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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

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

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface
Part 3: Continua Design Guidelines: Agent

Recommendation ITU-T H.843

ITU-T H-SERIES RECOMMENDATIONS

AUDIOVISUAL AND MULTIMEDIA SYSTEMS

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T H.843

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 3: Continua Design Guidelines: Agent

Summary

Recommendation ITU-T H.843 is a transposition of Continua Test Tool DG2013, Test Suite Structure & Test Purposes, PAN-LAN-TAN Interface; Part 3: Continua Design Guidelines. Agent (Version 1.6, 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.843	2015-01-13	16	11.1002/1000/12260

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[*] 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

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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

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

Table of Contents

Electronic attachment: Protocol implementation conformance statements (PICS) and 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 3: Continua Design Guidelines. Agent (Version 1.6, 2014-01-24), that was developed by the Continua Health Alliance. Versions of this specification existed before transposition and these can be found in the table below.

Version	Date	Revision history
1.4	2012-10-05	Initial release for Test Tool DG2011. This uses "TSS&TP_1.5_PAN-LAN_PART_3_v1.3.doc" as a baseline and adds new features included in [b-CDG 2011] (ZigBee One-to-Many and Errata).
1.5	2013-05-24	Initial release for Test Tool DG2012. This uses "TSS&TP_1.5_PAN-LAN_PART_3_v1.4.doc" as a baseline and adds new features included in [b-CDG 2012]: • Updates test procedures according to new requirements included in [b-CDG 2012] (e.g., SSP requirements) • Adds body composition analyser device specialization • Adds basic electrocardiograph device specialization
1.6	2014-01-24	Initial release for Test Tool DG2013. THis uses "TSS&TP_DG2012_PAN-LAN_PART_3_v1.5.doc" as a baseline and adds new features included in [ITU-T H.810]: • Adds glucose meter BLE • Adds BLE SSP support • Adds NFC new transport • Adds INR device specialization

Recommendation ITU-T H.843

Conformance of ITU-T H.810 personal health devices: PAN/LAN/TAN interface Part 3: Continua Design Guidelines: 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]. 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/TAN interface document have been divided into ten parts. Each part is listed below:

– **Part 1:** Optimized exchange protocol [IEEE 11073-20601A] Agent

– **Part 2:** Optimized exchange protocol [IEEE 11073-20601A] Manager

– **Part 3:** Continua design guidelines. Agent

– **Part 4:** Continua design guidelines. Manager

– **Part 5:** Device specializations. Agent. This document is divided into 12 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

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[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] Recommendation ITU-T H.810 (2013), *Interoperability design guidelines for personal health systems*.

[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>

[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.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

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

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

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATS   Abstract Test Suite

CDG   Continua Design Guidelines

DUT   Device Under Test

GUI   Graphical User Interface

INR   International Normalized Ratio

IUT   Implementation Under Test

MDS   Medical Device System

NFC	Near Field Communication
PAN	Personal Area Network
PCO	Point of Control and Observation
PCT	Protocol Conformance Testing
PHD	Personal Healthcare Device
PHDC	Personal Healthcare Device Class
PHM	Personal Health Manager
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation extra Information for Testing
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 document 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
2013 plus errata	ITU-T H.810	4.1	CDG 2013 plus errata noting all ratified bugs.	–
2013	–	4.0	Release 2013 of the CDG including maintenance updates of CDG 2012 and additional guidelines that cover new functionalities.	Endorphin
2012 plus errata	–	3.1	CDG 2012 plus errata noting all ratified bugs [b-CDG 2012].	–
2012	–	3.0	Release 2012 of the CDG including maintenance updates of 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 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 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 subgroups 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.10, 1.1.11 (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: 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 analyser (BCA)
  - Subgroup 1.3.13: Basic electrocardiograph (ECG)
  - Subgroup 1.3.14: International normalized ratio (INR)
- 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)
- 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)
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    - ○ Subgroup 2.4.4: Whitepaper heart rate requirements (HR)
    - ○ Subgroup 2.4.5: Whitepaper glucose meter requirements (GL)

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 (TPs)

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

A.1 TP definition conventions

The test purposes are defined according to the following rules:

- **TP Id:** This is a unique identifier (TP/<TT>/<DUT>/<GR>/<SGR>/<XX> – <NNN>). It is specified according to the naming convention defined below:
  - Each test purpose identifier is introduced by the prefix "TP".
  - <TT>: This is the test tool that will be used in the test case:
    - PAN: Personal area network (Bluetooth or USB)
    - LAN: Local area network (ZigBee)
    - PAN-LAN: Personal area network (Bluetooth or USB) – Local area network (ZigBee)
    - LP-PAN: Low power personal area network (Bluetooth low energy)
    - TAN: Touch area network (NFC)
    - PLT: Personal area network (Bluetooth or USB) – Local area network (ZigBee) – Touch area network (NFC)
  - <DUT>: This is the device under test:
    - AG: PAN/LAN 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 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.).
- **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 1.1.1 – Design guidelines: Common (DGC)

TP Id		TP/PLT/AG/TR/DGC/BI-000		
TP label		PAN Device AHD Linkage		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Linkage 1; M	NFCDev 1; M	
Applicability		C_AG_OXP_000		
Initial condition		The agent under test and simulated manager in the operating state.		

Test procedure		1. IF the agent is currently using a USB as a connection mode:
		
		    a. If the device allows for a second type-B connector, connect the device to a new simulated manager using that connector and attempt to associate it.
		
		    b. If the device allows for a Bluetooth connection (in addition to the currently used USB connection), attempt to associate it to a new simulated manager using the Bluetooth connection.
		
		    c. If the device allows for an NFC connection (in addition to the currently used USB connection), attempt to associate it with a new simulated manager using the NFC connection.
		
		 2. IF the device is currently using a Bluetooth as a connection mode:
		
		    a. If the device allows for a Bluetooth connection, attempt to associate it with a new simulated manager using the BT connection.
		
		    b. If the device allows for a USB connector, connect the device to a new simulated manager using that connector and attempt to associate it.
		
		    c. If the device allows for an NFC connection, attempt to associate it with a new simulated manager using the NFC connection.
		
		 3. IF the device is currently using an NFC as a connection mode:
		
		    a. If the device allows for a Bluetooth connection, attempt to associate it with a new simulated manager using the BT connection.
		
		    b. If the device allows for a USB connector, connect the device to a new simulated manager using that connector and attempt to associate it.
		
		    c. If the device allows for a NFC connection, attempt to associate it with a new simulated manager using the NFC connection.		

Pass/Fail criteria		The agent shall not be able to associate with a second AHD in any of the cases tested.		
Notes				

TP Id		TP/PLT/AG/TR/DGC/BI-001		
TP label		Manager Initiated Communications		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Communication 3; M		
Applicability		C_AG_OXP_000		
Initial condition		The service under test and the simulated manager are in the unassociated state.		
Test procedure		1. The simulated manager receives an Association request from the agent under test. 2. The simulated manager sends an Association Response 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 type to send its configuration to the manager. 4. The manager sends a Remote Operation Response | Confirmed Event report to accept the configuration. 5. The attributes of interest for this test are:		

<table>
<tr><td colspan="2"></td><td>a. In the Association request message: Data-Req-Mode-Capab:</td></tr>
<tr><td colspan="2"></td><td>❑ field- type = DataReqModeCapab

❑ field-length = 4 bytes

❑ data-req-init-manager-count = 0</td></tr>
<tr><td colspan="2"></td><td>b. In the Configuration report message: Check the mss-acc-manager-initiated parameter in the Metric-Spec-Small attribute for every metric derived object declared in the configuration report</td></tr>
<tr><td colspan="2"></td><td>6. The simulated manager issues an MDS-Data-Req to the agent, with any metric-derived data attribute supported by the agent.</td></tr>
<tr><td colspan="2">Pass/Fail criteria</td><td>mss-acc-manager-initiated (bit 8) must be set to 0 in the Metric-Spec-Small field of all the metric derived objects and

the agent must respond with an error to step 6 (roer message = 0x0300, RoerErrorValue = no-such-action), indicating this procedure is not supported.</td></tr>
<tr><td colspan="2">Notes</td><td></td></tr>
</table>

<table>
<tr><td colspan="2">TP Id</td><td>TP/PLT/AG/TR/DGC/BV-002</td></tr>
<tr><td colspan="2">TP label</td><td>DataReqMode Alignment</td></tr>
<tr><td>Coverage</td><td>Spec</td><td>[ITU-T H.810]</td></tr>
<tr><td></td><td>Testable items</td><td>Communication 4; M</td></tr>
<tr><td colspan="2">Applicability</td><td>C_AG_OXP_000 AND (C_AG_OXP_040 OR C_AG_OXP_042 OR C_AG_OXP_043)</td></tr>
<tr><td colspan="2">Initial condition</td><td>The service under test and the simulated manager are in the unassociated state.</td></tr>
<tr><td colspan="2">Test procedure</td><td>1. The simulated manager receives an association request from the agent under test.

2. The simulated manager sends an Association Response 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. The manager sends a Remote Operation Response | Confirmed Event report to accept the configuration.

5. The attributes of interest for this test are:

   a. In the Association request message:Data-Req-Mode-Capab:

      ❑ field- type = DataReqModeCapab

      ❑ field-length = 2 bytes

      ❑ field- value =SEQUENCE { data-req-mode-flags

        DataReqModeFlags,

        data-req-init-agent-count INT-U8, -- maximum number of parallel agents initiated

        data-req-init-manager-count INT-U8, -- maximum number of parallel manager initiated data requests

   b. In the Configuration report message: Check the mss-acc-manager-initiated parameter in the Metric-Spec-Small attribute for every metric derived object declared in the configuration report.</td></tr>
<tr><td colspan="2">Pass/Fail criteria</td><td>The fields of the attribute must be aligned with what was previously declared. Specifically:

In Metric-Spec-Small, the parameter mss-acc-manager-initiated shall be =0, and the parameter mss-acc-agent-initiated shall be =1 for all the metric derived objects,

In the Association request message, the field data-req-init-manager-count shall be =0.

and the field data-req-init-agent-count shall be =1;

In addition, the parameter DataReqModeFlags shall contain the data-req-supp-init-agent (bit 15) set to 1.</td></tr>
</table>

Notes	

TP Id		TP/PLT/AG/TR/DGC/BV-003		
TP label		FIFO store and forward		
Coverage	Spec	[ITU-T H.810]		
	Testable Items	Communication 5; C		
Applicability		C_AG_OXP_000		
Initial condition		The service under test and the simulated manager are disconnected. This may be achieved by physically disconnecting the USB cable between the agent and manager (USB) or by moving the agent out of range of the manager (BT).		

Test procedure		1. Take some measurements of different values with the agent under test. Record the measurements in order.
		
		2. Connect the agent under test to the simulated manager.
		
		3. Wait for the agent and simulated manager to associate:
		
		    a. The simulated manager receives an association request from the agent under test.
		
		    b. The simulated manager sends an Association Response with a result = accepted-unknown-config.
		
		    c. The agent sends a Remote roiv-cmip-confirmed-event-report message with an MDC_NOTI_CONFIG event to send its configuration to the manager.
		
		    d. The simulated manager sends a rors-cmip-confirmed-event-report with reason "accepted" to accept the agent's configuration.
		
		4. If the agent under test supports a fixed or variable format MDS event report, the simulated manager waits to receive the measurements from the agent under test. The measurements that are transferred through the MDS event report are recorded.
		
		5. If the agent under test supports PM-Store, the simulated manager performs a Get-Segment-Info and forces the agent to send the information stored in the PM-Segments (Trig-Segment-Data-Xfer).The agent under test sends the measurements stored in the PM-Segment (Segment-Data-Event). The measurements that are transferred through the Segment-Data-Event are recorded.
		
		6. A pop-up shows the stored data in steps 4 and 5.
		
		7. IF C_AG_OXP_032, check that the temporarily stored measurements are sent in a FIFO way.
		
		8. IF NOT C_AG_OXP_032, check that the stored measurements are NOT sent, so the measurements received by the manager are new measurements.		

Pass/Fail criteria		If Store and Forward measurements PICS is supported (C_AG_OXP_032), the temporary stored measurements shall be sent in a FIFO way (in the same order as they were taken). If the PICS (C_AG_OXP_032) is not set, the device shall not be capable of storing temporary measurements, or shall not transmit them, so the first event reports with measurements are with new data (not stored data).		
Notes				

TP Id		TP/PLT/AG/TR/DGC/BV-008		
TP label		Updating attributes previously defined		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Communication 11; M		
Applicability		C_AG_OXP_000 AND (C_AG_OXP_046 OR C_AG_OXP_047)		
Initial condition		The service under test and the simulated manager are in the operating state		
Test procedure		1. Make changes to an attribute of any metric that is collected by a scanner object.		

	2. Check and record the attributes for metric objects that have been reported using MDS event reports.	
	3. Set the Operational State to 1 for the Scanner object.	
	4. Wait until the agent under test starts to send its data using Scanner event reports and record it.	
	5. Set the Operational State to 0 for the Scanner object.	
	6. Repeat steps 3 to 5 for all scanner objects.	
Pass/Fail criteria	Check that all attributes for metric objects reported using Scanner event reports in step 4 have not been reported via MDS event reports.	
Notes		

TP Id		TP/PLT/AG/TR/DGC/BV-009		
TP label		MDS Device and Regulatory information		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Dev.Information 1; M	Dev.Information 2; O	Dev.Information 3; M
		Dev.Information 4; O	Dev.Information 5; M	Dev.Information 6; M
		Dev.Information 7; M	Dev.Information 8; C	Regulatory 1; M
		Regulatory 2; M	Regulatory 3; M	Regulatory 6; M
		Regulatory 7; M	Regulatory 9; M	Cardio_DG 7; M
		Hub_DG 2; M	Hub_DG 4; M	Hub_DG 6; M
		Hub_DG 8; M	Hub_DG 10; M	Hub_DG 12; M
		Hub_DG 14; M	Hub_DG 16; M	Hub_DG 18; M
		Hub_DG 20; M	Hub_DG 22; M	Hub_DG 24; M
		Hub_DG 26; M	Hub_DG 28; M	Versioning 1; M
	Spec	[ISO/IEEE 11073-20601A]		
	Testable items	MDSClassAttr 8; O	ConfNormalProc 23; M	
Applicability		C_AG_OXP_000		
Initial condition		The service under test and the simulated manager are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test.		
		2. The simulated manager sends an association response with a result = accepted-unknown-config.		
		3. The agent sends a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager.		
		4. The simulated manager issues a remote Operation Response | Confirmed Event Report message with result code = "accepted".		
		5. The simulated manager issues a roiv-cmip-get with handle=0 and attribute list=empty, to request for all the attributes supported by the agent.		
		6. The attributes of interest to be checked (obtained from the Configuration event report and the GET request are):		
		a. Mandatory attribute System-Id		
		❑ OUI = OUI assigned to the original manufacturer		
		❑ 40-bit manufacturer part = device ID set by the original manufacturer. Check the value declared by manufacturer in the PIXIT list.		
		b. Mandatory attribute System-Model		
		❑ Manufacturer = (original manufacturer OR customer facing company). Check the value declared by the manufacturer in the PIXIT list.		

