ITU-T

TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU



# 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

1-D-1



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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

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T H.850	2015-01-13	16	11.1002/1000/12279
2.0	ITU-T H.850	2016-07-14	16	11.1002/1000/12957

#### Keywords

Conformance testing, continua design guidelines, e-health, H.810, PAN/LAN/TAN interface, personal area network, personal connected health devices, touch area network.

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<sup>\*</sup> To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, <u>http://handle.itu.int/11.1002/1000/11</u> <u>830-en</u>.

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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.

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#### 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	<ul> <li>Initial release for Test Tool DG2013. It uses</li> <li>"TSS&amp;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)]:</li> <li>Add glucose meter BLE</li> <li>Add BLE SSP support</li> <li>Add NFC new transport</li> <li>Add INR device specialization</li> </ul>	

## **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 Recommendation<sup>1</sup> 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

<sup>&</sup>lt;sup>1</sup> 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), <i>Personal Health Devices Transcoding White</i> <i>Paper</i> , v1.4. <a href="https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;">https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=294539&gt;"&gt;https://www.bluetooth.org/DocMan/handlers/DocMan/ha</a>
[Bluetooth PHDT v1.5]	Bluetooth SIG (2014), <i>Personal Health Devices Transcoding White</i> <i>Paper</i> , v1.5. <a href="https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=272346">https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=272346</a>
[ISO/IEEE 11073-20601A]	ISO/IEEE 11073-20601:2010, <i>Health informatics – Personal health device communication – Part 20601: Application profile – Optimized exchange protocol,</i> including ISO/IEEE 11073-20601:2010 Amd 1:2015. < <u>http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=54331</u> > with < <u>http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=63972&gt;</u>
[IHE PCD TF 1]	IHE PCD TF 1 (2012), <i>IHE Patient Care Device Technical</i> <i>Framework – Revision 2.0. Volume 1: Integration Profiles.</i> <a href="http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol1_FT_2012-08-16.pdf">http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol1_FT_2012-08-16.pdf</a>
[IHE PCD TF 2]	IHE PCD TF 2 (2012), <i>IHE Patient Care Device Technical</i> <i>Framework – Revision 2.0. Volume 2: Transactions.</i> <a href="http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol2_FT_2012-08-16.pdf">http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol2_FT_2012-08-16.pdf</a>
[IHE PCD TF 3]	IHE PCD TF 3 (2012), <i>IHE Patient Care Device Technical</i> <i>Framework – Revision 2.0. Volume 3: Semantic Content.</i> <a href="http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol3_FT_2012-08-16.pdf">http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2-0_Vol3_FT_2012-08-16.pdf</a>
[ISO/IEEE 11073-104xx]	ISO/IEEE 11073-104xx (in force), <i>Health informatics – Personal</i> <i>health device communication – Device specialization</i> . 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
ТР	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.

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.	
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		
2012 plus errata	_	3.1	Release 2012 plus errata noting all ratified bugs [b-CDG 2012].	
2012	_	3.0	0 Release 2012 of the CDG including Cata maintenance updates of the CDG 2011 and additional guidelines that cover new functionalities.	
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].	-

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

#### 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)
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  - 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 <a href="http://handle.itu.int/11.1002/2000/12067">http://handle.itu.int/11.1002/2000/12067</a>.

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.
    - O 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.

TP ld		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	e	Check that:			
		Manager does not include MDS Object – Handle Attribute in transcoder output			
		[OR]			
		If manager includes MDS Object – Handle attribute in transcoder output, then its value shall be set to 0			
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_002			
Other PICS					
Initial condit	ion	The manager under test and the simulated agent are in the standby state.			
Test procedure		<ol> <li>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).</li> </ol>			
		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 crit	teria	In step 4, the MDS object – Handle attribute is not present; however, if it is present, its value is 0.			
Notes		Possible values in typical points of observation after transcoder output are:			
		a) IEEE 11073 Objects and Attributes			
		Handle attribute is not present, or if it is present then:			
		Object: MDS object			
		Attribute-id: MDC_ATTR_ID_HANDLE (2337)			
		Attribute-type: INT-U16			
		□ Attribute-value: 0			
		b) WAN PCD-01 message			
		PCD-01 message does not include segments with a Handle attribute value.			

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

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

	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	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:			
	a. Manufacturer name string (0x2A29)			
	Format: utf8s			
	• Value: AT4wireless (string char, odd length)			
	b. Model number string (0x2A24)			
	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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	System-Model attribute is present:			
	Object: MDS object			
	Attribute-id: MDC_ATTR_ID_MODEL (2344)			
	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)			
	□ Attribute-value:			
	<ul> <li>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]</li> </ul>			
	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 ld		TP/LP-PAN/MAN/PHDTW/GEN/BV-002			
TP label	1	Whitepaper. MDS Object - System-Id Attribute			
Coverage	Spec	[b-Bluetooth PHDT v1.3]			
	Testable items	Common MDS 3; M	MDS Conv 4; M	MDS Conv 5; 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	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:			
	a. System ID (0x2A23)			
	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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	System-Id attribute is present:			
	Object: MDS object			
	Attribute-id: MDC_ATTR_SYS_ID (2436)			
	Attribute-type: OCTET STRING restricted to EUI-64			
	Attribute-value: 11 22 33 44 AA BB CC DD (hex)			
	b) WAN PCD-01 message			
	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):			
	OBX ?  528392^MDC_DEV_SPEC_PROFILE_TEMP^MDC 1      X      1122334455 AABBCCDD^EUI-64			
	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):			
	OBX ?  528391^MDC_DEV_SPEC_PROFILE_BP^MDC 1      X     1122334455 AABBCCDD^EUI-64			
	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):			
	OBX ?  528384^MDC_DEV_SPEC_PROFILE_HYDRA^MDC 1      X     1122334455 AABBCCDD^EUI-64			
	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):			
	OBX ?  528384^MDC_DEV_SPEC_PROFILE_GLUCOSE^MDC 1      X      1122334455 AABBCCDD^EUI-64			

TP ld	d TP/LP-PAN/MAN/PHDTW/GEN/BV-003			
TP label		Whitepaper. MDS Object - Production-Specification Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable	Common MDS 5; M	String Conv 1; M	String Conv 2; M
	items	MDS Conv 6; M	MDS Conv 7; M	
Test purpose	е	Check that:		
		Manager transcodes Serial Number String, Hardware Revision String, Software Revision String and Firmware Revision String characteristics into MDS Object – Production- Specification attribute		
		[AND]		
		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_M	AN_BLE_002	
Other PICS				
Initial condit	ion	The manager under test and	the simulated agent are in the	standby state.
Test procedu	ure	<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:		
		a. Serial number string (0x2A25)		
		Format: utf8s		
		Value: SN 2468 (string char, odd length)		
		b. Hardware revision string (0x2A27)		
		Format: utf8s		
		• Value: HW 13579 (string char, even length)		
		c. Software revision string (0x2A28)		
		Format: utf8s		
		Value: SW new-vers (string char, odd length)		
		d. Firmware revision string (0x2A26)		
		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.		
		<ol> <li>Check in manager transcoder output for the MDS object – Production-Specification attribute</li> </ol>		
Pass/Fail criteriaIn step 6, the MDS object – Production-Specification attribute is present, its val with the BLE Serial number string, Hardware revision string, Software revision Firmware revision string characteristics values, and character strings have even transcoder appends padding byte 0x00 to odd length strings).		, Software revision string and ter strings have even lengths (i.e.,		
Notes		Possible values in typical poir	nts of observation after transco	oder output are:
		a) IEEE 11073 Objects and	Attributes	
		Production-Specification attribute is present:		

	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)
	i. Element:
	• spec-type: 1 (dec)
	component-id: 0 (dec)
	<ul> <li>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]</li> </ul>
	ii. Element:
	• spec-type: 3 (dec)
	component-id: 0 (dec)
	<ul> <li>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]</li> </ul>
	iii. Element:
	• spec-type: 4 (dec)
	component-id: 0 (dec)
	<ul> <li>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]</li> </ul>
	iv. Element:
	• spec-type: 5 (dec)
	component-id: 0 (dec)
	<ul> <li>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]</li> </ul>
b) W/	AN PCD-01 message
	1 message includes four segments like these with Production-Specification attribute check OBX-5 in four segments):
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

TP ld		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	Common MDS 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	MDS Conv 8; M
Test purpose		Check that:		
		Manager transcodes Date Time characteristic into MDS Object – Date-and-Time attribute		
		[AND]		
		Manager transcodes the Bluetooth Date Time characteristic format to Absolute Time format		
		[AND]		
The fraction of seconds in Absolute Time at transcoder output is 0			is 0	
Applicability	1	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> <li>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).</li> </ol>
	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
	a. Date Time (0x2A08)
	Value: April 8th, 2012, 19:45:05
	i. Field: Year
	Format: uint16
	• Value: 2012
	ii. Field: Month
	Format: uint8
	• Value: 4
	iii. Field: Day
	Format: uint8
	Value: 8
	iv. Field: Hours
	Format: uint8
	• Value: 19
	v. Field: Minutes
	Format: uint8
	Value: 45
	vi. Field: Seconds
	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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Date-and-Time attribute is present:
	Object: MDS object
	Attribute-id: MDC_ATTR_TIME_ABS (2439)
	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:
	• century: 20 (hex) or 32 (dec)
	<ul> <li>year: 12 (hex) or 18 (dec)</li> </ul>

month: 04 (hex) or 4 (dec)
• day: 08 (hex) or 8 (dec)
<ul> <li>hour: 19 (hex) or 25 (dec)</li> </ul>
• minute: 45 (hex) or 69 (dec)
• second: 05 (hex) or 5 (dec)
<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Type attribute value (check OBX-5):
OBX ? DTM 67975^MDC_ATTR_TIME_ABS^MDC 1.0.0.a 20120408194505+0000       R   20120408194505+0000

TP ld		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	9	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 condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedu	ure	<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:		
		a. Battery level (0x2A19)		
		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 cri	teria	In step 6, the MDS object – Battery-Level attribute is present and its value matches with the BLE Battery-Level characteristic value.		
Notes		Possible values in typical points of observation after transcoder output are:		
		a) IEEE 11073 Objects and Attributes		
		Battery-Level attribute is present:		
		Object: MDS object		
		Attribute-id: MDC_ATTR_VAL_BATT_CHARGE (2460)		
		Attribute-type: INT-U16		
		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]

# A.3 Subgroup 2.4.2 – Whitepaper Thermometer requirements (TH)

TP ld		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 purpos	е	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 condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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 cri	teria	In step 4, the MDS object – System-Type attribute is not present.		
Notes		Possible values in typical points of observation after transcoder output are:		
		a) IEEE 11073 Objects and Attributes		
		System-Type attribute is not present:		
		Object: MDS object		
		Attribute-id: MDC_ATTR_SYS_TYPE (2438)		
		Attribute-type: TYPE		
		Attribute-value: <not present=""></not>		
		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 ld		TP/LP-PAN/MAN/PHDTW/TH/BV-001	
TP label Whitepaper. The		Whitepaper. Thermometer MDS Object - Dev-Configuration-Id Attribute	
Coverage	Spec	[b-Bluetooth PHDT v1.3]	
	Testable items	TH Specific MDS 2; M	
Manage [AND] Dev-Co		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		C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002	
Other PICS Initial condition	tion	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).		
	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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Dev-Configuration-Id attribute is present:		
	Object: MDS object		
	Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628)		
	Attribute-type: INT-U16		
	Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex)		
	b) WAN PCD-01 message		
	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.		

TP Id			1/B//_002	
		TP/LP-PAN/MAN/PHDTW/TH/BV-002 Whitepaper. Thermometer MDS Object - System-Type-Spec-List Attribute		
TP label		vvnitepaper. Thermometer ivi	DS Object - System-Type-Spec-L	IST ATTIDUTE
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	Common MDS 15; M	TH Specific MDS 3; M	
Test purpose	e	Check that:		
		Manager includes MDS Obje	ct – System-Type-Spec-List attrib	ute in transcoder output.
		[AND]		
		System-Type-Spec-List is se	to (MDC_DEV_SPEC_PROFILE	_TEMP, Version 1)
Applicability		C_MAN_BLE_000 AND C_N	AN_BLE_001 AND C_MAN_BLE	_002
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state		
Test procedu	ure	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		
			step 4, the MDS object – System-Type-Spec-List attribute is present and its value is DC_DEV_SPEC_PROFILE_TEMP, Version 1).	
Notes		Possible values in typical points of observation after transcoder output are:		
		a) IEEE 11073 Objects and Attributes		
		System-Type-Spec-List attribute is present:		
		Object: MDS object		
		Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650)		

<ul> <li>Attribute-type: SEQUENCE OF [{type (INT-U16), version (INT-U16)}]</li> <li>Attribute-value:</li> </ul>
<ul> <li>type: MDC_DEV_SPEC_PROFILE_TEMP or 4104 (dec) or 10 08 (hex)</li> </ul>
• version: 1 (dec) or 00 01 (hex)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a System-Type-Spec-List attribute value (check OBX-5):
OBX ? NM 68186^MDC_ATTR_SYS_TYPE_SPEC_LIST^MDC 1.0.0.a
528392^MDC_DEV_SPEC_PROFILE_TEMP^MDC      R

TP ld	TPId 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 purpo	se	Check that:		
		Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute		
Applicabili	ty	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		
Other PICS	;			
Initial cond	lition	The manager under test and the simulated agent are in the standby state.		
Test proce	dure	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:		
		a. IEEE 11073-20601 [ISO/IEEE 11073-20601A] Regulatory Certification Data List (0x2A2A)		
		Format: reg-cert-data-list (opaque structure)		
		<ul> <li>Value: 00 02 00 12 02 01 00 08 04 00 00 01 00 02 80 08 02 02 00 02 80 00 (hex)</li> </ul>		
		i. Element:		
		<ul> <li>auth-body-and-struc-type:</li> </ul>		
		- auth-body: 02 (hex) auth-body-continua(2)		
		- auth-body-struc-type: 01 (hex). continua-version-struct(1)		
		auth-body-data:		
		- major-IG-version: 04 (hex)		
		- minor-IG-version: 00 (hex)		
		- certified-devices: 80 08 (hex). BLE Thermometer		
		ii. Element:		
		<ul> <li>auth-body-and-struc-type:</li> </ul>		
		- auth-body: 02 (hex). auth-body-continua(2)		
		- auth-body-struc-type: 02 (hex). continua-reg-struct(2)		
		auth-body-data:		
		- 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.		

	T
	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.
	5. The simulated agent sends the measurement to the manager under test.
	6. Check in manager transcoder output for 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 the IEEE 11073-20601 Regulatory Certification Data List characteristic value.
Notes	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Reg-Cert-Data-List attribute is present:
	Object: MDS object
	Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635)
	Attribute-type: SEQUENCE OF [{auth-body-and-struc-type, auth-body-data}, {}]
	<ul> <li>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]</li> </ul>
	i. Reg-Cert-Data Element:
	auth-body-and-struc-type:
	- auth-body: 02 (hex) auth-body-continua(2)
	- auth-body-struc-type: 01 (hex). continua-version-struct(1)
	auth-body-data:
	- major-IG-version: 04 (hex)
	- minor-IG-version: 00 (hex)
	- certified-devices: 80 08 (hex). BLE Thermometer
	ii. Reg-Cert-Data Element:
	<ul> <li>auth-body-and-struc-type:</li> </ul>
	- auth-body: 02 (hex). auth-body-continua(2)
	- auth-body-struc-type: 02 (hex). continua-reg-struct(2)
	auth-body-data:
	- regulation-bit-field: 80 00 (hex). Unregulated device
	b) WAN PCD-01 message
	PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):
	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

TP ld		TP/LP-PAN/MAN/PHDTW/TH/BV-004	
TP label Whitepaper. Thermometer Body Temperature Object - Handle Attribute		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,			
	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	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:			
	a. Temperature measurement (0x2A1C)			
	i. Field: Flags			
	Format: 8 bit			
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>			
	ii. Field: Temperature Measurement Value (Celsius)			
	Format: FLOAT			
	Value: Not relevant			
	iii. Field: Temperature Measurement Value (Fahrenheit)			
	This field is not included			
	iv. Field: Time Stamp			
	Format: Date and Time			
	Value: Not relevant			
	v. Field: Temperature Type			
	This field is not included			
	<ol> <li>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).</li> </ol>			
	<ol> <li>When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.</li> </ol>			
	<ol> <li>Check in manager transcoder output for the Body temperature object – Handle attribute</li> </ol>			
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:			
	a) IEEE 11073 Objects and Attributes			
	Handle attribute is not present, or if it is present then:			
	<ul> <li>Object: Body temperature numeric object</li> </ul>			
	<ul> <li>Attribute-id: MDC_ATTR_ID_HANDLE (2337)</li> </ul>			
	<ul> <li>Attribute-type: INT-U16</li> </ul>			
	<ul> <li>Attribute type: Int o to</li> <li>Attribute-value: Any value other than 0</li> </ul>			
	b) WAN PCD-01 message			
	PCD-01 message does not include segments with a Handle attribute value.			

TP ld		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	TH Numeric 4; M
Test purpose	е	Check that:		
		Manager includes Body Te	emperature Object – Type attri	bute in transcoder output.
		[AND]		
		Type is set to {MDC_PART_SCADA, MDC_TEMP_BODY}		
		[AND]		
			teristic is not present too THEN	characteristic is not present and N Body Temperature Object – Metric-
Applicability Other PICS	,	C_MAN_BLE_000 AND C	_MAN_BLE_001 AND C_MAN	L_BLE_002
Initial condit	ion	The manager under test a	nd the simulated agent are in t	he standby state.
Test procedu	ure	1. The simulated agent i	s configured with a Thermome	ter profile (device specialization); it advertising state (it is discoverable).
		<ol> <li>The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:</li> </ol>		
		a. Temperature mea	asurement (0x2A1C)	
		i. Field: Flags		
		Format	: 8 bit	
		• Value: 0000 0010 (MSB $\rightarrow$ LSB). Temperature Type field is not included		
		ii. Field: Temperature Measurement Value (Celsius)		
		Format: FLOAT		
		Value: Not relevant		
		iii. Field: Temperature Measurement Value (Fahrenheit)		
		This field is not included		
		iv. Field: Time S	Stamp	
		Format	: Date and Time	
		Value:	Not relevant	
		v. Field: Tempe	erature Type	
		This fie	ld is not included	
		b. Temperature type	e (0x2A1D): This characteristic	is not present
				s (scanning state). It discovers the the simulated agent (initiating state).
		4. When the pairing has measurement to the r		state), the simulated agent sends the
		5. Check in manager tra Id attributes	nscoder output for the Body te	mperature object – Type and Metric-
Pass/Fail criteria		In step 5, the Body temper {MDC_PART_SCADA, ME	rature object – Type attribute is DC_TEMP_BODY}.	s present and its value is
		In step 5, the Body temper MDC_TEMP_BODY.	rature object – Metric-Id attribu	te is present and its value is
Notes		Possible values in typical	points of observation after trans	scoder output are:
		a) IEEE 11073 Objects a	and Attributes	

Type a	ttribute is present:
	Object: Body temperature object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
Metric-	ld attribute is present:
	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)
b) W	AN PCD-01 message
PCD-0	1 message includes a segment like this with a Type attribute value (check OBX-3):
	NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6  ^^MDC_DIM_DEGC^MDC     R   [current_date_time]

TP Id TP/LP-PAN/MAN/PHDTW/TH/BV-006		H/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	e	Check that:		
		Manager includes Body Ter	nperature Object – Type attribute ir	n transcoder output.
		[AND]		
		Type is set to {MDC_PART	SCADA, MDC_TEMP_BODY}	
		[AND]		
			f Temperature Measurement chara ld into Body Temperature Object –	
Applicability	1	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.		ndby state.		
Test procedure			configured with a Thermometer pro ady to be sent and it is in the adver	
		2. The simulated agent im interest for this test cas	plements several BLE characterist e are:	ics. The characteristics of
		a. Temperature meas	urement (0x2A1C)	
		i. Field: Flags		
		Format:	3 bit	
		• Value: 0	000 0110 (MSB $\rightarrow$ LSB). Temperat	ure Type field is included
		ii. Field: Temper	ature Measurement Value (Celsius	)
		Format:	FLOAT	
		Value: N	ot relevant	
		iii. Field: Temper	ature Measurement Value (Fahren	neit)
		This field	is not included	

	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Temperature Type
	Format: 8 bit
	<ul> <li>Value: Several values are checked in this test case</li> </ul>
	b. Temperature type (0x2A1D): This characteristic is not present.
	<ol> <li>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).</li> </ol>
	<ol> <li>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).</li> </ol>
	5. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with the field Temperature Type set to Body (general) (0x02).</li> </ol>
	7. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Ear (usually earlobe) (0x03).</li> </ol>
	9. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Finger (0x04).</li> </ol>
	11. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Gastro-intestinal tract (0x05).</li> </ol>
	13. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Mouth (0x06).</li> </ol>
	15. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Rectum (0x07).</li> </ol>
	17. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Toe (0x08).</li> </ol>
	19. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
	<ol> <li>The simulated agent sends the measurement to the manager under test with field Temperature Type set to Tympanum (ear drum) (0x09).</li> </ol>
	21. Check in manager transcoder output for the Body temperature object – Type and Metric- Id attributes.
Pass/Fail criteria	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.
	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.

	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
	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.
	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.
	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.
	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.
	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.
	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.
Notes	In step 5, 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:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
	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_AXILLA or 57380 (dec) or E0 24 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	OBX ? NM 188452^MDC_TEMP_AXILLA^MDC 1.0.0.a 35.6  268192^MDC_DIM_DEGC^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: Body temperature object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
	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_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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
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:
<ul> <li>Object: Body temperature object</li> </ul>
<ul> <li>Attribute-id: MDC_ATTR_ID_TYPE (2351)</li> </ul>
<ul> <li>Attribute to MDO_ATTC_D_TTTE (2007)</li> <li>Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}</li> </ul>
<ul> <li>Attribute-value:</li> </ul>
partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)     conde: MDC_TEMP_RODY or 10202 (dec) or 4P 4C (hex)
code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)
Metric-Id attribute is present:
<ul> <li>Object: Body temperature object</li> <li>Attribute-id: MDC_ATTR_ID_PHYSIO (2347)</li> </ul>
<ul> <li>Attribute-id. MDC_ATTA_ID_FTTTSIC (2347)</li> <li>Attribute-type: code (INT-U16)</li> </ul>
<ul> <li>Attribute-type: code (INT-010)</li> <li>Attribute-value: code: MDC_TEMP_GIT or 57384 (dec) or E0 28 (hex)</li> </ul>
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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>
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) WA	N PCD-01 message	
PCD-01	message includes a segment like this with a Type attribute value (check OBX-3):	
	NM 188420^MDC_TEMP_RECT^MDC 1.0.0.a 36.7  ^MDC_DIM_DEGC^MDC     R   20120716145710+0000	
In step	19, possible values in typical points of observation after transcoder output are:	
a) IEE	E 11073 Objects and Attributes	
Type at	tribute is present:	
	Object: Body temperature object	
	Attribute-id: MDC_ATTR_ID_TYPE (2351)	
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}	
	Attribute-value:	
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>	
	<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>	
Metric-I	d 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) WA	N PCD-01 message	
PCD-01	message includes a segment like this with a Type attribute value (check OBX-3):	
	NM 188448^MDC_TEMP_TOE^MDC 1.0.0.a 36.9  ^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 at	tribute is present:	
	Object: Body temperature object	
	Attribute-id: MDC_ATTR_ID_TYPE (2351)	
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}	
	Attribute-value:	
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>	
	<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>	
Metric-I	d 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):		
	NM 150392^MDC_TEMP_TYMP^MDC 1.0.0.a 37.1  ^MDC_DIM_DEGC^MDC     R   20120716145910+0000	

TP ld		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 purpos	е	Check that:				
		Manager includes Body Temperature Object – Type attribute in transcoder output.				
		[AND]				
		Type is set to {MDC_PART_SCADA, MDC_TEMP_BODY} [AND]				
		IF Temperature Type characteristic is present THEN manager transcodes this characteristic into Body Temperature Object – Metric-Id attribute				
Applicability	/	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002				
Other PICS						
Initial condit	tion	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).				
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:				
		a. Temperature measurement (0x2A1C)				
		i. Field: Flags				
		Format: 8 bit				
		<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature Type field is not included</li> </ul>				
		ii. Field: Temperature Measurement Value (Celsius)				
		Format: FLOAT				
		Value: Not relevant				
		iii. Field: Temperature Measurement Value (Fahrenheit)				
		This field is not included				
		iv. Field: Time Stamp				
		Format: Date and Time				
		Value: Not relevant				
		v. Field: Temperature Type				
		This field is not included				
		b. Temperature type (0x2A1D)				
		• 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 cri	iteria	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 poir				

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:		
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>		
<ul> <li>code: MDC_TEMP_BODY or 19292 (dec) or 4B 4C (hex)</li> </ul>		
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_AXILLA or 57380 (dec) or E0 24 (hex)		
b) WAN PCD-01 message		
PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):		
OBX ? NM 188452^MDC_TEMP_AXILLA^MDC 1.0.0.a 35.6  268192^MDC_DIM_DEGC^MDC    R   [current_date_time]		

TP Id		TP/LP-PAN/MAN/PHDTW/TH	/B\/_008		
TP label		Whitepaper. Body Temperature Object - Metric-Spec-Small Attribute 1			
	Snoo				
Coverage Spec		[b-Bluetooth PHDT v1.3]			
	Testable items	TH Numeric 5; M	TH Numeric 6; M		
Test purpose		Check that:			
		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)			
Applicability	bility C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002			_002	
Other PICS	cs				
Initial condition The manager under test and the simulated agent are in the standby state.			ndby 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).			
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:			
		a. Temperature measurement (0x2A1C)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature Measurement Value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>			
		ii. Field: Temperature Measurement Value (Celsius)			
		Format: FLOAT			
		Value: Not relevant			
		iii. Field: Temperature Measurement Value (Fahrenheit)			
		This field is	not included		
		iv. Field: Time Stamp			

	Format: Date and Time		
	Value: Not relevant		
	v. Field: Temperature Type		
	This field is not included		
	b. Measurement interval (0x2A21): 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 – Metric-Spec- Small attribute.		
Pass/Fail criteria	In step 5, the Body temperature object – Metric-Spec-Small attribute is present and its value is 0xF040.		
Notes	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Metric-Spec-Small attribute is present:		
	Object: Body temperature 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		
	b) WAN PCD-01 message		
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.		

TP ld		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 purpos	e	Check that: 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)			
Applicability	/	C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002			
Other PICS					
Initial condi	tion	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).			
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:			
		a. Temperature measurement (0x2A1C)			
		i. Field: Flags			
		Format: 8 bit			
		unit	ue: 0000 0010 (MSB $\rightarrow$ LSB). Ter ts of Celsius, Time Stamp field is in ot included	nperature measurement value in ncluded and Temperature Type field	
		ii. Field: Temperature Measurement Value (Celsius)			

	Format: FLOAT	
	Value: Not relevant	
	iii. Field: Temperature Measurement Value (Fahrenheit)	
	This field is not included	
	iv. Field: Time Stamp	
	Format: Date and Time	
	Value: Not relevant	
	v. Field: Temperature Type	
	This field is not included	
	b. Measurement interval (0x2A21)	
	Format: uint16	
	• Value: 0	
	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 Measurement interval characteristic.	
	5. The simulated agent sends the measurement to the manager under test.	
	<ol> <li>Check in manager transcoder output for the Body temperature object – Metric-Spec- Small attribute.</li> </ol>	
Pass/Fail criteria	In step 6, the Body temperature object – Metric-Spec-Small attribute is present and its value is 0xF040.	
Notes	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Metric-Spec-Small attribute is present:	
	Object: Body temperature 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	
	b) WAN PCD-01 message	
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.	

TP ld		TP/LP-PAN/MAN/PHDTW/TH/BV-010		
TP label Whitepaper. Body Temperature Object - Metric-Spec-Small Attribute 3		ribute 3		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	TH Numeric 5; M TH Numeric 6; M		
Test purpos	e	Check that:		
		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)		
Applicability C_MAN_BLE_000 AND C_MAN_BLE_001 AND C_MAN_BLE_002		_002		
Other PICS				
Initial condition The manager under test and the simulated agent are in the standby state.		ndby state.		
Test proced	procedure       1. The simulated agent is configured with a Thermometer profile (device specialization) has a measurement ready to be sent and it is in the advertising state (it is discoveral)			

	2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:	
	a. Temperature measurement (0x2A1C)	
	i. Field: Flags	
	Format: 8 bit	
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>	
	ii. Field: Temperature Measurement Value (Celsius)	
	Format: FLOAT	
	Value: Not relevant	
	iii. Field: Temperature Measurement Value (Fahrenheit)	
	This field is not included	
	iv. Field: Time Stamp	
	Format: Date and Time	
	Value: Not relevant	
	v. Field: Temperature Type	
	This field is not included	
	b. Measurement interval (0x2A21)	
	Format: uint16	
	• Value: 30	
	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 Measurement interval characteristic.	
	5. The simulated agent sends the measurement to the manager under test.	
	6. Check in manager transcoder output for the Body temperature object – Metric-Spec- Small attribute.	
Pass/Fail criteria	In step 6, the Body temperature object – Metric-Spec-Small attribute is present and its value is 0x4040.	
Notes	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Metric-Spec-Small attribute is present:	
	Object: Body temperature object	
	Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)	
	Attribute-type: BITS-16	
	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	
	b) WAN PCD-01 message	
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.	
	POD-01 message does not include segments with a Metric-Spec-Small attribute value.	

TP ld		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 purpos	e	Check that:		

	Managar includes Rody Temperature Object - Unit Code attribute in transpoder output
	Manager includes Body Temperature Object – Unit-Code attribute in transcoder output.
	[AND]
	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
	[AND]
	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
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).
	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
	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:
	a. Temperature measurement (0x2A1C)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>
	ii. Field: Temperature Measurement Value (Celsius)
	Format: FLOAT
	• Value: 35.6
	iii. Field: Temperature Measurement Value (Fahrenheit)
	This field is not included
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Temperature Type
	This field is not included
	<ol> <li>Check in manager transcoder output for the Body temperature object – Unit-Code attribute.</li> </ol>
	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
	<ul> <li>Value: 0000 0011 (MSB → LSB). Temperature measurement value in units of Fahrenheit, Time Stamp field is included and Temperature Type field is not included</li> </ul>
	ii. Field: Temperature Measurement Value (Celsius)
	This field is not included

	iii. Field: Temperature Measurement Value (Fahrenheit)
	Format: FLOAT
	<ul> <li>Value: 98.1</li> </ul>
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Temperature Type
	This field is not included
	<ol> <li>Check in manager transcoder output for the Body temperature object – Unit-Code attribute.</li> </ol>
Pass/Fail criteria	In step 5, the Body temperature object – Unit-Code attribute is present and its value is MDC_DIM_DEGC.
	In step 7, the Body temperature object – Unit-Code attribute is present and its value is MDC_DIM_FAHR.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Body temperature object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_DEGC or 6048 (dec) or 17 A0 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Unit-Code attribute value (check OBX- 6):
	OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6  268192^MDC_DIM_DEGC^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
	Unit-Code attribute is present:
	Object: Body temperature object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_FAHR or 4416 (dec) or 11 40 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Unit-Code attribute value (check OBX- 6):
	OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 98.1  266560^MDC_DIM_FAHR^MDC     R   20120801095012+0000

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

	Temperature Object - Absolute-Time-Stamp attribute		
	[AND]		
	Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format		
	The fraction of seconds in Absolute Time at transcoder output is 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> <li>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).</li> </ol>		
	<ol> <li>The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</li> </ol>		
	a. Temperature measurement (0x2A1C)		
	<ol> <li>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).</li> </ol>		
	<ul><li>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value:</li></ul>		
	a. Temperature measurement (0x2A1C)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>		
	ii. Field: Temperature Measurement Value (Celsius)		
	Format: FLOAT		
	• Value: 36.2		
	iii. Field: Temperature Measurement Value (Fahrenheit)		
	This field is not included		
	iv. Field: Time Stamp		
	Format: Date and Time		
	<ul> <li>Value: August 2nd, 2012, 10:39:27</li> </ul>		
	v. Field: Temperature Type		
	This field is not included		
	<ol> <li>Check in manager transcoder output for the Body temperature object – Absolute-Time- Stamp attribute.</li> </ol>		
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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Absolute-Time-Stamp attribute is present:		
	Object: Body temperature object		
	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)		
	<ul> <li>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)</li> </ul>		
	□ Attribute-value:		
	<ul> <li>century: 20 (hex) or 32 (dec)</li> </ul>		

• 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)
<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 36.2  268192^MDC_DIM_DEGC^MDC    R   20120802103927+0000

TP Id TP		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	9	Check that:	Check that:		
		Manager transcodes Temperature Measurement Value field of Temperature Measurement characteristic into Body Temperature Object - Simple-Nu-Observed-Value attribute			
Applicability	,	C_MAN_BLE_000 AND C_M	AN_BLE_001 AND C_MAN_BLE	_002	
Other PICS					
Initial condit	ion	The manager under test and	the simulated agent are in the sta	ndby state.	
Test procedu	ure		onfigured with a Thermometer pro dy to be sent and it is in the advert		
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:			
		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:			
		a. Temperature measurement (0x2A1C)			
		i. Field: Flags			
		Format: 8	bit		
			00 0010 (MSB → LSB). Temperati elsius, Time Stamp field is include uded		
		ii. Field: Tempera	ture Measurement Value (Celsius)	)	
		Format: FLOAT			
		• Value: 35.6			
		iii. Field: Temperature Measurement Value (Fahrenheit)			
		This field is not included			
		iv. Field: Time Stamp			
		Format: D	ate and Time		
		Value: No	t relevant		

	v. Field: Temperature Type
	This field is not included
	<ol> <li>Check in manager transcoder output for the Body temperature object – Simple-Nu- Observed-Value attribute.</li> </ol>
	<ol><li>The simulated agent sends the measurement to the manager under test with the following value:</li></ol>
	a. Temperature measurement (0x2A1C)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0000 0011 (MSB → LSB). Temperature measurement value in units of Fahrenheit, Time Stamp field is included and Temperature Type field is not included</li> </ul>
	ii. Field: Temperature Measurement Value (Celsius)
	This field is not included
	iii. Field: Temperature Measurement Value (Fahrenheit)
	Format: FLOAT
	• Value: 98.2
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Temperature Type
	This field is not included
	<ol> <li>Check in manager transcoder output for the Body temperature object – Simple-Nu- Observed-Value attribute.</li> </ol>
Pass/Fail criteria	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).
	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).
Notes	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: 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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6  268192^MDC_DIM_DEGC^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
	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: 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)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):
OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 98.2  266560^MDC_DIM_FAHR^MDC    R  20120802105712+0000

TP ld		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;	Μ	Float Type 1; C	Float Type 2; M	
Test purpose	•	Check that:				
		Manager transcodes Temperature Measurement Value field of Temperature Measurement characteristic into Body Temperature Object - Simple-Nu-Observed-Value attribute				
		[AND]				
		Manager assigns the following special values: NaN (0x007FFFFF), NRes (0x00800000), +INFINITY (0x007FFFFE) and -INFINITY (0x00800002)				
Applicability		C_MAN_BLE_C	00 AND C_MA	N_BLE_001 AND C_MAN_BLE	_002	
Other PICS						
Initial conditi	ion	The manager u	nder test and th	ne simulated agent are in the sta	ndby state.	
Test procedu	ıre	<ol> <li>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).</li> </ol>				
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:				
		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:			
		b. Temperature measurement (0x2A1C)				
		i. Field: Flags				
		Format: 8 bit				
				0 0010 (MSB → LSB). Temperati sius, Time Stamp field is include led		
		ii. Field: Temperature Measurement Value (Celsius)				
			• Format: FLC	DAT		
		• Value: 35.6				
		iii. Field: Time Stamp				
		Format: Date and Time				
		Value: Not relevant				
		iv. Field: Temperature Type				
		This field is not included				
		<ol> <li>Check in manager transcoder output for the Body temperature object – Simple-Nu- Observed-Value attribute.</li> </ol>				

6	The simulated agent sends the measurement to the manager under test with the
6.	following value:
	a. Temperature measurement (0x2A1C)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>
	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
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>
	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
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>
	ii. Field: Temperature Measurement Value (Celsius)
	Format: FLOAT
	Value: 00 07 FF FE (hex). Special value: +INFINITY

	iii. Field: Time Stamp		
	Format: Date and Time		
	Value: Not relevant		
	iv. Field: Temperature Type		
	This field is not included		
	<ol> <li>Check in manager transcoder output for the Body temperature object – Simple-Nu- Observed-Value attribute.</li> </ol>		
	12. 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		
	<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value in units of Celsius, Time Stamp field is included and Temperature Type field is not included</li> </ul>		
	ii. Field: Temperature Measurement Value (Celsius)		
	Format: FLOAT		
	Value: 00 08 00 02 (hex). Special value: -INFINITY		
	iii. Field: Time Stamp		
	Format: Date and Time		
	Value: Not relevant		
	iv. Field: Temperature Type		
	This field is not included		
	13. Check in manager transcoder output for the Body temperature object – Simple-Nu- Observed-Value attribute.		
Pass/Fail criteria	In step 5, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 35.6.		
	In step 7, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFF.		
	In step 9, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x00800000.		
	In step 11, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFE.		
	In step 13, the Body temperature object – Simple-Nu-Observed-Value attribute is present and its value is 0x00800002.		
Notes	In step 5, 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: 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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 150364^MDC_TEMP_BODY^MDC 1.0.0.a 35.6  268192^MDC_DIM_DEGC^MDC    R   [current_date_time]		

In step	7, possible values in typical points of observation after transcoder output are:
a) IEE	E 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) WA	N PCD-01 message
value (1	message does not include segments with a Simple-Nu-Observed-Value attribute 50364^MDC_TEMP_BODY^MDC) because it has a special value and these values included in the PCD-01 message.
In step	9, possible values in typical points of observation after transcoder output are:
a) IEE	E 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) WA	N PCD-01 message
value (1	message does not include segments with a Simple-Nu-Observed-Value attribute 50364^MDC_TEMP_BODY^MDC) because it has a special value and these values included in the PCD-01 message.
In step	11, possible values in typical points of observation after transcoder output are:
a) IEE	E 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) WA	N PCD-01 message
value (1	message does not include segments with a Simple-Nu-Observed-Value attribute 50364^MDC_TEMP_BODY^MDC) because it has a special value and these values included in the PCD-01 message.
In step	13, possible values in typical points of observation after transcoder output are:
a) IEE	E 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) WA	N PCD-01 message
value (1	message does not include segments with a Simple-Nu-Observed-Value attribute 50364^MDC_TEMP_BODY^MDC) because it has a special value and these values included in the PCD-01 message.

TP ld		TP/LP-PAN/MAN/PHDTW/TH/BV-015				
TP label		Whitepaper. Temperature measurement value				
Coverage	Spec	[b-Bluetooth PHDT v1.3]				
	Testable	Float Type 1; C Date-Time Conv 1; M TH Numeric 10; M				
	items	TH Numeric 11; M				
Test purpos	e	Check that:				
		Manager processes correctly the Temperature Measurement Value (Celsius), Tempera Measurement Value (Fahrenheit) and Time Stamp fields of Temperature Measuremen characteristic				
Applicability	y	C_MAN_BLE_000 AND C_MAN_BLE_001				
Other PICS						
Initial condi	tion	The manager under test and the simulated agent are in the standby state.				
Test proced	lure	1. The simulated agent is configured with a Thermometer profile (device specialization has a measurement ready to be sent and it is in the advertising state (it is discover				
		2. The simulated agent implements several BLE characteristics. The characteristic or interest for this test case is:	f			
		a. Temperature measurement (0x2A1C)				
		<ol> <li>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).</li> </ol>				
		4. When the pairing has been completed (connection state), 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				
		<ul> <li>Value: 0000 0010 (MSB → LSB). Temperature measurement value units of Celsius, Time Stamp field is included and Temperature Typ is not included</li> </ul>				
		ii. Field: Temperature Measurement Value (Celsius)				
		Format: FLOAT				
		• Value: 35.8				
		iii. Field: Temperature Measurement Value (Fahrenheit)				
		This field is not included				
		iv. Field: Time Stamp				
		Format: Date and Time				
		• Value: August 2nd, 2012, 11:08:25				
		v. Field: Temperature Type				
		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).	1			
		6. The simulated agent sends the measurement to the manager under test with the following value:				
		b. Temperature measurement (0x2A1C)				
		i. Field: Flags				
		Format: 8 bit				
		<ul> <li>Value: 0000 0011 (MSB → LSB). Temperature measurement value units of Fahrenheit, Time Stamp field is included and Temperature field is not included</li> </ul>				
		ii. Field: Temperature Measurement Value (Celsius)				

	This field is not included		
	iii. Field: Temperature Measurement Value (Fahrenheit)		
	Format: FLOAT		
	• Value: 98.2		
	iv. Field: Time Stamp		
	Format: Date and Time		
	• Value: August 2nd, 2012, 11:09:05		
	v. Field: Temperature Type		
	This field is not included		
	<ol> <li>Check that the manager accepts the measurement and decodes its value properly (temperature measurement value, temperature units and time stamp).</li> </ol>		
Pass/Fail criteria	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'.		
	In step 7, the manager under test shows the following temperature measurement 97.9F with the time stamp '2012-08-02 11:09:05'.		
Notes			

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

TP ld		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 purpos	е	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_003			
Other PICS					
Initial condit	ion	The manager under test and the simulated agent are in the standby state			
Test proced	ure	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 cri	teria	In step 4, the MDS object – System-Type attribute is not present.			
Notes		Possible values in typical points of observation after transcoder output are:			
		a) IEEE 11073 Objects and Attributes			
		System-Type attribute is not present:			
		Object: MDS object			
		Attribute-id: MDC_ATTR_SYS_TYPE (2438)			
		Attribute-type: TYPE			
		Attribute-value: <not present=""></not>			
		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/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 purpos	e	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_002 AND C_MAN_BLE_003			
Other PICS					
Initial condit	ion	The manager under test and the simulated agent are in the standby state.			
Test proced	ure	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 cri	teria	In step 4, the MDS object – Dev-Configuration-Id attribute is present and its value is inside the range 0x4000 - 0x7FFF.			
Notes		Possible values in typical points of observation after transcoder output are:			
		a) IEEE 11073 Objects and Attributes			
		Dev-Configuration-Id attribute is present:			
		Object: MDS object			
		Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628)			
		Attribute-type: INT-U16			
		Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex)			
		b) WAN PCD-01 message			
		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.			

TP ld		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 purpos	e	Check that:			
		Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.			
		[AND]			
		System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_BP, Version 1)			
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.			

1		
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).	
	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.	
	<ol> <li>Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute.</li> </ol>	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	System-Type-Spec-List attribute is present:	
	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> <li>type: MDC_DEV_SPEC_PROFILE_BP or 4103 (dec) or 10 07 (hex)</li> </ul>	
	• version: 1 (dec) or 00 01 (hex)	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this (check OBX-3):	
	OBX ?  528391^MDC_DEV_SPEC_PROFILE_BP ^MDC 1      X      [System-Id]	

TP ld		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		Check that:			
		Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute			
Applicabili	ty	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003			
Other PICS	1				
Initial cond	lition	The manager under test and the simulated agent are in the standby state.			
Test proce	dure	<ol> <li>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).</li> </ol>			
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:			
		a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A)			
		Format: reg-cert-data-list (opaque structure)			
		<ul> <li>Value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 07 02 02 00 02 80 00 (hex)</li> </ul>			
		i. Element:			
		<ul> <li>auth-body-and-struc-type:</li> </ul>			
		- auth-body: 02 (hex) auth-body-continua(2)			
		<ul> <li>auth-body-struc-type: 01 (hex). continua-version-struct(1)</li> </ul>			

	auth-body-data:	
	- major-IG-version: 05 (hex)	
	- minor-IG-version: 01 (hex)	
	- certified-devices: 80 07 (hex). BLE Blood Pressure	
	ii. Element:	
	auth-body-and-struc-type:	
	- auth-body: 02 (hex). auth-body-continua(2)	
	<ul> <li>auth-body-struc-type: 02 (hex). continua-reg-struct(2)</li> </ul>	
	auth-body-data:	
	- 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 simulated agent.	
	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.	
	5. The simulated agent sends the measurement to the manager under test.	
	6. Check in manager transcoder output for 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 the IEEE 11073-20601 Regulatory Certification Data List characteristic value.	
Notes	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Reg-Cert-Data-List attribute is present:	
	Object: MDS object	
	Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635)	
	□ Attribute-type: SEQUENCE OF [{auth-body-and-struc-type, auth-body-data}, {…}]	
	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]	
	i. Reg-Cert-Data Element:	
	<ul> <li>auth-body-and-struc-type:</li> </ul>	
	- auth-body: 02 (hex) auth-body-continua(2)	
	- auth-body-struc-type: 01 (hex). continua-version-struct(1)	
	auth-body-data:	
	- major-IG-version: 05 (hex)	
	- minor-IG-version: 01 (hex)	
	- certified-devices: 80 07 (hex). BLE Blood Pressure	
	ii. Reg-Cert-Data Element:	
	auth-body-and-struc-type:	
	- auth-body: 02 (hex). auth-body-continua(2)	
	- auth-body-struc-type: 02 (hex). continua-reg-struct(2)	
	auth-body-data:	
	- regulation-bit-field: 80 00 (hex). Unregulated device	
	b) WAN PCD-01 message	
	PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):	
	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 32775      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

TP ld		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 purpos	е	Check that:
		Manager does not include Systolic/Diastolic/Map Compound Numeric Object – Handle Attribute in transcoder output
		[OR]
		If manager includes Systolic/Diastolic/Map Compound Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003
Other PICS		
Initial condit	ion	The manager under test and the simulated agent are in the standby state.
Test proced	ure	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:
		a. Blood pressure measurement (0x2A35)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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
		<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
		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
	This field is not included
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	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 Systolic/Diastolic/Map compound numeric object – Handle attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Systolic/Diastolic/Map compound numeric object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	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 ld		TP/LP-PAN/MAN/PHDTW/BPM/BV-005	
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Type Attribute	
Coverage	Spec	bec [b-Bluetooth PHDT v1.3]	
	Testable items	BP Numeric 2; M	
Test purpose		Check that:	
		Manager includes Systolic/Diastolic/Map Compound Numeric Object – Type attribute in transcoder output.	
		[AND]	
		Type is set to {MDC_PART_SCADA, MDC_PRESS_BLD_NONINV}	
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> <li>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).</li> </ol>	
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:	

	a Blood pressure measurement (0x2A35)
	a. Blood pressure measurement (0x2A35)
	<ul> <li>Field: Flags</li> <li>Format: 8 bit</li> </ul>
	<ul> <li>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</li> </ul>
	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
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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
	<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>
	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
	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.
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Type attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Systolic/Diastolic/Map compound numeric object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}

Attribute-value:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_PRESS_BLD_NONINV or 18948 (dec) or 4A 04 (hex)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Type attribute (check OBX-3):
OBX ?  150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a      X   [current_date_time].

