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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

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Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 5L: Body composition analyser: Agent

Recommendation ITU-T H.845.12

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Recommendation ITU-T H.845.12

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 5L: Body composition analyser: Agent

Summary

Recommendation ITU-T H.845.12 is a transposition of Continua Test Tool DG2013, Test Suite Structure & Test Purposes, PAN-LAN-TAN Interface; Part 5L: Device Specializations. Agent (Body Composition Analyser) (Version 1.1, 2014-01-24), that was developed by the Continua Health Alliance. A number of versions of this specification existed before transposition.

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

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T H.845.12	2015-01-13	16	11.1002/1000/12272
2.0	ITU-T H.845.12	2016-07-14	16	11.1002/1000/12949

* 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, http://handle.itu.int/11.1002/1000/11830-en.

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

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 http://www.itu.int/ITU-T/ipr/.

Table of Contents

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

Introduction

This Recommendation is a transposition of Continua Test Tool DG2013, Test Suite Structure & Test Purposes, PAN-LAN-TAN Interface; Part 5L: Device Specializations. Agent (Body Composition Analyser) (Version 1.1, 2014-01-24), that was developed by the Continua Health Alliance. A number of versions of this specification existed before transposition and these can be found in the table below.

Version	Date	Revision history
1.0	2013-05-24	Initial release for Test Tool DG2012.
1.1	2014-01-24	Initial release for Test Tool DG2013. This uses "TSS&TP_DG2012_PAN-LAN_PART_5L_v1.0.doc" as a baseline and adds new features included in [ITU-T H.810 (2015)]: • Adds glucose meter BLE • Adds BLE SSP support • Adds NFC new transport • Adds INR device specialization

Recommendation ITU-T H.845.12

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 5L: Body composition analyser: Agent

1 Scope

The scope of this Recommendation[1] is to provide a test suite structure and the test purposes (TSS & TP) for the PAN/LAN/TAN interface based on the requirements defined in the Continua Design Guidelines (CDG) [ITU-T H.810 (2015)]. The objective of this test specification is to provide a high probability of air interface interoperability between different devices.

The TSS and TP for the PAN/LAN interface document have been divided into ten parts. Each part is listed below:

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

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

2 References

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

[ITU-T H.810 (2015)] Recommendation ITU-T H.810 (2015), *Interoperability design guidelines for personal health systems*.

[ITU-T H.810 (2016)] Recommendation ITU-T H.810 (2016), *Interoperability design guidelines for personal health systems*.

[IEEE 11073-10420] IEEE 11073-10420-2010, *Health informatics – Personal health device communication – Part 10420: Device specialization – Body composition analyser*.

<http://standards.ieee.org/findstds/standard/11073-10420-2010.html>

[ISO/IEEE 11073-104xx] ISO/IEEE 11073-104xx (in force), *Health informatics – Personal health device communication – Device specialization*.

NOTE – This is shorthand used to refer to the collection of device specialization standards that utilize [ISO/IEEE 11073-20601A], where xx can be any number from 01 to 99, inclusive.

[ISO/IEEE 11073-20601A] ISO/IEEE 11073-20601:2010, *Health informatics – Personal health device communication – Part 20601: Application profile – Optimized exchange protocol*, including ISO/IEEE 11073-20601:2010 Amd 1:2015.
<http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=54331> with
<http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=63972>

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

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

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

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATS Abstract Test Suite

DUT Device Under Test

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

5 Conventions

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

– SHALL is equivalent to 'must' or 'it is required to'.

– SHALL NOT is equivalent to 'must not' or 'it is not allowed'.

– SHOULD is equivalent to 'it is recommended to'.

– SHOULD NOT is equivalent to 'it is not recommended to'.

– MAY is equivalent to 'is permitted'.

– MAY NOT is equivalent to 'it is not required that'.

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

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

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

CDG name	Transposed as	Version	Description	Designation
2016 plus errata	[ITU-T H.810 (2016)]	6.1	Release 2016 plus errata noting all ratified bugs [ITU-T H.810 (2016)].	–
2016	–	6.0	Release 2016 of the CDG including maintenance updates of the CDG 2015 and additional guidelines that cover new functionalities.	Iris
2015 plus errata	[ITU-T H.810 (2015)]	5.1	Release 2015 plus errata noting all ratified bugs [ITU-T H.810 (2015)].	–
2015	–	5.0	Release 2015 of the CDG including maintenance updates of the CDG 2013 and additional guidelines that cover new functionalities.	Genome
2013 plus errata	[b-ITU-T H.810 (2013)]	4.1	Release 2013 plus errata noting all ratified bugs [b-ITU-T H.810 (2013)].	–
2013	–	4.0	Release 2013 of the CDG including maintenance updates of the CDG 2012 and additional guidelines that cover new functionalities.	Endorphin
2012 plus errata	–	3.1	Release 2012 plus errata noting all ratified bugs [b-CDG 2012].	–
2012	–	3.0	Release 2012 of the CDG including maintenance updates of the CDG 2011 and additional guidelines that cover new functionalities.	Catalyst
2011 plus errata	–	2.1	CDG 2011 integrated with identified errata.	–
2011	–	2.0	Release 2011 of the CDG including maintenance updates of the CDG 2010 and additional guidelines that cover new functionalities [b-CDG 2011].	Adrenaline
2010 plus errata	–	1.6	CDG 2010 integrated with identified errata	–
2010	–	1.5	Release 2010 of the CDG with maintenance updates of the CDG Version 1 and additional guidelines that cover new functionalities [b-CDG 2010].	1.5
1.0	–	1.0	First released version of the CDG [b-CDG 1.0].	–

6 Test suite structure (TSS)

The test purposes (TPs) for the PAN/LAN/TAN interface have been divided into the main subgroups specified below. Annex A describes the TPs for subgroup 1.3.12 (shown in bold).

– Group 1: Agent (AG)
  - Group 1.1: Transport (TR)
    - Subgroup 1.1.1: Design guidelines: Common (DGC)
    - Subgroup 1.1.2: USB design guidelines (UDG)

- Subgroup 1.1.3: Bluetooth design guidelines (BDG)
- Subgroup 1.1.4: Pulse oximeter design guidelines (PODG)
- Subgroup 1.1.5: Cardiovascular design guidelines (CVDG)
- Subgroup 1.1.6: Activity hub design guidelines (HUBDG)
- Subgroup 1.1.7: ZigBee design guidelines (ZDG)
- Subgroup 1.1.8: Glucose meter design guidelines (GLDG)
- Subgroup 1.1.9: Bluetooth low energy design guidelines (BLEDG)
- Subgroup 1.1.10: Basic electrocardiograph design guidelines (ECGDG)
- Subgroup 1.1.11: NFC design guidelines (NDG)

• Group 1.2: 20601: Optimized exchange protocol (OXP)
- Subgroup 1.2.1: PHD domain information model (DIM)
- Subgroup 1.2.2: PHD service model (SER)
- Subgroup 1.2.3: PHD communication model (COM)

• Group 1.3: Devices class specializations (CLASS)
- Subgroup 1.3.1: Weighing scales (WEG)
- Subgroup 1.3.2: Glucose meter (GL)
- Subgroup 1.3.3: Pulse oximeter (PO)
- Subgroup 1.3.4: Blood pressure monitor (BPM)
- Subgroup 1.3.5: Thermometer (TH)
- Subgroup 1.3.6: Cardiovascular (CV)
- Subgroup 1.3.7: Strength (ST)
- Subgroup 1.3.8: Activity hub (HUB)
- Subgroup 1.3.9: Adherence monitor (AM)
- Subgroup 1.3.10: Insulin pump (IP) (Future development)
- Subgroup 1.3.11: Peak flow (PF)
- **Subgroup 1.3.12: Body composition analyzer (BCA)**
- Subgroup 1.3.13: Basic electrocardiograph (ECG)
- Subgroup 1.3.14: International normalized ratio (INR)
- Subgroup 1.3.15: Sleep apnoea breathing therapy equipment (SABTE)

