

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 system: Personal Health Devices interface Part 10E: Transcoding for Bluetooth Low Energy: Personal Health Gateway – Weighing scales

Recommendation ITU-T H.850.5

-01



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## **Recommendation ITU-T H.850.5**

## Conformance of ITU-T H.810 personal health system: Personal Health Devices interface Part 10E: Transcoding for Bluetooth Low Energy: Personal Health Gateway – Weighing scales

#### Summary

Recommendation ITU-T H.850.5 provides a test suite structure (TSS) and the test purposes (TP) for the transcoding of weighing scales data by personal health gateways in the Personal Health Devices (PHD) interface of application-level data between the Bluetooth Low Energy Bluetooth Generic Attribute Profile (GATT) format and the IEEE 11073-20601 data format, of which Recommendation ITU-T H.810 (2016) is the base Recommendation. The objective of this test specification is to provide a high probability of interoperability at this interface.

Recommendation ITU-T H.850.5 is a transposition of clause 3.7 of Continua Test Tool DG2016, Test Suite Structure & Test Purposes, Personal Health Devices Interface; Part 10: PHD Transcoding Whitepaper. Personal Health Gateway (Version 1.7, 2017-07-18), that was developed by the Personal Connected 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.

This Recommendation is part of ITU-T H.850 that was originally approved in 04/2017 as a single part, but which was split at publication time into eight sub-parts for easier use, maintenance and expandability:

- ITU-T H.850 with the general requirements;
- ITU-T H.850.1 with thermometer PHD requirements;
- ITU-T H.850.2 with blood pressure PHD requirements;
- ITU-T H.850.3 with heart rate PHD requirements;
- ITU-T H.850.4 with glucose meter PHD requirements;
- ITU-T H.850.5 with weighing scales PHD requirements;
- ITU-T H.850.6 with pulse oximeter PHD requirements;
- ITU-T H.850.7 with continuous glucose monitoring PHD requirements.

#### History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T H.850.5	2017-04-29	16	11.1002/1000/13358

#### Keywords

Bluetooth Generic Attribute Profile, Bluetooth Low Energy (BLE), Continua Design Guidelines, Conformance testing, data format transcoding, e-health, IEEE 11073-20601, ITU-T H.810, personal area network, personal connected health devices, Personal Health Devices interface, Personal Health Gateway, touch area network, weighing scales.

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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/11.1002/1000/11830-en</u>.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <u>http://www.itu.int/ITU-T/ipr/</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 clause 3.7 of Continua Test Tool DG2016, Test Suite Structure & Test Purposes, Personal Health Devices Interface; Part 10: PHD Transcoding Whitepaper. Personal Health Gateway (Version 1.7, 2017-07-18), that was developed by the Personal Connected Health Alliance. The table below shows the revision history of this test specification; it may contain versions that existed before transposition.

Version	Date	Revision history	
1.0	2012-10-05	Initial release for Test Tool DG2011 based on the requirements in [b-CDG 2011].	
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 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 adds new features included in [b-ITU-T H.810 (2013)]/[b-CDG 2013]:</li> <li>Adds glucose meter BLE</li> <li>Adds BLE SSP support</li> <li>Adds NFC new transport</li> <li>Adds INR device specialization</li> </ul>	
1.3	2014-04-24	<ul> <li>TM Lite &amp; Doc Enhancements (Test Tool v4.0 Maintenance Release 1). It uses "TSS&amp;TP_DG2013_LP-PAN_PART_10_v1.2.doc" as a baseline and adds new features included in Documentation Enhancements:</li> <li>"Other PICS" row has been added.</li> </ul>	
1.4	2015-07-01	<ul> <li>Initial release for Test Tool DG2015. It uses "TSS&amp;TP_DG2013_LP-PAN_PART_10_v1.3.doc" as a baseline and adds new features included in [b-ITU-T H.810 (2015)]/[b-CDG 2015]:</li> <li>Adds WS/BCA BLE device specialization</li> <li>Adds SABTE IEEE device specialization</li> </ul>	
1.5	2016-01-26	First maintenance release for Test Tool DG2015. It uses "TSS&TP_DG2015_LP-PAN_PART_10_v1.4.doc" as a baseline and adds some updates according to the Maintenance 2015 activity.	
1.6	2016-09-20	<ul> <li>Initial release for Test Tool DG2016. It uses "TSS&amp;TP_ DG2016_LP-PAN_PART_10_v1.5.doc" as a baseline and adds new features included in [ITU-T H.810 (2016)]/[b-CDG 2016]:</li> <li>Adds PLX BLE device specialization</li> <li>Adds PLX CGM device specialization</li> </ul>	
1.7	2017-07-18	Second Maintenance Release for Test Tool DG2016. It uses "TSS&TP_DG2016_LP-PAN_PART_10_v1.6.doc" as a baseline and corrects minor typos.	

## **Recommendation ITU-T H.850.5**

## Conformance of ITU-T H.810 personal health system: Personal Health Devices interface Part 10E: Transcoding for Bluetooth Low Energy: Personal Health Gateway – Weighing scales

#### 1 Scope

The scope of this Recommendation<sup>1</sup> is to provide a test suite structure (TSS) and the test purposes (TP) for the Personal Health Devices interface based on the requirements defined in the Continua Design Guidelines (CDG) [ITU-T H.810 (2016)]. The objective of this test specification is to provide a high probability of interoperability at this interface.

The TSS and TP for the Personal Health Devices interface have been divided into the parts specified below. This Recommendation covers Part 10E.

- Part 1: Optimized exchange protocol. Personal Health Device
- Part 2: Optimized exchange protocol. Personal Health Gateway
- Part 3: Continua design guidelines. Personal Health Device
- Part 4: Continua design guidelines. Personal Health Gateway
- Part 5: Device specializations. Personal Health Devices interface. This document is divided into the following 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
  - Part 5K: Peak expiratory flow monitor
  - Part 5L: Body composition analyser
  - Part 5M: Basic electrocardiograph
  - Part 5N: International normalized ratio monitor
  - Part 5O: Sleep apnoea breathing therapy equipment (SABTE)
  - Part 5P: Continuous glucose monitor (CGM)

<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.

- Part 6: Device specializations. Personal Health Gateway
- Part 7: Continua Design Guidelines. BLE Personal Health Device
- Part 8: Continua Design Guidelines. BLE Personal Health Gateway
- Part 9: Personal Health Devices Transcoding Whitepaper. Personal Health Devices
- Part 10: Personal Health Devices Transcoding Whitepaper. Personal Health Gateway. In addition to the main part, the document is subdivided in the following subparts:
  - Part 10A: Whitepaper Thermometer requirements
  - Part 10B: Whitepaper Blood pressure requirements
  - Part 10C: Whitepaper Heart rate requirements
  - Part 10D: Whitepaper Glucose meter requirements
  - Part 10E: Whitepaper Weighing scales requirements
  - Part 10F: Whitepaper Pulse oximeter requirements
  - Part 10G: Whitepaper Continuous glucose monitoring requirements

#### 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 (2016)]	Recommendation ITU-T H.810 (2016), <i>Interoperability design</i> guidelines for personal health systems.
[Bluetooth PHDT v1.4]	Bluetooth SIG (2013), <i>Personal Health Devices Transcoding</i> <i>White Paper</i> , v1.4. <u>https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=2945</u> <u>39</u>
[Bluetooth PHDT v1.5]	Bluetooth SIG (2014), <i>Personal Health Devices Transcoding</i> <i>White Paper</i> , v1.5. <u>https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=2723</u> <u>46</u>
[Bluetooth PHDT v1.6]	Bluetooth SIG (2015), <i>Personal Health Devices Transcoding</i> <i>White Paper</i> , v1.6. <u>https://www.bluetooth.org/DocMan/handlers/DownloadDoc.ashx?doc_id=3106</u> <u>57</u>
[ISO/IEEE 11073-104xx]	ISO/IEEE 11073-104xx (in force), <i>Health informatics –</i> <i>Personal health device communication – Device specialization</i> . NOTE – Shorthand to refer to the collection of device specialization standards that utilize [ISO/IEEE 11073-20601- 2015A], where xx can be any number from 01 to 99, inclusive.
[ISO/IEEE 11073-20601-2015A]	ISO/IEEE 11073-20601:2010, <i>Health informatics – Personal</i> <i>health device communication – Part 20601: Application</i> <i>profile – Optimized exchange protocol</i> , including ISO/IEEE 11073-20601:2010 Amd 1:2015.
	https://www.iso.org/standard/64331.html with

[ISO/IEEE 11073-20601-2016C]	ISO/IEEE 11073-20601:2016, <i>Health informatics – Personal</i> <i>health device communication – Part 20601: Application</i> <i>profile – Optimized exchange protocol</i> , including ISO/IEEE 11073-20601:2016/Cor.1:2016. <u>https://www.iso.org/standard/66717.html</u> with <u>https://www.iso.org/standard/71886.html</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> <u>http://www.ihe.net/Technical Framework/upload/IHE PCD TF Rev2-0 Vol1 FT 2012-08-16.pdf</u>
[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> <u>http://www.ihe.net/Technical Framework/upload/IHE_PCD_TF_Rev2-0_Vol2_FT_2012-08-16.pdf</u>
[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> http://www.ihe.net/Technical_Framework/upload/IHE_PCD_TF_Rev2- 0_Vol3_FT_2012-08-16.pdf

## **3** Definitions

#### **3.1** Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

**3.1.1 agent** [ISO/IEEE 11073-20601-2016C]: A node that collects and transmits personal health data to an associated manager.

**3.1.2 manager** [ISO/IEEE 11073-20601-2016C]: 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** CGM **Continuous Glucose Monitor** DUT **Device Under Test** GUI Graphical User Interface INR International Normalized Ratio IP **Insulin Pump** 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 Health Device
PHDC	Personal Healthcare Device Class
PHG	Personal Health Gateway
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation extra Information for Testing
RACP	Record Access Control Point
SABTE	Sleep Apnoea Breathing Therapy Equipment
SCR	Static Conformance Review
SDP	Service Discovery Protocol
SOAP	Simple Object Access Protocol
TCRL	Test Case Reference List
TCWG	Test and Certification Working Group
TP	Test Purposes
TSS	Test Suite Structure
USB	Universal Serial Bus
WDM	Windows Driver Model

## 5 Conventions

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

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

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

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

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

In this document, hexadecimal numbers are denoted either with the prefix "0x" or by "(hex)" after the number; "(dec)" after a number indicates it is expressed in decimal format.

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 [b-CDG 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	[b-ITU-T H.810 (2015)]	5.1	Release 2015 plus errata noting all ratified bugs [b-CDG 2015]. The 2013 edition of ITU-T H.810 is split into eight parts in the ITU-T H.810-series.	_
2015	_	5.0	Release 2015 of the CDG including maintenance updates of the CDG 2013 and additional guidelines that cover new functionalities.	Genome
2013 plus errata	[b-ITU-T H.810 (2013)]	4.1	Release 2013 plus errata noting all ratified bugs [b-CDG 2013].	_
2013	_	4.0	Release 2013 of the CDG including maintenance updates of the CDG 2012 and additional guidelines that cover new functionalities.	Endorphin
2012 plus errata	_	3.1	Release 2012 plus errata noting all ratified bugs [b-CDG 2012].	-
2012	_	3.0	Release 2012 of the CDG including maintenance updates of the CDG 2011 and additional guidelines that cover new functionalities.	Catalyst
2011 plus errata	_	2.1	CDG 2011 integrated with identified errata.	-
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 Personal Health Devices interface have been divided into the groups and subgroups specified below. Annex A describes the TPs for subgroup 2.4.6 (shown in bold).

- Group 1: Personal Health Device (PHD)
  - 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: IEEE 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)
      - Subgroup 1.3.11: Peak flow (PF)
      - Subgroup 1.3.12: Body composition analyser (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)
      - Subgroup 1.3.16: Continuous glucose monitor (CGM)
  - 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)
- Subgroup 1.4.7: Whitepaper pulse oximeter requirements (PLX)
- Subgroup 1.4.8: Whitepaper continuous glucose monitoring requirements (CGM)
- Group 2: Personal Health Gateway (PHG)
  - 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: IEEE 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)
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    - Subgroup 2.4.1: Whitepaper general requirements (GEN)
    - Subgroup 2.4.2: Whitepaper thermometer requirements (TH)
    - Subgroup 2.4.3: Whitepaper blood pressure measurement requirements (BPM)

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- Subgroup 2.4.4: Whitepaper heart rate requirements (HR)
- Subgroup 2.4.5: Whitepaper glucose meter requirements (GL)
- Subgroup 2.4.6: Whitepaper weight scale requirements (WS)
- Subgroup 2.4.7: Whitepaper pulse oximeter requirements (PLX)
- Subgroup 2.4.8: Whitepaper continuous glucose monitoring requirements (CGM)

#### 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 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)
  - OUT>: This is the device under test.
    - PHD: Personal Health Device
    - PHG: Personal Health Gateway
  - <GR>: This identifies a group of test cases.
  - <SGR>: This identifies a subgroup of test cases.
  - <XX>: This identifies the type of testing.
    - BV: Valid behaviour test
    - BI: Invalid behaviour test
  - <NNN>: This is a sequential number that identifies a test purpose.
- **TP label**: This is the TP's title.
  - Coverage: This contains the specification reference and clause to be checked by the TP.
    - Spec: This indicates the earliest version of the specification from which the testable items to be checked by the TP were included.
    - Testable item: This contains the 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/PHG/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:			
		PHG does not include MDS object, System-Type attribute in transcoder output.			
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE 018)			
Other PICS					
Initial condit	on	The PHG under test and the simulated Personal Health Device (PHD) are in Standby state.			
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> <li>Check in PHG transcoder output the MDS object, System-Type attribute</li> </ol>			
Pass/Fail crit	eria	In Step 4, the MDS object, System-Type attribute is not present.			
Notes		<ul> <li>Possible values in typical points of observation after transcoder output are:</li> <li>a) IEEE 11073 Objects and Attributes</li> <li>System-Type attribute is not present:</li> <li>Object: MDS Object</li> <li>Attribute-id: MDC_ATTR_SYS_TYPE (2438)</li> <li>Attribute-type: TYPE</li> <li>Attribute-value: <not present=""></not></li> <li>b) WAN PCD-01 message</li> <li>PCD-01 message does not include segments with System-Type attribute value</li> </ul>			

# A.2 Subgroup 2.4.6 – Whitepaper Weight scale requirements (WS)

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-001			
TP label		Whitepaper. Weight Scale MDS Object - Dev-Configuration-Id Attribute			
Coverage	Spec	[Bluetooth PHDT v1.5]			
	Testable items	Common MDS 17; M			
Test purpose Che		Check that: PHG includes MDS object, Dev-Configuration-Id attribute in transcoder output.			
Dev-Configuration-Id value is set to any value in range of 0x4000 to 0x7FFF (External Configuration)		00 to 0x7FFF (Extended			

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 PHG under test and the simulated PHD are in the Standby state.				
Test procedure	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ol>				
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>				
	4. Check in PHG transcoder output the MDS object, Dev-Configuration-Id attribute				
Pass/Fail criteria	In Step 4, the MDS object, Dev-Configuration-Id attribute is present, its value is inside the range 0x4000 - 0x7FFF				
Notes	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 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/PHG/PHDTW/WS/BV-002				
TP label		Whitepaper. Weight Scale	Whitepaper. Weight Scale MDS Object - System-Type-Spec-List Attribute [Profile Scale]			
Coverage	Spec	[Bluetooth PHDT v1.5]	[Bluetooth PHDT v1.5]			
	Testable items	Common MDS 15; M	WS Specific MDS 2; M			
Test purpose		Check that:	Check that:			
		PHG 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		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND (NOT C_MAN_BLE_018)				
Other PICS						
<b>Initial condition</b> The PHG under test and the simulated PHD are in the Standby state.		y state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable). It exposes only the Weight Scale Service.</li> </ol>				
		2. The PHG under test in simulated PHD and it s	2. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).			
		3. When the pairing has been completed (Connection state) the simulated PHD sends the				