TP label Coverage Test purpose Applicability Other PICS Initial conditi Test procedu	Spec Testable items	Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Metric-Spec-Small Attribute         [b-Bluetooth PHDT v1.3]         BP Numeric 3; M         Check that:         Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Spec-Small attribute in transcoder output.         [AND]
Test purpose Applicability Other PICS Initial conditi	Testable items	BP Numeric 3; M Check that: Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Spec-Small attribute in transcoder output.
Applicability Other PICS Initial conditi	items	Check that: Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Spec-Small attribute in transcoder output.
Applicability Other PICS Initial conditi		Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Spec-Small attribute in transcoder output.
Other PICS Initial conditi		attribute in transcoder output.
Other PICS Initial conditi		[AND]
Other PICS Initial conditi		
Other PICS Initial conditi		Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).
Initial conditi		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003
Test procedu	ion	The manager under test and the simulated agent are in the standby state.
-	ıre	<ol> <li>The simulated agent is configured with a Blood pressure profile (device specialization); in has a measurement ready to be sent and it is in the advertising state (it is discoverable).</li> </ol>
		<ol> <li>The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</li> </ol>
		a. Blood pressure measurement (0x2A35)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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
		<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
		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
		I his field is not included

TP ld		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 purpos	e	Check that:	
		Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Structure-Small attribute in transcoder output.	
		[AND]	
		Metric-Structure-Small is set to {0x03, 0x03} (ms-struct-compound-fix, 3).	
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).	

	1
	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
	a) Blood pressure measurement (0x2A35)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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
	This field is not included
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	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.
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Metric-Structure-Small attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Systolic/Diastolic/Map compound numeric object
	Attribute-id: MDC_ATTR_METRIC_STRUCT_SMALL (2675)

	Attribute-type: SEQUENCE {ms-struct (INT-U8), ms-comp-no (INT-U8)}
	Attribute-value:
	<ul> <li>ms-struct Element: 03 (hex), ms-struct-compound-fix(3)</li> </ul>
	ms-comp-no Element: 03 (hex)
b) WA	N PCD-01 message
PCD-01	message does not include segments with a Metric-Structure-Small attribute value.

TP ld		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 purpos	e	Check that:
		Manager includes Systolic/Diastolic/Map Compound Numeric Object – Metric-Id-List attribute in transcoder output.
		[AND]
		Metric-Id-List is set to {MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, MDC_PRESS_BLD_NONINV_MEAN}.
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003
Other PICS		
Initial condit	ion	The manager under test and the simulated agent are in the standby state.
Test proced	ure	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:
		a. Blood pressure measurement (0x2A35)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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
		<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
		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
	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
	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 Systolic/Diastolic/Map compound numeric object – Metric-Id-List attribute.
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	Possible values in typical points of observation after transcoder output are:
	a)IEEE 11073 Objects and Attributes
	Metric-Id-List attribute is present:
	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]
	i. First Element: 4A 05 (hex) or 18949 (dec)
	ii. Second Element: 4A 06 (hex) or 18950 (dec)
	iii. Third Element: 4A 07 (hex) or 18951 (dec)
	b)WAN PCD-01 message
	PCD-01 message includes three segments like these with a Metric-Id-List attribute values (check OBX-3 in three segments):
	OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100
	266016^MDC_DIM_MMHG^MDC     R
	OBX ? NM 150022^MDC_PRESS_BLD_NONINV_DIA^MDC 1.0.a.y 70
	266016^MDC_DIM_MMHG^MDC     R
	OBX ? NM 150023^MDC_PRESS_BLD_NONINV_MEAN^MDC 1.0.a.z 80
	266016^MDC_DIM_MMHG^MDC     R

TP ld		TP/LP-PAN/MAN/PHDTW/BP/BV-009		
TP label	I	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	Check that:		
	Manager includes Systolic/Diastolic/Map Compound Numeric Object – Unit-Code attribute in transcoder output.		
	[AND]		
	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		
	[AND]		
	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		
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 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:		
	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:		
	a. Blood pressure measurement (0x2A35)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)		
	Format: SFLOAT		
	• Value: 100.0		
	iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)		
	Format: SFLOAT		
	• Value: 70.0		
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>		
	Format: SFLOAT		
	• Value: 80.0		
	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		
	<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>		

		This field is not included	
	viii.	eld: Time Stamp	
		Format: Date and Time	
		Value: Not relevant	
	ix.	eld: Pulse Rate	
		This field is not included	
	х.	eld: User ID	
		This field is not included	
	xi.	eld: Measurement Status	
		This field is not included	
		nanager transcoder output for the Systolic/Diastolic/Map com nit-Code attribute.	pound numeric
	The sim value:	ated agent sends the measurement to the manager under tes	t with the following
1	a. Blo	pressure measurement (0x2A35)	
	i.	eld: Flags	
		Format: 8 bit	
		<ul> <li>Value: 0000 0011 (MSB → LSB). Blood pressure measure of kPa and Time Stamp fields are included, Pulse Rate, L measurement Status fields are not included</li> </ul>	ement value in units Jser ID and
	ii.	eld: Blood Pressure Measurement Compound Value – Systo	lic (mmHg)
		This field is not included	
	iii.	eld: Blood Pressure Measurement Compound Value - Diaste	olic (mmHg)
		This field is not included	
	iv.	eld: Blood Pressure Measurement Compound Value – Mean nmHg)	Arterial Pressure
		This field is not included	
	۷.	eld: Blood Pressure Measurement Compound Value – Systo	lic (kPa)
		Format: SFLOAT	
		• Value: 13.33	
	vi.	eld: Blood Pressure Measurement Compound Value – Diaste	olic (kPa)
		Format: SFLOAT	
		• Value: 9.33	
	vii.	eld: Blood Pressure Measurement Compound Value – Mean Pa)	Arterial Pressure
		Format: SFLOAT	
		• Value: 10.67	
	viii.	eld: Time Stamp	
		Format: Date and Time	
		Value: Not relevant	
	ix.	eld: Pulse Rate	
		This field is not included	
	х.	eld: User ID	
		This field is not included	
	xi.	eld: Measurement Status	

	This field is not included
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute.</li> </ol>
Pass/Fail criteria	In step 5, the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute is present and its value is MDC_DIM_MMHG.
	In step 7, the Systolic/Diastolic/Map compound numeric object – Unit-Code attribute is present and its value is MDC_DIM_KILO_PASCAL.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	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)
	b) WAN PCD-01 message
	PCD-01 message includes three segments like these with Unit-Code attribute value (check OBX-6 in three segments):
	OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100
	266016^MDC_DIM_MMHG^MDC    R  [current_date_time]
	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
	Unit-Code attribute is present:
	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)
	b) WAN PCD-01 message
	PCD-01 message includes three segments like these with Unit-Code attribute value (check OBX-6 in three segments):
	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]
	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]
	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]
	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])

TP Id		TP/LP-PAN/MAN/PHDTW/			
TP label		Whitepaper. Systolic/Diastolic/Map Compound Numeric Object - Absolute-Time-Stamp Attribute			
Coverage Spec		[b-Bluetooth PHDT v1.3]			
	Testable	BP Numeric 9; M	Date-Time Conv 2; M	Date-Time Conv 3; M	
	items	Date-Time Conv 4; M	Date-Time Conv 5; M		
Test purpos	se	Check that:			
			Stamp field of Blood Pressure apound Numeric Object - Abso	Measurement characteristic into lute-Time-Stamp attribute	
		Manager transcodes the Bl	luetooth Time Stamp field form	at to Absolute Time format	
		[AND]			
		The fraction of seconds in A	Absolute Time at transcoder ou	itput is 0	
Applicabilit	у	C_MAN_BLE_000 AND C_	_MAN_BLE_002 AND C_MAN_	_BLE_003	
Other PICS					
nitial cond	ition	The manager under test ar	nd the simulated agent are in th	e standby state.	
Test proced	dure		has a measurement ready to b	ce specialization) supported by the be sent and it is in the advertising	
		2. The simulated agent ir interest for this test ca	nplements several BLE charac se is:	teristics. The characteristic of	
		a. Blood pessure measurement (0x2A35)			
				(scanning state). It discovers the ne simulated agent (initiating state)	
			been completed (connection st nanager under test with the follo	ate), the simulated agent sends the owing value:	
		a. Blood pressure m	easurement (0x2A35)		
		i. Field: Flags			
		Format:	8 bit		
		units of		d pressure measurement value in are included, Pulse Rate, User ID t included	
		ii. Field: Blood F	Pressure Measurement Compo	und Value – Systolic (mmHg)	
		Format:	SFLOAT		
		Value: 1	00.0		
		iii. Field: Blood F	Pressure Measurement Compo	und Value – Diastolic (mmHg)	
		Format:	SFLOAT		
		Value: 7	70.0		
		iv. Field: Blood F (mmHg)	Pressure Measurement Compo	und Value – Mean Arterial Pressure	
		Format:	SFLOAT		
		Value: 8	30.0		
			Pressure Measurement Compo	und Value – Systolic (kPa)	
			d is not included	- / / /	
		VI. FIEID BIOOD F	ressure Measurement Compo	und Value – Diastolic (kPa)	

	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: August 2nd, 2012, 10:39:27
	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
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Absolute-Time-Stamp attribute</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Systolic/Diastolic/Map compound numeric object
	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
	<ul> <li>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)</li> </ul>
	Attribute-value:
	century: 20 (hex) or 32 (dec)
	• year: 12 (hex) or 18 (dec)
	• month: 08 (hex) or 8 (dec)
	• day: 02 (hex) or 2 (dec)
	<ul> <li>hour: 10 (hex) or 16 (dec)</li> </ul>
	• minute: 39 (hex) or 57 (dec)
	• second: 27 (hex) or 39 (dec)
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
	OBX ?  150020^MDC_PRESS_BLD_NONINV^MDC 1.0.a      X   20120802103927+0000

TP ld		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 purpo	se	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> <li>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).</li> </ol>		
	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:		
	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:		
	a. Blood pressure measurement (0x2A35)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)		
	Format: SFLOAT		
	• Value: 100.0		
	iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)		
	Format: SFLOAT		
	• Value: 70.0		
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>		
	Format: SFLOAT		
	• Value: 80.0		
	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
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</li> </ol>
	<ol><li>The simulated agent sends the measurement to the manager under test with the following value:</li></ol>
	a. Blood pressure measurement (0x2A35)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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
	<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>
	viii. Format: SFLOAT
	• Value: 10.67
	ix. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	x. Field: Pulse Rate
	This field is not included
	xi. Field: User ID
	This field is not included
	xii. Field: Measurement Status
	This field is not included
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</li> </ol>
Pass/Fail criteria	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).
	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).

Notes	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:
	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> <li>Systolic: F3 E8 (hex) or 00 64 (hex) or 10 0A (hex) or 20 01 (hex) or 100.0 (dec)</li> </ul>
	• 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)
	b) WAN PCD-01 message
	PCD-01 message includes three segments like these with a Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100
	266016^MDC_DIM_MMHG^MDC    R   [current_date_time]
	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
	Simple-Nu-Observed-Value attribute is present:
	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]
	• Systolic: E5 35 (hex) or 13.33 (dec)
	Diastolic: E3 A5 (hex) 9.33 (dec)
	• MAP: E4 2B (hex) 10.67 (dec)
	b) WAN PCD-01 message
	PCD-01 message includes three segments like these with a Simple-Nu-Observed-Value attribute value (check OBX-5):
	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]
	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]
	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]
	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])

TP ld		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 purpo	se	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							
		[AND]							
		Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)							
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> <li>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).</li> </ol>							
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:							
		a. Blo	a. Blood pressure measurement (0x2A35)						
			<ol> <li>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)</li> </ol>						
		<ul><li>4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value:</li><li>a. Blood pressure measurement (0x2A35)</li></ul>							
			Format: 8 bi	t					
			units of mml		pressure measurement value in re included, Pulse Rate, User ID and ded				
		ii.	Field: Blood Press	sure Measurement Compou	nd Value – Systolic (mmHg)				
			Format: SFL	.OAT					
			• Value: 100.0	)					
		iii.	Field: Blood Press	sure Measurement Compou	nd Value – Diastolic (mmHg)				
			Format: SFL	.OAT					
			• Value: 70.0						
		iv.	Field: Blood Press (mmHg)	sure Measurement Compou	nd Value – Mean Arterial Pressure				
			Format: SFL	.OAT					
			• Value: 80.0						
		v.		sure Measurement Compou	nd Value – Systolic (kPa)				
			This field is	-					
		vi		sure Measurement Compou	nd Value – Diastolic (kPa)				
			This field is	-					
		<u> </u>							

	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
	х.	Field: User ID
		This field is not included
	xi.	Field: Measurement Status
		This field is not included
5.		n manager transcoder output for the Systolic/Diastolic/Map compound numeric - Compound-Basic-Nu-Observed-Value attribute.
6.	The sim value:	nulated agent sends the measurement to the manager under test with the following
	a. Blo	od pressure measurement (0x2A35)
	i.	Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
	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
	٧.	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
	х.	Field: User ID

This field is not included

xi. Field: Measurement Status						
This field is not included						
<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</li> </ol>						
<ol> <li>The simulated agent sends the measurement to the manager under test with the following value:</li> </ol>						
a. Blood pressure measurement (0x2A35)						
i. Field: Flags						
• Format: 8 bit						
<ul> <li>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</li> </ul>						
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						
<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>						
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						
<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>						
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						
<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</li> </ol>						
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> <li>Value: 0000 0010 (MSB → LSB). Blood pressure measurement value in units of mmHg and Time Stamp fields are included, Pulse Rate, User ID and</li> </ul>						

measurement Status fields are not included	
ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)	
Format: SFLOAT	
Value: 07 FE (hex). Special value: +INFINITY	
iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)	
Format: SFLOAT	
Value: 07 FE (hex). Special value: +INFINITY	
<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>	
Format: SFLOAT	
Value: 07 FE (hex). Special value: +INFINITY	
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	
<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>	
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	
<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</li> </ol>	
2. 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> <li>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</li> </ul>	
ii. Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)	
Format: SFLOAT	
Value: 08 02 (hex). Special value: -INFINITY	
iii. Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)	
Format: SFLOAT	
Value: 08 02 (hex). Special value: -INFINITY	
iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)	
Format: SFLOAT	

	Value: 08 02 (hex). Special value: -INFINITY
	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
	<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>
	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
	<ol> <li>Check in manager transcoder output for the Systolic/Diastolic/Map compound numeric object – Compound-Basic-Nu-Observed-Value attribute.</li> </ol>
Pass/Fail criteria	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.
	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.
	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.
	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.
	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.
Notes	In step 5, 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 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> <li>Systolic: F3 E8 (hex) or 00 64 (hex) or 10 0A (hex) or 20 01 (hex) or 100.0 (dec)</li> </ul>
	• 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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 150021^MDC_PRESS_BLD_NONINV_SYS^MDC 1.0.a.x 100
	266016^MDC_DIM_MMHG^MDC     R   [current_date_time]

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)
<ul> <li>Diastolic: 07 FF (hex) or NaN (note that is not allowed a decimal value)</li> </ul>
<ul> <li>MAP: 07 FF (hex) or NaN (note that is not allowed a decimal value)</li> </ul>
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]

• Systolic: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed)
<ul> <li>Diastolic: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed)</li> </ul>
<ul> <li>MAP: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed)</li> </ul>
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 13, 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 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]
• 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)
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.

TP ld		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	Short Float Type 1; C	Date-Time Conv 1; M	BP Numeric 9; M	
	items	BP Numeric 10; M			
Test purpos	se	Check that:			
		Manager processes correctly the Blood Pressure Measurement Compound Value (mmHg), Blood Pressure Measurement Compound Value (kPa) and Time Stamp fields of Blood Pressure Measurement			
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> <li>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).</li> </ol>			
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:			
		a. Blood pressure measurement (0x2A35)			
		<ol><li>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).</li></ol>			
		4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value:			

a.	Blood pr	ressure measurement (0x2A35)
i	. Field:	Flags
	•	Format: 8 bit
	•	Value: 0000 0010 (MSB $\rightarrow$ 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: 100.0
iii	. Field:	Blood Pressure Measurement Compound Value – Diastolic (mmHg)
	•	Format: SFLOAT
	•	Value: 70.0
iv	. Field: (mmŀ	Blood Pressure Measurement Compound Value – Mean Arterial Pressure
	•	Format: SFLOAT
	•	Value: 80.0
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: (kPa)	Blood Pressure Measurement Compound Value – Mean Arterial Pressure
	•	This field is not included
viii	. Field:	Time Stamp
	•	Format: Date and Time
	•	Value: August 2nd, 2012, 11:08:25
ix	. Field:	Pulse Rate
	•	This field is not included
х	. Field:	User ID
	•	This field is not included
xi	. Field:	Measurement Status
	•	This field is not included
		ne manager accepts the measurement and decodes its value properly nt values, units and time stamp).
	simulate ving val	d agent sends the measurement to the manager under test with the ue:
a.	Blood pr	ressure measurement (0x2A35)
i	. Field:	Flags
	•	Format: 8 bit
	•	Value: 0000 0011 (MSB $\rightarrow$ 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: August 2nd, 2012, 11:09:05
	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
	<ol> <li>Check that the manager under test accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>
Pass/Fail criteria	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'.
	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'.
Notes	

TP ld		TP/LP-PAN/MAN/PHDTW/BPM/BV-014		
TP label		Whitepaper. Pulse Rate Object - Handle Attribute		
Coverage	erage Spec [b-Bluetooth PHDT v1.3]			
	Testable items	PR Numeric 1; O		
Test purpos	e	Check that:		
		Manager does not include Pulse Rate Object – Handle Attribute in transcoder output		
		[OR]		
		If manager includes Pulse Rate 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_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).		

	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
	a. Blood pressure measurement (0x2A35)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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
	<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (kPa)</li> </ul>
	This field is not included
	viii. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	ix. Field: Pulse Rate
	Format: SFLOAT
	Value: Not relevant
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	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 – Handle attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Pulse rate object

Attribute-id: MDC_ATTR_ID_HANDLE (2337)
Attribute-type: INT-U16
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/PHE		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	)	Check that:		
		Manager includes Systolic Pulse Rate Object – Type attribute in transcoder output.		
		[AND]		
		Type is set to {MDC_PART_SCADA, MDC_PULS_RATE_NON_INV}		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedu	Ire	<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:		
		a. Blood pressure measurement (0x2A35)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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		
		<ul> <li>Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>		
		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: Not relevant
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	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.
	4. Check in manager transcoder output for the Pulse rate object – Type attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Pulse rate object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_PULS_RATE_NON_INV or 18474 (dec) or 48 2A (hex)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	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]

TP ld		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 purpos	e	Check that:		
		Manager includes Pulse Rate Object – Metric-Spec-Small attribute in transcoder output.		
		[AND]		
		Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).		
Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005		
Other PICS	ner PICS			
Initial condition		The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristic of		

	interest for this test case is:
	a. Blood pressure measurement (0x2A35)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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: Not relevant
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Pulse rate 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
b) WA	AN PCD-01 message
PCD-01	message does not include segments with a Metric-Spec-Small attribute value.

TP ld		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 purpos	е	Check that:			
		Manager includes Pulse Rate Object – Unit-Code attribute in transcoder output.			
		[AND]			
		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			
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005			
Other PICS					
Initial condit	tion	The manager under test and the simulated agent are in the standby state.			
Test proced	ure	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:			
		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:			
		a. Blood pressure measurement (0x2A35)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			
		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			
		<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>			
		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: 110.0			
	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 Pulse rate object – Unit-Code attribute.			
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	In step 5, possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Unit-Code attribute is present:			
	Object: Pulse rate object			
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)			
	Attribute-type: INT-U16			
	Attribute-value: MDC_DIM_BEAT_PER_MIN or 2720 (dec) or 0A A0 (hex)			
	b) WAN PCD-01 message			
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):			
	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-018				
TP label		Whitepaper. Pulse Rate Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable	PR Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		Check that:		
		Manager transcodes Time Stamp field of Blood Pressure Measurement characteristic into Pulse Rate Object - Absolute-Time-Stamp attribute		
		[AND]		
		Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format		
		[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_003 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).				
	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:				
	a. Blood pressure measurement (0x2A35)				
	<ol> <li>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).</li> </ol>				
	4. When the pairing has been completed (connection state), 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> <li>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</li> </ul>				
	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				
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>				
	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: August 2nd, 2012, 10:39:27				
	ix. Field: Pulse Rate				
	Format: SFLOAT				
	• Value: 110.0				
	x. Field: User ID				
	This field is not included				
	xi. Field: Measurement Status				
	This field is not included				
	<ol> <li>Check in manager transcoder output for the SystolicPulse rate object – Absolute-Time- Stamp attribute.</li> </ol>				
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Pulse rate 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:
	• 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)
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
	OBX ? NM 149546^ MDC_PULS_RATE_NON_INV ^MDC 1.0.0.a 110
	264864^MDC_DIM_BEAT_PER_MIN^MDC     R   20120802103927+0000

TP ld		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]			
Ū	Testable items	PR Numeric 7; M	Short Float Type 1; C		
Test purpos	e	Check that:			
		Manager transcodes Blood Pressure Measurement – Heart Rate field of Blood Pressure Measurement characteristic into Pulse Rate Object - Simple-Nu-Observed-Value attribute			
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_003 AND C_MAN_BLE_005			
Other PICS					
Initial condit	ion	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).			
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:			
		a. Blood Pressure Measurment (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:		
		a. Blood pressure me	asurement (0x2A35)		
		i. Field: Flags			

	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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: 110.0
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	This field is not included
	5. Check the output of the manager transcoder for the Pulse rate object – Basic-Nu- Observed-Value attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic-Nu-Observed-Value attribute is present:
	Object: Pulse rate object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):

			_	_S_RATE_NON_INV ^MDC 1	
		264864^MDC_DIM_BEAT_PER_MIN^MDC     R   [current_date_time]			
TP ld		TP/LP-PAN/	MAN/PHDTW/BPM	M/BV-020	
TP label		Whitepaper.	Pulse Rate Object	t - 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	9	Check that:			
				essure Measurement- Heart ra o Heart Rate Object - Basic-N	
		[AND]			
			signs the following d -INFINITY (0x08		), NRes (0x0800), +INFINITY
Applicability	,	C_MAN_BLE	E_000 AND C_MA	N_BLE_002 AND C_MAN_B	LE_003 AND C_;;MAN_BLE_005
Other PICS					
Initial condit	ion	The manage	er under test and th	e simulated agent are in the	standby state.
Test proced	ure				e profile (device specialization); it vertising state (it is discoverable).
			ulated agent imple for this test case is	ements several BLE character s:	istics. The characteristic of
		a. Blo	od pressure meas	urement (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:			
		a. Blo	od pressure meas	urement (0x2A35)	
		i.	Field: Flags		
			• Format: 8 b	it	
			units of mm		pressure measurement value in ate fields are included, User ID cluded
		ii.	Field: Blood Pres	sure Measurement Compoun	d Value – Systolic (mmHg)
			Format: SFI	LOAT	
			<ul> <li>Value: Not r</li> </ul>	elevant	
		iii.	Field: Blood Pres	sure Measurement Compoun	d Value – Diastolic (mmHg)
			Format: SFI	LOAT	
			<ul> <li>Value: Not r</li> </ul>	elevant	
		iv.	Field: Blood Pres (mmHg)	sure Measurement Compoun	d Value – Mean Arterial Pressure
			Format: SFI	LOAT	
			• Value: Not r	relevant	
		v.	Field: Blood Pres	sure Measurement Compoun	d Value – Systolic (kPa)
			This field is	not included	
		vi.	Field: Blood Pres	sure Measurement Compoun	d Value – Diastolic (kPa)
			• This field is	not included	
		vii.	Field: Blood Pres (kPa)	sure Measurement Compoun	d Value – Mean Arterial Pressure
			• This field is	not included	

viii.	Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
ix.	Field: Pulse Rate
	Format: SFLOAT
	• Value: 110.0
x.	Field: User ID
	This field is not included
xi.	Field: Measurement Status
	This field is not included
	in manager transcoder output for the Pulse rate object – Basic-Nu-Observed- attribute.
	nulated agent sends the measurement to the manager under test with the ng value:
a. Blo	pod pressure measurement (0x2A35)
i.	Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
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: 07 FF (hex). Special value: NaN
x.	Field: User ID
	This field is not included

xi. Field: Measurement Status	
This field is not included	
<ol> <li>Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed- Value attribute.</li> </ol>	
<ol><li>The simulated agent sends the measurement to the manager under test with the following value:</li></ol>	
a. Blood pressure measurement (0x2A35)	
i. Field: Flags	
Format: 8 bit	
<ul> <li>Value: 0000 0110 (MSB → LSB). Blood pressure measurement value in units of mmHg, Time Stamp and Pulse Rate fields are included, User II and measurement Status fields are not included</li> </ul>	
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	
<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Press (mmHg)</li> </ul>	sure
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	
<ul> <li>vii. Field: Blood Pressure Measurement Compound Value – Mean Arterial Press (kPa)</li> </ul>	ure
This field is not included	
viii. Field: Time Stamp	
Format: Date and Time	
Value: Not relevant	
ix. Field: Pulse Rate	
Format: SFLOAT	
<ul> <li>Value: 08 00 (hex). Special value: NRes</li> </ul>	
x. Field: User ID	
This field is not included	
xi. Field: Measurement Status	
This field is not included	
<ol> <li>Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed- Value attribute.</li> </ol>	
<ol> <li>The simulated agent sends the measurement to the manager under test with the following value:</li> </ol>	
a. Blood pressure measurement (0x2A35)	
i. Field: Flags	
Format: 8 bit	

1	
	<ul> <li>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</li> </ul>
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: 07 FE (hex). Special value: +INFINITY
х.	Field: User ID
	This field is not included
xi.	Field: Measurement Status
	This field is not included
11. Check ir Value at	n manager transcoder output for the Pulse rate object – Basic-Nu-Observed- tribute.
12. The sim following	ulated agent sends the measurement to the manager under test with the g value:
a. Blo	pd pressure measurement (0x2A35)
i.	Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
ii.	Field: Blood Pressure Measurement Compound Value – Systolic (mmHg)
	Format: SFLOAT
	Value: Not relevant
	Field Dised Descent Message (Organization d) (studies Dised alia (secoldar)
iii.	Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)
iii.	Field: Blood Pressure Measurement Compound Value – Diastolic (mmHg)     Format: SFLOAT

	T
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>
	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 02 (hex). Special value: -INFINITY
	x. Field: User ID
	This field is not included
	xi. Field: Measurement Status
	This field is not included
	13. Check in manager transcoder output for the Pulse rate object – Basic-Nu-Observed- Value attribute.
Pass/Fail criteria	In step 5, the Pulse rate object – Basic-Nu-Observed-Value attribute is present and its value is 110.
	In step 7, the Pulse rate object – Basic-Nu-Observed-Value attribute is present and its value is 0x07FF.
	In step 9, the Pulse rate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.
	In step 11, the Pulse rate object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.
	In step 13, the Pulse rate object - Basic -Nu-Observed-Value attribute is present and its value
	is 0x0802.
Notes	
Notes	is 0x0802.
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are:
Notes	is 0x0802.         In step 5, possible values in typical points of observation after transcoder output are:         a)       IEEE 11073 Objects and Attributes
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present:
Notes	is 0x0802.         In step 5, possible values in typical points of observation after transcoder output are:         a)       IEEE 11073 Objects and Attributes         Basic-Nu-Observed-Value attribute is present:         □       Object: Pulse rate object
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present: Doject: Pulse rate object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present: Dobject: Pulse rate object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present: Dobject: Pulse rate object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec)
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present: Dobject: Pulse rate object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec) b) WAN PCD-01 message PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present: Dobject: Pulse rate object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec) b) WAN PCD-01 message PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5): OBX[?]NM[149546^ MDC_PULS_RATE_NON_INV ^MDC[1.0.0.a]110]
Notes	is 0x0802. In step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Basic-Nu-Observed-Value attribute is present: Dobject: Pulse rate object Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636) Attribute-type: SFLOAT Attribute-value: F4 4C (hex) or 00 6E (hex) or 01 0B (hex) or 110 (dec) b) WAN PCD-01 message PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):

Basic	Nu-Observed-Value attribute is present:
	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)
b) V	/AN PCD-01 message
value	01 message does not include segments with a Simple-Nu-Observed-Value attribute (149546^ MDC_PULS_RATE_NON_INV ^MDC) because it has a special value and values are not included in the PCD-01 message.
In ste	o 9, possible values in typical points of observation after transcoder output are:
a) IE	EE 11073 Objects and Attributes
Basic	Nu-Observed-Value attribute is present:
	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)
b) V	/AN PCD-01 message
value	01 message does not include segments with a Simple-Nu-Observed-Value attribute (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and values are not included in the PCD-01 message.
In step	o 11, possible values in typical points of observation after transcoder output are:
a) IE	EE 11073 Objects and Attributes
Basic	Nu-Observed-Value attribute is present:
	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)
b) V	/AN PCD-01 message
value	01 message does not include segments with a Simple-Nu-Observed-Value attribute (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and values are not included in the PCD-01 message.
In step	o 13, possible values in typical points of observation after transcoder output are:
a) IE	EE 11073 Objects and Attributes
Basic	Nu-Observed-Value attribute is present:
	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)
b) V	/AN PCD-01 message
value	01 message does not include segments with a Simple-Nu-Observed-Value attribute (149546^MDC_PULS_RATE_NON_INV^MDC) because it has a special value and values are not included in the PCD-01 message.

TP ld		TP/LP-PAN/MAN/PHDTW/BPM/BV-021		
TP label Whitepaper. Pulse Rate measurement		urement 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	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:			
	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:			
	a. Blood pressure measurement (0x2A35)			
	i. Field: Flags			
	Format: 8 bit			
	<ul> <li>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</li> </ul>			
	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			
	<ul> <li>iv. Field: Blood Pressure Measurement Compound Value – Mean Arterial Pressure (mmHg)</li> </ul>			
	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: August 2nd, 2012, 10:39:27			
	ix. Field: Pulse Rate			
	Format: SFLOAT			
	• Value: 110.0			
	x. Field: User ID			
	This field is not included			

	xi. Field: Measurement Status
	This field is not included
	5. Check that the manager accepts the measurement and decodes its value properly (pulse rate measurement value, pulse rate units and time stamp.
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 ld		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	9	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_004		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedu	ure	<ol> <li>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).</li> </ol>		
		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 attr		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.		In step 4, the MDS object – System-Type attribute is not present.		
Notes		Possible values in typical points of observation after transcoder output are:		
		a) IEEE 11073 Objects and Attributes		
		System-Type attribute is not present:		
		Object: MDS object		
		Attribute-id: MDC_ATTR_SYS_TYPE (2438)		
		Attribute-type: TYPE		
		Attribute-value: <not present=""></not>		
		b) WAN PCD-01 message		
PCD-01 message does not include segments with a System-Type attribute (67974^MDC_ATTR_SYS_TYPE^MDC).		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/HR/BV-001				
TP label Whitepaper. Heart Rate MDS Object - Dev-Configuration-Id Attribute		ribute		
Coverage	Coverage Spec [b-Bluetooth PHDT v1.3]			
	Testable items	HR 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_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	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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Dev-Configuration-Id attribute is present:			
	Object: MDS object			
	Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628)			
	Attribute-type: INT-U16			
	Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex)			
	b) WAN PCD-01 message			
	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.			

TP ld		TP/LP-PAN/MAN/PHDTW/HR/BV-002			
TP label         Whitepaper. Heart Rate MDS Object - Sy			Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]			
	Testable items	Common MDS 15; M	HR Specific MDS 3; M		
Test purpose		Check that: Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output.			
[AND] 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)			E_ECG, Version 1),		
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004			
Other PICS					
Initial condit	itial condition The manager under test and the simulated agent are in the standby state		andby state		
Test procedure		<ol> <li>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).</li> <li>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).</li> </ol>			
		3. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test.			
		<ol> <li>Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute.</li> </ol>			
Pass/Fail cri	teria	In step 4, the MDS object – Sy	stem-Type-Spec-List attribute is	s present, its value is	

	(MDC_DEV_SPEC_PROFILE_ECG, Version 1), (MDC_DEV_SUB_SPEC_PROFILE_HR, Version 1).
Notes	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	System-Type-Spec-List attribute is present:
	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> <li>type: MDC_DEV_SPEC_PROFILE_ECG or 4102 (dec) or 10 06 (hex)</li> </ul>
	• version: 1 (dec) or 00 01 (hex)
	<ul> <li>type: MDC_DEV_SUB_SPEC_PROFILE_HR or 4237 (dec) or 10 8D (hex)</li> </ul>
	• version: 1 (dec) or 00 01 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes two segments like these (check OBX-3 in the first segment and OBX-5 in the second):
	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

TP ld		TP/LP-PAN/MAN/PHDTW/HR/BV-003		
TP label	TP label Whitepaper. Heart Rate MDS Object - Reg-Cert-Data-List Attribute			
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items			
Test purpo	se	Check that:		
		Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characte MDS Object – Reg-Cert-Data-List attribute	ristic into	
Applicabili	ty	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004		
Other PICS				
Initial cond	ition	The manager under test and the simulated agent are in the standby state.		
Test proce	dure	<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:		
		a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A)		
		Format: reg-cert-data-list (opaque structure)		
		<ul> <li>Value: 00 02 00 14 02 01 00 0A 05 01 00 04 80 06 80 8D 02 02 00 02 80 00 (hex)</li> </ul>		
		i. Element:		
		<ul> <li>auth-body-and-struc-type:</li> </ul>		
		- auth-body: 02 (hex) auth-body-continua(2)		
		- auth-body-struc-type: 01 (hex). continua-version-struct(	1)	
		auth-body-data:		
		- major-IG-version: 05(hex)		

	- minor-IG-version: 01(hex)
	- certified-devices: 80 06 80 8D (hex). BLE ECG and BLE Heart Rate
	i. Element:
	auth-body-and-struc-type:
	- auth-body: 02 (hex). auth-body-continua(2)
	- auth-body. 02 (hex). auth-body-continua(2)
	<ul> <li>auth-body-struct-type. 02 (hex): continua-reg-struct(2)</li> <li>auth-body-data:</li> </ul>
	<ul> <li>regulation-bit-field: 80 00 (hex). Unregulated device</li> </ul>
	<ol> <li>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.</li> </ol>
	<ol> <li>When the pairing has been completed (connection state), force the manager under test to read the IEEE 11073-20601 Regulatory Certification Data List characteristic.</li> </ol>
	5. The simulated agent sends the measurement to the manager under test.
	<ol> <li>Check in manager transcoder output for the MDS object – Reg-Cert-Data-List attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Reg-Cert-Data-List attribute is present:
	Object: MDS object
	Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635)
	□ Attribute-type: SEQUENCE OF [{auth-body-and-struc-type, auth-body-data}, {…}]
	<ul> <li>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</li> </ul>
	i. Reg-Cert-Data Element:
	<ul> <li>auth-body-and-struc-type:</li> </ul>
	- auth-body: 02 (hex) auth-body-continua(2)
	<ul> <li>auth-body-struc-type: 01 (hex). continua-version-struct(1)</li> </ul>
	• auth-body-data:
	- major-IG-version: 05(hex)
	- minor-IG-version: 01(hex)
	- certified-devices: 80 06 80 8D (hex). BLE ECG and BLE Heart Rate
	ii. Reg-Cert-Data Element:
	<ul> <li>auth-body-and-struc-type:</li> </ul>
	- auth-body: 02 (hex). auth-body-continua(2)
	<ul> <li>auth-body-struc-type: 02 (hex). continua-reg-struct(2)</li> </ul>
	• auth-body-data:
	- regulation-bit-field: 80 00 (hex). Unregulated device
	b) WAN PCD-01 message
	PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in four segments):
	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 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

TP ld		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	e	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 condit	ion	The manager under test and the simulated agent are in the standby state.
Test procedu	ıre	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:
		a. Heart rate measurement (0x2A37)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are present, Energy Expended field is not included</li> </ul>
		ii. Field: Heart Rate Measurement Value (uint8)
		Format: uint8
		Value: Not relevant
		iii. Field: Heart Rate Measurement Value (uint16)
		This field is not included
		iv. Field: Energy Expended
		This field is not included
		v. Field: RR-Interval
		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 crit	teria	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

Tick Resolution attribute is present:
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)
b) WAN PCD-01 message
OBX ? NM 68229^MDC_ATTR_TICK_RES^MDC 1.0.0.a 1024
265842^MDC_DIM_PER_SEC^MDC     R

TP ld		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	е	Check that:
		Manager does not include Heart rate Measurement Object – Handle Attribute in transcoder output
		[OR]
		If manager includes Heart Rate Measurement 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_004
Other PICS		
Initial condit	ion	The manager under test and the simulated agent are in the standby state.
Test procedu	ure	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:
		a. Heart rate measurement (0x2A37)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, RR-Interval and Energy Expended fields are not included</li> </ul>
		ii. Field: Heart Rate Measurement Value (uint8)
		Format: uint8
		Value: Not relevant
		iii. Field: Heart Rate Measurement Value (uint16)
		This field is not included
		iv. Field: Energy Expended
		This field is not included
		v. Field: RR-Interval
		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.

	<ol> <li>Check in manager transcoder output for the Heart rate measurement object – Handle attribute.</li> </ol>
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:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Heart rate measurement object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	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 ld		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	)	Check that:	
		Manager includes Heart Rate Measurement Object – Type attribute in transcoder output.	
		[AND]	
		Type is set to {MDC_PART_SCADA, MDC_ECG_HEART_RATE_INSTANT}	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004	
Other PICS			
Initial condit	ion	The manager under test and the simulated agent are in the standby state.	
Test procedu	ıre	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:	
		a. Heart rate measurement (0x2A37)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, RR-Interval and Energy Expended fields are not included</li> </ul>	
		ii. Field: Heart Rate Measurement Value (uint8)	
		Format: uint8	
		Value: Not relevant	
		iii. Field: Heart Rate Measurement Value (uint16)	
		This field is not included	
		iv. Field: Energy Expended	
		This field is not included	
		v. Field: RR-Interval	
		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.
	<ol> <li>Check in manager transcoder output for the Heart rate measurement object – Type attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Heart rate measurement object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	□ Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_ECG_HEART_RATE_INSTANT or 21982 (dec) or 55 DE (hex)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	OBX ? NM 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC  1.0.0.a 90
	264864^MDC_DIM_BEAT_PER_MIN^MDC      R

TP ld		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 purpos	e	Check that:	
		Manager includes Heart Rate Measurement Object – Metric-Spec-Small attribute in transcoder output.	
		[AND]	
		Metric-Spec-Small is set to {0x4040} (mss-avail-stored-data, mss-acc-agent-initiated).	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004	
Other PICS			
Initial condit	ion	The manager under test and the simulated agent are in the standby state.	
Test procedure		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:	
		a. Heart rate measurement (0x2A37)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format field is included, RR-Interval and Energy Expended fields are not included</li> </ul>	
		ii. Field: Heart Rate Measurement Value (uint8)	
		Format: uint8	
		Value: Not relevant	

	iii. Field: Heart Rate Measurement Value (uint16)
	This field is not included
	iv. Field: Energy Expended
	This field is not included
	v. Field: RR-Interval
	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.
	<ol> <li>Check in manager transcoder output for the Heart rate measurement object – Metric- Spec-Small attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Heart rate measurement object
	Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)
	Attribute-type: BITS-16
	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
	b) WAN PCD-01 message
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.

TP ld		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		Check that:		
		Manager includes Heart Rate Measurement Object – Unit-Code attribute in transcoder output.		
		[AND]		
		Heart Rate Measurement Object – Unit-Code attribute is set to MDC_DIM_BEAT_PER_MIN		
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		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:		
		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:		
		a. Heart rate measurement (0x2A37)		

	i. Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format fies is included, Energy Expended and RR-Inteval fields are not included</li> </ul>
	ii. Field: Heart Rate Measurement Value (uint8)
	Format: uint8
	• Value: 90
	iii. Field: Heart Rate Measurement Value (uint16)
	This field is not included
	iv. Field: Energy Expended
	This field is not included
	v. Field: RR-Interval
	This field is not included
	5. Check in manager transcoder output for the Heart rate measurement object – Unit-Code attribute.
	6. The simulated agent sends the measurement to the manager under test with the following value:
	a. Heart rate measurement (0x2A37)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0000 0001 (MSB → LSB). Heart rate measurement value in uint16 format field is included, Energy Expended and RR-Inteval fields are not included</li> </ul>
	ii. Field: Heart Rate Measurement Value (uint8)
	This field is not included
	iii. Field: Heart Rate Measurement Value (uint16)
	Format: uint16
	Value: 110
	iv. Field: Energy Expended
	This field is not included
	v. Field: RR-Interval
	This field is not included
	7. Check in manager transcoder output for the Heart rate measurement object – Unit-Code attribute.
Pass/Fail criteria	In step 5, the Heart rate measurement object – Unit-Code attribute is present and its value is MDC_DIM_BEAT_PER_MIN.
	In step 7, the Heart rate measurement object – Unit-Code attribute is present and its value is MDC_DIM_BEAT_PER_MIN.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Heart rate measurement object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_BEAT_PER_MIN or 2720 (dec) or 0A A0 (hex)
	b) WAN PCD-01 message

TP ld		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 purpos	е	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 condit	tion	The manager under test and the simulated agent are in the standby state.
Test proced	ure	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:
		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:
		a. Heart rate measurement (0x2A37)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>Value: 0000 0000 (MSB → LSB). Heart Rate Measurement Value in uint8 format fied is included, Energy Expended and RR-Inteval fields are not included</li> </ul>
		ii. Field: Heart Rate Measurement Value (uint8)
		Format: uint8
		• Value: 90
		iii. Field: Heart Rate Measurement Value (uint16)
		This field is not included

	iv. Field: Energy Expended
	This field is not included
	v. Field: RR-Interval
	This field is not included
	5. Check in manager transcoder output for the Heart rate measurement object – Simple-Nu- Observed-Value attribute.
	6. The simulated agent sends the measurement to the manager under test with the following value:
	i. Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0000 0001 (MSB → LSB). Heart rate measurement value in uint16 format fied is included, Energy Expended and RR-Inteval fields are not included</li> </ul>
	ii. Field: Heart Rate Measurement Value (uint8)
	This field is not included
	iii. Field: Heart Rate Measurement Value (uint16)
	Format: uint16
	• Value: 110
	iv. Field: Energy Expended
	This field is not included
	v. Field: RR-Interval
	This field is not included
	7. Check in manager transcoder output for the Heart rate measurement object – Simple-Nu-
	Observed-Value attribute.
Pass/Fail criteria	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).
	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).
Notes	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: Heart rate measurement object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	Attribute-value: 00 00 00 5A (hex) or 90 (dec) [Note that exponent value for this FLOAT value must be 0]
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):
	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]
	In step 7, possible values in typical points of observation after transcoder output are:
	<ul><li>In step 7, possible values in typical points of observation after transcoder output are:</li><li>a) IEEE 11073 Objects and Attributes</li></ul>
	a) IEEE 11073 Objects and Attributes

	Attribute-type: FLOAT
	Attribute-value: 00 00 00 6E (hex) or 110 (dec) [Note that exponent value for this FLOAT value must be 0]
b) WA	N PCD-01 message
	message includes a segment like this with a Simple-Nu-Observed-Value attribute heck OBX-5):
OBX ? I	M 8410590^MDC_ECG_HEART_RATE_INSTANT^MDC 1.0.0.a 110
26486	4^ MDC_DIM_BEAT_PER_MIN ^MDC     R   [current_date_time]

TP ld		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	e	Check that:
		Manager does not include RR-Interval Object – Handle Attribute in transcoder output
		[OR]
		If manager includes RR-linterval 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_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		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:
		a. Heart rate measurement (0x2A37)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included</li> </ul>
		ii. Field: Heart Rate Measurement Value (uint8)
		Format: uint8
		Value: Not relevant
		iii. Field: Heart Rate Measurement Value (uint16)
		This field is not included
		iv. Field: Energy Expended
		This field is not included
		v. Field: RR-Interval
		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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Handle attribute is not present, or if it is present then:	
	Object: RR-Interval object	
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)	
	□ Attribute-type: INT-U16	
	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/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	e	Check that:		
		Manager includes RR-Interval Object – Type attribute in transcoder output.		
		[AND]		
		Type is set to {MDC_PART_SCADA, MDC_ECG_TIME_PD_RR_GL}		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedu	ure	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:		
		a. Heart rate measurement (0x2A37)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included</li> </ul>		
		ii. Field: Heart Rate Measurement Value (uint8)		
		Format: uint8		
		Value: Not relevant		
		iii. Field: Heart Rate Measurement Value (uint8)		
		This field is not included		
		iv. Field: Energy Expended		
		This field is not included		
		v. Field: RR-Interval		
		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 – Type attribute.	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Type attribute is present:	
	Object: RR-Interval object	
	Attribute-id: MDC_ATTR_ID_TYPE (2351)	
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}	
	Attribute-value:	
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>	
	<ul> <li>code: MDC_ECG_TIME_PD_RR_GL or 16168 (dec) or 3F 28 (hex)</li> </ul>	
	b) WAN PCD-01 message	
	PCD-01 message includes two segments like these with a Type attribute value (check OBX- 3):	
	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]	

TP ld		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		Check that:		
		Manager includes RR-Interval Object – Metric-Spec-Small attribute in transcoder output.		
		[AND]		
		Metric-Spec-Small is set to {0x5440} (mss-avail-stored-data, mss-acc-agent-initiated, mss- msmt-btb-metric, mss-msmt-aperiodic).		
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		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:		
		a. Heart rate measurement (0x2A37)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included</li> </ul>		
		ii. Field: Heart Rate Measurement Value (uint8)		
		Format: uint8		

	Value: Not relevant			
	iii. Field: Heart Rate Measurement Value (uint16)			
	This field is not included			
	iv. Field: Energy Expended			
	This field is not included			
	v. Field: RR-Interval			
	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.			
	<ol> <li>Check in manager transcoder output for the RR-Interval object – Metric-Spec-Small attribute.</li> </ol>			
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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Metric-Spec-Small attribute is present:			
	Object: RR-Interval object			
	Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)			
	□ Attribute-type: BITS-16			
	<ul> <li>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</li> </ul>			
	b) WAN PCD-01 message			
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.			

