpose		<p>Check that:</p> <p>Manager transcodes Body Water Mass Value field of Body Composition Measurement characteristic into Body Water Numeric Object - Simple-Nu-Observed-Value attribute</p> <p>[AND]</p> <p>Manager assigns the following special values: NaN (0x007FFFFFFF).</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) 		

- This field is not included
- viii. Field: Body Water Mass (kg)
 - Format: UINT16
 - Value: 9500 (47.5 kg)
- ix. Field: Body Water Mass (lb)
 - This field is not included
- x. Field: Basal Metabolism
 - This field is not included
- xi. Field: Muscle Percentage
 - This field is not included
- xii. Field: Muscle Mass
 - This field is not included
- xiii. Field: Impedance
 - This field is not included
- xiv. Field: Weight
 - This field is not included
- xv. Field: Height
 - This field is not included
- xvi. Field: User ID
 - This field is not included

5. Check in Manager transcoder output the Body Water Numeric Object – Simple-Nu-Observed-Value attribute

6. Simulated Agent sends the Measurement to Manager under test with the following value:

a. Body Composition Measurement (0x2A9C)

- i. Field: Flags
 - Format: 16bit
 - Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included
- ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
- iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
- iv. Field: Fat Free Mass (kg)
 - This field is not included
- v. Field: Fat Free Mass (lb)
 - This field is not included
- vi. Field: Soft Lean Mass (kg)
 - This field is not included
- vii. Field: Soft Lean Mass (lb)

	<ul style="list-style-type: none"> • This field is not included <p>viii. Field: Body Water Mass (kg)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: FF FF (hex). Unsuccessful measurement. <p>ix. Field: Body Water Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>x. Field: Basal Metabolism</p> <ul style="list-style-type: none"> • This field is not included <p>xi. Field: Muscle Percentage</p> <ul style="list-style-type: none"> • This field is not included <p>xii. Field: Muscle Mass</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: Impedance</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xv. Field: Height</p> <ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>7. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</p>
<p>Pass/Fail criteria</p>	<p>In Step 5, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 47.5.</p> <p>In Step 7, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFFFF.</p>
<p>Notes</p>	<p>In Step 5, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FB 48 7A B0 (hex) or FC 07 3F 78 (hex) or FD 00 B9 8C (hex) or FE 00 12 8E (hex) or FF 00 01 DB (hex) or 47.5 (dec) <p>b) WAN PCD-01 message</p> <p>PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):</p> <pre>OBX ? NM 188764^MDC_MASS_BODY_WATER ^MDC 1.0.a 47.5 263875^MDC_DIM_KILO_G ^MDC R [current_date_time]</pre>

	<p>In Step 7, possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: 00 7F FF FF (hex) or NaN (note that is not allowed a decimal value) <p>b) WAN PCD-01 message</p> <p>PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188764^MDC_MASS_BODY_WATER^MDC) because it has a special value and this value is not included in PCD-01 message</p>
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TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-059		
TP label		Whitepaper. Body Water Mass Numeric Object – Body Water Mass value		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Float Type 1; C	Date-Time Conv 1; M	Body Water Numeric 6; M
		Body Water Numeric 7; M		
Test purpose		<p>Check that:</p> <p>Manager processes correctly the Body Water Mass Value (kg) and Time Stamp fields of Body Composition Measurement</p>		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_023 AND C_MAN_BLE_025		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units 		

	<p>of %, Time Stamp and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included</p> <ul style="list-style-type: none"> ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:08:25 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: 9500 (47.5 kg) ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>5. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</p> <p>6. Simulated Agent sends the Measurement to Manager under test with the following value:</p> <ul style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ul style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0000 0001 0000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of pound fields are
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	<p>included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Fat Free Mass, Impedance, Weight, Height and User ID fields are not included</p> <ul style="list-style-type: none"> ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: August 2nd, 2012, 11:09:05 iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • This field is not included v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • This field is not included vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • This field is not included ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • Format: UINT16 • Value: 10450 (104.5 lb) x. Field: Basal Metabolism <ul style="list-style-type: none"> • This field is not included xi. Field: Muscle Percentage <ul style="list-style-type: none"> • This field is not included xii. Field: Muscle Mass <ul style="list-style-type: none"> • This field is not included xiii. Field: Impedance <ul style="list-style-type: none"> • This field is not included xiv. Field: Weight <ul style="list-style-type: none"> • This field is not included xv. Field: Height <ul style="list-style-type: none"> • This field is not included xvi. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>7. Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp).</p>
Pass/Fail criteria	<p>In Step 5, the manager under test shows the following measurement: 47.5 kg, with timestamp '2012-08-02 11:08:25'</p> <p>In Step 7, the manager under test shows the following measurement: 104.5 lbs, with timestamp '2012-08-02 11:09:05'</p>
Notes	