	Measurement to the PHG under test.
	4. Check in PHG transcoder output the MDS object, System-Type-Spec-List attribute
Pass/Fail criteria	In Step 4, the MDS object, System-Type-Spec-List attribute is present, its value is (MDC_DEV_SPEC_PROFILE_SCALE, Version 1)
Notes	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_SCALE, 4111 (dec) or 10 0F (hex)</li> </ul>
	• version: 1 (dec) or 00 01 (hex)
	b) WAN PCD-01 message
	PCD-01 message includes a segment like this with System-Type-Spec-List attribute value (check OBX-5):
	OBX ? NM 68186^MDC_ATTR_SYS_TYPE_SPEC_LIST^MDC 1.0.0.a  528399^MDC_DEV_SPEC_PROFILE_SCALE^MDC      R

TP ld		TP/LP-PAN/PHG/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 purpo	se	Check that:			
		PHG includes MDS object, System-Type-Spec-List attribute in transcoder output.			
		[AND]			
		System-Type-Spec-List is	set to (MDC_DEV_SPEC_PROFI	LE_BCA, Version 1)	
Applicabili	ty	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND C_MAN_BLE_018			
Other PICS					
Initial cond	lition	The PHG under test and the simulated PHD are in the Standby state.		by state.	
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable). It exposes both Weight Scale Service and Body Composition Service.</li> </ol>			
		2. The PHG under test i simulated PHD and it	nitiates a discovery process (Scan starts a pairing process with the s	ning state), it discovers the imulated PHD (Initiating state).	
		<ol> <li>When the pairing has Measurement to the F</li> </ol>	been completed (Connection state PHG under test.	e) the simulated PHD sends the	
		4. Check in PHG transc	oder output the MDS object, Syste	m-Type-Spec-List attribute	
Pass/Fail c	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).		is present, its value is		
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_BCA, 4116 (dec) or 10 14 (hex)</li> </ul>
	• version: 1 (dec) or 00 01 (hex)
b)	WAN PCD-01 message
	PCD-01 message includes a segment like this with System-Type-Spec-List attribute value (check OBX-5):
	OBX ? NM 68186^MDC_ATTR_SYS_TYPE_SPEC_LIST^MDC 1.0.0.a  528404^MDC_DEV_SPEC_PROFILE_BCA ^MDC      R

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-003			
TP label		Whitepaper. Weight Scale MDS Object - Reg-Cert-Data-List Attribute [Profile Scale]			
Coverage	Spec	[Bluetooth P	Bluetooth PHDT v1.5]		
	Testable items	Common ME	DS 14; M	Regulatory Conv 1; M	
Test purpose		Check that: PHG transcodes IEEE 11073-20601 Regulatory Certification Data List characteristic into MDS object, Reg-Cert-Data-List attribute			
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017 AND (NOT C_MAN_BLE_018)			
Other PICS					
Initial condition		The PHG under test and the simulated PHD are in the Standby state.			
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable). It exposes only the Weight Scale Service.</li> </ol>			
		2. The sim interest	ulated PHD impleme for this test case is:	nts several BTLE characteristics. The cha	aracteristic of
		a. IEE	E 11073-20601 Regu	ulatory Certification Data List (0x2A2A)	
		•	Format: reg-cert-dat	a-list (opaque structure)	
		•	Value: 00 02 00 12 ( (hex)	02 01 00 08 06 01 00 01 00 02 80 0F 02	02 00 02 80 00
			i. Element:		
			<ul> <li>auth-body-</li> </ul>	and-struc-type:	
			- auth-bo	ody: 02 (hex) auth-body-continua(2)	
			- auth-bo	ody-struc-type: 01 (hex). continua-versior	n-struct(1)
			<ul> <li>auth-body-</li> </ul>	data:	
			- major-l	G-version: 06 (hex)	
			- minor-l	G-version: 01 (hex)	
			- certifie	d-devices: 80 0F (hex) BTLE Weight Sca	le.

	ii. 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
	<ol><li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD.</li></ol>
	<ol> <li>When the pairing has been completed (Connection state), force the PHG under test to read IEEE 11073-20601 Regulatory Certification Data List characteristic.</li> </ol>
	5. Check in PHG 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 06 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:
	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: 06 (hex)
	- minor-IG-version: 01 (hex)
	- certified-devices: 80 0F (hex). BTLE Weight Scale.
	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 6.1      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/PHG/PHDTW/WS/BV-003_A				
TP label		Whitepaper. Weight Scale MDS Object - Reg-Cert-Data-List Attribute [Profile BCA]				
Coverage	Spec	Bluetooth PHDT v1.5				
	Testable items	Common MDS 14; M Regulatory Conv 1; M				
Test purpos	e	Check that: PHG 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 condit	tion	The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		1. The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).				
		2. The simulated PHD implements several BTLE 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)				
		• Value: 00 02 00 12 02 01 00 08 06 01 00 01 00 02 80 14 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)				
		auth-body-data:				
		- major-IG-version: 06(hex)				
		- minor-IG-version: 01 (hex)				
		- certified-devices: 80 14 (hex). BTLE Body Composition.				
		ii. 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				
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD.				
		4. When the pairing has been completed (Connection state), force the PHG under test to read IEEE 11073-20601 Regulatory Certification Data List characteristic.				
		5. Check in PHG transcoder output the MDS object, Reg-Cert-Data-List attribute				
Pass/Fail cri	iteria	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 06 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]
	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: 06(hex)
	- minor-IG-version: 01 (hex)
	- certified-devices 80 14 (hex). BTLE Body Composition.
	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 6.1      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/LP-PAN/PHG/PHDTW/WS/BV-004
	Whitepaper. Weight Numeric Object - Handle Attribute
Spec	[Bluetooth PHDT v1.5]
Testable items	Weight Numeric 1; O
se	Check that:
	PHG does not include Weight Numeric object, Handle Attribute in transcoder output
	Spec Testable items

	If PHG 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 PHG under test and the simulated PHD are in the Standby state.
Test procedure	1. The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).
	2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8 bit
	<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
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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 ld	TP/LP-PAN/PHG/PHDTW/WS/BV-005
TP label	Whitepaper. Weight Numeric Object - Type Attribute
Coverage Spec	[Bluetooth PHDT v1.5]
Testak items	le Weight Numeric 2; M
Test purpose	Check that: PHG includes Weight Numeric object, Type attribute in transcoder output. [AND] Type is set to {MDC_PART_SCADA, MDC_MASS_BODY_ACTUAL}
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 PHG under test and the simulated PHD are in the Standby state.
Test procedure	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD 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: 8 bit</li> <li>Value: 0000 0010 (MSB → LSB). Weight Measurement Value in units of Kg and Time Stamp fields are included, BMI, Height and User ID fields are not included</li> <li>Field: Weight (Kg)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>Field: Time Stamp</li> <li>Field: Neight (lb)</li> <li>This field is not included</li> <li>Field: Height (m)</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>With Field: BMI (kg/m²2)</li> <li>This field is not included</li> <li>With Field: user ID</li> <li>This field is not included</li> </ul> </li> </ol>

	The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).			
	When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.			
	5. Check in PHG 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/PHG/PHDTW/WS/BV-006				
TP label		Whitepaper. Weight Numeric Object - Metric-Spec-Small Attribute				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	Weight Numeric 3; M				
Test purpose	•	Check that:				
		PHG 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   mss- upd-aperiodic   mss-msmt-aperiodic   mss-acc-agent-initiated).				
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)				
Other PICS						
Initial conditi	itial condition The PHG under test and the simulated PHD are in the Standby state.					
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
		a. Weight Measurement (0x2A9D)				
		i. Field: Flags				
		Format: 8 bit				
		<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
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>
	5. Check in PHG 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
	PCD-01 message does not include segments with Metric-Spec-Small attribute value

	TP/LP-PAN/PHG/PHDTW/WS/BV-007			
TP label Whitepaper. Weight Numeric Object - Unit-Code Attribute				
Spec	[Bluetooth PHDT v1.5]			
Testable items	Weight Numeric 4; M	Weight Numeric 5; M		
se	Check that:			
	Spec Testable items	TP/LP-PAN/PHG/PHDTW, Whitepaper. Weight Nume Spec [Bluetooth PHDT v1.5] Testable items Weight Numeric 4; M iems Check that: PHG includes Weight Numeric 4	TP/LP-PAN/PHG/PHDTW/WS/BV-007         Whitepaper. Weight Numeric Object - Unit-Code Attribute         Spec       [Bluetooth PHDT v1.5]         Testable items       Weight Numeric 4; M       Weight Numeric 5; M         Get       Check that: PHG includes Weight Numeric object, Unit-Code attribute	

	[AND]					
	IF Weight (Kg) field of Weight Measurement characteristic is present THEN Weight Numeric					
	object, Unit-Code attribute is set to MDC_DIM_KILO_G					
	[AND]					
	IF Weight (Ib) field of Weight Measurement characteristic is present THEN Weight 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_017 OR C_MAN_BLE_018)					
Other PICS						
Initial condition	The PHG under test and the simulated PHD are in the Standby state.					
Test procedure	1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).					
	2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
	a. Weight Measurement (0x2A9D)					
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).					
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:					
	a. Weight Measurement (0x2A9D)					
	i. Field: Flags					
	Format: 8 bit					
	<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					
	5. Check in PHG transcoder output the Weight Numeric object, Unit-Code attribute					
	<ol> <li>The simulated PHD sends the Measurement to the PHG under test with the following value:</li> </ol>					
	a. Weight Measurement (0x2A9D)					

	i Field: Flags
	<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 PHG 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)
	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]

TP ld	TP Id TP/LP-PAN/PHG/PHDTW/WS/BV-008						
TP label		Whitepaper. Weight Numeric Object - Absolute-Time-Stamp Attribute					
Coverage	Spec	[Blue	[Bluetooth PHDT v1.5]				
	Testable items	Wei	ght Nun	neric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M	
		Date	e-Time (	Conv 4; M	Date-Time Conv 5; M		
Test purpo	se	Che	ck that:				
		PHO Obje	PHG transcodes Time Stamp field of Weight Measurement characteristic into Weight Numeric Object - Absolute-Time-Stamp attribute				
		[ANI	D]				
		PHO	G transc	odes the Bluetooth	Time Stamp field format to Absolu	ute Time format	
		[ANI	D]				
		The	fraction	of seconds in Abso	olute Time at transcoder output is	0	
Applicabilit	ty	C_N OR	IAN_BL C_MAN	E_000 AND C_MAI _BLE_018)	N_BLE_002 AND C_MAN_BLE_0	24 AND (C_MAN_BLE_017	
Other PICS							
Initial cond	ition	The	The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).					
		2.	2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
			a. We	eight Measurement	(0x2A9D)		
		3.	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).				
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to PHG under test with the following value:					
			a. We	eight Measurement	(0x2A9D)		
			i.	Field: Flags			
				• Format: 8 bit			
				<ul> <li>Value: 0000 ( and Time Sta included</li> </ul>	0010 (MSB $\rightarrow$ LSB). Weight Meas Imp fields are included, Height, BN	surement Value in units of Kg II and User ID fields are not	
			ii.	Field: Weight (Kg)	)		
				Format: UINT	-16		
				• Value: Not re	levant		
			iii.	Field: Weight (lb)			
				• This field is n	ot included		
			iv.	Field: Time Stamp	)		

	Format: Date and Time
	• Value: August 2nd, 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
	<ol> <li>Check in PHG transcoder output the Weight Numeric object, Absolute-Time-Stamp attribute</li> </ol>
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:
	• 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/PHG/PHDTW/WS/BV-009			
TP label		Whitepaper. Weight Numeric Object - Simple-Nu-Observed-Value Attribute 1			
Coverage	Spec	[Bluetooth PHDT v1.5]			
Testable items		Weight Numeric 7; M	Float Type 1; C		

Test purpose	Check that:				
	PHG transcodes Weight Value field of Weight Measurement characteristic into Weight Numeric Object - Simple-Nu-Observed-Value attribute				
Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018)				
Other PICS					
Initial condition	The PHG under test and the simulated PHD are in the Standby state.				
Test procedure	1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).				
	<ol><li>The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:</li></ol>				
	a. Weight Measurement (0x2A9D)				
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with simulated PHD (Initiating state).				
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:				
	a. Weight Measurement (0x2A9D)				
	i. Field: Flags				
	Format: 8 bit				
	<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: 16000 (80.0 kg)				
	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 PHG transcoder output the Weight Numeric object, Simple-Nu-Observed-Value attribute				
	6. The simulated PHD sends the Measurement to the PHG under test with the following value:				
	a. Weight Measurement (0x2A9D)				
	i. Field: Flags				
	Format: 8 bit				

	1		
			<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
		٧.	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 i attribute	n PHG transcoder output the Weight Numeric object, Simple-Nu-Observed-Value
Pass/Fail criteria	In St value chara In St value	ep 5, th e match acteristi ep 7, th e match acteristi	e Weight Numeric object, Simple-Nu-Observed-Value attribute is present and its es with Weight Measurement Value (Kg) fields of Weight Measurement c (80.0) e Weight Numeric object, Simple-Nu-Observed-Value attribute is present and its es with Weight Measurement Value (lb) fields of Weight Measurement ic (176.0)
•	-		
Notes	Poss	sible val	ues in typical points of observation after transcoder output are:
	a)	1666 1'	1073 Objects and Attributes
		Simple-	Nu-Observed-Value attribute is present:
			induce-type: FLOAT
		00 80.	1F 40 (hex) or FF 00 03 20 (hex) or 00 00 00 50 (hex) or 01 00 00 08 (hex) or 0 (dec)
	b)	WAN P	CD-01 message
		PCD-01 value (c	message includes a segment like this with Simple-Nu-Observed-Value attribute heck OBX-5):
		OB 263	X ? NM 188736^MDC_MASS_BODY_ACTUAL^MDC 1.0.a 80.0  3875^MDC_DIM_KILO_G^MDC    R   [current_date_time]
	In St	ер 7, ро	ossible values in typical points of observation after transcoder output are:
	a)	IEEE 1	1073 Objects and Attributes
		Simple-	Nu-Observed-Value attribute is present:
		🗆 Ob	ject: Weight Numeric Object
		🗅 Att	ribute-id: MDC_ATTR_NU _VAL_OBS_SIMP (2646)
		Att	ribute-type: FLOAT

	Attribute-value: FC 1A DB 00 (hex) or FD 02 AF 80 (hex) or FE 00 44 C0 (hex) or FF 00 06 E0 (hex) or 00 00 00 B0 (hex) or 176 (dec)
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/PHG/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 Nur	neric 7; M	Float Type 1; C	Float Type 2; M		
Test purpose		Check that: PHG transcodes Weight Value field of Weight Measurement characteristic into Weight Numeric Object - Simple-Nu-Observed-Value attribute [AND] PHG 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 cond	ition	The PHG under test and the simulated PHD are in the Standby state.					
Test procedure		<ul> <li>The PHG under test and the simulated PHD are in the Standby state.</li> <li>1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> <li>2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is: <ul> <li>a. Weight Measurement (0x2A9D)</li> </ul> </li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: <ul> <li>a. Weight Measurement (0x2A9D)</li> <li>i. Field: Flags</li> <li>i. Format: 8 bit</li> <li>i. 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>ii. Field: Weight (Kg)</li> <li>i. Field: Weight (Kg)</li> <li>ii. Field: Weight (Ib)</li> <li>iii. Field: Weight (Ib)</li> <li>iii. Field: Weight (Ib)</li> <li>iii. Field: Time Stamp</li> </ul> </li> </ul>					

	Value: Not relevant		
	• Value. Not relevant		
	I his 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 PHG transcoder output the Weight Numeric object, Simple-Nu-Observed-Value attribute		
	<ol><li>The simulated PHD sends the Measurement to the PHG under test with the following value:</li></ol>		
	a. Weight Measurement (0x2A9D)		
	i. Field: Flags		
	Format: 8 bit		
	<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: FF FF (hex). Unsuccessful measurement		
	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>Check in PHG 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		

	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) W	/AN PCD-01 message	
P va	CD-01 message includes a segment like this with Simple-Nu-Observed-Value attribute alue (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) IE	EE 11073 Objects and Attributes	
S	imple-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 a decimal value is not allowed)	
b) W	/AN PCD-01 message	
PCD-0 (1887) is not	01 message does not include segment with Simple-Nu-Observed-Value attribute value 36^MDC_MASS_BODY_ACTUAL^MDC) because it has a special value and this value included in PCD-01 message.	