TP ld		TP/LP-PAN/MAN/PHDTW/HR/BV-013		
TP label Whitepaper. RR-Interval Object - Unit-Code Attribute		Whitepaper. RR-Interval Object - Unit-Code Attribute		
Coverage	Spec	[b-Bluetooth PHDT v1.3]		
	Testable items	RR Numeric 5; M		
Test purpos	e	Check that:		
		Manager includes RR-Interval Object – Unit-Code attribute in transcoder output.		
		[AND]		
RR-Interval Object – Unit-Code attribute is set to MDC_DIM_TICK		RR-Interval Object – Unit-Code attribute is set to MDC_DIM_TICK		
Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS				
Initial condit	tial condition The manager under test and the simulated agent are in the standby state.			
Test procedure		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:		
		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).			
	<ol> <li>When the pairing has been completed (connection state), the simulated agent sends the</li> </ol>			
	measurement to the manager under test with the following value:			
	i. Heart rate measurement (0x2A37)			
	i. Field: Flags			
	Format: 8 bit			
	<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included</li> </ul>			
	ii. Field: Heart Rate Measurement Value (uint8)			
	Format: uint8			
	Value: Not relevant			
	iii. Field: Heart Rate Measurement Value (uint16)			
	This field is not included			
	iv. Field: Energy Expended			
	This field is not included			
	v. Field: RR-Interval			
	Format: List of uint16			
	Value: Not relevant			
	5. Check in manager transcoder output for the RR-Interval object – Unit-Code attribute.			
Pass/Fail criteria	In step 5, the RR-Interval object – Unit-Code attribute is present and its value is MDC_DIM_TICK.			
Notes	In step 5, possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Unit-Code attribute is present:			
	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)			
	b) WAN PCD-01 message			
	PCD-01 message includes two segments like these with Unit-Code attribute value (check OBX-6):			
	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]			

TP ld		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]		[b-Bluetooth PHDT v1.3]		
	Testable items	RR Numeric 6; M		
Test purpose Check that:				
Manager transcodes the variable-size RR-Interval field of Heart Rate Measurement characteristic into RR-Interval Object - Simple-Nu-Observed-Value attribute		•		
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	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:			
	a. Heart rate measurement (0x2A37)			
	<ol> <li>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).</li> </ol>			
	4. When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value:			
	a. Heart rate measurement (0x2A37)			
	i. Field: Flags			
	Format: 8 bit			
	<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are included, Energy Expended field is not included</li> </ul>			
	ii. Field: Heart Rate Measurement Value (uint8)			
	Format: uint8			
	Value: Not relevant			
	iii. Field: Heart Rate Measurement Value (uint16)			
	This field is not included			
	iv. Field: Energy Expended			
	This field is not included			
	v. Field: RR-Interval			
	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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Simple-Nu-Observed-Value attribute is present two times:			
	Object: RR-Interval object			
	Attribute-id: MDC_ATTR_NU_ VAL_OBS_SIMP (2646)			
	Attribute-type: FLOAT			
	Attribute-value:			
	<ul> <li>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)</li> </ul>			
	<ul> <li>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)</li> </ul>			
	b) WAN PCD-01 message			
	PCD-01 message includes a segment like this with a Simple-Nu-Observed-Value attribute value (check OBX-5):			
	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]

TP Id		TP/LP-PAN/MAN/PHDTW/HR/BV-015		
TP label         Whitepaper. Heart Rate measurement value		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 condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	<ol> <li>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).</li> <li>The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</li> </ol>		
		a. Heart rate measurement (0x2A37)		
		<ol> <li>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).</li> </ol>		
		<ol> <li>When the pairing has been completed (connection state), the simulated agent sends the measurement to the manager under test with the following value:</li> </ol>		
		a. Heart rate measurement (0x2A37)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>Value: 0000 0000 (MSB → LSB). Heart rate measurement value in uint8 format fied is included, Energy Expended and RR-Inteval fields are not included</li> </ul>		
		ii. Field: Heart Rate Measurement Value (uint8)		
		Format: uint8		
		• Value: 90		
		iii. Field: Heart Rate Measurement Value (uint16)		
		This field is not included		
		iv. Field: Energy Expended		
		This field is not included		
		v. Field: RR-Interval		
		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 s following value:		0 0		
i. Field: Flags		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>Value: 0000 0001 (MSB → LSB). Heart rate measurement value in uint16 format is included, Energy Expended and RR-Inteval fields are not included</li> </ul>		

	ii. Field: Heart Rate Measurement Value (uint8)			
	This field is not included			
	iii. Field: Heart Rate Measurement Value (uint16)			
	Format: uint16			
	• Value: 110			
	iv. Field: Energy Expended			
	This field is not included			
	v. Field: RR-Interval			
	This field is not included			
	7. Check that the manager accepts the measurement and decodes its value properly (pulse rate measurement).			
Pass/Fail criteria	In step 5, the manager under test shows the following measurement Heart Rate = 90 beats per minute (bpm).			
	In step 7, the manager under test shows the following measurement Heart Rate = 110 beats per minute (bpm).			
Notes				

TP ld		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	е	Check that:		
		Manager processes correctly the RR-Interval field of Heart Rate Measurement characteristic		
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_004 AND C_MAN_BLE_006		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedure		<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:		
		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:		
		a. Heart rate measurement (0x2A37)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>Value: 0001 0000 (MSB → LSB). Heart rate measurement value in uint8 format and RR-Interval fields are present, Energy Expended field is not included</li> </ul>		
		ii. Field: Heart Rate Measurement Value (uint8)		
		Format: uint8		
		Value: Not relevant		
		iii. Field: Heart Rate Measurement Value (uint16)		

	This field is not included		
	iv. Field: Energy Expended		
	This field is not included		
	v. Field: RR-Interval		
	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> <li>Measurement #1: RR-Interval = 586 ms or 600 ticks (1 tick = 1/1024 s)</li> </ul>		
	<ul> <li>Measurement #2: RR-Interval = 879 ms or 900 ticks (1 tick = 1/1024 s)</li> </ul>		
Notes			

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

		T. T		
TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-000		
TP label		Whitepaper. Glucosemeter MDS Object - System-Type Attribute		
Coverage	overage Spec [Bluetooth PHDT v1.4]			
	Testable items	GL Specific MDS 1; M		
Test purpos	e	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 condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	<ol> <li>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).</li> </ol>		
		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.		In step 4, the MDS object – System-Type attribute is not present.		
Notes		Possible values in typical points of observation after transcoder output are:		
		a) IEEE 11073 Objects and Attributes		
		System-Type attribute is not present:		
		Object: MDS object		
		Attribute-id: MDC_ATTR_SYS_TYPE (2438)		
		Attribute-type: TYPE		
		Attribute-value: <not present=""></not>		
		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 ld		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 purpos	е	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_002 AND C_MAN_BLE_007	
Other PICS				
Initial condi	tion	The manager under test a	nd the simulated agent are in the standby state.	
Test proced	ure	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).		
		<ol> <li>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.</li> </ol>		
		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 the range 0x4000 - 0x7FFF.				
Notes		Possible values in typical points of observation after transcoder output are:		
		a) IEEE 11073 Objects and Attributes		
		Dev-Configuration-Id attribute is present:		
		Object: MDS object		
		Attribute-id: MDC	_ATTR_DEV_CONFIG_ID (2628)	
		Attribute-type: IN	T-U16	
		Attribute-value: A (hex)	ny value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF	
		b) WAN PCD-01 messag	ge	
			10 (2013)], the Dev-Configuration-Id shall not be transmitted in the re it is not possible to check this attribute.	

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-002		
TP label		Whitepaper. Glucosemeter MD	S Object - System-Type-Spec-L	ist Attribute
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	Common MDS 15; M	GL Specific MDS 3; M	
Test purpose		Check that:		
		Manager includes MDS Object	- System-Type-Spec-List attribution	ute in transcoder output.
		[AND]		
		System-Type-Spec-List is set t	o (MDC_DEV_SPEC_PROFILE	_GLUCOSE, Version 2)
Applicability		C_MAN_BLE_000 AND C_MA	N_BLE_002 AND C_MAN_BLE	_007
Other PICS				
Initial condition		The manager under test and th	ne simulated agent are in the sta	ndby state.

-		
Test procedure	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.	
	<ol> <li>Check in manager transcoder output for the MDS object – System-Type-Spec-List attribute.</li> </ol>	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	System-Type-Spec-List attribute is present:	
	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> <li>type: MDC_DEV_SPEC_PROFILE_GLUCOSE or 4113 (dec) or 10 11 (hex)</li> </ul>	
	• version: 2 (dec) or 00 02 (hex)	
	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]	

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-003			
TP label		Whitepaper. Glucosemeter	Whitepaper. Glucosemeter MDS Object - Reg-Cert-Data-List Attribute		
Coverage Spec [Bluetooth PHI		[Bluetooth PHDT v1.4]			
	Testable items	Common MDS 14; M	Regulatory Conv 1; M		
Test purpo	se	Check that:			
		Manager transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS Object – Reg-Cert-Data-List attribute			
Applicabili	ty	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 proce	dure	<ol> <li>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).</li> </ol>			
		2. The simulated agent im interest for this test cas	plements several BLE characteristics. The characteristic of e is:		
		a. IEEE 11073-20601	Regulatory Certification Data List (0x2A2A)		
		Format: reg-	cert-data-list (opaque structure)		
		• Value: 00 02 (hex)	00 12 02 01 00 08 05 00 00 01 00 02 80 11 02 02 00 02 80 00		
		i. Elemer	it:		
		• aut	n-body-and-struc-type:		
		-	auth-body: 02 (hex) auth-body-continua(2)		
		-	auth-body-struc-type: 01 (hex). continua-version-struct(1)		

	auth-body-data:	
	- major-IG-version: 05 (hex)	
	<ul> <li>minor-IG-version: 01 (hex)</li> <li>certified-devices: 80 11 (hex). BLE Glucosemeter</li> </ul>	
	<ul><li>ii. Element:</li><li>auth-body-and-struc-type:</li></ul>	
	- auth-body: 02 (hex). auth-body-continua(2)	
	- auth-body-struc-type: 02 (hex). continua-reg-struct(2)	
	• auth-body-data:	
	- regulation-bit-field: 80 00 (hex). Unregulated device	
	<ol> <li>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.</li> </ol>	
	<ol> <li>When the pairing has been completed (connection state), force the manager under test to read the IEEE 11073-20601 Regulatory Certification Data List characteristic.</li> </ol>	
	<ol> <li>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.</li> </ol>	
	6. Check in manager transcoder output for 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 the IEEE 11073-20601 Regulatory Certification Data List characteristic value.	
Notes	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Reg-Cert-Data-List attribute is present:	
	Object: MDS object	
	Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635)	
	Attribute-type: SEQUENCE OF [{auth-body-and-struc-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]	
	i. Reg-Cert-Data Element:	
	auth-body-and-struc-type:	
	- auth-body: 02 (hex) auth-body-continua(2)	
	- auth-body-struc-type: 01 (hex). continua-version-struct(1)	
	auth-body-data:	
	- major-IG-version: 05 (hex)	
	- minor-IG-version: 01 (hex)	
	- certified-devices: 80 11 (hex). BLE Glucosemeter	
	ii. Reg-Cert-Data Element:	
	auth-body-and-struc-type:	
	- auth-body: 02 (hex). auth-body-continua(2)	
	- auth-body-struc-type: 02 (hex). continua-reg-struct(2)	
	auth-body-data:	
	- regulation-bit-field: 80 00 (hex). Unregulated device	
	b) WAN PCD-01 message	
	PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value	
	PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments): 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 32785      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

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	e	Check that:
		Manager does not include Blood Glucose Object – Handle Attribute in transcoder output
		[OR]
		If manager includes Blood Glucose 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
Other PICS		
Initial condit	ion	The manager under test and the simulated agent are in the standby state
Test procedu	ure	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:
		a. Glucose measurement (0x2A18)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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: 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	
	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 object – Handle attribute.	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Handle attribute is not present, or if it is present then:	
	Object: Blood glucose numeric object	
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)	
	Attribute-type: INT-U16	
	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 ld		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 purpo	se	Check that:	
		Manager includes Blood Glucose Object – Type attribute in transcoder output.	
		[AND]	
		Type is set to different values depending on Type field value	
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		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:	
		a. Glucose measurement (0x2A18)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>Value: 0000 0010 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location fields are included, Time Offset and Sensor</li> </ul>	

	Otatus Assumptation fields and used included
	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: Not relevant
	vi. Field: Glucose Concentration - units of mol/L
	This field is not included
	vii. Field: Type
	Format: nibble
	<ul> <li>Value: Several values are checked in this test case</li> </ul>
	viii. Field: Sample Location
	Format: nibble
	Value: Not relevant
	ix. Field: Sensor Status Annunciation
	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 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

	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).
	<ol> <li>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.</li> </ol>
	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).
	<ol> <li>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.</li> </ol>
	<ol> <li>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).</li> </ol>
	<ol> <li>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.</li> </ol>
	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).
	21. Check in manager transcoder output for the Blood glucose object – Type.
	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).
	23. Check in manager transcoder output for the Blood glucose object – Type.
Pass/Fail criteria	In step 5, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_CAPILLARY_WHOLEBLOOD}.
	In step 7, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_CAPILLARY_PLASMA}.
	In step 9, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_VENOUS_WHOLEBLOOD}.
	In step 11, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_VENOUS_PLASMA}.
	In step 13, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD}.
	In step 15, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_ARTERIAL_PLASMA}.
	In step 17, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD}.
	In step 19, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_UNDETERMINED_PLASMA}.
	In step 21, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_ISF}.
	In step 23, the Blood glucose object – Type attribute is present and its value is {MDC_PART_SCADA, MDC_CONC_GLU_CONTROL}.
Notes	In step 5, 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:

<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_CONC_GLU_CAPILLARY_WHOLEBLOOD or 29112 (dec) or 71 B8 (hex)</li> </ul>
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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_CONC_GLU_CAPILLARY_PLASMA or 29116 (dec) or 71 BC (hex)</li> </ul>
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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_CONC_GLU_VENOUS_WHOLEBLOOD or 29120 (dec) or 71 C0 (hex)</li> </ul>
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:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
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):

	BX ? NM 160196^MDC_CONC_GLU_VENOUS_PLASMA^MDC 1.0.0.a 160  64274^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
Ту	/pe 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:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD or 29128 (dec) or 71 C8 (hex)</li> </ul>
b)	WAN PCD-01 message
P	CD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	BX ? NM 160200^MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD^MDC 1.0.0.a 160  34274^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
Ту	pe 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:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_CONC_GLU_ARTERIAL_PLASMA or 29132 (dec) or 71 CC (hex)</li> </ul>
b)	WAN PCD-01 message
P	CD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	BX ? NM 160204^CONC_GLU_ARTERIAL_PLASMA^MDC 1.0.0.a 160  64274^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
Ту	/pe 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:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD or 29292 (dec) or 72 6C (hex)</li> </ul>
b)	WAN PCD-01 message
P	CD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	BX ? NM 160364^MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD^MDC  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

Type at	tribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_CONC_GLU_UNDETERMINED_PLASMA or 29296 (dec) or 72 70 (hex)</li> </ul>
b) WA	N PCD-01 message
PCD-01	message includes a segment like this with a Type attribute value (check OBX-3):
	NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 160  ^MDC_DIM_MILLI_G_PER_DL^MDC     R   [current_date_time]
In step 2	21, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Type at	tribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_CONC_GLU_ISF or 29140 (dec) or 71 D4 (hex)</li> </ul>
b) WA	N PCD-01 message
PCD-01	message includes a segment like this with a Type attribute value (check OBX-3):
	NM 160212^MDC_CONC_GLU_ISF^MDC 1.0.0.a 160  ^MDC_DIM_MILLI_G_PER_DL^MDC     R   [current_date_time]
In step 2	23, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Type at	tribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_CONC_GLU_CONTROL or 29136 (dec) or 71 D0 (hex)</li> </ul>
b) WA	N PCD-01 message
PCD-01	message includes a segment like this with a Type attribute value (check OBX-3):
	NM 160208^MDC_CONC_GLU_CONTROL^MDC 1.0.0.a 160  ^MDC_DIM_MILLI_G_PER_DL^MDC     R   [current_date_time]

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-006	
TP label	T	Whitepaper. Glucosemeter Blood Glucose Object - Metric-Spec-Small Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 3; M	
Test purpose C		Check that:	

	Manager includes Blood Glucose Numeric Object – Metric-Spec-Small attribute in transcoder output.	
	[AND]	
	Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).	
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	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 (0x2A18)	
	i. Field: Flags	
	Format: 8 bit	
	<ul> <li>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</li> </ul>	
	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: 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	
	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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Metric-Spec-Small attribute is present:		
	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		
	b) WAN PCD-01 message		
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.		

TP ld		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 purpo	se	Check that:			
		Manager includes Blood Glucose Object – Unit-Code attribute in transcoder output.			
		[AND]			
		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			
		[AND]			
		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			
Applicabilit	y	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 proce	dure	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 (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:			
		a. Glucose measurement (0x2A18)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			

- 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: Not relevant
- 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
- 5. Check in manager transcoder output for the Blood glucose object Unit-Code 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 the measurement to the manager under test with the following value:
  - a. Glucose measurement (0x2A18)
    - i. Field: Flags
      - 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
      - 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
      - This field is not included
    - vi. Field: Glucose Concentration units of mol/L
      - Format: SFLOAT
      - Value: Not relevant
    - 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
	<ol> <li>Check in manager transcoder output for the Blood glucose object – Unit-Code attribute.</li> </ol>
Pass/Fail criteria	In step 5, the Blood glucose object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_G_PER_DL.
	In step 7, the Blood glucose object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_MOLE_PER_L.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_MILLI_G_PER_DL or 2130 (dec) or 08 52 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	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]
	In step 7, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_MILLI_MOLE_PER_L or 4722 (dec) or 12 72 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 9 266866^MDC_DIM_MILLI_MOLE_PER_L^MDC     R   [current_date_time]

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-008		
TP label		Whitepaper. Glucosemete	r Blood Glucose Object - Absolu	te-Time-Stamp Attribute
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable	GL Numeric 5; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpo	se	Check that:		
		5	Time field in conjunction with Ti ic into Blood Glucose Object - A	
		[AND]		
		Manager transcodes the B to Absolute Time format	luetooth Base Time field in conju	unction with Time Offset field format

<ul> <li>for this test case is: <ul> <li>a. Glucose measurement (0x2A18)</li> </ul> </li> <li>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).</li> <li>4. When the pairing has been completed (connection state), the manager under test request the simulated agent to report stored records writing an operation in Record Access Contre Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ul> <li>a. Glucose measurement (0x2A18)</li> <li>i. Field: Flags</li> <li>i. Format: 8 bit</li> </ul> </li> </ul>		[AND]
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 intere for this test case is:         a. Glucose measurement (0x2A18)           3. The manager under test initiates a discovery process (scanning state). It discovers the simulated agent or port stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent softed (connection state), the manager under test requer the simulated agent to report stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent softs the measurement to the manager under test with the following value:           a. Glucose measurement (0x2A18)         i. Field: Flags           i. Field: Flags         e. Format: 8 bit           value: Not relevant         iii. Field: Sequence number           i. Field: Sequence number         e. Format: bit and included           with the following value: Xugust 2nd, 2012, 10:59:27         iv. Field: Time Offset           value: Xugust 2nd, 2012, 10:59:27         iv. Field: Glucose Concentration - units of kg/L           value: Xugust 2nd, 2012, 10:59:27         iv. Field: Glucose Concentration - units of kg/L           value: Xugust 2nd, 2012, 10:59:27         iv. Field: Glucose Concentration -		The fraction of seconds in Absolute Time at transcoder output is 0
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 intere for this test case is: <ul> <li>a. Glucose measurement (0x2A18)</li> <li>3. The manager under test intilates a discover process (scanning state). It discovers the simulated agent and it starts a pairing process with the simulated agent to report stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent sends the measurement to the manager under test request the following value:</li> <li>a. Glucose measurement (0x2A18)</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Sequence number</li> <li>i. Field: Sequence number</li> <li>i. Field: Sequence number</li> <li>i. Field: Sequence number</li> <li>i. Field: The Offset</li> <li>Value: Not relevant</li> <li>iii. Field: Glucose Concentration - units of kg/L</li> <li>i. Field: Glucose Concentration - units of kg/L</li> <li>i. Field: Glucose Concentration - units of kg/L</li> <li>i. Field: Second Concentration - units of mol/L</li> <li>i. This field is not included</li> <li>iii. Field: Supper Location</li> <li>iii. Field: Supper Location</li> <li>iii. Sield is not included</li> <li>vialue: Not relevant</li> <li>vialue: Not relevant</li> <li>vialue: Not relevant</li></ul>	Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007
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 intere for this test case is: <ul> <li>a. Glucose measurement (0x2A18)</li> <li>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).</li> <li>When the pairing has been completed (connection state), the manager under test requere the simulated agent to report stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent agent to report stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent to report stored records writing an operation in Necord Access Cont Point (RACP) and the simulated agent to report stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent ag</li></ul>	Other PICS	
<ul> <li>measurement ready to be sent and it is in the advertising state (it is discoverable).</li> <li>2. The simulated agent implements several BLE characteristics. The characteristic of intere for this test case is: <ul> <li>a. Glucose measurement (0x2A18)</li> </ul> </li> <li>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).</li> <li>4. When the pairing has been completed (connection state), the manager under test requere the simulated agent and it starts a pairing process with the simulated agent (initiating state).</li> <li>4. When the pairing has been completed (connection state), the manager under test requere the simulated agent agent and its and the advertising an operation in Record Access Cont Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ul> <li>a. Glucose measurement (0x2A18)</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: State: Content on and Time Offset fields are included, Sensor Status Annunciation field is not included</li> <li>iii. Field: Sase Time</li> <li>iii. Field: Base Time</li> <li>iii. Field: Base Time</li> <li>iii. Field: Base Time</li> <li>iiii. Field: Saude and Time</li> <li>iii. Value: August 2nd, 2012, 10:59:27</li> <li>iv. Field: Glucose Concentration - units of kg/L</li> <li>iii. Field: Glucose Concentration - units of kg/L</li> <li>iii. Field: Glucose Concentration - units of kg/L</li> <li>iii. Field: Glucose Concentration - units of mol/L</li> <li>iii. Field: Supple Location</li> <li>iii. Value: Not relevant</li> <li>vii. Field: Glucose Concentration - units of mol/L</li> <li>iii. Field: Supple Location</li> <li>iii. Value: Undetermined Plasma (0x08)</li> <li>viii. Field: Sample Location</li> <li>iii. Field: Sample Location</li> <li>iii. Field: Sample Location</li> <li>iii. Field: Sample Location</li> <li>iii. Field: Sample Location</li> <li>iiii. Field: Sa</li></ul></li></ul>	Initial condition	The manager under test and the simulated agent are in the standby state.
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<ul> <li>simulated agent and it starts a pairing process with the simulated agent (initiating state).</li> <li>4. When the pairing has been completed (connection state), the manager under test requer the simulated agent to report stored records writing an operation in Record Access Cont Point (RACP) and the simulated agent sends the measurement to the manager under test with the following value: <ul> <li>a. Glucose measurement (0x2A18)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>Value: 0000011 (MSB → LSB). Glucose concentration in units of kg/L, Tr, and Sample Location and Time Offset fields are included, Sensor Status Annunciation field is not included</li> <li>ii. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Base Time</li> <li>Format: Date and Time</li> <li>Yalue: Nagust 2nd, 2012, 10:59:27</li> <li>iv. Field: Time Offset</li> <li>Value: 120 minutes</li> <li>v. Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>vi. Field: Glucose Concentration - units of mol/L</li> <li>Format: SIM16</li> <li>Value: Not relevant</li> <li>vi. Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>vii. Field: Store and Time</li> </ul> </li> </ul>		a. Glucose measurement (0x2A18)
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<ul> <li>iv. Field: Time Offset <ul> <li>Format: sint16</li> <li>Value: 120 minutes</li> </ul> </li> <li>V. Field: Glucose Concentration - units of kg/L <ul> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> </ul> </li> <li>vi. Field: Glucose Concentration - units of mol/L <ul> <li>This field is not included</li> </ul> </li> <li>vii. Field: Type <ul> <li>Format: nibble</li> <li>Value: Undetermined Plasma (0x08)</li> </ul> </li> <li>viii. Field: Sample Location <ul> <li>Format: nibble</li> <li>Value: Not relevant</li> </ul> </li> </ul>		Format: Date and Time
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Value: Not relevant     ix. Field: Sensor Status Annunciation		viii. Field: Sample Location
ix. Field: Sensor Status Annunciation		Format: nibble
		Value: Not relevant
This field is not included		ix. Field: Sensor Status Annunciation
		This field is not included
<ol> <li>Check in manager transcoder output for the Blood glucose object – Absolute-Time-Stam attribute.</li> </ol>		

	matches with the Base Time field in conjunction with the Time Offset and a fraction of seconds which 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:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
	<ul> <li>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)</li> </ul>
	Attribute-value:
	<ul> <li>century: 20 (hex) or 32 (dec)</li> </ul>
	• year: 12 (hex) or 18 (dec)
	• month: 08 (hex) or 8 (dec)
	• day: 02 (hex) or 2 (dec)
	<ul> <li>hour: 12 (hex) or 18 (dec)</li> </ul>
	• minute: 59 (hex) or 89 (dec)
	• second: 27 (hex) or 39 (dec)
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
	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

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-009		
TP label		Whitepaper. Glucosemeter E	Blood Glucose Object - Basic-Nu-C	bserved-Value Attribute 1
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 6; M	Short Float Type 1; C	
Test purpo	se	Check that:		
		Manager transcodes Glucose Concentration Value field of Glucose Measurement characteristic into Blood Glucose Object - Basic-Nu-Observed-Value attribute		
Applicabilit	у	C_MAN_BLE_000 AND C_M	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> <li>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).</li> </ol>		
		2. The simulated agent im interest for this test case	plements several BLE characteristi e is:	cs. The characteristic of
		a. Glucose measurem	ent (0x2A18)	
			initiates a discovery process (scal tarts a pairing process with the sim	
		requests the simulated	een completed (connection state), agent to report stored records writi ACP) and the simulated agent ser the following value:	ng an operation in Record
		a. Glucose measurem	ent (0x2A18)	

	i.	Field: Flags
		• Format: 8 bit
		<ul> <li>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</li> </ul>
	ii.	Field: Sequence number
		Format: uint16
		Value: Not relevant
	iii.	Field: Base Time
	i	i. 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: 0.0016 kg/L (160 mg/dL)
	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
	heck in r alue attr	manager transcoder output for the Blood glucose object– Basic-Nu-Observed- ibute.
o	peration	ger under test requests the simulated agent to report stored records writing an in Record Access Control Point (RACP) and the simulated agent sends the nent to the manager under test with the following value:
a.	Gluco	ose measurement (0x2A18)
	i.	Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
	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
	٧.	Field: Glucose Concentration - units of kg/L

	This field is not included
	vi. Field: Glucose Concentration - units of mol/L
	Format: SFLOAT
	Value: Value: 0.009 mol/L (9 mmol/L)
	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
	7. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed- Value attribute.
Pass/Fail criteria	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).
	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).
Notes	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic-Nu-Observed-Value attribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	□ Attribute-type: SFLOAT
	Attribute-value: F6 40 (hex) or 160 (dec)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):
	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]
	In step 7, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic-Nu-Observed-Value attribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	Attribute-value: E3 84 (hex) or 9 (dec)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Basic -Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC 1.0.0.a 9.0

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

Coverage	Spec	[Bluetooth PHD	T v1.4]		
	Testable items	GL Numeric 6; N	М	Short Float Type 1; C	Short Float Type 2; M
Test purpo	se	Check that:			
				oncentration field of Glucose l lu-Observed-Value attribute	Measurement characteristic into
		[AND]			
			s the following s NFINITY (0x080	pecial values: NaN (0x07FF), 2)	NRes (0x0800), +INFINITY
Applicabili	ty	C_MAN_BLE_0	00 AND C_MAN	I_BLE_002 AND C_MAN_BLI	E_007
Other PICS	5				
Initial cond	lition	The manager ur	nder test and the	simulated agent are in the st	andby state.
Test proce	dure			igured with a Glucose profile ent and it is in the advertising	(device specialization); it has a state (it is discoverable).
		2. The simulat for this test		nents several BLE characteris	tics. The characteristic of interest
		a. Glucos	e measurement	(0x2A18)	
					anning state). It discovers the mulated agent (initiating state).
		the simulate Point (RAC	ed agent to repo	rt stored records writing an op	, the manager under test requests peration in Record Access Control rement to the manager under test
		a. Glucos	e measurement	(0x2A18)	
		i. F	Field: Flags		
		•	Format: 8 bit		
		•	Type and Sa	010 (MSB $\rightarrow$ LSB). Glucose of mple Location fields are included incitation fields are not included	ded, Time Offset and Sensor
		ii. F	Field: Sequence	number	
		•	Format: uint1	6	
		•	Value: Not re	levant	
		iii. F	Field: Base Time		
		•	• Format: Date	and Time	
		•	• Value: Not re	levant	
		iv. F	Field: Time Offse	t	
		•	<ul> <li>This field is n</li> </ul>	ot included	
		v. F	Field: Glucose C	oncentration - units of kg/L	
		•	• Format: SFL	ТАС	
		•	• Value: 0.0016	6 kg/L (160 mg/dL)	
		vi. F	Field: Glucose C	oncentration - units of mol/L	
		•	<ul> <li>This field is n</li> </ul>	ot included	
		vii. F	Field: Type		
		•	Format: nibbl	е	
		•	<ul> <li>Value: Undet</li> </ul>	ermined Plasma (0x08)	
		viii. F	Field: Sample Lo	cation	
		•	Format: nibbl	е	

Value: Not relevant
ix. Field: Sensor Status Annunciation
This field is not included
5. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed- Value attribute.
<ol> <li>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:</li> </ol>
a. Glucose measurement (0x2A18)
i. Field: Flags
Format: 8 bit
<ul> <li>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</li> </ul>
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 FF(hex). Special value: NaN
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
7. Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed- Value 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 the measurement to the manager under test with the following value:
a. Glucose measurement (0x2A18)
i. Field: Flags
Format: 8 bit
<ul> <li>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</li> </ul>
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/
  - 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

	Format: nibble
	Value: Undetermined Plasma (0x08)      Viii Field: Sample Leastion
	viii. Field: Sample Location
	Format: nibble
	Value: Not relevant
	ix. Field: Sensor Status Annunciation
	This field is not included
	<ol> <li>Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed- Value attribute.</li> </ol>
	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:
	a. Glucose measurement (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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: 08 02 (hex). Special value: -INFINITY
	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
	<ol> <li>Check in manager transcoder output for the Blood glucose object – Basic-Nu-Observed- Value attribute.</li> </ol>
Pass/Fail criteria	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).
	In step 7, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FF.
	In step 9, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.

	In step 11, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.
	In step 13, the Blood glucose object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic-Nu-Observed-Value attribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	□ Attribute-value: F6 40 (hex) or 160 (dec)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):
	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]
	In step 7, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic -Nu-Observed-Value attribute is present:
	Object: Blood glucose 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)
	b) WAN PCD-01 message
	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.
	In step 9, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic -Nu-Observed-Value attribute is present:
	Object: Blood glucose 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)
	b) WAN PCD-01 message
	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.
	In step 11, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic -Nu-Observed-Value attribute is present:
	Object: Blood glucose object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	Attribute-value: 07 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 Basic -Nu-Observed-Value attribute value

· · · · · · · · · · · · · · · · · · ·	160368^MDC_CONC_GLU_UNDETERMINED_PLASMA^MDC) because it has a special alue and these values are not included in the PCD-01 message.
In	n step 13, possible values in typical points of observation after transcoder output are:
a)	) IEEE 11073 Objects and Attributes
Ba	asic -Nu-Observed-Value attribute is present:
	Object: Blood glucose 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)
b)	) WAN PCD-01 message
(1	CD-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 alue and these values are not included in the PCD-01 message.

TP ld		TP/LP-PAN/MAN/PHDTW/G	L/BV-011		
TP label		Whitepaper. Glucosemeter measurement value			
Coverage Spec		[Bluetooth PHDT v1.4]			
	Testable	GL Numeric 5; M	GL Numeric 6; M	Short Float Type 1; C	
	items	Date-Time Conv 1; M			
Test purpos	e	Check that:			
			y the Glucose Measurement V e fields of Glucose Measureme	alue (kg/L), Glucose Measurement ent characteristic	
Applicability	,	C_MAN_BLE_000 AND C_N	/AN_BLE_007		
Other PICS					
Initial condit	ion	The manager under test and	the simulated agent are in the	e standby state.	
Test proced	ure		configured with a Glucose prof pe sent and it is in the advertis	ile (device specialization); it has a sing state (it is discoverable).	
		2. The simulated agent im interest for this test case	plements several BLE characte e is:	eristics. The characteristic of	
		a. Glucose measurem	ent (0x2A18)		
				(scanning state). It discovers the e simulated agent (initiating state).	
		requests the simulated	ACP) and the simulated agen	ate), the manager under test writing an operation in Record t sends the measurement to the	
		a. Glucose measurem	ent (0x2A18)		
		i. Field: Flags			
		Format: 8	bit		
		Type and		se concentration in units of kg/L, cluded, Time Offset and Sensor ded	
		ii. Field: Seque	nce number		
		<ul> <li>Format: ι</li> </ul>	lint16		
		Value: No	ot relevant		
		iii. Field: Base T	īme		
		Format: [	Date and Time		
		Value: Au	igust 2nd, 2012, 11:08:25		

	iv.	Field: Time Offset
		This field is not included
	۷.	Field: Glucose Concentration - units of kg/L
		Format: SFLOAT
		• Value: 0.0016 kg/L (160 mg/dL)
	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
5.		t the manager under test accepts the measurement and decodes its value glucose measurement value, glucose units and base time).
6.	operation	ger under test requests the simulated agent to report stored records writing an in Record Access Control Point (RACP) and the simulated agent sends the nent to the manager under test with the following value:
	a. Gluco	ose measurement (0x2A18)
	i.	Field: Flags
		Format: 8 bit
		<ul> <li>Value: 00000111 (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</li> </ul>
	ii.	Field: Sequence number
		Format: uint16
		Value: Not relevant
	iii.	Field: Base Time
		Format: Date and Time
		• Value: August 2nd, 2012, 11:09:05
	iv.	Field: Time Offset
		Format: sint16
		Value: 120 minutes
	۷.	Field: Glucose Concentration - units of kg/L
		This field is not included
	vi.	Field: Glucose Concentration - units of mol/L
		Format: SFLOAT
		Value: Value: 0.009 mol/L (9 mmol/L)
	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
	<ol> <li>Check that the manager under test accepts the measurement and decodes its value properly (glucose measurement value, glucose units and base time).</li> </ol>
Pass/Fail criteria	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'.
	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'.
Notes	

TP ld		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	Ð	Check that:		
		Manager does not include HbA1c Object – Handle Attribute in transcoder output [OR] If manager includes HbA1c 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_008		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedu	ure	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:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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		

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	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: 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 – Handle attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: HbA1c numeric object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	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/GL/BV-013		TP/LP-PAN/MAN/PHDTW/GL/BV-013	
TP label Whitepaper. Glucosemeter HbA1c Object - Type Attribute		Whitepaper. Glucosemeter HbA1c Object - Type Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 8; M	
Test purpos	e	Check that:	
		Manager includes HbA1c Object – Type attribute in transcoder output.	
		[AND]	
		Type is set to { MDC_PART_SCADA   MDC_CONC_HBA1C}	
Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MA		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 h			

	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:
	a. Glucose measurement context (0x2A34)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	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	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes

Type attribute is present:
Object: HbA1c object
Attribute-id: MDC_ATTR_ID_TYPE (2351)
Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
Attribute-value:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_CONC_HBA1C or 29148 (dec) or 71 DC (hex)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1  262688^MDC_DIM_PERCENT^MDC     R   [current_date_time]

TP ld		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 purpos	е	Check that:
		Manager includes HbA1c 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_007 AND C_MAN_BLE_008
Other PICS		
Initial condit	tion	The manager under test and the simulated agent are in the standby state.
Test procedure		<ol> <li>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).</li> </ol>
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
		a. Glucose measurement context (0x2A34)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	Format: SFLOAT
	Value: Not relevant
	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).
	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.
	<ol> <li>Check in manager transcoder output for the HbA1c numeric object – Metric-Spec-Small attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: HbA1c 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 ld		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		Check that: Manager includes HbA1c Object – Unit-Code attribute in transcoder output. [AND]	

	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	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. The measurement of interest for this test case is:		
	a. Glucose measurement context (0x2A34)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	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		
	This field is not included		
	xii. Field: Medication		
	This field is not included		
	xiii. Field: HbA1c		

	Format: SFLOAT		
	Value: Not relevant		
	5. Check in manager transcoder output for the HbA1c object – Unit-Code attribute.		
Pass/Fail criteria	In step 5, the HbA1c object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT.		
Notes	In step 5, possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Unit-Code attribute is present:		
	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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):		
	OBX ? NM 160220^MDC_CONC_HBA1C^MDC 1.0.0.a 5.1  262688^MDC_DIM_PERCENT^MDC     R   [current_date_time]		

TP ld		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	GL Numeric 10; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpos	e	Check that:		
		Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into HbA1c Object - Absolute-Time-Stamp attribute		
		[AND]		
		Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format		
		[AND]		
		The fraction of seconds in Absolute Time at transcoder output is 0		
Applicability	1	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 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:		
		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:		
		a. Glucose measurem	ent (0x2A18)	
		i. Field: Flags		

	Format: 8 bit
	<ul> <li>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</li> </ul>
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
۷.	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. Gluco	ose measurement context (0x2A34)
i.	Field: Flags
	• Format: 8 bit
	<ul> <li>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</li> </ul>
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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	Format: SFLOAT
	Value: Not relevant
	<ol> <li>Check in manager transcoder output for the HbA1c object – Absolute-Time-Stamp attribute.</li> </ol>
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:
	Object: HbA1c 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:
	• century: 20 (hex) or 32 (dec)
	• year: 12 (hex) or 18 (dec)
	• month: 08 (hex) or 8 (dec)
	• day: 02 (hex) or 2 (dec)
	<ul> <li>hour: 12 (hex) or 18 (dec)</li> </ul>
	• minute: 59 (hex) or 89 (dec)
	<ul> <li>second: 27 (hex) or 39 (dec)</li> </ul>
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
	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 ld		TP/LP-PAN/MAN/PHDTW/GL/BV-017		
TP label Whitepaper. Glucosemeter HbA1c Object - Basic-Nu-Observed-Value Attribute 1		I-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 Other PICS	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
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. The measurement of interest for this test case is:		
	a. Glucose measurement context (0x2A34)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	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		
	This field is not included		
	xii. Field: Medication		
	This field is not included		

-			
	xiii. Field: HbA1c		
	Format: SFLOAT		
	• Value: 5.1 %		
	<ol> <li>Check in manager transcoder output for the HbA1c object         – Basic-Nu-Observed-Value attribute.</li> </ol>		
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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Basic-Nu-Observed-Value attribute is present:		
	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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 160220^MDC_CONC_HBA1C^MDC  1.0.0.a 5.1  262688^MDC_DIM_PERCENT^MDC     R   [current_date_time]		

TP ld		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	Short Float Type 2; M	
Test purpos	е	Check that:			
		Manager transcodes HbA1c field of Glucose Measurement Context characteristic into HbA1c Object – Basic-Nu-Observed-Value attribute			
		[AND]			
		Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)			
Applicability	/	C_MAN_BLE_000 AND C_MA	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_008		
Other PICS					
Initial condi	tion	The manager under test and the simulated agent are in the standby state.			
Test procedure		<ol> <li>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).</li> </ol>			
		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. The measurement of interest for this test case is:			
		a. Glucose measurement context (0x2A34)			
		i. Field: Flags			
		Format: 8 bit			

	<ul> <li>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</li> </ul>
	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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	Format: SFLOAT
	• Value: 5.1 %
	neck in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value tribute.
or Gi	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 lucose measurement followed by the Glucose measurement context to the manager inder test. The measurement of interest for this test case is:
a.	Glucose measurement context (0x2A34)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	Format: SFLOAT
	Value: 07 FF(hex). Special value: NaN
7.	Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value 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 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
	<ul> <li>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</li> </ul>
	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
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
<ol> <li>Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value attribute.</li> </ol>
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
<ul> <li>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</li> </ul>
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

Field: Exercise Intensity

х.

	This field is not included
	xi. Field: Medication ID
	This field is not included
:	xii. Field: Medication
	This field is not included
>	iii. Field: HbA1c
	Format: SFLOAT
	Value: 07 FE (hex). Special value: +INFINITY
11. Check attribu	in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value te.
operat Glucos	anager under test requests the simulated agent to report stored records writing an ion in Record Access Control Point (RACP) and the simulated agent sends a se measurement followed by the Glucose measurement context to the manager test. The measurement of interest for this test case is:
a. G	lucose measurement context (0x2A34)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
N N	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: 08 02 (hex). Special value: -INFINITY			
	13. Check in manager transcoder output for the HbA1c object – Basic-Nu-Observed-Value			
	attribute.			
Pass/Fail criteria	In step 5, the HbA1c object – Basic-Nu-Observed-Value attribute is present and its value is 5.1 %.			
	In step 7, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FF.			
	In step 9, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.			
	In step 11, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.			
	In step 13, the HbA1c object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.			
Notes	In step 5, possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Basic-Nu-Observed-Value attribute is present:			
	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)			
	b) WAN PCD-01 message			
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):			
	OBX ? NM 160220^MDC_CONC_HBA1C^MDC  1.0.0.a 5.1  262688^MDC_DIM_PERCENT^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			
	Basic -Nu-Observed-Value attribute is present:			
	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)			
	b) WAN PCD-01 message			
	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.			
	In step 9, possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Basic -Nu-Observed-Value attribute is present:			
	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)			
	b) WAN PCD-01 message			
	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.			
	In step 11, possible values in typical points of observation after transcoder output are:			

a) IEEE 11073 Objects and Attributes
Basic -Nu-Observed-Value attribute is present:
Object: HbA1c object
Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
Attribute-type: SFLOAT
Attribute-value: 07 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 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.
In step 13, possible values in typical points of observation after transcoder output are:
a) IEEE 11073 Objects and Attributes
Basic -Nu-Observed-Value attribute is present:
Object: HbA1c 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)
b) WAN PCD-01 message
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.