	❑ Model-number = (original manufacturer OR customer facing company). Check the value declared by the manufacturer in the PIXIT list.
	
	    c. Mandatory attribute Product-Specification
	
	      ❑ Spec-type = serial-number
	
	      ❑ Prod-spec = (serial number of the device). Check the value declared by the manufacturer in the PIXIT list.
	
	      IF a firmware number is declared in the Product-Specification attribute
	
	        ❑ Mandatory attribute Product-Specification
	
	          1. Spec-type = fw-revision
	
	          2. Prod-spec = (firmware revision of the device)
	
	      IF a firmware number is not declared in the Product-Specification attribute, THEN it is not present in Product-Specification attribute.
	
	    d. Mandatory attribute Reg-Cert-Data-List:
	
	      ❑ attribute-id = MDC_ATTR_REG_CERT_DATA_LIST
	
	      ❑ attribute-type = RegCertDataList
	
	      Search for the RegCertData element that contains:
	
	      • auth-body = auth-body-continua
	
	      • auth-body-struc-type = continua-version-struct
	
	      • auth-body-data = ContinuaBodyStruct
	        Within ContinuaBodyStruct:
	        major-IG-version = 4
	        minor-IG-version = 0
	        certified-devices = <CDC list matches all implemented and only the implemented Certified Device Classes and value for CertifiedDeviceClassEntry is: MDC_DEV_*_SPEC_PROFILE_* - 4096 + TCode x 8192 with TCode =
	
	        • It is recommended to include the supported MDC_DEV_*_SPEC_PROFILE_* codes along with a TCode of 0 to interoperate with version 1 client components.
	
	        • IF C_AG_UDG_001=TRUE, THEN TCode=1 (Wired PAN)
	
	        • IF C_AG_BDG_001=TRUE, THEN TCode=2 (Wireless PAN)

	• IF C_AG_ZDG_001=TRUE, THEN TCode=3 (Wireless LAN)
	
	      And the RegCertData element that contains:
	
	      • auth-body = auth-body-continua
	
	      • auth-body-struc-type = continua-reg-struct
	
	      • auth-body-data = ContinuaRegStruct
	        Within ContinuaRegStruct:
	        regulation-bit-field = 0 if device is listed as regulated in certification application, 1 otherwise
	
	    e. Mandatory attribute System-Type-Spec-List
	
	<CDC list matches those declared in the certification application → Note this only needs to list the CDCs that will be utilized concurrently. If the device is a hub, this list may be a subset of the full CDC list.>
	<It is acceptable for the CDC list to include additional specializations not part of the application.>

Pass/Fail criteria	All checked values are as specified in the test procedure: • If the agent supports Step Counter sub-specialization (profile):MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_STEP_COUNTER = 4200 (0x1068)

	• If the agent supports Fall Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_FALL_SENSOR = 4213 (0x1075) • If the agent supports Motion Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_MOTION_SENSOR = 4219 (0x107B) • If the agent supports Enuresis Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_ENURESIS_SENSOR = 4221 (0x107D). • If the agent supports Contact Closure Sensor sub-specialization (profile):MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_CONTACTCLOSURE_SENSOR = 4222 (0x107E) • If the agent supports Switch Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_SWITCH_SENSOR = 4224 (0x1080). • If the agent supports Dosage Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_DOSAGE_SENSOR = 4225 (0x1081) • If the agent supports Water Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_WATER_SENSOR = 4217 (0x1079). • If the agent supports Smoke Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_SMOKE_SENSOR = 4215 (0x1077) • If the agent supports Property Exit Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_PROPEXIT_SENSOR = 4220 (0x107C) (0x107B) • If the agent supports Temperature Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_TEMP_SENSOR = 4226 (0x1082). • If the agent supports Usage Sensor sub-specialization (profile):MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_USAGE_SENSOR = 4223 (0x107F). • If the agent supports PERS Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_PERS_SENSOR = 4214 (0x1076) • If the agent supports CO Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_CO_SENSOR = 4216 (0x1078) • If the agent supports Gas Sensor sub-specialization (profile): MDC_DEV_*_SPEC_PROFILE_* is MDC_DEV_SUB_SPEC_PROFILE_GAS_SENSOR = 4218 (0x107A).	
Notes		

TP Id		TP/PLT/AG/TR/DGC/BV-010		
TP label		Unsupported Service Component 1		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Unsupport 8; R	Unsupport 10; R	
		Unsupport_LAN 6; R		
Applicability		C_AG_OXP_000 AND (C_AG_DGC_013 OR C_AG_DGC_014)		
Initial condition		The service under test and the simulated manager are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test.		

	2.	The manager sends an association response with a result = accepted-unknown-config.
	3.	The agent sends with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager.
	4.	The manager sends a Release Request (RLRQ) APDU the with reason "no-more-configurations".
	5.	The agent shall send a Release response (RLRE) with the reason "normal".
	6.	Visual inspection of the agent.
Pass/Fail criteria	IF C_AG_DCG_013 is supported: The error display should look something like the following (exact text not required): "Thank you for choosing Continua certified personal health products. The device you are connecting to either has not been Continua certified or the data is not intended for use in this solution. Please see your user manual for more details" IF C_AG_DGC_=14 is supported (product has no text-based UI), some other visual indication is provided. In all the cases, the agent shall respond to the RLRQ message with the reason "no-more-configs" by sending a RLRE.	
Notes		

TP Id		TP/PLT/AG/TR/DGC/BV-010_A		
TP label		Unsupported Service Component 2		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Unsupport 8; R	Unsupport 10; R	Unsupport_LAN 4; R
Applicability		C_AG_OXP_000 AND (C_AG_DGC_013 OR C_AG_DGC_014)		
Initial condition		The service under test and the simulated manager are in the unassociated state.		
Test procedure		1. The simulated manager receives an association request from the agent under test. 2. The manager sends an association response with a result = accepted-unknown-config. 3. The agent sends with a "Remote Operation Invoke | Confirmed Event Report" message with an MDC_NOTI_CONFIG event to send its configuration to the manager. 4. The manager sends a roiv-cmip-get message with handle 0 and an empty list of attributes (to request all the attributes of the MDS object). 5. The agent responds to the Get request by sending a rors-cmip-get with all the supported attributes of the MDS. 6. The manager sends a Release Request (RLRQ) APDU with the reason "no-more-configurations". 7. The agent shall send a Release response (RLRE) with the reason "normal". 8. Visual inspection of the agent.		
Pass/Fail criteria		IF C_AG_DCG_013 is supported: The error display should look something like the following (exact text not required): "Thank you for choosing Continua certified personal health products. The device you are connecting to either has not been Continua certified or the data is not intended for use in this solution. Please see your user manual for more details" IF C_AG_DGC_=14 is supported (product has no text-based UI), some other visual indication is provided. In all the cases, the agent shall respond to the RLRQ message with the reason "no-more-configs" by sending a RLRE.		
Notes				

TP Id		TP/PLT/AG/TR/DGC/BV-011		
TP label		DataMessaging BiDIR QoS		
Coverage	**Spec**	[ITU-T H.810]		
	Testable	QoS 1; M		

	items			
	Spec	[ISO/IEEE 11073-20601A]		
	Testable items	SysContext 1; M		
Applicability		(C_AG_OXP_053 OR C_AG_OXP_008 OR C_AG_OXP_041 OR C_AG_OXP_046 OR C_AG_OXP_047) AND C_AG_OXP_000		
Initial condition		The service under test and the simulated manager are in the operating state.		
Test procedure		1. IF the agent under test supports fixed or variable format MDS event reports, it is forced to send a variable or fixed format MDS event report: roiv-cmip-confirmed-event-report with event-type:		

1. IF the agent under test supports fixed or variable format MDS event reports, it is forced to send a variable or fixed format MDS event report: roiv-cmip-confirmed-event-report with event-type:

   MDC_NOTI_SCAN_REPORT_FIXED

   MDC_NOTI_SCAN_REPORT_VAR

   MDC_NOTI_SCAN_REPORT_MP_VAR

   MDC_NOTI_SCAN_REPORT_MP_FIXED

2. If the agent supports Episodic Scanner objects, the simulated manager sets to enable the Operational-State for the scanner object. IF the agent supports confirmed Set, the agent will send the response for the Set command: rors-cmip-confirmed-set. When the scanner object is enabled, the agent under test will send a scanner object events roiv-cmip-confirmed-event-report with event-type:

   MDC_NOTI_UNBUF_SCAN_REPORT_GROUPED

   MDC_NOTI_UNBUF_SCAN_REPORT_MP_GROUPED

   MDC_NOTI_UNBUF_SCAN_REPORT_FIXED

   MDC_NOTI_UNBUF_SCAN_REPORT_MP_FIXED

   MDC_NOTI_UNBUF_SCAN_REPORT_VAR

   MDC_NOTI_UNBUF_SCAN_REPORT_MP_VAR

3. If the agent supports Periodic Scanner objects, the simulated manager sets to enable the Operational-State scanner object. IF the agent supports confirmed Set, the agent will send the response for the Set command: rors-cmip-confirmed-set. When the scanner object is enabled, the agent under test will send a scanner object events roiv-cmip-confirmed-event-report with event-type:

   MDC_NOTI_BUF_SCAN_REPORT_GROUPED

   MDC_NOTI_BUF_SCAN_REPORT_MP_GROUPED

   MDC_NOTI_BUF_SCAN_REPORT_FIXED

   MDC_NOTI_BUF_SCAN_REPORT_MP_ FIXED

   MDC_NOTI_BUF_SCAN_REPORT_VAR

   MDC_NOTI_BUF_SCAN_REPORT_MP_VAR

4. If the agent supports Set-Time", the simulated manager sends a roiv-cmip-confirmed-action with action-type = MDC_ACT_SET_TIME. The agent shall reply with a rors-cmip-confirmed-action with action-type=MDC_ACT_SET_TIME.

5. If the agent supports PM-Store:

   – The simulated manager will perform a Get-Segment-Info action, the agent under test shall reply with rors-confirmed-action with action-type= MDC_ACT_SEG_GET_INFO.

   – The simulated manager will perform a Trig-Segment-Data-Xfer action, the agent under test shall reply with rors-confirmed-action with action-type= MDC_ACT_SEG_TRIG_XFER, and the agent under test will send Segment-Data-Event, roiv-cmip-confirmed–event report with event-type=MDC_NOTI_SEGMENT_DATA

6. If the agent supports PM-Store and Clear-Segment action, the simulated manager will perform a Get request for the PM-Store attributes to read Clear-Timeout attribute, after this, it will perform the Clear-Segments. After this, the simulated manager will perform a Clear-Segment action, the agent shall reply with rors-cmip-confirmed-action with action-type=MDC_ACT_SEG_CLR.

Pass/Fail criteria	The agent shall use a reliable channel (QoS best.medium) for the messages sent by it and specified in the test procedure.
Notes	Roer and Rorj messages are checked in TP/PLT/AG/OXP/BV-003_D and TP/PLT/AG/OXP/BV-003_F.

TP Id		TP/PLT/AG/TR/DGC/BV-013		
TP label		Continua_Nomenclature_Codes		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Conformance 3; M		
	Spec	[ISO/IEEE 11073-20601A]		
	Testable items	InfoExt 3; O		
Applicability		C_AG_OXP_000		
Initial condition		The service under test and the simulated manager are in the unassociated state.		
Test procedure		1. The agent sends an association request (AarqApdu) from the agent under test. 2. The simulated manager sends an association response (AareApdu) with a result = accepted-unknown-config. 3. The agent sends a roiv-cmip-confirmed-event-report message with an MDC_NOTI_CONFIG event to send its configuration to the manager. Check all object types and attribute types to ensure they are not in the range 0xFC00 to 0xFFFF. 4. The manager accepts the configuration by sending a rors-cmip-confirmed-event-report with reason=accepted. 5. IF C_AG_OXP 189 is supported: The agent sends a roiv-cmip-event-report message (or roiv-cmip-confirmed-event-report) with event-type=MDC_NOTI_SCAN_REPORT_*, with measurements. Check that all attribute types are not in the range 0xFC00 to 0xFFFF.		
Pass/Fail criteria		In steps 1, 3 and 5, if the agent uses Private Nomenclature Codes (C_AG_DGC_009 = TRUE), Private Nomenclature values must be between 0xF000 through 0xFBFF, otherwise, nomenclature values must be between 0x0000 through 0xEFFF (no Private Nomenclature values must be present).		
Notes				

TP Id		TP/PLT/AG/TR/DGC/BV-014		
TP label		PM-Store Date-and-Time adjustment while transfer PM-Segment		
Coverage	Spec	[ITU-T H.810]		
	Testable items		Communication 15; M	
Applicability		C_AG_OXP_000 AND C_AG_OXP_036		
Initial condition		The service under test and the simulated manager are in the operating state. The agent must have stored measurements in the PM-Store object to transfer it.		

Test procedure		1. The simulated manager issues a Get-Segment-Info with SegmSelection set to all-segments.
		
		2. Inform the operator that the simulated manager is going to trigger a Segment Data event and ask the operator to force the agent to make a noticeable change in the Date or Time while it is transferring the PM-Segment.
		