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-011				
TP label		Whitepaper. Weight Numeric Object - Weight Measurement value				
Coverage	Spec	[Blueto	[Bluetooth PHDT v1.5]			
	Testable	Float T	ype 1; C	Date-Time Conv 1; M	Weight Numeric 6; M	
	items	Weight	t Numeric 7; M			
Test purpose		Check that:				
		PHG processes correctly the Weight Measurement Value (Kg), Weight Measurement Value (lb) 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 PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case are:				
		a. Weight Measurement (0x2A9D)				
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).				
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:				
		a. Weight Measurement (0x2A9D)				
	i.	Field: Flags				
-------------	-------------------	---				
		Format: 8 bit				
		<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: 16000 (80.0 kg)				
	iii.	Field: Weight (lb)				
		This field is not included				
	iv.	Field: Time Stamp				
		Format: Date and Time				
		• Value: August 2nd, 2012, 11:08:25				
	v.	Field: Height (m)				
		This field is not included				
	vi.	Field: Height (in)				
		This field is not included				
	vii.	Field: BMI (kg/m^2)				
		This field is not included				
	viii.	Field: User ID				
		This field is not included				
5. Cl (m	neck th neasur	nat the PHG accepts the measurement and decodes its value properly ement values, units and time stamp).				
6. Th va	ne simi Ilue:	ulated PHD sends the Measurement to the PHG under test with the following				
a.	Wei	ght Measurement (0x2A9D)				
	i.	Field: Flags				
		Format: 8 bit				
		<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 2nd, 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 that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp)</li> </ol>			
Pass/Fail criteria	In Step 5, the PHG under test shows the following measurement: 80.0 Kg, with timestamp '2012-08-02 11:08:25'			
	In Step 7, the PHG under test shows the following measurement 176.0 lbs, with timestamp '2012-08-02 11:09:05'			
Notes				

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-012			
TP label		Whitepaper. Height Numeric Object - Handle Attribute			
Coverage	age Spec [Bluetooth PHDT v1.5]				
	Testable items	Height Numeric 1; O			
Test purpose	•	Check that:			
		PHG does not include Height Numeric object, Handle Attribute in transcoder output			
		[OR]			
		If PHG includes Height 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_18) AND C_MAN_BLE 019			
Other PICS					
Initial conditi	on	The PHG under test and the simulated PHD are in the Standby state.			
Test procedu	ire	1. The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).			
		2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:			
		a. Weight Measurement (0x2A9D)			
		i. Field: Flags			
		Format: 8 bit			
		<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>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li></ol>			
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>			
	5. Check in PHG 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/PHG/PHDTW/WS/BV-013		
TP label		Whitepaper. Height Numeric Object - Type Attribute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Height Numeric 2; M		
Test purpo	se	Check that:		
		PHG 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 PHG under test and the simulated PHD are in the Standby state.		
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of		

	interest for this test case is:		
	a. Weight Measurement (0x2A9D)		
	i. Field: Flags		
	Format: 8 bit		
	<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		
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).		
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.		
	5. Check in PHG 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>		
	code: MDC_LEN_BODY_ACTUAL or 57668 (dec) or E1 44 (hex)		
	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/PHG/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 purpo	se	Check that:			
		PHG 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).			
Applicabili	ty	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	6				
Initial cond	lition	The PHG under test and the simulated PHD are in the Standby state.			
Test proce	dure	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of inte for this test case is:</li> </ol>				
		a. Weight Measurement (0x2A9D)			
		i. Field: Flags			
		Format: 8 bit			
		<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 (Ib)			
		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			

	The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state). When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test. Check in PHG transcoder output the Height Numeric object, Metric-Spec-Small attribute		
Pass/Fail criteria	n 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- periodic   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 Metric-Spec-Small attribute is present: <ul> <li>Object: Height Numeric Object</li> <li>Attribute-id: MDC_ATTR_METRIC_SPEC_SMALL (2630)</li> <li>Attribute-type: BITS-16</li> </ul> </li> </ul>		
	<ul> <li>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</li> <li>WAN PCD-01 message</li> <li>PCD-01 message does not include segments with Metric-Spec-Small attribute value</li> </ul>		

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-015			
TP label		Whitepaper. Height Numeric Object - Unit-Code Attribute			
Coverage	Spec	[Bluetooth PHDT v1.5]			
	Testable items	Height Numeric 4; M	Height Numeric 5; M		
Test purpose Applicability		Check that: PHG 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 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	<b>}</b>				
Initial cond	lition	The PHG under test and the simulated PHD are in the Standby state.			
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).			
		2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:			
		a. Weight Measurement (0x2A9D)			
		3. PHG under test initiates discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state)			

4.	Whe Mea	en the pairing has been completed (Connection state) the simulated PHD sends the asurement to PHG under test with the following value:
	a.	Weight Measurement (0x2A9D)
		i. Field: Flags
		Format: 8 bit
		<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.	Che	ck in PHG transcoder output the Height Numeric object, Unit-Code attribute
6.	The	simulated PHD sends the Measurement to the PHG under test with the following value
	a.	Weight Measurement (0x2A9D)
		i. Field: Flags
		• Format: 8 bit
		<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: Not relevant
		v. Field: Height (m)
		This field is not included
		vi. Field: Height (in)

	Format: UINT16		
	Value: Not relevant		
	vii, Field: BMI (ka/m^2)		
	• Format: UINT16		
	Value: Not relevant		
	viii. Field: User ID		
	This field is not included		
	7. Check in PHG 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/PHG/PHDTW/WS/BV-016		
TP label		Whitepaper. Height Numeric Object - Absolute-Time-Stamp Attribute		
Coverage	Spec	[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 purpose		Check that:		

	PHG transcodes Time Stamp field of Weight Measurement characteristic into Height Numeric Object - Absolute-Time-Stamp attribute [AND]						
	PHG 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_BLE_18) AND C_MAN_BLE 019 AND C_MAN_BLE_024						
Other PICS							
Initial condition	The PHG under test and the simulated PHD are in the Standby state.						
Test procedure	<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:						
	a. Weight Measurement (0x2A9D)						
	<ol> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ol>						
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:						
	a. Weight Measurement (0x2A9D)						
	i. Field: Flags						
	Format: 8 bit						
	<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 2nd, 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 PHG 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)	IEE	E 11073 Objects and Attributes				
		Abs	solute-Time-Stamp attribute is present:				
			Object: Height 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)				
			• 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)	WA	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				

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-017					
TP label		Whitepaper. Height Nume	Whitepaper. Height Numeric Object - Simple-Nu-Observed-Value Attribute 1				
Coverage	Spec	[Bluetooth PHDT v1.5]	[Bluetooth PHDT v1.5]				
	Testable items	Height Numeric 7; M	Float Type 1; C				
Test purpose		Check that:					
		PHG transcodes Height Value field of Weight Measurement characteristic into Height Numeric Object - Simple-Nu-Observed-Value attribute					
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_18) AND C_MAN_BLE 019					
Other PICS	5						
Initial cond	lition	The PHG under test and the simulated PHD are in the Standby state.					
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
		a. Weight Measurement (0x2A9D)					

3.	The sim	e PH( ulate	G under test initiates a discovery process (Scanning state), it discovers the d PHD and it starts a pairing process with the simulated PHD (Initiating state).
4.	Wh Mea	en th asure	e pairing has been completed (Connection state) the simulated PHD sends the ment to the PHG under test with the following value:
	a.	Wei	ght Measurement (0x2A9D)
		i.	Field: Flags
			Format: 8 bit
			<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: 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.	Che attri	eck ir ibute	PHG transcoder output the Height Numeric object, Simple-Nu-Observed-Value
6.	The valu	e sim ue:	ulated PHD sends the Measurement to the PHG under test with the following
	a.	Wei	ght Measurement (0x2A9D)
		i.	Field: Flags
			Format: 8 bit
			<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 (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
	<ul> <li>Value: 709 (70.9 in)</li> </ul>
	vii Field: $BMI (ka/m^2)$
	Eormat: UINT16
	This field is not included
	Check in DHC transporder output the Height Numeric chiest. Simple Nu Observed Value
	attribute.
Pass/Fail criteria	In Step 5, the Height Numeric object, Simple-Nu-Observed-Value (cm) attribute is present and its value matches with Height Value (m) field of Weight Measurement characteristic (1.80)
	In Step 7, the Height Numeric object, Simple-Nu-Observed-Value attribute is present and its value matches with Height Value (in) field of Weight Measurement characteristic (70.9)
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: 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 value (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 value (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/PHG/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 Num	neric 7; M	Float Type 1; C	Float Type 2; M				
Test purpo	se	Check that:							
		PHG transcodes Height Value field of Weight Measurement characteristic into Height Numeric Object - Simple-Nu-Observed-Value attribute							
		[AND]							
		PHG assigns the following special values: NaN (0x007FFFFF).							
Applicabili	y	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 cond	ition	The PHG u	nder test and the sin	nulated PHD are in the Standby	state.				
Test proce	dure	1. The sir PHG u is disco	nulated PHD is confi nder test, it has a me overable).	igured with a Profile (device spece easurement ready to be sent and	cialization) supported by the I it is in the Advertising state (it				
		2. The sir for this	nulated PHD implem test case is:	nents several BTLE characteristic	s. The characteristic of interest				
		a. W	eight Measurement (	(0x2A9D)					
		3. The Ph simula	IG under test initiate ed PHD and it starts	es a discovery process (Scanning a pairing process with the simul	state), it discovers the ated PHD (Initiating state).				
		4. When Measu	he pairing has been rement to the PHG ι	completed (Connection state) th under test with the following value	e simulated PHD sends the e:				
		a. W	eight Measurement (	(0x2A9D)					
		i.	Field: Flags						
			• Format: 8 bit						
			<ul> <li>Value: 0000 1 Time Stamp, field is not inc</li> </ul>	Value: 0000 1010 (MSB $\rightarrow$ LSB). Weight Measurement Value in units of Kg, Time Stamp, Height in units of metre and BMI fields are included, User ID field is not included					
		ii.	Field: Weight (Kg)						
			Format: UINT	16					
			• Value: Not rel	evant					
		iii.	Field: Weight (lb)						
			This field is no	ot included					
		iv.	Field: Time Stamp	)					
			Format: Date	and Time					
			Value: Not rel	evant					
		۷.	Field: Height (m)						
			Format: UINT	16					
			• Value: 1800 (	1.80 m)					
		vi.	Field: Height (in)						
			• This field is no	ot included					
		vii	. Field: BMI (kg/m^2	2)					
			Format: UINT	16					
			Value: Not rel	evant					
		vii	i. Field: User ID						

	This field is not included
	Check in DHC transporder output the Height Numeric chiest. Simple Nu Observed Value
	attribute
	<ol><li>The simulated PHD sends the Measurement to the PHG under test with the following value:</li></ol>
	a. Weight Measurement (0x2A9D)
	i. Field: Flags
	Format: 8 bit
	<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
	<ol> <li>Check in PHG transcoder output the Height Numeric object, Simple-Nu-Observed-Value attribute.</li> </ol>
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 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 value (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 a decimal value is not allowed)					
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 is not included in PCD-01 message.					

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-019					
TP label		Whitepaper. Height Numeric Object - Height value					
Coverage	Spec	[Bluetootl	[Bluetooth PHDT v1.5]				
	Testable	Float Typ	e 1; C		Date-Time Conv 1; M		Height Numeric 6; M
	items	Height Nu	umeric 7; M				
Test purpos	e	Check that PHG proc	at: cesses correct	tly the H	eight Value (cm), Height	Value (	in) and Time Stamp fields of
		Weight M	easurement				
Applicability	y	C_MAN_I AND C_N	BLE_000 AND /AN_BLE_024	D (C_MA 4	N_BLE_017 OR C_MAN	N_BLE_	18) AND C_MAN_BLE 019
Other PICS							
Initial condi	tion	The PHG under test and the simulated PHD are in the Standby state.					
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).					
		2. The sintere	simulated PHI est for this tes	D implen t case a	nents several BTLE char re:	acterist	ics. The characteristic of
		a. Weight Measurement (0x2A9D)					
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).					
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:					
		a. Weight Measurement (0x2A9D)					
		i. Field: Flags					
			• Form	nat: 8 bit			
			<ul> <li>Value Time field i</li> </ul>	e: 0000 <sup>,</sup> Stamp, is not inc	1010 (MSB $\rightarrow$ LSB). Wei Height in units of metre a cluded	ight Mea and BM	asurement Value in units of Kg, I fields are included, User ID
		i	ii. Field: We	ight (Kg	)		
		Format: UINT16					

- Value: Not relevant
- iii. Field: Weight (lb)
  - This field is not included
- iv. Field: Time Stamp
  - Format: Date and Time
  - Value: August 2nd, 2012, 11:08:25
- v. Field: Height (m)
  - Format: UINT16
  - Value: 1800 (1.80 m)
- vi. Field: Height (in)
  - This field is not included
- vii. Field: BMI (kg/m^2)
  - Format: UINT16
  - Value: Not relevant
- viii. Field: User ID
  - This field is not included
- 5. Check that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).
- 6. The simulated PHD sends the Measurement to the PHG under test with the following value:
  - a. Weight Measurement (0x2A9D)
    - i. Field: Flags
      - Format: 8 bit
      - Value: 0000 1011 (MSB → LSB). Weight Measurement Value in units of pound, Time Stamp, Height in units of inch and BMI fields are included, User ID field is not included
    - ii. Field: Weight (Kg)
      - This field is not included
    - iii. Field: Weight (lb)
      - Format: UINT16
      - Value: Not relevant
    - iv. Field: Time Stamp
      - Format: Date and Time
      - Value: August 2nd, 2012, 11:09:05
    - v. Field: Height (m)
      - This field is not included
    - vi. Field: Height (in)
      - 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 that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li> </ol>
Pass/Fail criteria	In Step 5, the PHG under test shows the following measurement: 180 cm, with timestamp '2012-08-02 11:08:25'
	In Step 7, the PHG under test shows the following measurement 70.9 in, with timestamp '2012-08-02 11:09:05'
Notes	

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-020					
TP label		Whitepaper. Body Mass Index Numeric Object - Handle Attribute					
Coverage	Spec	[Bluetooth P	[Bluetooth PHDT v1.5]				
	Testable items	BMI Numeric	: 1; O				
Test purpose		Check that: PHG does not include BMI Numeric object, Handle Attribute in transcoder output [OR] If PHG 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 AND C_MAN_BLE_020					
Other PICS							
Initial conditi	on	The PHG un	der test and the sir	nulated PHD are in the Standby	v state.		
Test procedure		<ol> <li>The sim has a m</li> <li>The sim interest</li> <li>Weight I</li> <li>i.</li> </ol>	ulated PHD is conf easurement ready ulated PHD implen for this test case is Measurement (0x2 Field: Flags • Format: 8 bit • Value: 0000 Time Stamp, fields is not ir Field: Weight (Kg • Format: UINT • Value: Not re Field: Weight (lb)	igured with a Weight Scale Prof to be sent and it is in the Adver nents several BTLE characterist : A9D) 1010 (MSB → LSB). Weight Me Height in units of metre and BM ncluded ) F16 levant	ille (device specialization), it tising state (it is discoverable). ics. The characteristic of asurement Value in units of Kg, Il fields are included, User ID		
		iv. v.	<ul> <li>This field is n</li> <li>Field: Time Stamp</li> <li>Format: Date</li> <li>Value: Not re</li> <li>Field: Height (m)</li> <li>Format: UINT</li> <li>Value: Not re</li> </ul>	ot included o and Time levant 16 levant			

	vi. Field: Height (in)			
	This field is not included			
	vii Field: BMI (kg/m^2)			
	VIII. Field: User ID			
	This field is not included			
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).			
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.			
	5. Check in PHG 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/PHG/PHDTW/WS/BV-021				
TP Label		Whitepaper. Body Mass Index Numeric Object - Type Attribute				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	BMI Numeric 2; M				
Test purpose		Check that:				
		PHG includes BMI Numeric object, Type attribute in transcoder output.				
		[AND]				
		Type is set to {MDC_PART_SCADA, MDC_RATIO_MASS_BODY_LEN_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 condition The PHG under test and the simulated PHD are in the Standby state.		The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
		a. Weight Measurement (0x2A9D)				

	i Field: Flags	
	I. Fleid. Flags	
	Format: 8 bit	
	<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	
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).	
	4. When the pairing has been completed (Connection state) the simulated PHD send. Measurement to the PHG under test.	
	5. Check in PHG 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>	
	code: MDC_RATIO_MASS_BODY_LEN_SQ or 57680 (dec) or E1 50 (hex)	
	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/PHG/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:				
		PHG 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	on	The PHG under test and the simulated PHD are in the Standby state.				
Test procedu	re	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
		a. Weight Measurement (0x2A9D)				
		i. Field: Flags				
		Format: 8 bit				
		<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				
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the				

	simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).	
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.	
	5. Check in PHG 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)	
	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	