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-019			
TP label		Whitepaper. Glucosemeter HbA1c value			
Coverage	Spec	[Bluetooth PHDT v1.4]			
	Testable	GL Numeric 10; M GL Numeric 11; M Short Float Type 1; C			
	items	Date-Time Conv 1; M			
Test purpos	e	Check that:			
		Manager processes correctly the HbA1c Value (%) and Base Time fields of Glucose Measurement Context characteristic			
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_008			
Other PICS					
Initial condit	ion	The manager under test and the simulated agent are in the standby state.			
Test proced	ure	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 (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:			
		a. Glucose measurement (0x2A18)			
		i. Field: Flags			

	• Format: 8 bit
	<ul> <li>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</li> </ul>
ii.	Field: Sequence number
	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
۷.	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. Gluco	ose measurement context (0x2A34)
i.	Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	Format: SFLOAT
	• Value: 5.1 %
	<ol> <li>Check that the manager accepts the measurement and decodes its value properly (HbA1c value, HbA1c units and base time).</li> </ol>
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 ld		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 purpos	e	Check that:				
		Manager does not include Context Exercise Object – Handle Attribute in transcoder output				
		[OR] If manager includes Context Exercise 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_009				
Other PICS						
Initial condi	tion	The manager under test and the simulated agent are in the standby state.				
Test procedure		<ol> <li>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).</li> </ol>				
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:				
		a. Glucose measurement context (0x2A34)				
		i. Field: Flags				
		Format: 8 bit				
		<ul> <li>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</li> </ul>				
		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		
	Format: uint8		
	Value: Not relevant		
	xi. Field: Medication ID		
	This field is not included		
	xii. Field: Medication		
	This field is not included		
	xiii. Field: HbA1c		
	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 exercise object – Handle attribute.		
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:		
	a) IEEE 11073 Objects and Attributes		
	Handle attribute is not present, or if it is present then:		
	Object: Context exercise numeric object		
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)		
	Attribute-type: INT-U16		
	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 ld	TP/LP-PAN/MAN/PHDTW/GL/BV-021
TP label	Whitepaper. Glucosemeter Context Exercise Object - Type Attribute

Coverage	Spec	[Bluetooth PH	OT v1.4]			
-	Testable items	GL Numeric 13	3; M			
Test purpose	)	Check that:				
		Manager includes Context Exercise Object – Type attribute in transcoder output.				
		[AND]				
		Type is set to	(MDC_PART_F	HD_DM   MDC_CTXT_GL	_U_EXERCISE}	
Applicability		C_MAN_BLE_	000 AND C_MA	N_BLE_002 AND C_MAN	I_BLE_007 AND C_MAN_BLE_009	
Other PICS						
Initial conditi	ion	The manager	under test and t	ne simulated agent are in t	he standby state.	
Test procedu	ire	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).				
			ated agent imple r this test case a		cteristics. The characteristics of	
		a. Gluco	ose measureme	nt context (0x2A34)		
		i.	Field: Flags			
			• Format: 8 b	it		
			fields are in	cluded and Carbohydrate	rcise Duration And Exercise Intensity ID, Carbohydrate, Meal, Tester- lue and HbA1c fields are not included	
		ii.	Field: Sequence	e number		
			Format: uin	t16		
			• Value: Not	relevant		
		iii.	Field: Extended	d Flags		
			• This field is	not included		
		iv.	Field: Carbohy	drate ID		
			• This field is	not included		
		۷.	Field: Carbohy	drate		
			• 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		
			<ul> <li>Format: uin</li> </ul>	t16		
			Value: Not	relevant		
		Х.	Field: Exercise	2		
			Format: uin			
			Value: Not			
		xi.	Field: Medicati			
			This field is	not included		
		xii.	Field: Medicati	on		
			This field is	not included		

	xiii. Field: HbA1c			
	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 exercise object – Type attribute.			
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	In step 5, possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Type attribute is present:			
	Object: Context exercise object			
	Attribute-id: MDC_ATTR_ID_TYPE (2351)			
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}			
	Attribute-value:			
	<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>			
	<ul> <li>code: MDC_CTXT_GLU_EXERCISE or 29152 (dec) or 71 E0 (hex)</li> </ul>			
	b) WAN PCD-01 message			
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):			
	OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33  262688^MDC_DIM_PERCENT^MDC     R   [current_date_time]			

TP ld		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 purpos	e	Check that:		
		Manager includes Context Exercise Numeric Object – Metric-Spec-Small attribute in transcoder output.		
		[AND]		
	Metric-Spec-Small is set to {0xF048} (mss-avail-intermittent   mss-avail-stored-data   m 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_007 AND C_MAN_BLE_009		
Other PICS				
Initial condi	tion	The manager under test and the simulated agent are in the standby state.		
		<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>Value: 0000 1000 (MSB → LSB). Exercise Duration And Exercise Intensity fields are included and Carbohydrate ID, Carbohydrate, Meal, Tester-</li> </ul>		

	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
	Format: uint8
	Value: Not relevant
	xi. Field: Medication ID
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	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 exercise numeric object – Metric- Spec-Small attribute.
Pass/Fail criteria	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).
Notes	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Context exercise 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 ld		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 purpos		Check that:		
		Manager includes Context Exercise Object – Unit-Code attribute in transcoder output.		
		[AND]		
		Context Exercise 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_009		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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. The measurement of interest for this test case is:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
fields are included and Carbohydrate ID, Carbohydrate		<ul> <li>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</li> </ul>		
		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		
	Format: uint8		
	Value: Not relevant		
	xi. Field: Medication ID		
	This field is not included		
	xii. Field: Medication		
	This field is not included		
	xiii. Field: HbA1c		
	This field is not included		
	<ol> <li>Check in manager transcoder output for the Context exercise object – Unit-Code attribute.</li> </ol>		
Pass/Fail criteria	In step 5, the Context exercise object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT.		
Notes	In step 5, possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Unit-Code attribute is present:		
	Object: Context exercise object		
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)		
	Attribute-type: INT-U16		
	Attribute-value: MDC_DIM_PERCENT or 544 (dec) or 02 20 (hex)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):		
	OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33  262688^MDC_DIM_PERCENT^MDC     R   [current_date_time]		

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-024		
TP label Whitepaper. Glucosemeter Context Exercise Object - Absolute-Time-Stamp At		e-Time-Stamp Attribute		
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable	GL Numeric 15; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpos	e	Check that:		
		Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Exercise Object - Absolute-Time-Stamp attribute		
		[AND]		
		Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format		
		[AND]		
		The fraction of seconds in Absolute Time at transcoder output is 0		
Applicability	y	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	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:
	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:
	a. Glucose measurement (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	<ul> <li>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</li> </ul>
	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
	Format: uint8
	Value: Not relevant
	xi. Field: Medication ID
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	This field is not included
	5. Check in manager transcoder output for the Context exercise object – Absolute-Time- Stamp attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Context exercise object
	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
	<ul> <li>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)</li> </ul>
	□ Attribute-value:
	• 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 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33  262688^MDC_DIM_PERCENT^MDC     R    20120802125927+0000

TP ld		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	9	Check that:	
		Manager transcodes Exercise Duration value field of Glucose Measurement Context characteristic into Context Exercise Object - Measure-Active-Period attribute	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_009	
Other PICS			
Initial condit	ion	The manager under test and the simulated agent are in the standby state.	
Test procedu	ure	<ol> <li>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).</li> </ol>	
		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. The measurement of interest for this test case are:	
		a. Glucose measurement context (0x2A34)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>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</li> </ul>	
		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		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: 666 seconds	
	x. Field: Exercise Intensity	
	Format: uint8	
	Value: Not relevant	
	xi. Field: Medication ID	
	This field is not included	
	xii. Field: Medication	
	This field is not included	
	xiii. Field: HbA1c	
	This field is not included	
	5. Check in manager transcoder output for the Context exercise object – Measure-Active- Period attribute.	
Pass/Fail criteria	In step 5, the Context exercise object – Measure-Active-Period attribute is present and its value is 666 seconds.	
Notes	In step 5, possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Measure-Active-Period attribute is present:	
	Object: Context exercise object	
	Attribute-id: MDC_ATTR_TIME_PD_MSMT_ACTIVE (2649)	
	Attribute-type: FLOAT	
	Attribute-value: 666 (dec) or 0000029A (hex) [Note that exponent value for this FLOAT value must be 0]	
	b) WAN PCD-01 message	
	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):	
	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	

TP Id		TP/LP-PAN/MAN/PHDTW/GL/BV-026		
TP label	Whitepaper. Glucosemeter Context Exercise Object - Basic-Nu-Observed-Value Attribute		-Observed-Value Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable items	GL Numeric 17; M Short Float Type 1; C		
Test purpose		Check that:		
		0	Intensity value field of Glucose Nercise Object - Basic-Nu-Observe	
Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 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	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 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> <li>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</li> </ul>
	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
	Format: uint8
	• Value: 33%
	xi. Field: Medication ID
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	This field is not included
	<ol> <li>Check in manager transcoder output for the Context exercise object         – Basic-Nu- Observed-Value attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic-Nu-Observed-Value attribute is present:
	Object: Context exercise object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	Attribute-value: 33 (dec) or 00000021 (hex) [Note that exponent value for this FLOAT value must be 0]
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 8417760^MDC_CTXT_GLU_EXERCISE^MDC 1.0.0.a 33.0  262688^MDC_DIM_PERCENT^MDC    R   [current_date_time]

TP ld		TP/LP-PAN/MAN/PHDTW/G	L/BV-027		
TP label		Whitepaper. Glucosemeter Context Exercise value			
Coverage	Spec	[Bluetooth PHDT v1.4]			
	Testable	GL Numeric 15; M	GL Numeric 17; M	Short Float Type 1; C	
	items	Date-Time Conv 1; M			
Test purpose	e	Check that:			
		Manager processes correctly the Context Exercise Value (%) and Base Time fields of Glucose Measurement Context characteristic			
Applicability		C_MAN_BLE_000 AND AND	C_MAN_BLE_007 AND C_MAN	_BLE_009	
Other PICS					
Initial condit	ion	The manager under test and	the simulated agent are in the sta	indby state.	
Test procedu	ıre	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 (0x2A18)			
		b. Glucose measurement context (0x2A34)			
			initiates a discovery process (sca tarts a pairing process with the sir		
		requests the simulated a Access Control Point (R	en completed (connection state), agent to report stored records writ ACP) and the simulated agent ser measurement context to the man t for this test case are:	ing an operation in Record nds a Glucose measurement	
		a. Glucose measurem	ent (0x2A18)		
		i. Field: Flags			
		Format: 8	bit		
		Type and	010010 (MSB $\rightarrow$ LSB). Glucose c Sample Location fields are includ atus Annunciation field are not inc	ed, Time Offset fields and	
		ii. Field: Sequer	nce number		
		Format: u	int16		

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
<ul> <li>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</li> </ul>
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

	Format: uint8
	• Value: 33%
	xi. Field: Medication ID
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	This field is not included
	<ol> <li>Check that the manager accepts the measurement and decodes its value properly (Context exercise value, Context exercise units and base time).</li> </ol>
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 ld		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 purpos	е	Check that:		
		Manager does not include Context Medication Object – Handle Attribute in transcoder output		
		[OR]		
		If manager includes Context Medication Object – Handle attribute in transcoder output, then its value shall be different than 0		
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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: Not relevant
	xii. Field: Medication - units of kilograms
	Format: SFLOAT
	Value: Not relevant
	xiii. Field: Medication - units of litres
	This field is not included
	xiv. Field: HbA1c
	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 exercise object – Handle attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Context Medication numeric object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	□ Attribute-type: INT-U16
	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 ld		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	Check that:		
	Manager includes Context Medication Object – Type attribute in transcoder output.		
	[AND]		
	Type is set to {MDC_PART_PHD_DM   MDC_CTXT_MEDICATION}		
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 characteristics of interest for this test case are:		
	a. Glucose measurement context (0x2A34)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	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: Not relevant		
	xii. Field: Medication - units of kilograms		
	Format: SFLOAT		
	Value: Not relevant		
	xiii. Field: Medication - units of litres		
	This field is not included		

r		
	xiv. Field: HbA1c	
	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 medication object – Type attribute.	
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	In step 5, possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Type attribute is present:	
	Object: Context exercise object	
	Attribute-id: MDC_ATTR_ID_TYPE (2351)	
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}	
	Attribute-value:	
	<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>	
	<ul> <li>code: MDC_CTXT_MEDICATION or 29188 (dec) or 72 04 (hex)</li> </ul>	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):	
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC  1.0.0.a 0.17 263890^MDC_DIM_MILLI_G^MDC     R   [current_date_time]	

TP ld		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]		[Bluetooth PHDT v1.4]	
	Testable items	GL Numeric 20; M	
Test purpose		Check that:	
		Manager includes Context Medication 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_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)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of kilograms fields are included, and Carbohydrate ID, Carbohydrate, Meal,</li> </ul>	

	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: Not relevant
	xii. Field: Medication - units of kilograms
	Format: SFLOAT
	Value: Not relevant
	xiii. Field: Medication - units of litres
	This field is not included
	xiv. Field: HbA1c
	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 Medication numeric object – Metric- Spec-Small attribute.
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:
	Object: Context Medication 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 ld		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	9	Check that:
		Manager includes Context Medication Object – Metric-Id attribute in transcoder output.
		[AND]
		Type is set to different values depending on Medication ID field value
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_010
Other PICS		
Initial condit	ion	The manager under test and the simulated agent are in the standby state.
Test procedure		<ol> <li>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).</li> </ol>
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:
		a. Glucose measurement context (0x2A34)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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
	<ul> <li>Value: Several values are checked in this test case</li> </ul>
	xii. Field: Medication - units of kilograms
	Format: SFLOAT
	Value: Not relevant
	xiii. Field: Medication - units of litres
	This field is not included
	xiv. Field: HbA1c
	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 (Medication ID field set to 0x01 = Rapid acting insulin) to the manager under test.
	5. Check in manager transcoder output for the Context Medication numeric object – Metric- ld 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 followed by the Glucose measurement context (Medication ID field set to 0x02 = Short acting insulin) to the manager under test.
	<ol> <li>Check in manager transcoder output for the Context Medication numeric object – Metric- Id attribute.</li> </ol>
	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.
	9. Check in manager transcoder output for the Context Medication numeric object – Metric- Id 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 (Medication ID field set to 0x04 = Long acting insulin) to the manager under test.
	11. Check in manager transcoder output for the Context Medication numeric object – Metric- Id 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 followed by the Glucose measurement context (Medication ID field set to 0x05 = Pre-mixed insulin) to the manager under test.
	13. Check in manager transcoder output for the Context Medication numeric object – Metric- Id attribute.
Pass/Fail criteria	In step 5, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_RAPIDACTING.
	In step 7, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_SHORTACTING.
	In step 9, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_INTERMEDIATEACTING.
	In step 11, the Context medication object – Metric-Id attribute is present and its value is

	MDC_CTXT_MEDICATION_LONGACTING.
	In step 13, the Context medication object – Metric-Id attribute is present and its value is MDC_CTXT_MEDICATION_PREMIX.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Id attribute is present:
	Object: Context medication object
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
	Attribute-type: code (INT-U16)
	Attribute-value: code: MDC_CTXT_MEDICATION_RAPIDACTING or 29192 (dec) or 72 08 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC  1.0.0.a 0.17 263890^MDC_DIM_MILLI_G^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
	Metric-Id attribute is present:
	Object: Context medication object
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
	Attribute-type: code (INT-U16)
	Attribute-value: code: MDC_CTXT_MEDICATION_SHORTACTING or 29196 (dec) or 72 0C (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):
	OBX ? NM 8417804^ MDC_CTXT_MEDICATION_SHORTACTING ^MDC  1.0.0.a 0.18 263890^MDC_DIM_MILLI_G^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
	Metric-Id attribute is present:
	Object: Context medication object
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
	Attribute-type: code (INT-U16)
	Attribute-value: code: MDC_CTXT_MEDICATION_INTERMEDIATEACTING or 29200 (dec) or 72 10 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):
	OBX ? NM 8417808^ MDC_CTXT_MEDICATION_INTERMEDIATEACTING ^MDC  1.0.0.a 0.19 263890^MDC_DIM_MILLI_G^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
	Metric-Id attribute is present:
	Object: Context medication object
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)
	□ Attribute-type: code (INT-U16)
	<ul> <li>Attribute-value: code: MDC_CTXT_MEDICATION_LONGACTING or 29204 (dec) or 72 14 (hex)</li> </ul>

b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):
OBX ? NM 8417812^ MDC_CTXT_MEDICATION_LONGACTING ^MDC  1.0.0.a 0.20 263890^MDC_DIM_MILLI_G^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
Metric-Id attribute is present:
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)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):
OBX ? NM 8417816^ MDC_CTXT_MEDICATION_PREMIX ^MDC  1.0.0.a 0.21263890^MDC_DIM_MILLI_G^MDC     R    [current_date_time]

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		Check that:
		Manager includes Context Medication Object – Unit-Code attribute in transcoder output.
		[AND]
		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
		[AND]
		IF Medication Value (I) field of Glucose Measurement Context characteristic is present THEN Context Medication Object – Unit-Code attribute is set to MDC_DIM_MILLI_L
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> <li>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).</li> </ol>
		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
		<ul> <li>Value: 0001 0000 (MSB → LSB). Medication ID and Medication in units of</li> </ul>

		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
	х.	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: Not relevant
	xiii.	Field: Medication - units of litres
		This field is not included
	xiv.	Field: HbA1c
		This field is not included
5.	Check in r attribute.	nanager transcoder output for the Context medication object – Unit-Code
6.	operation Glucose n	ger under test requests the simulated agent to report stored records writing an in Record Access Control Point (RACP) and the simulated agent sends a neasurement followed by the Glucose measurement context to the manager . The measurement of interest for this test case is:
	a. Gluco	se measurement context (0x2A34)
	i.	Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
	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
	This field is not included
	xiii. Field: Medication - units of litres
	Format: SFLOAT
	Value: Not relevant
	xiv. Field: HbA1c
	This field is not included
	7. Check in manager transcoder output for the Context medication object – Unit-Code attribute.
Pass/Fail criteria	In step 5, the Context medication object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_G.
	In step 7, the Context medication object – Unit-Code attribute is present and its value is MDC_DIM_MILLI_L.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Context medication object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_MILLI_G or 1746 (dec) or 06 D2 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a  0.17 263890^MDC_DIM_MILLI_G^MDC     R   [current_date_time]
	In step 7, possible values in typical points of observation after transcoder output are:

a	a) IEEE 11073 Objects and Attributes	
L	Unit-Code attribute is present:	
	Object: Context medication object	
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)	
	Attribute-type: INT-U16	
	Attribute-value: MDC_DIM_MILLI_L or 1618 (dec) or 06 52 (hex)	
b	b) WAN PCD-01 message	
F	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):	
	DBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a  ).05 263762^MDC_DIM_MILLI_L^MDC     R   [current_date_time]	

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TP ld		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	GL Numeric 23; M	Date-Time Conv 2; M	Date-Time Conv 3; M		
	items	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 Measurement characteristic into Context Medication Object - Absolute-Time-Stamp attribute				
		[AND]				
		Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format				
		[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 AND C_MAN_BLE_010				
Other PICS						
Initial condit	ion	The manager under test and the simulated agent are in the standby state.				
Test procedu	ıre	<ol> <li>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).</li> </ol>				
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:				
		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:				
		a. Glucose measurement (0x2A18)				
		i. Field: Flags				
		Format: 8 bit				
		Type and	010011 (MSB $\rightarrow$ LSB). Glucose co Sample Location and Time Offset nunciation field is not included and	fields are included Sensor		
		ii. Field: Sequence	e number			
		Format: ui	nt16			

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
<ul> <li>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</li> </ul>
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: Not relevant
	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 – Absolute-Time- Stamp attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Context medication 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:
	• century: 20 (hex) or 32 (dec)
	• year: 12 (hex) or 18 (dec)
	• month: 08 (hex) or 8 (dec)
	• day: 02 (hex) or 2 (dec)
	<ul> <li>hour: 12 (hex) or 18 (dec)</li> </ul>
	• minute: 59 (hex) or 89 (dec)
	• second: 27 (hex) or 39 (dec)
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC 1.0.0.a  0.17 263890^MDC_DIM_MILLI_G^MDC    R   20120802125927+0000

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-034		
TP label		Whitepaper. Glucosemeter Context Medication Object - Basic-Nu-Observed-Value Attribute 1		
Coverage	Spec	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	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. The measurement of interest for this test case is:		
	a. Glucose measurement context (0x2A34)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	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		
	<ul> <li>Value: 0.00000017 kg (0.17 mg)</li> </ul>		

xiii. Field: Medication - units of litres
This field is not included
xiv. Field: HbA1c
This field is not included
<ol> <li>Check in manager transcoder output for the Context medication object         – Basic-Nu- Observed-Value attribute.</li> </ol>
<ol><li>The simulated agent sends the measurement to the manager under test with the following value:</li></ol>
a. Glucose measurement context (0x2A34)
i. Field: Flags
Format: 8 bit
<ul> <li>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</li> </ul>
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
This field is not included
xiii. Field: Medication - units of litres
Format: SFLOAT
<ul> <li>Value: 0.00005 litres (0.05 ml)</li> </ul>
xiv. Field: HbA1c
This field is not included
7. Check in manager transcoder output for the Context medication object- Basic-Nu-

	Observed-Value attribute.		
Pass/Fail criteria	<ul> <li>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.</li> <li>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.</li> </ul>		
Notes	In step 5, possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Basic-Nu-Observed-Value attribute is present:		
	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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC  1.0.0.a 0.17  263890^MDC_DIM_MILLI_G ^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		
	Basic-Nu-Observed-Value attribute is present:		
	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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC  1.0.0.a 0.05  263762^MDC_DIM_MILLI_L^MDC     R   [current_date_time]		

TP ld		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	Short Float Type 2; M
Test purpos	е	Check that:		
		Manager transcodes Medication field of Glucose Measurement Context characteristic into Context Medication Object – Basic-Nu-Observed-Value attribute		
		[AND]		
		Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)		
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> <li>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).</li> </ol>		

<ol> <li>The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</li> </ol>
a. Glucose measurement context (0x2A34)
<ol><li>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).</li></ol>
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
<ul> <li>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</li> </ul>
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
<ul> <li>Value: 0.00000017 kg (0.17 mg)</li> </ul>
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		
<ul> <li>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</li> </ul>		
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		
<ol> <li>Check in manager transcoder output for the Context medication object – Basic-Nu- Observed-Value attribute.</li> </ol>		
<ol><li>The simulated agent sends the measurement to the manager under test with the following value:</li></ol>		
a. Glucose measurement context (0x2A34)		
i. Field: Flags		
Format: 8 bit		

		<ul> <li>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</li> </ul>
	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
	х.	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: 00 80 (hex). Special value: NRes
	xiii.	Field: Medication - units of litres
	7	This field is not included
	xiv	Field: HbA1c
		This field is not included
9.		nanager transcoder output for the Context medication object – Basic-NuValue attribute.
10.	The simul following	ated agent sends the measurement to the manager under test with the value:
	-	ose measurement context (0x2A34)
		Field: Flags
		• Format: 8 bit
		<ul> <li>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</li> </ul>
	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
٧.	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
х.	Field: Exercise Intensity
Λ.	This field is not included
vi	Field: Medication ID
×1.	
vii	Value: 0x01 (Rapid action insulin)
XII.	Field: Medication - units of kilograms
	• Format: SFLOAT
	Value: 07 FE (hex). Special value: +INFINITY
xiii.	Field: Medication - units of litres
	This field is not included
xiv.	Field: HbA1c
	This field is not included
	nanager transcoder output for the Context medication object – Basic-NuValue attribute.
12. The simula following v	ated agent sends the measurement to the manager under test with the /alue:
a. Gluco	ose measurement context (0x2A34)
i.	Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
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      iv Field Everying Duration		
	ix. Field: Exercise Duration		
	This field is not included		
	x. Field: Exercise Intensity		
	This field is not included		
	xv. Field: Medication ID		
	• Format: uint8		
	Value: 0x01 (Rapid action insulin)		
	xvi. Field: Medication - units of kilograms		
	Format: SFLOAT		
	Value: 08 02 (hex). Special value: -INFINITY		
	xvii. Field: Medication - units of litres		
	This field is not included		
	xviii. Field: HbA1c		
	This field is not included		
	13. Check in manager transcoder output for the Context medication object – Basic-Nu- Observed-Value attribute.		
Pass/Fail criteria	In step 5, the Context medication object – Basic-Nu-Observed-Value attribute is present and its value is 0.17 mg.		
	In step 7, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FF.		
	In step 9, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.		
	In step 11, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.		
	In step 13, the Context medication object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.		
Notes	In step 5, possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Basic-Nu-Observed-Value attribute is present:		
	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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 8417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC  1.0.0.a 0.17  263890^MDC_DIM_MILLI_G ^MDC      R   [current_date_time]		

	7, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Basic -N	lu-Observed-Value attribute is present:
	Object: Context medication 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)
b) WA	N PCD-01 message
value (8	message does not include segments with a Basic -Nu-Observed-Value attribute 417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a specia nd these values are not included in the PCD-01 message.
In step 9	9, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Basic -N	lu-Observed-Value attribute is present:
	Object: Context medication 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)
b) WA	N PCD-01 message
value (8	message does not include segments with a Basic -Nu-Observed-Value attribute 417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a specia ind these values are not included in the PCD-01 message.
In step '	1, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Basic -N	lu-Observed-Value attribute is present:
	Object: Context medication object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	Attribute-value: 07 FE (hex) or +INFINITY (note that a decimal value is not allowed)
b) WA	N PCD-01 message
value (8	message does not include segments with a Basic -Nu-Observed-Value attribute 417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a specia ad these values are not included in the PCD-01 message.
In step '	3, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Basic -N	lu-Observed-Value attribute is present:
	Object: Context medication 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)
b) WA	N PCD-01 message
PCD-01 value (8	message does not include segments with a Basic -Nu-Observed-Value attribute 417800^MDC_CTXT_MEDICATION_RAPIDACTING^MDC) because it has a specia id these values are not included in the PCD-01 message.

TP ld	TP/LP-PAN/MAN/PHDTW/GL/BV-036
TP label	Whitepaper. Glucosemeter Context Medication value

Coverage	Spec	[Bluetooth PH	DT v1.4]		
	Testable	GL Numeric 2	3; M	GL Numeric 24; M	Short Float Type 1; C
	items	Date-Time Co	nv 1; M		
Test purpose		Check that:			
				ne Context Medication Valu se Measurement Context ch	e (kg), Context Medication Value (I) naracteristic
Applicability		C_MAN_BLE_	_000 AND C_MA	N_BLE_007 AND C_MAN_	_BLE_010
Other PICS					
Initial condit	ion			e simulated agent are in th	*
Test proced	ıre	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).			
			lated agent imple or this test case is		teristics. The characteristic of
		a. Gluco	ose measuremer	nt (0x2A18)	
				nt context (0x2A34)	
					(scanning state). It discovers the e simulated agent (initiating state).
		requests Access C	the simulated ag ontrol Point (RA	ent to report stored records	ate), the manager under test writing an operation in Record it sends a Glucose measurement manager under test:
		a. Gluco	ose measuremer	nt (0x2A18)	
		i.	Field: Flags		
			• Format: 8 b	it	
			Type and S	ample Location are include	se concentration in units of kg/L, d, Time Offset and Sensor Status d Context information follows
		ii.	Field: Sequenc	e number	
			Format: uint	16	
			Value: Not r	elevant	
		iii.	Field: Base Tim	ne	
			Format: Dat	e and Time	
			Value: Augu	ust 2nd, 2012, 11:08:25	
		iv.	Field: Time Offs	set	
			This field is	not included	
		v.	Field: Glucose	Concentration - units of kg/	L
			Format: SFI	LOAT	
			<ul> <li>Value: Not r</li> </ul>		
		vi.	Field: Glucose	Concentration - units of mo	I/L
				not included	
		vii.	Field: Type		
			Format: nibl		
			Value: Not r		
		viii.	Field: Sample L		
			Format: nibl		
			Value: Not r		
		ix.	Field: Sensor S	tatus Annunciation	

This field is not included
b. Glucose measurement context (0x2A34)
i. Field: Flags
Format: 8 bit
<ul> <li>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</li> </ul>
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
<ul> <li>Value: 0.00000017 kg (0.17 mg)</li> </ul>
xiii. Field: Medication - units of litres
This field is not included
xiv. Field: HbA1c
This field is not included
<ol> <li>Check that the manager accepts the measurement and decodes its value properly (Context Medication value, Context Medication units and base time).</li> </ol>
<ol><li>The simulated agent sends the Glucose measurement followed by the Glucose measurement context to the manager under test with the following value:</li></ol>
a. Glucose measurement (0x2A18)
i. Field: Flags
Format: 8 bit
 <ul> <li>Value: 00010010 (MSB → LSB). Glucose concentration in units of kg/L,</li> </ul>

	Type and Sample Location are included, Time Offset and Sensor Status Annunciation fields are not included and Context information follows
ii.	Field: Sequence number
	Format: uint16
	Value: Not relevant
i.	Field: Base Time
	Format: Date and Time
	• Value: August 2nd, 2012, 11:09:05
ii.	Field: Time Offset
	This field is not included
iii.	Field: Glucose Concentration - units of kg/L
	Format: SFLOAT
	Value: Not relevant
iv	Field: Glucose Concentration - units of mol/L
	This field is not included
v	Field: Type
	This field is not included
vi.	Field: Sample Location
	This field is not included
vii	Field: Sensor Status Annunciation
	This field is not included
b. Gluco	use measurement context (0x2A34)
	Field: Flags
	Format: 8 bit
	<ul> <li>Value: 0011 0000 (MSB → LSB). Medication ID and Medication in units of</li> </ul>
	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
	Format: uint16
	Value: Not relevant
iii.	Field: Extended Flags
	This field is not included
iv.	Field: Carbohydrate ID
	This field is not included
٧.	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
	This field is not included
	xiii. Field: Medication - units of litres
	Format: SFLOAT
	• Value: 0.00005 litres (0.05 ml)
	xiv. Field: HbA1c
	This field is not included
	<ol> <li>Check that the manager accepts the measurement and decodes its value properly (Context Medication value, Context Medication units and base time).</li> </ol>
Pass/Fail criteria	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'.
	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'.
Notes	

TP ld		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 purpos	е	Check that:			
		Manager does not include Context Carbohydrates Object – Handle Attribute in transcoder output			
		[OR]			
		If manager includes Context Carbohydrates Object – Handle attribute in transcoder output, then its value shall be different than 0			
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011			
Other PICS					
Initial condit	tion	The manager under test and the simulated agent are in the standby state.			
Test proced	ure	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:			
		a. Glucose measurement context (0x2A34)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			
		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: Not relevant
	v. Field: Carbohydrate
	Format: SFLOAT
	Value: Not relevant
	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
	This field is not included
	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	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 Blood glucose object – Handle attribute.
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:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Context carbohydrates numeric object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	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 ld		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	9	Check that:				
		Manager includes Context Carbohydrates Object – Type attribute in transcoder output.				
		[AND]				
		Type is set to { MDC_PART_PHD_DM   MDC_CTXT_GLU_CARB}				
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011				
Other PICS						
Initial condition	ion	The manager under test and the simulated agent are in the standby state.				
Test procedu	ıre	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:				
		a. Glucose measurement context (0x2A34)				
		i. Field: Flags				
		Format: 8 bit				
		<ul> <li>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</li> </ul>				
		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: Not relevant				
		v. Field: Carbohydrate				
		Format: SFLOAT				
		Value: Not relevant				
		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				
		This field is not included				

	xii. Field: Medication
	This field is not included
	xiii. Field: HbA1c
	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.
	<ol> <li>Check in manager transcoder output for the Context carbohydrates object – Type attribute.</li> </ol>
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	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Context carbohydrates object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	Attribute-value:
	<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>
	<ul> <li>code: MDC_CTXT_GLU_CARB or 29156 (dec) or 71 E4 (hex)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a 75  263872^MDC_DIM_G^MDC    R   [current_date_time]

TP ld		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 purpos	e	Check that:		
		Manager includes Context Carbohydrates 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	y	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condi	tion	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)		
		i. Field: Flags		

	Format: 8 bit
	<ul> <li>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</li> </ul>
	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: Not relevant
	v. Field: Carbohydrate - units of kilograms
	Format: SFLOAT
	Value: Not relevant
	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
	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
	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> <li>Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Spec-Small attribute.</li> </ol>
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

Object: Context carbohydrates numeric object	Metric-Spec-Small attribute is present: <ul> <li>Object: Context carbohydrates numeric object</li> </ul>				
<ul> <li>Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)</li> </ul>					
<ul> <li>Attribute-type: BITS-16</li> </ul>					
<ul> <li>Attribute-value: F0 48 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored</li> </ul>					
	data(1), mss-upd-aperiodic(2), mss-msmt-aperiodic(3), mss-acc-agent-initiated(9),				
b) WAN PCD-01 message	b) WAN PCD-01 message				
PCD-01 message does not include segments with a Metric-Spec-Small attribute value.	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.				
Id TP/LP-PAN/MAN/PHDTW/GL/BV-040					
Iabel         Whitepaper. Glucosemeter Context Carbohydrates Object - Metric-Id Attribute					
verage Spec [Bluetooth PHDT v1.4]					
Testable GL Numeric 28; M items					
st purpose Check that:					
	.+				
Manager includes Context Carbohydrate Object – Metric-Id attribute in transcoder outpu	л.				
[AND] Type is set to different values depending on Carbohydrate ID field value					
plicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_	011				
her PICS	_011				
	The manager under test and the simulated agent are in the standby state.				
measurement ready to be sent and it is in the advertising state (it is discoverable).	<ol> <li>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).</li> </ol>				
<ol> <li>The simulated agent implements several BLE characteristics. The characteristics o interest for this test case are:</li> </ol>	f				
a. Glucose measurement context (0x2A34)					
i. Field: Flags					
Format: 8 bit					
<ul> <li>Value: 0000 0001 (MSB → LSB). Carbohydrate ID and Carbohydrate included and Meal, Tester-Health, Exercise Duration and Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included</li> </ul>	∍is				
ii. Field: Sequence number					
Format: uint16					
Value: Not relevant					
iii. Field: Extended Flags					
This field is not included					
iv. Field: Carbohydrate ID					
Format: uint8					
<ul> <li>Value: Several values are checked in this test case</li> </ul>					
v. Field: Carbohydrate - units of kilograms					
Format: SFLOAT					
Value: Not relevant					
vi. Field: Meal					
This field is not included					
vii. Field: Tester					

<ol> <li>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.</li> <li>Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 fi</li></ol>		
<ul> <li>This field is not included</li> <li>ix. Field: Exercise Duration</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Kercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Medication ID</li> <li>This field is not included</li> <li>xii. Medication – units of klograms</li> <li>This field is not included</li> <li>xiii. Medication – units of klograms</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field agent to report stored records writing an operation in Record Access Control Point (RACP) and the simulated agent (initiating state).</li> <li>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 angent under test.</li> <li>5. Check in manager under test.</li> <li>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 Gluccse measurement context (Carbohydrate numeric object – Metric-Id attribute.</li> <li>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 Gluccse measurement context (Carbohydrate ID field set to 0x03 = Lunch) to the manager under test</li> <li>7. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 Gluccse measurement</li></ul>		This field is not included
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<ul> <li>simulated agent and it starts a pairing process with the simulated agent (initiating state).</li> <li>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.</li> <li>5. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>7. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x03 = Dinner) to the manager under test</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>10. The manager under test requests the simulated agent to report stored records writing an operation in Record Acceess Control Point (RACP) and the simulated</li></ul>		This field is not included
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<ul> <li>Metric-Id attribute.</li> <li>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</li> <li>7. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x04 = Snack) to the manager under test</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x05 = Drink) to the man</li></ul>	4.	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 =
<ul> <li>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</li> <li>7. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x03 = Dinner) to the manager under test</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id</li></ul>	5.	• • • • •
<ul> <li>Metric-Id attribute.</li> <li>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</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x04 = Snack) to the manager under test</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>14. The manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x05 = Drink) to the manager under test.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 Gluco</li></ul>	6.	Glucose measurement followed by the Glucose measurement context (Carbohydrate ID
<ul> <li>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</li> <li>9. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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</li> <li>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x04 = Snack) to the manager under test</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>14. The manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x05 = Drink) to the manager under test.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 un</li></ul>	7.	
<ul> <li>Metric-Id attribute.</li> <li>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</li> <li>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x05 = Drink) to the manager under test.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> </ul>	8.	Glucose measurement followed by the Glucose measurement context (Carbohydrate ID
<ul> <li>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</li> <li>11. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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 0x05 = Drink) to the manager under test.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> </ul>	9.	
<ul> <li>Metric-Id attribute.</li> <li>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.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> </ul>	10.	operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID
<ul> <li>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.</li> <li>13. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.</li> <li>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.</li> </ul>	11.	
<ul> <li>Metric-Id attribute.</li> <li>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.</li> </ul>	12.	operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID
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.	13.	
15. Check in manager transcoder output for the Context carbohydrate numeric object -	14.	operation in Record Access Control Point (RACP) and the simulated agent sends a Glucose measurement followed by the Glucose measurement context (Carbohydrate ID
	15.	Check in manager transcoder output for the Context carbohydrate numeric object –

	Metric-Id 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 followed by the Glucose measurement context (Carbohydrate ID field set to 0x07 = Brunch) to the manager under test.			
	17. Check in manager transcoder output for the Context carbohydrate numeric object – Metric-Id attribute.			
Pass/Fail criteria	In step 5, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_BREAKFAST.			
	In step 7, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_LUNCH.			
	In step 9, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_DINNER.			
	In step 11, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_SNACK			
	In step 13, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_DRINK.			
	In step 15, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_SUPPER.			
	In step 17, the Context carbohydrate object – Metric-Id attribute is present and its value is MDC_CTXT_GLU_CARB_BRUNCH.			
Notes	In step 5, possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Metric-Id attribute is present:			
	Object: Context carbohydrate object			
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)			
	Attribute-type: code (INT-U16)			
	Attribute-value: code: MDC_CTXT_GLU_CARB_BREAKFAST or 29160 (dec) or 71 E8 (hex)			
	b) WAN PCD-01 message			
	PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):			
	OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC  1.0.0.a 130  263872^MDC_DIM_G^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			
	Metric-Id attribute is present:			
	Object: Context carbohydrate object			
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)			
	Attribute-type: code (INT-U16)			
	Attribute-value: code: MDC_CTXT_GLU_CARB_LUNCH or 29164 (dec) or 71 EC (hex)			
	b) WAN PCD-01 message			
	PCD-01 message includes a segment like this with a Metric-Id attribute value (check OBX-3):			
	OBX ? NM 8417772^MDC_CTXT_GLU_CARB_LUNCH^MDC  1.0.0.a 130  263872^MDC_DIM_G^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			
	Metric-Id attribute is present:			
	Object: Context carbohydrate object			
	Attribute-id: MDC_ATTR_ID_PHYSIO (2347)			

-		
		Attribute-type: code (INT-U16)
		Attribute-value: code: MDC_CTXT_GLU_CARB_DINNER or 29168 (dec) or 71 F0 (hex)
b)	WA	N PCD-01 message
PC	D-01	message includes a segment like this with a Metric-Id attribute value (check OBX-3):
		IM 8417776^MDC_CTXT_GLU_CARB_DINNER^MDC  1.0.0.a 130  MDC_DIM_G^MDC      R   [current_date_time]
In s	tep 1	1, possible values in typical points of observation after transcoder output are:
a)	IEE	E 11073 Objects and Attributes
Met	ric-lo	attribute is present:
		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)
b)	WA	N PCD-01 message
PC	D-01	message includes a segment like this with a Metric-Id attribute value (check OBX-3):
		IM 8417780^MDC_CTXT_GLU_CARB_SNACK^MDC  1.0.0.a 130  MDC_DIM_G^MDC     R   [current_date_time]
In s	tep 1	3, possible values in typical points of observation after transcoder output are:
a)	IEE	E 11073 Objects and Attributes
Met	ric-lo	attribute is present:
		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)
b)	WA	N PCD-01 message
PC	D-01	message includes a segment like this with a Metric-Id attribute value (check OBX-3):
		IM 8417784^MDC_CTXT_GLU_CARB_DRINK^MDC  1.0.0.a 130  MDC_DIM_G^MDC     R   [current_date_time]
In s	tep 1	5, possible values in typical points of observation after transcoder output are:
a)	IEE	E 11073 Objects and Attributes
Met	ric-lo	attribute is present:
		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)
b)	WA	N PCD-01 message
PC	D-01	message includes a segment like this with a Metric-Id attribute value (check OBX-3):
		IM 8417788^MDC_CTXT_GLU_CARB_SUPPER^MDC  1.0.0.a 130  MDC_DIM_G^MDC     R   [current_date_time]
In s	tep 1	7, possible values in typical points of observation after transcoder output are:
a)	IEE	E 11073 Objects and Attributes
Met	ric-lo	attribute is present:
		Object: Context carbohydrate object

	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)
b) WA	N PCD-01 message
PCD-01	message includes a segment like this with a Metric-Id attribute value (check OBX-3):
	NM 8417792^MDC_CTXT_GLU_CARB_BRUNCH^MDC  130 263872^MDC_DIM_G^MDC    R   [current_date_time]

TP ld		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 purpos	e	Check that:			
		Manager includes Context Carbohydrates Object – Unit-Code attribute in transcoder output.			
		[AND]			
		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			
Applicability	y	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011			
Other PICS					
Initial condi	tion	The manager under test and the simulated agent are in the standby state.			
Test proced	ure	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)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			
		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: Not relevant			
		v. Field: Carbohydrate - units of kilograms			
		Format: SFLOAT			
		Value: Not relevant			
		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
	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
	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> <li>Check in manager transcoder output for the Context carbohydrate object – Unit-Code attribute</li> </ol>
Pass/Fail criteria	In step 5, the Context carbohydrate object – Unit-Code attribute is present and its value is MDC_DIM_X_G
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Context carbohydrates object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_X_G or 1728 (dec) or 06 C0 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a  130 263872^MDC_DIM_G^MDC     R   [current_date_time]

TP Id TP label		TP/LP-PAN/MAN/PHDTW/GL/BV-042			
		Whitepaper. Glucosemeter Context Carbohydrates Object - Absolute-Time-Stamp Attribute			
Coverage Spec		[Bluetooth PHDT v1.4]			
	Testable	GL Numeric 30; M	Date-Time Conv 2; M	Date-Time Conv 3; M	
	items	Date-Time Conv 4; M	Date-Time Conv 5; M		
Test purpose		Check that:			
		Manager transcodes Bas	se Time field in conjunction with	Time Offset field of Glucose	

	Measurement characteristic into Context Carbohydrate Object - Absolute-Time-Stamp attribute			
	[AND]			
	Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format			
	[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 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> <li>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).</li> </ol>			
	2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:			
	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:			
	a. Glucose measurement (0x2A18)			
	i. Field: Flags			
	Format: 8 bit			
	<ul> <li>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</li> </ul>			
	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			
	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	
	<ul> <li>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</li> </ul>	
	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: Not relevant	
	v. Field: Carbohydrate - units of kilograms	
	Format: SFLOAT	
	Value: Not relevant	
	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	
	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	
	<ol> <li>Check in manager transcoder output for the Context carbohydrate object – Absolute- Time-Stamp attribute.</li> </ol>	
Pass/Fail criteria	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.	
Notes	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Absolute-Time-Stamp attribute is present:	
	Object: Context carbohydrates object	

	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
	<ul> <li>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)</li> </ul>
	Attribute-value:
	• 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
	D-01 message includes a segment like this with Absolute-Time-Stamp attribute value neck OBX-14):
	3X ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a  0 263872^MDC_DIM_G^MDC     R   20120802125927+0000

TP ld		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 purpos	e	Check that:			
		Manager transcodes Carbohydrate value field of Glucose Measurement Context characteristic into Context Carbohydrate Object - Basic-Nu-Observed-Value attribute			
Applicability	y	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011			
Other PICS					
Initial condi	tion	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. The measurement of interest for this test case is:			
		a. Glucose measurement context (0x2A34)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			

	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: Not relevant	
	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	
	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	
	5. Check in manager transcoder output for the Context carbohydrate object– Basic-Nu- Observed-Value attribute.	
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	In step 5, possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Basic-Nu-Observed-Value attribute is present:	
	Object: Context carbohydrates object	
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)	
	Attribute-type: SFLOAT	
	Attribute-value: 0082 (hex) or F514 (hex) or 130 (dec)	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):	
	OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a	

130 263872^MDC_DIM	_G^MDC     R   [current	date	_time]
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TP Id TP/LP-PAN/MAN/PHDTW/GL/BV-044		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 Short Float Type 2; M		
Test purpos	е	Check that:		
		Manager transcodes Carbohydrate field of Glucose Measurement Context characteristic into Context Carbohydrate Object – Basic-Nu-Observed-Value attribute		
		[AND]		
		Manager assigns the following special values: NaN (0x07FF), NRes (0x0800), +INFINITY (0x07FE) and -INFINITY (0x0802)		
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_011		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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		
		<ul> <li>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</li> </ul>		
		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: Not relevant		
		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
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
<ol> <li>Check in manager transcoder output for the Context carbohydrate object – Basic-Nu- Observed-Value attribute.</li> </ol>
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
<ul> <li>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</li> </ul>
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: Not relevant
v. Field: Carbohydrate - units of kilograms
Format: SFLOAT
Value: 07 FF (hex). Special value: NaN
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