		3. The simulated manager sends a request for the PM-Segment Data to one of the PM-Segments that contains data:
		
		   a. Data APDU
		
		     ❑ Type = Invoke | Confirmed Action,
		
		     ❑ HANDLE = obj-handle		

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    ❑ Action = MDC_ACT_SEG_TRIG_XFER

    ❑ TrigSegmDataXferReq = <Instance number of the selected PM-Segment that contains the data>

4.   The agent issues an action response:

    a. Data APDU

        ❑ Type = Invoke | Confirmed Action,

        ❑ HANDLE = obj-handle

    b. Action = MDC_ACT_SEG_TRIG_XFER

        ❑ TrigSegmDataXferRsp = <Same Instance number> | tsxr-succesful (0x00 0x00)

5.   The agent under Test starts Data transfer:

    a. Data APDU

        ❑ Invoke | CfmEventReport

        ❑ Action = MDC_NOTI_SEGMENT_DATA

        ❑ SegmentDataEvent

6.   The simulated manager response to transferred data APDU's:

    a. Data APDU

        ❑ Type = Invoke | Confirmed Action,,

        ❑ HANDLE = obj-handle

        ❑ Action = MDC_NOTI_SEGMENT_DATA

        ❑ SegmentDataResult

7.   Wait until all the data is transferred by the agent under test.

8.   The simulated manager shall send a Get-Segment-Info object action for the PM-Store object with SegmSelection set to all-segments.

9.   The agent shall respond to the Get-Segment-Info, indicating the attributes of the PM-Segment:

    ▪ Date-and-Time adjustment attribute is not present,

10. Repeat from step 2 to step 9 until every PM-Store and segment instance has been checked.

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<td>Pass/Fail criteria</td>
<td>In step 9, the Date-and-Time adjustment attribute must not be present.</td>
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<td>Notes</td>
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A.3   Subgroup 1.1.2 – USB design guidelines (UDG)

TP Id		TP/PAN/AG/TR/UDG/BV-000		
TP label		Association process		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Data_mess 1; M	Data_mess 3;M	Data_mess 4; O
		Multi 1; M		
Applicability		C_AG_OXP_000 AND C_AG_UDG_001		
Initial condition		The service under test in in the disconnected state.		

Test procedure		1. Connect the USB connector of the agent to the simulated manager through the USB sniffer.
		
		2. Capture the descriptors. Check that:
		
		   a. In the PHDC Class Function descriptor (20h), the bPHDCDataCode field is equal to 02h (PHDC_11073_20601).
		
		   b. In the PHDC 11073 PHD Function Extention descriptor (30h), the wDevSpecializations field(s) of the is set to the corresponding ISO/IEEE Std 11073-20601 version 1.0 MDC_DEV_SPEC_PROFILE_* value(s) corresponding to the Certified Device Class(Classes) the component supports as defined in the certification application (values below are in decimal format):
		
		     • Pulse oximeter (MDC_DEV_SPEC_PROFILE_PULS_OXIM 4100)
		     • Blood pressure monitor (MDC_DEV_SPEC_PROFILE_BP 4103)
		     • Temperature (MDC_DEV_SPEC_PROFILE_TEMP 4104)
		     • Weighing scales (MDC_DEV_SPEC_PROFILE_SCALE 4111)
		     • Glucose meter (MDC_DEV_SPEC_PROFILE_GLUCOSE 4113)
		     • Cardiovascular (MDC_DEV_SPEC_PROFILE_HF_CARDIO 4137)
		     • Strength (MDC_DEV_SPEC_PROFILE_HF_STRENGTH 4138)
		     • Activity Hub (MDC_DEV_SPEC_PROFILE_AI_ACTIVITY_HUB 4167)
		     • Adherence monitor (MDC_DEV_SPEC_PROFILE_AI_MED_MINDER 4168)
		     • Peak flow (MDC_DEV_SPEC_PROFILE_PEFM 4117)
		     • Body composition analyser (MDC_DEV_SPEC_PROFILE_BCA 4116)
		     • Basic electrocardiograph specialization/Heart rate profile or basic electrocardiograph Specialization/Simple ECG profile (MDC_DEV_SPEC_PROFILE_ECG 4102)
		     • International normalized ratio (MDC_DEV_SPEC_PROFILE_COAG 4118)
		
		   c. If (C_AG_DGC_016), some other additional device specializations may be contained in the wDevSpecializations array.
		
		3. If the device has multiple interfaces, only one interface implements the USB PHDC device class (i.e., bInterfaceClass = 0x0F in the interface descriptor preceding the descriptors above or bDeviceClass = 0x0F in the device descriptor preceding the descriptors above).		

Pass/Fail criteria		The above fields are as requested.		
Notes				

TP Id		TP/PAN/AG/TR/UDG/BV-001		
TP label		QoS management		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	QoS 1; C	QoS 2; C	

Applicability	C_AG_OXP_000 AND C_AG_UDG_001
Initial condition	The service under test is in the disconnected state.
Test procedure	1. Connect the USB connector of the agent to the simulated manager, through the USB sniffer.
	2. Capture the descriptors.
	3. The field bmLatencyReliability of each BULK endpoint descriptor received is analysed.
	4. If C_AG_DGC_011, the good.medium bit (1) is active.
	5. The best.medium bit (3) is active.
Pass/Fail criteria	The above fields are as requested.
Notes	The rest of this test procedure is tested in TP/PLT/AG/TR/DGC/BV-011.

TP Id		TP/PAN/AG/TR/UDG/BV-002		
TP label		USB Data rates		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Data_Rate 1; M	Data_Rate 2; R	Data_Rate 3; M
Applicability		C_AG_OXP_000 AND C_AG_UDG_001		
Initial condition		The service under test is in the disconnected state.		
Test procedure		1. Connect the USB connector of the agent to the simulated manager, through the USB sniffer.		
		2. Capture the negotiation process and the device descriptor.		
		3. Check the data rate of the Agent during negotiation.		
		4. Inspect the device descriptor and check the field bcdUSB.		
Pass/Fail criteria		In step 3, the data rate must be set to Full Speed (FS) or High Speed (HS), but never Low Speed (LS)		
		In step 4, indicate the value of the bcdUSB. A value of 0200h or greater (=USB2.0) is recommended, but a value of 0110h (USB1.1) or greater is also accepted.		
Notes				

A.4 Subgroup 1.1.3 – Bluetooth design guidelines (BDG)

TP Id		TP/PAN/AG/TR/BDG/BI-000		
TP label		Service component is not allowed to initiate discovery		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Discovery_Pairing 2; R		
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		
Initial condition		The agent under test and the simulated manager are in the disconnected state and they have not been paired before.		
Test procedure		**Note:** This test case must be executed manually. Bluetooth sniffer is needed to perform the verification required in this test case. 1. Turn on the agent under test and enable Bluetooth transport. 2. With the simulated manager and the Bluetooth sniffer, check if the agent under test initiates a discovery process within 5 minutes.		
Pass/Fail criteria		The agent under test should not initiate a discovery process within 5 minutes If it has initiated a discovery process, the test operator must include a warning message in the manual verdict.		
Notes		Due to CESL restrictions, this test case has to be executed manually. A Bluetooth sniffer is needed for this test case.		

TP Id		TP/PAN/AG/TR/BDG/BI-001		
TP label		Abnormal cases management - Change of information without pairing		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Discovery_Pairing 8; M		
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		
Initial condition		The agent under test and the simulated manager are in the disconnected state and they have not been paired before.		
Test procedure		1. Reset the agent under test to the default configuration and turn it on. 2. The simulated manager initiates discovery, it finds the agent under test, but it does not start the pairing process. 3. The simulated manager waits until a 2 minute timeout expires. During this time, the agent under test shall not exchange data (except HDP SDP record and static information) with the simulated manager.		
Pass/Fail criteria		The agent under test does not exchange data without pairing.		
Notes				

TP Id		TP/PAN/AG/TR/BDG/BI-002		
TP label		Abnormal cases management - Pairing failure		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Notify 4; R	Notify 6; R	
Applicability		C_AG_OXP_000 AND C_AG_BDG_001 AND C_AG_BDG_002		
Initial condition		The agent under test and the simulated manager are in the disconnected state and they have not been paired before.		
Test procedure		1. Configure the simulated manager with a supported device specialization different to the device specialization supported by the agent under test. 2. Enable pairable mode in the simulated manager.		

	3. Reset the agent under test to the default configuration and turn it on.
	4. The simulated manager initiates a discovery process, it finds the agent under test and starts a pairing process with it. The agent under test should notify an error due to both devices not having any device specialization in common.
	5. Configure the simulated manager with a supported device specialization that matches the agent under test device specialization.
	6. Disable the pairable mode in the simulated manager.
	7. Turn off the agent under test and reset it to the default configuration and turn it on.
	8. The simulated manager initiates a discovery process, it finds the agent under test and starts a pairing process with it. The agent under test should notify an error as the pairing cannot be completed.
	9. Check if the agent under test has notified the two previous errors using different procedures/indications.
Pass/Fail criteria	In step 3, the agent under test should notify a pairing error. If this notification is not indicated, the test tool gives a Warning message. In step 8, the agent under test should notify a pairing error. If this notification is not indicated, the test tool gives a Warning message. The agent under test should issue different kind of indications for both pairing errors. If both indications are not different, the test tool gives a Warning message.
Notes	

TP Id		TP/PAN/AG/TR/BDG/BV-000		
TP label		Successfully Discovery and Pairing process		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Discovery_Pairing 4; M	Discovery_Pairing 12; R	Notify 2; R
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		
Initial condition		The agent under test and the simulated manager support the same device specialization, they are in the disconnected state and they have not been paired before.		
Test procedure		1. Turn on the agent under test and configure it as a discoverable Bluetooth device, as stated in the product documentation. 2. The test tool simulated manager initiates a discovery process, it discovers the agent under test and it starts a pairing process with agent under test. 3. When the agent under test is paired, check if it notifies the user (by any procedure defined in the user manual). 4. The simulated manager initiates a new discovery process. Check if the agent under test is discoverable or not.		
Pass/Fail criteria		In step 3, the agent under test should show any indication to the user indicating a pairing has succeeded. If this notification is not indicated, the test tool gives a Warning message. In step 4, the agent under test should not be discoverable. If it is discoverable, the test tool gives a Warning message.		
Notes				

TP Id		TP/PAN/AG/TR/BDG/BV-001_A		
TP label		Service component timer for discoverable mode		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Discovery_Pairing 11; R		
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		

Initial condition	The agent under test and the simulated manager support the same device specialization, they are in the disconnected state and they have not been paired before.
Test procedure	1. Turn on the agent under test and configure it as a discoverable Bluetooth device.
	2. The simulated manager waits a quantity of time Twait1:
	Twait1= Tdiscoverable – Tguard
	3. When Twait1 expires, the simulated manager initiates a discovery process. Check if the simulated manager finds the agent under test.
	4. The simulated manager waits a quantity of time Twait2 (from initial time = 0):
	Twait2 = Tdiscoverable + Tguard
	5. When Twait2 expires, the simulated manager initiates a new discovery process. Check if the simulated manager finds the agent under test.
Pass/Fail criteria	In step 3, the agent under test is discoverable.
	In step 5, the agent under test should not be discoverable. If it is discoverable, the test tool gives a Warning message.
Notes	Tdiscoverable is defined in PIXIT I_AG_BDG_001
	Tguard = Tdiscoverable/2

TP Id		TP/PAN/AG/TR/BDG/BV-001_B		
TP label		Pairing prevent in non-discoverable state		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Discovery_Pairing 13; R		
Applicability		C_AG_OXP_000 AND C_AG_BDG_001 AND C_AG_BDG_003		
Initial condition		The agent under test and the simulated manager support the same device specialization, they are in the disconnected state and they have not been paired before.		
Test procedure		1. Turn on the agent under test and configure it as non-discoverable Bluetooth device.		
		2. The simulated manager initiates a discovery process, it does not find the agent under test.		
		3. The simulated manager initiates a pairing process with the agent under test (although it has not been discovered).		
Pass/Fail criteria		In step 3, the agent under test and the simulated manager cannot be paired. If the pairing process can be completed successfully, the test tool gives a Warning message.		
Notes				

TP Id		TP/PAN/AG/TR/BDG/BV-002		
TP label		Service component mode of "discoverable by client component"		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Discovery_Pairing 7; M	Discovery_Pairing 9; R	
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		
Initial condition		The agent under test and the simulated manager support the same device specialization, they are in the disconnected state and they have not been paired before.		
Test procedure		1. Reset the agent under test to the default configuration and turn it on.		
		2. The simulated manager initiates discovery. Check if the agent under test is discoverable.		
		3. Set the agent under test to "discoverable by the client (manager)" as defined in the product documentation.		