• Group 1.4: Personal health device transcoding whitepaper (PHDTW)
- Subgroup 1.4.1: Whitepaper general requirements (GEN)
- Subgroup 1.4.2: Whitepaper thermometer requirements (TH)
- Subgroup 1.4.3: Whitepaper blood pressure requirements (BPM)
- Subgroup 1.4.4: Whitepaper heart rate requirements (HR)
- Subgroup 1.4.5: Whitepaper glucose meter requirements (GL)
- Subgroup 1.4.6: Whitepaper weight scale requirements (WS)

– Group 2: Manager (MAN)

• Group 2.1: Transport (TR)

- Subgroup 2.1.1: Design guidelines: Common (DGC)
- Subgroup 2.1.2: USB design guidelines (UDG)
- Subgroup 2.1.3: Bluetooth design guidelines (BDG)
- Subgroup 2.1.4: Cardiovascular design guidelines (CVDG)
- Subgroup 2.1.5: Activity hub design guidelines (HUBDG)
- Subgroup 2.1.6: ZigBee design guidelines (ZDG)
- Subgroup 2.1.7: Bluetooth low energy design guidelines (BLEDG)
- Subgroup 2.1.8: NFC design guidelines (NDG)

- Group 2.2: 20601: Optimized exchange protocol (OXP)
  - Subgroup 2.2.1: General (GEN)
  - Subgroup 2.2.2: PHD domain information model (DIM)
  - Subgroup 2.2.3: PHD service model (SER)
  - Subgroup 2.2.4: PHD communication model (COM)
- Group 2.3: Devices class specializations (CLASS)
  - Subgroup 2.3.1: Weighing scales (WEG)
  - Subgroup 2.3.2: Glucose meter (GL)
  - Subgroup 2.3.3: Pulse oximeter (PO)
  - Subgroup 2.3.4: Blood pressure monitor (BPM)
  - Subgroup 2.3.5: Thermometer (TH)
  - Subgroup 2.3.6: Cardiovascular (CV)
  - Subgroup 2.3.7: Strength (ST)
  - Subgroup 2.3.8: Activity hub (HUB)
  - Subgroup 2.3.9: Adherence monitor (AM)
  - Subgroup 2.3.10: Insulin pump (IP) (Future development)
  - Subgroup 2.3.11: Peak flow (PF)
  - Subgroup 2.3.12: Body composition analyser (BCA)
  - Subgroup 2.3.13: Basic electrocardiograph (ECG)
  - Subgroup 2.3.14: International normalized ratio (INR)
  - Subgroup 2.3.15: Sleep apnoea breathing therapy equipment (SABTE)
- Group 2.4: Personal health device transcoding whitepaper (PHDTW)
  - Subgroup 2.4.1: Whitepaper general requirements (GEN)
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  - Subgroup 2.4.3: Whitepaper blood pressure requirements (BPM)
  - Subgroup 2.4.4: Whitepaper heart rate requirements (HR)
  - Subgroup 2.4.5: Whitepaper glucose meter requirements (GL)
  - Subgroup 2.4.6: Whitepaper weight scale requirements (WS)

7 Electronic attachment

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

In the electronic attachment, letters "C" and "I" in the column labelled "Mandatory" are used to distinguish between "PICS" and "PIXIT" respectively during testing. If the cell is empty, the corresponding PICS is "independent". If the field contains a "C", the corresponding PICS is dependent on other PICS, and the logical expression is detailed in the "SCR_Expression" field. The 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 bellow:
  - Each test purpose identifier is introduced by the prefix "TP".
  - <TT>: This is the test tool that will be used in the test case:
    - PAN: Personal area network (Bluetooth or USB)
    - LAN: Local area network (ZigBee)
    - PAN-LAN: Personal area network (Bluetooth or USB) – Local area network (ZigBee)
    - LP-PAN: Low power personal area network (Bluetooth low energy)
    - TAN: Touch area network (NFC)
    - PLT: Personal area network (Bluetooth or USB) – Local area network (ZigBee) – Touch area network (NFC)
  - <DUT>: This is the device under test:
    - AG: PAN/LAN Agent
    - MAN: PAN/LAN Manager
  - <GR>: This identifies a group of test cases.
  - <SGR>: This identifies a subgroup of test cases.
  - <XX>: This identifies the type of testing:
    - BV: Valid behaviour test
    - BI: Invalid behaviour test
  - <NNN>: This is a sequential number that identifies the 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**: It contains additional PICS items (apart from the PICS specified in the Applicability row) which are used within the test case implementation and can modify the final verdict. When this row is empty, it means that only the PICS specified in the Applicability row are used within the test case implementation.

- **Initial condition**: This indicates the state to which the DUT needs to be moved at the beginning of TC execution.
- **Test procedure**: This describes the steps to be followed in order to execute the test case.
- **Pass/Fail criteria**: This provides criteria to decide whether the DUT passes or fails the test case.

A.2 Subgroup 1.3.12 – Body composition analyser (BCA)

<table>
<tr><td colspan="2">TP Id</td><td colspan="3">TP/PLT/AG/CLASS/BCA/BV-000</td></tr>
<tr><td colspan="2">TP label</td><td colspan="3">Get MDS Object for body composition analyser specialization: Mandatory, Conditional and Optional Attributes</td></tr>
<tr><td rowspan="7">Coverage</td><td>Spec</td><td colspan="3">[IEEE 11073-10420]</td></tr>
<tr><td rowspan="6">Testable items</td><td>MDSClassAtttr 1; M</td><td>MDSClassAtttr 2; M</td><td>MDSClassAtttr 3; M</td></tr>
<tr><td>MDSClassAtttr 4; M</td><td>MDSClassAtttr 5; M</td><td>MDSClassAtttr 6; M</td></tr>
<tr><td>MDSClassAtttr 7; M</td><td>MDSClassAtttr 8; R</td><td>MDSClassAtttr 9; R</td></tr>
<tr><td>MDSClassAtttr 10; R</td><td>MDSServices 1; M</td><td>MDSServices 3; M</td></tr>
<tr><td>OperProc2; M</td><td></td><td></td></tr>
<tr><td colspan="2">Test purpose</td><td colspan="3">Check that:
The Agent supports a Get command that requests all attributes
[AND]
The MDS Object contains the attributes specified for a body composition analyzer Agent.</td></tr>
<tr><td colspan="2">Applicability</td><td colspan="3">C_AG_OXP_167 AND C_AG_OXP_000</td></tr>
<tr><td colspan="2">Other PICS</td><td colspan="3">C_AG_OXP_181</td></tr>
<tr><td colspan="2">Initial condition</td><td colspan="3">The simulated manager and the agent under test are in the operating state.</td></tr>
<tr><td colspan="2">Test procedure</td><td colspan="3">1. The simulated manager issues a "roiv-cmip-get" command with the handle set to 0 (to request for an MDS object) and the attribute-id-list set to 0 to indicate all attributes.
2. The agent under test responds with a "rors-cmip-get" service message in which the attribute-list contains a list of all implemented attributes of the MDS object:
MDS Attributes:
a. Conditional attribute System-Type shall not be present.
❑ attribute-id = MDC_ATTR_SYS_TYPE
❑ attribute-type = TYPE
❑ attribute-value.length = 4 bytes
❑ attribute-value =<not relevant >
b. Mandatory attribute System-Type-Spec_List
❑ attribute-id = MDC_ATTR_SYS_TYPE_SPEC_LIST
❑ attribute-type = TypeVerList
❑ attribute-value.length = 4 bytes attribute-value = MDC_DEV_SPEC_PROFILE_BCA, 1
c. Mandatory attribute System-model
❑ attribute-id = MDC_ATTR_ID_MODEL
❑ attribute-type = SystemModel
❑ attribute-value.length =<variable>
❑ attribute-value ={Manufacturer, Model}
d. Mandatory attribute Dev-Configuration-Id
❑ attribute-id = MDC_ATTR_DEV_CONFIG_ID
❑ attribute-type = ConfigId
❑ attribute-value.length = 2 bytes
❑ attribute-value =
– IF NOT C_AG_OXP_181 then attribute-value = 0x07D0</td></tr>
</table>