<ul> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Medication ID</li> <li>This field is not included</li> <li>xii. Medication – units of kilograms</li> <li>This field is not included</li> <li>xiii. Medication – units of litres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>xiv. Field: FibA1c</li> <li>This field is not included</li> <li>xiv. Field: FibA1c</li> <li>This field is not included</li> <li>a. Clucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Sequence number</li> <li>i. Field: Sequence number</li> <li>i. Field: Sequence number</li> <li>i. Field: Sequence number</li> <li>i. Format: unit16</li> <li>Value: 000 0001 (MSB &gt; LSB). Carbohydrate ID and Carbohydrate is included</li> <li>ii. Field: Sequence number</li> <li>i. Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>iii. Field: Carbohydrate - units of kilograms</li> <li>iii. Field: Meal</li> <li>Value: 00 80 (hex). Special value: NRes</li> <li>iv. Field: Carbohydrate - units of kilograms</li> <li>iii. Field: Faster</li> <li>This field is not included</li> <li>ivi. Field: Exercise Duration</li> <li>This field is not included</li> <li>ivi. Field: Exercise Duration</li> <li>This field is not included</li> <li>ivi. Field: Exercise Intensity</li> <li>This field is not included</li> <li>x. Field: Kercise Intensity</li> <li>This field is not included</li> <li>x. Field: Kercise Intensity</li> <li>This fi</li></ul>	
<ul> <li>This field is not included</li> <li>xi. Field: Medication ID</li> <li>This field is not included</li> <li>xii. Medication – units of kilograms</li> <li>This field is not included</li> <li>xiii. Medication – units of litres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field at snot included</li> <li>xiv. Field: HbA1c</li> <li>This field at snot included</li> <li>xiv. Field: Flags</li> <li>6. The simulated agent sends the measurement to the manager unaccoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</li> <li>8. The simulated agent sends the measurement to the manager under test with the following value:</li> <li>a. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>i. Format: 8 bit</li> <li>Value: 0000 0001 (MSB -&gt; 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</li> <li>ii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>Format: timt8</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate ID</li> <li>Format: Unit6</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate ID</li> <li>Format: Unit6</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>Format: Unit6</li> <li>Value: 00 80 (hex). Special value: NRes</li> <li>vi. Field: Meal</li> <li>This field is not included</li> <li>viii. Field: Exercise Duration</li> <li>This field is not included</li> <li>viii. Field: Exercise Duration</li> <li>This field is not included</li> <li>viii. Field: Exercise Intensity</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is n</li></ul>	This field is not included
<ul> <li>xi. Field: Medication ID <ul> <li>This field is not included</li> <li>xii. Medication – units of Nilograms</li> <li>This field is not included</li> <li>xiii. Medication – units of Nilres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> </ul> </li> <li>7. Observed-Value attribute</li> <li>8. The simulated agent sends the measurement to the manager under test with the following value: <ul> <li>a. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Source number</li> <li>i. Field: Source number</li> <li>i. Field: Source number</li> <li>i. Field: Source number</li> <li>i. Field: Not relevant</li> <li>iii. Field: Not included</li> <li>iv. Field: Carbohydrate ID</li> <li>i. Field: Source number</li> <li>i. Field: Carbohydrate ID</li> <li>i. Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>i. Field: Carbohydrate ID</li> <li>i. Field: Standed Flags</li> <li>i. Field: Source number</li> <li>i. Field: Source number</li> <li>i. Field: Source number</li> <li>i. Field: Carbohydrate ID</li> <li>i. Field: Standard Flags</li> <li>i. Field: Standard Flags</li> <li>i. Field: Standard Flags</li> <li>i. Field: Standard Flags</li> <li>i. Field: Carbohydrate - units of kilograms</li> <li>i. Field: Standard Flags</li> <li>i. This field is not included</li> <li>vii. Field: Exercise Duration</li> <li>i. This field is not included</li> <li>viii. Field: Exercise Duration</li> <li>i. This field is not included</li> <li>ii. Field: Exercise Duration</li> <li>i. This field is not included</li> <li>ii. Field: Exercise Int</li></ul></li></ul>	x. Field: Exercise Intensity
<ul> <li>This field is not included</li> <li>xii. Medication – units of kilograms</li> <li>This field is not included</li> <li>xiii. Medication – units of litres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> </ul> 7. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute. 8. The simulated agent sends the measurement to the manager under test with the following value: <ul> <li>a. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>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> <li>ii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate ID</li> <li>Format: unit8</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate ID</li> <li>Format: Unit8</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>Format: SFLOAT</li> <li>Value: 008 (hex). Special value: NRes</li> <li>vi. Field: Meal</li> <li>This field is not included</li> <li>vii. Field: Exter in this of kilograms</li> <li>Field: Meal</li> <li>This field is not included</li> <li>vii. Field: Exterise Intensity</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Medication ID</li> </ul></li></ul>	This field is not included
<ul> <li>xii. Medication – units of kilograms</li> <li>This field is not included</li> <li>xiii. Medication – units of litres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>i. Field: HbA1c</li> <li>This field is not included</li> <li>7. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</li> <li>8. The simulated agent sends the measurement to the manager under test with the following value:</li> <li>a. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>ii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>Format: unit8</li> <li>Value: Not relevant</li> <li>v. Field: Carbohydrate ID</li> <li>Format: Unit8</li> <li>Value: 008 (hex). Special value: NRes</li> <li>vi. Field: Meal</li> <li>This field is not included</li> <li>vii. Field: Meal</li> <li>This field is not included</li> <li>viii. Field: Health</li> <li>This field is not included</li> <li>viii. Field: Exercise Intensity</li> <li>This field is not included</li> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Medication ID</li> </ul>	xi. Field: Medication ID
<ul> <li>This field is not included</li> <li>xiii. Medication - units of litres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>7. Check in manager transcoder output for the Context carbohydrate object - Basic-Nu-Observed-Value attribute.</li> <li>8. The simulated agent sends the measurement to the manager under test with the following value:</li> <li>a. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags <ul> <li>Format: 8 bit</li> <li>Value: 0000 0001 (MSB -&gt; 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</li> <li>ii. Field: Sequence number</li> <li>Format: unt16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>Format: unt8</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Field: Carbohydrate ID</li> <li>Format: unt8</li> <li>Value: 008 (hex). Special value: NRes</li> <li>vi. Field: Meal</li> <li>This field is not included</li> <li>vi. Field: Tester</li> <li>This field is not included</li> <li>vi. Field: Tester</li> <li>This field is not included</li> <li>vii. Field: Exercise Duration</li> <li>This field is not included</li> <li>xii. Field: Exercise Duration</li> <li>This field is not included</li> <li>xii. Field: Exercise Duration</li> <li>This field is not included</li> <li>xii. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xii. Field: Medication ID</li> </ul> </li> </ul>	This field is not included
<ul> <li>xiii. Medication – units of litres <ul> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> </ul> </li> <li>2. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</li> <li>8. The simulated agent sends the measurement to the manager under test with the following value: <ul> <li>a. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>ii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>Format: unit8</li> <li>Value: 00 80 (hex). Special value: NRes</li> <li>vi. Field: Tester</li> <li>This field is not included</li> <li>viii. Field: Exercise Duration</li> <li>This field is not included</li> <li>ix. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Mealication ID</li> </ul> </li> </ul>	xii. Medication – units of kilograms
<ul> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>7. Check in manager transcoder output for the Context carbohydrate object – Basic-Nu-Observed-Value attribute.</li> <li>8. The simulated agent sends the measurement to the manager under test with the following value:</li> <li>a. Glucose measurement context (0x2A34) <ol> <li>Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>Field: Sequence number</li> <li>Format: unt16</li> <li>Value: Not relevant</li> <li>Field: Extended Flags</li> <li>This field is not included</li> <li>Format: unt8</li> <li>Value: Not relevant</li> <li>Format: Unt8</li> <li>Value: 00 00 (hex). Special value: NRes</li> <li>Vi. Field: Tester</li> <li>This field is not included</li> <li>Vialue: O0 00 (hex). Special value: NRes</li> <li>Vi. Field: Tester</li> <li>This field is not included</li> <li>Vii. Field: Tester</li> <li>This field is not included</li> <li>Vii. Field: Tester</li> <li>This field is not included</li> <li>Field: Exercise Duration</li> <li>This field is not included</li> <li>Field: Tester</li> <li>This field is not included</li> <li>Field: Exercise Duration</li> <li>This field is not included</li> <li>Xii. Field: Exercise Duration</li> <li>This field is not included</li> <li>Xii. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xii. Field: Mealtaic Exercise Intensity</li> <li>This field is not included</li> <li>xii. Field: Mealtaic Exercise Intensity</li> <li>This field is not included</li> <li>xii. Field: Mealtaic Exercise Intensity</li> <li>This field is not included</li> <li>xii. Field: Medication ID</li> </ol> </li> </ul>	This field is not included
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<ul> <li>x. Field: Exercise Intensity</li> <li>This field is not included</li> <li>xi. Field: Medication ID</li> </ul>	ix. Field: Exercise Duration
This field is not included     xi. Field: Medication ID	This field is not included
xi. Field: Medication ID	x. Field: Exercise Intensity
	This field is not included
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
9	. Check in mar Observed-Va	nager transcoder output for the Context carbohydrate object – Basic-Nu- lue attribute.
1	0. The simulated following value	d agent sends the measurement to the manager under test with the ie:
	a. 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: Not relevant
	٧.	Field: Carbohydrate - units of kilograms
	•	Format: SFLOAT
	•	Value: 07 FE (hex). Special value: +INFINITY
	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
	Х.	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
<b>_</b>		

	This field is not included
	<ol> <li>Check in manager transcoder output for the Context carbohydrate object – Basic-Nu- Observed-Value attribute.</li> </ol>
	12. 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> <li>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</li> </ul>
	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: Not relevant
	v. Field: Carbohydrate - units of kilograms
	Format: SFLOAT
	Value: 08 02 (hex). Special value: -INFINITY
	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
	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
	<ol> <li>Check in manager transcoder output for the Context carbohydrate object – Basic-Nu- Observed-Value attribute.</li> </ol>
Pass/Fail criteria	In step 5, the Context carbohydrate object – Basic-Nu-Observed-Value attribute is present and its value is 130 g.
	In step 7, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present

	and its value is 0x07FF.
	In step 9, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0800.
	In step 11, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present and its value is 0x07FE.
	In step 13, the Context carbohydrate object – Basic -Nu-Observed-Value attribute is present and its value is 0x0802.
Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic-Nu-Observed-Value attribute is present:
	Object: Context carbohydrates object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	□ Attribute-value: 0082 (hex) or F514 (hex) or 130 (dec)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Basic-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 8417768^MDC_CTXT_GLU_CARB_BREAKFAST^MDC 1.0.0.a  130 263872^MDC_DIM_G^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
	Basic -Nu-Observed-Value attribute is present:
	Object: Context carbohydrates 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)
	b) WAN PCD-01 message
	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.
	In step 9, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic -Nu-Observed-Value attribute is present:
	Object: Context carbohydrates 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)
	b) WAN PCD-01 message
	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.
	In step 11, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Basic -Nu-Observed-Value attribute is present:
	Object: Context carbohydrates object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_BASIC (2636)
	Attribute-type: SFLOAT
	Attribute-value: 07 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 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.
In step 13, possible values in typical points of observation after transcoder output are:
a) IEEE 11073 Objects and Attributes
Basic -Nu-Observed-Value attribute is present:
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)
b) WAN PCD-01 message
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.

TP ld		TP/LP-PAN/MAN/PHDTW/G	L/BV-045	
TP label		Whitepaper. Glucosemeter C	Context Carbohydrates value	
Coverage Spec		[Bluetooth PHDT v1.4]		
-	Testable	Short Float Type 1; C	Date-Time Conv 1; M	GL Numeric 30; M
	items	GL Numeric 31; M		
Test purpos	e	Check that:		
		Manager processes correctly the Context Carbohydrate Value (kg) and Base Time fields of Glucose Measurement Context characteristic		
Applicability	1	C_MAN_BLE_000 AND C_M	MAN_BLE_007 AND C_MAN_BL	_E_011
Other PICS				
Initial condit	ion	The manager under test and	the simulated agent are in the s	standby state.
Test proced	ure	<ol> <li>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).</li> </ol>		
		2. The simulated agent impinterest for this test case	blements several BLE characteri e is:	istics. The characteristic of
		a. Glucose measurement (0x2A18)		
		b. Glucose measurement context (0x2A34)		
			initiates a discovery process (se tarts a pairing process with the s	canning state). It discovers the simulated agent (initiating state).
		requests the simulated a Access Control Point (R	een completed (connection state agent to report stored records w ACP) and the simulated agent s measurement context to the ma	riting an operation in Record sends a Glucose measurement
		a. Glucose measurem	ent (0x2A18)	
		i. Field: Flag	S	
		Format: 8	bit	
		Type and	010010 (MSB $\rightarrow$ LSB). Glucose Sample Location are included, i tion fields are not included and 0	Time Offset and Sensor Status
		ii. Field: Seq	uence number	
		Format: u	int16	
		Value: No	ot 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
<ul> <li>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</li> </ul>
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

	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
	<ol> <li>Check that the manager accepts the measurement and decodes its value properly (Context carbohydrates value, Context carbohydrates units and base time).</li> </ol>
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 ld		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 purpos	е	Check that:
		Manager does not include Device & Sensor Annunciation Enumeration Object – Handle Attribute in transcoder output
		[OR]
		If manager includes Device & Sensor Annunciation 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_012
Other PICS		
Initial condition	tion	The manager under test and the simulated agent are in the standby state.
Test proced	ure	<ol> <li>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).</li> </ol>
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
		a. Glucose measurement (0x2A18)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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: 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
	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 – Handle attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Device & Sensor annunciation enumeration object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	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 ld		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]		[Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 2; M	
Test purpose		Check that: Manager includes Device & Sensor Annunciation Enumeration Object – Type transcoder output. [AND]	attribute in

	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	
nitial condition	The manager under test and the simulated agent are in the standby state.
Test procedure	<ol> <li>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).</li> <li>The simulated agent implements several BLE characteristics. The characteristics of</li> </ol>
	interest for this test case are:
	a. Glucose measurement (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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: 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
	Format: 16bit
	Value: Not relevant
	<ol> <li>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).</li> </ol>
	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.
	<ol> <li>Check in manager transcoder output for the Device &amp; Sensor annunciation enumeration object – Type attribute.</li> </ol>

Notes	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	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> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>
	code: MDC_GLU_METER_DEV_STATUS or 29144 (dec) or 71D8 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	OBX ? NM  8417752^MDC_GLU_METER_DEV_STATUS^MDC  1.0.0.a 1^device-battery- low(0)      R   [current_date_time]

TP ld		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		Check that:		
		Manager includes Device & Sensor Annunciation Enumeration Object – Metric-Spec-Small attribute in transcoder output.		
		[AND]		
		Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).		
Applicability	y	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_012		
Other PICS				
Initial condi	tion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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 (0x2A18)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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		
	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		
	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.	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.			
is	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 Po	ossible values in typical points of observation after transcoder output are:		
a)	IEEE 11073 Objects and Attributes		
Me	etric-Spec-Small attribute is present:		
	Object: Device & Sensor annunciation enumeration 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		
b)	WAN PCD-01 message		
PC	CD-01 message does not include segments with a Metric-Spec-Small attribute value.		

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-049		
TP label Whitepaper. Glucosemeter Device & Sensor Annunciation Enumeration Object - Ab Time-Stamp Attribute			umeration Object - Absolute-	
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable	GL Enumeration 4; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		Check that:		
Measurem		0	ne field in conjunction with Time to Device & Sensor Annunciatio	

	[AND]			
	Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field			
	format to Absolute Time format			
	[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 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> <li>The simulated agent is configured with a Glucose profile (device specialization); it has measurement ready to be sent and it is in the advertising state (it is discoverable).</li> </ol>			
	2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:			
	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:			
	a. Glucose measurement (0x2A18)			
	i. Field: Flags			
	Format: 8 bit			
	<ul> <li>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</li> </ul>			
	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			
	Format: nibble			
	Value: Not relevant			
	viii. Field: Sample Location			
	Format: nibble			
	Value: Not relevant			
	ix. Field: Sensor Status Annunciation			

	Format: 16bit		
	Value: Not relevant		
	<ol> <li>Check in manager transcoder output for the Device &amp; Sensor annunciation enumeration object – Absolute-Time-Stamp attribute.</li> </ol>		
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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Absolute-Time-Stamp attribute is present:		
	Object: Device & Sensor annunciation 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:		
	• 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  8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^device-battery- low(0)     R   20120802125927+0000		

TP ld		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	overage Spec [Bluetooth PHDT v1.4]			
	Testable items	GL Enumeration 5; M		
Test purpose		Check that:		
		Manager transcodes Sensor Status Annunciation value field of Glucose Measurement characteristic into Device & Sensor Annunciation Enumeration Object - Enum-Observed- Value-Basic-Bit-Str attribute		
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		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 (0x2A18)		

	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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: 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
	Format: 16bit
	Value: Several values are checked in this test case
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 00000000000001 0x0001 (MSB $\rightarrow$ 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 000000000000010 $0x0002$ (MSB $\rightarrow$ 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 000000000000100 0x0004 (MSB $\rightarrow$ 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.

	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 0000000000000000000000000000000000
	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 000000000010000 0x0010 (MSB → LSB) = strip type is incorrect] to the manager under test.
	<ol> <li>Check in manager transcoder output for the Device &amp; Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute.</li> </ol>
	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 000000000100000 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 000000001000000 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 000000010000000 0x0080 (MSB → LSB) = ambient temperature too high for a valid test/result] to the manager under test.
	<ol> <li>Check in manager transcoder output for the Device &amp; Sensor annunciation enumeration object - Enum-Observed-Value-Basic-Bit-Str attribute.</li> </ol>
	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 000000010000000 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 000000100000000 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 000001000000000 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.
Pass/Fail criteria	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) $\rightarrow$ 0x8000.
	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) $\rightarrow$ 0x4000.

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	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) $\rightarrow$ 0x2000.
	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) $\rightarrow$ 0x1000.
	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) $\rightarrow$ 0x0800.
	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) $\rightarrow$ 0x0400.
	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) $\rightarrow$ 0x0200.
	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) $\rightarrow$ 0x0100.
	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) $\rightarrow$ 0x0080.
	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) $\rightarrow$ 0x0040.
	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) $\rightarrow$ 0x0020.
Notes	In step 5, 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: 32768 (dec) or 0x8000 (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^device-battery- low(0)     R   [current_date_time]
	In step 7, 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: 16384 (dec) or 0x4000 (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- malfunction(1)     R   [current_date_time]

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:		
	EEE 11073 Objects and Attributes		
	n-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)		
	WAN PCD-01 message		
PCD	-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str ute value. Check		
	? NM  8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^sensor-result-too- 5)     R   [current_date_time]		
	ep 19, possible values in typical points of observation after transcoder output are:		
	EEE 11073 Objects and Attributes		
Enun	n-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)		
c	Attribute-type: BITS-16		
	Attribute-value: 256 (dec) or 0x0100 (hex)		
b) \	WAN PCD-01 message		
	-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str ute value. Check		
	? NM  8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^sensor-temp-too- 7)     R   Current_date_time]		
In ste	ep 21, possible values in typical points of observation after transcoder output are:		
a) I	EEE 11073 Objects and Attributes		
Enun	n-Observed-Value-Basic-Bit-Str attribute is present:		
C	Object: Device & Sensor annunciation enumeration object		
C	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR (2662)		
C	Attribute-type: BITS-16		
	Attribute-value: 128 (dec) or 0x0080 (hex)		
b) V	WAN PCD-01 message		
	-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str ute value. Check		
	? NM  8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^sensor-temp-too- )     R   [current_date_time]		
In ste	ep 23, possible values in typical points of observation after transcoder output are:		
a) I	EEE 11073 Objects and Attributes		
Enun	n-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) \	NAN PCD-01 message		
	-01 message includes a segment like this with an Enum-Observed-Value-Basic-Bit-Str ute value. Check		

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	OBX ? NM  8417752^MDC_GLU_METER_DEV_STATUS^MDC 1.0.0.a 1^sensor-read- interrupt(9)    R   [current_date_time]		
	In step 25, 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: 32 (dec) or 0x0020 (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^device-gen- fault(10)     R   [current_date_time]		

TP ld		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         Check that:           Manager processes correctly the Device & Sensor Annunciation Value and Base of Glucose Measurement characteristic		ation Value and Base Time fields		
Applicability		C_MAN_BLE_000 AND C_	MAN_BLE_007 AND C_MAN_E	BLE_012
Other PICS				
Initial condit	ion	The manager under test an	d the simulated agent are in the	standby state.
Test procedure		<ol> <li>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).</li> <li>The simulated agent implements several BLE characteristics. The characteristic of</li> </ol>		
		<ul> <li>a. Glucose measurement (0x2A18)</li> </ul>		
		<ol> <li>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).</li> </ol>		
		requests the simulated	peen completed (connection stat agent to report stored records v RACP) and the simulated agent th the following value:	writing an operation in Record
		a. Glucose measurer	ment (0x2A18)	
		i. Field: Fla	gs	
		Format:	8 bit	
		Type an	0001010 (MSB → LSB). Glucos d Sample Location, and Sensor . Time Offset field is not include	Status Annunciation fields are
		ii. Field: Seque	ence number	
		Format:	uint16	
		Value: N	lot 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
Format: 16bit
<ul> <li>Value: device battery low (000000000000001 MSB → LSB)</li> </ul>
5. Check that the manager accepts the measurement and decodes its value properly (sensor status annunciation and base time).
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'.

TP ld		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; O	
Test purpos	9	Check that:	
		Manager does not include Context Meal Enumeration Object – Handle Attribute in transcoder output	
		[OR]	
		If manager includes Context Meal 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_013	
Other PICS			
Initial condit	ion	The manager under test and the simulated agent are in the standby state.	
Test procedure		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:	
		a. Glucose measurement context (0x2A34)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>Value: 0000 0010 (MSB → LSB). Meal is included and Carbohydrate ID,</li> </ul>	

	Carbohydrate, Tester-Health, Exercise Duration, 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		
	This field is not included		
	v. Field: Carbohydrate - units of kilograms		
	This field is not included		
	vi. Field: Meal		
	Format: uint8		
	Value: Not relevant		
	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. 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		
	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> <li>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.</li> </ol>		
	5. Check in manager transcoder output for the Context meal enumeration object – Handle attribute.		
Pass/Fail criteria	In step 5, the Context meal enumeration object – Handle attribute is not present; however, if is present then its value is different to 0.		
Notes	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Handle attribute is not present, or if it is present then:		
	Object: Context meal enumeration object		
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)		
	Attribute-type: INT-U16		

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/GL/BV-053		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	е	Check that:		
		Manager includes Context Meal Enumeration Object – Type attribute in transcoder output.		
		[AND]		
		Type is set to { MDC_PART_PHD_DM   MDC_CTXT_GLU_MEAL }		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_013		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test procedu	ure	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:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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 - units of kilograms		
		This field is not included		
		vi. Field: Meal		
		Format: uint8		
		Value: Not relevant		
		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		

	Γ		
	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		
	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 – Type attribute.		
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	In step 5, possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Type attribute is present:		
	Object: Context meal object		
	Attribute-id: MDC_ATTR_ID_TYPE (2351)		
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}		
	□ Attribute-value:		
	<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>		
	<ul> <li>code: MDC_CTXT_GLU_MEAL or 29256 (dec) or 7248 (hex)</li> </ul>		
	b) WAN PCD-01 message		
	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]		

TP ld		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 purpos	e	Check that:	
		Manager includes Context Meal Enumeration 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	Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_0		
Other PICS			
Initial condition The manager under test and the simulated agent are in the standby sta		The manager under test and the simulated agent are in the standby state.	

Test procedure	<ol> <li>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).</li> </ol>
	2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
	a. Glucose measurement context (0x2A34)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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 - units of kilograms
	This field is not included
	vi. Field: Meal
	Format: uint8
	Value: Not relevant
	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. 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
	<ol> <li>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).</li> </ol>
	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> <li>Check in manager transcoder output for the Context meal enumeration object – Metric- Spec-Small attribute.</li> </ol>
Pass/Fail criteria	In step 5, the Context meal 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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Context meal 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-055					
TP label		Whitepaper. Glucosemeter Context Meal Enumeration Object - Absolute-Time-Stamp Attribute			
Coverage	Spec	[Bluetooth PHDT v1.4]			
	Testable	GL Enumeration 9; M	Date-Time Conv 2; M	Date-Time Conv 3; M	
	items	Date-Time Conv 4; M	Date-Time Conv 5; M		
Test purpos	е	Check that:			
		Manager transcodes Base T Measurement characteristic attribute	ime field in conjunction with Til into Context Meal Enumeration	me Offset field of Glucose n Object - Absolute-Time-Stamp	
		[AND]			
		Manager transcodes the Blu format to Absolute Time form	etooth Base Time field in conju nat	inction with Time Offset field	
		[AND]			
		The fraction of seconds in A	bsolute Time at transcoder out	out is 0	
Applicability	Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_E		BLE_007 AND C_MAN_BLE_013		
Other PICS					
Initial condition The manager under test and the simulated agent are in the standby state.		standby state.			
Test procedure			configured with a Glucose profi be sent and it is in the advertis	ile (device specialization); it has a ing state (it is discoverable).	
		2. The simulated agent im interest for this test case	plements several BLE characte e are:	eristics. The characteristics of	
		a. Glucose measurem	nent (0x2A18)		
		b. Glucose measurem	nent context (0x2A34)		
				scanning state). It discovers the simulated agent (initiating state).	
		requests the simulated Access Control Point (R	e measurement context to the n	writing an operation in Record sends a Glucose measurement	
		a. Glucose measurem	nent (0x2A18)		
		i. Field: Flag	js		
		Format: 8	3 bit		
		Value: 00	0010011 (MSB → LSB). Glucos	se concentration in units of kg/L,	

Status Annunciation field is not included. Context information follows	 
<ul> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>Field: Base Time</li> <li>Format: Date and Time</li> <li>Value: August 2nd, 2012, 10:59:27</li> <li>Field: Time Offset</li> <li>Format: sint16</li> <li>Value: 120 minutes</li> <li>Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Struco Concentration - units of mol/L</li> <li>Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Kii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose One ensurement context (0x2A34)</li> <li>Field: Flags</li> <li>Format: 8 bit</li> <li>Value: 000 0010 (MSB -&gt; LSB). Meai is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication ID, Medication Value and HbA1c fields are not included</li> <li>ii. Field: Sequence number</li> <li>Format: wint16</li> <li>Value: Not relevant</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vi. Field: Not relevant</li> <li>This field is not included</li> <li>Vi. Field: Not relevant</li> <li>Vis field: Not relevant</li> <li>Vis field: Not included</li> <li>Vi. Field: Not relevant</li> <li>Vis field: Not relevant</li></ul>	Type and Sample Location and Time Offset fields are included. Sensor Status Annunciation field is not included. Context information follows
<ul> <li>Value: Not relevant</li> <li>Field: Base Time</li> <li>Format: Data and Time</li> <li>Value: August 2nd, 2012, 10:59:27</li> <li>iv. Field: Time Offset</li> <li>Format: sint16</li> <li>Value: 120 minutes</li> <li>V. Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>vi. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Super Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: Note</li> <li>Value: Not relevant</li> <li>viii. Field: Flags</li> <li>Format: Note</li> <li>Value: Not relevant</li> <li>viii. Field: Flags</li> <li>Format: Note</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Sequence number</li> <li>Format: Note</li> <li>Value: Not relevant</li> <li>iii. Field: Sequence number</li> <li>Format: Note</li> <li>Field: Sequence number</li> <li>Format: Note</li> <li>This field is not included</li> <li>value: Not relevant</li> <li>iii. Field: Sequence number</li> <li>Format: Note</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiiii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiii</li></ul>	ii. Field: Sequence number
<ul> <li>iii. Field: Base Time</li> <li>Format: Date and Time</li> <li>Value: August 2nd, 2012, 10:59:27</li> <li>iv. Field: Time Offset</li> <li>Format: sint16</li> <li>Value: 120 minutes</li> <li>V. Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>vi. Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Space Concentration</li> <li>Value: Not relevant</li> <li>viii. Field: Space Concentration</li> <li>Value: Not relevant</li> <li>viii. Field: Space Concentration</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>Value: Not relevant</li> <li>ii. Field: Sequence number</li> <li>Format: 1016</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viaue: Not relevant</li> <li>viaue: Not</li></ul>	Format: uint16
<ul> <li>Format: Date and Time</li> <li>Value: August 2nd, 2012, 10:59:27</li> <li>Field: Time Offset</li> <li>Format: sint16</li> <li>Value: 120 minutes</li> <li>Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Suppose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>Usue: Not relevant</li> <li>ii. Field: Flags</li> <li>Format: 8 bit</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Field: Flags</li> <li>Format: 8 bit</li> <li>Value: Not relevant</li> <li>iii. Field: Sequence number</li> <li>Format: 10, MGKS &gt; LSS). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication 10, Medication Value and HbA1c fields are not included</li> <li>iii. Field: Sequence number</li> <li>Format: wint16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vi</li></ul>	Value: Not relevant
<ul> <li>Value: August 2nd, 2012, 10:59:27</li> <li>iv. Field: Time Offset</li> <li>Format: sint16</li> <li>Value: 120 minutes</li> <li>V. Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>vi. Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 0000 0010 (MSB 2-5 LSB). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication Usine and HbA1c fields are not included</li> <li>ii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Sequence number</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>v. Field: Walle: Not relevant</li> <li>viii field: Net</li> <li>Value: Not relevant</li> <li>viii field: Net</li> </ul>	iii. Field: Base Time
iv. Field: Time Offset Format: sint16 Value: 120 minutes V. Field: Glucose Concentration - units of kg/L Format: SFLOAT Value: Not relevant V. Field: Glucose Concentration - units of mol/L This field is not included Vi. Field: Sample Location Value: Not relevant Viii. Field: Sample Location Format: nibble Value: Not relevant Viii. Field: Sample Location Format: nibble Value: Not relevant Viii. Field: Sensor Status Annunciation This field is not included b. Glucose measurement context (0x2A34) i. Field: Flags Format: 8 bit Value: 000 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 Format: wint16 Value: Not relevant iii. Field: Extended Flags This field is not included v. Field: Carbohydrate ID This field is not included vi. Field: Carbohydrate ID This field is not included vi. Field: Tester This field is not included Vi. Field: Tester This field is not included	Format: Date and Time
<ul> <li>Format: sint16</li> <li>Value: 120 minutes</li> <li>Value: SPLOAT</li> <li>Format: SPLOAT</li> <li>Value: Not relevant</li> <li>Vi. Field: Glucose Concentration - units of kg/L</li> <li>Frish field is not included</li> <li>Vi. Field: Glucose Concentration - units of mol/L.</li> <li>This field is not included</li> <li>Vi. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: abit</li> <li>Value: Not relevant</li> <li>ii. Field: Flags</li> <li>Format: 8 bit</li> <li>Value: Not relevant</li> <li>iii. Field: Sequene number</li> <li>Format: wint16</li> <li>Value: Not relevant</li> <li>iii. Field: Sequene number</li> <li>Format: wint16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii. Field: Tester</li> <li>This field is not included</li> <li>viii. Field: Tester</li> <li>This field is not included</li> </ul>	• Value: August 2nd, 2012, 10:59:27
<ul> <li>Value: 120 minutes</li> <li>Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>Vi. Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: a bit</li> <li>Value: Not relevant</li> <li>ii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 3 bit</li> <li>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</li> <li>ii. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Tester</li> <li>This field is not included</li> <li>vi. Field: Tester</li> <li>This field is not included</li> </ul>	iv. Field: Time Offset
<ul> <li>v. Field: Glucose Concentration - units of kg/L</li> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>vi. Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>Value: Not relevant</li> <li>viii. Field: Sequence number</li> <li>Field: Sequence number</li> <li>Field: Sequence number</li> <li>Field: Sequence number</li> <li>Value: Not relevant</li> <li>viii field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>value: Not relevant</li> <li>viii field: Sequence number</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viii Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>viii Field: Meal</li> <li>Value: Not relevant</li> <li>viiiii Field: Seter</li> <li>This field is not included</li> </ul>	Format: sint16
<ul> <li>Format: SFLOAT</li> <li>Value: Not relevant</li> <li>Vi. Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Sequence number</li> <li>Format: 8 bit</li> <li>Value: Not relevant</li> <li>ii. Field: Sequence number</li> <li>Field: Sequence number</li> <li>Field: Sequence number</li> <li>Field: Sequence number</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>ii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>vi. Field: Neal</li> <li>Value: Not relevant</li> <li>viit Field: Neal</li> <li>Value: Not relevant</li> </ul>	Value: 120 minutes
<ul> <li>Value: Not relevant</li> <li>Field: Glucose Concentration - units of mol/L</li> <li>This field is not included</li> <li>Vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>Value: 000 0010 (MSB → LSB). Meal is included and Carbohydrate ID, Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity, Medication Value and HbA1c fields are not included</li> <li>Field: Sequence number</li> <li>Format: wint16</li> <li>Value: Not relevant</li> <li>Field: Extended Flags</li> <li>This field is not included</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vialue: Not relevant</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Vialue: Not relevant</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> </ul>	v. Field: Glucose Concentration - units of kg/L
<ul> <li>vi. Field: Glucose Concentration - units of mol/L <ul> <li>This field is not included</li> <li>vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>ix. Field: Sensor Status Annunciation</li> <li>This field is not included</li> </ul> </li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Sequence number</li> <li>Format: nib16</li> <li>Value: Not relevant</li> <li>ii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Sequence number</li> <li>Format: unit16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Tabohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Tabohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Tabohydrate ID</li> <li>This field is not included</li> </ul>	Format: SFLOAT
<ul> <li>This field is not included</li> <li>vii. Field: Type</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>ix. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>iii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Value: Not relevant</li> <li>viii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiii. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii</li></ul>	Value: Not relevant
<ul> <li>vii. Field: Type <ul> <li>Format: hibble</li> <li>Value: Not relevant</li> </ul> </li> <li>viii. Field: Sample Location <ul> <li>Format: nibble</li> <li>Value: Not relevant</li> </ul> </li> <li>ix. Field: Sensor Status Annunciation <ul> <li>This field is not included</li> </ul> </li> <li>b. Glucose measurement context (0x2A34) <ul> <li>Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>ii. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>value: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>vi. Field: Neal</li> <li>Format: uint8</li> <li>Value: Not relevant</li> <li>vii. Field: Meal</li> <li>Value: Not relevant</li> <li>vii. Field: Meal</li> <li>Value: Not relevant</li> <li>vii. Field: Meal</li> <li>Value: Not relevant</li> </ul> </li> </ul>	vi. Field: Glucose Concentration - units of mol/L
<ul> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>viii. Field: Sample Location</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>ix. Field: Sensor Status Annunciation</li> <li>This field is not included</li> <li>b. Glucose measurement context (0x2A34)</li> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>ii. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>vi. Field: Meal</li> <li>Format: uint8</li> <li>Value: Not relevant</li> <li>vii. Field: Tester</li> <li>This field is not included</li> </ul>	This field is not included
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<ul> <li>ix. Field: Sensor Status Annunciation <ul> <li>This field is not included</li> </ul> </li> <li>b. Glucose measurement context (0x2A34) <ul> <li>i. Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>ii. Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags</li> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>vi. Field: Meal</li> <li>Format: uint8</li> <li>Value: Not relevant</li> </ul> </li> </ul>	Format: nibble
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<ul> <li>b. Glucose measurement context (0x2A34) <ol> <li>Field: Flags</li> <li>Format: 8 bit</li> <li>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</li> <li>Field: Sequence number</li> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>Field: Extended Flags</li> <li>This field is not included</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>V. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>vi. Field: Meal</li> <li>Format: uint8</li> <li>Value: Not relevant</li> </ol> </li> </ul>	ix. Field: Sensor Status Annunciation
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Carbohydrate, Tester-Health, Exercise Duration, 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 This field is not included V. Field: Carbohydrate - units of kilograms This field is not included v. Field: Meal Format: uint8 Value: Not relevant Vi. Field: Tester This field is not included	Format: 8 bit
<ul> <li>Format: uint16</li> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags <ul> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>vi. Field: Meal</li> <li>Format: uint8</li> <li>Value: Not relevant</li> <li>vii. Field: Tester</li> <li>This field is not included</li> </ul> </li> </ul>	Carbohydrate, Tester-Health, Exercise Duration, Exercise Intensity,
<ul> <li>Value: Not relevant</li> <li>iii. Field: Extended Flags <ul> <li>This field is not included</li> <li>iv. Field: Carbohydrate ID</li> <li>This field is not included</li> <li>v. Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>vi. Field: Meal</li> <li>Format: uint8</li> <li>Value: Not relevant</li> <li>vii. Field: Tester</li> <li>This field is not included</li> </ul> </li> </ul>	ii. Field: Sequence number
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<ul> <li>Format: uint8</li> <li>Value: Not relevant</li> <li>vii. Field: Tester</li> <li>This field is not included</li> </ul>	This field is not included
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<ul><li>vii. Field: Tester</li><li>This field is not included</li></ul>	Format: uint8
This field is not included	Value: Not relevant
	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. 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	
	<ol> <li>Check in manager transcoder output for the Context meal enumeration object – Absolute-Time-Stamp attribute.</li> </ol>	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Absolute-Time-Stamp attribute is present:	
	Object: Context meal 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:	
	century: 20 (hex) or 32 (dec)	
	• year: 12 (hex) or 18 (dec)	
	• month: 08 (hex) or 8 (dec)	
	• day: 02 (hex) or 2 (dec)	
	<ul> <li>hour: 12 (hex) or 18 (dec)</li> </ul>	
	• minute: 59 (hex) or 89 (dec)	
	• second: 27 (hex) or 39 (dec)	
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value:	
	OBX ? CWE 8417864^MDC_CTXT_GLU_MEAL^MDC 1.0.0.7 8417868^	
	MDC_CTXT_GLU_MEAL_PREPRANDIAL^MDC      R   20120802125927+0000	

TP ld		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	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)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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 - units of kilograms
	This field is not included
	vi. Field: Meal
	Format: uint8
	Value: Several values are checked in this test case
	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. 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
	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 [Meal field set to 0x01 = Preprandial (before meal)] to the manager under test.
	<ol> <li>Check in manager transcoder output for the Context meal enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
	<ol> <li>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.</li> </ol>
	<ol> <li>Check in manager transcoder output for the Context meal enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
	<ol> <li>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.</li> </ol>
	<ol> <li>Check in manager transcoder output for the Context meal enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
	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.
	<ol> <li>Check in manager transcoder output for the Context meal enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
	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.
	<ol> <li>Check in manager transcoder output for the Context meal enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
Pass/Fail criteria	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).
	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).
	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).
	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.).
	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).
Notes	In step 5, 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_PREPRANDIAL (29260) or 1 (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 =

8417868	3^MDC_CTXT_GLU_MEAL_PREPRANDIAL^MDC
	7, possible values in typical points of observation after transcoder output are:
	E 11073 Objects and Attributes
	bserved-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)
	N PCD-01 message
PCD-01	message includes a segment like this with an Enum-Observed-Value-Simple-OID value. Check OBX-2 = CWE AND OBX-5 =
	2^MDC_CTXT_GLU_MEAL_POSTPRANDIAL^MDC
	), possible values in typical points of observation after transcoder output are:
	E 11073 Objects and Attributes
	bserved-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) WA	N PCD-01 message
PCD-01	message includes a segment like this with an Enum-Observed-Value-Simple-OID value. Check OBX-2 = CWE AND OBX-5 =
8417876	3^MDC_CTXT_GLU_MEAL_FASTING^MDC
In step 1	1, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Enum-C	bserved-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) WA	N PCD-01 message
	message includes a segment like this with an Enum-Observed-Value-Simple-OID value. Check OBX-2 = CWE AND OBX-5 =
8417880	D^MDC_CTXT_GLU_MEAL_CASUAL^MDC
In step 1	3, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Enum-C	bserved-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) WA	N PCD-01 message
	message includes a segment like this with an Enum-Observed-Value-Simple-OID value. Check OBX-2 = CWE AND OBX-5 =
8417908	3^MDC_CTXT_GLU_MEAL_BEDTIME^MDC

TP ld		TP/LP-PAN/M	AN/PHDTW/GL/	BV-057			
TP label		Whitepaper. Glucosemeter Context Meal Enumeration Object value					
Coverage	Coverage Spec		[Bluetooth PHDT v1.4]				
	Testable items	GL Enumeratio	on 9; M	GL Enumeration 10; M	Date-Time Conv 1; M		
Test purpos	e	Check that:					
				ne Context Meal Value and B asurement Context characte			
Applicability	y	C_MAN_BLE_000 AND C_MAN_BLE_007 AND C_MAN_BLE_013					
Other PICS							
Initial condi	tion	The manager under test and the simulated agent are in the standby state.					
Test proced	lure			nfigured with a Glucose profil and it is in the advertising st	e (device specialization); it has a ate (it is discoverable).		
		<ol> <li>The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:</li> </ol>					
		a. Gluco	se measuremer	it (0x2A18)			
		b. Gluco	se measuremer	t context (0x2A34)			
					scanning state). It discovers 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:					
		a. Glucose measurement (0x2A18)					
		i. Field: Flags					
			• Format: 8 bi	t			
			Type and Sa	ample Location fields are incl	e concentration in units of kg/L, luded, Time Offset fields and included and Context Information		
		ii.	Field: Sequence	e number			
			• Format: uint	16			
			• Value: Not r	elevant			
		iii.	Field: Base Tim	e			
			• Format: Dat	e and Time			
			• Value: Augu	ıst 2nd, 2012, 11:08:25			
		iv.	Field: Time Offs	set			
			• This field is	not included			
		٧.	Field: Glucose	Concentration - units of kg/L			
			Format: SFL	LOAT			
			• Value: Not r	elevant			
		vi.	Field: Glucose	Concentration - units of mol/L	-		
			• This field is	not included			
		vii.	Field: Type				
			Format: nibl	ble			
			• Value: Not r	elevant			
		viii.	Field: Sample L	ocation			

	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
	<ul> <li>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 no included</li> </ul>
	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
	Format: uint8
	Value: preprandial – before meal (1)
	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
	This field is not included
	5. Check that the manager accepts the measurement and decodes its value properly (Meal value and base time).
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'.

TP ld		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 purpos	е	Check that:			
		Manager does not include Context Sample Location Enumeration Object – Handle Attribute in transcoder output			
		[OR]			
		If manager includes Context Sample Location Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0			
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014			
Other PICS					
Initial condit	ion	The manager under test and the simulated agent are in the standby state.			
Test proced	ure	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:			
		a. Glucose measurement (0x2A18)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			
		ii. Field: Sequence number			
		Format: uint16			
		Value: Not relevant			
		iii. Field: Base Time			
		Format: Date and Time			
		Value: Not relevant			
		iv. Field: Time Offset			
		Value: Not relevant			
		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			

	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.
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object – Handle attribute.</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: Context Sample Location Enumeration object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	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 ld		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 purpos	е	Check that:			
		Manager includes Context Sample Location Enumeration Object – Type attribute in transcoder output.			
		[AND]			
		Type is set to { MDC_PART_PHD_DM   MDC_CTXT_GLU_SAMPLELOCATION }			
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014			
Other PICS					
Initial condit	ion	The manager under test and the simulated agent are in the standby state.			
Test procede	ure	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:			
		a. Glucose measurement (0x2A18)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>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</li> </ul>			
		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: 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
	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.
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object – Type attribute.</li> </ol>
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	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Context Sample Location Enumeration object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	□ Attribute-value:
	<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>
	<ul> <li>code: MDC_CTXT_GLU_SAMPLELOCATION or 29236 (dec) or 7234 (hex)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
	OBX ? ? 8417844^MDC_CTXT_GLU_SAMPLELOCATION^MDC 1.0.0.a [value]  263872^MDC_DIM_G^MDC     R   [current_date_time]

TP ld		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	Check that:
	Manager includes Context Sample Location Enumeration 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_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	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 (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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: 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
	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.
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration</li> </ol>

	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	<ul><li>Possible values in typical points of observation after transcoder output are:</li><li>a) IEEE 11073 Objects and Attributes</li><li>Metric-Spec-Small attribute is present:</li></ul>		
	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		
	b) WAN PCD-01 message		
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.		