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-023				
TP label		Whitepaper. Body Mass Index Numeric Object - Unit-Code Attribute				
Coverage	Spec	[Bluetooth PHDT v1.5]	[Bluetooth PHDT v1.5]			
	Testable items	BMI Numeric 4; M	BMI Numeric 4; M BMI Numeric 5; M			
Test purpose		Check that:				
		PHG includes BMI Num	neric object, Unit-Code attribute in tra	anscoder output.		
		[AND]				
		IF BMI (Kg/m^2) field of object, Unit-Code attributed a	Weight Measurement characteristic ute is set to MDC_DIM_KG_PER_M	: is present THEN BMI Numeric _SQ		
Applicability C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BL AND C_MAN_BLE_020			BLE_017 OR C_MAN_BLE_018)			
Other PICS						
Initial condition The PHG under test and the simulated PHD are in the Standby state.			dby state.			
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).				
		2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
		a. Weight Measurement (0x2A9D)				
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).				
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:				
		a. Weight Measu	a. Weight Measurement (0x2A9D)			
		i. Field: Flags				

	Format: 8 bit	
	<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 PHG transcoder output the Height Numeric object, Unit-Code attribute	
Pass/Fail criteria	ep 5, the BMI Numeric object, Unit-Code attribute is present and its value is C_DIM_KG_PER_M_SQ	
Notes	n 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 ld		TP/LP-PAN/PHG/PHDTW/WS/BV-024					
TP label		Whitepaper. Body Mass Index Numeric Object - Absolute-Time-Stamp Attribute					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable	BMI Numeric 6; M Date-Time Conv 2; M Date-Time Conv 3; M					

	items	Date-Time C	onv 4; M	Date-Time Conv 5; M	
Test purpos	se	Check that:			
		<ul> <li>PHG transcodes Time Stamp field of Weight Measurement characteristic into BMI Numeric Object - Absolute-Time-Stamp attribute</li> <li>[AND]</li> <li>PHG 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>			
Applicabilit	у	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 condi	ition	The PHG under test and the simulated PHD are in the Standby state.			
Test proced	lure	<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported PHG under test, it has a measurement ready to be sent and it is in the Advertisin (it is discoverable).</li> </ol>		alization) supported by the it is in the Advertising state	
		2. The simi interest	ulated PHD implen for this test case is	nents several BTLE characteristics	s. The characteristic of
		a. Wei	ight Measurement	(0x2A9D)	
		3. The PHO simulate	G under test initiate d PHD and it start	es a discovery process (Scanning s a pairing process with the simula	state), it discovers the ted PHD (Initiating state).
		<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li> </ol>			
		a. Weight Measurement (0x2A9D)			
		i. Field: Flags			
		Format: 8 bit			
		<ul> <li>Value: 0000 1010 (MSB → LSB). Weight Measurement Value in units Time Stamp, Height in units of metre and BMI fields are included, Use field is not included</li> </ul>		urement Value in units of Kg, ields are included, User ID	
		ii.	Field: Weight (Kg	)	
			• Format: UINT	16	
			• Value: Not re	levant	
		iii.	Field: Weight (lb)		
			• This field is n	ot included	
		iv.	Field: Time Stamp	0	
			Format: Date	and Time	
			Value: Augus	t 2nd, 2012, 10:39:27	
		٧.	Field: Height (m)		
			Format: UIN1	<sup>-</sup> 16	
			Value: Not re	levant	
		vi.	Field: Height (in)		
			• This field is n	ot included	
		vii.	Field: BMI (kg/m^	2)	
			Format: UINT	16	
			Value: Not re	levant	
		viii.	Field: User ID		

	This field is not included				
	5.	5. Check in PHG transcoder output the BMI Numeric object, Absolute-Time-Stamp attribute			
Pass/Fail criteria	In Step 5, the BMI Numeric object, Absolute-Time-Stamp attribute is present, its value matches with Time Stamp field of Weight Measurement characteristic and fraction of seconds is set to 0				
Notes	Pos	Possible values in typical points of observation after transcoder output are:			
	a)	a) IEEE 11073 Objects and Attributes			
		Abs	solute-Time-Stamp attribute is present:		
			Object: BMI Numeric Object		
			Attribute-id: MDC_ATTR_TIME_STAMP_ABS (2448)		
		Attribute-type: SEQUENCE {century (INT-U8), year (INT-U8), month (INT-U8), day (INT-U8), hour (INT-U8), minute (INT-U8), second (INT-U8), sec-fractions (INT-U8) (BCD encoding)			
		Attribute-value:			
		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)	WA	N 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 ld		TP/LP-PAN/PHG/PHDTW/WS/BV-025				
TP label		Whitepaper. Body Mass Index Numeric Object - Simple-Nu-Observed-Value Attribute 1				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	BMI Numeric 7; M	BMI Numeric 7; M Float Type 1; C			
Test purpos	se	Check that:				
		PHG transcodes BMI Value field of Weight Measurement characteristic into BMI Numeric Object - Simple-Nu-Observed-Value attribute				
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020				
Other PICS						
Initial condition		The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:	
	a. Weight Measurement (0x2A9D)	
	<ol> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ol>	
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:	
	a. Weight Measurement (0x2A9D)	
	i. Field: Flags	
	Format: 8 bit	
	<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	
	<ol> <li>Check in PHG transcoder output the BMI Numeric object, Simple-Nu-Observed-Value attribute</li> </ol>	
Pass/Fail criteria	Step 5, the BMI Numeric object, Simple-Nu-Observed-Value attribute is present and its alue 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/PHG/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 purpose		Check that: PHG processes correctly the BMI Value (kg/m^2) and Time Stamp fields of Weight Measurement			
Applicability		C_MAN_BLE_000 AND (C_MAN_BLE_017 OR C_MAN_BLE_018) AND C_MAN_BLE_020 AND C_MAN_024			
Other PICS					
Initial condi	tion	The PHG under test and the simulated PHD are in the Standby state			
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case are:			
		a. Weight Measurement (0x2A9D)			
		<ol> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ol>			
		<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li> </ol>			
		a. Weight Measurement (0x2A9D)			
		i. Field: Flags			
		• Fo	rmat: 8 bit		
		• Va Tir fiel	lue: 0000 ne Stamp, ld is not ine	1010 (MSB → LSB). Weight Me Height in units of metre and BM cluded	asurement Value in units of Kg, Il fields are included, User ID
		ii. Field: V	Veight (Kg	)	
		• Fo	rmat: UIN⁻	Г16	
		• Va	lue: Not re	levant	
		iii. Field: V	Veight (lb)		
		• Th	is field is r	ot included	
		iv. Field: T	ime Stam	р	
		• Fo	rmat: Date	and Time	
		• Va	lue: Augus	st 2nd, 2012, 11:08:25	
		v. Field: H	leight (m)		
		• Fo	rmat: UIN <sup>-</sup>	Г16	
		• Va	lue: Not re	levant	
		vi. Field: H	leight (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 that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li></ol>
Pass/Fail criteria	In Step 5, the PHG 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/PHG/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 purpos	e	Check that:			
		PHG does not include Body Fat Numeric object, Handle Attribute in transcoder output			
		[OR]			
		If PHG includes Body Fat Numeric object, Handle attribute in transcoder output, then its value shall be different than 0			
Applicability	y	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018			
Other PICS					
Initial condi	tion	The PHG under test and the simulated PHD are in the Standby state.			
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:			
		a. Body Composition Measurement (0x2A9C)			
		i. Field: Flags			
		Format: 16 bit			
		<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
	viji. 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. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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:
	Object: Body Fat 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/PHG/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: PHG includes Body Fat Numeric object, Type attribute in transcoder output. [AND] Type is set to {MDC_PART_SCADA, MDC_BODY_FAT}			
Applicability					
Other PICS					
Initial conditi	on	The PHG under test and the simulated PHD are in the Standby state.			
Test procedu	re	1. The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).			
		2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:			
		a. Body Composition Measurement (0x2A9C)			
		i. Field: Flags			
		Format: 16 bit			
		<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 (Ib)			
		This field is not included			
		vi. Field: Soft Lean Mass (kg)			
		This field is not included			
		vii. Field: Soft Lean Mass (lb)			
		This field is not included			
		viii. Field: Body Water Mass (kg)			
		This field is not included			
		ix. Field: Body Water Mass (lb)			
		This field is not included			
		x. Field: Basal Metabolism			
		This field is not included			

	xi. Field: Muscle Percentage
	This field is not included
	xii. Field: Muscle Mass
	This field is not included
	xiii. Field: Impedance
	This field is not included
	xiv. Field: Weight
	This field is not included
	xv. Field: Height
	This field is not included
	xvi. Field: User ID
	This field is not included
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the
	simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>
	5. Check in PHG 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>
	code: MDC_BODY_FAT or 57676 (dec) or E1 4C (hex)
	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/PHG/PHDTW/WS/BV-030		
TP label Whitepaper. Body Fat Numeric Object - Metric-Spec-Small Attribute		bute		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Fat Numeric 3; M		
Test purpose		Check that: PHG includes Body Fat Numer [AND] Metric-Spec-Small is set to {0xl upd-aperiodic   mss-msmt-aper	ic object, Metric-Spec-Small attr F042} (mss-avail-intermittent   m riodic   mss-acc-agent-initiated	ibute in transcoder output. ss-avail-stored-data   mss- mss-cat-calculation).

Applicability	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS			
Initial condition	The PHG under test and the simulated PHD are in the Standby state.		
Test procedure	1. The simulated PHD is configured with a Weight Scale Profile (device specialization), it		
•	has a measurement ready to be sent and it is in the Advertising state (it is discoverable).		
	<ol> <li>The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:</li> </ol>		
	a. Body Composition Measurement (0x2A9C)		
	i. Field: Flags		
	Format: 16 bit		
	<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 (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		
	I his field is not included		
	xi. Field: Muscle Percentage		
	Inis field is not included		
	XII. Fleid. Muscle Mass		
	This field is not included     xiii Field Impedance		
	This field is not included		
	• This neid 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. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).		
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>		
	<ol> <li>Check in PHG transcoder output the Body Fat Numeric object, Metric-Spec-Small attribute</li> </ol>		
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		

TP Id		TP/LP-PAN/PHG/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: PHG includes Body Fat Numeric object, Unit-Code attribute in transcoder output. [AND] IF Body Fat Percentage (%) field of Body Composition Measurement characteristic is present THEN Body Fat Numeric object, Unit-Code attribute is set to MDC_DIM_PERCENT		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS				
Initial condition The PHG under test and the simulated PHD are in the Standby state.		The PHG under test and the simulated PHD are in the Standby state.		
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).		
		2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:		
		a. Body Composition Measurement (0x2A9C)		
		<ol><li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li></ol>		

	. When the pairing has been completed (Connection state) the sim Measurement to the PHG under test with the following value:	ulated PHD sends the
	Body Composition Measurement (0x2A9C)	
	i. Field: Flags	
	• Format: 16 bit	
	<ul> <li>Value: 0000 0000 0000 0010 (MSB → LSB). Body F of % and Time Stamp fields are included, Basal Me Percentage, Muscle Mass, Fat Free Mass, Soft Lea Mass, Impedance, Weight, Height and User ID field</li> </ul>	Fat Percentage in units tabolism, Muscle n Mass, Body Water s are not included
	ii. Field: Body Fat Percentage (%)	
	Format: UINT16	
	Value: Not relevant	
	iii. Field: Time Stamp	
	Format: Date and Time	
	Value: Not relevant	
	iv. Field: Fat Free Mass (kg)	
	This field is not included	
	v. Field: Fat Free Mass (lb)	
	This field is not included	
	vi. Field: Soft Lean Mass (kg)	
	This field is not included	
	vii. Field: Soft Lean Mass (lb)	
	This field is not included	
	viii. Field: Body Water Mass (kg)	
	This field is not included	
	ix. Field: Body Water Mass (lb)	
	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	
	I his field is not included	
	xiii. Field: Impedance	
	I his field is not included	
	xiv. Field: Weight	
	I his field is not included	
	xv. Fleid: Height	
	Inistriela is not included	
	Inistiela is not included     Check in PHC transporter output the Pady Eat Numeric chiest. It	ait Cada attributa
	. Check in FIG transcoder output the body Fat Numeric Object, Of	
Pass/Fail criteria	Step 5, the Body Fat Numeric object, Unit-Code attribute is present IDC DIM PERCENT	and its value is

	la Otan El manifelta veloca in trainella sinte effettamentian effettamente des extent enco		
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 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)		
	b) WAN PCD-01 message		
	PCD-01 message includes a segment like this with Unit-Code attribute value (check OBX-6 ):		
	OBX ? NM 188748^MDC_BODY_FAT^MDC 1.0.a XX  262688^MDC_DIM_PERCENT^MDC    R   [current_date_time]		

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-032					
TP label		Whitepaper. Body Fat Numeric Object - Absolute-Time-Stamp Attribute					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable	Body Fat 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:					
		PHG transcodes Time Stamp field of Body Composition Measurement characteristic into Body Fat Numeric Object - Absolute-Time-Stamp attribute					
		[AND]					
		PHG transcodes the Bluetooth Time Stamp field format to Absolute Time format					
		[AND]					
		The fraction of seconds in Absolute Time at transcoder output is 0					
Applicabilit	у	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_025					
Other PICS							
Initial condition		The PHG under test and the simulated PHD are in the Standby state.					
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).					
		2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
		a. Body Composition Measurement (0x2A9C)					
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).					
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:					
		a. Body Composition Measurement (0x2A9C)					
		i. Field: Flag	S				
		Forma	at: 16 bit				
		Value:     of % a     Perce	: 0000 0000 0000 0010 (MSB $\rightarrow$ L and Time Stamp fields are included ntage, Muscle Mass, Fat Free Mas	SB). Body Fat Percentage in units d, Basal Metabolism, Muscle ss, Soft Lean Mass, Body Water			

	Mass, Impedance, Weight, Height and User ID fields are not included	
	ii. Field: Body Fat Percentage (%)	
	• Format: UINT16	
	Value: Not relevant	
	iii. Field: Time Stamp	
	Format: Date and Time	
	• Value: August 2nd, 2012, 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)	
	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 PHG transcoder output the Body Fat Numeric object, Absolute-Time-Stamp attribute	
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 fractio of seconds is set to 0	n
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:
		• 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	) WA	N PCD-01 message
	PCI (che	D-01 message includes a segment like this with Absolute-Time-Stamp attribute value eck OBX-14):
		OBX ?  188748^MDC_BODY_FAT^MDC 1.0.a      X   20120802103927+0000