	– ELSE attribute-value = < between 0x4000 and 0x7FFF> e. Recommended attribute Power-Status ❑ attribute-id = MDC_ATTR_POWER_STAT ❑ attribute-type = PowerStatus (BITS-16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = ON_MAINS (0x8000) or ON_BATTERY(0x4000) Only one of the following may be active: ▪ chargingFull(8), ▪ chargingTrickle(9), ▪ chargingOff(10). ▪ The rest of the bits must not be set f. Recommended attribute Remain-Battery-Time ❑ attribute-id = MDC_ATTR_TIME_BATT_REMAIN (0X09 0X88) ❑ attribute-type = BatMeasure ❑ attribute-value.length = 6 bytes ❑ attribute-value = <4 bytes to define the value. 2 remaining bytes to define the units, which shall be set to one of: MDC_DIM_MIN (0x08 0xA0), MDC_DIM_HR (0x08 0xC0) or MDC_DIM_DAY (0x08 0xE0) >
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-001		
TP label		MDS Configuration objects events for body composition analyser agent		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	MDSEvents 1; M	BCA_NumGen1; M	BodyFat1; M
		BodyHeight1; M	WeightNumClass 1;M	BodyMassIndex1; O
		FatFreeMass1; O	SoftLeanMass1; O	BodyWater1; O
		BCAExtRules3; M	ConfigProc1; M	
Test purpose		Check that: A body composition analyzer Agent shall send the [MDS-Configuration-Event] using a [Confirmed] event report. The [MDS-Configuration-Event] shall include the event-info [ConfigReport]. [AND] Check objects supported by the Agent (standard /extended configuration)		
Applicability		C_AG_OXP_167 AND C_AG_OXP_000		
Other PICS		C_AG_OXP_010, C_AG_OXP_181		
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager: a. APDU Type ❑ field- type = PrstApdu ❑ field-length =2 bytes		

	❑ field-value =0xE7 0x00 b. invoke-id ❑ field- type = InvokeIDType ❑ field-length =INT-U16 ❑ field- value=<Not relevant for this test> c. message ❑ field- type = roiv-cmip-confirmed-event-report ❑ field-length =two bytes ❑ field- value=0x01 0x01 (EventReportArgumentSimple) d. obj-handle (EventReportArgumentSimple) ❑ field- type = HANDLE ❑ field-length =INT-U16 e. event-time (EventReportArgumentSimple) ❑ field- type = Relative Time ❑ field-length =INT-U32 ❑ field-value = • IF NOT C_AG_OXP_010 THEN value = 0xFF 0xFF 0xFF 0xFF f. event-type (EventReportArgumentSimple) ❑ field- type = OID-Type ❑ field-length =INT-U16 ❑ field- value=0x 0D 0x 1C (MDC_NOTI_CONFIG) g. config-report-id (ConfigReport) ❑ field- type = ConfigId ❑ field-length = INT-U16 ❑ field- value = – IF NOT C_AG_OXP_181 then attribute-value = 0x07D0 – ELSE attribute-value = < between 0x4000 and 0x7FFF > h. obj-class (ConfigReport → ConfigObjectList (ConfigObject)). To check the objects that are supported by the Agent, Type Attribute will be checked in AttributeList. ❑ field- type = OID-Type ❑ field-length = INT-U16 ❑ field- value = – Three mandatory numeric objects for body fat, body height and body weight. – Four optional numeric objects for body mass index, fat free mass, soft lean mass and body water.
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-002		
TP label		MDS objects events Body composition analyser		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	MDSEvents 3; M	MDSEvents 4; M	MDSEvents 5; M
		MDSEvents 6; M	ObjAccServ1; M	ObjAccServ2; M

		ObjAccServ3; M	ObjAccServ6; O	
Test purpose		Check that: The Agent sends the MDS-Dynamic-Data-Update-Fixed using a confirmed event report and it includes the event-info ScanReportInfoFixed. [AND/OR] The Agent sends the MDS-Dynamic-Data-Update-Var using a confirmed event report and it includes the event-info ScanReportInfoVar. [AND]		
Applicability		C_AG_OXP_167 AND C_AG_OXP_000 AND (C_AG_OXP_182 OR C_AG_OXP_183 OR C_AG_OXP_184 OR C_AG_OXP_189)		
Other PICS		C_AG_OXP_181		
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent under test responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the tested configuration is received. 5. Record the agent configuration. 6. Take Measurements for every supported object in the agent under test. 7. Wait to receive every event report and check: ❑ field- type = Event Report ❑ field-length = 2 bytes ❑ field- value=0x01 0x01 (EventReportArgumentSimple, confirmed) This field identifies the type of message sent by the Agent, for the confirmed event configuration, roiv-cmip-confirmed-event-report.		

Pass/Fail criteria		• Check that every received MDS Event report is one of the following Data APDU and that it is confirmed.
		• For Standard Configuration (NOT C_AG_OXP_181): An MDS Event Report is sent by the agent under test to report measurements for every object.
		  • MDC_NOTI_SCAN_REPORT_FIXED
		  • MDC_NOTI_SCAN_REPORT_MP_FIXED
		• For Extended Configuration, an MDS Event Report is sent by the agent under test to report measurements for every object:
		  • MDC_NOTI_SCAN_REPORT_FIXED
		  • MDC_NOTI_SCAN_REPORT_MP_FIXED
		  • MDC_NOTI_SCAN_REPORT_VAR
		  • MDC_NOTI_SCAN_REPORT_MP_VAR		

Notes				

TP Id		TP/PLT/AG/CLASS/BCA/BV-003		
TP label		Body Weight Object for Standard Configuration (0x07D0)		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	WeightNumClass 1; M	WeightNumClass 2; M	WeightNumClass 3; M
		WeightNumClass 5; R	WeightNumClass 7; M	WeightNumClass 9; R

		WeightNumClass 11; O	WeightNumClass 13; R	WeightNumClass 15; R
		WeightNumClass 17; R	WeightNumClass 19; M	WeightNumClass 21; M
		WeightNumClass 22; R	WeightNumClass 24; R	WeightNumClass 26; C
		WeightNumClass 27; R	WeightNumClass 29; C	ConfigProc2; M
		Concepts 4; M		
Test purpose		Check that: Body Weight Numeric Object contains the attributes specified for Standard Configuration (0x07D0)		
Applicability		C_AG_OXP_167 AND (NOT C_AG_OXP_181) AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to 0x07D0. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to 0x07D0 is received. 5. Once the agent under test sends a standard configuration, check the Body Weight object: 6. The Body Weight object contents shall be: a. Mandatory attribute Handle ❑ attribute-id = MDC_ATTR_ID_HANDLE ❑ attribute-type = HANDLE ❑ attribute-value = 0x00 0x01 b. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = 0x00 0x02(MDC_PART_SCADA), 0xE1 0x40(MDC_MASS_BODY_ACTUAL 57664) c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value ≠ 0x00 0x00 • Bit 0 (mss-avail-intermittent(0)) is set. • Bit 1 (mss-avail-stored-data(1)) is set. • Bit 2 (mss-upd-aperiodic(2)) is set. • Bit 3 (mss-msmt-aperiodic(3)) is set. • Bit 9 (mss-acc-agent-initiated(9)) is set. • Bit 12 (mss-cat-manual(12)) is set. d. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes		