TP ld		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	GL Enumeration 14; M	Date-Time Conv 2; M	Date-Time Conv 3; M	
	items	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 Measurement characteristic into Context Sample Location Enumeration Object - Absolute- Time-Stamp attribute			
		[AND]			
		Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format			
		[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 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> <li>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).</li> </ol>			
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:			
		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:			
		a. Glucose measurement (0x2A18)			
		i. Field: Flags			
		Format: 8 bit			

	<ul> <li>Value: 00000011 (MSB → LSB). Glucose concentration in units of kg/L, Type and Sample Location, Time Offset fields are included. Sensor State Annunciation field is not included. Context information does not follow</li> </ul>			
	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			
	Format: nibble			
	Value: Not relevant			
	viii. Field: Sample Location			
	Format: nibble			
	Value: Not relevant			
	ix. Field: Sensor Status Annunciation			
	This field is not included			
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object – Absolute-Time-Stamp attribute.</li> </ol>			
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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Absolute-Time-Stamp attribute is present:			
	Object: Context Sample Location 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:			
	century: 20 (hex) or 32 (dec)			
	<ul> <li>year: 12 (hex) or 18 (dec)</li> </ul>			
	<ul> <li>month: 08 (hex) or 8 (dec)</li> </ul>			
	• day: 02 (hex) or 2 (dec)			
	<ul> <li>hour: 12 (hex) or 18 (dec)</li> </ul>			
	<ul> <li>minute: 59 (hex) or 89 (dec)</li> </ul>			
	<ul> <li>second: 27 (hex) or 39 (dec)</li> </ul>			

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 ? ? 8417844^MDC_CTXT_GLU_SAMPLELOCATION^MDC  1.0.0.a  130 263872^MDC_DIM_G^MDC    R   20120802 125927+0000

TP ld		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 purpos	e	Check that:		
		Manager transcodes Context Sample Location value field of Glucose Measurement Context characteristic into Context Sample Location Enumeration Object - Enum-Observed-Value-Simple-OID attribute		
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_014		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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 (0x2A18)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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: 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
	<ul> <li>Value: Several values are checked in this test case</li> </ul>
	ix. Field: Sensor Status Annunciation
	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 [Sample Location ID field set to 0x01 = Finger] to the manager under test.
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute.</li> </ol>
	<ol> <li>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.</li> </ol>
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute.</li> </ol>
	<ol> <li>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.</li> </ol>
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute.</li> </ol>
	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.
	<ol> <li>Check in manager transcoder output for the Context Sample Location Enumeration object - Enum-Observed-Value-Simple-OID attribute.</li> </ol>
Pass/Fail criteria	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).
	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).
	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).
	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).
Notes	In step 5, 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 Sample Location Enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_SAMPLELOCATION_FINGER (29240) or 1 (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-3 = 8417848^MDC_CTXT_GLU_SAMPLELOCATION _ FINGER ^MDC
	In step 7, possible values in typical points of observation after transcoder output are:

r	
	a) IEEE 11073 Objects and Attributes
	Enum-Observed-Value-Simple-OID attribute is present:
	Object: Context Sample Location Enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_ SAMPLELOCATION _AST (29244) 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-3 = 8417852^MDC_CTXT_GLU_SAMPLELOCATION_AST^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 Sample Location Enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_ SAMPLELOCATION _EARLOBE (29248) 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-3 =
	8417856^MDC_CTXT_GLU_SAMPLELOCATION_EARLOBE^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 Sample Location Enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_ SAMPLELOCATION _CTRLSOLUTION(29252) 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-3 =
	8417860^MDC_CTXT_GLU_SAMPLELOCATION_CTLSOLUTION^MDC

TP ld		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		ue and Base Time fields of
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.		

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 (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:
	a. Glucose measurement (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	ii. Field: Sequence number
	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
	<ul> <li>Value: finger (0001 MSB → LSB)</li> </ul>
	ix. Field: Sensor Status Annunciation
	This field is not included
	5. Check that the manager accepts the measurement and decodes its value properly (sample location and base time).
Pass/Fail criteria	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'.
Notes	

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-064	
TP label		Whitepaper. Glucosemeter Context Tester Enumeration Object - Handle Attribute	
Coverage	Spec	[Bluetooth PHDT v1.4]	
Ū	Testable items	GL Enumeration 16; O	
Test purpos	e	Check that:	
		Manager does not include Context Tester Enumeration Object – Handle Attribute in transcoder output	
		[OR]	
		If manager includes Context Tester Enumeration Object – Handle attribute in transcoder output, then its value shall be different than 0	
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE_015	
Other PICS			
Initial condit	ion	The manager under test and the simulated agent are in the standby state.	
Test proced	ure	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:	
		a. Glucose measurement context (0x2A34)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>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</li> </ul>	
		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 - units of kilograms	
		This field is not included	
		vi. Field: Meal	
		This field is not included	
		vii. Field: Tester	
		Format: nibble	
		Value: Not relevant	
		viii. Field: Health	
		Format: nibble	
		Value: Not relevant	
		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	
	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 tester enumeration object – Handle attribute.	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Handle attribute is not present, or if it is present then:	
	Object: Context tester enumeration object	
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)	
	Attribute-type: INT-U16	
	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 ld		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 purpos	e	Check that:		
Manager includes Context Tester Enumeration Object – Type attribute in transcoder [AND] Type is set to { MDC_PART_PHD_DM   MDC_CTXT_GLU_TESTER }		·		
Applicability	,	C_MAN_BLE_000 AND C_MAN		
Other PICS				
Initial condition The manager under test and the simulated agent are in the standby state		ndby state.		
Test procedure		<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
		• Value: 0000	0100 (MSB → LSB). Tester-Hea	alth is included and Meal,

	Corpobudroto ID. Corpobudroto, Everaine Duration, Everaine Interaction
	Carbohydrate ID, Carbohydrate, Exercise Duration, 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
	This field is not included
	v. Field: Carbohydrate - units of kilograms
	This field is not included
	vi. Field: Meal
	This field is not included
	vii. Field: Tester
	Format: nibble
	Value: Not relevant
	viii. Field: Health
	Format: nibble
	Value: Not relevant
	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
	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> <li>Check in manager transcoder output for the Context tester enumeration object – Type attribute.</li> </ol>
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	In step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	<ul> <li>Object: Context Tester object</li> </ul>
	Attribute-id: MDC_ATTR_ID_TYPE (2351)

<ul> <li>Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}</li> <li>Attribute-value:</li> </ul>
<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>
<ul> <li>code: MDC_CTXT_GLU_TESTER or 29276 (dec) or 72 5C (hex)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):
OBX ? CWE 8417884^MDC_CTXT_GLU_TESTER^MDC 1.0.0.7  8417888^
MDC_CTXT_GLU_TESTER_SELF^MDC      R   [current_date_time]

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-066
TP label		Whitepaper. Glucosemeter Context Tester Enumeration Object - Metric-Spec-Small Attribute
Coverage	Coverage Spec [Bluetooth PHDT v1.4]	
	Testable items	GL Enumeration 18; M
Test purpose	9	Check that:
		Manager includes Context Tester Enumeration 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_007 AND C_MAN_BLE_015
Other PICS		
Initial condit	ion	The manager under test and the simulated agent are in the standby state.
Test procedu	ıre	<ol> <li>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).</li> </ol>
		2. The simulated agent implements several BLE characteristics. The characteristic of interest for this test case is:
		a. Glucose measurement context (0x2A34)
		i. Field: Flags
		Format: 8 bit
		<ul> <li>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</li> </ul>
		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 - units of kilograms
		This field is not included
		vi. Field: Meal
		This field is not included
		vii. Field: Tester
		Format: nibble

	Value: Not relevant
	viii. Field: Health
	Format: nibble
	Value: Not relevant
	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
	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 tester enumeration object – Metric- Spec-Small attribute.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Context tester 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
	b) WAN PCD-01 message
	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.

TP ld		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	GL Enumeration 19; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		Check that:		
n		Manager transcodes Base	Time field in conjunction with Tir	me Offset field of Glucose

	Measurement characteristic into Context Tester Enumeration Object - Absolute-Time-Stamp attribute
	[AND]
	Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format
	[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 AND C_MAN_BLE_015
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 characteristics of interest for this test case are:
	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:
	a. Glucose measurement (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	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
	<ul> <li>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</li> </ul>
	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 - units of kilograms
	This field is not included
	vi. Field: Meal
	This field is not included
	vii. Field: Tester
	Format: nibble
	Value: Not relevant
	viii. Field: Health
	Format: nibble
	Value: Not relevant
	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
	<ol> <li>Check in manager transcoder output for the Context tester enumeration object – Absolute-Time-Stamp attribute.</li> </ol>
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

Absolu	te-Time-Stamp attribute is present:
	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:
•	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) W	AN PCD-01 message
PCD-0	1 message includes a segment like this with Absolute-Time-Stamp attribute value:
OBX ?	CWE 8417884^MDC_CTXT_GLU_TESTER^MDC 1.0.0.7  8417888^
MDC_0	CTXT_GLU_TESTER_SELF^MDC      R   20120802125927+0000

TP ld		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 purpos	е	Check that:		
		Manager transcodes Context Tester value field of Glucose Measurement Context characteristic into Context Tester 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_015		
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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 - units of kilograms
	This field is not included
	vi. Field: Meal
	This field is not included
	vii. Field: Tester
	Format: nibble
	<ul> <li>Value: Several values are checked in this test case</li> </ul>
	viii. Field: Health
	Format: nibble
	Value: Not relevant
	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
	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 [Tester field set to 0x01 = Self] to the manager under test.
	<ol> <li>Check in manager transcoder output for the Context tester enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
	<ol> <li>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.</li> </ol>
	<ol> <li>Check in manager transcoder output for the Context tester enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
	<ol> <li>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.</li> </ol>
	<ol> <li>Check in manager transcoder output for the Context tester enumeration object - Enum- Observed-Value-Simple-OID attribute.</li> </ol>
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).

	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).
	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).
Notes	In step 5, 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 tester enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_TESTER_SELF (29280) or 1 (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 = 8417888^MDC_CTXT_GLU_TESTER_SELF^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 tester enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_TESTER _HCP (29284) 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 =
	8417892^MDC_CTXT_GLU_TESTER _HCP^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 tester enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_TESTER_LAB (29288) 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 =
	8417896^MDC_CTXT_GLU_TESTER _LAB^MDC

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-069		
TP label Whitepaper. Glucosemeter Context Tester Enumeration		Context Tester Enumeration Ob	ject 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 correct	ly 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	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 (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:		
	a. Glucose measurement (0x2A18)		
	i. Field: Flags		
	Format: 8 bit		
	<ul> <li>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</li> </ul>		
	ii. Field: Sequence number		
	Format: uint16		
	Value: Not relevant		
	iii. Field: Base Time		
	ii. 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
	<ul> <li>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</li> </ul>
	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
	Format: nibble
	<ul> <li>Value: self (0001 MSB → LSB)</li> </ul>
	viii. Field: Health
	Format: nibble
	Value: Not relevant
	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
	This field is not included
	5. Check that the manager accepts the measurement and decodes its value properly (Tester value and base time).
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'.

TP Id TP/LP-PAN/MAN/PHDTW/GL/BV-070				
TP label Whitepaper. Glucosemeter Context Health Enumeration Object - Handle Attrik		ject - 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	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:
	a. Glucose measurement context (0x2A34)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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 - units of kilograms
	This field is not included
	vi. Field: Meal
	This field is not included
	vii. Field: Tester
	Format: nibble
	Value: Not relevant
	viii. Field: Health
	Format: nibble
	Value: Not relevant
	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

	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> <li>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.</li> </ol>	
	5. Check in manager transcoder output for the Context health enumeration object – Handle attribute.	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Handle attribute is not present, or if it is present then:	
	Object: Context health enumeration object	
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)	
	Attribute-type: INT-U16	
	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 ld	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 purpos	e	Check that:		
		Manager includes Context Tester Enumeration Object – Type attribute in transcoder output.		
		[AND]		
		Type is set to { MDC_PART_PHD_DM   MDC_CTXT_GLU_HEALTH }		
Applicability	Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_007 AND C_MAN_BLE			
Other PICS				
Initial condit	ion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	<ol> <li>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).</li> </ol>		
		2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:		
		a. Glucose measurement context (0x2A34)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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 - units of kilograms	
	This field is not included	
	vi. Field: Meal	
	This field is not included	
	vii. Field: Tester	
	Format: nibble	
	Value: Not relevant	
	viii. Field: Health	
	Format: nibble	
	Value: Not relevant	
	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	
	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 health enumeration object – Type attribute.	
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	In step 5, possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Type attribute is present:	
	Object: Context Health object	
	Attribute-id: MDC_ATTR_ID_TYPE (2351)	
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}	
	□ Attribute-value:	
	<ul> <li>partition: MDC_PART_PHD_DM or 128 (dec) or 00 80 (hex)</li> </ul>	
	code: MDC_CTXT_GLU_HEALTH or 29212 (dec) or 72 1C (hex)	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this with a Type attribute value (check OBX-3):	
	OBX ? CWE  8417820 ^MDC_CTXT_GLU_HEALTH^MDC 1.0.0.7  8417824 ^	

MDC_CTXT_GLU_HEALTH_MINOR
^MDC      R   [current_date_time]

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	9	Check that:	
		Manager includes Context Health Enumeration 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_007 AND C_MAN_BLE_016	
Other PICS			
Initial condit	ion	The manager under test and the simulated agent are in the standby state.	
Test procedu	ure	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)	
		i. Field: Flags	
		Format: 8 bit	
		<ul> <li>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</li> </ul>	
		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 - units of kilograms	
		This field is not included	
		vi. Field: Meal	
		This field is not included	
		vii. Field: Tester	
		Format: nibble	
		Value: Not relevant	
		viii. Field: Health	
		Format: nibble	
		Value: Not relevant	
		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
3	<ol><li>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).</li></ol>
4	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.
Ę	<ol> <li>Check in manager transcoder output for the Context health enumeration object – Metric- Spec-Small attribute.</li> </ol>
i	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	Possible values in typical points of observation after transcoder output are:
á	a) IEEE 11073 Objects and Attributes
n	Metric-Spec-Small attribute is present:
	Object: Context health 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
t	b) WAN PCD-01 message
-	PCD-01 message does not include segments with a Metric-Spec-Small attribute value.

TP ld		TP/LP-PAN/MAN/PHDTW/GL/BV-073		
TP label	Whitepaper. Glucosemeter Context Health Enumeration Object - Absolute-Time-Stamp Attribute		Absolute-Time-Stamp	
Coverage	Spec	[Bluetooth PHDT v1.4]		
	Testable	GL Enumeration 24; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpo	se	Check that:		
		Manager transcodes Base Time field in conjunction with Time Offset field of Glucose Measurement characteristic into Context Health Enumeration Object - Absolute-Time-Stamp attribute		
		[AND]		
		Manager transcodes the Bluetooth Base Time field in conjunction with Time Offset field format to Absolute Time format		
		[AND]		
		The fraction of seconds in Abso	ute Time at transcoder output is 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> <li>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).</li> </ol>
	2. The simulated agent implements several BLE characteristics. The characteristics of interest for this test case are:
	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:
	a. Glucose measurement (0x2A18)
	i. Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
	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
	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 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: <ul> <li>a) IEEE 11073 Objects and Attributes</li> <li>Absolute-Time-Stamp attribute is present:                 <ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul> </li> </ul>		
Particle       Format: unit16         Value: Not relevant       Field: Extended Flags         • This field is not included       Field: Carbohydrate ID         • This field is not included       Field: Carbohydrate - units of kilograms         • This field is not included       Field: Carbohydrate - units of kilograms         • This field is not included       Field: Carbohydrate - units of kilograms         • This field is not included       Field: Tester         • Format: nibble       Format: nibble         • Value: Not relevant       Field: Exercise Duration         • This field is not included       Field: Exercise Duration         • This field is not included       Field: Exercise Intensity         • This field is not included       Field: Exercise Intensity         • This field is not included       Field: Medication ID         • This field is not included       Field: Medication ID         • This field is not included       Field: HaAtc         • This field is not included       Field: Habta         • This field is not included       Field: Habta <th></th> <th>Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity,</th>		Carbohydrate ID, Carbohydrate, Exercise Duration, Exercise Intensity,
• Value: Not relevant         iii.       Field: Extended Flags         • This field is not included         iv.       Field: Carbohydrate ID         • This field is not included         v.       Field: Carbohydrate - units of kilograms         • This field is not included         vi.       Field: Meal         • This field is not included         vii.       Field: Tester         • Format: nibble         • Value: Not relevant         viii.       Field: Exercise Duration         • This field is not included         viii.       Field: Exercise Duration         • Value: Not relevant         viii.       Field: Exercise Intensity         • This field is not included         xi.       Field: Exercise Intensity         • This field is not included         xi.       Field: Bart included         xii.       Medication – units of kilograms         • This field is not included         xiii.       Medication – units of kilograms         • This field is not included         xiii.       Medication – units of kilograms         • This field is not included         xiii.       Medication – units of kilograms         • This field is not included		ii. Field: Sequence number
iii.       Field: Extended Flags <ul> <li>This field is not included</li> <li>Field: Carbohydrate ID</li> <li>This field is not included</li> <li>Field: Carbohydrate - units of kilograms</li> <li>This field is not included</li> <li>Field: Meal</li> <li>This field is not included</li> <li>Field: Meal</li> <li>This field is not included</li> <li>Field: Tester</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Field: Exercise Duration</li> <li>This field is not included</li> <li>Field: Exercise Intensity</li> <li>This field is not included</li> <li>Xii Field: Exercise Intensity</li> <li>This field is not included</li> <li>Xii Field: Exercise Intensity</li> <li>This field is not included</li> <li>Xii Medication ID</li> <li>This field is not included</li> <li>Xii Medication - units of kilograms</li> <li>This field is not included</li> <li>Xii Medication - units of kilograms</li> <li>This field is not included</li> <li>Xii Medication - units of litres</li> <li>This field is not included</li> <li>Xii Medication - units of litres</li> <li>This field is not included</li> </ul> <li>Pass/Fail criteria</li> <li>Insterge 3, the Cortex thealth 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 fractour of seconds is set to 0.</li> <li>Notes</li> <li>Possible values in typical points of observation after transcoder output</li>		Format: uint16
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iv.       Field: Carbohydrate ID <ul> <li>This field is not included</li> <li>Field: Meal</li> <li>This field is not included</li> <li>Field: Meal</li> <li>This field is not included</li> <li>Field: Tester</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viiii Field: Tester</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Field: Tester</li> <li>Format: nibble</li> <li>Value: Not relevant</li> <li>Viiii Field: Exercise Duration</li> <li>This field is not included</li> <li>X. Field: Exercise Intensity</li> <li>This field is not included</li> <li>Xii Medication ID</li> <li>This field is not included</li> <li>Xiiii Medication ID</li> <li>This field is not included</li> <li>Xiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii</li></ul>		iii. Field: Extended Flags
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		This field is not included
vi.       Field: Meal         •       This field is not included         vii.       Field: Tester         •       Format: nibble         •       Value: Not relevant         viii.       Field: Health         •       Format: nibble         •       Value: Not relevant         viii.       Field: Exercise Duration         •       This field is not included         x.       Field: Exercise Duration         •       This field is not included         xi.       Field: Kercise 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: HoA1c         •       This field is not included         xiv.       Field is not included         5.       Check in manager transcoder output for the Context health enumeration object – Absolute-Time-Stamp attribute is present, its value matches with the Time Stamp field in conjunction with the Time Stamp attribute is present, its value matches with the Time Stamp field in conjun		v. Field: Carbohydrate - units of kilograms
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vii.       Field: Tester         •       Format: nibble         •       Value: Not relevant         viii.       Field: Health         •       Format: nibble         •       Value: Not relevant         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: HoA1c         •       This field is not included         xiv.       Field: HoA1c         •       This field is not included         5.       Check in manager transcoder output for the Context health enumeration object – Absolute-Time-Stamp attribute.         Pass/Fail criteria       In step 5, the Context health enumeration object – Absolute-Time-Stamp attribute.         Pass/Fail criteria       In step 5, the Context health enumeration object – Absolute-Time-Stamp attribute.         Possible values in typical points of observation after transco		vi. Field: Meal
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viii.       Field: Health         ·       Format: nibble         ·       Value: Not relevant         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         xiv.       Field is not included         Scottext health enumeration object – A		Format: nibble
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• Value: Not relevant         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 kilograms         • This field is not included         xiii.       Medication – units of litres         • This field is not included         xiv.       Field: HbA1c         • This field is not included         xiv.       Field is not included         xiv.       Field is not included         5.       Check in manager transcoder output for 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       Possible values in typical points of observation after transcoder output are: <ul> <li>a) IEEE 11073 Objects and Attributes</li> <li>Absolute-Time-Stamp attribute is present:             <ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE (century (INT-U8), year (INT-U8), month (INT-U8), day<!--</th--><th></th><th>viii. Field: Health</th></li></ul></li></ul>		viii. Field: Health
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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 kilograms         •       This field is not included         xiii.       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 health enumeration object – Absolute-Time-Stamp attribute.         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       Possible values in typical points of observation after transcoder output are:         a)       IEEE 11073 Objects and Attributes         Absolute-Time-Stamp attribute is present:       Object: Context tester enumeration object         attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)       Attribute-id: MDC_ATTR_DABS (2448)         attribute-type: SEQUENCE (century (INT-U8), year (INT-U8), month (INT-U8), day </th <th></th> <th>ix. Field: Exercise Duration</th>		ix. Field: Exercise Duration
<ul> <li>This field is not included</li> <li>xi. Field: Medication ID         <ul> <li>This field is not included</li> <li>xii. Medication – units of kilograms</li> <li>This field is not included</li> <li>xiii. Medication – units of litres                 <ul> <li>This field is not included</li> <li>xiii. Medication – units of litres</li> <li>This field is not included</li> <li>xiv. Field: HbA1c</li> <li>This field is not included</li> <li>5. Check in manager transcoder output for the Context health enumeration object – Absolute-Time-Stamp attribute.</li> </ul> </li> </ul> </li> <li>Pass/Fail criteria         <ul> <li>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.</li> </ul> </li> <li>Notes         <ul> <li>Possible values in typical points of observation after transcoder output are:</li></ul></li></ul>		This field is not included
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xiii.       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 health enumeration object – Absolute- Time-Stamp attribute.         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       Possible values in typical points of observation after transcoder output are: <ul> <li>a) IEEE 11073 Objects and Attributes</li> <li>Absolute-Time-Stamp attribute is present:             <ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE (century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul></li></ul>		xii. Medication – units of kilograms
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xiv.       Field: HbA1c         •       This field is not included         5.       Check in manager transcoder output for the Context health enumeration object – Absolute- Time-Stamp attribute.         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       Possible values in typical points of observation after transcoder output are:         a)       IEEE 11073 Objects and Attributes         Absolute-Time-Stamp attribute is present:       Object: Context tester enumeration object         In Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)       Attribute-tid: MDC_ATTR_TIME_STAMP_ABS (2448)		xiii. Medication – units of litres
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5. Check in manager transcoder output for the Context health enumeration object – Absolute-Time-Stamp attribute.         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       Possible values in typical points of observation after transcoder output are:         a)       IEEE 11073 Objects and Attributes         Absolute-Time-Stamp attribute is present: <ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul>		xiv. Field: HbA1c
Time-Stamp attribute.         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       Possible values in typical points of observation after transcoder output are:         a)       IEEE 11073 Objects and Attributes         Absolute-Time-Stamp attribute is present: <ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul>		This field is not included
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: <ul> <li>a) IEEE 11073 Objects and Attributes</li> <li>Absolute-Time-Stamp attribute is present:                 <ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li></ul></li></ul>		
<ul> <li>a) IEEE 11073 Objects and Attributes</li> <li>Absolute-Time-Stamp attribute is present:</li> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul>	Pass/Fail criteria	value matches with the Time Stamp field in conjunction with the Time Offset field of the Glucose
<ul> <li>Absolute-Time-Stamp attribute is present:</li> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul>	Notes	Possible values in typical points of observation after transcoder output are:
<ul> <li>Object: Context tester enumeration object</li> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul>		a) IEEE 11073 Objects and Attributes
<ul> <li>Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)</li> <li>Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day</li> </ul>		Absolute-Time-Stamp attribute is present:
Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day		Object: Context tester enumeration object
		Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
(INT-06), Nour (INT-06), Minute (INT-06), Second (INT-06), Sec-fractions (INT-06)} (BCD encoding)		(INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8)}
Attribute-value:		

• 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:
OBX ? CWE  8417820^MDC_CTXT_GLU_HEALTH^MDC 1.0.0.7  8417824^MDC_CTXT_GLU_HEALTH_MINOR^MDC     R   20120802125927+0000

TP Id TP/LP-PAN/MAN/PHDTW/GL/BV-074		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 purpos	е	Check that:		
		Manager transcodes Context Health value field of Glucose Measurement Context characteristic into Context Health 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_016		
Other PICS				
Initial condition	tion	The manager under test and the simulated agent are in the standby state.		
Test proced	ure	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)		
		i. Field: Flags		
		Format: 8 bit		
		<ul> <li>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</li> </ul>		
		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 - units of kilograms		
		This field is not included		
		vi. Field: Meal		

	This field is not included
	vii. Field: Tester
	Format: nibble
	Value: Not relevant
	viii. Field: Health
	Format: nibble
	Value: Several values are checked in this test case
	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
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 [Health field set to 0x01 = Minor health issues] to the manager under test.
5.	Check in manager transcoder output for the Context HealthEnumeration 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 [Health field set to 0x02 = Major Health Issues] to the manager under test.
7.	Check in manager transcoder output for the Context HealthEnumeration 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 [Health field set to 0x03 = Menses] to the manager under test.
9.	Check in manager transcoder output for the Context HealthEnumeration 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 [Health field set to 0x04 = Under stress] to the manager under test.
11.	Check in manager transcoder output for the Context health 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 [Health field set to 0x05 = No health issues] to the manager under test.
13.	Check in manager transcoder output for the Context health enumeration object - Enum- Observed-Value-Simple-OID attribute.

Pass/Fail criteria	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).	
	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).	
	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).	
	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).	
	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).	
Notes	In step 5, 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 health enumeration object	
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)	
	Attribute-type: OID-Type(INT-U16)	
	Attribute-value: MDC_CTXT_GLU_HEALTH_MINOR (29216) or 1 (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 = 8417824^MDC_CTXT_GLU_HEALTH_MINOR^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 HealthEnumeration object	
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)	
	Attribute-type: OID-Type(INT-U16)	
	Attribute-value: MDC_CTXT_GLU_HEALTH_MAJOR (29220)	
	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 =	
	8417828^MDC_CTXT_GLU_HEALTH_MAJOR^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 HealthEnumeration object	
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)	
	Attribute-type: OID-Type(INT-U16)	
	Attribute-value: MDC_CTXT_GLU_HEALTH_MENSES(29224)	
	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 =	
	8417832^MDC_CTXT_GLU_HEALTH_MENSES^MDC	
	In step 11, possible values in typical points of observation after transcoder output are:	

a	a) IEEE 11073 Objects and Attributes
E	Enum-Observed-Value-Simple-OID attribute is present:
	Object: Context health enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_HEALTH_STRESS (29228)
k	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 =
8	8417836^MDC_CTXT_GLU_HEALTH_STRESS^MDC
1	In step 13, possible values in typical points of observation after transcoder output are:
a	a) IEEE 11073 Objects and Attributes
E	Enum-Observed-Value-Simple-OID attribute is present:
	Object: Context health enumeration object
	Attribute-id: MDC_ATTR_ENUM_OBS_VAL_SIMP_OID (2633)
	Attribute-type: OID-Type(INT-U16)
	Attribute-value: MDC_CTXT_GLU_HEALTH_NONE (29232)
t	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 =
8	8417840^MDC_CTXT_GLU_HEALTH_NONE^MDC

TP ld		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		Check that: Manager processes correctly the Context Health Value and Base Time fields of Glucose Measurement and Glucose Measurement Context characteristics				
Applicability Other PICS	/	C_MAN_BLE_000 AND C_	MAN_BLE_007 AND C_MAN_E	3LE_016		
Initial condi	tion	The manager under test and the simulated agent are in the standby state.				
Test proced	ure	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 (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).				
		Access Control Point ( followed by the Glucos	been completed (connection stat agent to report stored records v RACP) and the simulated agent se measurement context to the n st for this test case are:	writing an operation in Record sends a Glucose measurement		
		a. Glucose measurement (0x2A18)				

i.	Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
ii.	Field: Sequence number
	Format: uint16
	Value: Not relevant
iii.	Field: Base Time
iii	. Format: Date and Time
	• Value: August 2nd, 2012, 11:08:25
iv.	Field: Time Offset
	This field is not included
۷.	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. Gluco	se measurement context (0x2A34)
i.	Field: Flags
	Format: 8 bit
	<ul> <li>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</li> </ul>
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
٧.	Field: Carbohydrate
	This field is not included
vi.	Field: Meal
	This field is not included

Notes	
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'.
	5. Check that the manager accepts the measurement and decodes its value properly (Health value and base time).
	This field is not included
	xiii. Field: HbA1c
	This field is not included
	xii. Field: Medication
	This field is not included
	xi. Field: Medication ID
	This field is not included
	x. Field: Exercise Intensity
	This field is not included
	ix. Field: Exercise Duration
	<ul> <li>Value: minor health issues (0001 MSB → LSB)</li> </ul>
	Format: nibble
	viii. Field: Health
	Value: Not relevant
	Format: nibble
	vii. Field: Tester

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

TP ld		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.		
Applicabilit	у	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 an		The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol> <li>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).</li> </ol>		
		<ol> <li>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)</li> </ol>		
		<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>		
		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:		

a)	IEEE 11073 Objects and Attributes
Sys	stem-Type attribute is not present:
	Object: MDS Object
	Attribute-id: MDC_ATTR_SYS_TYPE (2438)
	Attribute-type: TYPE
	Attribute-value: <not present=""></not>
b)	WAN PCD-01 message
	CD-01 message does not include segments with System-Type attribute value 7974^MDC_ATTR_SYS_TYPE^MDC)

TP ld		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		
[AND] Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (Exter		Manager includes MDS Object – Dev-Configuration-Id 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 Condi	ition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol> <li>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).</li> <li>Manager under test initiates discovery process (Scanning state), it discovers the</li> </ol>		
		<ol> <li>Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> <li>Check in Manager transcoder output the MDS Object – Dev-Configuration-Id attribute</li> </ol>		
Pass/Fail criteria		In Step 4, the MDS Object – Dev-Configuration-Id attribute is present, its value is inside the range 0x4000 - 0x7FFF		
Notes		Possible values in typical points of observation after transcoder output are:		
		<ul> <li>a) IEEE 11073 Objects and Attributes</li> <li>Dev-Configuration-Id attribute is present: <ul> <li>Object: MDS Object</li> <li>Attribute-id: MDC_ATTR_DEV_CONFIG_ID (2628)</li> </ul> </li> </ul>		
		Attribute-type: INT-U16		

Attribute-value: Any value inside the range 16384 - 32767 (dec) or 0x4000 – 0x7FFF (hex)
b) WAN PCD-01 message
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.

TP ld		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		Check that: Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output. [AND] System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_SCALE, Version 1)		
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND (NOT C_MAN_BLE_018)		
Other PICS				
Initial condit	lion	The Manager under test ar	nd the Simulated Agent are in Stand	lby state
Test procedure		<ol> <li>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.</li> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> <li>Check in Manager transcoder output the MDS Object – System-Type-Spec-List attribute</li> </ol>		
Pass/Fail criteria		In Step 4, the MDS Object (MDC_DEV_SPEC_PROF	<ul> <li>System-Type-Spec-List attribute i ILE_SCALE, Version 1)</li> </ul>	is present, its value is
Notes		Possible values in typical p	points of observation after transcode	er output are:
		<ul> <li>Attribute-type: SE</li> <li>Attribute-value:</li> <li>type: MDC</li> </ul>	tribute is present:	rsion (INT-U16)} ]
		b) WAN PCD-01 messag	ge	

PCD-01 message includes a segment like this (check OBX-3):
OBX ?  528399^MDC_DEV_SPEC_PROFILE_SCALE^MDC  1      X      [System-Id]

TP ld		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		Check that: Manager includes MDS Object – System-Type-Spec-List attribute in transcoder output. [AND] System-Type-Spec-List is set to (MDC_DEV_SPEC_PROFILE_BCA, Version 1)		
Applicability Other PICS		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND C_MAN_BLE_018		
Initial condi	tion	The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol> <li>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</li> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> <li>Check in Manager transcoder output the MDS Object – System-Type-Spec-List attribute</li> </ol>		
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			points of observation after transcode	er output are:
		a) IEEE 11073 Objects and Attributes		
		System-Type-Spec-List attribute is present:		
		<ul> <li>Object: MDS Object</li> <li>Attribute-id: MDC_ATTR_SYS_TYPE_SPEC_LIST (2650)</li> </ul>		
		<ul> <li>Attribute-type: SEQUENCE OF [ {type (INT-U16), version (INT-U16)} ]</li> </ul>		
		Attribute-value:		
			C_DEV_SPEC_PROFILE_BCA, 411 (dec) or 00 01 (hex)	16 (dec) or 10 14 (hex)
		b) WAN PCD-01 messag	ge	
		PCD-01 message includes a segment like this (check OBX-3):		
		OBX ?  528404^MDC_DE	V_SPEC_PROFILE_BCA ^MDC 1	X     [System-Id]

TP ld		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 purpos	se	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 cond	ition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol> <li>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.</li> </ol>		
		<ol> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>		
		a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A)		
		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) i. Element:		
		auth-body-and-struc-type:		
		- auth-body: 02 (hex) auth-body-continua(2)		
		- auth-body-struc-type: 01 (hex). continua-version-struct(1)		
		<ul> <li>auth-body-data:</li> </ul>		
		- major-IG-version: 05 (hex)		
		- minor-IG-version: 01 (hex)		
		- certified-devices: 80 0F (hex) BTLE Weight Scale.		
		ii. Element:		
		<ul> <li>auth-body-and-struc-type:</li> </ul>		
		- auth-body: 02 (hex). auth-body-continua(2)		
		- auth-body-struc-type: 02 (hex). continua-reg-struct(2)		
		auth-body-data:		
		- 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		
		<ol> <li>When the pairing has been completed (Connection state), force Manager under test to read IEEE 11073-20601 Regulatory Certification Data List characteristic</li> </ol>		
		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:		

	a) IEEE 11073 Objects and Attributes	
	Reg-Cert-Data-List attribute is present:	
	Object: MDS Object	
	Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635)	
	Attribute-type: SEQUENCE OF [{auth-body-and-struc-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]	
	i. Reg-Cert-Data Element:	
	<ul> <li>auth-body-and-struc-type:</li> </ul>	
	- auth-body: 02 (hex) auth-body-continua(2)	
	- auth-body-struc-type: 01 (hex). continua-version-struct(1)	
	• auth-body-data:	
	- major-IG-version: 05 (hex)	
	- minor-IG-version: 01 (hex)	
	- certified-devices: 80 0F (hex). BTLE Weight Scale.	
	ii. Reg-Cert-Data Element:	
	<ul> <li>auth-body-and-struc-type:</li> </ul>	
	- auth-body: 02 (hex). auth-body-continua(2)	
	- auth-body-struc-type: 02 (hex). continua-reg-struct(2)	
	• auth-body-data:	
	- regulation-bit-field: 80 00 (hex). Unregulated device	
	b) WAN PCD-01 message	
	PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):	
(	OBX ? CWE 68218^MDC_REG_CERT_DATA_AUTH_BODY^MDC 1.0.0.a	
2	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	

TP ld		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]		1
	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	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).		
	<ol> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> <li>a. IEEE 11073-20601 Regulatory Certification Data List (0x2A2A)</li> </ol>		
	Format: reg-cert-data-list (opaque structure)		
	<ul> <li>Value: 00 02 00 12 02 01 00 08 05 01 00 01 00 02 80 14 02 02 00 02 80 00 (hex)</li> </ul>		
	iii. Element:		
	<ul> <li>auth-body-and-struc-type:</li> </ul>		
	- auth-body: 02 (hex) auth-body-continua(2)		
	- auth-body-struc-type: 01 (hex). continua-version-struct(1)		
	auth-body-data:		
	- major-IG-version: 05 (hex)		
	- minor-IG-version: 01 (hex)		
	- certified-devices: 80 14 (hex). BTLE Body Composition.		
	iv. Element:		
	<ul> <li>auth-body-and-struc-type:</li> </ul>		
	- auth-body: 02 (hex). auth-body-continua(2)		
	<ul> <li>auth-body-struc-type: 02 (hex). continua-reg-struct(2)</li> <li>auth-body-data:</li> <li>regulation-bit-field: 80 00 (hex). Unregulated device</li> </ul>		
	3. Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent		
	<ol> <li>When the pairing has been completed (Connection state), force Manager under test to read IEEE 11073-20601 Regulatory Certification Data List characteristic</li> </ol>		
	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         Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes		
	Reg-Cert-Data-List attribute is present:		
	Object: MDS Object		
	Attribute-id: MDC_ATTR_REG_CERT_DATA_LIST (2635)		
	□ Attribute-type: SEQUENCE OF [{auth-body-and-struc-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]		

iii. Reg-Cert-Data Element:
<ul> <li>auth-body-and-struc-type:</li> </ul>
- auth-body: 02 (hex) auth-body-continua(2)
- auth-body-struc-type: 01 (hex). continua-version-struct(1)
• auth-body-data:
- major-IG-version: 05 (hex)
- minor-IG-version: 01 (hex)
- certified-devices 80 14 (hex). BTLE Body Composition.
iv. Reg-Cert-Data Element:
auth-body-and-struc-type:
- auth-body: 02 (hex). auth-body-continua(2)
- auth-body-struc-type: 02 (hex). continua-reg-struct(2)
auth-body-data:
- regulation-bit-field: 80 00 (hex). Unregulated device
b) WAN PCD-01 message
PCD-01 message includes five segments like these with Reg-Cert-Data-List attribute value (check OBX-5 in five segments):
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

TP ld		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; O		
Test purpose		Check that:		
		Manager does not include Weight Numeric Object – Handle Attribute in transcoder output		
		[OR]		
		If Manager includes Weight 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_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		

	measurement ready to be sent and it is in Advertising state (it is discoverable).		
	<ol> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>		
	a. Weight Measurement (0x2A9D)		
	i. Field: Flags		
	Format: 8bit		
	<ul> <li>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</li> </ul>		
	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: Not relevant		
	v. Field: Height (m)		
	This field is not included		
	vi. Field: Height (in)		
	This field is not included		
	vii. Field: BMI (kg/m^2)		
	This field is not included		
	viii. Field: User ID		
	This field is not included		
	<ol> <li>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)</li> </ol>		
	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 Weight Numeric Object – Handle attribute		
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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Handle attribute is not present, or if it is present then:		
	Object: Weight Numeric Object		
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)		
	Attribute-type: INT-U16		
	Attribute-value: Any value different than 0		
	b) WAN PCD-01 message		
	PCD-01 message does not include segments with Handle attribute value		

TP label Coverage Spe Tes iten Test purpose	able Weight Numeric 2; M
Tes iten	able       Weight Numeric 2; M         s       Check that:         Manager includes Weight Numeric Object – Type attribute in transcoder output.
iten Test purpose	s Check that: Manager includes Weight Numeric Object – Type attribute in transcoder output.
	Manager includes Weight Numeric Object – Type attribute in transcoder output.
Applicability	Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_ACTUAL}
	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> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Weight Measurement (0x2A9D)</li> <li>Field: Flags</li> <li>Format: 8bit</li> <li>Value: 000 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</li> <li>Field: Weight (Kg)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>Field: Height (m)</li> <li>This field is not included</li> <li>Field: Height (m)</li> <li>This field is not included</li> <li>Field: Height (in)</li> <li>This field is not included</li> <li>Field: Height (in)</li> <li>This field is not included</li> <li>Field: Height (in)</li> <li>This field is not included</li> <li>Vii. Field: BMI (kg/m^2)</li> <li>This field is not included</li> <li>Vii. Field: User ID</li> </ul> </li> </ol>

	Simulated Agent and it starts a pairing process with the Simulated Agent (Initiating state)			
	<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>			
	5. Check in Manager transcoder output the Weight Numeric Object – Type attribute			
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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Type attribute is present:			
	Object: Weight Numeric Object			
	Attribute-id: MDC_ATTR_ID_TYPE (2351)			
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}			
	□ Attribute-value:			
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>			
	code: MDC_MASS_BODY_ACTUAL or 57664 (dec) or E1 40 (hex)			
	b) WAN PCD-01 message			
	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]			

TP ld	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 purpos	e	Check that:		
		Manager includes Weight Numeric Object – Metric-Spec-Small attribute in transcoder output.		
		[AND]		
	Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mupd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).			
Applicability	Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE			
Other PICS				
Initial condit	tion	The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol> <li>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).</li> </ol>		
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
		a. Weight Measurement (0x2A9D)		

	i. Field: Flags	
	Format: 8bit	
	<ul> <li>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</li> </ul>	
	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: Not relevant	
	v. Field: Height (m)	
	This field is not included	
	vi. Field: Height (in)	
	This field is not included	
	vii. Field: BMI (kg/m^2)	
	This field is not included	
	viii. Field: User ID	
	This field is not included	
	<ol> <li>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)</li> </ol>	
	<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>	
	5. Check in Manager transcoder output the Weight Numeric Object – Metric-Spec-Small attribute	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Metric-Spec-Small attribute is present:	
	Object: Weight 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	
	b) WAN PCD-01 message	

TP ld		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       Check that:         Manager includes Weight Numeric Object – Unit-Code attribute in transcoder output.         [AND]         IF Weight (Kg) field of Weight Measurement characteristic is present THEN Weight Nu Object – Unit-Code attribute is set to MDC_DIM_KILO_G         [AND]         IF Weight (Ib) field of Weight Measurement characteristic is present THEN Weight Nu Object – Unit-Code attribute is set to MDC_DIM_KILO_G         [AND]         IF Weight (Ib) field of Weight Measurement characteristic is present THEN Weight Nu Object – Unit-Code attribute is set to MDC_DIM_LB				
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)		
Other PICS				
Initial conditi	ion	The Manager under test and the Simulated Agent are in Standby state		
Initial condition Test procedure		<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Weight Measurement (0x2A9D)</li> </ul> </li> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:         <ul> <li>Weight Measurement (0x2A9D)</li> <li>Field: Flags                 <ul> <li>Format: 8bit</li> <li>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</li> <li>Field: Weight (Kg)                           <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>Field: Height (m)</li></li></ul></li></ul></li></ol>		

	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	This field is not included
	viii. Field: User ID
	This field is not included
	5. Check in Manager transcoder output the Weight Numeric Object – Unit-Code attribute
	6. Simulated Agent sends the Measurement to Manager under test with the following value:
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8bit
	<ul> <li>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</li> </ul>
	ii. Field: Weight (Kg)
	This field is not included
	iii. Field: Weight (lb)
	Format: UINT16
	Value: Not relevant
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	This field is not included
	viii. Field: User ID
	This field is not included
	7. Check in Manager transcoder output the Weight Numeric Object – Unit-Code attribute
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G
	In Step 7, the Weight Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Weight Numeric Object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)

5	
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_KILO_G or 1731 (dec) or 06 C3 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a XX
	263875^MDC_DIM_KILO_G^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
	Unit-Code attribute is present:
	Object: Weight 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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a XX
	263904^MDC_DIM_LB^MDC    R  [current_date_time]
L	

TP ld	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	Weight Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M	
	items	Date-Time Conv 4; M	Date-Time Conv 5; M		
Test purpo	se	Check that:			
		Manager transcodes Time Stamp field of Weight Measurement characteristic into Weight Numeric Object - Absolute-Time-Stamp attribute			
		[AND]			
		Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format			
		[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_024 AND (C_MAN_BLE_018)		LE_024 AND (C_MAN_BLE_017			
Other PICS					
Initial condition The Manager under test and the Simulated Agent are in Standby s		ndby state			
Test procedure         1. Simulated Agent is configured with a Profile (device specialization Manager under test, it has a measurement ready to be sent and i is discoverable).					

	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:	
	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	
	<ul> <li>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</li> </ul>	
	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 2 <sup>nd</sup> , 2012, 10:39:27	
	v. Field: Height (m)	
	This field is not included	
	vi. Field: Height (in)	
	This field is not included	
	vii. Field: BMI (kg/m^2)	
	This field is not included	
	viii. Field: User ID	
	This field is not included	
	5. Check in Manager transcoder output the Weight Numeric Object – Absolute-Time-Stamp attribute	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Absolute-Time-Stamp attribute is present:	
	Object: Weight 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:	
L		

• 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)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
OBX ?  188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a XX      X   20120802103927+0000

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-009			
TP label         Whitepaper. Weight Numeric Object - Simple-Nu-Observed-Value Attribute 1			alue Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.5]			
	Testable items	Weight Numeric 7; M Float 7	ype 1; C		
Test purpose		Check that:			
		Manager transcodes Weight Value fiel Numeric Object - Simple-Nu-Observed		nt characteristic into Weight	
Applicability	1	C_MAN_BLE_000 AND C_MAN_BLE_	_002 AND (C_MAN_BL	E_017 OR C_MAN_BLE_018)	
Other PICS					
Initial condit	ion	The Manager under test and the Simul	ated Agent are in Stand	by state	
Test procedure		<ol> <li>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).</li> </ol>			
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:			
		a. Weight Measurement (0x2A9D)			
		<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> </ol>			
		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			
				easurement Value in units of ght, BMI and User ID fields are	
		ii. Field: Weight (Kg)			

	Format: UINT16
	<ul> <li>Value: 16000 (80.0 kg)</li> </ul>
	iii. Field: Weight (lb)
	This field is not included
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	This field is not included
	viii. Field: User ID
	This field is not included
	5. Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed- Value attribute
	6. Simulated Agent sends the Measurement to Manager under test with the following value:
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8bit
	<ul> <li>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</li> </ul>
	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: Not relevant
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	This field is not included
	viii. Field: User ID
	This field is not included
	7. Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed- Value attribute
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 i value matches with Weight Measurement Value (lb) fields of Weight Measurement characteristic (176.0)		
Notes	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: Weight Numeric Object		
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)		
	Attribute-type: FLOAT		
	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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 80.0		
	263875^MDC_DIM_KILO_G^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		
	Simple-Nu-Observed-Value attribute is present:		
	Object: Weight Numeric Object		
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)		
	Attribute-type: FLOAT		
	Attribute-value: FC 1A DB 00 (hex) or FD 02 AF 80 (hex) or FE 00 44 C0 (hex) or FE 00 06 E0 (hex) or 00 00 00 B0 (hex) or 176 (dec)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):		
	OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 176.0		
	263904^MDC_DIM_LB^MDC     R   [current_date_time]		

TP ld	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		Check that:			
		Manager transcodes Weight Value field of Weight Measurement characteristic into Weight Numeric Object - Simple-Nu-Observed-Value attribute			
		[AND] Manager assigns the following special values: NaN (0x007FFFFF).			
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)			
Other PICS				,	
Initial condit	ion	The Manager under test a	nd the Simulated Agent are in	n Standby state	
Test procedu	ure			e specialization) supported by the o be sent and it is in Advertising state	
		2. Simulated Agent imple for this Test Case is:	ements several BTLE charac	teristics. The characteristic of interest	
		a. Weight Measurer	nent (0x2A9D)		
				anning state), it discovers the h the Simulated Agent (Initiating state	
			been completed (Connectior ager under test with the follow	n state) the Simulated Agent sends th wing value:	
		a. Weight Measurer	nent (0x2A9D)		
		i. Field: Fl	ags		
		Format:	: 8bit		
			Time Stamp fields are includ	eight Measurement Value in units of led, Height, BMI and User ID fields an	
		ii. Field: W	eight (Kg)		
		Format	UINT16		
		• Value:	16000 (80.0 kg)		
		iii. Field: W	eight (lb)		
		This fie	ld is not included		
		iv. Field: Ti	me Stamp		
		Format	Date and Time		
		Value: I	Not relevant		
		v. Field: He	eight (m)		
		This fie	ld is not included		
		vi. Field: He	eight (in)		
		This fie	ld is not included		
		vii. Field: Bl	VII (kg/m^2)		
		This fie	ld is not included		
		viii. Field: Us	ser ID		
		• This fig	ld is not included		

	<ol> <li>Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed- Value attribute</li> <li>Simulated Agent sends the Measurement to Manager under test with the following value:</li> </ol>
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8bit
	<ul> <li>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</li> </ul>
	ii. Field: Weight (Kg)
	Format: UINT16
	<ul> <li>Value: FF FF (hex). Unsuccessful measurement</li> </ul>
	iii. Field: Weight (lb)
	This field is not included
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	viii. Field: User ID
	This field is not included
	<ol> <li>Check in Manager transcoder output the Weight Numeric Object – Simple-Nu-Observed- Value attribute</li> </ol>
Pass/Fail criteria	In Step 5, the Weight Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 80.0.
	In Step 7, the Weight Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFF.
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Weight Numeric Object
	<ul> <li>Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)</li> </ul>
	Attribute-type: FLOAT
	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)
	80.0 (dec)

b) WAN PCD-01 message
PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
OBX ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 80.0
263875^MDC_DIM_KILO_G^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
Simple-Nu-Observed-Value attribute is present:
Weight 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)
b) WAN PCD-01 message
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.