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-033		
TP label		Whitepaper. Body Fat Numeric Object - Simple-Nu-Observed-Value Attribute 1		
Coverage	Spec	[Bluetooth PHDT v1.5]		
	Testable items	Body Fat Numeric 7; M Float Type 1; C		
Test purpose		Check that:		
		characteristic into Body Fat Numeric Object - Simple-Nu-Observed-Value attribute		
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018		
Other PICS				
Initial condition		The PHG under test and the simulated PHD are in the Standby state.		
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:		
		a. Body Composition Measurement (0x2A9C)		
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with simulated PHD (Initiating state).		
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:		
		a. Body Composition Measurement (0x2A9C)		
		i. Field: Flags		
		Format: 16 bit		
		<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			
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	• 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 (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)			
	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 PHG transcoder output the Body Fat Numeric object, Simple-Nu-Observed- Value attribute			
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 Id TP/LP-PAN/PHG/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 purpos	se	Check that: PHG transcodes Body Fat Percentage Value field of Body Composition Measurement characteristic into Body Fat Numeric Object - Simple-Nu-Observed-Value attribute [AND] PHG assigns the following special values: NaN (0x007FFFFF).							
Other DICE	y		<u>0_101/114_DEE_002 /114D 0_101/114_D</u>						
Other PICS									
Initial cond	ition	The PHG under test and	the simulated PHD are in the Stand	dby state.					
Test proced	lure	<ol> <li>The simulated PHD i PHG under test, it has (it is discoverable).</li> <li>The simulated PHD i interest for this test of a. Body Composition</li> <li>The PHG under test simulated PHD and i</li> <li>When the pairing has Measurement to the a. Body Composition i. Field: Flags</li> <li>Format</li> <li>Value: of % ar Percen Mass, I</li> <li>Field: Body</li> <li>Format</li> <li>Value: iii. Field: Time</li> <li>Format</li> <li>Value: iii. Field: Time</li> <li>Format</li> <li>Value:</li> <li>iii. Field: Time</li> <li>Format</li> <li>Value:</li> <li>iv. Field: Fat Fi</li> <li>This fie</li> </ol>	is configured with a Profile (device : as a measurement ready to be sent implements several BTLE characte case is: on Measurement (0x2A9C) initiates a discovery process (Scan t starts a pairing process with the s s been completed (Connection stat PHG under test with the following v on Measurement (0x2A9C) : : 16 bit 0000 0000 0000 0010 (MSB $\rightarrow$ LSI nd Time Stamp fields are included, tage, Muscle Mass, Fat Free Mass Impedance, Weight, Height and Us Fat Percentage (%) :: UINT16 125 (12.5 %) Stamp :: Date and Time Not relevant ree Mass (kg) ed is not included	<ul> <li>specialization) supported by the and it is in the Advertising state</li> <li>ristics. The characteristic of</li> <li>ning state), it discovers the imulated PHD (Initiating state).</li> <li>e) the simulated PHD sends the value:</li> <li>B). Body Fat Percentage in units</li> <li>Basal Metabolism, Muscle</li> <li>, Soft Lean Mass, Body Water</li> <li>er ID fields are not included</li> </ul>					

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
- 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 PHG transcoder output the Body Fat Numeric object, Simple-Nu-Observed-Value attribute
- 6. The simulated PHD sends the Measurement to the PHG under test with the following value:
  - a. Body Composition Measurement (0x2A9C)
    - i. Field: Flags
      - Format: 16 bit
        - Value: 0000 0000 0000 0010 (MSB → LSB). Body Fat Percentage in units of % and Time Stamp fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
    - ii. Field: Body Fat Percentage (%)
      - Format: UINT16
      - Value: FF FF (hex). Unsuccessful measurement
    - iii. Field: Time Stamp
      - Format: Date and Time
      - Value: Not relevant
    - iv. Field: Fat Free Mass (kg)
      - This field is not included
    - v. Field: Fat Free Mass (lb)
      - This field is not included

	vi. Field: Soft Lean Mass (kɑ)
	This field is not included
	vii Field: Soft Lean Mass (lb)
	This field is not included
	viji 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
	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 PHG transcoder output the Body Fat Numeric object. Simple-Nu-Observed-
	Value attribute
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 a decimal value is not allowed)
b)	WAN PCD-01 message
	PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188748^MDC_BODY_FAT^MDC) because it has a special value and this value is not included in PCD-01 message

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-035							
TP label		Whitepaper. Body Fat Numeric object, Body Fat Percentage value							
Coverage	Spec	[Blu	[Bluetooth PHDT v1.5]						
	Testable items	Flo	at Ty	/pe 1	l; C		Date-Time Conv 1; M	Body Fat Numeric 6; M	
	lionio	Boo	Jy Fa	at Nu	ıme	eric 7; M			
Test purpose	)	Che	Check that:						
		PHG processes correctly the Body Fat Percentage Value and Time Stamp fields of Body Composition Measurement							
Applicability		C_I	MAN	_BL	E_0	000 AND C_MA	N_BLE_018 AND C_MAN_	BLE_025	
Other PICS									
Initial condition	ion	The	) PH	G ur	nder	r test and the si	mulated PHD are in the Sta	ndby state.	
Test procedure		1.	<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> </ol>						
		2.	The inte	∍ sim ∋rest	iula for	ted PHD impler this test case a	ments several BTLE charac ire:	teristics. The characteristic of	
			a.	Bo	dy C	Composition Me	easurement (0x2A9C)		
		3.	The sim	PH nulate	G u ed F	Inder test initiat PHD and it start	es a discovery process (Sca is a pairing process with the	anning state), it discovers the simulated PHD (Initiating state).	
		4.	Wh Me	ien tł asur	ne p eme	pairing has beer ent to the PHG	n completed (Connection sta under test with the following	ate) the simulated PHD sends the g value:	
			a.	Bo	dy C	Composition Me	easurement (0x2A9C)		
				i.	Fi	eld: Flags			
					•	Format: 16 b	it		
					•	Value: 0000 of % and Tim Percentage, Mass, Imped	0000 0000 0010 (MSB $\rightarrow$ L ne Stamp fields are included Muscle Mass, Fat Free Mas lance, Weight, Height and L	SB). Body Fat Percentage in units d, Basal Metabolism, Muscle ss, Soft Lean Mass, Body Water Jser ID fields are not included	
				ii.	Fi	eld: Body Fat P	ercentage (%)		
					٠	Format: UIN	T16		
					•	Value: 125 (	12.5 %)		
				iii.	Fi	eld: Time Stam	р		
					•	Format: Date	e and Time		
					•	Value: Augus	st 2nd, 2012, 11:08:25		
				iv.	Fi	eld: Fat Free M	ass (kg)		
					•	This field is r	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 (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 that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li> </ol>
Pass/Fail criteria	In Step 5, the PHG under test shows the following measurement: 12.5 %, with timestamp '2012-08-02 11:08:25'
Notes	

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-036				
TP label		Whitepaper. Fat Free Mass Numeric Object - Handle Attribute				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	Fat Free Numeric 1; O				
Test purpose		Check that:				
		PHG does not include Fat Free Mass Numeric object, Handle Attribute in transcoder output				
		[OR]				
		If PHG 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_B						

Other PICS					
Initial condition	The PHG under test and the simulated PHD are in the Standby state.				
Test procedure	1. The simulated PHD 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. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
	a. Body Composition Measurement (0x2A9C)				
	i. Field: Flags				
	Format: 16 bit				
	<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>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li></ol>				
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>				
	5. Check in PHG transcoder output the Fat Free Mass Numeric object, Handle attribute				
Pass/Fail criteria	In Step 5, the Fat Free Mass Numeric object, Handle attribute is not present or, if it is present then its value is different than 0				
Notes	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/PHG/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:				
		PHG 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 PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
		a. Body Composition Measurement (0x2A9C)				
		i. Field: Flags				
		Format: 16 bit				
		<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</li> </ul>				

	included
	ii. Field: Body Fat Percentage (%)
	Format: UINT16
	Value: Not relevant
	iii. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	iv. Field: Fat Free Mass (kg)
	Format: UINT16
	Value: Not relevant
	v. Field: Fat Free Mass (lb)
	This field is not included
	vi. Field: Soft Lean Mass (kg)
	This field is not included
	vii. Field: Soft Lean Mass (lb)
	This field is not included
	viii. Field: Body Water Mass (kg)
	This field is not included
	ix. Field: Body Water Mass (lb)
	This field is not included
	x. Field: Basal Metabolism
	This field is not included
	xi. Field: Muscle Percentage
	This field is not included
	xii. Field: Muscle Mass
	This field is not included
	xiii. Field: Impedance
	This field is not included
	xiv. Field: Weight
	This field is not included
	xv. Field: Height
	This field is not included
	xvi. Field: User ID
	This field is not included
	<ol> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ol>
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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>
<ul> <li>code: MDC_MASS_BODY_FAT_FREE or 57684 (dec) or E1 54 (hex)</li> </ul>
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/PHG/PHDTW/WS/BV-038			
TP label		Whitepaper. Fat Free Mass Numeric Object - Metric-Spec-Small Attribute			
Coverage	Spec	[Bluetooth PHDT v1.5]			
	Testable items	Fat Free Numeric 3; M			
Test purpose	•	Check that:			
PHG includes Fat Free Mass Numeric object, Metric-Spec-Small attribute in troutput.		PHG 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).			
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021			
Other PICS					
Initial conditi	on	The PHG under test and the simulated PHD are in the Standby state.			
Test procedu	ire	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:			
		a. Body Composition Measurement (0x2A9C)			
		i. Field: Flags			
		Format: 16 bit			
		<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)			

Г

	Eormat: LIINT16
	• Value. Not relevant
	v. The field is not included
	• This field is not included
	vi. The field is not included
	• This field is not included
	vii. Fleid. Soft Lean Mass (ib)
	• This field is not included
	viii. Fleid. body water wass (kg)
	• This field is not included
	IX. Fleid. Body Water Mass (ib)
	Field: Basel Metabolism
	X. Fleid. Basal Metabolism
	Field: Musele Decentage
	xi. Fleid. Muscle Percentage
	This field is not included      Field: Musele Mese
	XII. FIEID: MUSCIE MASS
	This field is not included
	xiii. Field: impedance
	This field is not included
	xiv. Field: Weight
	Inisticialis not included
	xv. Field: Height
	Inistield is not included
	XVI. Fleid: User ID
	Inisticial is not included
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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
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TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-039			
TP label		Whitepaper. Fat Free Mass Numeric Object - Unit-Code Attribute			
Coverage	Spec	[Bluetooth PHDT v1.5]			
	Testable items	Fat Free Numeric 4; M Fat Free Numeric 5; M			
Test purpos	se	Check that: PHG 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 THE 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 THE Height Numeric object, Unit-Code attribute is set to MDC_DIM_LB			
Applicabilit	У	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_021			
	•••				
Initial cond	ition	The PHG under test and the simulated PHD are in the Standby state.			
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> <li>The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:         <ul> <li>Body Composition Measurement (0x2A9C)</li> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li></ul></li></ol>			

		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
	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.	Check in attribute	n the PHG transcoder output the Fat Free Mass Numeric object, Unit-Code
6.	The sim value:	ulated PHD sends the Measurement to the PHG under test with the following
a.	Body Co	omposition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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 (lb)
	Format: LINT16
	• Value. Not relevant
	VI. Fleid. Solt Lean Mass (kg)
	VII. Field: Soft Lean Mass (ID)
	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
	7. Check in PHG transcoder output the Fat Free Mass Numeric object, Unit-Code attribute
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/PHG/PHDTW/WS/BV-040					
TP label		Whitepaper. Fat Free Mass Numeric Object - Absolute-Time-Stamp Attribute					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable	Fat Free Numeric 6; M	A 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:         PHG transcodes Time Stamp field of Body Composition Measurement characteristic         Free Mass Numeric Object       - Absolute-Time-Stamp attribute         [AND]         PHG transcodes the Bluetooth Time Stamp field format to Absolute Time format         [AND]			Measurement characteristic into Fat ute 9 Absolute Time format				
Applicabilit		The fraction of seconds in Absolute Time at transcoder output is 0					
Аррисарии	.y	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_02 AND C_MAN_BLE_025					
Other PICS							
Initial cond	ition	The PHG under test and the simulated PHD are in the Standby state.					
<ol> <li>Test procedure         <ol> <li>The simulated PHD is configured with a Profile (device specialization) supported PHG under test, it has a measurement ready to be sent and it is in the Advertisi (it is discoverable).</li> <li>The simulated PHD implements several BTLE characteristics. The characteristic interest for this test case is:</li></ol></li></ol>		ce specialization) supported by the ent and it is in the Advertising state cteristics. The characteristic of					
		simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).					
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:					
		a. Body Composition Measurement (0x2A9C)					
		i. Field: Fla	ags				
		• Forr	mat: 16 bit				
		Value     of %     Bas     Bod     inclu	ue: 0000 0000 0100 0010 (MSB $\rightarrow$ L 6, Time Stamp and Fat Free Mass ir al Metabolism, Muscle Percentage, ly Water Mass, Impedance, Weight, uded	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: Body Fat Percentage (%)
	Format: UINT16
	Value: Not relevant
	iii. Field: Time Stamp
	Format: Date and Time
	• Value: August 2nd, 2012, 10:39:27
	iv. Field: Fat Free Mass (kg)
	Format: UINT16
	Value: Not relevant
	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 (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 PHG 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)
	• 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) WA	N PCD-01 message
PCI (ch	D-01 message includes a segment like this with Absolute-Time-Stamp attribute value eck OBX-14):
	OBX ?  188756^MDC_MASS_BODY_FAT_FREE^MDC 1.0.a XX      X    20120802103927+0000

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-041						
TP label		Whitepaper. Fat Free Mass Numeric Object - Simple-Nu-Observed-Value Attribute 1						
Coverage	Spec	[Bluetooth PHDT v1.5]						
	Testable items	Fat Free Numeric 7; M Float Type 1; C						
Test purpos	e	Check that:						
		PHG transcodes Fat Free Mass Value field of Body Composition Measurement characteristic into Fat Free Mass Numeric Object - Simple-Nu-Observed-Value attribute						
Applicability	y	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 PHG under test and the simulated PHD are in the Standby state.						
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).						
		<ol> <li>The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:</li> </ol>						
		a. Body Composition Measurement (0x2A9C)						
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).						
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:						
		a. Body Composition Measurement (0x2A9C)						
		i. Field: Flags						
		Format: 16 bit						
		<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,</li> </ul>						

		Body Water Mass, Impedance, Weight, Height and User ID fields are not included
	ii.	Field: Body Fat Percentage (%)
		Format: UINT16
		Value: Not relevant
	iii.	Field: Time Stamp
		Format: Date and Time
		Value: Not relevant
	iv.	Field: Fat Free Mass (kg)
		Format: UINT16
		• Value: 12800 (64.0 kg)
	v.	Field: Fat Free Mass (lb)
		This field is not included
	vi.	Field: Soft Lean Mass (kg)
		This field is not included
	vii.	Field: Soft Lean Mass (lb)
		This field is not included
	viii.	Field: Body Water Mass (kg)
		This field is not included
	ix.	Field: Body Water Mass (lb)
		This field is not included
	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.	Check ir Observe	n PHG transcoder output the Fat Free Mass Numeric object, Simple-Nu- d-Value attribute
6.	The sim	ulated PHD sends the Measurement to the PHG under test with the following
	a. Bod	ly Composition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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,</li> </ul>

	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)	
	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 PHG 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)	t
	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	

	Sim	ple-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)	WA	N PCD-01 message
	PCI valu	D-01 message includes a segment like this with Simple-Nu-Observed-Value attribute ue (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 S	Step	7, possible values in typical points of observation after transcoder output are:
a)	IEE	E 11073 Objects and Attributes
	Sim	ple-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)	WA	N PCD-01 message
	PCI valu	D-01 message includes a segment like this with Simple-Nu-Observed-Value attribute ue (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]

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-042						
TP label		Whitepaper. Fat Free Mass Numeric Object - Simple-Nu-Observed-Value Attribute 2						
Coverage	Spec	[Bluetooth PHDT	[Bluetooth PHDT v1.5]					
	Testable items	Fat Free Numeric	7; M Float Type 1; C	Float Type 2; M				
Test purpos	e	Check that:						
		PHG transcodes Fat Free Mass Value field of Body Composition Measurement characteristic into Fat Free Mass Numeric Object - Simple-Nu-Observed-Value attribute						
		[AND]						
		PHG 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_021						
Other PICS								
Initial condi	tion	The PHG under test and the simulated PHD are in the Standby state.						
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 interest for thi	2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
		a. Body Composition Measurement (0x2A9C)						

3.	The sim	PH(	G under test initiates a discovery process (Scanning state), it discovers the d PHD and it starts a pairing process with the simulated PHD (Initiating state).
4.	Whe Mea	en th asure	e pairing has been completed (Connection state) the simulated PHD sends the ment to the PHG under test with the following value:
	a.	Bod	y Composition Measurement (0x2A9C)
		i.	Field: Flags
			Format: 16 bit
			<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
1			This field is not included