	4. The simulated manager initiates a discovery process, it finds the agent under test and it establishes a pairing with agent under test.	
	5. Disconnect agent under test and the simulated manager	
	6. In the agent under test, re-iniate the mode "discoverable by the client (manager)" as it is described in the product documentation.	
	7. The simulated manager initiates another discovery process. Check if the simulated manager finds the agent under test.	
Pass/Fail criteria	In step 2, the agent under test should not be discoverable. If it is discoverable, the test tool gives a Warning message.	
	In step 7, the agent under test shall be discoverable.	
Notes		

TP Id		TP/PAN/AG/TR/BDG/BV-003		
TP label		HDP SDP Record contents		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Discoverable_mode 2; R	Discoverable_mode 3; M	Discoverable_mode 4: O
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		
Initial condition		The agent under test and the simulated manager support the same device specialization, they are in the disconnected state and they have not been paired before.		
Test procedure		**Note:** This test case must be executed manually. Bluetooth sniffer is needed to perform the verification required in this test case.		
		1. Turn on the agent under test and configure it as a discoverable Bluetooth device.		
		2. The simulated manager initiates a discovery process, it finds the device, but it does not start the pairing process.		
		3. The simulated manager accesses the agent under test SDP record and recovers the Supported Features (MDEP List) attribute		
		4. If it is not possible to access the SDP record before pairing (step 3 cannot be executed), pair the agent under test with the simulated manager and then the simulated manager accesses the agent under test SDP record and recovers the Supported Features (MDEP List) attribute.		
		5. Check for each entry of the MDEP List attribute the MDEP Data Type element value. The MDEP List shall contain an entry per device specialization claimed in the Continua certification and the corresponding MDEP Data Type element value shall match with the Bluetooth Assigned number for each device specialization: • If Glucose meter specialization is going to be certified (C_AG_OXP_233 = TRUE) then MDEP Data Type element = 0x1011 (4113 decimal). • If Thermometer specialization is going to be certified (C_AG_OXP_234 = TRUE) then MDEP Data Type element= 0x1008 (4104 decimal) • If Pulse oximeter specialization is going to be certified (C_AG_OXP_235 = TRUE) then MDEP Data Type element = 0x1004 (4102 decimal) • If Blood pressure monitor specialization is going to be certified (C_AG_OXP_236 = TRUE) then MDEP Data Type element = 0x1007 (4103 decimal).. • If Weighing scales specialization is going to be certified (C_AG_OXP_237 = TRUE) then MDEP Data Type element = 0x100F (4111 decimal) • If Cardiovascular specialization is going to be certified (C_AG_OXP_238 = TRUE) then MDEP Data Type element = 0x1029 (4137 decimal) • If Step counter sub-specialization (profile) is going to be certified (C_AG_OXP_239 = TRUE) then MDEP Data Type element = 0x1068 (4200 decimal). • If Strength fitness specialization is going to be certified (C_AG_OXP_240 = TRUE) then MDEP Data Type element = 0x102A (4138 decimal)		

	• If Adherence monitor specialization is going to be certified (C_AG_OXP_241 = TRUE) then MDEP Data Type element = 0x1048 (4168 decimal)
	• If Peak flow specialization is going to be certified (C_AG_OXP_243 = TRUE) then MDEP Data Type element = 0x1015 (4117 decimal)
	• If Activity hub specialization is going to be certified (C_AG_OXP_244 = TRUE) then MDEP Data Type element = 0x1047 (4167 decimal)
	• If Fall sensor sub-specialization (profile) is going to be certified (C_AG_OXP_245 = TRUE) then MDEP Data Type element = 0x1075 (4213 decimal)
	• If Motion sensor sub-specialization (profile) is going to be certified (C_AG_OXP_246 = TRUE) then MDEP Data Type element = 0x107B (4219 decimal)
	• If Enuresis sensor sub-specialization (profile) is going to be certified (C_AG_OXP_247 = TRUE) then MDEP Data Type element = 0x107D (4221 decimal)
	• If Contact closure sensor sub-specialization (profile) is going to be certified (C_AG_OXP_248 = TRUE) then MDEP Data Type element = 0x107E (4222 decimal)
	• If Switch Sensor sub-specialization (profile) is going to be certified (C_AG_OXP_249 = TRUE) then MDEP Data Type element = 0x1080 (4224 decimal)
	• If Dosage sensor sub-specialization (profile) is going to be certified (C_AG_OXP_250 = TRUE) then MDEP Data Type element = 0x1081 (4225 decimal)
	• If Water sensor sub-specialization (profile) is going to be certified (C_AG_OXP_251 = TRUE) then MDEP Data Type element = 0x1079 (4217 decimal)
	• If Smoke sensor sub-specialization (profile) is going to be certified (C_AG_OXP_252 = TRUE) then MDEP Data Type element = 0x1077 (4215 decimal)
	• If Property exit sensor sub-specialization (profile) is going to be certified (C_AG_OXP_253 = TRUE) then MDEP Data Type element = 0x107C (4220 decimal)
	• If Temperature sensor sub-specialization (profile) is going to be certified (C_AG_OXP_254 = TRUE) then MDEP Data Type element = 0x1082 (4226 decimal)
	• If Usage sensor sub-specialization (profile) is going to be certified (C_AG_OXP_255 = TRUE) then MDEP Data Type element = 0x107F (4223 decimal)
	• If PERS sensor sub-specialization (profile) is going to be certified (C_AG_OXP_256 = TRUE) then MDEP Data Type element = 0x1076 (4214 decimal)
	• If CO sensor sub-specialization (profile) is going to be certified (C_AG_OXP_257 = TRUE) then MDEP Data Type element = 0x1078 (4216 decimal)
	• If Gas sensor sub-specialization (profile) is going to be certified (C_AG_OXP_258 = TRUE) then MDEP Data Type element = 0x107A (4218 decimal)
	• If Body Composition Analyzer specialization is going to be certified (C_AG_OXP_259 = TRUE) then MDEP Data Type element = 0x1014 (4116 decimal)
	• If Basic electrocardiograph specialization/Simple ECG profile (C_AG_OXP_261 = TRUE) is going to be certified then MDEP Data Type element = 0x1006 (4102 decimal)
	• If Basic electrocardiograph specialization/Heart rate profile (C_AG_OXP_262 = TRUE) is going to be certified then MDEP Data Type element = 0x1006 (4102 decimal)
	6. Check for each entry of the MDEP List attribute the MDEP Data Type element value. The MDEP List may contain an entry per Continua device specialization that is not

claimed in the Continua certification but it is supported by the agent under test and the corresponding MDEP Data Type element value shall match with the Bluetooth Assigned number for each device specialization

- If the agent supports Glucose meter specialization (C_AG_OXP_204 = TRUE) and (C_AG_OXP_233 = FALSE) then MDEP Data Type element may contain 0x1011 (4113 decimal) value.

- If the agent supports Thermometer specialization (C_AG_OXP_205 = TRUE) and (C_AG_OXP_234 = FALSE) then MDEP Data Type element may contain 0x1008 (4104 decimal) value.

- If the agent supports Pulse oximeter specialization (C_AG_OXP_206 = TRUE) and (C_AG_OXP_235 = FALSE) then MDEP Data Type element may contain 0x1004 (4102 decimal) value.

- If the agent supports Blood pressure monitor specialization (C_AG_OXP_207 = TRUE) and (C_AG_OXP_236 = FALSE) then MDEP Data Type element may contain 0x1007 (4103 decimal) value.

- If the agent supports Weighing scales specialization (C_AG_OXP_208 = TRUE) and (C_AG_OXP_237 = FALSE) then MDEP Data Type element may contain 0x100F (4111 decimal) value.

- If the agent supports Cardiovascular specialization (C_AG_OXP_209 = TRUE) and (C_AG_OXP_238 = FALSE) then MDEP Data Type element may contain 0x1029 (4137 decimal) value.

- If the agent supports Step counter sub-specialization (profile) (C_AG_OXP_210 =TRUE) and (C_AG_OXP_239 = FALSE) then MDEP Data Type element may contain 0x1068 (4200 decimal) value.

- If the agent supports Strength fitness specialization (C_AG_OXP_211 = TRUE) and (C_AG_OXP_240 = FALSE) then MDEP Data Type element may contain 0x102A (4138 decimal) value.

- If the agent supports Adherence monitor specialization (C_AG_OXP_212 = TRUE) and (C_AG_OXP_241 = FALSE) then MDEP Data Type element may contain 0x1048 (4168 decimal) value.

- If the agent supports Peak flow specialization (C_AG_OXP_214 = TRUE) and (C_AG_OXP_243 = FALSE) then MDEP Data Type element may contain 0x1015 (4117 decimal) value.

- If the agent supports Activity hub specialization (C_AG_OXP_215 = TRUE) and (C_AG_OXP_244 = FALSE) then MDEP Data Type element may contain 0x1047 (4167 decimal) value.

- If the agent supports Fall sensor sub-specialization (profile) (C_AG_OXP_216 = TRUE) and (C_AG_OXP_245 = FALSE) then MDEP Data Type element may contain 0x1075 (4213 decimal) value.

- If the agent supports Motion sensor sub-specialization (profile) (C_AG_OXP_217 = TRUE) and (C_AG_OXP_246 = FALSE) then MDEP Data Type element may contain 0x107B (4219 decimal) value.

- If the agent supports Enuresis sensor sub-specialization (profile) (C_AG_OXP_218 = TRUE) and (C_AG_OXP_247= FALSE) then MDEP Data Type element may contain 0x107D (4221 decimal) value.

- If the agent supports Contact closure sensor sub-specialization (profile) (C_AG_OXP_219 = TRUE) and (C_AG_OXP_248 = FALSE) then MDEP Data Type element may contain 0x107E (4222 decimal) value.

- If the agent supports Switch sensor sub-specialization (profile) (C_AG_OXP_220 = TRUE) and (C_AG_OXP_249 = FALSE) then MDEP Data Type element may contain 0x1080 (4224 decimal) value.

- If the agent supports Dosage sensor sub-specialization (profile) (C_AG_OXP_221 = TRUE) and (C_AG_OXP_250 = FALSE) then MDEP Data Type element may contain 0x1081 (4225 decimal) value.

- If the agent supports Water sensor sub-specialization (profile) (C_AG_OXP_222 = TRUE) and (C_AG_OXP_251 = FALSE) then MDEP Data Type element may contain 0x1079 (4217 decimal) value.

	• If the agent supports Smoke sensor sub-specialization (profile) (C_AG_OXP_223 = TRUE) and (C_AG_OXP_252 = FALSE) then MDEP Data Type element may contain 0x1077 (4215 decimal) value. • If the agent supports Property exit sensor sub-specialization (profile) (C_AG_OXP_224 = TRUE) and (C_AG_OXP_253 = FALSE) then MDEP Data Type element may contain 0x107C (4220 decimal) • If the agent supports Temperature sensor sub-specialization (profile) (C_AG_OXP_225 = TRUE) and (C_AG_OXP_254 = FALSE) then MDEP Data Type element may contain 0x1082 (4226 decimal) value. • If Agent supports Usage sensor sub-specialization (profile) (C_AG_OXP_226 = TRUE) and (C_AG_OXP_255 = FALSE) then MDEP Data Type element may contain 0x107F (4223 decimal) value. • If the agent supports PERS sensor sub-specialization (profile) (C_AG_OXP_227 = TRUE) and (C_AG_OXP_256 = FALSE) then MDEP Data Type element may contain 0x1076 (4214 decimal) value. • If the agent supports CO sensor sub-specialization (profile) (C_AG_OXP_228 = TRUE) and (C_AG_OXP_257 = FALSE) then MDEP Data Type element may contain 0x1078 (4216 decimal) value. • If the agent supports Gas sensor sub-specialization (profile) (C_AG_OXP_229 = TRUE) and (C_AG_OXP_258 = FALSE) then MDEP Data Type element may contain 0x107A (4218 decimal) value. • If the agent supports Body composition analyser specialization (C_AG_OXP_283 = TRUE) and (C_AG_OXP_259 = FALSE) then MDEP Data Type element may contain 0x1014 (4116 decimal) • If the agent supports Basic electrocardiograph specialization/Simple ECG profile (C_AG_OXP_281 = TRUE) (C_AG_OXP_261 = FALSE) then MDEP Data Type element may contain 0x1006 (4102 decimal) • If the agent supports Basic electrocardiograph specialization/Heart rate profile (C_AG_OXP_282 = TRUE) and (C_AG_OXP_262 = FALSE) is going to be certified then MDEP Data Type element may contain 0x1006 (4102 decimal)	
Pass/Fail criteria	In step 3, the agent should allow access to its SDP record. If it is not allowed the test operator must include a warning message in the manual verdict. In step 5 the specializations claimed in the Continua certification shall match the list of specializations advertised in the agent under test HDP SDP record In step 6, the agent under test HDP SDP record may contain other Continua device specializations that the agent supports but are not going to be certified.	
Notes	Bluetooth MDEP assigned numbers are available at https://www.bluetooth.org/Technical/AssignedNumbers/host_operating.htm	

TP Id		TP/PAN/AG/TR/BDG/BV-004		
TP label		Pairing data storage		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Discovery_Pairing 14; M		
Applicability		C_AG_OXP_000 AND C_AG_BDG_001		
Initial condition		The agent under test and the simulated manager are in the disconnected state and they have not been paired before.		
Test procedure		1. Reset the agent under test to the default configuration and turn it on. 2. The simulated manager initiates a discovery process, it finds the agent under test and it establishes a pairing with agent under test. 3. Turn the agent under test off by removing the batteries or unplugging the power supply. 4. Turn on the agent under test again.		

		5. The simulated manager initiates a Bluetooth connection with the agent under test. Check if the pairing process is dispatched again.
Pass/Fail criteria		In Step 5, the pairing process shall not be dispatched again because both devices have stored the pairing data from the previous pairing process.
Notes		

TP Id		TP/PAN/AG/TR/BDG/BV-005
TP label		FCS Data Channel
Coverage	**Spec**	[ITU-T H.810]
	Testable items	QoS 3; R
Applicability		C_AG_OXP_000 AND C_AG_BDG_001
Initial condition		The service under test and the simulated manager are in the disconnected state.
Test procedure		Check PICS: C_AG_BDG_004 and C_AG_BDG_005
Pass/Fail criteria		• If one of these PICS or both PICS are set to TRUE, the test case gives a warning message: "The Continua requirement that Continua wireless service components should use FCS for all data channels is probably not being met. It is recommended that you assess whether FCS is possible and appropriate for your device and enable it if so." • If both PICS are set to FALSE, the test case will not give a warning message.
Notes		

TP Id		TP/PAN/AG/TR/BDG/BV-006
TP label		Secure Simple Pairing support
Coverage	**Spec**	[ITU-T H.810]
	Testable items	Discovery_Pairing 19; M
Applicability		C_AG_OXP_000 AND C_AG_BDG_001
Initial condition		The agent under test and the simulated manager support the same device specialization, they are in the disconnected state and they have not been paired before.

Test procedure		1. Check the agent under test Secure Simple Pairing support declared in PIXIT I_AG_BDG_004.
		