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-011			
TP label		Whitepaper. Weight Numeric Object - Weight Measurement value			
Coverage Spec		[Bluetooth PHDT v1.5]			
	Testable	Float Type 1; C	Date-Time Conv 1; M	Weight Numeric 6; M	
	items	Weight Numeric 7; M			
Test purpos	e	Check that:			
		Manager processes correctly the Weight Measurement Value (Kg), Weight Measurement Value (Ib) and Time Stamp fields of Weight Measurement			
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> <li>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).</li> </ol>			
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case are:			
		a. Weight Measurement (0x2A9D)			
			t initiates discovery process (Scanr nd it starts a pairing process with th	ning state), it discovers the e 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
	<ul> <li>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</li> </ul>
	ii. Field: Weight (Kg)
	Format: UINT16
	<ul> <li>Value: 16000 (80.0 kg)</li> </ul>
	iii. Field: Weight (lb)
	This field is not included
	iv. Field: Time Stamp
	Format: Date and Time
	• Value: August 2 <sup>nd</sup> , 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/m^2)
	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
	<ul> <li>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</li> </ul>
	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 2 <sup>nd</sup> , 2012, 11:09:05
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)

	This field is not included		
	vii. Field: BMI (kg/m^2)		
	This field is not included		
	viii. Field: User ID		
	This field is not included		
	<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>		
Pass/Fail criteria	In Step 5, the manager under test shows the following measurement: 80.0 Kg, with timestamp '2012-08-02 11:08:25'		
	In Step 7, the manager under test shows the following measurement 176.0 lbs, with timestamp '2012-08-02 11:09:05'		
Notes			

TP ld		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; O			
Test purpos	е	Check that:			
		Manager does not include Height Numeric Object – Handle Attribute in transcoder output [OR]			
		If manager includes Height Numeric Object – Handle attribute in transcoder output, then its value shall be different than 0			
Applicability	1	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 condit	ion	The Manager under test and the Simulated Agent are in Standby state			
Test proced	ure	<ol> <li>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).</li> </ol>			
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:			
		a. Weight Measurement (0x2A9D)			
		i. Field: Flags			
		Format: 8bit			
		<ul> <li>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</li> </ul>			
		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: Not relevant			
	v. Field: Height (m)			
	Format: UINT16			
	Value: Not relevant			
	vi. Field: Height (in)			
	This field is not included			
	vii. Field: BMI (kg/m^2)			
	Format: UINT16			
	Value: Not relevant			
	viii. Field: User ID			
	This field is not included			
	<ol> <li>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)</li> </ol>			
	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 – Handle attribute			
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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Handle attribute is not present, or if it is present then:			
	Object: Height Numeric Object			
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)			
	Attribute-type: INT-U16			
	Attribute-value: Any value different than 0			
	b) WAN PCD-01 message			
	PCD-01 message does not include segments with Handle attribute value			

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

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> <li>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).</li> </ol>		
	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
	a. Weight Measurement (0x2A9D)		
	i. Field: Flags		
	Format: 8bit		
	<ul> <li>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</li> </ul>		
	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: Not relevant		
	v. Field: Height (m)		
	Format: UINT16		
	Value: Not relevant		
	vi. Field: Height (in)		
	This field is not included		
	vii. Field: BMI (kg/m^2)		
	Format: UINT16		
	Value: Not relevant		
	viii. Field: User ID		
	This field is not included		
	<ol> <li>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)</li> </ol>		
	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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Type attribute is present:		

Object: Height Numeric Object
Attribute-id: MDC_ATTR_ID_TYPE (2351)
Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
□ Attribute-value:
<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
<ul> <li>code: MDC_LEN_BODY_ACTUAL or 57668 (dec) or E1 44 (hex)</li> </ul>
b) WAN PCD-01 message
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]

TP ld		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 purpos	e	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 AND C_MAN_BLE 019	E_18)	
Other PICS				
Initial condit	tion	The Manager under test and the Simulated Agent are in Standby state		
Test proced	ure	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:		
		a. Weight Measurement (0x2A9D)		
		i. Field: Flags		
		Format: 8bit		
		<ul> <li>Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, Use ID field is not included</li> </ul>		
		ii. Field: Weight (Kg)		
		Format: UINT16		
		Value: Not relevant		
		iii. Field: Weight (lb)		
		This field is not included		
		iv. Field: Time Stamp		

vi. Field: Height (in)	
This field is not included	
discovers the Agent (Initiating state)	
<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>	
Metric-Spec-Small	
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).	
Possible values in typical points of observation after transcoder output are:	
mss-avail-stored- cc-agent-initiated(9), ALSE	
ttribute value	

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-015		
TP label Whitepaper. Height Numeric Object - Unit-Code Attribute				
Coverage	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.		

	[AND]		
	IF Height (m) field of Weight Measurement characteristic is present THEN Height Numeric Object – Unit-Code attribute is set to MDC_DIM_CENTI_M		
	[AND]		
	IF Height (in) field of Weight Measurement characteristic is present THEN Height Numeric Object – Unit-Code attribute is set to MDC_DIM_INCH		
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> <li>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).</li> </ol>		
	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
	a. Weight Measurement (0x2A9D)		
	<ol> <li>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)</li> </ol>		
	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		
	<ul> <li>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</li> </ul>		
	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: Not relevant		
	v. Field: Height (m)		
	Format: UINT16		
	Value: Not relevant		
	vi. Field: Height (in)		
	This field is not included		
	vii. Field: BMI (kg/m^2)		
	Format: UINT16		
	Value: Not relevant		
	viii. Field: User ID		
	This field is not included		

	5. Check in Manager transcoder output the Height Numeric Object – Unit-Code attribute
	6. Simulated Agent sends the Measurement to Manager under test with the following value:
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	• Format: 8bit
	<ul> <li>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</li> </ul>
	ii. Field: Weight (Kg)
	This field is not included
	iii. Field: Weight (Ib)
	Format: UINT16
	Value: Not relevant
	iv. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)
	Format: UINT16
	Value: Not relevant
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	7. Check in Manager transcoder output the Height Numeric Object – Unit-Code attribute
Pass/Fail criteria	In Step 5, the Height Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_CENTI_M
	In Step 7, the Height Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_INCH
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Height Numeric Object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	□ Attribute-type: INT-U16
	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):

OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a XX
263441^MDC_DIM_CENTI_M^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
Unit-Code attribute is present:
Object: Weight Numeric Object
Attribute-id: MDC_ATTR_UNIT_CODE (2454)
Attribute-type: INT-U16
Attribute-value: MDC_DIM_INCH or 1376 (dec) or 05 60 (hex)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a XX
263520^MDC_DIM_INCH^MDC     R   [current_date_time]

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-016				
TP label		Whitepaper. Height Nume	Whitepaper. Height Numeric Object - Absolute-Time-Stamp Attribute			
Coverage Spec [Bluetooth PHD]		[Bluetooth PHDT v1.5]				
	Testable	Height Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M		
	items	Date-Time Conv 4; M	Date-Time Conv 5; M			
Test purpo	se	Check that:				
		Manager transcodes Time Stamp field of Weight Measurement characteristic into Height Numeric Object - Absolute-Time-Stamp attribute				
		[AND]				
		Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format				
		[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_017 OR C_MAN_AND C_MAN_BLE_019 AND C_MAN_BLE_024		BLE_017 OR C_MAN_BLE_18)				
Other PICS						
Initial condition		The Manager under test and the Simulated Agent are in Standby state				
Test procedure		<ol> <li>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).</li> </ol>				
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:				
		a. Weight Measurement (0x2A9D)				

	<ol> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the</li> </ol>
	Measurement to Manager under test with the following value:
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8bit
	<ul> <li>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</li> </ul>
	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 2 <sup>nd</sup> , 2012, 10:39:27
	v. Field: Height (m)
	Format: UINT16
	Value: Not relevant
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	5. Check in Manager transcoder output the Height Numeric Object – Absolute-Time-Stamp attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Height Numeric Object
	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
	<ul> <li>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)</li> </ul>
	□ Attribute-value:
	• 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)
<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
OBX ?  188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a XX      X   20120802103927+0000

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TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-017		
TP label         Whitepaper. Height Numeric Object - Simple-Nu-Observed-Value Attribute 1		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 purpos	e	Check that: Manager transcodes Height Value field of Weight Measurement characteristic into Height Numeric Object - Simple-Nu-Observed-Value attribute		
Applicability	1	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 condit	lion	The Manager under test and the Simulated Agent are in Standby state		
Test procedure		<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Weight Measurement (0x2A9D)</li> </ul> </li> </ol>		
		<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:</li> </ol>		
		a. Weight Measurement (0x2A9D) i. Field: Flags		
		Format: 8bit		
		<ul> <li>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</li> </ul>		
		ii. Field: Weight (Kg)		
		Format: UINT16		
		Value: Not relevant		

	iii.	Field: Weight (lb)
		<ul> <li>This field is not included</li> </ul>
	iv.	Field: Time Stamp
		Format: Date and Time
		Value: Not relevant
	v.	Field: Height (m)
		• Format: UINT16
		• Value: 1800 (1.80 m)
	vi.	Field: Height (in)
		This field is not included
	vii.	Field: BMI (kg/m^2)
		• Format: UINT16
		Value: Not relevant
	viii.	Field: User ID
		This field is not included
5.	Check in N Value attrik	anager transcoder output the Height Numeric Object – Simple-Nu-Observed- oute
6.	Simulated	Agent sends the Measurement to Manager under test with the following value:
	a. Weigh	t Measurement (0x2A9D)
	i.	Field: Flags
		Format: 8bit
		<ul> <li>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</li> </ul>
	ii.	Field: Weight (Kg)
		This field is not included
	iii.	Field: Weight (lb)
		Format: UINT16
		Value: Not relevant
	iv.	Field: Time Stamp
		• Format: Date and Time
		Value: Not relevant
	٧.	Field: Height (m)
		This field is not included
	vi.	Field: Height (in)
		Format: UINT16
		• Value: 709 (70.9 in)
	vii.	Field: BMI (kg/m^2)
		Format: UINT16
		Value: Not relevant
	viii.	Field: User ID
		This field is not included
7.	Check in N Value attrik	anager transcoder output the Height Numeric Object – Simple-Nu-Observed- oute

Notes	In Step 7, the Height Numeric Object – Simple-Nu-Observed-Value attribute is present and it
Notes	value matches with Height Value (in) field of Weight Measurement characteristic (70.9)
	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: Height Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute valu (check OBX-5):
	OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a 180.0
	263441^MDC_DIM_CENTI_M^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
	Simple-Nu-Observed-Value attribute is present:
	Object: Height Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute valu (check OBX-5):
	OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a 70.9
	263520^MDC_DIM_INCH^MDC    R   [current_date_time]

TP ld	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		Check that:		
		Manager transcodes Height Value field of Weight Measurement characteristic into Height Numeric Object - Simple-Nu-Observed-Value attribute		
		[AND]		
		Manager assigns the follo	wing special values: NaN (0x	007FFFFF).
Applicability		C_MAN_BLE_000 AND C AND C_MAN_BLE 019	_MAN_BLE_002 AND (C_M	AN_BLE_017 OR C_MAN_BLE_18)
Other PICS				
nitial condit	ion	The Manager under test a	nd the Simulated Agent are i	n Standby state
Test procedu	ure			e specialization) supported by the to be sent and it is in Advertising state
		2. Simulated Agent impl for this Test Case is:	ements several BTLE charac	teristics. The characteristic of interest
		a. Weight Measurer	ment (0x2A9D)	
		0 Marsana and a tast		
				canning state), it discovers the h the Simulated Agent (Initiating state
			been completed (Connection ager under test with the follow	n state) the Simulated Agent sends th wing value:
		a. Weight Measurer	ment (0x2A9D)	
		i. Field: Fl	ags	
		Format	: 8bit	
		Kg, Tin		eight Measurement Value in units of netre and BMI fields are included, Use
		ii. Field: W	/eight (Kg)	
		Format	: UINT16	
		Value:	Not relevant	
		iii. Field: W	/eight (lb)	
		This fie	ld is not included	
		iv. Field: Ti	me Stamp	
		Format	: Date and Time	
		Value:	Not relevant	
		v. Field: H	eight (m)	
		Format	: UINT16	
		Value:	1800 (1.80 m)	
		vi. Field: H	eight (in)	
		This fie	ld is not included	
		vii. Field: B	MI (kg/m^2)	
		Format	:: UINT16	
		Value:	Not relevant	

	viii. Field: User ID
	This field is not included
	<ol> <li>Check in Manager transcoder output the Height Numeric Object – Simple-Nu-Observed- Value attribute</li> </ol>
	6. Simulated Agent sends the Measurement to Manager under test with the following value:
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8bit
	<ul> <li>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</li> </ul>
	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: Not relevant
	v. Field: Height (m)
	Format: UINT16
	Value: FF FF (hex). Unsuccessful measurement
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	7. Check in Manager transcoder output the Height Numeric Object – Simple-Nu-Observed- Value attribute.
Pass/Fail criteria	In Step 5, the Height Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 180.0.
	In Step 7, the Height Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFF.
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Height Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT

Attribute-value: FC 1B 77 40 (hex) or FD 02 BF 20 (hex) or FE 00 46 50 (hex) or FE 00 07 08 (hex) or 00 00 00 B4 (hex) or 01 00 00 12 (hex) or 180.0 (dec)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute val (check OBX-5):
OBX ? NM 188740^MDC_LEN_BODY_ACTUAL^MDC 1.0.a 180
263441^MDC_DIM_CENTI_M^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
Simple-Nu-Observed-Value attribute is present:
Height 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)
b) WAN PCD-01 message
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 i not included in PCD-01 message

TP Id TP label		TP/LP-PAN/MAN/PHDTW/WS/BV-019 Whitepaper. Height Numeric Object - Height value				
						Coverage
	Testable items	Float Type 1; C	Date-Time Conv 1; M	Height Numeric 6; M		
	items	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> <li>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).</li> </ol>				
		2. Simulated Agent implem for this Test Case are:	nents several BTLE characteris	stics. The characteristic of interest		

a. Weight Measurement (0x2A9D)
<ol> <li>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)</li> </ol>
<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:</li> </ol>
a. Weight Measurement (0x2A9D)
i. Field: Flags
Format: 8bit
<ul> <li>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</li> </ul>
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 2 <sup>nd</sup> , 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/m^2)
Format: UINT16
Value: Not relevant
viii. Field: User ID
This field is not included
<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>
6. Simulated Agent sends the Measurement to Manager under test with the following value:
a. Weight Measurement (0x2A9D)
i. Field: Flags
Format: 8bit
<ul> <li>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</li> </ul>
ii. Field: Weight (Kg)
This field is not included
iii. Field: Weight (lb)
Format: UINT16
Value: Not relevant

	iv. Field: Time Stamp
	Format: Date and Time
	• Value: August 2 <sup>nd</sup> , 2012, 11:09:05
	v. Field: Height (m)
	This field is not included
	vi. Field: Height (in)
	Format: UINT16
	• Value: 709 (70.9 in)
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>
Pass/Fail criteria	In Step 5, the manager under test shows the following measurement: 180 cm, with timestamp '2012-08-02 11:08:25'
	In Step 7, the manager under test shows the following measurement 70.9 in, with timestamp '2012-08-02 11:09:05'
Notes	

TP Id TP label		TP/LP-PAN/MAN/PHDTW/WS/BV-020 Whitepaper. Body Mass Index Numeric Object - Handle Attribute		
	Testable items	BMI Numeric 1; O		
Test purpos	se	Check that:		
		Manager does not include BMI Numeric Object – Handle Attribute in transcoder output [OR]		
		If manager includes BMI 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_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> <li>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).</li> </ol>		
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
		a. Weight Measurement (0x2A9D)		
		i. Field: Flags		

	Format: 8bit
	<ul> <li>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</li> </ul>
	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: Not relevant
	v. Field: Height (m)
	Format: UINT16
	Value: Not relevant
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	<ol> <li>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)</li> </ol>
	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 BMI Numeric Object – Handle attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:
	Object: BMI Numeric Object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	Attribute-value: Any value different than 0
	b) WAN PCD-01 message
	PCD-01 message does not include segments with Handle attribute value

TP ld		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 purpo	se	Check that: Manager includes BMI Numeric Object – Type attribute in transcoder output. [AND] Type is set to {MDC_PART_SCADA, MDC_RATIO_MASS_BODY_LEN_SQ}		
Applicabilit	y	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 cond		The Manager under test and the Simulated Agent are in Standby state		
Test proced	dure	<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>		
		<ul> <li>a. Weight Measurement (0x2A9D)</li> <li>i. Field: Flags <ul> <li>Format: 8bit</li> <li>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</li> <li>ii. Field: Weight (Kg)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Weight (lb)</li> <li>This field is not included</li> <li>iv. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>v. Field: Height (m)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>vi. Field: Height (m)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>vi. Field: Height (m)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>vi. Field: Height (m)</li> <li>Field: Height (m)</li> <li>Field: Height (in)</li> <li>This field is not included</li> <li>vii. Field: Height (m)</li> </ul> </li> </ul>		
		<ul> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>viii. Field: User ID</li> <li>This field is not included</li> </ul>		

	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 BMI Numeric Object – Type attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: BMI Numeric Object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	□ Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_RATIO_MASS_BODY_LEN_SQ or 57680 (dec) or E1 50 (hex)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Type attribute (check OBX-3):
	OBX ?  188752^MDC_RATIO_MASS_BODY_LEN_SQ^MDC 1.0.a XX      X   [current_date_time]

TP ld		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		Check that:
		Manager includes BMI Numeric Object – Metric-Spec-Small attribute in transcoder output.
		[AND]
		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).
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> <li>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).</li> </ol>
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:

	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	• Format: 8bit
	<ul> <li>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</li> </ul>
	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: Not relevant
	v. Field: Height (m)
	Format: UINT16
	Value: Not relevant
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	<ol> <li>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)</li> </ol>
	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 BMI Numeric Object – Metric-Spec-Small attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: BMI Numeric Object     Attribute.id: MDC_ATTR_METRIC_SPEC_SMALL (2630)
	<ul> <li>Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)</li> <li>Attribute-type: BITS-16</li> </ul>
	<ul> <li>Attribute-type. BTS-16</li> <li>Attribute-value: F0 42 (hex) or BITS mss-avail-intermittent(0), mss-avail-stored-</li> </ul>
	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

TP ld		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		Check that: Manager includes BMI Numeric Object – Unit-Code attribute in transcoder output. [AND] IF BMI (Kg/m^2) field of Weight Measurement characteristic is present THEN BMI Numeric Object – Unit-Code attribute is set to MDC_DIM_KG_PER_M_SQ		
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 condit	ion	The Manager under test and the Simulated Agent are in Standby state	_	
Test procedure		<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interess for this Test Case is:         <ul> <li>a. Weight Measurement (0x2A9D)</li> </ul> </li> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends th Measurement to Manager under test with the following value:         <ul> <li>Weight Measurement (0x2A9D)</li> <li>Field: Flags</li> </ul> </li> </ol>	st e)	
		<ul> <li>Format: Note: Height</li> <li>Format: 8bit</li> <li>Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, Us ID field is not included</li> <li>ii. Field: Weight (Kg)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Weight (Ib)</li> <li>This field is not included</li> <li>iv. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>v. Field: Height (m)</li> </ul>		

	Format: UINT16
	Value: Not relevant
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	5. Check in Manager transcoder output the Height Numeric Object – Unit-Code attribute
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	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: BMI Numeric Object
	Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	Attribute-type: INT-U16
	Attribute-value: MDC_DIM_KG_PER_M_SQ or 1952 (dec) or 07 A0 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
	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]

TP Id TP label		TP/LP-PAN/MAN/PHDTW/WS/BV-024 Whitepaper. Body Mass Index Numeric Object - Absolute-Time-Stamp Attribute		
	Testable	BMI Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M
	items	Date-Time Conv 4; M	Date-Time Conv 5; M	
Test purpose		Check that:		
		Manager transcodes Time Stamp field of Weight Measurement characteristic into BMI Numeric Object - Absolute-Time-Stamp attribute		
		[AND]		
		Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format		
		[AND]		
		The fraction of seconds in	Absolute Time at transcoder outp	out is 0

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> <li>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).</li> </ol>		
	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
	a. Weight Measurement (0x2A9D)		
	<ol> <li>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)</li> </ol>		
	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		
	<ul> <li>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</li> </ul>		
	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 2 <sup>nd</sup> , 2012, 10:39:27		
	v. Field: Height (m)		
	Format: UINT16		
	Value: Not relevant		
	vi. Field: Height (in)		
	This field is not included		
	vii. Field: BMI (kg/m^2)		
	Format: UINT16		
	Value: Not relevant		
	viii. Field: User ID		
	This field is not included		
	<ol> <li>Check in Manager transcoder output the BMI Numeric Object – Absolute-Time-Stamp attribute</li> </ol>		
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:		

a) IEEE 11073 Objects and Attributes
Absolute-Time-Stamp attribute is present:
Object: BMI Numeric Object
Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
<ul> <li>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)</li> </ul>
Attribute-value:
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)
<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
OBX ?  188752^MDC_RATIO_MASS_BODY_LEN_SQ^MDC 1.0.a      X   20120802103927+ 0000

TP Id TP label		TP/LP-PAN/MAN/PHDTW/WS/BV-025         Whitepaper. Body Mass Index Numeric Object - Simple-Nu-Observed-Value Attribute 1		
	Testable items	BMI Numeric 7; M	Float Type 1; C	
Test purpo	se	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 AND C_MAN_BLE_020	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> <li>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 sta (it is discoverable).</li> </ol>		. ,
		2. Simulated Agent im for this Test Case is		stics. The characteristic of interest
		a. Weight Measur	ement (0x2A9D)	

	<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> </ol>	
	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	
	<ul> <li>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</li> </ul>	
	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: Not relevant	
	v. Field: Height (m)	
	Format: UINT16	
	Value: Not relevant	
	vi. Field: Height (in)	
	This field is not included	
	vii. Field: BMI	
	Format: UINT16	
	• Value: 247 (24.7)	
	viii. Field: User ID	
	This field is not included	
	5. Check in Manager transcoder output the BMI Numeric Object – Simple-Nu-Observed- Value attribute	
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	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: BMI Numeric Object	
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)	
	Attribute-type: FLOAT	
	Attribute-value: FF 00 00 F7 (hex) or 24.7 (dec)	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):	

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]

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-027			
TP label		Whitepaper. BMI Numeric Object – BMI value			
Coverage Spec		[Bluetooth PHDT v1.5]			
	Testable	Float Type 1; C	Date-Time Conv 1; M	BMI Numeric 6; M	
	items	BMI Numeric 7; M			
Test purpos		Check that:			
rest purpos	e .		othy the PMI Value (kg/mA2) and	Time Stemp fields of Weight	
		Manager processes correctly the BMI Value (kg/m^2) and Time Stamp fields of Weight Measurement			
Applicability	y	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 condi	tion	The Manager under test and the Simulated Agent are in Standby state			
Test proced	ure	1. Simulated Agent is co	nfigured with a Profile (device s	pecialization) supported by the	
· · · · ·		<ol> <li>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).</li> </ol>			
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest			
		for this Test Case are	:		
		a. Weight Measurer	nent (0x2A9D)		
			itiates discovery process (Scan it starts a pairing process with the starts a pairing process with the starts of the starts are started by the starts of the starts are started by the started by the starts are started by the starts are started by the starts are started by the started by th	ning state), it discovers the ne Simulated Agent (Initiating state)	
			been completed (Connection st ager under test with the followin	ate) the Simulated Agent sends the g value:	
		a. Weight Measurer	nent (0x2A9D)		
		i. Field: Fl			
		Format	: 8bit		
		Kg, Tim		ht Measurement Value in units of re and BMI fields are included, Use	
		ii. Field: W	eight (Kg)		
		Format	: UINT16		
		Value:	Not relevant		
		iii. Field: W	'eight (lb)		
		This fie	ld is not included		
		iv. Field: Ti	me Stamp		
		Format	: Date and Time		
		Value:	August 2 <sup>nd</sup> , 2012, 11:08:25		

	T
	v. Field: Height (m)
	Format: UINT16
	Value: Not relevant
	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16
	• Value: 247 (24.7)
	viii. Field: User ID
	This field is not included
	<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>
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 ld		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; O		
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	1	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> <li>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).</li> </ol>		
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
		a. Body Composition Measurement (0x2A9C)		
		i. Field: Flags		
		Format: 16bit		
		<ul> <li>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</li> </ul>		
		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 (Ib)
	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
	<ol> <li>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)</li> </ol>
	<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>
	5. Check in Manager transcoder output the Body Fat Numeric Object – Handle attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Handle attribute is not present, or if it is present then:

	Dobject: Body Fat Numeric Object
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)
	Attribute-type: INT-U16
	Attribute-value: Any value different than 0
b) V	VAN PCD-01 message
PCD-	01 message does not include segments with Handle attribute value

TP ld		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		Check that: Manager includes Body Fat Numeric Object – Type attribute in transcoder output. [AND] Type is set to {MDC_PART_SCADA, MDC_BODY_FAT}	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018	
Other PICS			
Initial conditi	on	The Manager under test and the Simulated Agent are in Standby state	
Test procedu	Ire	<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Body Composition Measurement (0x2A9C)</li> <li>Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vield: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>Vield: Fat Free Mass (lb)</li> </ul> </li> </ol>	

	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)
	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 Body Fat Numeric Object – Type attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Body Fat Numeric Object
	□ Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	□ Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_BODY_FAT or 57676 (dec) or E1 4C (hex)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Type attribute (check OBX-3):
	OBX ?  188748^MDC_BODY_FAT^MDC 1.0.a      X   [current_date_time]

TP Id     TP/LP-PAN/MAN/PHDTW/WS/BV-030		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 purpos	e	Check that: Manager includes Body Fat Numeric Object – Metric-Spec-Small attribute in transcoder output. [AND] 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).		
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS				
Initial condit	tion	The Manager under test and the Simulated Agent are in Standby state		
Test proced	ure	<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>Value: Fat Free Mass (lb)</li> </ul> </li> </ol>		
		<ul> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> <li>This field is not included</li> <li>viii. Field: Body Water Mass (kg)</li> <li>This field is not included</li> </ul>		

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	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
	<ol> <li>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)</li> </ol>
	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 Body Fat Numeric Object – Metric-Spec-Small attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Body Fat Numeric Object
	Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)
	Attribute-type: BITS-16
	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
<u></u>	

TP ld		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       Check that:         Manager includes Body Fat Numeric Object – Unit-Code attribute in transcoder output         [AND]         IF Body Fat Percentage (%) field of Body Composition Measurement characteristic is         THEN Body Fat Numeric Object – Unit-Code attribute is set to MDC_DIM_PERCENT		is present	
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018	
Other PICS			
Initial condition	on	The Manager under test and the Simulated Agent are in Standby state	
Test procedu	re	<ol> <li>Simulated Agent is configured with a Profile (device specialization) supported to Manager under test, it has a measurement ready to be sent and it is in Advertise (it is discoverable).</li> </ol>	
		2. Simulated Agent implements several BTLE characteristics. The characteristic of for this Test Case is:	of interest
		a. Body Composition Measurement (0x2A9C)	
		<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers th Simulated Agent and it starts a pairing process with the Simulated Agent (Initia</li> </ol>	
		<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent Measurement to Manager under test with the following value:</li> </ol>	sends the
		a. Body Composition Measurement (0x2A9C)	
		i. Field: Flags	
		Format: 16bit	
		<ul> <li>Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentar of % and Time Stamp fields are included, Basal Metabolism, Mu Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Bod Mass, Impedance, Weight, Height and User ID fields are not included.</li> </ul>	scle ly Water
		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)	

	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 – Unit-Code attribute
Pass/Fail criteria	5.       Check in Manager transcoder output the Body Fat Numeric Object – Unit-Code attribute         In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is         MDC_DIM_PERCENT
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are:
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Unit-Code attribute is present:
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Unit-Code attribute is present: Dobject: Body Fat Numeric Object
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Unit-Code attribute is present:     Object: Body Fat Numeric Object     Attribute-id: MDC_ATTR_UNIT_CODE (2454)
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Unit-Code attribute is present: Dobject: Body Fat Numeric Object Attribute-id: MDC_ATTR_UNIT_CODE (2454) Attribute-type: INT-U16
	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Unit-Code attribute is present: Dobject: Body Fat Numeric Object Attribute-id: MDC_ATTR_UNIT_CODE (2454) Attribute-type: INT-U16 Attribute-value: MDC_DIM_PERCENT or 544 (dec) or 02 20 (hex)
Pass/Fail criteria Notes	In Step 5, the Body Fat Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_PERCENT In Step 5, possible values in typical points of observation after transcoder output are: a) IEEE 11073 Objects and Attributes Unit-Code attribute is present: a) Object: Body Fat Numeric Object b) WAN PCD-01 message

TP ld		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:		

	<ul> <li>Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Body Fat Numeric Object - Absolute-Time-Stamp attribute</li> <li>[AND]</li> <li>Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format</li> <li>[AND]</li> <li>The fraction of seconds in Absolute Time at transcoder output is 0</li> </ul>	
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> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>	
	a. Body Composition Measurement (0x2A9C)	
	<ol> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the</li> </ol>	
	Measurement to Manager under test with the following value:	
	a. Body Composition Measurement (0x2A9C) i. Field: Flags	
	<ul> <li>Format: 16bit</li> <li>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</li> </ul>	
	ii. Field: Body Fat Percentage (%)	
	Format: UINT16	
	Value: Not relevant	
	iii. Field: Time Stamp	
	Format: Date and Time	
	<ul> <li>Value: August 2<sup>nd</sup>, 2012, 10:39:27</li> </ul>	
	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)	
	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
	<ol> <li>Check in Manager transcoder output the Body Fat Numeric Object – Absolute-Time- Stamp attribute</li> </ol>
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Body Fat 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> <li>century: 20 (hex) or 32 (dec)</li> </ul>
	r (daa)
	• year. 12 (nex) of 16 (dec)
	<ul> <li>year: 12 (hex) or 18 (dec)</li> <li>month: 08 (hex) or 8 (dec)</li> </ul>
	• month: 08 (hex) or 8 (dec)
	<ul> <li>month: 08 (hex) or 8 (dec)</li> <li>day: 02 (hex) or 2 (dec)</li> </ul>
	<ul> <li>month: 08 (hex) or 8 (dec)</li> <li>day: 02 (hex) or 2 (dec)</li> <li>hour: 10 (hex) or 16 (dec)</li> </ul>
	<ul> <li>month: 08 (hex) or 8 (dec)</li> <li>day: 02 (hex) or 2 (dec)</li> <li>hour: 10 (hex) or 16 (dec)</li> <li>minute: 39 (hex) or 57 (dec)</li> </ul>
	<ul> <li>month: 08 (hex) or 8 (dec)</li> <li>day: 02 (hex) or 2 (dec)</li> <li>hour: 10 (hex) or 16 (dec)</li> </ul>
	<ul> <li>month: 08 (hex) or 8 (dec)</li> <li>day: 02 (hex) or 2 (dec)</li> <li>hour: 10 (hex) or 16 (dec)</li> <li>minute: 39 (hex) or 57 (dec)</li> <li>second: 27 (hex) or 39 (dec)</li> </ul>
	<ul> <li>month: 08 (hex) or 8 (dec)</li> <li>day: 02 (hex) or 2 (dec)</li> <li>hour: 10 (hex) or 16 (dec)</li> <li>minute: 39 (hex) or 57 (dec)</li> <li>second: 27 (hex) or 39 (dec)</li> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>

TP ld		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]	
Coverage	•		
	Testable items	Body Fat Numeric 7; M Float Type 1; C	
Test purpose	e 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 conditi	ion	The Manager under test and the Simulated Agent are in Standby state	
Test procedu	ure	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)	
		<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> </ol>	
		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	
		<ul> <li>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</li> </ul>	
		ii. Field: Body Fat Percentage (%)	
		Format: UINT16	
		• Value: 125 (12.5 %)	
		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)	
	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	
	<ol> <li>Check in Manager transcoder output the Body Fat Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>	
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	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 Fat Numeric Object	
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)	
	Attribute-type: FLOAT	
	□ Attribute-value: FF 00 00 7D (hex) or 12.5 (dec)	
	b) WAN PCD-01 message	
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):	
	OBX ? NM 188748^MDC_BODY_FAT^MDC 1.0.a 12.5	
	262688^MDC_DIM_PERCENT^MDC    R   [current_date_time]	

TP ld	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		Check that:			
		Manager transcodes Body Fat Percentage Value field of Body Composition Measurement characteristic into Body Fat Numeric Object - Simple-Nu-Observed-Value attribute			
		[AND]			
		Manager assigns the following special values: NaN (0x007FFFFF).			
Applicability		C_MAN_BLE_000 AND C	_MAN_BLE_002 AND C_MA	N_BLE_018	
Other PICS					
Initial conditi	on	The Manager under test a	nd the Simulated Agent are ir	n Standby state	
			-		
Test procedu	ire			e specialization) supported by the sent and it is in Advertising state (it is	
		2. Simulated Agent impl for this Test Case is:	ements several BTLE charac	teristics. The characteristic of interest	
		a. Body Composition	on Measurement (0x2A9C)		
				anning state), it discovers the h the Simulated Agent (Initiating state)	
			been completed (Connection ager under test with the follow	n state) the Simulated Agent sends the wing value:	
		a. Body Composition	on Measurement (0x2A9C)		
		i. Field: F	lags		
		Forma	t: 16bit		
	<ul> <li>Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage of % and Time Stamp fields are included, Basal Metabolism, Musc Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Mass, Impedance, Weight, Height and User ID fields are not included</li> </ul>		uded, Basal Metabolism, Muscle Mass, Soft Lean Mass, Body Water		
		ii. Field: B	ody Fat Percentage (%)		
		Forma	:: UINT16		
		Value:	125 (12.5 %)		
		iii. Field: T	ime Stamp		
		Format	: Date and Time		
		Value:	Not relevant		
		iv. Field: F	at Free Mass (kg)		
			eld is not included		
			at Free Mass (lb)		
			eld is not included		
			oft Lean Mass (kg)		
			eld is not included		
			oft Lean Mass (lb)		
			eld is not included		
			ody Water Mass (kg)		
		Ihis field	eld 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
	neck in Manager transcoder output the Body Fat Numeric Object – Simple-Nu- bserved-Value attribute
6. Si	mulated Agent sends the Measurement to Manager under test with the following value:
a	. Body Composition Measurement (0x2A9C)
	i. Field: Flags
	Format: 16bit
	<ul> <li>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</li> </ul>
	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 (Ib)
	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
	<ol> <li>Check in Manager transcoder output the Body Fat Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>
Pass/Fail criteria	In Step 5, the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 12.5.
	In Step 7, the Body Fat Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFF.
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Body Fat Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188748^MDC_BODY_FAT^MDC 1.0.a 12.5
	262688^MDC_DIM_PERCENT^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
	Simple-Nu-Observed-Value attribute is present:

	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)
PCD-01 (18874	AN PCD-01 message message does not include segment with Simple-Nu-Observed-Value attribute value 3^MDC_BODY_FAT^MDC) because it has a special value and this value is not d in PCD-01 message

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-035		
TP label		Whitepaper. Body Fat Nume	eric Object – Body Fat Percent	tage value
Coverage Spec		[Bluetooth PHDT v1.5]		
	Testable	Float Type 1; C	Date-Time Conv 1; M	Body Fat Numeric 6; M
	items	Body Fat Numeric 7; M		
Test purpos	e	Check that:		
		Manager processes correctly the Body Fat Percentage Value and Time Stamp fields of Body Composition Measurement		
Applicability	y	C_MAN_BLE_000 AND C_I	MAN_BLE_018 AND C_MAN_	_BLE_025
Other PICS				
Initial condi	tion	The Manager under test and	d the Simulated Agent are in S	tandby state
Test procedure		<ul> <li>Manager under test, it has a discoverable).</li> <li>2. Simulated Agent impler for this Test Case are:</li> <li>a. Body Composition</li> </ul>	measurement ready to be set	pecialization) supported by the nt and it is in Advertising state (it is istics. The characteristic of interest ning state), it discovers the
		Simulated Agent and it 4. When the pairing has b	starts a pairing process with the een completed (Connection st	ne Simulated Agent (Initiating state) ate) the Simulated Agent sends the
		Measurement to Manag	ger under test with the followin	g value:
		a. Body Composition	Measurement (0x2A9C)	
		i. Field: Fla	gs	
		• Format: 7		
		of % and Percenta	Time Stamp fields are include ge, Muscle Mass, Fat Free Ma	LSB). Body Fat Percentage in units ed, Basal Metabolism, Muscle ass, Soft Lean Mass, Body Water User ID fields are not included
		ii. Field: Boo	ly Fat Percentage (%)	
		Format: I	JINT16	

Notes	
Pass/Fail criteria	In Step 5, the manager under test shows the following measurement: 12.5 %, with timestamp '2012-08-02 11:08:25'
	<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>
	This field is not included
	xvi. Field: User ID
	This field is not included
	xv. Field: Height
	This field is not included
	xiv. Field: Weight
	This field is not included
	xiii. Field: Impedance
	This field is not included
	xii. Field: Muscle Mass
	This field is not included
	xi. Field: Muscle Percentage
	This field is not included
	x. Field: Basal Metabolism
	This field is not included
	I his field is not included  ix. Field: Body Water Mass (lb)
	<ul><li>viii. Field: Body Water Mass (kg)</li><li>This field is not included</li></ul>
	This field is not included      Field: Rody Water Mass (kg)
	vii. Field: Soft Lean Mass (lb)
	This field is not included
	vi. Field: Soft Lean Mass (kg)
	This field is not included
	v. Field: Fat Free Mass (lb)
	This field is not included
	iv. Field: Fat Free Mass (kg)
	• Value: August 2 <sup>nd</sup> , 2012, 11:08:25
	Format: Date and Time
	iii. Field: Time Stamp
	• Value: 125 (12.5 %)

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

Test purpose	Check that:		
	Manager does not include Fat Free Mass Numeric Object – Handle Attribute in transcoder output		
	[OR]		
	If manager includes Fat Free Mass 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 AND C_MAN_BLE_021		
Other PICS			
Initial condition	The Manager under test and the Simulated Agent are in Standby state		
Test procedure	<ol> <li>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).</li> </ol>		
	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
	a. Body Composition Measurement (0x2A9C)		
	i. Field: Flags		
	Format: 16bit		
	<ul> <li>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</li> </ul>		
	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			
<ol> <li>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)</li> </ol>			
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 Fat Free Mass Numeric Object – Handle attribute			
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			
Possible values in typical points of observation after transcoder output are:			
a) IEEE 11073 Objects and Attributes			
Handle attribute is not present, or if it is present then:			
Object: Fat Free Mass Numeric Object			
□ Attribute-id: MDC_ATTR_ID_HANDLE (2337)			
Attribute-type: INT-U16			
Attribute-value: Any value different than 0			
b) WAN PCD-01 message			
PCD-01 message does not include segments with Handle attribute value			

TP ld		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       Check that:         Manager includes Fat Free Mass Numeric Object – Type attribute in transcoder output [AND]         Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_FAT_FREE}							
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> <li>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).</li> </ol>					
	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:					
	a. Body Composition Measurement (0x2A9C)					
	i. Field: Flags					
	Format: 16bit					
	<ul> <li>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</li> </ul>					
	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 (Ib)					
	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			
	<ol> <li>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)</li> </ol>			
	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 Fat Free Mass Numeric Object – Type attribute			
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	Possible values in typical points of observation after transcoder output are:			
	a) IEEE 11073 Objects and Attributes			
	Type attribute is present:			
	Object: Fat Free Mass Numeric Object			
	Attribute-id: MDC_ATTR_ID_TYPE (2351)			
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}			
	Attribute-value:			
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>			
	code: MDC_MASS_BODY_FAT_FREE or 57684 (dec) or E1 54 (hex)			
	b) WAN PCD-01 message			
	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]			

TP ld		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 purpos	se	Check that:					
		Manager includes Fat Free Mass Numeric Object – Metric-Spec-Small attribute in transcoder output.					
		[AND]					
		Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).					
Applicabilit	у	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021					
Other PICS							
Initial condi	tion	The Manager under test and the Simulated Agent are in Standby state					
Test procedure		<ol> <li>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).</li> </ol>					
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest					

for this Test Case is:
a. Body Composition Measurement (0x2A9C)
i. Field: Flags
Format: 16bit
<ul> <li>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</li> </ul>
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
<ol> <li>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)</li> </ol>

	<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>
	5. Check in Manager transcoder output the Fat Free Mass Numeric Object – Metric-Spec- Small attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Fat Free Mass 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
	b) WAN PCD-01 message
	PCD-01 message does not include segments with Metric-Spec-Small attribute value

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-039					
TP label Whitepaper. Fat Free Mass Numeric Object - Unit-Code Attribute				ite			
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable items	Fat Free Numeric 4; M Fat Free Numeric 5; M					
Test purpos	e	Check that: Manager includes Fat Free Mass Numeric Object – Unit-Code attribute in transcoder output.					
		[AND] 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 [AND]					
		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					
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021					
Other PICS							
Initial condit	ion	The Manager under test and	the Simulated Agent are in Standl	by state			
Test procedure		<ol> <li>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).</li> </ol>					
		2. Simulated Agent implem for this Test Case is:	ents several BTLE characteristics	. The characteristic of interest			
		a. Body Compositio	n Measurement (0x2A9C)				

3.			nder test initiates discovery process (Scanning state), it discovers the Agent and it starts a pairing process with the Simulated Agent (Initiating state)
4.			airing has been completed (Connection state) the Simulated Agent sends the ent 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
		ν.	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
	١	/iii.	Field: Body Water Mass (kg)
		•	This field is not included
		ix.	Field: Body Water Mass (lb)
		•	This field is not included
		х.	Field: Basal Metabolism
		•	
		xi.	Field: Muscle Percentage
		•	
		xii.	Field: Muscle Mass
		•	
	)	dii.	Field: Impedance
		•	
	>	άv.	Field: Weight
		•	
		XV.	Field: Height
	)	wi.	Field: User ID

		•	This field is not included
5.		Ma	nager transcoder output the Fat Free Mass Numeric Object – Unit-Code
~	attribute		nant ann de tha Maran ant ta Maranan un den tast with tha fallowing walve.
6.			gent sends the Measurement to Manager under test with the following value:
		uy	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
	٧.		Field: Fat Free Mass (lb)
		•	Format: UINT16
		•	Value: Not relevant
	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
	х.		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							
	<ol> <li>Check in Manager transcoder output the Fat Free Mass Numeric Object – Unit-Code attribute</li> </ol>							
Pass/Fail criteria	In Step 5, the Fat Free Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G							
	In Step 7, the Fat Free Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB							
Notes	In Step 5, possible values in typical points of observation after transcoder output are:							
	a) IEEE 11073 Objects and Attributes							
	Unit-Code attribute is present:							
	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)							
	b) WAN PCD-01 message							
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):							
	OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX							
	263875^MDC_DIM_KILO_G^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							
	Unit-Code attribute is present:							
	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)							
	b) WAN PCD-01 message							
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6)							
	OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX							
	263904^MDC_DIM_LB^MDC    R   [current_date_time]							