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-060		
TP label		Whitepaper. Weight Scale Feature Characteristic – Measurement Resolution		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	WS Feature 1; M	WS Feature 2; M	WS Feature 3; M
		WS Feature 4; M	WS Feature 5; M	WS Feature 6; M
Test purpose		Check that: Manager transcodes Weight Scale measurements and presents them properly in transcoder output.		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017		
Other PICS				
Initial condition		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case are: <ol style="list-style-type: none"> a. Weight Scale Feature (0x2A9E) <ul style="list-style-type: none"> • Format: 32bit • Value: 0000 0000 0000 0000 0000 0001 0011 0111 (MSB → LSB). Time Stamp, Multiple Users, Height and BMI supported. Weight resolution of 0.01 kg / 0.02 lb, Height resolution of 0.005 m / 0.5 in. b. Weight Measurement (0x2A9D) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state), force Manager under test to read the Weight Scale Feature characteristic 5. Simulated Agent sends the Measurement to Manager under test with the following value <ol style="list-style-type: none"> a. Weight Measurement (0x2A9D) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 8bit • Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height and BMI fields are included, User ID fields is not included ii. Field: Weight (Kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: 16094 (80.47 kg) iii. Field: Weight (lb) <ul style="list-style-type: none"> • This field is not included iv. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant v. Field: Height (m) <ul style="list-style-type: none"> • Format: UINT16 • Value: 1805 (1.805 m) 		

	<ul style="list-style-type: none"> vi. Field: Height (in) <ul style="list-style-type: none"> • This field is not included vii. Field: BMI (kg/m²) <ul style="list-style-type: none"> • Format: UJINT16. • Value: Not relevant viii. Field: User ID <ul style="list-style-type: none"> • This field is not included <p>6. Check in Manager transcoder output the measurements values.</p>
Pass/Fail criteria	In Step 5, the manager under test shows the following measurements: Weight 80.47 kg, Height 180.5 cm.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Weight Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FE 00 1F 6F (hex) or 80.47 (dec) <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Height Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FF 00 07 0D (hex) or 180.5 (dec)

TP Id	TP/LP-PAN/MAN/PHDTW/WS/BV-061			
TP label	Whitepaper. Body Composition Feature Characteristic – Measurement Resolution			
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	BC Feature 1; M	BC Feature 2; M	BC Feature 3; M
		BC Feature 5; M	BC Feature 6; M	BC Feature 7; M
Test purpose	<p>Check that:</p> <p>Manager transcodes Body Composition measurements and presents them properly in transcoder output.</p>			
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018			
Other PICS				
Initial condition	The Manager under test and the Simulated Agent are in Standby state			
Test procedure	1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable).			

2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are:
 - a. Body Composition Feature (0x2A9B)
 - Format: 32bit
 - Value: 0000 0000 0000 0000 0011 0000 1110 0011 (MSB → LSB). Time Stamp, Multiple Users, Fat Free Mass, Soft Lean Mass and Body Water Mass supported. Weight resolution of 0.01 kg / 0.02 lb.
 - b. Body Composition Measurement (0x2A9C)
3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)
4. When the pairing has been completed (Connection state), force Manager under test to read the Body Composition Scale Feature characteristic
5. Simulated Agent sends the Measurement to Manager under test with the following value
 - a. Body Composition Measurement (0x2A9C)
 - i. Field: Flags
 - Format: 16bit
 - Value: 0000 0001 1100 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp, Fat Free Mass in units of Kg, Soft Lean Mass in units of Kg and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Impedance, Weight, Height and User ID fields are not included
 - ii. Field: Body Fat Percentage (%)
 - Format: UINT16
 - Value: Not relevant
 - iii. Field: Time Stamp
 - Format: Date and Time
 - Value: Not relevant
 - iv. Field: Fat Free Mass (kg)
 - Format: UINT16
 - Value: 12864 (64.32 kg)
 - v. Field: Fat Free Mass (lb)
 - This field is not included
 - vi. Field: Soft Lean Mass (kg)
 - Format: UINT16
 - Value: 14022 (70.11 kg)
 - vii. Field: Soft Lean Mass (lb)
 - This field is not included
 - viii. Field: Body Water Mass (kg)
 - Format: UINT16
 - Value: 11296 (56.48 kg)
 - ix. Field: Body Water Mass (lb)
 - This field is not included
 - x. Field: Basal Metabolism
 - This field is not included
 - xi. Field: Muscle Percentage