		2. Check the agent under test IO capabilities declared in PIXIT I_AG_BDG_005, the Man In The Middle (MITM) protection declared in PIXIT I_AG_BDG_006 and the Association Model declared in PIXIT I_AG_BDG_007
		
		    a. IF the agent under test does not support MITM protection (PIXIT I_AG_BDG_006 = FALSE) THEN
		
		        • IF the Agent under test supports Just Works Association Model (PIXIT I_AG_BDG_007 = 0) THEN the test tool simulated manager is configured with NoInputOutput capabilities and without MITM support
		
		        • IF the agent under test supports the Numeric Comparison or the Passkey Entry Association Model (PIXIT I_AG_BDG_007 = 1 or 2) THEN the combination of IO capabilities, the Association Model and MITM support declared by the agent under test in PIXITs is not feasible and the test case ends giving a FAIL verdict due to inconsistency among the agent under test SSP features declared in PIXITs
		
		    b. IF the agent under test supports MITM protection (PIXIT I_AG_BDG_006 = TRUE) THEN
		
		        • IF the agent under test supports the Just Works Association Model (PIXIT I_AG_BDG_007 = 0) THEN the combination of IO capabilities, Association Model and MITM support declared by the agent under test in PIXITs is not

	feasible and the test case ends giving a FAIL verdict due to inconsistency among the agent under test SSP features declared in PIXITs
	• IF the agent under test supports the Numeric Comparison Association Model (PIXIT I_AG_BDG_007 = 1) and DisplayYesNo capabilities (PIXIT I_AG_BDG_005 = 1) THEN the test tool simulated manager is configured with DisplayYesNo capabilities and with MITM support
	• IF the agent under test supports the Numeric Comparison Association Model (PIXIT I_AG_BDG_007 = 1) and DisplayOnly or KeyboardOnly capabilities (PIXIT I_AG_BDG_005 = 0 or 2) THEN the combination of IO capabilities, Association Model and MITM support declared by the agent under test in PIXITs is not feasible and the test case ends giving a FAIL verdict due to inconsistency among the agent under test SSP features declared in PIXITs
	• IF the agent under test supports the Passkey Entry Association Model (PIXIT I_AG_BDG_007 = 2) and DisplayOnly capabilities (PIXIT I_AG_BDG_005 = 0) THEN the test tool simulated manager is configured with KeyboardOnly capabilities and with MITM support
	• IF the agent under test supports the Passkey Entry Association Model (PIXIT I_AG_BDG_007 = 2) and DisplayYesNo capabilities (PIXIT I_AG_BDG_005 = 1) THEN the test tool simulated manager is configured with KeyboardOnly capabilities and with MITM support
	• IF the agent under test supports the Passkey Entry Association Model (PIXIT I_AG_BDG_007 = 2) and KeyboardOnly capabilities (PIXIT I_AG_BDG_005 = 2) THEN the test tool simulated manager is configured with DisplayOnly capabilities and with MITM support
	• IF the agent under test supports the Numeric Comparison or Passkey Entry Association Model (PIXIT I_AG_BDG_007 = 1 or 2) and NoInputNoOutput capabilities (PIXIT I_AG_BDG_005 = 3) THEN the combination of IO capabilities, Association Model and MITM support declared by the agent under test in PIXITs is not feasible and the test case ends giving a FAIL verdict due to inconsistency among the agent under test SSP features declared in PIXITs
	3. Turn on the agent under test and configure it as a discoverable Bluetooth device, as stated in the product documentation.
	The test tool simulated manager initiates a discovery process, it discovers the agent under test and starts a pairing process with agent under test.
Pass/Fail criteria	In step 1, the agent under test supports Secure Simple Pairing (PIXIT I_AG_BDG_004 = TRUE).
	In step 2, the agent under test SSP features declared in PIXIT are consistent.
	In step 4, the agent under test completes the pairing process successfully.
Notes	

A.5 Subgroup 1.1.4 – Pulse oximeter device specialization design guidelines (PODG)

TP Id		TP/PLT/AG/CLASS/PODG/BV-000		
TP label		Pulse Oximeter: PM-Store attributes		
Coverage	Spec	[ITU-T H.810]		
	Testable items	PODG PM_Store 4; M	PODG PM_Store 5; M	PODG PM_Store 6; M
		PODG General 2; C		
Applicability		C_AG_OXP_173 AND C_AG_OXP_041 AND C_AG_OXP_000		
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 the handle set to the PM-Store and the attribute-id-list set to 0 to indicate all attributes.
		
		2. The agent response must contain:
		
		    a. Mandatory attribute PM-Store-Capab
		
		        ❑ attribute-id = MDC_ATTR_PM_STORE_CAPAB
		
		        ❑ attribute-type = PmStoreCapab
		
		        ❑ attribute-value.lenght=BITS-16
		
		        ❑ attribute-value=
		
		            ▪ Bit 8 (pmsc-clear-seg-by-time-sup (8)) has to be clear.(This bit indicates that clearing by time range is supported).
		
		            ▪ Bit 10 (pmsc-clear-segm-all-sup (10)) has to be set. (This bit indicates that clearing all segments is supported).
		
		    b. Optional attribute PM-Store-Label
		
		        ❑ attribute-id = MDC_ATTR_PM_STORE_LABEL_STRING
		
		        ❑ attribute-type = OCTET STRING
		
		        ❑ attribute-value.length <= 255 octets
		
		        ❑ 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/PODG/BV-001		
TP label		Pulse Oximeter: PM-Store, PM-Segment attributes		
Coverage	Spec	[ITU-T H.810]		
	Testable items	PODG PM_Store 7; C	PODG PM_Store 8; C	
Applicability		C_AG_OXP_173 AND C_AG_OXP_041 AND C_AG_OXP_000		
Initial condition		The simulated manager and the agent under test are in the operating state.		

Test procedure		1. The simulated manager issues a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes.
		
		2. The agent issues a GET response with the PM-Store attributes it supports:
		
		    a. Conditional attribute Sample-Period
		
		        ❑ attribute-id = MDC_ATTR_TIME_PD_SAMP
		
		        ❑ attribute-type = RelativeTime
		
		        ❑ attribute-value.length= 4 bytes
		
		            ❑ attribute-value= <Not relevant for this Test>
		
		3. The simulated manager shall send a Get-Segment-Info object action for the PM-Store object with SegmSelection set to all-segments		

		a. Conditional attribute Sample-Period
		❑ attribute-id = MDC_ATTR_TIME_PD_SAMP
		❑ attribute-type = RelativeTime
		❑ attribute-value.length= 4 bytes
		❑ attribute-value= <Not relevant for this test>
Pass/Fail criteria		The Attribute Sample-Period shall be implemented in PM-Store if it is not implemented in every PM-Segment.
Notes		

TP Id		TP/PLT/AG/CLASS/PODG/BV-002		
TP label		Pulse Oximeter: PM-Segment attributes		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	PODG PM_Store 1; R	PODG PM_Store 2; M	PODG General 2; C
Applicability		C_AG_OXP_173 AND C_AG_OXP_041 AND C_AG_OXP_000		
Initial condition		The simulated manager and the agent under test are in the operating state.		

Test procedure		1. The simulated manager shall send a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes.
		
		2. The agent issues a GET response with the PM-Store attributes.
		
		3. The simulated manager shall send a Get-Segment-Info object action for the PM-Segment object with SegmSelection = all-segments to indicate the PM-Segments attributes of all available PM-Segments.
		
		4. The agent issues a response with the PM-Segment attributes it supports, the attributes of interest are:
		
		   a. Attribute Segment-Start-Abs-Time is mandatory:
		     ❑ attribute-id = MDC_ATTR_TIME_START_SEG
		     ❑ attribute-type = AbsoluteTime
		     ❑ attribute-value.length = 8 bytes
		     ❑ attribute-value =
		       ▪ century =
		       ▪ year ≤ 99
		       ▪ month ≤ 12
		       ▪ day ≤ 31
		       ▪ hour ≤ 24
		       ▪ minute ≤ 60
		       ▪ second ≤ 60
		       ▪ sec-fractions ≤ 100
		
		   b. Attribute Segment-End-Abs-Time is mandatory
		     ❑ attribute-id = MDC_ATTR_TIME_END_SEG
		     ❑ attribute-type = AbsoluteTime
		     ❑ attribute-value.length = 8 bytes
		     ❑ attribute-value =
		       ▪ century =
		       ▪ year ≤ 99

- month ≤ 12

- day ≤ 31

- hour ≤ 24

- minute ≤ 60

- second ≤ 60

- sec-fractions ≤ 100

    c. Mandatory attribute PM-Segment-Entry-Map.

    ❑ attribute-id = MDC_ATTR_PM_SEG_MAP

    ❑ attribute-type = PmSegmentEntryMap

    ❑ attribute-value = Recommended values

- SegmEntryElemList.count = 2

    i. SegmEntryElem #1: SpO2

- obj-class = MDC_MOC_VMO_METRIC_NU

- metric-type = MDC_PART_SCADA | MDC_PULS_OXIM_SAT_O2

- HANDLE (shall be set to appropriate handle-id for SpO2)

    ii. SegmEntryElem #2: Pulse rate

- obj-class = MDC_MOC_VMO_METRIC_NU

- metric-type = MDC_PART_SCADA | MDC_PULS_OXIM_PULS_RATE

- HANDLE (shall be set to appropriate handle-id for Pulse rate)

- OR SegmEntryElemList.count = 1

    i. SegmEntryElem #1: SpO2 or Pulse rate

- obj-class = MDC_MOC_VMO_METRIC_NU

- metric-type = MDC_PART_SCADA | MDC_PULS_OXIM_SAT_O2 or MDC_PULS_OXIM_PULS_RATE

- HANDLE (shall be set to appropriate handle-id for SpO2 or Pulse Rate)

Pass/Fail criteria	All attribute values are as specified in the test procedure. In the case that the PM-Segment-Entry-Map contains only one element (SpO2 or Pulse Rate object), there should be another segment with a PM-Segment-Entry-Map that contains (Pulse Rate if the first segment contains SpO2 measurement or SpO2 if the first segment contains Pulse Rate measurement).
Notes	

TP Id		TP/PLT/AG/CLASS/PODG/BV-003
TP label		Pulse Oximeter: Overlapped PM-Segments
Coverage	**Spec**	[ITU-T H.810]
	Testable items	PODG PM_Store 3; M
Applicability		C_AG_OXP_173 AND C_AG_OXP_041 AND C_AG_OXP_000
Initial condition		The simulated manager and the agent under test are in the operating state.
Test procedure		For each PM-Store object: 1. The simulated manager shall send a Get-Segment-Info object action for the PM-Segment object with SegmSelection = all-segments to indicate the PM-Segments attributes of all available PM-Segments.

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2. The agent issues a response with the PM-Segment attributes it supports, the attributes of interest are:

- Conditional attribute Segment-Start-Abs-Time

  ❑ attribute-id = MDC_ATTR_TIME_START_SEG

  ❑ attribute-type = AbsoluteTime

  ❑ attribute-value = <Record value for future comparison>

- Conditional attribute Segment-End-Abs-Time

  ❑ attribute-id = MDC_ATTR_TIME_END_SEG

  ❑ attribute-type = AbsoluteTime

  ❑ attribute-value = <Record value for future comparison>

3. Check all PM-Segments time intervals (Segment-Start-Abs-Time and Segment-End-Abs-Time).

</td>
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<tr>
<td>Pass/Fail criteria</td>
<td>

- In Step 3, overlapped PM-Segments must be included in the same PM-Store object.

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<td>Notes</td>
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</table>

A.6 Subgroup 1.1.5 – Cardiovascular design guidelines (CVDG)

TP Id		TP/PLT/AG/CLASS/CVDG/BV-000		
TP label		Cardiovascular: Step Counter sub-specialization (profile)		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Cardio_DG 3; M	Cardio_DG 5; O	
	Spec	[ISO/IEEE 11073-20601A]		
	Testable items	ConfEventRep 35; M		
Applicability		C_AG_OXP_172 AND C_AG_CV_001 AND C_AG_OXP_000		
Initial condition		The agent under test is 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 an Association Response with result = "accepted-unknown-config". 3. The agent responds with a roiv-cmip-confirmed-event report message with a MDC_NOTI_CONFIG event to send its configuration to the manager. 4. A Session object and a Distance object shall be present. 5. A Distance object shall be present, with the Unit-Code attribute: a. Mandatory attribute Unit-Code ❑ attribute-id = MDC_ATTR_UNIT_CODE ❑ attribute-type = OID-Type (INT-U16) ❑ attribute-value.length = 2 bytes ❑ attribute-value = MDC_DIM_X_STEP 6. Subsession, Cadence, Speed, Stride Length and Energy Expended and additional Distance object may be present.		
Pass/Fail criteria		In steps 4, 5 and 6 checked values are as specified.		
Notes				

A.7 Subgroup 1.1.6 – Activity hub design guidelines (HUBDG)

TP Id		TP/PLT/AG/CLASS/HUBDG/BV-000		
TP label		Activity Hub sub-specializations (profiles)		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Hub_DG 1; M	Hub_DG 3; M	Hub_DG 5; M
		Hub_DG 7; M	Hub_DG 9; M	Hub_DG 11; M
		Hub_DG 13; M	Hub_DG 15; M	Hub_DG 17; M
		Hub_DG 19; M	Hub_DG 21; M	Hub_DG 23; M
		Hub_DG 25; M	Hub_DG 27; M	
	Spec	[ISO/IEEE 11073-20601A]		
	Testable items	ConfEventRep 35; M		
Applicability		C_AG_OXP_176 AND C_AG_OXP_181 AND C_AG_OXP_000 AND (C_AG_HUB_001 OR C_AG_HUB_002 OR C_AG_HUB_003 OR C_AG_HUB_004 OR C_AG_HUB_005 OR C_AG_HUB_006 OR C_AG_HUB_007 OR C_AG_HUB_008 OR C_AG_HUB_009 OR C_AG_HUB_010 OR C_AG_HUB_011 OR C_AG_HUB_012 OR C_AG_HUB_013 OR C_AG_HUB_014)		
Initial condition		The simulated manager and the agent under test are in the configuring 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. Check the ConfigObjectList:
		
		  a. obj-class (ConfigReport then ConfigObjectList (ConfigObject))
		    − field- type = OID-Type
		    − field-length = 2 bytes
		    − field- value= MDC_MOC_VMO_METRIC_ENUM
		
		  b. obj-handle (ConfigReport then ConfigObjectList (ConfigObject))
		    − field- type = HANDLE
		    − field-length = 2 bytes
		    − field- value= 0x00
		
		  c. attribute-id (ConfigReport then ConfigObjectList (ConfigObject)then AttributeList then attribute-id
		    − field- type = OID-Type
		    − field-length = 2 bytes
		    − field- value= MDC_ATTR_ID_TYPE (0x09 0x2F) then This attribute let us know the type of measurement
		
		  d. attribute-value(ConfigReport then ConfigObjectList (ConfigObject) then Attribute List), this value depends on the attribute type. The values we have to check are:
		    ❑ IF the agent supports Fall Sensor Specialization THEN the Fall Sensor object shall be present.
		    ❑ IF the agent supports Motion Sensor Specialization THEN the Motion Sensor object shall be present.
		    ❑ IF the agent supports Enuresis Sensor Specialization THEN the Enuresis Sensor object shall be present.
		    ❑ IF the agent supports Contact Closure Sensor Specialization THEN the Contact Closure Sensor object shall be present.