	❑ attribute-value = MDC_DIM_KILO_G e. Mandatory attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = (MDC_ATTR_NU_ VAL_OBS_SIMP,4 MDC_ATTR_TIME_STAMP_ABS,8) 7. Check that no other attributes are present in the initial configuration.
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-004		
TP label		Body Weight Object for Extended Configuration		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	WeightNumClass 1; M	WeightNumClass 4; M	WeightNumClass 6; R
		WeightNumClass 8; M	WeightNumClass 10; R	WeightNumClass 12; R
		WeightNumClass 14; R	WeightNumClass 16; R	WeightNumClass 18; R
		WeightNumClass 20; M	WeightNumClass 23; R	WeightNumClass 25; R
		WeightNumClass 28; R	Concepts 4; M	
Test purpose		Check that: Body Weight Numeric Object contains the attributes specified for Extended Configuration		
Applicability		C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent under test responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received. 5. Once the agent under test sends the tested configuration, check the Body Weight object: 6. The Body Weight object contents shall be: a. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE attribute-value = 0x00 0x02(MDC_PART_SCADA), 0xE1 0x40(MDC_MASS_BODY_ACTUAL 57664) b. IF Not Recommended attribute Supplemental-Types ❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES ❑ attribute-type = SupplementalTypeList ❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes) ❑ attribute-value = <Not relevant for this test>		

c. Mandatory attribute Metric-Spec-Small
   - ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL
   - ❑ attribute-type = MetricSpecSmall
   - ❑ attribute-value.length = 2 bytes
   - ❑ attribute-value ≠ 0x00 0x00
     - Bit 0 (mss-avail-intermittent(0)) is set.
     - Bit 1 (mss-avail-stored-data(1)) is set.
     - Bit 2 (mss-upd-aperiodic(2)) is set.
     - Bit 3 (mss-msmt-aperiodic(3)) is set.
     - Bit 9 (mss-acc-agent-initiated(9)) is set.

d. IF Not recommended attribute Metric-Structure-Small is present
   - ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL
   - ❑ attribute-type = MetricStructureSmall
   - ❑ attribute-length = 2 bytes
   - ❑ attribute-value = <Not relevant for this test>

e. IF Recommended attribute Measurement-Status is present
   - ❑ attribute-id = MDC_ATTR_MSMT_STAT
   - ❑ attribute-type = MeasurementStatus
   - ❑ attribute-value.length = 2 bytes
   - ❑ attribute-value = <Not relevant for this test>

f. IF Not recommended attribute Metric-Id is present
   - ❑ attribute-id = MDC_ATTR_ID_PHYSIO
   - ❑ attribute-type = OID-Type(INT-U16)
   - ❑ attribute-value.length =2 bytes
   - ❑ attribute-value = <Not relevant for this test>

g. IF Not Recommended attribute Metric-Id-List is present
   - ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS
   - ❑ attribute-type = MetricIdList
   - ❑ attribute-value = <Not relevant for this test>

h. IF Not recommended attribute Metric-Id-Partition is present
   - ❑ attribute-id = MDC_ATTR_METRIC_ID_PART
   - ❑ attribute-type = NomPartition(INT-U16)
   - ❑ attribute-value.length = 2 bytes
   - ❑ attribute-value = <Not relevant for this test>

i. Mandatory attribute Unit-Code
   - ❑ attribute-id = MDC_ATTR_UNIT_CODE
   - ❑ attribute-type = OID-Type
   - ❑ attribute-value.length = 2 bytes
   - ❑ attribute-value = MDC_DIM_KILO_G OR MDC_DIM_LB

j. IF Not recommended attribute Source-Handle-Reference is present
   - ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF
   - ❑ attribute-type = HANDLE(INT-U16)
   - ❑ attribute-value.length = 2 bytes
   - ❑ attribute-value = <Not relevant for this test>

	k. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> l. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-005		
TP label		Body Height Object for Standard Configuration (0x07D0)		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BodyHeight1; M	BodyHeight2; M	BodyHeight4; M
		BodyHeight6; R	BodyHeight8; M	BodyHeight10; R
		BodyHeight12; O	BodyHeight14; R	BodyHeight16; R
		BodyHeight18; R	BodyHeight20; M	BodyHeight22; M
		BodyHeight24; R	BodyHeight26; O	BodyHeight28; O
		BodyHeight30; C	BodyHeight32; C	BodyHeight34; C
		BodyHeight36; R	BodyHeight38; C	BodyHeight40; C
		BodyHeight42; C	BodyHeight44; C	BodyHeight46; C
		BodyHeight48; C	BodyHeight50; R	ConfigProc2; M
		Concepts 3; M		
Test purpose		Check that: Body Height Numeric Object contains the attributes specified for Standard Configuration (0x07D0)		
Applicability		C_AG_OXP_167 AND (NOT C_AG_OXP_181) AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to 0x07D0. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to 0x07D0 is received. 5. Once the agent under test sends a standard configuration, check the Body Height object: 6. The Body Height object contents shall be: a. Mandatory attribute Handle ❑ attribute-id = MDC_ATTR_ID_HANDLE ❑ attribute-type = HANDLE		

	❑ attribute-value = 0x00 0x02 b. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = 0x00 0x02(MDC_PART_SCADA), 0xE1 0x44(MDC_LEN_BODY_ACTUAL) c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value ≠ 0x00 0x00 • Bit 0 (mss-avail-intermittent(0)) is set. • Bit 1 (mss-avail-stored-data(1)) is set. • Bit 2 (mss-upd-aperiodic(2)) is set. • Bit 3 (mss-msmt-aperiodic(3)) is set. • Bit 9 (mss-acc-agent-initiated(9)) is set. • Bit 12 (mss-cat-manual(12)) is set. d. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_CENTI_M e. Mandatory attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = (MDC_ATTR_NU_ VAL_OBS_SIMP,4 MDC_ATTR_TIME_STAMP_ABS,8) 7. Check that no other attributes are present in the initial configuration.
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-006		
TP label		Body Height Object for Extended Configuration		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BodyHeight1; M	BodyHeight3; M	BodyHeight5; M
		BodyHeight7; R	BodyHeight9; M	BodyHeight11; R
		BodyHeight13; R	BodyHeight15; R	BodyHeight17; R
		BodyHeight19; R	BodyHeight21; M	BodyHeight23; C
		BodyHeight25; R	BodyHeight27; O	BodyHeight29; O
		BodyHeight31; C	BodyHeight33; C	BodyHeight35; C
		BodyHeight37; R	BodyHeight39; C	BodyHeight41; C
		BodyHeight43; C	BodyHeight45; C	BodyHeight47; C
		BodyHeight49; C	BodyHeight51; R	Concepts 3; M

Test purpose	Check that: Body Height Numeric Object contains the attributes specified for Extended Configuration
Applicability	C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_OXP_000
Other PICS	
Initial condition	The simulated manager and the agent under test are in the unassociated state.
Test procedure	1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received. 5. Once the agent under test sends the tested configuration, check the Body Height object: 6. The Body Height object contents shall be: a. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE attribute-value = 0x00 0x02(MDC_PART_SCADA), 0xE1 0x44(MDC_LEN_BODY_ACTUAL) b. IF Not Recommended attribute Supplemental-Types ❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES ❑ attribute-type = SupplementalTypeList ❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes) ❑ attribute-value = <Not relevant for this test> c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value ≠ 0x00 0x00 • Bit 0 (mss-avail-intermittent(0)) is set. • Bit 1 (mss-avail-stored-data(1)) is set. • Bit 2 (mss-upd-aperiodic(2)) is set. • Bit 3 (mss-msmt-aperiodic(3)) is set. • Bit 9 (mss-acc-agent-initiated(9)) is set. • Bit 12 (mss-cat-manual(12)) is set. d. IF Not recommended attribute Metric-Structure-Small is present ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL ❑ attribute-type = MetricStructureSmall ❑ attribute-length = 2 bytes ❑ attribute-value = <Not relevant for this test> e. IF Recommended attribute Measurement-Status is present ❑ attribute-id = MDC_ATTR_MSMT_STAT ❑ attribute-type = MeasurementStatus

	❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> f. IF Not recommended attribute Metric-Id is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length =2 bytes ❑ attribute-value = <Not relevant for this test> g. IF Not Recommended attribute Metric-Id-List is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS ❑ attribute-type = MetricIdList ❑ attribute-value = <Not relevant for this test> h. IF Not recommended attribute Metric-Id-Partition is present ❑ attribute-id = MDC_ATTR_METRIC_ID_PART ❑ attribute-type = NomPartition(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> i. Mandatory recommended attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_CENTI_M or MDC_DIM_INCH j. IF Not recommended attribute Source-Handle-Reference is present ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF ❑ attribute-type = HANDLE(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> k. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> l. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-007		
TP label		Body Fat Object for Standard Configuration (0x07D0)		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BodyFat1; M	BodyFat2; O	BodyFat3; M
		BodyFat5; M	BodyFat7; R	BodyFat9; M