5.	Che Obs	eck ir serve	PHG transcoder output the Fat Free Mass Numeric object, Simple-Nu- d-Value attribute	
6.	The valu	sim ie:	ulated PHD sends the Measurement to the PHG under test with the following	
	a.	Bod	y Composition Measurement (0x2A9C)	
		i.	Field: Flags	
			Format: 16 bit	
			<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 (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	
		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 PHG 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 a decimal value is not allowed)				
	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/PHG/PHDTW/WS/BV-043					
TP label		Whitepaper. Fat Free Mass Numeric Object - Fat Free Mass value					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable	Float Type 1; C	Date-Time Conv 1; M	Fat Free Numeric 6; M			
	items	Fat Free Numeric 7; M					
Test purpose		Check that:					
		PHG processes correctly the Fat Free Mass Value (kg), Fat Free Mass Value (lb) and Time Stamp fields of Body Composition Measurement					
Applicability		C_MAN_BLE_000 AND C_MA	N_BLE_018 AND C_MAN_BLE	_021 AND C_MAN_BLE_025			
Other PICS							
Initial condition		The PHG under test and the si	mulated PHD are in the Standby	y state.			
Test procedure		1. The simulated PHD is con	figured with a Profile (device sp	ecialization) supported by the			

	PHG und	der test, it has a measurement ready to be sent and it is in the Advertising state
	(it is disc	coverable).
2.	The simi interest f	ulated PHD implements several BTLE characteristics. The characteristics of for this test case are:
	a. Bod	y Composition Measurement (0x2A9C)
3.	The PH0 simulate	G under test initiates a discovery process (Scanning state), it discovers the d PHD and it starts a pairing process with the simulated PHD (Initiating state).
 4.	When th Measure	e pairing has been completed (Connection state) the simulated PHD sends the ement to the PHG under test with the following value:
	a. Bod	y Composition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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: August 2nd, 2012, 11:08:25
	iv.	Field: Fat Free Mass (kg)
		Format: UINT16
		• Value: 12800 (64.0 kg)
	۷.	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
	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.	Che (me	ck th asur	nat the PHG accepts the measurement and decodes its value properly ement values, units and time stamp).
6.	The	simi	ulated PHD sends the Measurement to the PHG under test with the following
	a	Bod	v Composition Measurement (0x2A9C)
	u.	i.	Field: Flags
			Format: 16 bit
			<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: August 2nd. 2012. 11:09:05
		iv.	Field: Fat Free Mass (kg)
			This field is not included
		v.	Field: Fat Free Mass (lb)
			• Format: UINT16
			• Value: 14080 (140.8 lb)
		vi.	Field: Soft Lean Mass (kg)
			This field is not included
		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
1			

	xv. Field: Height
	This field is not included
	xvi. Field: User ID
	This field is not included
	<ol> <li>Check that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li> </ol>
Pass/Fail criteria	In Step 5, the PHG under test shows the following measurement: 64.0 kg, with timestamp '2012-08-02 11:08:25'
	In Step 7, the PHG under test shows the following measurement 140.8 lbs, with timestamp '2012-08-02 11:09:05'
Notes	

TP ld		TP/LP-PAN/PHG/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:				
		PHG does not include Soft Lean Mass Numeric object, Handle Attribute in transcoder output				
		[OR]				
		If PHG includes Soft Lean 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_022				
Other PICS						
Initial condition		The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
		a. Body Composition Measurement (0x2A9C)				
		i. Field: Flags				
		Format: 16 bit				
		<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)				

	I his 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
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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/PHG/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: PHG 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 condi	tion	The PHG under test and the simulated PHD are in the Standby state.				
Initial condition       1         Test procedure       1         2       2         4       2         5       3         5       4         6       3         7       4         7       4         8       4         9       4         9       4         10       4         11       4         12       4         13       4         14       4         15       4         15       4         16       4         17       4         18       4         19       4         10       4         10       4         11       4         12       4         13       4         14       4         15       4         16       4         17       4         18       4         19       4         10       4         10       4         10       4		<ul> <li>The PHG under test and the simulated PHD are in the Standby state.</li> <li>1. The simulated PHD is configured with a Weight Scale Profile (device specialization), it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> <li>2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:</li> <li>a. Body Composition Measurement (0x2A9C) <ol> <li>Field: Flags</li> <li>Format: 16 bit</li> <li>Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in uni of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Re Water Mass, Impedance, Weight, Height and User ID fields are not inclu</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>Vi. Field: Soft Lean Mass (kg)</li> <li>Format: UINT16</li> <li>Value: Not relevant</li> <li>vii. Field: Soft Lean 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: Body Water Mass (kg)</li> <li>This field is not included</li> <li>viii. Field: Body Water Mass (kg)</li> </ol> </li> </ul>				
		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. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).		
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>		
	5. Check in PHG transcoder output the Soft Lean Mass 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_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>		
	<ul> <li>code: MDC_MASS_BODY_SOFT_LEAN or 57688 (dec) or E1 58 (hex)</li> </ul>		
	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/PHG/PHDTW/WS/BV-046			
TP label		Whitepaper. Soft Lean Mass Numeric Object - Metric-Spec-Small Attribute			
Coverage	Spec	[Bluetooth PHDT v1.5]			
	Testable items	Soft Lean Numeric 3; M			
Test purpose		Check that: PHG 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 condition	The PHG under test and the simulated PHD are in the Standby state.		
Test procedure	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:</li> </ol>		
	a. Body Composition Measurement (0x2A9C)		
	i. Field: Flags		
	Format: 16 bit		
	<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			
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state)			
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.			
	5. Check in PHG 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 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: 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			
	b) WAN PCD-01 message			
	PCD-01 message does not include segments with Metric-Spec-Small attribute value			

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-047					
TP label		Whitepaper. Soft Lean Mass Numeric Object - Unit-Code Attribute					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable items	Soft Lean Numeric 4; M	Soft Lean Numeric 5; M				
Test purpose		Check that:	Check that:				
		PHG 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 (lb) 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 PHG under test and the simulated PHD are in the Standby state.					
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the					

	PHG und (it is disc	der test, it has a measurement ready to be sent and it is in the Advertising state coverable).
2.	The simu interest f	ulated PHD implements several BTLE characteristics. The characteristic of for this test case is:
a.	Body Co	mposition Measurement (0x2A9C)
3.	The PHC	G under test initiates a discovery process (Scanning state), it discovers the
	simulate	d PHD and it starts a pairing process with the simulated PHD (Initiating state).
4.	When th Measure	e pairing has been completed (Connection state) the simulated PHD sends the ement to the PHG under test with the following value:
a.	Body Co	mposition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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
	٧.	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
	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

r –		
	XV.	Field: Height
		This field is not included
	xvi.	Field: User ID
		This field is not included
5.	Check ir	PHG transcoder output the Soft Lean Mass Numeric object, Unit-Code attribute
6.	The sim value:	ulated PHD sends the Measurement to the PHG under test with the following
a.	Body Co	omposition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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: Not relevant
	iv.	Field: Fat Free Mass (kg)
		This field is not included
	٧.	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: Not relevant
	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				
	I his field is not included				
	xvi. Field: User ID				
	This field is not included				
	<ol> <li>Check in PHG transcoder output the Soft Lean Mass Numeric object, Unit-Code attribute.</li> </ol>				
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				
	In Step 7, the Soft Lean 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: 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/PHG/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:				
		PHG transcodes Time Stamp field of Body Composition Measurement characteristic into Soft Lean Mass Numeric Object - Absolute-Time-Stamp attribute				
		[AND]				

	PHG 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 PHG under test and the simulated PHD are in the Standby state.
Test procedure	1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).
	2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:
	a. Body Composition Measurement (0x2A9C)
	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:
	a. Body Composition Measurement (0x2A9C)
	i. Field: Flags
	Format: 16 bit
	<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: August 2nd, 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)
	Format: UINT16
	Value: Not relevant
	vii. Field: Soft Lean Mass (lb)
	This field is not included
	viii. Field: Body Water Mass (kg)
	This field is not included
	ix. Field: Body Water Mass (lb)
	This field is not included
	x. Field: Basal Metabolism
	This field is not included

	xi. Field: Muscle Percentage
	This field is not included
	xii. Field: Muscle Mass
	This field is not included
	xiii. Field: Impedance
	This field is not included
	xiv. Field: Weight
	This field is not included
	xv. Field: Height
	This field is not included
	xvi. Field: User ID
	This field is not included
	5. Check in PHG 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:
	• 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 ?  188760^MDC_MASS_BODY_SOFT_LEAN^MDC 1.0.a       X    20120802103927+0000

TP ld		TP/LP-PAN/PHG/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 Nu M	meric 7;	Float Type 1; C			
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Test purpose		Check that: PHG transcodes Soft Lean Mass Value field of Body Composition Measurement characteristic					
Applicability	y	C_MAN_BLE	_000 AND	C_MAN_BLE_002 AND C_MAN_B	BLE_018 AND C_MAN_BLE_022		
Other PICS							
Initial condi	tion	The PHG und	ler test and	the simulated PHD are in the Stan	dby state.		
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).					
		2. The simu interest f	Ilated PHD or this test	implements several BTLE characte case is:	eristics. The characteristic of		
		a. Body	y Composit	ion Measurement (0x2A9C)			
		3. The PHO simulated	under test d PHD and	t initiates a discovery process (Scar it starts a pairing process with the s	nning state), it discovers the simulated PHD (Initiating state).		
		4. When the Measure	e pairing ha ment to the	as been completed (Connection state PHG under test with the following	te) the simulated PHD sends the value:		
		a. Body	y Composit	ion Measurement (0x2A9C)			
		i.	Field: Flag	S			
			• Forma	t: 16 bit			
			<ul> <li>Value: of %, Basal Water</li> </ul>	0000 0000 1000 0010 (MSB $\rightarrow$ LS Fime Stamp and Soft Lean Mass in Metabolism, Muscle Percentage, M Mass, Impedance, Weight, Height	B). Body Fat Percentage in units units of Kg fields are included, luscle Mass, Fat Free Mass, Body and User ID fields are not included		
		ii.	Field: Body	/ Fat Percentage (%)			
			• Forma	t: UINT16			
			Value:	Not relevant			
		iii.	Field: Time	e Stamp			
			• Forma	t: Date and Time			
			Value:	Not relevant			
		iv.	Field: Fat F	Free Mass (kg)			
			• This fi	eld is not included			
		٧.	Field: Fat F	Free Mass (lb)			
			This file	eld is not included			
		vi.	Field: Soft	Lean Mass (kg)			
			• Forma	t: UINT16			
			Value:	8760 (43.8 kg)			
		vii.	Field: Soft	Lean Mass (Ib)			
			This figure	eld is not included			
		viii.	Field: Body	/ Water Mass (kg)			
			This figure	eld is not included			
		ix.	Field: Body	/ Water Mass (lb)			
			This figure	eld is not included			
		х.	Field: Basa	al 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 PHG transcoder output the Soft Lean Mass Numeric object, Simple-Nu-Observed-Value attribute
- 6. The simulated PHD sends the Measurement to the PHG under test with the following value:
  - a. Body Composition Measurement (0x2A9C)
    - i. Field: Flags
      - Format: 16 bit
      - Value: 0000 0000 1000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
    - ii. Field: Body Fat Percentage (%)
      - Format: UINT16
      - Value: Not relevant
    - iii. Field: Time Stamp
      - Format: Date and Time
      - Value: Not relevant
    - iv. Field: Fat Free Mass (kg)
      - This field is not included
    - v. Field: Fat Free Mass (lb)
      - This field is not included
    - vi. Field: Soft Lean Mass (kg)
      - This field is not included
    - vii. Field: Soft Lean Mass (lb)
      - Format: UINT16
      - Value: 9640 (96.4 lb)
    - 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
	7.	Che	ck in PHG transcoder output the Soft Lean Mass Numeric object. Simple-Nu-
		Obs	erved-Value attribute.
Pass/Fail criteria	In S and Me	Step 5 d its va asure	, the Soft Lean Mass Numeric object, Simple-Nu-Observed-Value attribute is present alue matches with Soft Lean Mass Value (kg) field of Body Composition ment characteristic (43.8)
	In S and cha	Step 7 d its va aracte	, the Soft Lean Mass Numeric object, Simple-Nu-Observed-Value attribute is present alue matches with Soft Lean Mass Value (lb) field of Body Composition Measurement ristic (96.4).
Notes	In S	Step 5	, possible values in typical points of observation after transcoder output are:
	a)	IEEE	E 11073 Objects and Attributes
		Sim	ble-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	N PCD-01 message
		PCD valu	0-01 message includes a segment like this with Simple-Nu-Observed-Value attribute e (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 S	Step 7	, possible values in typical points of observation after transcoder output are:
	a)	IEEE	E 11073 Objects and Attributes
		Sim	ple-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)
	b)	WAN	N PCD-01 message
		PCD valu	0-01 message includes a segment like this with Simple-Nu-Observed-Value attribute e (check OBX-5):
			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	/PHG/PHDTW/WS/	′BV-050			
TP label		Whitepaper. Soft Lean Mass Numeric Object - Simple-Nu-Observed-Value Attribute 2					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable items	Soft Lean N	lumeric 7; M	Float Type 1; C	Float Type 2; M		
Test purpose		Check that:		aa Malua fialal af Dadu Car			
		into Soft Le	an Mass Numeric C	bject - Simple-Nu-Observ	red-Value attribute		
		[AND]					
		PHG assigr	ns the following spe	cial values: NaN (0x007FF	FFF)		
Applicability		C_MAN_BL	.E_000 AND C_MA	N_BLE_002 AND C_MAN	I_BLE_018 AND C_MAN_BLE_022		
Other PICS							
Initial condition	on	The PHG u	nder test and the si	mulated PHD are in the St	tandby state.		
Test procedu	re	1. The sir PHG u (it is dis	nulated PHD is con nder test, it has a m scoverable).	figured with a Profile (devi leasurement ready to be s	ce specialization) supported by the sent and it is in the Advertising state		
		2. The sir	nulated PHD impler t for this test case is	ments several BTLE chara	cteristics. The characteristic of		
		a. Bo	dy Composition Me	asurement (0x2A9C)			
		3. The PH simulat	IG under test initiate ed PHD and it start	es a discovery process (S s a pairing process with th	canning state), it discovers the e simulated PHD (Initiating state).		
		4. When t Measu	he pairing has beer rement to the PHG	n completed (Connection s under test with the followir	state) the simulated PHD sends the ng value:		
		a. Bo	dy Composition Me	asurement (0x2A9C)			
		i.	Field: Flags				
			• Format: 16 b	it			
			<ul> <li>Value: 0000 of %, Time S Basal Metab Water Mass,</li> </ul>	0000 1000 0010 (MSB → tamp and Soft Lean Mass olism, Muscle Percentage Impedance, Weight, Heig	LSB). Body Fat Percentage in units in units of Kg fields are included, , Muscle Mass, Fat Free Mass, Body ht and User ID fields are not included		
		ii.	Field: Body Fat P	ercentage (%)			
			Format: UIN <sup>-</sup>	Г16			
			Value: Not re	elevant			
		iii.	Field: Time Stam	р			
			Format: Date	and Time			
			Value: Not re	elevant			
		iv.	Field: Fat Free M	ass (kg)			
			This field is r	not included			
		V.	Field: Fat Free M	ass (lb)			
			This field is r	not included			
		vi.	Field: Soft Lean N	/lass (kg)			
			Format: UIN	116			
			• Value: 8760	(43.8 kg)			
		vii	Field: Soft Lean N	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 PHG transcoder output the Soft Lean Mass Numeric object, Simple-Nu-Observed-Value attribute
- 6. The simulated PHD sends the Measurement to the PHG under test with the following value:
  - a. Body Composition Measurement (0x2A9C)
    - i. Field: Flags
      - Format: 16 bit
      - Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
    - ii. Field: Body Fat Percentage (%)
      - Format: UINT16
      - Value: Not relevant
    - iii. Field: Time Stamp
      - Format: Date and Time
      - Value: Not relevant
    - iv. Field: Fat Free Mass (kg)
      - This field is not included
    - v. Field: Fat Free Mass (lb)
      - This field is not included
    - vi. Field: Soft Lean Mass (kg)
      - Format: UINT16
      - Value: 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
			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.	Che Obse	ck in PHG transcoder output the Soft Lean Mass Numeric object, Simple-Nu- erved-Value attribute.
Pass/Fail criteria	In S and	Step 5 d its va	, the Soft Lean Mass Numeric object, Simple-Nu-Observed-Value attribute is present alue is 43.8.
	In S and	Step 7 d its va	, the Soft Lean Mass Numeric object, Simple-Nu-Observed-Value attribute is present alue is 0x007FFFFF.
Notes	In S	Step 5	, possible values in typical points of observation after transcoder output are:
	a)	IEEE	E 11073 Objects and Attributes
		Simp	ole-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	NPCD-01 message
		PCD value	0-01 message includes a segment like this with Simple-Nu-Observed-Value attribute e (check OBX-5):
			OBX ? NM 188760^MDC_MASS_BODY_SOFT_LEAN
	In S	Step 7	, possible values in typical points of observation after transcoder output are:
	a)	IEEE	E 11073 Objects and Attributes
		Simp	ole-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 a decimal value is not allowed)
	b)	WAN	N PCD-01 message