	❑ IF the agent supports Switch Sensor Specialization THEN the Switch Sensor object shall be present. ❑ IF the agent supports Dosage Sensor Specialization THEN the Dosage Sensor object shall be present. ❑ IF the agent supports Water Sensor Specialization THEN the Water Sensor object shall be present. ❑ IF the agent supports Smoke Specialization THEN the Smoke object shall be present. ❑ IF the agent supports Property Exit Sensor Specialization THEN the Property Exit Sensor object shall be present. ❑ IF the agent supports Ambient Temperature Sensor Specialization THEN the Temperature Sensor object shall be present. ❑ IF the agent supports Usage Sensor Specialization THEN the Usage Sensor object shall be present. ❑ IF the agent supports PERS Sensor Specialization THEN the PERS Sensor object shall be present. ❑ IF the agent supports CO Sensor Specialization THEN the CO Sensor object shall be present. ❑ IF the agent supports Gas Sensor Specialization THEN the Gas Sensor object shall be present.
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

A.8   Subgroup 1.1.7 – ZigBee design guidelines (ZDG)

TP Id		TP/LAN/AG/TR/ZDG/BV-000		
TP label		ZigBee QoS best.medium		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	ZQoS 1; M		
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001		
Initial condition		The simulated manager and the agent under test are in the operating state.		
Test procedure		1. The simulated manager sends a GET request for an MDS object. 2. Check that the agent utilizes APS-ack when it receives the GET message from the simulated manager.		
Pass/Fail criteria		The service shall use APS-ack when it receives the GET message.		
Notes				

TP Id		TP/LAN/AG/TR/ZDG/BV-001		
TP label		ZigBee One-to-Many. Endpoints and Associations		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	ZB Multiple Connections 1; M	Dominant Assoc 1; M	
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002		
Initial condition		Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are disconnected.		
Test procedure		1. Start simulated manager #1 as ZigBee coordinator. 2. Start simulated manager #2 and join it to the simulated manager #1 network. 3. Start the agent under test and join it to the simulated manager #1 network. 4. Simulated Manager #1 performs a Discovery in ZigBee network. It gets all endpoints available in this network. 5. Simulated manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test. 6. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state. 7. Simulated manager #2 performs a Discovery in the ZigBee network. It gets all endpoints available in this network. 8. Simulated Manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that still used by Simulated Manager #1) and it creates a 11073 Protocol Tunnel with the agent under test. 9. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state. 10. Check the Continua End Points used by the agent in both associations.		
Pass/Fail criteria		In Step 4, simulated manager #1 discovers at least two End Points with Continua device specializations (Continua End Points) in the agent under test. In Step 6, in the association with simulated manger #1 the agent under test reaches the operating state. In Step 9, in the association with simulated manger #2 the agent under test reaches the operating state. In Step 10, the agent under test uses two different Continua End Points to associate with the simulated managers #1 and #2.		
Notes				

TP Id		TP/LAN/AG/TR/ZDG/BV-002		
TP label		ZigBee One-to-Many. New Association 1		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Dominant Assoc 3; M		
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002		
Initial condition		Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are disconnected.		

Test procedure		1. Start simulated manager #1 as ZigBee coordinator.
		
		2. Start simulated manager #2 and join it to the simulated manager #1 network.
		
		3. Start the agent under test and join it to the simulated manager #1 network.
		
		4. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.
		
		5. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.
		
		6. Simulated manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test.
		
		7. Force the agent under test to associate with simulated manager #1, but when the agent under test sends the AARQ then simulated manger #1 does not respond (the agent under test will try to associate with simulated manager #1 during 3*TOassoc = 30 seconds).
		
		8. In parallel with step 7, during the 3*TOassoc period:
		
		   a. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that still being used by simulated manager #1) and it creates a 11073 Protocol Tunnel with the agent under test
		
		   b. Force the agent under test to associate with simulated manager #2.		

Pass/Fail criteria		In Step 4, simulated manager #1 discovers at least two End Points with Continua device specializations (Continua End Points) in the agent under test. In Step 7, simulated manager #1 receives an AARQ message 4 times (RCassoc + 1 = 4). In parallel, in Step 8b, simulated manager #2 does not receive the AARQ message within the 3*TOassoc period.		
Notes				

TP Id		TP/LAN/AG/TR/ZDG/BV-003		
TP label		ZigBee One-to-Many. New Association 2		
Coverage	Spec	[ITU-T H.810]		
	Testable items	Dominant Assoc 3; M		
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002		
Initial condition		Simulated Manager #1 (Coordinator), Simulated Manager #2 and the agent under test are disconnected.		
Test procedure		1. Start simulated manager #1 as a ZigBee coordinator. 2. Start simulated manager #2 and join it to simulated manager #1 network. 3. Start the agent under test and join it to simulated manager #1 network. 4. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. 5. Simulated manager #1 selects one Continua End Point available in the agent under test and it creates a 11073 Protocol Tunnel with the agent under test.		

	6.	Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state.
	7.	Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.
	8.	Once the agent under test and simulated manager #1 are in the operating state:
		a. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.
		b. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than the End Point that simulated manager #1 is still using) and it creates a 11073 Protocol Tunnel with the agent under test.
		c. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state.
Pass/Fail criteria	In Step 4, simulated manager #1 discovers at least two End Points with Continua device specializations (Continua End Points) in the agent under test.	
	In Step 7, in the association with simulated manager #1 the agent under test reaches the operating state.	
	In Step 8b, in the association with simulated manager #2 the agent under test reaches the operating state.	
Notes		

TP Id		TP/LAN/AG/TR/ZDG/BV-004		
TP label		ZigBee One-to-Many. Dominant Association 1 (Set Time)		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Dominant Assoc 4; M	Dominant Assoc 5; M	
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_OXP_008		
Initial condition		Simulated manager #1 (Coordinator), Simulated manager #2 and the agent under test are connected to the same ZigBee network.		
Test procedure		1. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test.		
		2. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (Association #1).		
		3. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.		
		4. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by Simulated Manager #1) and it creates a 11073 Protocol Tunnel with the agent under test.		
		5. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (Association #2).		
		6. Through Association #1:		
		a. Simulated manager #1 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.		
		b. 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. The attribute of interest of this test is MDSTimeInfo:		
		❑ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45)		
		❑ attribute-type = MdsTimeInfo		
		❑ attribute-value = Record bits mds-time-mgr-set-time and mds-time-capab-set-clock values		

	7.	Through Association #2: a. Simulated manager #2 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes. b. 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. The attribute of interest of this test is MDSTimeInfo: ❑ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45) ❑ attribute-type = MdsTimeInfo ❑ attribute-value = Record bits mds-time-mgr-set-time and mds-time-capab-set-clock values 8. Compare the bits mds-time-mgr-set-time and mds-time-capab-set-clock values between Association #1 and Association #2: a. IF bits mds-time-mgr-set-time and/or mds-time-capab-set-clock are set to 1 in Associaion #1 THEN bits mds-time-mgr-set-time and mds-time-capab-set-clock both are set to 0 in Association #2 b. IF bits mds-time-mgr-set-time and/or mds-time-capab-set-clock are set to 1 in Associaion #2 THEN bits mds-time-mgr-set-time and mds-time-capab-set-clock both are set to 0 in Association #1
Pass/Fail criteria		In Step 8, mds-time-mgr-set-time and mds-time-capab-set-clock bits values in both Associations are as specified in test procedure.
Notes		

TP Id		TP/LAN/AG/TR/ZDG/BV-005
TP label		ZigBee One-to-Many. Dominant Association 2 (PM-Store Clear Segment)
Coverage	**Spec**	[ITU-T H.810]
	Testable items	Dominant Assoc 4; M	Dominant Assoc 5; M	
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_OXP_041 AND C_AG_OXP_071
Initial condition		Simulated Manager #1 (Coordinator), Simulated Manager #2 and the agent under test are connected to the same ZigBee network.
Test procedure		1. Simulated Manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated Manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test. 2. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (Association #1). 3. Simulated Manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. 4. Simulated Manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by Simulated Manager #1) and it creates a 11073 Protocol Tunnel with the agent under test. 5. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (Association #2). 6. Through Association #1: a. Simulated manager #1 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes. b. 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. The attribute of interest of this test is MDSTimeInfo: ❑ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45)

<table>
<tr>
<td></td>
<td colspan="3">❑ attribute-type = MdsTimeInfo

❑ attribute-value = Record bits mds-time-mgr-set-time and mds-time-capab-set-clock values

c. Simulated manager #1 sends a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes.

d. The agent under test responds with the PM-Store attribute list. The attribute of interest of this test is PMStoreCapab:

❑ attribute-id = MDC_ATTR_PM_STORE_CAPAB (0x0A 0x4D)

❑ attribute-type = PmStoreCapab

❑ attribute-value = Record bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values

7. Through Association #2:

a. Simulated manager #2 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.

b. 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. The attribute of interest of this test is MDSTimeInfo:

❑ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45)

❑ attribute-type = MdsTimeInfo

❑ attribute-value = Record bits mds-time-mgr-set-time and mds-time-capab-set-clock values

c. Simulated manager #2 sends a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes.

d. The agent under test responds with the PM-Store attribute list. The attribute of interest of this test is PMStoreCapab:

❑ attribute-id = MDC_ATTR_PM_STORE_CAPAB (0x0A 0x4D)

❑ attribute-type = PmStoreCapab

❑ attribute-value = Record bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values

8. Compare bits mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values between Association #1 and Association #2

a. IF any of bits mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove or pmsc-clear-segm-all-sup is set to 1 in Associaion #1 THEN all bits mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup are set to 0 in Association #2

b. IF any of bits mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove or pmsc-clear-segm-all-sup is set to 1 in Associaion #2 THEN all bits mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup are set to 0 in Association #1</td>
</tr>
<tr>
<td colspan="2">Pass/Fail criteria</td>
<td colspan="2">In step 8, mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup bits values in both associations are as specified in the test procedure.</td>
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<td colspan="2">Notes</td>
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<tr>
<td colspan="2">TP Id</td>
<td>TP/LAN/AG/TR/ZDG/BV-006</td>
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<tr>
<td colspan="2">TP label</td>
<td>ZigBee One-to-Many. Set Time and Date-and-Time update</td>
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<tr>
<td>Coverage</td>
<td>Spec</td>
<td>[ITU-T H.810]</td>
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</table>

	Testable items	Dominant Assoc 6; M		
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_OXP_008		
Initial condition		Simulated manager #1 (Coordinator), Simulated Manager #2 and the agent under test are connected to the same ZigBee network.		
Test procedure		1. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and it creates a 11073 Protocol Tunnel with the agent under test. 2. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (Association #1). 3. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. 4. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by Simulated manager #1) and it creates a 11073 Protocol Tunnel with the agent under test. 5. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (Association #2). 6. Through Association #1: a. Simulated manager #1 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes. b. 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. The attribute of interest of this test is MDSTimeInfo: ❑ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45) ❑ attribute-type = MdsTimeInfo ❑ attribute-value = Record bit mds-time-capab-set-clock value 7. Through Association #2: a. Simulated manager #2 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes. b. 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. The attribute of interest of this test is MDSTimeInfo: ❑ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45) ❑ attribute-type = MdsTimeInfo ❑ attribute-value = Record bit mds-time-capab-set-clock value 8. Check bit mds-time-capab-set-clock value in Association #1 and Association #2. It must be set to 1 in one, and only one, Association 9. IF bit mds-time-capab-set-clock is set to 1 in Association #1 (dominant association) THEN a. Simulated manager #1 sends a SET action through Association #1: ❑ CHOICE = SetTimeInvoke ❑ action-type = MDC_ACT_SET_TIME ❑ the action-info-args are SetTimeInvoke • date-time = century ≤ 99, year ≤ 99, month ≤ 12, day ≤ 31, hour ≤ 24, minute ≤ 60, second ≤ 60, sec-fractions ≤ 100 • accuracy = 0 b. The agent under test responds through Association #1 with rors-cmip-confirmed-action with action-info-args empty.