		BodyFat11; R	BodyFat13; O	BodyFat15; R
		BodyFat17; R	BodyFat19; R	BodyFat21; M
		BodyFat23; M	BodyFat25; R	BodyFat27; O
		BodyFat29; O	BodyFat31; C	BodyFat33; C
		BodyFat35; C	BodyFat37; R	BodyFat39; C
		BodyFat41; C	BodyFat43; C	BodyFat45; C
		BodyFat47; C	BodyFat49; C	BodyFat51; R
		BodyFat53; M	ConfigProc2; M	Concepts 2; M
Test purpose		Check that: Body Fat Numeric Object contains the attributes specified for Standard Configuration (0x07D0)		
Applicability		C_AG_OXP_167 AND (NOT C_AG_OXP_181) AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to 0x07D0. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to 0x07D0 is received. 5. Once the agent under test sends a standard configuration, check the Body Fat object. 6. The Body Fat contents shall be: a. Mandatory attribute Handle ❑ attribute-id = MDC_ATTR_ID_HANDLE ❑ attribute-type = HANDLE ❑ attribute-value = 0x00 0x03 b. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = MDC_PART_SCADA | MDC_BODY_FAT c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value ≠ 0x00 0x00 • Bit 0 (mss-avail-intermittent(0)) is set. • Bit 1 (mss-avail-stored-data(1)) is set. • Bit 2 (mss-upd-aperiodic(2)) is set. • Bit 3 (mss-msmt-aperiodic(3)) is set. • Bit 9 (mss-acc-agent-initiated(9)) is set. • Bit 14 (mss-cat-calculation(14)) is set. d. Mandatory recommended attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE		

	❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_PERCENT. e. Mandatory attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = (MDC_ATTR_NU_ VAL_OBS_SIMP,4 MDC_ATTR_TIME_STAMP_ABS,8) f. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = FLOAT-Type (INT-U32) 7. Check that no other attributes are present in the initial configuration.
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-008		
TP label		Body Fat Object for Extended Configuration		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BodyFat2; O	BodyFat4; M	BodyFat6; M
		BodyFat8; R	BodyFat10; M	BodyFat12; R
		BodyFat14; R	BodyFat16; C	BodyFat18; R
		BodyFat20; C	BodyFat22; M	BodyFat24; C
		BodyFat26; R	BodyFat28; O	BodyFat30; O
		BodyFat32; C	BodyFat34; C	BodyFat36; C
		BodyFat38; R	BodyFat40; C	BodyFat42; C
		BodyFat44; C	BodyFat46; C	BodyFat48; C
		BodyFat50; C	BodyFat52; R	Concepts 2; M
Test purpose		Check that: Body Fat Numeric Object contains the attributes specified for Extended Configuration		
Applicability		C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received. 5. Once the agent under test sends the tested configuration, check the Body Fat object. 6. The Body Fat object contents shall be:		

	a. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = MDC_PART_SCADA | MDC_BODY_FAT b. IF Not Recommended attribute Supplemental-Types ❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES ❑ attribute-type = SupplementalTypeList ❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes) ❑ attribute-value = <Not relevant for this test> c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> d. IF Not recommended attribute Metric-Structure-Small is present ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL ❑ attribute-type = MetricStructureSmall ❑ attribute-length = 2 bytes ❑ attribute-value = <Not relevant for this test> e. IF Recommended attribute Measurement-Status is present ❑ attribute-id = MDC_ATTR_MSMT_STAT ❑ attribute-type = MeasurementStatus ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> f. IF Conditional attribute Metric-Id is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length =2 bytes ❑ attribute-value = <Not relevant for this test> g. IF Not Recommended attribute Metric-Id-List is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS ❑ attribute-type = MetricIdList ❑ attribute-value = <Not relevant for this test> h. IF Conditional attribute Metric-Id-Partition is present ❑ attribute-id = MDC_ATTR_METRIC_ID_PART ❑ attribute-type = NomPartition(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> i. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_PERCENT or MDC_DIM_KILO_G or MDC_DIM_LB

	j. IF Not recommended attribute Source-Handle-Reference is present ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF ❑ attribute-type = HANDLE(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> k. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> l. IF Not recommended Compound-Simple-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = SimpleNuObsValueCmp ❑ attribute-value.length =<variable> ❑ attribute-value = <Not relevant for this test> m. IF Not recommended attribute Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValue ❑ attribute-value.length = 2bytes ❑ attribute-value = <Not relevant for this test> n. IF Not recommended attribute Compound-Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> o. IF Not recommended attribute Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS ❑ attribute-type = NuObsValue ❑ attribute-value.length = 10bytes ❑ attribute-value = <Not relevant for this test> p. Not recommended attribute Compound-Nu-Observed-Value ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = NuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> q. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

<table>
<tr><td colspan="2">TP Id</td><td colspan="3">TP/PLT/AG/CLASS/BCA/BV-009</td></tr>
<tr><td colspan="2">TP label</td><td colspan="3">Body Mass Index Object for Extended Configuration</td></tr>
<tr><td rowspan="12">Coverage</td><td>Spec</td><td colspan="3">[IEEE 11073-10420]</td></tr>
<tr><td rowspan="11">Testable items</td><td>BodyMassIndex1; O</td><td>BodyMassIndex2; M</td><td>BodyMassIndex3; M</td></tr>
<tr><td>BodyMassIndex4; M</td><td>BodyMassIndex5; R</td><td>BodyMassIndex6; M</td></tr>
<tr><td>BodyMassIndex7; R</td><td>BodyMassIndex8; R</td><td>BodyMassIndex9; R</td></tr>
<tr><td>BodyMassIndex10; R</td><td>BodyMassIndex11; R</td><td>BodyMassIndex12; M</td></tr>
<tr><td>BodyMassIndex13; C</td><td>BodyMassIndex14; M</td><td>BodyMassIndex15; O</td></tr>
<tr><td>BodyMassIndex16; O</td><td>BodyMassIndex17; C</td><td>BodyMassIndex18; C</td></tr>
<tr><td>BodyMassIndex19; C</td><td>BodyMassIndex20; R</td><td>BodyMassIndex21; C</td></tr>
<tr><td>BodyMassIndex22; C</td><td>BodyMassIndex23; C</td><td>BodyMassIndex24; C</td></tr>
<tr><td>BodyMassIndex25; C</td><td>BodyMassIndex26; C</td><td>BodyMassIndex27; R</td></tr>
<tr><td>Concepts 5; O</td><td></td><td></td></tr>
<tr><td colspan="2">Test purpose</td><td colspan="3">Check that:
Body Mass Index Numeric Object contains the attributes specified for Extended Configuration</td></tr>
<tr><td colspan="2">Applicability</td><td colspan="3">C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_BCA_001 AND C_AG_OXP_000</td></tr>
<tr><td colspan="2">Other PICS</td><td colspan="3"></td></tr>
<tr><td colspan="2">Initial condition</td><td colspan="3">The simulated manager and the agent under test are in the unassociated state.</td></tr>
<tr><td colspan="2">Test procedure</td><td colspan="3">1. The simulated manager receives an association request from the agent under test.
2. The simulated manager responds with a result = accepted-unknown-config.
3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager.
4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received.
5. Once the agent under test sends the tested configuration, check the Body Mass Index object.
6. The Body Mass Index object contents shall be:
a. Mandatory attribute Type
❑ attribute-id = MDC_ATTR_ID_TYPE
❑ attribute-type = TYPE
❑ attribute-value = MDC_PART_SCADA | MDC_RATIO_MASS_BODY_LEN_SQ
b. IF Not Recommended attribute Supplemental-Types
❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES
❑ attribute-type = SupplementalTypeList
❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes)
❑ attribute-value = <Not relevant for this test>
c. Mandatory attribute Metric-Spec-Small
❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL
❑ attribute-type = MetricSpecSmall
❑ attribute-value.length = 2 bytes
❑ attribute-value ≠ 0x00 0x00
▪ Bit 0 (mss-avail-intermittentt(0)) must be set.</td></tr>
</table>