TP ld	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					
	items	Date-Time Conv 4; M	Date-Time Conv 5; M						
Test purpos	se	Check that:		I					
		Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Fat Free Mass Numeric Object - Absolute-Time-Stamp attribute [AND] Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format [AND]							
							The fraction of seconds in	Absolute Time at transcoder outpo	ut is 0
					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		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).							
		<ol> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>							
		a. Body Composition Measurement (0x2A9C)							
		<ol> <li>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)</li> </ol>							
		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	n Measurement (0x2A9C)						
		i. Field: Fla	ags						
		Format:	16bit						
		of %, Ti Basal M	bood 0000 0100 0010 (MSB $\rightarrow$ LS me Stamp and Fat Free Mass in u letabolism, Muscle Percentage, M fater Mass, Impedance, Weight, H	units of Kg fields are included, luscle Mass, Soft Lean Mass,					
		ii. Field: Bo	ody Fat Percentage (%)						
		Format:	UINT16						
		Value:	Not relevant						
		iii. Field: Tir	ne Stamp						
		Format:	Date and Time						
		• Value: A	August 2 <sup>nd</sup> , 2012, 10:39:27						
		iv. Field: Fa	t Free Mass (kg)						
			UINT16						
		Value: N	Not relevant						
		v. Field: Fa	t Free Mass (lb)						
		This fiel	d is not included						
			oft 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	
	<ol> <li>Check in Manager transcoder output the Fat Free Mass Numeric Object – Absolute- Time-Stamp attribute</li> </ol>	
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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Absolute-Time-Stamp attribute is present:	
	Object: Fat Free Mass 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:	
	• century: 20 (hex) or 32 (dec)	
	• year: 12 (hex) or 18 (dec)	
	<ul> <li>month: 08 (hex) or 8 (dec)</li> </ul>	
	<ul> <li>day: 02 (hex) or 2 (dec)</li> </ul>	
	<ul> <li>hour: 10 (hex) or 16 (dec)</li> </ul>	
	<ul> <li>moute: 39 (hex) or 57 (dec)</li> </ul>	
	<ul> <li>second: 27 (hex) or 39 (dec)</li> <li>second: 27 (hex) or 0 (dec)</li> </ul>	
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>	

b) WAN PCD-01 message
PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
OBX ?  188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX      X   20120802103927+00 00

TP Id TP label		TP/LP-PAN/MAN/PHDTW/WS/BV-041	
		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 purpos	е	Check that:	
		Manager transcodes Fat Free Mass Value field of Body Composition Measurement characteristic into Fat Free 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_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)	
		<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> </ol>	
		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	
		<ul> <li>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</li> </ul>	
		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
<ul> <li>Value: 12800 (64.0 kg)</li> </ul>
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 (Ib)
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
<ol> <li>Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>
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> <li>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</li> </ul>
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 (Ib)
	Format: UINT16
	• Value: 14080 (140.8 lb)
	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
	<ol> <li>Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>
Pass/Fail criteria	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)
	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 (Ib) field of Body Composition Measurement characteristic (140.8)
Notes	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: Fat Free Mass Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)

	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a 64.0
	263875^MDC_DIM_KILO_G^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
	Simple-Nu-Observed-Value attribute is present:
	Object: Fat Free Mass Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a 140.8
	263904^MDC_DIM_LB^MDC     R   [current_date_time]
L	

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-042		
TP label Whitepaper. Fat Free Mass Numeric Object - Simple-Nu-Observed-Value At		u-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		characteristic into Fat Free [AND]		v Composition Measurement ple-Nu-Observed-Value attribute 007FFFFF).
Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BL		N_BLE_018 AND C_MAN_BLE_021		
Other PICS				
Initial condition		The Manager under test an	d the Simulated Agent are ir	n Standby state
Test procedure		•	•	e specialization) supported by the sent and it is in Advertising state (it is

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
	<ul> <li>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</li> </ul>
	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

This field is not included
xvi. Field: User ID
This field is not included
<ol> <li>Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>
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> <li>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</li> </ul>
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: FF FF (hex). Unsuccessful measurement
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
	<ol> <li>Check in Manager transcoder output the Fat Free Mass Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>
Pass/Fail criteria	In Step 5, the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 64.0.
	In Step 7, the Fat Free Mass Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 0x007FFFFF.
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Fat Free Mass Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a 64.0
	263875^MDC_DIM_KILO_G^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
	Simple-Nu-Observed-Value attribute is present:
	Fat Free Mass 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)
	b) WAN PCD-01 message
	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

TP ld		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]			
Jereiage	Testable		Date-Time Conv 1; M	Fat Free Numeric 6; M	
	items	Float Type 1; C			
		Fat Free Numeric 7; M			
Test purpose	•	Check that:			
			ly the Fat Free Mass Value (kg Composition Measurement	y), Fat Free Mass Value (Ib) and	
Applicability		C_MAN_BLE_000 AND C_	MAN_BLE_018 AND C_MAN_	BLE_021 AND C_MAN_BLE_025	
Other PICS					
Initial conditi	on	The Manager under test ar	d the Simulated Agent are in S	tandby state	
Test procedu	ire			pecialization) supported by the nt and it is in Advertising state (it is	
		2. Simulated Agent imple for this Test Case are:	ments several BTLE characteri	istics. The characteristics of interest	
		a. Body Composition	Measurement (0x2A9C)		
			tiates discovery process (Scan starts a pairing process with th	ning state), it discovers the ne Simulated Agent (Initiating state)	
			peen completed (Connection st ger under test with the followin	ate) the Simulated Agent sends the g value:	
		a. Body Compositior	Measurement (0x2A9C)		
		i. Field: Fla	gs		
		Format:	16bit		
		of %, Ti Basal M	ne Stamp and Fat Free Mass i etabolism, Muscle Percentage, ater Mass, Impedance, Weight,	LSB). Body Fat Percentage in units n units of Kg fields are included, , Muscle Mass, Soft Lean Mass, , Height and User ID fields are not	
		ii. Field: Bo	dy Fat Percentage (%)		
		Format:	UINT16		
		Value: N	lot relevant		
			ne Stamp		
			Date and Time		
			ugust 2 <sup>nd</sup> , 2012, 11:08:25		
			t Free Mass (kg)		
		Format:			
			2800 (64.0 kg)		
			t Free Mass (lb)		
			d is not included		
			ft Lean Mass (kg)		
		Inis fiel	d 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	
	х.	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.	(measureme	at Manager accepts the measurement and decodes its value properly ent values, units and time stamp)	
6.		gent sends the Measurement to Manager under test with the following value:	
	-	omposition Measurement (0x2A9C)	
	i.	Field: Flags	
	•		
	•	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 2 <sup>nd</sup> , 2012, 11:09:05	
	iv.	Field: Fat Free Mass (kg)	
	•		
	v.	Field: Fat Free Mass (lb)	
	•	Format: UINT16	
	•	Value: 14080 (140.8 lb)	
	vi.	Field: Soft Lean Mass (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
Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp)
Step 5, the manager under test shows the following measurement: 64.0 kg, with timestamp 112-08-02 11:08:25'
Step 7, the manager under test shows the following measurement 140.8 lbs, with nestamp '2012-08-02 11:09:05'
)

TP ld		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; O		
Test purpose       Check that:         Manager does not include Soft Lean Mass Numeric Object – Handle Attribute in output         [OR]         If manager includes Soft Lean Mass Numeric Object – Handle attribute in transatthen its value shall be different than 0		Check that:		
		0	ass Numeric Object – H	andle Attribute in transcoder
		[OR]		
		attribute in transcoder output,		
Applicabilit	icability C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 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	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:
	a. Body Composition Measurement (0x2A9C)
	i. Field: Flags
	Format: 16bit
	<ul> <li>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, Bod Water Mass, Impedance, Weight, Height and User ID fields are not included</li> </ul>
	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	
	<ol> <li>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)</li> </ol>	
	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 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	Possible values in typical points of observation after transcoder output are:	
	a) IEEE 11073 Objects and Attributes	
	Handle attribute is not present, or if it is present then:	
	Object: Soft Lean Mass Numeric Object	
	Attribute-id: MDC_ATTR_ID_HANDLE (2337)	
	Attribute-type: INT-U16	
	Attribute-value: Any value different than 0	
	b) WAN PCD-01 message	
	PCD-01 message does not include segments with Handle attribute value	

TP ld		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		Check that:		
		Manager includes Soft Lean Mass Numeric Object – Type attribute in transcoder output.		
		[AND]		
		Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_SOFT_LEAN}		
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		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:		
		a. Body Composition Measurement (0x2A9C)		
		i. Field: Flags		
		Format: 16bit		

	<ul> <li>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</li> </ul>
	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
	<ol> <li>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)</li> </ol>
	<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>
	<ol> <li>Check in Manager transcoder output the Soft Lean Mass Numeric Object – Type attribute</li> </ol>
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	Possible values in typical points of observation after transcoder output are:		
	a) IEEE 11073 Objects and Attributes		
	Type attribute is present:		
	Object: Soft Lean Mass Numeric Object		
	Attribute-id: MDC_ATTR_ID_TYPE (2351)		
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}		
	Attribute-value:		
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>		
	code: MDC_MASS_BODY_SOFT_LEAN or 57688 (dec) or E1 58 (hex)		
	b) WAN PCD-01 message		
	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]		

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-046		
TP label		Whitepaper. Soft Lean Mass Numeric Object - Metric-Spec-Small Attribute		
Coverage	overage Spec [Bluetooth PHDT v1.5]			
	Testable items	Soft Lean Numeric 3; M		
Test purpose		Check that:		
		Manager includes Soft Lean Mass Numeric Object – Metric-Spec-Small attribute in transcoder output.		
		[AND]		
		Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_022		
Other PICS				
Initial condi	tion	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:		
		a. Body Composition Measurement (0x2A9C)		
		i. Field: Flags		
		Format: 16bit		
		<ul> <li>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</li> </ul>		

	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
	<ol> <li>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)</li> </ol>
	<ol> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test</li> </ol>
	5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Metric-Spec- Small attribute
Pass/Fail criteria	In Step 5, the Soft Lean Mass Numeric Object – Metric-Spec-Small attribute is present and it 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:

a	a) IEEE 11073 Objects and Attributes
Ν	Metric-Spec-Small attribute is present:
	Object: Soft Lean Mass 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
k	b) WAN PCD-01 message
F	PCD-01 message does not include segments with Metric-Spec-Small attribute value

TP ld		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]		[Bluetooth PHDT v1.5]		
	Testable items	Soft Lean Numeric 4; M Soft Lean Numeric 5; M		
Test purpos	9	Check that:		
		Manager includes Soft Lean Numeric Object – Unit-Code attribute in transcoder output.		
		[AND]		
		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		
		[AND]		
		IF Soft Lean Mass (Ib) field of Body Composition Measurement characteristic is present THEN Soft Lean Mass Numeric Object – Unit-Code attribute is set to MDC_DIM_LB		
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> <li>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).</li> </ol>		
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
		a. Body Composition Measurement (0x2A9C)		
		<ol> <li>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)</li> </ol>		
		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		

<ul> <li>Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in of %, Time Stamp and Soft Lean Mass in units of Kg fields are includ Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass</li> </ul>	
Water Mass, Impedance, Weight, Height and User ID fields are not included	ed,
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	
<ol> <li>Check in Manager transcoder output the Soft Lean Mass Numeric Object – Unit-Co attribute</li> </ol>	de
6. Simulated Agent sends the Measurement to Manager under test with the following w	/alue:
a. Body Composition Measurement (0x2A9C)	
i. Field: Flags	
Format: 16bit	

Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	In Step 7, the Soft Lean Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB
Pass/Fail criteria	In Step 5, the Soft Lean Mass Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G
	<ol> <li>Check in Manager transcoder output the Soft Lean Mass Numeric Object – Unit-Code attribute.</li> </ol>
	This field is not included
	xvi. Field: User ID
	This field is not included
	xv. Field: Height
	This field is not included
	xiv. Field: Weight
	This field is not included
	xiii. Field: Impedance
	This field is not included
	xii. Field: Muscle Mass
	This field is not included
	xi. Field: Muscle Percentage
	This field is not included
	This field is not included     x. Field: Basal Metabolism
	ix. Field: Body Water Mass (lb)
	This field is not included      Field: Redu Water Mass (Ib)
	viii. Field: Body Water Mass (kg)
	Value: Not relevant
	Format: UINT16
	vii. Field: Soft Lean Mass (lb)
	This field is not included
	vi. Field: Soft Lean Mass (kg)
	This field is not included
	v. Field: Fat Free Mass (lb)
	This field is not included
	iv. Field: Fat Free Mass (kg)
	Value: Not relevant
	Format: Date and Time
	iii. Field: Time Stamp
	Value: Not relevant
	Format: UINT16
	ii. Field: Body Fat Percentage (%)
	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
	<ul> <li>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</li> </ul>

a) IEEE 11073 Objects and Attributes
Unit-Code attribute is present:
Object: Soft Lean 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)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a XX
263875^MDC_DIM_KILO_G^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
Unit-Code attribute is present:
Object: Soft Lean 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)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a XX
263904^MDC_DIM_LB^MDC    R   [current_date_time]

TP ld		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		Check that:		
		Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Soft Lean Mass Numeric Object - Absolute-Time-Stamp attribute		
		[AND]		
		Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format		

	[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	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 i discoverable).		
	2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:		
	a. Body Composition Measurement (0x2A9C)		
	<ol> <li>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)</li> </ol>		
	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		
	<ul> <li>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</li> </ul>		
	ii. Field: Body Fat Percentage (%)		
	Format: UINT16		
	Value: Not relevant		
	iii. Field: Time Stamp		
	Format: Date and Time		
	<ul> <li>Value: August 2<sup>nd</sup>, 2012, 10:39:27</li> </ul>		
	iv. Field: Fat Free Mass (kg)		
	This field is not included		
	v. Field: Fat Free Mass (Ib)		
	This field is not included     vi. Field: Soft Lean Mass (kg)		
	Format: UINT16		
	Value: Not relevant		
	vii. Field: Soft Lean Mass (Ib)		
	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 – Absolute-
	Time-Stamp attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Soft Lean Mass 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> <li>century: 20 (hex) or 32 (dec)</li> </ul>
	• year: 12 (hex) or 18 (dec)
	• month: 08 (hex) or 8 (dec)
	• day: 02 (hex) or 2 (dec)
	<ul> <li>hour: 10 (hex) or 16 (dec)</li> </ul>
	<ul> <li>minute: 39 (hex) or 57 (dec)</li> </ul>
	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):

TP ld		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 conditi	on	The Manager under test and the Simulated Agent are in Standby state			
Test procedu	ire	<ol> <li>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).</li> </ol>			
		<ol> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>			
		a. Body Composition Measurement (0x2A9C)			
		<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> </ol>			
		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			
		<ul> <li>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</li> </ul>			
		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)			

<ul> <li>This field is not included</li> <li>viii. Field: Body Water Mass (kg)</li> <li>This field is not included</li> <li>ix. Field: Body Water Mass (b)</li> <li>This field is not included</li> <li>x. Field: Basal Metabolism</li> <li>This field is not included</li> <li>xi. Field: Muscle Percentage</li> <li>This field is not included</li> <li>xii. Field: Muscle Mass</li> <li>This field is not included</li> <li>xii. Field: Muscle Mass</li> <li>This field is not included</li> <li>xii. Field: Wasel Mass</li> <li>This field is not included</li> <li>xii. Field: Wasel Mass</li> <li>This field is not included</li> <li>xii. Field: Weight</li> <li>This field is not included</li> <li>xv. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: User ID</li> <li>This field is not included</li> <li>xvi. Field: User ID</li> <li>This field is not included</li> <li>Simulated Agent sends the Messurement to Manager under test with the following value:</li> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>Value: 0000 0000 1000 0011 (MSB &gt; LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are not included</li> <li>ii. Field: Boasl Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Valer Mass, Impedance, Weight, Height and User ID fields are not included, Baasl Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Yat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: End Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>Field: Soft Lean Mass (kg)</li> <li>Field: Soft Lean Mass (kg)</li> </ul>			_
<ul> <li>This field is not included</li> <li>ix. Field: Body Water Mass (lb)</li> <li>This field is not included</li> <li>x. Field: Basal Metabolism</li> <li>This field is not included</li> <li>xi. Field: Muscle Percentage</li> <li>This field is not included</li> <li>xii. Field: Impedance</li> <li>This field is not included</li> <li>xii. Field: Impedance</li> <li>This field is not included</li> <li>xvi. Field: Weight</li> <li>This field is not included</li> <li>xvi. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: User ID</li> <li>This field is not included</li> <li>5. Check in Manager under test with the following value:</li> <li>a. Body Composition Measurement to Manager under test with the following value:</li> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>Value: 0000 0000 1000 0011 (MSB &gt; LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are included</li> <li>ii. Field: Flags</li> <li>iii. Field: Body Water Mass, Impedance, Weight, Height and User ID fields are not included</li> <li>iii. Field: The Stamp and Soft Lean Mass in units of pound fields are included.</li> <li>iii. Field: The Stamp and Soft Lean Mass in units of pound fields are included.</li> <li>iii. Field: The Stamp and Soft Lean Mass in units of pound fields are included.</li> <li>iii. Field: The Stamp and Soft Lean Mass in units of pound fields are included.</li> <li>iii. Field: The Stamp and Soft Lean Mass in units of pound fields are included.</li> <li>iii. Field: The Stamp and Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: The The Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: The The Mass (kg)</li> <li>This field is not included</li> <li>viii. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>viii. Field: Soft Lean Mass (kg)</li> </ul>		This field is not included	
<ul> <li>ix. Field: Body Water Mass (b)</li> <li>This field is not included</li> <li>x. Field: Basal Metabolism</li> <li>This field is not included</li> <li>xi. Field: Muscle Percentage</li> <li>This field is not included</li> <li>xii. Field: Muscle Mass</li> <li>This field is not included</li> <li>xiii. Field: Muscle Mass</li> <li>This field is not included</li> <li>xiii. Field: Weight</li> <li>This field is not included</li> <li>xv. Field: Weight</li> <li>This field is not included</li> <li>xvi. Field: Weight</li> <li>This field is not included</li> <li>xvi. Field: Height</li> <li>This field is not included</li> <li>stimulated Agent sends the Measurement to Manager under test with the following value:</li> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>i. Field: Flags</li> <li>i. Field: Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>ii. Field: Sold Fat Percentage (%)</li> <li>ii. Field: The Stamp</li> <li>Value: Not relevant</li> <li>iii. Field: Tat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Tat Free Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Stat Lean Mass (kg)</li> <li>This field is not included</li> <li>viii. Field: Stat Lean Mass (kg)</li> </ul>		viii. Field: Body Water Mass (kg)	
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<ul> <li>This field is not included</li> <li>xii. Field: Muscle Mass</li> <li>This field is not included</li> <li>xiii. Field: Impedance</li> <li>This field is not included</li> <li>xiv. Field: Weight</li> <li>This field is not included</li> <li>xv. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>Value: 0000 0000 1000 0011 (MSB &gt; LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are included.</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>iii. Field: Time Stamp</li> <li>Format: UNT16</li> <li>Value: Not relevant</li> <li>iii. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		This field is not included	
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<ul> <li>xiii. Field: Impedance <ul> <li>This field is not included</li> <li>xiv. Field: Weight</li> <li>This field is not included</li> <li>xv. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 15bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (lg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (lg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lg)</li> </ul> </li> </ul></li></ul>		xii. Field: Muscle Mass	
<ul> <li>This field is not included</li> <li>xiv. Field: Weight</li> <li>This field is not included</li> <li>xv. Field: Height <ul> <li>This field is not included</li> <li>xvi. Field: User ID</li> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (tg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (tg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (tg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (tb)</li> </ul> </li> </ul>		This field is not included	
<ul> <li>This field is not included</li> <li>xiv. Field: Weight <ul> <li>This field is not included</li> <li>xv. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check In Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 18bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul></li></ul>		xiii. Field: Impedance	
<ul> <li>This field is not included</li> <li>xv. Field: Height</li> <li>This field is not included</li> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		This field is not included	
<ul> <li>This field is not included</li> <li>xv. Field: Height <ul> <li>This field is not included</li> </ul> </li> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>i. Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>ii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iii. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		xiv. Field: Weight	
<ul> <li>This field is not included</li> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>V. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>			
<ul> <li>xvi. Field: User ID <ul> <li>This field is not included</li> </ul> </li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		xv. Field: Height	
<ul> <li>This field is not included</li> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (b)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		This field is not included	
<ul> <li>5. Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu-Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		xvi. Field: User ID	
<ul> <li>Observed-Value attribute</li> <li>6. Simulated Agent sends the Measurement to Manager under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> </ul> </li> </ul>		This field is not included	
<ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (kg)</li> </ul>	5.		
<ul> <li>i. Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Soft Lean Mass (lb)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>	6.	Simulated Agent sends the Measurement to Manager under test with the following value:	
<ul> <li>Format: 16bit</li> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		a. Body Composition Measurement (0x2A9C)	
<ul> <li>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</li> <li>ii. Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		i. Field: Flags	
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: 16bit	
<ul> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>Value: Not relevant</li> <li>Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>V. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>Vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>Vii. Field: Soft Lean Mass (lb)</li> </ul>		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	
<ul> <li>Value: Not relevant</li> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		ii. Field: Body Fat Percentage (%)	
<ul> <li>iii. Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		Format: UINT16	
<ul> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		Value: Not relevant	
<ul> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		iii. Field: Time Stamp	
<ul> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		Format: Date and Time	
<ul> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		Value: Not relevant	
<ul> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		iv. Field: Fat Free Mass (kg)	
<ul> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		This field is not included	
<ul> <li>This field is not included</li> <li>vi. Field: Soft Lean Mass (kg)</li> <li>This field is not included</li> <li>vii. Field: Soft Lean Mass (lb)</li> </ul>		v. Field: Fat Free Mass (Ib)	
This field is not included     Vii. Field: Soft Lean Mass (Ib)			
This field is not included     vii. Field: Soft Lean Mass (lb)			
		vii. Field: Soft Lean Mass (Ib)	
<ul> <li>Value: 9640 (96.4 lb)</li> </ul>			

	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
	<ol> <li>Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu- Observed-Value attribute.</li> </ol>
Pass/Fail criteria	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)
	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).
Notes	In Step 5, 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: Soft Lean Mass Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a 43.8
	263875^MDC_DIM_KILO_G^MDC     R   [current_date_time]
	In Step 7, possible values in typical points of observation after transcoder output are:

a	a) IEEE 11073 Objects and Attributes
5	Simple-Nu-Observed-Value attribute is present:
	Object: Soft Lean Mass Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
h	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
C	OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a 96.4
	263904^MDC_DIM_LB^MDC     R   [current_date_time]

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-050			
TP label		Whitepaper. Soft Lean Mass	Numeric Object - Simple-N	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		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 [AND] Manager assigns the following special values: NaN (0x007FFFFF)			
Applicability	y	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> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Body Composition Measurement (0x2A9C)</li> </ul> </li> </ol>			
		<ul><li>Simulated Agent and it s</li><li>4. When the pairing has be Measurement to Manag</li></ul>	starts a pairing process with	anning state), it discovers the n the Simulated Agent (Initiating state) state) the Simulated Agent sends the ving value:	

	i. Field: Flags
	Format: 16bit
	<ul> <li>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</li> </ul>
	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)

	·
	i. Field: Flags
	Format: 16bit
	<ul> <li>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</li> </ul>
	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: FF FF (hex). Unsuccessful measurement
	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
	<ul><li>xiv. Field: Weight</li><li>This field is not included</li></ul>
	<ul><li>xv. Field: Height</li><li>This field is not included</li></ul>
	xvi. Field: User ID
	This field is not included
	<ol> <li>Check in Manager transcoder output the Soft Lean Mass Numeric Object – Simple-Nu- Observed-Value attribute.</li> </ol>
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 0x007FFFFF.
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Soft Lean Mass Numeric Object
	Attribute-id: MDC_ATTR_NU _VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN ^MDC 1.0.a 43.8
	263875^MDC_DIM_KILO_G ^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
	Simple-Nu-Observed-Value attribute is present:
	Soft Lean Mass 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)
	b) WAN PCD-01 message
	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

TP ld TP label		TP/LP-PAN/MAN/PHDTW/	WS/BV-051	
		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 6; M
	items	Soft Lean Numeric 7; M		
Test purpose		Check that:		
		Manager processes correct Composition Measurement	,	g) and Time Stamp fields of Body

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025				
Other PICS					
nitial condition	The Manager under test and the Simulated Agent are in Standby state				
Fest 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 interes for this Test Case are:				
	a. Body Composition Measurement (0x2A9C)				
	<ol> <li>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)</li> </ol>				
	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				
	<ul> <li>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, Boo Water Mass, Impedance, Weight, Height and User ID fields are not included</li> </ul>				
	ii. Field: Body Fat Percentage (%)				
	Format: UINT16				
	Value: Not relevant				
	iii. Field: Time Stamp				
	Format: Date and Time				
	• Value: August 2 <sup>nd</sup> , 2012, 11:08:25				
	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 (Ib)				
	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. 6.	Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp) Simulated Agent sends the Measurement to Manager under test with the following value:
-	a. Body Composition Measurement (0x2A9C)
	i. Field: Flags
	• Format: 16bit
	<ul> <li>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</li> </ul>
	ii. Field: Body Fat Percentage (%)
	Format: UINT16
	Value: Not relevant
	iii. Field: Time Stamp
	Format: Date and Time
	• Value: August 2 <sup>nd</sup> , 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

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
<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li> </ol>
In Step 5, the manager under test shows the following measurement: 43.8 kg, with timestamp '2012-08-02 11:08:25'
In Step 7, the manager under test shows the following measurement: 96.4 lbs, with timestamp '2012-08-02 11:09:05'

TP ld		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 purpos	e	Check that:
		Manager does not include Body Water Numeric Object - Handle Attribute in transcoder output
		[OR]
		If manager includes Body Water 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 AND C_MAN_BLE_023
Other PICS		
Initial condition		The Manager under test and the Simulated Agent are in Standby state
Test procedure		<ol> <li>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).</li> </ol>
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:
		a. Body Composition Measurement (0x2A9C)
		i. Field: Flags
		Format: 16bit
		<ul> <li>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</li> </ul>

	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: 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
	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 Body Water Numeric Object – Handle attribute
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

Handle attribute is not present, or if it is present then:
Object: Body Water Numeric Object
Attribute-id: MDC_ATTR_ID_HANDLE (2337)
Attribute-type: INT-U16
Attribute-value: Any value different than 0
b) WAN PCD-01 message
PCD-01 message does not include segments with Handle attribute value

TP Id TP label		TP/LP-PAN/MAN/PHDTW/WS/BV-053
		Whitepaper. Body Water Mass Numeric Object - Type Attribute
Coverage	Spec	[Bluetooth PHDT v1.5]
	Testable items	Body Water Numeric 2; M
Test purpos	е	Check that:
		Manager includes Body Water Numeric Object – Type attribute in transcoder output. [AND]
		Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_WATER}
Applicability	,	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023
Other PICS		
Initial condit	ion	The Manager under test and the Simulated Agent are in Standby state
Test procedure		<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Body Composition Measurement (0x2A9C)</li> <li>Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> </ul> </li> </ol>
		<ul> <li>Value: Not relevant</li> <li>iv. Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>v. Field: Fat Free Mass (lb)</li> <li>This field is not included</li> </ul>

	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
	<ol> <li>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)</li> </ol>
	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 Body Water Numeric Object – Type attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Type attribute is present:
	Object: Body Water Numeric Object
	Attribute-id: MDC_ATTR_ID_TYPE (2351)
	Attribute-type: SEQUENCE {partition (INT-U16), code (INT-U16)}
	□ Attribute-value:
	<ul> <li>partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)</li> </ul>
	<ul> <li>code: MDC_MASS_BODY_WATER or 57692 (dec) or E1 5C (hex)</li> </ul>
	b) WAN PCD-01 message
L	

PC	D-01 message includes a segment like this with Type attribute (check OBX-3):
OB	3X ?  188764^MDC_MASS_BODY_WATER^MDC 1.0.a      X   [current_date_time]

TP ld		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 purpos	e	Check that: Manager includes Body Water Numeric Object – Metric-Spec-Small attribute in transcoder output. [AND] Metric-Spec-Small is set to {0xF040} (mss-avail-intermittent   mss-avail-stored-data   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).
Applicability	/	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023
Other PICS		
Initial condition	tion	The Manager under test and the Simulated Agent are in Standby state
Test proced	ure	<ol> <li>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).</li> </ol>
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:
		a. Body Composition Measurement (0x2A9C)
		i. Field: Flags
		Format: 16bit
		<ul> <li>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</li> </ul>
		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: 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
	<ol> <li>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)</li> </ol>
	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 Body Water Numeric Object – Metric-Spec- Small attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Metric-Spec-Small attribute is present:
	Object: Body Water 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
	b) WAN PCD-01 message

TP ld		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		Check that: Manager includes Body Water Numeric Object – Unit-Code attribute in transcoder output. [AND] 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 [AND] IF Body Water Mass (Ib) field of Body Composition Measurement characteristic is present THEN Body Water Mass (Ib) field of Body Composition Measurement characteristic is present THEN Body Water Numeric Object – Unit-Code attribute is set to MDC_DIM_LB
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023
Other PICS		
Initial conditi	on	The Manager under test and the Simulated Agent are in Standby state
Test procedu	Ire	<ol> <li>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).</li> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:         <ul> <li>Body Composition Measurement (0x2A9C)</li> </ul> </li> <li>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)</li> <li>When the pairing has been completed (Connection state) the Simulated Agent sends the Measurement to Manager under test with the following value:         <ul> <li>Body Composition Measurement (0x2A9C)</li> <li>Field: Flags</li> <li>Format: 16bit</li> <li>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</li> <li>Field: Body Fat Percentage (%)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Format: Date and Time</li> <li>Value: Not relevant</li> <li>Field is not included</li> <li>This field is not included</li> <li>Value: Not relevant</li> </ul> </li> </ol>

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
<ol> <li>Check in Manager transcoder output the Body Water Numeric Object – Unit-Code attribute</li> <li>Simulated Agent sends the Measurement to Manager under test with the following value:</li> </ol>
<ul> <li>b. Body Composition Measurement (0x2A9C)</li> </ul>
<ul><li>xvii. Field: Flags</li><li>Format: 16bit</li></ul>
<ul> <li>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</li> </ul>
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

	xxii. Field: Soft Lean Mass (kg)
	This field is not included
	xxiii. Field: Soft Lean Mass (lb)
	This field is not included
	xxiv. Field: Body Water Mass (kg)
	This field is not included
	xxv. Field: Body Water Mass (lb)
	Format: UINT16
	Value: Not relevant
	xxvi. Field: Basal Metabolism
	This field is not included
	xxvii. Field: Muscle Percentage
	This field is not included
	xxviii. Field: Muscle Mass
	This field is not included
	xxix. Field: Impedance
	This field is not included
	xxx. Field: Weight
	This field is not included
	xxxi. Field: Height
	This field is not included
	xxxii. Field: User ID
	This field is not included
	<ol> <li>Check in Manager transcoder output the Body Water Numeric Object – Unit-Code attribute.</li> </ol>
Pass/Fail criteria	In Step 5, the Body Water Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_KILO_G
	In Step 7, the Body Water Numeric Object – Unit-Code attribute is present and its value is MDC_DIM_LB
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Unit-Code attribute is present:
	Object: Body Water 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)
	<ul> <li>Attribute-value: MDC_DIM_KILO_G or 1731 (dec) or 06 C3 (hex)</li> <li>b) WAN PCD-01 message</li> </ul>
	b) WAN PCD-01 message

In Step 7, possible values in typical points of observation after transcoder output are:
a) IEEE 11073 Objects and Attributes
Unit-Code attribute is present:
Object: Body Water 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)
b) WAN PCD-01 message
PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6):
OBX ? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a XX  263904^MDC_DIM_LB^MDC     R   [current_date_time]

TP ld		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 purpo	se	Check that:	Check that:		
		Manager transcodes Time Stamp field of Body Composition Measurement characteristic into Body Water Numeric Object - Absolute-Time-Stamp attribute			
		[AND]			
		Manager transcodes the Bluetooth Time Stamp field format to Absolute Time format			
		[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_023 AND C_MAN_BLE_025			
Other PICS					
Initial condition The Manager under test and the Simulated Agent are in Standby state		andby state			
Test procedure		<ol> <li>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).</li> </ol>			
		2. Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:			
		a. Body Composition	Measurement (0x2A9C)		
			iates discovery process (Scanni starts a pairing process with the	ng state), it discovers the Simulated Agent (Initiating state	
		4. When the pairing has b	een completed (Connection stat	te) the Simulated Agent sends the	

	Measurement to Manager under test with the following value:
	a. Body Composition Measurement (0x2A9C)
	i. Field: Flags
	Format: 16bit
	<ul> <li>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</li> </ul>
	ii. Field: Body Fat Percentage (%)
	Format: UINT16
	Value: Not relevant
	iii. Field: Time Stamp
	Format: Date and Time
	• Value: August 2 <sup>nd</sup> , 2012, 10:39:27
	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: 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 – Absolute-Time- Stamp attribute
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Absolute-Time-Stamp attribute is present:
	Object: Body Water Numeric Object
	Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)
	<ul> <li>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)</li> </ul>
	□ Attribute-value:
	• 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)
	<ul> <li>sec-fractions: 00 (hex) or 0 (dec)</li> </ul>
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Absolute-Time-Stamp attribute value (check OBX-14):
	OBX ?  188764^MDC_MASS_BODY_WATER^MDC 1.0.a      X   20120802103927+0000

TP Id TP label		TP/LP-PAN/MAN/PHDTW/	WS/BV-057	
		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			Water Mass Value field of Body Co ater Numeric Object - Simple-Nu-Ob	
Applicabilit	у	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 ar	nd the Simulated Agent are in Stand	by state
Test procedure			nfigured with a Profile (device specia has a measurement ready to be ser	
		2. Simulated Agent imple for this Test Case is:	ements several BTLE characteristics	. The characteristic of interest
		a. Body Composition	n Measurement (0x2A9C)	

<ol> <li>Manager under test initiates discovery process (Scanning state), it discovers the Simulated Agent and it starts a pairing process with Simulated Agent (Initiating state)</li> </ol>
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
<ul> <li>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</li> </ul>
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
<ul> <li>Value: 9500 (47.5 kg)</li> </ul>
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

<ol> <li>Check in Manager transcoder output the Body Water Numeric Object – Simple-Nu- Observed-Value attribute</li> </ol>	
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> <li>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</li> </ul>	
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-	

ep 5, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present
ts value matches with Body Water Mass Value (kg) field of Body Composition surement characteristic (47.5)
ep 7, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present to value matches with Body Water Mass Value (lb) field of Body Composition surement characteristic (104.5).
ep 5, possible values in typical points of observation after transcoder output are:
EEE 11073 Objects and Attributes
le-Nu-Observed-Value attribute is present:
Object: Body Water Numeric Object
Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
Attribute-type: FLOAT
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)
VAN PCD-01 message
01 message includes a segment like this with Simple-Nu-Observed-Value attribute valuek OBX-5):
? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a 47.5
3875^MDC_DIM_KILO_G^MDC     R   [current_date_time]
ep 7, possible values in typical points of observation after transcoder output are:
EEE 11073 Objects and Attributes
le-Nu-Observed-Value attribute is present:
Object: Body Water Numeric Object
Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
Attribute-type: FLOAT
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)
VAN PCD-01 message
01 message includes a segment like this with Simple-Nu-Observed-Value attribute value k OBX-5):
? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a 104.5
3904^MDC_DIM_LB^MDC    R   [current_date_time]

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-058		
		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	)	Check that:		
		Manager transcodes Body Water Mass Value field of Body Composition Measurement characteristic into Body Water Numeric Object - Simple-Nu-Observed-Value attribute		
		[AND]		
		Manager assigns the following special values: NaN (0x007FFFFF).		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023		
Other PICS				
Initial conditi	on	The Manager under test and the Simulated Agent are in Standby state		
Test procedu	ire	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).		
		<ol> <li>Simulated Agent implements several BTLE characteristics. The characteristic of interest for this Test Case is:</li> </ol>		
		a. Body Composition Measurement (0x2A9C)		
		<ol> <li>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)</li> </ol>		
		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		
		<ul> <li>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</li> </ul>		
		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 va	alue:
	a. Body Composition Measurement (0x2A9C)	
	i. Field: Flags	
	Format: 16bit	
	<ul> <li>Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in u of %, Time Stamp and Body Water Mass in units of Kg fields are include Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Lean Mass, Impedance, Weight, Height and User ID fields are not include</li> </ul>	ided, Soft
	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 (Ib)	
	This field is not included	
	vi. Field: Soft Lean Mass (kg)	
	This field is not included	
	vii. Field: Soft Lean Mass (Ib)	

	This field is not included
	viii. Field: Body Water Mass (kg)
	Format: UINT16
	Value: FF FF (hex). Unsuccessful measurement.
	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
Pass/Fail criteria	Observed-Value attribute         In Step 5, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present and its value is 47.5.         In Step 7, the Body Water Numeric Object – Simple-Nu-Observed-Value attribute is present
	and its value is 0x007FFFFF.
Notes	In Step 5, possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Body Water Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	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)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute value (check OBX-5):
	OBX ? NM 188764^MDC_MASS_BODY_WATER ^MDC 1.0.a 47.5
	263875^MDC_DIM_KILO_G ^MDC    R  [current_date_time]

In Step	7, possible values in typical points of observation after transcoder output are:
a) IEE	E 11073 Objects and Attributes
Simple-	Nu-Observed-Value attribute is present:
	Body Water 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)
b) WA	N PCD-01 message
(188764	message does not include segment with Simple-Nu-Observed-Value attribute value 4^MDC_MASS_BODY_WATER^MDC) because it has a special value and this value is uded in PCD-01 message

TP ld		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]	[Bluetooth PHDT v1.5]			
	Testable	Float Type 1; C	Date-Time Conv 1	; M	Body Water Numeric 6; M	
	items	Body Water Numeric 7; N	м			
Test purpos	e	Check that:				
		Manager processes correction Composition Measurement		s Value (kg)	and Time Stamp fields of Body	
Applicability	,	C_MAN_BLE_000 AND	C_MAN_BLE_018 AND (	C_MAN_BLE	_023 AND C_MAN_BLE_025	
Other PICS						
Initial condit	ion	The Manager under test	and the Simulated Agent	are in Stand	lby state	
Test procedure		<ol> <li>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).</li> </ol>				
		2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are:				
		a. Body Composition Measurement (0x2A9C)				
		<ol> <li>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)</li> </ol>				
		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 Compositi	ion Measurement (0x2A9	C)		
		i. Field: Flags				
		Format: 16bit				
		Value	e: 0000 0001 0000 0010 (I	$MSB \rightarrow LSB$	). 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: August 2 <sup>nd</sup> , 2012, 11:08:25
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
	that Manager accepts the measurement and decodes its value properly ment 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 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: August 2 <sup>nd</sup> , 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)
	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
	<ol> <li>Check in that Manager accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li> </ol>
Pass/Fail criteria	In Step 5, the manager under test shows the following measurement: 47.5 kg, with timestamp '2012-08-02 11:08:25'
	In Step 7, the manager under test shows the following measurement: 104.5 lbs, with timestamp '2012-08-02 11:09:05'

TP ld		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 purpo	se	Check that: Manager transcodes Weight Scale measurements and presents them properly in transcoder output.					
Applicabilit	ty	C_MAN_BLE_000 AND (	C_MAN_BLE_002 AND C_MAN_	BLE_017			
Other PICS	i						
Initial cond	ition	The Manager under test a	and the Simulated Agent are in S	tandby state			
Test proced	dure	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:					
		a. Weight Scale	a. Weight Scale Feature (0x2A9E)				
		Format: 32bit					
		Stamp,		0011 0111 (MSB $\rightarrow$ LSB). Time supported. Weight resolution of 0.01 kg 0.5 in			
		b. Weight Measurement (0x2A9D)					
			nitiates discovery process (Scan pairing process with the Simulate	ning state), it discovers the Simulated ed 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					
		a. Weight Measu	irement (0x2A9D)				
		i. Field: F	lags				
		Forma	t: 8bit				
				ht Measurement Value in units of Kg, included, User ID fields is not included			
			Veight (Kg)				
		Forma	t: UINT16				
			16094 (80.47 kg)				
			Veight (Ib)				
			eld is not included				
			ime Stamp				
			t: Date and Time				
			Not relevant				
			leight (m)				
			t: UINT16				
		Value:	1805 (1.805 m)				

	vi. Field: Height (in)
	This field is not included
	vii. Field: BMI (kg/m^2)
	Format: UINT16.
	Value: Not relevant
	viii. Field: User ID
	This field is not included
	6. Check in Manager transcoder output the measurements values.
Pass/Fail criteria	In Step 5, the manager under test shows the following measurements: Weight 80.47 kg, Height 180.5 cm.
Notes	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Weight Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	Attribute-value: FE 00 1F 6F (hex) or 80.47 (dec)
	Simple-Nu-Observed-Value attribute is present:
	Height Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	Attribute-value: FF 00 07 0D (hex) or 180.5 (dec)

TP ld		TP/LP-PAN/MAN/PHDTW/WS/BV-061		
TP label	TP label Whitepaper. Body Composition Feature Characteristic – Measurement Resolution		ent Resolution	
Coverage Spec		[Bluetooth PHDT v1.5]		
	Testable	BC Feature 1; M	BC Feature 2; M	BC Feature 3; M
	items	BC Feature 5; M	BC Feature 6; M	BC Feature 7; M
Test purpo	se	Check that:		
		Manager transcodes Body Composition measurements and presents them properly in transcoder output.		
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		<b>.</b> .	ed with a Profile (device specializat surement ready to be sent and it is	, <b>.</b>

2.	Simulated / this Test Ca	Agent implements several BTLE characteristics. The characteristics of interest for ase are:
	a. Body C	Composition Feature (0x2A9B)
	•	Format: 32bit
	•	Value: 0000 0000 0000 0000 0011 0000 1110 0011 (MSB $\rightarrow$ 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 C	Composition Measurement (0x2A9C)
3.		nder test initiates discovery process (Scanning state), it discovers the Simulated t starts a pairing process with the Simulated Agent (Initiating state)
4. the		airing has been completed (Connection state), force Manager under test to read osition Scale Feature characteristic
5.	Simulated /	Agent sends the Measurement to Manager under test with the following value
	a. Body C	Composition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16bit
		<ul> <li>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</li> </ul>
	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
	х.	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
	6. Check in Manager transcoder output the measurements values.
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	Possible values in typical points of observation after transcoder output are:
	a) IEEE 11073 Objects and Attributes
	Simple-Nu-Observed-Value attribute is present:
	Fat Free Mass Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	□ Attribute-value: FE 00 19 20 (hex) or 64.32 (dec)
	Simple-Nu-Observed-Value attribute is present:
	<ul> <li>Soft Lean Mass Numeric Object</li> </ul>
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	<ul> <li>Attribute-value: FE 00 1B 63 (hex) or 70.11 (dec)</li> </ul>
	Simple-Nu-Observed-Value attribute is present:
	Body Water Numeric Object
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)
	Attribute-type: FLOAT
	Attribute-value: FE 00 16 10 (hex) or 56.48 (dec)

TP Id TP/LP-PAN/MAN/PHDTW/WS/BV-063		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:		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> <li>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).</li> </ol>		
	2. Simulated Agent implements several BTLE characteristics. The characteristics of interest for this Test Case are:		
	a. Body Composition Measurement (0x2A9C)		
	<ol> <li>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)</li> </ol>		
	4. When the pairing has been completed (Connection state) the Simulated Agent sends the next message splitted in two independent Body Composition Measurements:		
	a. Body Composition Measurement (0x2A9C)		
	i. Field: Flags		
	Format: 16bit		
	<ul> <li>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</li> </ul>		
	ii. Field: Body Fat Percentage (%)		
	Format: UINT16		
	• Value: 125 (12.5 %)		
	iii. Field: Time Stamp		
	Format: Date and Time		
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_026 = TRUE)</li> </ul>		
	iv. Field: Fat Free Mass (kg)		
	Format: UINT16		
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_032 = TRUE)</li> </ul>		
	v. Field: Fat Free Mass (lb)		
	This field is not included		
	vi. Field: Soft Lean Mass (kg)		
	Format: UINT16		
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_033 = TRUE)</li> </ul>		
	vii. Field: Soft Lean Mass (lb)		
	This field is not included		
	viii. Field: Body Water Mass (kg)		
	Format: UINT16		
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_034 = TRUE)</li> </ul>		
	ix. Field: Body Water Mass (lb)		
	This field is not included		
	x. Field: Basal Metabolism		
	Format: UINT16		

	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_028 = TRUE)</li> </ul>
	xi. Field: Muscle Percentage
	Format: UINT16
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_029 = TRUE)</li> </ul>
	xii. Field: Muscle Mass (kg)
	Format: UINT16
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_031 = TRUE)</li> </ul>
	xiii. Field: Muscle Mass (lb)
	This field is not included
	xiv. Field: Impedance
	Format: UINT16
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_035 = TRUE)</li> </ul>
	xv. Field: Weight
	This field is not included
	xvi. Field: Height
	This field is not included
	xvii. Field: User ID
	Format: UINT8
	• Value: Not relevant. Present if (C_MAN_BLE_027 = TRUE)
	<ol> <li>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</li> </ol>
	6. Manager receives the second Body Composition Measurement.
	7. Check in Manager transcoder output the measurements values.
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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