<table>
<tr>
<td></td>
<td colspan="2">c. Force the agent under test to acquire a new measurement and report it through Association #2.</td>
</tr>
<tr>
<td></td>
<td colspan="2">d. The agent under test sends through Association #2 (non-dominant association) an event report (fixed or variable format) containing the new Date-and-Time attribute value of the MDS object.</td>
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<tr>
<td></td>
<td colspan="2">10. IF bit mds-time-capab-set-clock is set to 1 in Association #2 (Dominant Association) THEN</td>
</tr>
<tr>
<td></td>
<td colspan="2">a. Simulated manager #2 sends a SET action through Association #2:

❑ CHOICE = SetTimeInvoke

❑ action-type = MDC_ACT_SET_TIME

❑ the action-info-args are SetTimeInvoke

    • date-time = century ≤ 99, year ≤ 99, month ≤ 12, day ≤ 31, hour ≤ 24, minute ≤ 60, second ≤ 60, sec-fractions ≤ 100

    • accuracy = 0</td>
</tr>
<tr>
<td></td>
<td colspan="2">b. The agent under test responds through Association #2 with rors-cmip-confirmed-action with action-info-args empty.</td>
</tr>
<tr>
<td></td>
<td colspan="2">c. Force the agent under test to acquire a new measurement and report it through Association #1.</td>
</tr>
<tr>
<td></td>
<td colspan="2">d. The agent under test sends through Association #1 (non-dominant association) an event report (fixed or variable format) containing the new Date-and-Time attribute value of the MDS object.</td>
</tr>
<tr>
<td>Pass/Fail criteria</td>
<td colspan="2">In step 9.d or 10.d, the agent sends through a Non-Dominant Association an event report (fixed or variable format) containing the new Date-and-Time attribute value of the MDS object.</td>
</tr>
<tr>
<td>Notes</td>
<td colspan="2"></td>
</tr>
</table>

<table>
<tr>
<td>TP Id</td>
<td colspan="2">TP/LAN/AG/TR/ZDG/BV-008</td>
</tr>
<tr>
<td>TP label</td>
<td colspan="2">ZigBee One-to-Many. Close Dominant Association</td>
</tr>
<tr>
<td>Coverage</td>
<td>Spec</td>
<td>[ITU-T H.810]</td>
</tr>
<tr>
<td></td>
<td>Testable items</td>
<td>Dominant Assoc 9; O</td>
</tr>
<tr>
<td>Applicability</td>
<td colspan="2">C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_ZDG_003</td>
</tr>
<tr>
<td>Initial condition</td>
<td colspan="2">Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are connected to the same ZigBee network.</td>
</tr>
<tr>
<td>Test procedure</td>
<td colspan="2">1. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test.

2. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (Association #1).

3. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by Simulated Manager #1) and it creates a 11073 Protocol Tunnel with the agent under test.

4. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (Association #2).

5. Through Association #1:

    a. IF C_AG_OXP_008 THEN

        • Simulated manager #1 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.</td>
</tr>
</table>

<table>
<tr>
<td rowspan="2"></td>
<td colspan="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.
Record bits mds-time-mgr-set-time and mds-time-capab-set-clock values from MdsTimeInfo attribute.

b. IF (C_AG_OXP_041 AND C_AG_OXP_071) THEN

Simulated manager #1 sends a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes.
The agent under test responds with the PM-Store attribute list.
Record bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values from PmStoreCapab attribute.

6. Through Association #2:

a. IF C_AG_OXP_008 THEN

Simulated manager #2 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.
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.
Record bits mds-time-mgr-set-time and mds-time-capab-set-clock values from MdsTimeInfo attribute.

b. IF (C_AG_OXP_041 AND C_AG_OXP_071) THEN

Simulated manager #2 sends a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attribute.
The agent under test responds with the PM-Store attribute list.
Record bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values from PmStoreCapab attribute.

7. Compare bits mds-time-mgr-set-time, mds-time-capab-set-clock, pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values between Association #1 and Association #2 and determine the dominant association (it is the association that has one of these bits set to 1).

8. Force the agent under test to release the dominant association.

9. Check that the message sent by agent under test sends through dominant association.
</td>
</tr>
<tr>
<td colspan="2"></td>
</tr>
<tr>
<td>Pass/Fail criteria</td>
<td colspan="2">
In Step 9, the agent under test sends one of the following messages:

Release Request with reason = normal (0)
Release Request with reason = configuration-change (2)
Abort with reason = undefined (0)

</td>
</tr>
<tr>
<td>Notes</td>
<td colspan="2"></td>
</tr>
</table>

<table>
<tr>
<td colspan="2">TP Id</td>
<td colspan="3">TP/LAN/AG/TR/ZDG/BV-009</td>
</tr>
<tr>
<td colspan="2">TP label</td>
<td colspan="3">ZigBee One-to-Many. Downgrade/Upgrade Dominant Association 1 (Set Time)</td>
</tr>
<tr>
<td rowspan="2">Coverage</td>
<td>Spec</td>
<td colspan="3">[ITU-T H.810]</td>
</tr>
<tr>
<td>Testable items</td>
<td>Dominant Assoc 10; O</td>
<td>Dominant Assoc 11; O</td>
<td></td>
</tr>
<tr>
<td colspan="2">Applicability</td>
<td colspan="3">C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_ZDG_004 AND C_AG_OXP_008</td>
</tr>
<tr>
<td colspan="2">Initial condition</td>
<td colspan="3">Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are connected to the same ZigBee network.</td>
</tr>
</table>

Test procedure	1.	Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test.
	2.	Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (Association #1).
	3.	Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by simulated manager #1) and it creates a 11073 Protocol Tunnel with the agent under test.
	4.	Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (Association #2).
	5.	Through Association #1:
		a. Simulated manager #1 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.
		b. 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. The attribute of interest of this test is MDSTimeInfo:
		❏ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45)
		❏ attribute-type = MdsTimeInfo
		❏ attribute-value = Record bit mds-time-capab-set-clock value
	6.	Through Association #2:
		a. Simulated manager #2 sends a "Remote Operation Invoke | Get" command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.
		b. 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. The attribute of interest of this test is MDSTimeInfo:
		❏ attribute-id = MDC_ATTR_MDS_TIME_INFO (0x0A 0x45)
		❏ attribute-type = MdsTimeInfo
		❏ attribute-value = Record bit mds-time-capab-set-clock value
	7.	Check bit mds-time-capab-set-clock value in Association #1 and Association #2. It must be set to 1 in one, and only one, association. The association with bit mds-time-capab-set-clock set to 1 is the Dominant Association
	8.	Force the agent under test to change the Dominant Association to the other association (i.e., if the Dominant Association is association #1, the agent under test must downgrade association #1 and upgrade association #2 or if the Dominant Association is association #2, the agent under test must downgrade association #2 and upgrade association #1).
	9.	IF bit mds-time-capab-set-clock is set to 1 in association #1 (Dominant Association) THEN
		a. The agent under test sends through association #1 (Dominant Association) a variable format event report containing the new Mds-Time-Info attribute value of MDS Object. Bits mds-time-mgr-set-time and mds-time-capab-set-clock are both set to 0 and association #1 becomes a Non-Dominant Association
		b. The agent under test sends through association #2 (Non-Dominant Association) a variable format event report containing the new Mds-Time-Info attribute value of the MDS object. At least bit mds-time-capab-set-clock is set to 1 and association #2 becomes a Dominant Association.
	10.	IF bit mds-time-capab-set-clock is set to 1 in association #2 (Dominant Association) THEN
		a. The agent under test sends through association #2 (Dominant Association) a variable format event report containing the new Mds-Time-Info attribute value of

		the MDS object. Bits mds-time-mgr-set-time and mds-time-capab-set-clock are both set to 0 and association #2 becomes a Non-Dominant Association
	b.	The agent under test sends through association #1 (Non-Dominant Association) a variable format event report containing the new Mds-Time-Info attribute value of the MDS object. At least bit mds-time-capab-set-clock is set to 1 and association #1 becomes a Dominant Association.
Pass/Fail criteria		In step 9 or 10, the agent under test sends through Dominant and Non-Dominant Associations the messages detailed in the test procedure.
Notes		

TP Id		TP/LAN/AG/TR/ZDG/BV-010		
TP label		ZigBee One-to-Many. Downgrade/Upgrade Dominant Association 2 (PM-Store Clear Segment)		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	Dominant Assoc 10; O	Dominant Assoc 11; O	
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_ZDG_004 AND C_AG_OXP_041 AND C_AG_OXP_071		
Initial condition		Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are connected to the same ZigBee network.		
Test procedure		1. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and creates a 11073 Protocol Tunnel with the agent under test.		
		2. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (association #1).		
		3. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.		
		4. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by simulated manager #1) and it creates a 11073 Protocol Tunnel with the agent under test.		
		5. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (association #2).		
		6. Through Association #1:		
		a. Simulated manager #1 sends a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes		
		b. The agent under test responds with the PM-Store attribute list. The attribute of interest of this test is PMStoreCapab:		
		❑ attribute-id = MDC_ATTR_PM_STORE_CAPAB (0x0A 0x4D)		
		❑ attribute-type = PmStoreCapab		
		❑ attribute-value = Record bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values		
		7. Through Association #2:		
		a. Simulated manager #2 sends a Get request for the PM-Store object with an attribute-id-list set to 0 to indicate all PM-Store attributes.		
		b. The agent under test responds with the PM-Store attribute list. The attribute of interest of this test is PMStoreCapab:		
		❑ attribute-id = MDC_ATTR_PM_STORE_CAPAB (0x0A 0x4D)		
		❑ attribute-type = PmStoreCapab		
		❑ attribute-value = Record bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values		
		8. Check bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup values in Association #1 and Association		

<table>
<tr><td colspan="2"></td><td>#2. One or more of these bits must be set to 1 in one, and only one association. The association with one or more of these bits set is the Dominant Association.</td></tr>
<tr><td colspan="2"></td><td>

9. Force the agent under test to change the Dominant Association to the other association (i.e., if the Dominant Association is association #1, the agent under test must downgrade Association #1 and upgrade association #2 or if the Dominant Association is association #2, the agent under test must downgrade association #2 and upgrade association #1).

10. IF one or more bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup are set to 1 in Association #1 (Dominant Association) THEN

    a. The agent under test sends through Association #1 (Dominant Association) one of the following messages:

        • Release Request with reason = normal (0)

        • Release Request with reason = configuration-change (2)

        • Abort with reason = undefined (0)

    b. The agent under test sends through Association #2 (Non-Dominant Association) one of the following messages:

        • Release Request with reason = normal (0)

        • Release Request with reason = configuration-change (2)

        • Abort with reason = undefined (0)

11. IF one or more bits pmsc-clear-segm-by-list-sup, pmsc-clear-segm-by-time-sup, pmsc-clear-segm-remove and pmsc-clear-segm-all-sup are set to 1 in association #2 (Dominant Association) THEN

    a. The agent under test sends through association #1 (Dominant Association) one of the following messages:

        • Release Request with reason = normal (0)

        • Release Request with reason = configuration-change (2)

        • Abort with reason = undefined (0)

    b. The agent under test sends through Association #2 (Non-Dominant Association) one of the following messages:

        • Release Request with reason = normal (0)

        • Release Request with reason = configuration-change (2)

        • Abort with reason = undefined (0)
</td></tr>
<tr><td colspan="2">Pass/Fail criteria</td><td>In step 10 or 11, the agent under test sends through Dominant and Non-Dominant Associations the messages detailed in the test procedure.</td></tr>
<tr><td colspan="2">Notes</td><td></td></tr>
</table>

<table>
<tr><td colspan="2">TP Id</td><td colspan="3">TP/LAN/AG/TR/ZDG/BV-011</td></tr>
<tr><td colspan="2">TP label</td><td colspan="3">ZigBee One-to-Many. Timestamps</td></tr>
<tr><td>Coverage</td><td>Spec</td><td colspan="3">[ITU-T H.810]</td></tr>
<tr><td></td><td>Testable items</td><td>TimeStamp 1; M</td><td>TimeStamp 2; M</td><td></td></tr>
<tr><td colspan="2">Applicability</td><td colspan="3">C_AG_OXP_000 AND C_AG_ZDG_001 AND (C_AG_OXP_182 OR C_AG_OXP_183 OR C_AG_OXP_184 OR C_AG_OXP_189)</td></tr>
<tr><td colspan="2">Initial condition</td><td colspan="3">Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are connected to the same ZigBee network.</td></tr>
<tr><td colspan="2">Test procedure</td><td colspan="3">1. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and it creates a 11073 Protocol Tunnel with the agent under test.</td></tr>
</table>

		2.	Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (association #1).
		3.	Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.
		4.	Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that being used by simulated manager #1) and it creates a 11073 Protocol Tunnel with the agent under test.
		5.	Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (association #2).
		6.	Force the agent under test to acquire a new measurement and report it through association #1 and association #2.
		7.	The agent under test sends through association #1 an event report containing the measurement value and the timestamp.
		8.	The agent under test sends through association #2 an event report containing the measurement value and the timestamp.
Pass/Fail criteria			In steps 7 and 8 the agent under test reports the same measurement value and the same timestamp value.
Notes			

TP Id		TP/LAN/AG/TR/ZDG/BV-012		
TP label		ZigBee One-to-Many. Timeout		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	TimeoutManagement 1; M	TimeoutManagement 2; R	
Applicability		C_AG_OXP_000 AND C_AG_ZDG_001 AND C_AG_ZDG_002 AND C_AG_OXP_041		
Initial condition		Simulated manager #1 (Coordinator), simulated manager #2 and the agent under test are connected to the same ZigBee network.		
Test procedure		1. Simulated manager #1 performs a discovery in the ZigBee network. It gets all the endpoints available in this network. Simulated manager #1 selects one Continua End Point available in the agent under test and it creates a 11073 Protocol Tunnel with the agent under test.		
		2. Force the agent under test to associate with simulated manager #1 and complete the association procedure until both reach the operating state (association #1).		
		3. Simulated manager #2 performs a discovery in the ZigBee network. It gets all the endpoints available in this network.		
		4. Simulated manager #2 selects another Continua End Point available in the agent under test (it is a different End Point than that bing used by simulated manager #1) and it creates a 11073 Protocol Tunnel with the agent under test		
		5. Force the agent under test to associate with simulated manager #2 and complete the association procedure until both reach the operating state (sssociation #2)		
		6. Through association #1:		
		a. Simulated manager #1 sends through association #1 a "Get-Segment-Info".		
		b. The agent under test responds through association #1 with a rors-cmip-confirmed-action with the PM-Segments attributes. The attribute of interest of this test is Transfer-Timeout:		
		❑ attribute-id = MDC_ATTR_TRANSFER_TIMEOUT (0x0A 0x64)		
		❑ attribute-type = RelativeTime		
		❑ attribute-value = Record attribute value		
		7. Through association #2:		
		a. Simulated manager #2 sends through association #2 a "Get-Segment-Info"		

b. The agent under test responds through association #2 with a rors-cmip-confirmed-action with the PM-Segments attributes. The attribute of interest of this test is Transfer-Timeout:

❑ attribute-id = MDC_ATTR_TRANSFER_TIMEOUT (0x0A 0x64)

❑ attribute-type = RelativeTime

❑ attribute-value = Record attribute value

8. At the same point in time (i.e., concurrently):

a. Through Association #1:

1. Simulated manager #1 sends through association #1 a request for the PM-Segment Data to one of the PM-Segments that contains data:

• Data APDU

❑ Type = Invoke | Confirmed Action

❑ Handle = obj-handle

• action-type = MDC_ACT_SEG_TRIG_XFER

❑ TrigSegmDataXferReq = <Instance number of the selected PM-Segment that contains the data>

2. The agent under test responds through association #1 with a rors-cmip-confirmed-action:

• Data APDU

❑ Type = Invoke | Confirmed Action

❑ Handle = obj-handle

• action-type = MDC_ACT_SEG_TRIG_XFER

❑ TrigSegmDataXferReq = <Same Instance number> | tsxr-succesful (0x00 0x00)

3. The agent under test starts the PM-Segment data transfer through association #1.

4. Simulated manager #1 waits until PM-Segment Transfer-Timeout to receive the complete PM-Segmen.t

b. Through association #2:

1. Simulated manager #2 sends through association #2 a request for the PM-Segment Data to one of the PM-Segments that contains data:

• Data APDU

❑ Type = Invoke | Confirmed Action

❑ Handle = obj-handle

• action-type = MDC_ACT_SEG_TRIG_XFER

❑ TrigSegmDataXferReq = <Instance number of the selected PM-Segment that contains the data>

2. The agent under test responds through association #2 with rors-cmip-confirmed-action:

• Data APDU

❑ Type = Invoke | Confirmed Action

❑ Handle = obj-handle

• action-type = MDC_ACT_SEG_TRIG_XFER

❑ TrigSegmDataXferReq = <Same Instance number> | tsxr-succesful (0x00 0x00)

3. The agent under test starts the PM-Segment data transfer through association #2.

Simulated manager #2 waits until PM-Segement Transfer-Timeout to receive the complete PM-Segment.