TP label       Whitepaper. Soft Lean Mass Numeric object, Soft Lean Mass value         Coverage       Spec       [Bluetooth PHDT v1.5]         Testable items       Float Type 1; C       Date-Time Conv 1; M       Soft Lean Numeric 6; M         Test purpose       Check that: PHG processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement         Applicability       C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025         Other PICS       Initial condition         The PHG under test and the simulated PHD are in the Standby state.         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: a. Body Composition Measurement (0x2A9C)         3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD sends the Measurement to the PHG under test with the following value: a. Body Composition Measurement (0x2A9C)         i. Field: Flags       • Format: 16 bit         • 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 Meabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Body Water Mass, Impedance, Weight, Height and User ID fields are not included
Coverage         Spec         [Bluetooth PHDT v1.5]           Testable items         Float Type 1; C         Date-Time Conv 1; M         Soft Lean Numeric 6; M           Test purpose         Check that: PHG processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement           Applicability         C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025           Other PICS         Initial condition           The PHG under test and the simulated PHD are in the Standby state.           Test procedure         1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).           2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: a. Body Composition Measurement (0x2A9C)           3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).           4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: a. Body Composition Measurement (0x2A9C) i. Field: Flags • Format: 16 bit • Value: 0000 0000 1000 0010 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Soft Lean Mass in units of % [fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Bady Water Mass, Impedance, Weight, Height and User ID fields are not included
Testable items       Float Type 1; C       Date-Time Conv 1; M       Soft Lean Numeric 6; M         Test purpose       Check that: PHG processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement         Applicability       C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025         Other PICS         Initial condition       The PHG under test and the simulated PHD are in the Standby state.         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: a. Body Composition Measurement (0x2A9C)         3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).         4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: a. Body Composition Measurement (0x2A9C) i. Field: Flags • Format: 16 bit • 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
Soft Lean Numeric 7; M         Test purpose       Check that: PHG processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement         Applicability       C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025         Other PICS       Initial condition         The PHG under test and the simulated PHD are in the Standby state.         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: a. Body Composition Measurement (0x2A9C)         3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD sends the Measurement to the PHG under test with the following value: a. Body Composition Measurement (0x2A9C) i. Field: Flags         4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: a. Body Composition Measurement (0x2A9C) i. Field: Flags         5. Format: 16 bit       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
Test purpose       Check that:         PHG processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement         Applicability       C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025         Other PICS       Initial condition         The PHG under test and the simulated PHD are in the Standby state.       Initial condition         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD sends the Measurement to the PHG under test with the following value:</li></ul>
PHG processes correctly the Soft Lean Mass Value (kg) and Time Stamp fields of Body Composition Measurement         Applicability       C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025         Other PICS       Initial condition         The PHG under test and the simulated PHD are in the Standby state.         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li></ul>
Applicability       C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_022 AND C_MAN_BLE_025         Other PICS       Initial condition         The PHG under test and the simulated PHD are in the Standby state.         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li></ul>
Other PICS           Initial condition         The PHG under test and the simulated PHD are in the Standby state.           Test procedure         1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).           2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: <ul></ul>
Initial condition       The PHG under test and the simulated PHD are in the Standby state.         Test procedure       1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).         2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li></ul>
<ol> <li>Test procedure</li> <li>1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> <li>2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are:         <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li></ul></li></ol>
<ol> <li>The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are:         <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ul> </li> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:         <ul> <li>Body Composition Measurement (0x2A9C)</li> <li>Field: Flags</li> <li>Format: 16 bit</li> <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></li></ol>
<ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16 bit</li> <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> </li> </ul>
<ul> <li>3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> <li>4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16 bit</li> <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> </li> </ul>
<ul> <li>4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value: <ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags</li> <li>Format: 16 bit</li> <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> </li> </ul>
<ul> <li>a. Body Composition Measurement (0x2A9C)</li> <li>i. Field: Flags <ul> <li>Format: 16 bit</li> <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></li></ul>
<ul> <li>i. Field: Flags</li> <li>Format: 16 bit</li> <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>
<ul> <li>Format: 16 bit</li> <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>
<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 2nd, 2012, 11:08:25</li> </ul>
iv. Field: Fat Free Mass (kg)
This field is not included
v. Field: Fat Free Mass (ID)
Field: Soft Lean Mass (kg)
Format: LIINT16

		-
		• 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
	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.	Check th	nat the PHG accepts the measurement and decodes its value properly
	(measur	ement values, units and time stamp).
6.	The sim value:	ulated PHD sends the Measurement to the PHG under test with the following
	a. Boo	ly Composition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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 2nd, 2012, 11:09:05
	iv.	Field: Fat Free Mass (kg)
		This field is not included
	v.	Field: Fat Free Mass (lb)
		This field is not included
	vi.	Field: Soft Lean Mass (kg)
		This field is not included
	vii	Field: Soft Lean Mass (Ib)

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

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-052				
TP label		Whitepaper. Body Water Mass Numeric Object - Handle Attribute				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	Body Water Numeric 1; O				
Test purpose		Check that: PHG does not include Body Water Numeric object, Handle Attribute in transcoder output [OR] If PHG 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 PHG under test and the simulated PHD are in the Standby state.				

Test procedure	1.	The simu has a me	lated PHD is configured with a Weight Scale Profile (device specialization), it asurement ready to be sent and it is in the Advertising state (it is discoverable).
	2.	The simu interest for	lated PHD implements several BTLE characteristics. The characteristic of or this test case is:
	a.	Body Cor	nposition Measurement (0x2A9C)
		i.	Field: Flags
			Format: 16 bit
			<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
		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
	3.	The PHG	under test initiates a discovery process (Scanning state), it discovers the

	simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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 ld		TP/LP-PAN/PHG/PHDTW/WS/BV-053					
TP label		Whitepaper. Body Water Mass Numeric Object - Type Attribute					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable items	Body Water Numeric 2; M					
Test purpos	se	Check that:					
		PHG 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 condi	tion	The PHG under test and the simulated PHD are in the Standby state.					
Test proced	lure	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
		a. Body Composition Measurement (0x2A9C)					
		i. Field: Flags					
		Format: 16 bit					
		<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. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).
	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.
	5. Check in PHG 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:

		• partition: MDC_PART_SCADA or 2 (dec) or 00 02 (hex)
		<ul> <li>code: MDC_MASS_BODY_WATER or 57692 (dec) or E1 5C (hex)</li> </ul>
	b)	WAN PCD-01 message
		PCD-01 message includes a segment like this with Type attribute (check OBX-3):
		OBX ?  188764^MDC_MASS_BODY_WATER^MDC 1.0.a      X   [current_date_time]

TP ld	TP/LP-PAN/PHG/PHDTW/WS/BV-054					
TP label		Whitepaper. Body Water Mass Numeric Object - Metric-Spec-Small Attribute				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	Body Water Numeric 3; M				
Test purpose		Check that: PHG 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 conditi	ion	The PHG under test and the simulated PHD are in the Standby state.				
Initial condition Test procedure		<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD 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: 16 bit</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: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>Vialue: Not relevant</li> <li>Field: Fat Free Mass (kg)</li> <li>This field is not included</li> <li>This field is not included</li> <li>This field is not included</li> </ul> </li> </ol>				

	vii. Field: Soft Lean Mass (Ib)
	This field is not included
	viji 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
	xiji 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>The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).</li> </ol>
	<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test.</li> </ol>
	5. Check in PHG 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
	PCD-01 message does not include segments with Metric-Spec-Small attribute value

TP ld	TP/LP-PAN/PHG/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 purpos	e	Check that:						
		PHG 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 Wat THEN Body	er Mass (lb) field o Water Numeric ob	f Body Composition Measureme ject, Unit-Code attribute is set to	nt characteristic is present MDC_DIM_LB			
Applicability	y	C_MAN_BLE	E_000 AND C_MA	N_BLE_002 AND C_MAN_BLE_	018 AND C_MAN_BLE_023			
Other PICS								
Initial condi	tion	The PHG un	der test and the si	mulated PHD are in the Standby	state.			
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> </ol>						
		2. The sim interest	ulated PHD impler for this test case is	nents several BTLE characteristi ::	cs. The characteristic of			
		a. Boo	ly Composition Me	asurement (0x2A9C)				
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state)						
		<ol> <li>When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:</li> </ol>						
		a. Boo	ly Composition Me	asurement (0x2A9C)				
		i.	Field: Flags					
			• Format: 16 b	it				
			<ul> <li>Value: 0000 of %, Time S Basal Metabo Lean Mass, I</li> </ul>	0001 0000 0010 (MSB → LSB). tamp and Body Water Mass in u blism, Muscle Percentage, Musc mpedance, Weight, Height and I	Body Fat Percentage in units nits of Kg fields are included, le Mass, Fat Free Mass, Soft Jser ID fields are not included			
		ii.	Field: Body Fat P	ercentage (%)				
			Format: UIN	Г16				
			Value: Not re	levant				
		iii.	Field: Time Stam	D				
			Format: Date	and Time				
			Value: Not re	levant				
		iv.	Field: Fat Free M	ass (kg)				
			This field is n	ot included				
		۷.	Field: Fat Free M	ass (lb)				
			This field is n	ot included				
		vi.	Field: Soft Lean N	/lass (kg)				
			This field is n	ot included				
		vii.	Field: Soft Lean N	/lass (lb)				
			• This field is n	ot 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 PHG transcoder output the Body Water Numeric object, Unit-Code attribute
- 6. The simulated PHD sends the Measurement to the PHG under test with the following value:
  - a. Body Composition Measurement (0x2A9C)
    - i. Field: Flags
      - Format: 16 bit
      - Value: 0000 0001 0000 0011 (MSB → LSB). Body Fat Percentage in units of %, Time Stamp and Body Water Mass in units of pound fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Soft Lean Mass, Fat Free Mass, Impedance, Weight, Height and User ID fields are not included
    - ii. Field: Body Fat Percentage (%)
      - Format: UINT16
      - Value: Not relevant
    - iii. Field: Time Stamp
      - Format: Date and Time
      - Value: Not relevant
    - iv. Field: Fat Free Mass (kg)
      - This field is not included
    - v. Field: Fat Free Mass (lb)
      - This field is not included
    - vi. Field: Soft Lean Mass (kg)
      - This field is not included
    - vii. Field: Soft Lean Mass (lb)
      - This field is not included
    - viii. Field: Body Water Mass (kg)

	Inis field is not included		
	IX. Field: Body Water Mass (Ib)		
	Format: UINT16		
	Value: Not relevant		
	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 PHG transcoder output the Body Water Numeric object, Unit-Code attribute.		
Pass/Fail criteria	In Step 5, the Body Water Numeric object, Unit-Code attribute is present and its value is		
	n Step 7, the Body Water Numeric object, Unit-Code attribute is present and its value is MDC_DIM_LB		
Notos	n Step 5, possible values in typical points of observation after transcoder output are:		
Notes	a) IEEE 11073 Objects and Attributes		
	Linit-Code attribute is present:		
	Ohie-Code attribute is present.		
	Attribute-id: MDC ATTR LINIT CODE (2454)		
	$\square  \text{Attribute-value: MDC}  \text{DIM}  \text{KII}  \text{O}  \text{G} \text{ or } 1731 \text{ (dec) or } 06 \text{ C3 (bev)}$		
	BCD 01 message		
	OBX-6):		
	OBX ? NM 188764^MDC_MASS_BODY_WATER^MDC 1.0.a XX  263875^MDC_DIM_KILO_G^MDC    R   [current_date_time]		
	n 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)		
	) WAN FCD-01 message	1	

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/PHG/PHDTW/WS/BV-056					
TP label		Whitepaper. Body Water Mass Numeric Object - Absolute-Time-Stamp Attribute						
Coverage	Spec	[Bluetooth PHDT v1.5]						
	Testable items	Boo	dy Water	Numeric 6; M	Date-Time Conv 2; M	Date-Time Conv 3; M		
		Dat	e-Time C	Conv 4; M	Date-Time Conv 5; M			
Test purpos	se	Che	Check that:					
		PHG transcodes Time Stamp field of Body Composition Measurement characteristic into Body Water Numeric Object - Absolute-Time-Stamp attribute						
		[AN	[AND]					
		PH	G transco	odes the Blueto	oth Time Stamp field format to Absol	ute Time format		
		[AN	ID]					
		The	e fraction	of seconds in A	bsolute Time at transcoder output is	0		
Applicabilit	у	C_I AN	MAN_BL D C_MAI	E_000 AND C_I N_BLE_025	MAN_BLE_002 AND C_MAN_BLE_	018 AND C_MAN_BLE_023		
Other PICS								
Initial cond	tion	The PHG under test and the simulated PHD are in the Standby state.						
Test procedure		1.	1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).					
		2.	2. The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
			a. Body Composition Measurement (0x2A9C)					
		3.	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).					
		4.	4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:					
			a. Bo	dy Composition	Measurement (0x2A9C)			
			i.	Field: Flags				
				• Format: 1	6 bit			
				<ul> <li>Value: 00 of %, Time Basal Met Lean Mas</li> </ul>	00 0001 0000 0010 (MSB → LSB). E e Stamp and Body Water Mass in ur tabolism, Muscle Percentage, Muscl s, Impedance, Weight, Height and L	Body Fat Percentage in units hits of Kg fields are included, e Mass, Fat Free Mass, Soft Iser ID fields are not included		
			ii.	Field: Body Fa	at Percentage (%)			
				Format: U	IINT16			
				Value: No	t relevant			
			iii.	Field: Time Sta	amp			
				Format: D	ate and Time			
				Value: Au	gust 2nd, 2012, 10:39:27			
			iv.	Field: Fat Free	e 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>Check in PHG transcoder output the Body Water Numeric object, Absolute-Time-Stamp attribute</li> </ol>
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)
	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)
• 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 ?  188764^MDC_MASS_BODY_WATER^MDC 1.0.a      X    20120802103927+0000

TP Id TP/LP-PAN/PHG/PHDTW/WS/BV-057							
TP label		Whitepaper. Body Water Mass Numeric Object - Simple-Nu-Observed-Value Attribute 1					
Coverage	Spec	[Bluetooth PHDT v1.5]					
	Testable items	Body Water Numeric 7; Float Type 1; C M					
Test purpose		Check that: PHG transcodes Body Water Mass Value field of Body Composition Measurement characteristic into Body Water Numeric Object - Simple-Nu-Observed-Value attribute					
Applicabilit	ty	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE_023					
Other PICS							
Initial cond	ition	The PHG under test and the simulated PHD are in the Standby state.					
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristic of interest for this test case is:					
		a. Body Composition Measurement (0x2A9C)					
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).					
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:					
		a. Body Composition Measurement (0x2A9C)					
		i. Field: Flags					
		Format: 16 bit					
		<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
	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.	Check ir Value at	n PHG transcoder output the Body Water Numeric object, Simple-Nu-Observed- tribute
6.	The sim value:	ulated PHD sends the Measurement to the PHG under test with the following
	a. Boo	ly Composition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		<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)
	I his 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 PHG transcoder output the Body Water Numeric object, Simple-Nu-Observed- Value attribute.
Pass/Fail criteria	In Step 5, the Body Water Numeric object, Simple-Nu-Observed-Value attribute is present and its value matches with Body Water Mass Value (kg) field of Body Composition Measurement characteristic (47.5)
	In Step 7, the Body Water Numeric object, Simple-Nu-Observed-Value attribute is present and its value matches with Body Water Mass Value (lb) field of Body Composition Measurement characteristic (104.5).
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 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 S	tep 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 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)
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 104.5  263904^MDC_DIM_LB^MDC    R   [current_date_time]