	▪ Bit 1 (mss-avail-stored-data(1)) must be set. ▪ Bit 2 (mss-upd-aperiodic(2)) must be set. ▪ Bit 3 (mss-msmt-aperiodic(3)) must be set. ▪ Bit 9 (mss-acc-agent-initiated(9)) must be set. ▪ Bit 14 (mss-cat_calculation(14)) must be set is set d. IF Not recommended attribute Metric-Structure-Small is present ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL ❑ attribute-type = MetricStructureSmall ❑ attribute-length = 2 bytes ❑ attribute-value = <Not relevant for this test> e. IF Recommended attribute Measurement-Status is present ❑ attribute-id = MDC_ATTR_MSMT_STAT ❑ attribute-type = MeasurementStatus ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> f. IF Not recommended attribute Metric-Id is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length =2 bytes ❑ attribute-value = <Not relevant for this test> g. IF Not Recommended attribute Metric-Id-List is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS ❑ attribute-type = MetricIdList ❑ attribute-value = <Not relevant for this test> h. IF Not recommended attribute Metric-Id-Partition is present ❑ attribute-id = MDC_ATTR_METRIC_ID_PART ❑ attribute-type = NomPartition(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> i. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_KG_PER_M_SQ j. Conditional attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = <Not relevant for this test> k. Mandatory attribute Source-Handle-Reference is present ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF ❑ attribute-type = HANDLE(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = It must be equal to the handle of another metric object in

	the configuration and it must point to an object that has a type of MDC_MASS_BODY_ACTUAL. l. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> m. IF Not recommended Compound-Simple-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = SimpleNuObsValueCmp ❑ attribute-value.length =<variable> ❑ attribute-value = <Not relevant for this test> n. IF Not recommended attribute Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValue ❑ attribute-value.length = 2bytes ❑ attribute-value = <Not relevant for this test> o. IF Not recommended attribute Compound-Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> p. IF Not recommended attribute Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS ❑ attribute-type = NuObsValue ❑ attribute-value.length = 10bytes ❑ attribute-value = <Not relevant for this test> q. Not recommended attribute Compound-Nu-Observed-Value ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = NuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> r. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-010		
TP label		Fat Free Mass Object for Extended Configuration		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable	FatFreeMass1; O	FatFreeMass2; M	FatFreeMass3; M

	items	FatFreeMass4; M	FatFreeMass5; R	FatFreeMass6; M
		FatFreeMass7; R	FatFreeMass8; R	FatFreeMass9; R
		FatFreeMass10; R	FatFreeMass11; R	FatFreeMass12; M
		FatFreeMass13; C	FatFreeMass14; R	FatFreeMass15; O
		FatFreeMass16; O	FatFreeMass17; C	FatFreeMass18; C
		FatFreeMass19; C	FatFreeMass20; R	FatFreeMass21; C
		FatFreeMass22; C	FatFreeMass23; C	FatFreeMass24; C
		FatFreeMass25; C	FatFreeMass26; C	FatFreeMass27; R
		Concepts 6; O		
Test purpose		Check that: Fat Free Mass Numeric Object contains the attributes specified for Extended Configuration		
Applicability		C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_BCA_004 AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received. 5. Once the agent under test sends the tested configuration, check the Fat Free Mass object. 6. The Fat Free Mass object contents shall be: a. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = MDC_PART_SCADA | MDC_MASS_BODY_FAT_FREE b. IF Not Recommended attribute Supplemental-Types ❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES ❑ attribute-type = SupplementalTypeList ❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes) ❑ attribute-value = <Not relevant for this test> c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> d. IF Not recommended attribute Metric-Structure-Small is present ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL ❑ attribute-type = MetricStructureSmall ❑ attribute-length = 2 bytes ❑ attribute-value = <Not relevant for this test>		

	e. IF Recommended attribute Measurement-Status is present ❑ attribute-id = MDC_ATTR_MSMT_STAT ❑ attribute-type = MeasurementStatus ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> f. IF Not recommended attribute Metric-Id is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length =2 bytes ❑ attribute-value = <Not relevant for this test> g. IF Not Recommended attribute Metric-Id-List is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS ❑ attribute-type = MetricIdList ❑ attribute-value = <Not relevant for this test> h. IF Not recommended attribute Metric-Id-Partition is present ❑ attribute-id = MDC_ATTR_METRIC_ID_PART ❑ attribute-type = NomPartition(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> i. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_KILO_G or MDC_DIM_LB j. Conditional attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = <Not relevant for this test> k. IF Not recommended attribute Source-Handle-Reference is present ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF ❑ attribute-type = HANDLE(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> l. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> m. IF Not recommended Compound-Simple-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = SimpleNuObsValueCmp ❑ attribute-value.length =<variable> ❑ attribute-value = <Not relevant for this test>

	n. IF Not recommended attribute Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValue ❑ attribute-value.length = 2bytes ❑ attribute-value = <Not relevant for this test> o. IF Not recommended attribute Compound-Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> p. IF Not recommended attribute Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS ❑ attribute-type = NuObsValue ❑ attribute-value.length = 10bytes ❑ attribute-value = <Not relevant for this test> q. Not recommended attribute Compound-Nu-Observed-Value ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = NuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> r. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-011		
TP label		Soft Lean Mass Object for Extended Configuration		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	SoftLeanMass1; O	SoftLeanMass2; M	SoftLeanMass3; M
		SoftLeanMass4; M	SoftLeanMass5; R	SoftLeanMass6; M
		SoftLeanMass7; R	SoftLeanMass8; R	SoftLeanMass9; R
		SoftLeanMass10; R	SoftLeanMass11; R	SoftLeanMass12; M
		SoftLeanMass13; C	SoftLeanMass14; R	SoftLeanMass15; O
		SoftLeanMass16; O	SoftLeanMass17; C	SoftLeanMass18; C
		SoftLeanMass19; C	SoftLeanMass20; R	SoftLeanMass21; C
		SoftLeanMass22; C	SoftLeanMass23; C	SoftLeanMass24; C
		SoftLeanMass25; C	SoftLeanMass26; C	SoftLeanMass27; R
		Concepts 7; O		
Test purpose		Check that: Soft Lean Mass Numeric Object contains the attributes specified for Extended Configuration		
Applicability		C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_BCA_003 AND C_AG_OXP_000		

Other PICS	
Initial condition	The simulated manager and the agent under test are in the unassociated state.
Test procedure	1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received. 5. Once the agent under test sends the tested configuration, check the Soft Lean Mass object. 6. The Soft Lean Mass object contents shall be: a. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = MDC_PART_SCADA | MDC_MASS_BODY_SOFT_LEAN b. IF Not Recommended attribute Supplemental-Types ❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES ❑ attribute-type = SupplementalTypeList ❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes) ❑ attribute-value = <Not relevant for this test> c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> d. IF Not recommended attribute Metric-Structure-Small is present ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL ❑ attribute-type = MetricStructureSmall ❑ attribute-length = 2 bytes ❑ attribute-value = <Not relevant for this test> e. IF Recommended attribute Measurement-Status is present ❑ attribute-id = MDC_ATTR_MSMT_STAT ❑ attribute-type = MeasurementStatus ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> f. IF Not recommended attribute Metric-Id is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length =2 bytes ❑ attribute-value = <Not relevant for this test> g. IF Not Recommended attribute Metric-Id-List is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS ❑ attribute-type = MetricIdList

	❑ attribute-value = <Not relevant for this test> h. IF Not recommended attribute Metric-Id-Partition is present ❑ attribute-id = MDC_ATTR_METRIC_ID_PART ❑ attribute-type = NomPartition(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> i. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_KILO_G or MDC_DIM_LB j. Conditional attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = <Not relevant for this test> attribute-value = <Not relevant for this test> k. IF Not recommended attribute Source-Handle-Reference is present ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF ❑ attribute-type = HANDLE(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> l. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> m. IF Not recommended Compound-Simple-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = SimpleNuObsValueCmp ❑ attribute-value.length =<variable> ❑ attribute-value = <Not relevant for this test> n. IF Not recommended attribute Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValue ❑ attribute-value.length = 2bytes ❑ attribute-value = <Not relevant for this test> o. IF Not recommended attribute Compound-Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> p. IF Not recommended attribute Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS

	❑ attribute-type = NuObsValue ❑ attribute-value.length = 10bytes ❑ attribute-value = <Not relevant for this test> q. Not recommended attribute Compound-Nu-Observed-Value ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = NuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> r. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-012		
TP label		Body Water Object for Extended Configuration		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BodyWater1; O	BodyWater2; M	BodyWater3; M
		BodyWater4; M	BodyWater5; R	BodyWater6; M
		BodyWater7; R	BodyWater8; R	BodyWater9; R
		BodyWater10; R	BodyWater11; R	BodyWater12; M
		BodyWater13; C	BodyWater14; R	BodyWater15; O
		BodyWater16; O	BodyWater17; C	BodyWater18; C
		BodyWater19; C	BodyWater20; R	BodyWater21; C
		BodyWater22; C	BodyWater23; C	BodyWater24; C
		BodyWater25; C	BodyWater26; C	BodyWater27; R
		BodyWater28; O	Concepts 8; O	
Test purpose		Check that: Body Water Numeric Object contains the attributes specified for Extended Configuration		
Applicability		C_AG_OXP_167 AND C_AG_OXP_181 AND C_AG_BCA_002 AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The simulated manager responds with a result = accepted-unknown-config. 3. The agent responds with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. Check that the field Dev-Config-Id is set to the tested extended configuration. If it is not, the manager responds with an "unsupported-config" and waits for a new configuration. Repeat this step until a Dev-config-Id equal to the extended configuration is received. 5. Once the agent under test sends the tested configuration, check the Body Water object. 6. The Body Water object contents shall be:		

	a. Mandatory attribute Type ❑ attribute-id = MDC_ATTR_ID_TYPE ❑ attribute-type = TYPE ❑ attribute-value = MDC_PART_SCADA | MDC_BODY_WATER b. IF Not Recommended attribute Supplemental-Types ❑ attribute-id = MDC_ATTR_SPPLEMENTAL_TYPES ❑ attribute-type = SupplementalTypeList ❑ attribute-value.length = <variable>Sequence of TYPE (TYPE.length= 4 bytes) ❑ attribute-value = <Not relevant for this test> c. Mandatory attribute Metric-Spec-Small ❑ attribute-id = MDC_ATTR_METRIC_SPEC_SMALL ❑ attribute-type = MetricSpecSmall ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> d. IF Not recommended attribute Metric-Structure-Small is present ❑ attribute-id = MDC_ATTR_METRIC_STRUCTURE_SMALL ❑ attribute-type = MetricStructureSmall ❑ attribute-length = 2 bytes ❑ attribute-value = <Not relevant for this test> e. IF Recommended attribute Measurement-Status is present ❑ attribute-id = MDC_ATTR_MSMT_STAT ❑ attribute-type = MeasurementStatus ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> f. IF Not recommended attribute Metric-Id is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO ❑ attribute-type = OID-Type(INT-U16) ❑ attribute-value.length =2 bytes ❑ attribute-value = <Not relevant for this test> g. IF Not Recommended attribute Metric-Id-List is present ❑ attribute-id = MDC_ATTR_ID_PHYSIO_LIS ❑ attribute-type = MetricIdList ❑ attribute-value = <Not relevant for this test> h. IF Not recommended attribute Metric-Id-Partition is present ❑ attribute-id = MDC_ATTR_METRIC_ID_PART ❑ attribute-type = NomPartition(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> i. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_KILO_G or MDC_DIM_LB or MDC_DIM_PERCENT.

	❑ The agent is allowed to report two body water objects, one in kilograms (kg) and the other in percent (%). j. Conditional attribute Attribute-Value-Map ❑ attribute-id = MDC_ATTR_ATTRIBUTE_VAL_MAP ❑ attribute-type = AttrValMap ❑ attribute-count = 2 ❑ attribute-value = <Not relevant for this test> attribute-value = <Not relevant for this test> k. IF Not recommended attribute Source-Handle-Reference is present ❑ attribute-id = MDC_ATTR_SOURCE_HANDLE_REF ❑ attribute-type = HANDLE(INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = <Not relevant for this test> l. IF Not recommended attribute Measure-Active-Period ❑ attribute-id = MDC_ATTR_TIME_PD_MSMT_ACTIVE ❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test> m. IF Not recommended Compound-Simple-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = SimpleNuObsValueCmp ❑ attribute-value.length =<variable> ❑ attribute-value = <Not relevant for this test> n. IF Not recommended attribute Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValue ❑ attribute-value.length = 2bytes ❑ attribute-value = <Not relevant for this test> o. IF Not recommended attribute Compound-Basic-Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_BASIC ❑ attribute-type = BasicNuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> p. IF Not recommended attribute Nu-Observed-Value is present ❑ attribute-id = MDC_ATTR_NU_VAL_OBS ❑ attribute-type = NuObsValue ❑ attribute-value.length = 10bytes ❑ attribute-value = <Not relevant for this test> q. Not recommended attribute Compound-Nu-Observed-Value ❑ attribute-id = MDC_ATTR_NU_CMPD_VAL_OBS_SIMP ❑ attribute-type = NuObsValueCmp ❑ attribute-value.length = <variable> ❑ attribute-value = <Not relevant for this test> r. IF Recommended attribute Accuracy is present ❑ attribute-id = MDC_ATTR_NU_ACCUR_MSMT

	❑ attribute-type = FLOAT-Type (INT-U32) ❑ attribute-value.length = 4 bytes ❑ attribute-value = <Not relevant for this test>
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-013		
TP label		Operating State. Manager to Agent Maximum APDU Size		
Coverage	**Spec**	[ISO/IEEE 11073-20601A]		
	Testable items	CommonCharac 3; M		
	Spec	[IEEE 11073-10420]		
	Testable items	CommChar1;M	CommChar2;M	CommChar3;M
Test purpose		Check that: The total size of the response do not exceed of the maximum APDU size established by the specialization [AND] A body composition analyzer agent implementing only this device specialization shall be capable of receiving any APDU up to a size of Nrx. For this standard, Nrx shall be 1230 octets.		
Applicability		C_AG_OXP_000 AND C_AG_OXP_167		
Other PICS		C_AG_OXP_041, C_AG_OXP_100		
Initial condition		The simulated manager and the agent under test are in the operating state		
Test procedure		1. The simulated manager issues a "Remote Operation Invoke | Get" command with: a. Obj-handle set to 0 (to request for an MDS object) b. attribute-id-list.count = 606 c. attribute-id-list: (MDC_ATTR_ID_MODEL, MDC_ATTR_SYS_ID, MDC_ATTR_DEV_CONFIG_ID) repeated 202 times 2. Check the response of the agent. 3. The simulated manager issues a "Remote Operation Invoke | Get" command with the handle set to 0 (to request for an MDS object) and an empty attribute-id-list to indicate all attributes. 4. Check the response of the agent.		
Pass/Fail criteria		• In step 2, the agent under test may respond with a rors-cmip-get listing all the requested attributes, or with a roer message. If PICS C_AG_OXP_100 =TRUE and the agent does not respond with a rors-cmip-get message, it responds with a roer message or rorj (resource-limitation) message, a WARNING will appear. ○ If the response is a get response, the total size of the response cannot exceed the sum of the APDU sizes of the supported specializations (limited to an absolute limit of 64 512 octets): ▪ Pulse oximeter -> 9216 octets ▪ Weighing scales -> 896 octets ▪ Glucose meter -> 5120 octets or 64512 octets if the agent supports PM-Store ▪ Blood pressure -> 896 octets ▪ Thermometer -> 896 octets ▪ Independent activity hub -> 5120 octets ▪ Cardiovascular -> 64 512 octets or 6624 octets if the agent under test only		