Pass/Fail criteria	In step 8.a the PM-Segment is transferred completely through association #1 and simulated manager #1 timeout does not expire.
	In Step 8.b the PM-Segment is transferred completely through association #2 and simulated manager #2 timeout does not expire.
Notes	

A.9 Subgroup 1.1.10 – Basic electrocardiograph design guidelines (ECGDG)

TP Id	TP/PLT/AG/CLASS/ECGDG/BV-000		
TP label	Basic ECG/Simple ECG: Recommended Layout for PM-Store		
Coverage	Spec	[ITU-T H.810]	
	Testable items			
		ECG_DG 3; C		
Applicability	C_AG_OXP_165 AND C_AG_OXP_041 AND C_AG_OXP_000		
Initial condition	The simulated manager and the agent under test are in the operating state.		

Test procedure	1. The simulated manager shall send a Get-Segment-Info object action for the PM-Segment object with SegmSelection = all-segments to indicate the PM-Segments attributes of all available PM-Segments.
	
	2. The agent issues a response with the PM-Segment attributes it supports, the attributes of interest are:
	
	  a. Mandatory attribute PM-Segment-Entry-Map.
	
	    ❑ attribute-id = MDC_ATTR_PM_SEG_MAP
	    ❑ attribute-type = PmSegmentEntryMap
	    ❑ attribute-value = Recommended values
	
	      ▪ SegmEntryElemList.count = 3
	
	       i. SegmEntryElem #1: Lead I
	        - class-id = MDC_MOC_VMO_METRIC_SA_RT
	        - metric-type = {MDC_PART_SCADA (2), MDC_ECG_ELEC_POTL_I (257)}
	        - handle = Handle of Lead I object
	        - attr-val-map = MDC_MOC_VMO_METRIC_SA_RT
	
	       ii. SegmEntryElem #2: Lead II
	        - class-id = MDC_MOC_VMO_METRIC_SA_RT
	        - metric-type = {MDC_PART_SCADA (2), MDC_ECG_ELEC_POTL_II (258)}
	        - handle = Handle of Lead II object
	        - attr-val-map = MDC_MOC_VMO_METRIC_SA_RT
	
	       iii. SegmEntryElem #3: Lead III
	        - class-id = MDC_MOC_VMO_METRIC_SA_RT
	        - metric-type = {MDC_PART_SCADA (2), MDC_ECG_ELEC_POTL_III (317)}
	        - handle = Handle of Lead III object
	        - attr-val-map = MDC_MOC_VMO_METRIC_SA_RT		

Pass/Fail criteria	The PM-Segment-Entry-Map should be implemented as specified in the test procedure. If the PM-Segment-Entry-Map is not implemented as recommended, by IEEE specification, then the test tool issues a Warning message.		

Notes	

TP Id		TP/PLT/AG/CLASS/ECGDG/BV-001
TP label		Basic ECG: PM-Store-Label attribute
Coverage	**Spec**	[ITU-T H.810]
	Testable items	ECG_DG 6; M	HeartRate_DG 6; M	
Applicability		(C_AG_OXP_164 OR C_AG_OXP_165) AND C_AG_OXP_041 AND C_AG_OXP_000
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 the handle set to the PM-Store and the attribute-id-list set to 0 to indicate all attributes.
		
		2. The agent response must contain:
		
		   a. Optional attribute PM-Store-Label
		
		      ❑ attribute-id = MDC_ATTR_PM_STORE_LABEL_STRING
		
		      ❑ attribute-type = OCTET STRING
		
		      ❑ attribute-value.length <= 255 octets
		
		      ❑ attribute-value = <Not relevant for this Test>

Pass/Fail criteria		If the agent implements the PM-Store-Label attribute then it shall not have a size larger than 255.
Notes		

TP Id		TP/PLT/AG/CLASS/ECGDG/BV-002		
TP label		Basic ECG: Overlapped PM-Segments		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	ECG_DG 4; M	ECG_DG 5; M	HeartRate_DG 5; M
		HeartRate_DG 6; M		
Applicability		(C_AG_OXP_164 OR C_AG_OXP_165) AND C_AG_OXP_041 AND C_AG_OXP_000		
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. Record the handle for the PM-Store objects and check the PM-Store-Capab attribute of each PM-Store:
		
		   a. Mandatory attribute PM-Store-Capab
		
		      ❑ attribute-id = MDC_ATTR_PM_STORE_CAPAB
		
		      ❑ attribute-type = PmStoreCapab
		
		      ❑ attribute-value.length = 2 bytes
		
		      ❑ attribute-value =
		
		        • For Periodic PM-Store objects = Bit 4 (pmsc-epi-seg-entries) is set to FALSE and Bit 5 (pmsc-peri-seg-entries) must be set to TRUE
		
		        • For Aperiodic PM-Store objects = Bit 4 (pmsc-epi-seg-entries) is set to TRUE and Bit 5 (pmsc-peri-seg-entries) must be set to FALSE
		
		5. For each Periodic PM-Store object:
		
		   a. The simulated manager shall send a Get-Segment-Info object action for the PM-Segment object with SegmSelection = all-segments to indicate the PM-Segments attributes of all available PM-Segments.		

	b. The agent issues a response with the PM-Segment attributes it supports, the attributes of interest are:

b. The agent issues a response with the PM-Segment attributes it supports, the attributes of interest are:

IF the agent supports Absolute Time THEN

- Conditional attribute Segment-Start-Abs-Time
  - ❑ attribute-id = MDC_ATTR_TIME_START_SEG
  - ❑ attribute-type = AbsoluteTime
  - ❑ attribute-value = <Record value for future comparison>
- Conditional attribute Segment-End-Abs-Time
  - ❑ attribute-id = MDC_ATTR_TIME_END_SEG
  - ❑ attribute-type = AbsoluteTime
  - ❑ attribute-value = <Record value for future comparison>

ELSE (the agent supports Base Offset Time)

- Conditional attribute Segment-Start-BO-Time
  - ❑ attribute-id = MDC_ATTR_TIME_START_SEG_BO
  - ❑ attribute-type = BaseOffsetTime
  - ❑ attribute-value = <Record value for future comparison>
- Conditional attribute Segment-End-BO-Time
  - ❑ attribute-id = MDC_ATTR_TIME_END_SEG_BO
  - ❑ attribute-type = BaseOffsetTime
  - ❑ attribute-value = <Record value for future comparison>

c. Check all PM-Segments time intervals (Segment-Start-Abs-Time/Segment-Start-BO-Time and Segment-End-Abs-Time/Segment-End-BO-Time)

6. For each Aperiodic PM-Store object

   a. The simulated manager shall send a Get-Segment-Info object action for the PM-Segment object with SegmSelection = all-segments to indicate the PM-Segments attributes of all available PM-Segments.

   b. The agent issues a response with the PM-Segment attributes it supports, the attributes of interest are:

   IF the agent supports Absolute Time THEN

   - Conditional attribute Segment-Start-Abs-Time
     - ❑ attribute-id = MDC_ATTR_TIME_START_SEG
     - ❑ attribute-type = AbsoluteTime
     - ❑ attribute-value = <Record value for future comparison>
   - Conditional attribute Segment-End-Abs-Time
     - ❑ attribute-id = MDC_ATTR_TIME_END_SEG
     - ❑ attribute-type = AbsoluteTime
     - ❑ attribute-value = <Record value for future comparison>

   ELSE (the agent supports Base Offset Time)

   - Conditional attribute Segment-Start-BO-Time
     - ❑ attribute-id = MDC_ATTR_TIME_START_SEG_BO
     - ❑ attribute-type = BaseOffsetTime
     - ❑ attribute-value = <Record value for future comparison>
   - Conditional attribute Segment-End-BO-Time
     - ❑ attribute-id = MDC_ATTR_TIME_END_SEG_BO
     - ❑ attribute-type = BaseOffsetTime
     - ❑ attribute-value = <Record value for future comparison>

	c. Check all PM-Segments time intervals (Segment-Start-Abs-Time/Segment-Start-BO-Time and Segment-End-Abs-Time/Segment-End-BO-Time)
Pass/Fail criteria	• In step 5.c, overlapped PM-Segments must be included in the same Periodic PM-Store object. • In step 6.c, overlapped PM-Segments must be included in the same Aperiodic PM-Store object.
Notes	

A.10 Subgroup 1.1.11 – NFC design guidelines (NDG)

TP Id		TP/TAN/AG/TR/NDG/BV-000		
TP label		Completion of data exchange within an acceptable amount of time		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	NFCUser 1; O	NFCUser 2; O	
Applicability		C_AG_OXP_000 AND C_AG_NDG_001		
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 roiv-cmip-confirmed-event report message with an MDC_NOTI_CONFIG event to send its configuration to the manager.		
		4. The simulated manager responds with a rors-cmip-confirmed-event-report with result "accepted".		
		5. Once in the operating state, the simulated manager issues roiv-cmip-get command with the handle set to 0 (to request an MDS object) and the attribute-id-list set to 0 to indicate all attributes.		
		6. The agent responds with with a "rors-cmip-get" service message in which the attribute-list contains a list of all implemented attributes of the MDS object.		
		7. The agent under test takes a measurement and sends it to the simulated manager.		
		8. The simulated manager sends a Release Request to the agent under test with reason = normal(0).		
		9. The agent under test responds with a Release Response.		
		10. The agent under test notifies the user that the data Exchange is completed.		
Pass/Fail criteria		• In step 9, the data exchange should be completed within 3 seconds. • In step 10, the agent under test should notify the user when the data exchange is completed.		
Notes				

TP Id		TP/TAN/AG/TR/NDG/BV-001		
TP label		NFC_QoS		
Coverage	**Spec**	[ITU-T H.810]		
	Testable items	NFCQoS 1;M	NFCQoS 2;M	
Applicability		C_AG_OXP_000 AND C_AG_NDG_001		
Initial condition		The simulated manager and the agent under test are in the unassociated state.		
Test procedure		**NOTE –** This test case must be executed manually. NFC sniffer is needed to perform the verification required in this test case.		
		1. The simulated manager receives an association request from the agent under test on the best.medium QoS bin.		
		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 on the best.medium QoS bin.		
		4. The simulated manager issues a "roiv-cmip-get" command with the handle set to 0 (to request an MDS object) and an empty attribute-id-list to indicate all attributes.		
		5. 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 on the		

	best.medium QoS bin.
	6. If the agent supports Set-Time, the simulated manager sends a roiv-cmip-confirmed-action with action-type = MDC_ACT_SET_TIME.
	7. The agent shall reply with rors-cmip-confirmed-action with action-type=MDC_ACT_SET_TIME on the best.medium QoS bin.
	8. Make the agent send at least one measurement on the best.medium QoS bin.
	9. The simulated manager sends an Association Release Request (Rlrq) message to the agent under test, with reason =0 (normal).
	10. The agent under test shall respond with an Association Release Response (Rlre) message with reason =0 (normal) on the best.medium QoS bin.
Pass/Fail criteria	The agent under test issues all responses on the best.medium QoS bin as defined by the steps above.
Notes	

Bibliography

[b-CDG 1.0]   Continua Health Alliance, Continua Design Guidelines v1.0
                            (2008), *Continua Design Guidelines*.

[b-CDG 2010]   Continua Health Alliance, Continua Design Guidelines v1.5
                            (2010), *Continua Design Guidelines*.

[b-CDG 2011]   Continua Health Alliance, Continua Design Guidelines
                            (2011), "Adrenaline", *Continua Design Guidelines*.

[b-CDG 2012]   Continua Health Alliance, Continua Design Guidelines
                            (2012), "Catalyst", *Continua Design Guidelines*.

[b-ETSI 300 406]   ETSI ETS 300 406, *Methods for Testing and Specifications
                            (MTS); Protocol and profile conformance testing
                            specifications; Standardization methodology*.

[b-ETSI SR 001 262]   ETSI SR 001 262 v1.8.1 (2003-12), *ETSI drafting rules*.

[b-ISO/IEC 9646-1]   ISO/IEC 9646-1:1994, *Information Technology – Open
                            Systems Interconnection – Conformance testing methodology
                            and framework – Part 1: General concepts*.

[b-ISO/IEC 9646-7]   ISO/IEC 9646-7:1995, *Information technology – Open
                            Systems Interconnection – Conformance testing methodology
                            and framework – Part 7: Implementation Conformance
                            Statements*.

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