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TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-058				
TP label		Whitepaper. Body Water Mass Numeric Object - Simple-Nu-Observed-Value				
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: PHG transcodes Body Water Mass Value field of Body Composition Measurement characteristic into Body Water Numeric Object - Simple-Nu-Observed-Value attribute [AND] PHG assigns the following special values: NaN (0x007EEEEE)				
Applicabilit	У	C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_018 AND C_MAN_BLE				
Other PICS						
Initial cond	ition	The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).				
		2. The simulated PHD interest for this test	implements several BTLE ch case is:	aracteristics. The characteristic of		
		a. Body Composit	tion Measurement (0x2A9C)			
		3. The PHG under tes simulated PHD and	t initiates a discovery process it starts a pairing process with	(Scanning state), it discovers the the simulated PHD (Initiating state).		
		4. When the pairing hat Measurement to the	as been completed (Connection PHG under test with the follo	on state) the simulated PHD sends the owing value:		
		a. Body Composit	ion Measurement (0x2A9C)			
		i. Field: Flag	S			
		• Forma	at: 16 bit			
		• Value: of %,	0000 0001 0000 0010 (MSB Time Stamp and Body Water	→ LSB). Body Fat Percentage in units Mass in units of Kg fields are included,		

		Basal Metabolism, Muscle Percentage, Muscle Mass, Fat Free Mass, Soft Lean Mass, Impedance, Weight, Height and User ID fields are not included
	ii.	Field: Body Fat Percentage (%)
		Format: UINT16
		Value: Not relevant
	iii.	Field: Time Stamp
		Format: Date and Time
		Value: Not relevant
	iv.	Field: Fat Free Mass (kg)
		This field is not included
	v.	Field: Fat Free Mass (lb)
		This field is not included
	vi.	Field: Soft Lean Mass (kg)
		This field is not included
	vii.	Field: Soft Lean Mass (lb)
		This field is not included
	viii.	Field: Body Water Mass (kg)
		Format: UINT16
		• Value: 9500 (47.5 kg)
	ix.	Field: Body Water Mass (lb)
		This field is not included
	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.	Check in Value at	PHG transcoder output the Body Water Numeric object, Simple-Nu-Observed- ttribute
6.	The sim value:	ulated PHD sends the Measurement to the PHG under test with the following
	a. Boo	dy Composition Measurement (0x2A9C)
	i.	Field: Flags
		Format: 16 bit
		• Value: 0000 0001 0000 0010 (MSB → LSB). Body Fat Percentage in units

	Lean Mass, Impedance, Weight, Height and User ID fields are not included
	ii. Field: Body Fat Percentage (%)
	Format: UINT16
	Value: Not relevant
	iii. Field: Time Stamp
	Format: Date and Time
	Value: Not relevant
	iv. Field: Fat Free Mass (kg)
	This field is not included
	v. Field: Fat Free Mass (lb)
	This field is not included
	vi. Field: Soft Lean Mass (kg)
	This field is not included
	vii. Field: Soft Lean Mass (lb)
	This field is not included
	viii. Field: Body Water Mass (kg)
	Format: UINT16
	• Value: 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
	7. Check in PHG transcoder output the Soft Lean Mass Numeric object, Simple-Nu- Observed-Value attribute
Pass/Fail criteria	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 S	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 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 a decimal value is not allowed)
b)	WAN PCD-01 message
	PCD-01 message does not include segment with Simple-Nu-Observed-Value attribute value (188764^MDC_MASS_BODY_WATER^MDC) because it has a special value and this value is not included in PCD-01 message

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-059				
TP label		Whitepaper. Body Water	Whitepaper. Body Water Mass Numeric object, Body Water Mass value			
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable	Float Type 1; C	Date-Time Conv 1; M	Body Water Numeric 6; M		
	items	Body Water Numeric 7; I	М			
Test purpos	se	Check that:	Check that:			
		PHG processes correctly the Body Water Mass Value (kg) and Time Stamp fields of Body Composition Measurement				
Applicabilit	Ability C_MAN_BLE_000 AND C_MAN_BLE_018 AND C_MAN_BLE_023 AND C.					
Other PICS						
Initial condition		The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		1. The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).				
		2. The simulated PHD implements several BTLE characteristics. The characteristics of interest for this test case are:				
		a. Body Composition Measurement (0x2A9C)				
		3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).				
		4. When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:				
		a. Body Composition Measurement (0x2A9C)				
		i. Field: Flags	S			

Format: 16 bit
<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 2nd, 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
<ol> <li>Check that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).</li> </ol>
6. The simulated PHD sends the Measurement to the PHG under test with the following value:
a. Body Composition Measurement (0x2A9C)
i. Field: Flags
Eormat: 16 bit

	<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: August 2nd, 2012, 11:09:05
	iv. Field: Fat Free Mass (kg)
	This field is not included
	v. Field: Fat Free Mass (lb)
	This field is not included
	vi. Field: Soft Lean Mass (kg)
	This field is not included
	vii. Field: Soft Lean Mass (lb)
	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 that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).
Pass/Fail criteria	In Step 5, the PHG under test shows the following measurement: 47.5 kg, with timestamp '2012-08-02 11:08:25'
	In Step 7, the PHG under test shows the following measurement: 104.5 lbs, with timestamp '2012-08-02 11:09:05'
Notes	

TP ld		TP/LP-PAN/PHG/PHE	DTW/WS/BV-060			
TP label	Whitepaper. Weight Scale Feature Characteristic – Measurement Resolution			easurement 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: PHG transcodes Weight Scale measurements and presents them properly in transcoder output.				
Applicabilit	y	C_MAN_BLE_000 AN	ID C_MAN_BLE_002 AND C_MA	AN_BLE_017		
Other PICS						
Initial cond	ition	The PHG under test a	nd the simulated PHD are in the	Standby state.		
Test proced	dure	<ol> <li>The simulated PHD is configured with a Weight Scale 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 PHD implements several BTLE characteristics. The characteristic of</li> </ol>				
		interest for this test case are:				
		• Format: 32 bit				
		<ul> <li>Value: 0000 0000 0000 0000 0001 0011 0111 (MSB → LSB). Time Stamp, Multiple Users, Height and BMI supported. Weight resolution of 0.01 kg / 0.02 lb, Height resolution of 0.005 m / 0.5 in.</li> </ul>				
		b. Weight Measurement (0x2A9D)				
		3. The PHG under to simulated PHD ar	est initiates a discovery process nd it starts a pairing process with	(Scanning state), it discovers the the simulated PHD (Initiating state).		
		4. When the pairing has been completed (Connection state), force the PHG under test to read the Weight Scale Feature characteristic.				
		5. The simulated PH value:	ID sends the Measurement to the	e PHG under test with the following		
		a. Weight Meas	surement (0x2A9D)			
		i. Field: Fla	ags			
		• For	mat: 8 bit			
		• Valu Tim inclu	ue: 0000 1010 (MSB $\rightarrow$ LSB). We e Stamp, Height and BMI fields a uded	eight Measurement Value in units of Kg, are included, User ID fields is not		
		ii. Field: W	eight (Kg)			
		• Forr	mat: UINT16			
		• Valu	ue: 16094 (80.47 kg)			
		iii. Field: W	eight (lb)			
		• This	s field is not included			
		iv. Field: Ti	me Stamp			
		• For	mat: Date and Time			
		• Valu	ue: Not relevant			
		v. Field: He	eight (m)			
		Forr	mat: UINT16			

ht

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-061					
TP label		Whitepaper. Body Composition Feature Characteristic – Measurement 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 purpose		Check that: PHG 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 PHG under test and the simulated PHD are in the Standby state.					
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG 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 PHD implements several BTLE characteristics. The characteristics of interest for this test case are:					
		a. Body Composition Feature (0x2A9B)					

		•	For	mat: 32 bit	
		•	Valı Mul sup	ue: 0000 0000 0000 0000 0011 0000 1110 0011 (MSB $\rightarrow$ LSB). Time Stamp, tiple Users, Fat Free Mass, Soft Lean Mass and Body Water Mass ported. Weight resolution of 0.01 kg / 0.02 lb.	
	b.	Bod	y Co	omposition Measurement (0x2A9C)	
3.	The PHG under test initiates a discovery process (Scanning state), it discover simulated PHD and it starts a pairing process with the simulated PHD (Initiatir				
4.	Whe read	en th I the	e pa Bod	iring has been completed (Connection state), force the PHG under test to ly Composition Scale Feature characteristic.	
<ol><li>The simulated PHD sends the Measurement to the PHG under te value:</li></ol>				ed PHD sends the Measurement to the PHG under test with the following	
	a.	Bod	y Co	omposition Measurement (0x2A9C)	
		i.	Fiel	d: Flags	
			•	Format: 16 bit	
			•	Value: 0000 0001 1100 0010 (MSB $\rightarrow$ LSB). Body Fat Percentage in units of %, Time Stamp, Fat Free Mass in units of Kg, Soft Lean Mass in units of Kg and Body Water Mass in units of Kg fields are included, Basal Metabolism, Muscle Percentage, Muscle Mass, Impedance, Weight, Height and User ID fields are not included	
		ii.	Fiel	d: Body Fat Percentage (%)	
			•	Format: UINT16	
			•	Value: Not relevant	
		iii.	Fiel	d: Time Stamp	
			•	Format: Date and Time	
			•	Value: Not relevant	
		iv.	Fiel	d: Fat Free Mass (kg)	
			•	Format: UINT16	
			•	Value: 12864 (64.32 kg)	
		v.	Fiel	d: Fat Free Mass (lb)	
			•	This field is not included	
		vi.	Fiel	d: Soft Lean Mass (kg)	
			•	Format: UINT16	
			•	Value: 14022 (70.11 kg)	
		vii.	Fiel	d: Soft Lean Mass (lb)	
			•	This field is not included	
		viii.	Fiel	d: Body Water Mass (kg)	
			•	Format: UINT16	
			•	Value: 11296 (56.48 kg)	
		ix.	Fiel	d: Body Water Mass (lb)	
			•	This field is not included	
		x.	Fiel	d: Basal Metabolism	
			•	This field is not included	
		xi.	Fiel	d: Muscle Percentage	
			•	This field is not included	
		xii.	Fiel	d: 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 PHG transcoder output the measurements values.		
Pass/Fail criteria	In Step 6, the PHG 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:		
	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:		
	Soft Lean Mass Numeric Object		
	Attribute-id: MDC_ATTR_NU_VAL_OBS_SIMP (2646)		
	Attribute-type: FLOAT		
	Attribute-value: FE 00 1B 63 (hex) or 70.11 (dec)		
	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 ld		TP/LP-PAN/PHG/PHDTW/WS/BV-062				
TP label		Whitepaper. Weight Measurement – Height and BMI pair				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable items	Pair Numeric 1; M				
Test purpose		Check that: Weight Measurement includes, if present, both Height and BMI Value fields as a pair.				
Applicability		C_MAN_BLE_000 AND C_MAN_BLE_002 AND C_MAN_BLE_017				
Other PICS						
Initial condition		The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state</li> </ol>				

	(it is discoverable).				
2.	The simulated PHD implements several BTLE characteristics. The characteristic of interest for this test case is:				
	a. Weight Measurement (0x2A9D)				
3.	The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).				
4.	When the pairing has been completed (Connection state) the simulated PHD sends the Measurement to the PHG under test with the following value:				
	a. Weight Measurement (0x2A9D)				
	i. Field: Flags				
	Format: 8 bit				
	<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: 1800 (1.80 m)				
	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				
5.	Check that the PHG accepts the measurement and decodes its value properly (measurement values, units and time stamp).				
6.	The simulated PHD sends the Measurement to the PHG under test with the following value:				
	a. Weight Measurement (0x2A9D)				
	i. Field: Flags				
	Format: 8 bit				
	<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: Tin	ne Stamp
	• Form	at: Date and Time
	• Valu	e: Not relevant
	v. Field: He	ight (m)
	• Form	at: UINT16
	• Valu	e: 1800 (1.80 m)
	vi. Field: He	ight (in)
	• This	field is not included.
	vii. Field: BN	I (kg/m^2)
	• This	field is not included.
	viii. Field: Us	er ID
	• This	field is not included.
	<ol> <li>Check that the PH (measurement val</li> </ol>	G accepts the measurement and decodes its value properly ues, units and time stamp).
	<ol> <li>The simulated PH value:</li> </ol>	D sends the Measurement to the PHG under test with the following
	a. Weight Measu	urement (0x2A9D)
	i. Field: Fla	gs
	• Form	nat: 8 bit
	<ul> <li>Valu pour User</li> </ul>	e: 0000 1011 (MSB $\rightarrow$ LSB). Weight Measurement Value in units of d, Time Stamp, Height in units of inch and BMI fields are included, ID field is not included
	ii. Field: We	ight (Kg)
	• This	field is not included
	iii. Field: We	ight (lb)
	• Form	nat: UINT16
	• Valu	e: Not relevant
	iv. Field: Tin	ne Stamp
	• Form	nat: Date and Time
	• Valu	e: Not relevant
	v. Field: He	ight (m)
	• This	field is not included.
	vi. Field: He	ight (in)
	• This	field is not included.
	vii. Field: BN	I (kg/m^2)
	• Form	nat: UINT16
	• Valu	e: 247 (24.7)
	viii. Field: Us	er ID
	• This	field is not included.
	9. Check that the PH (measurement val	G accepts the measurement and decodes its value properly ues, units and time stamp).
Pass/Fail criteria	In Step 5, both Height PHG.	and BMI measurements are properly received and transcoded by the
	In Step 7, the PHG sho	ows an error message due to the absence of BMI Value.
	In Step 9, the PHG sho	ws an error message due to the absence of Height Value.

TP ld		TP/LP-PAN/PHG/PHDTW/WS/BV-063				
TP label		Whitepaper. Body Composition Measurement Characteristic – Multiple Packet Measurement				
Coverage	Spec	[Bluetooth PHDT v1.5]				
	Testable	Mul	lti Da	ckot	Numeric 1: M	
	items	IVIUI	iii i a	CKET		
Test purpos	e	Check that:				
		PHG is able to transcode a measurement that has been sent in two pieces.				
Applicability	y	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 condi	tion	The PHG under test and the simulated PHD are in the Standby state.				
Test procedure		<ol> <li>The simulated PHD is configured with a Profile (device specialization) supported by the PHG under test, it has a measurement ready to be sent and it is in the Advertising state (it is discoverable).</li> </ol>				
		2.	The inte	sim rest f	ulated PHD implements several BTLE characteristics. The characteristics of for this test case are:	
			a.	Bod	y Composition Measurement (0x2A9C)	
		3.	3. The PHG under test initiates a discovery process (Scanning state), it discovers the simulated PHD and it starts a pairing process with the simulated PHD (Initiating state).			
		4.	Wh nex	en th t mes	e pairing has been completed (Connection state) the simulated PHD sends the ssage split in two independent Body Composition Measurements:	
			a.	Bod	y Composition Measurement (0x2A9C)	
				i.	Field: Flags	
					Format: 16 bit	
					<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 (Ib)
	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
	<ul> <li>Value: Not relevant. Present if (C_MAN_BLE_027 = TRUE)</li> </ul>
	5. The PHG receives the first Body Composition Measurement, checks that Multiple Packet Measurement bit Flag is set to 1, and waits for the second Body Composition Measurement.
	6. The PHG receives the second Body Composition Measurement.
	<ol> <li>Check in PHG transcoder output the measurements values.</li> </ol>
Pass/Fail criteria	In Step 7, both pieces of the Measurement are presented in transcoder output as a unique Measurement.
Notes	
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