	supports Step Counter Profile ▪ Strength -> 64512 octets: ▪ Adherence monitor -> 1024 octets ▪ Peak flow -> 2030 octets ▪ Body composition Analyser -> 7730 octets ▪ Body composition Analyser -> 7730 octets ▪ Basic ECG/Simple ECG -> 7168 octets or 64 512 octets if the agent supports PM-Store ▪ Basic ECG/Heart rate -> 1280 octets or 64 512 octets if the agent supports PM-Store ▪ International normalized ratio -> 896 octets or 64 512 if the agent supports PM-Store o In the case where it responds with a roer, the reason must not be protocol-violation (23). • In step 4, the agent must respond with a rors-cmip-get message.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-014		
TP label		Association Body composition analyser Agent		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	AgProcAsReq1; M	AgProcAsReq2; M	AgProcAsReq3; M
		AgProcAsReq4; M	AgProcAsReq5; M	AgProcAsReq6; M
		AgProcAsReq7; M	AgProcAsReq8; M	AgProcAsReq9; M
		AgProcAsReq10; M	AgProcAsReq11; M	AgProcAsReq12; M
		MDSMethods 4; M		
Test purpose		Check that: During the association procedure, Body composition analyzer Agent sends the correct association request to the simulated Manager		
Applicability		C_AG_OXP_167 AND C_AG_OXP_000		
Other PICS		C_AG_OXP_002, C_AG_OXP_017		
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		1. The agent sends a message to associate to the simulated manager, the expected fields sent by the Agent are: a. APDU Type ❑ field- type = AarqApdu ❑ field-length =2 bytes ❑ field-value =0xE2 0x00. b. assoc-version ❑ field- type = AssociationVersion ❑ field-length =BITS-32 ❑ field- value=0x80 0x00 0x00 0x00 c. data-proto-id ❑ field- type = DataProtoId(INT-U16) ❑ field-length =2 bytes ❑ field- value=0x50 0x79 (20601) d. protocol-version		

	❑ field- type = Protocol Version ❑ field-length = 4 bytes ❑ field- value=0x80 0x00 0x00 0x00 e. encoding rules ❑ field- type = EncodingRules ❑ field-length = 2 bytes ❑ field- value= ▪ Bit 0 must be set (support MDER) ▪ Bits 1 and 2 may be set ▪ The rest of the bits must be 0 f. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes ❑ field- value=0x80 0x00 0x00 0x00 ❑ This value indicates version1 is supported (nom-version1(0) is set). g. functional–units ❑ field- type = FunctionalUnits ❑ field-length = 4 bytes ❑ field-value = ▪ Bit 0 must not be set, only bit 1 or 2 may be set to 1. h. System type ❑ field- type = SystemType ❑ field-length = 4 bytes ❑ field- value = 0x00 0x80 0x00 0x00 (sys-type-agent) i. System-Id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field- value = 0xXX 0xXX 0xXX 0xXX 0xXX 0xXX 0xXX 0xXX (octet string length = 8 | UI-64 manufacturer and device) ❑ This value will be the System Id attribute of the MDS Object and the received value will be compared with the value defined in PIXIT I_AG_OXP_001 and I_AG_OXP_002. j. dev-config-id ❑ field- type = ConfigId(INT-U16) ❑ field-length = 2 bytes ❑ field- value = ▪ <0x07D0> for standard configuration ▪ <between 0x40 0x00 and 0x7F 0xFF > for extended configuration. k. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ If the agent supports only Body composition analyser specialization → Bit 15 is set (data-req-supp-init-agent(15)) l. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8

	❑ field-length = 2 bytes ❑ field.value = 0x01 m. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 2 bytes ❑ field.value = 0x00
Pass/Fail criteria	All checked attributes have proper values.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-015		
TP label		Set Time Body composition analyser Agent		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	MDSMethods 1; C		
Test purpose		Check that: If the agent supports the Absolute-Time-Stamp attribute, this method (Set Time) shall be implemented		
Applicability		C_AG_OXP_167 AND C_AG_OXP_000 AND C_AG_OXP_009		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the operating state.		
Test procedure		1. The simulated manager sends a SET action: ❑ CHOICE = SetTimeInvoke ❑ action-type = MDC_ACT_SET_TIME ❑ the action-info-args are SetTimeInvoke ▪ date-time = <century, year ≤ 99 month ≤ 12 day ≤ 31 hour ≤ 24 minute ≤ 60 second ≤ 60 sec-fractions ≤ 100> ▪ accuracy = 0 2. The agent under test response shall be a rors-cmip-confirmed-action: ❑ action-type = MDC_ACT_SET_TIME ❑ action-info-args shall be empty.		
Pass/Fail criteria		All checked values are as specified in the test procedure.		
Notes				

TP Id		TP/PLT/AG/CLASS/BCA/BV-016		
TP label		Config Changes Service. Contextual Attribute.		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BCA_NumGen3; M		
Test purpose		Check that: Whenever a contextual attribute changes, the Agent shall report these changes to the Manager using an MDS object event prior to reporting any of the dependent values [AND] Service component reports configuration changes to future measurements only		
Applicability		C_AG_OXP_174 AND C_AG_BCA_005 AND C_AG_OXP_000		
Other PICS				

Initial condition	The simulated manager and the agent under test are in the operating state.
Test procedure	1. If the attribute that is going to be changed is reported in a Fixed format event report, take some measurements with the agent under test. 2. Make a change to the contextual attribute Unit-Code for Body Weight object (Pounds to kg or kg to pounds). 3. The agent shall send an MDS event report indicating the new contextual attribute value. 4. Take some more measurements. 5. Wait for the manager to receive new event reports from the agent, which report the measurements from step 4.
Pass/Fail criteria	▪ The agent sends an MDS event report to inform about the contextual attribute that has been changed. ▪ Data has changed accordingly to a new contextual attribute.
Notes	

TP Id		TP/PLT/AG/CLASS/BCA/BV-017		
TP label		Config Changes Service. Body Height object Contextual Attribute.		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BCA_NumGen3; M		
Test purpose		Check that: Whenever a contextual attribute changes, the Agent shall report these changes to the Manager using an MDS object event prior to reporting any of the dependent values		
Applicability		C_AG_OXP_174 AND C_AG_BCA_006 AND C_AG_OXP_000		
Other PICS				
Initial condition		The simulated manager and the agent under test are in the operating state.		
Test procedure		1. If the attribute that is going to be changed is reported in a Fixed format event report, take some measurements with the agent under test. 2. Make a change to the contextual attribute Unit-Code for Body Height object (centimetres to inches or inches to centimetres). 3. The agent shall send an MDS event report indicating the new contextual attribute value. 4. Take some more measurements. 5. Wait for the manager to receive new event reports from the agent, which report the measurements from step 4.		
Pass/Fail criteria		▪ The agent sends an MDS event report to inform about the contextual attribute that has been changed. ▪ Data has changed accordingly to a new contextual attribute.		
Notes				

TP Id		TP/PLT/AG/CLASS/BCA/BV-018		
TP label		Config Changes Service. Body Fat object Contextual Attribute.		
Coverage	**Spec**	[IEEE 11073-10420]		
	Testable items	BCA_NumGen3; M		
Test purpose		Check that: Whenever a contextual attribute changes, the Agent shall report these changes to the Manager using an MDS object event prior to reporting any of the dependent values [AND] Service component reports configuration changes to future measurements only		

Applicability	C_AG_OXP_174 AND C_AG_BCA_007 AND C_AG_OXP_000
Other PICS	
Initial condition	The simulated manager and the agent under test are in the operating state.
Test procedure	1. If the attribute that is going to be changed is reported in a Fixed format event report, take some measurements with the agent under test. 2. Make a change to the contextual attribute Unit-Code for Body Weight object (Pounds to kg or kg to pounds). 3. The agent shall send an MDS event report indicating the new contextual attribute value. 4. Take some more measurements. 5. Wait for the manager to receive new event reports from the agent, which report the measurements from step 4.
Pass/Fail criteria	▪ The agent sends an MDS event report to inform about the contextual attribute that has been changed. ▪ Data has changed accordingly to a new contextual attribute.
Notes	

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