	<ul style="list-style-type: none"> • This field is not included <p>xii. Field: Muscle Mass</p> <ul style="list-style-type: none"> • This field is not included <p>xiii. Field: Impedance</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xv. Field: Height</p> <ul style="list-style-type: none"> • This field is not included <p>xvi. Field: User ID</p> <ul style="list-style-type: none"> • This field is not included <p>6. Check in Manager transcoder output the measurements values.</p>
Pass/Fail criteria	In Step 6, the manager under test shows the following measurements: Fat Free Mass 64.32 kg, Soft Lean Mass 70.11 kg, Body Water Mass 56.48 kg.
Notes	<p>Possible values in typical points of observation after transcoder output are:</p> <p>a) IEEE 11073 Objects and Attributes</p> <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fat Free Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FE 00 19 20 (hex) or 64.32 (dec) <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Soft Lean Mass Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FE 00 1B 63 (hex) or 70.11 (dec) <p>Simple-Nu-Observed-Value attribute is present:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Body Water Numeric Object <input type="checkbox"/> Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646) <input type="checkbox"/> Attribute-type: FLOAT <input type="checkbox"/> Attribute-value: FE 00 16 10 (hex) or 56.48 (dec)

TP Id		TP/LP-PAN/MAN/PHDTW/WS/BV-063		
TP label		Whitepaper. Body Composition Measurement Characteristic – Multiple Packet Measurement		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Multi Packet Numeric 1; M		
Test purpose		Check that:		

	Manager is able to transcode a measurement that has been sent in two pieces.
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_038
Other PICS	C_MAN_BLE_026, C_MAN_BLE_027, C_MAN_BLE_028, C_MAN_BLE_029, C_MAN_BLE_031, C_MAN_BLE_032, C_MAN_BLE_033, C_MAN_BLE_034, C_MAN_BLE_035
Initial condition	The Manager under test and the Simulated Agent are in Standby state
Test procedure	<ol style="list-style-type: none"> 1. Simulated Agent is configured with a Profile (device specialization) supported by the Manager under test, it has a measurement ready to be sent and it is in Advertising state (it is discoverable). 2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) 3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state) 4. When the pairing has been completed (Connection state) the Simulated Agent sends the next message splitted in two independent Body Composition Measurements: <ol style="list-style-type: none"> a. Body Composition Measurement (0x2A9C) <ol style="list-style-type: none"> i. Field: Flags <ul style="list-style-type: none"> • Format: 16bit • Value: 0001 X XXXX XXX0 (MSB → LSB). Multiple Packet Measurement bit is set to 1. Measurement Units bit is set to 0. The other bits are set following the PICS ii. Field: Body Fat Percentage (%) <ul style="list-style-type: none"> • Format: UINT16 • Value: 125 (12.5 %) iii. Field: Time Stamp <ul style="list-style-type: none"> • Format: Date and Time • Value: Not relevant. Present if (C_MAN_BLE_026 = TRUE) iv. Field: Fat Free Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant. Present if (C_MAN_BLE_032 = TRUE) v. Field: Fat Free Mass (lb) <ul style="list-style-type: none"> • This field is not included vi. Field: Soft Lean Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant. Present if (C_MAN_BLE_033 = TRUE) vii. Field: Soft Lean Mass (lb) <ul style="list-style-type: none"> • This field is not included viii. Field: Body Water Mass (kg) <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant. Present if (C_MAN_BLE_034 = TRUE) ix. Field: Body Water Mass (lb) <ul style="list-style-type: none"> • This field is not included x. Field: Basal Metabolism <ul style="list-style-type: none"> • Format: UINT16

	<ul style="list-style-type: none"> • Value: Not relevant. Present if (C_MAN_BLE_028 = TRUE) <p>xi. Field: Muscle Percentage</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant. Present if (C_MAN_BLE_029 = TRUE) <p>xii. Field: Muscle Mass (kg)</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant. Present if (C_MAN_BLE_031 = TRUE) <p>xiii. Field: Muscle Mass (lb)</p> <ul style="list-style-type: none"> • This field is not included <p>xiv. Field: Impedance</p> <ul style="list-style-type: none"> • Format: UINT16 • Value: Not relevant. Present if (C_MAN_BLE_035 = TRUE) <p>xv. Field: Weight</p> <ul style="list-style-type: none"> • This field is not included <p>xvi. Field: Height</p> <ul style="list-style-type: none"> • This field is not included <p>xvii. Field: User ID</p> <ul style="list-style-type: none"> • Format: UINT8 • Value: Not relevant. Present if (C_MAN_BLE_027 = TRUE) <p>5. Manager receives the first Body Composition Measurement, checks that Multiple Packet Measurement bit Flag is set to 1, and it waits for the second Body Composition Measurement</p> <p>6. Manager receives the second Body Composition Measurement.</p> <p>7. Check in Manager transcoder output the measurements values.</p>
Pass/Fail criteria	In Step 7, the both pieces of the Measurement are presented in transcoder output as an unique Measurement.
Notes	

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