Continua Interoperability Test Suite

Interoperability Test Procedures

PAN Managers and Agents, WAN Observation Senders and Receivers

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Baseline

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INTRODUCTION

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About Continua Health Alliance

The Continua Health Alliance is a collaborative industry organization dedicated to bringing together standards and diverse technology. Its mission is to establish an ecosystem of interoperable personal health systems that empower people and organizations to better manage their health and wellness. This vision relies on the interoperability between components, systems, and subsystems incorporated within these health systems.

Continua's Test and Certification program is designed to ensure that Continua certified products will interoperate when connected in a personal health system. The culmination of this program is the granting of a Continua Certification Logo to compliant devices. Continua plans to begin this certification as early as possible.

Scope

The scope of this document is to provide Interoperability Test procedures for manual testing of Continua devices based on the requirements defined in Continua Design Guidelines. The objective of this test specification is to provide a high probability of interoperability between different devices by running through normal behaviors expected for the device type with previously certified devices.

Applicable documents and references

[ISO/IEC 9646-1]	ISO/IEC 9646-1: “Information Technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts”
ISO/IEC 9646-7	ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements"
[ETS 300 406]	ETSI ETS 300 406: “Methods for Testing and Specifications (MTS); Protocol and profile conformance testing specifications; Standardization methodology”
[ETSI SR 001 262]	ETSI SR 001 262 v1.8.1 (2003-12): ETSI drafting rules
[IEEE 11073-20601]	IEEE Std 11073-20601™ - 2008. Optimized exchange protocol
[IEEE 11073-20601A]	IEEE P11073-20601A / D31. Optimized exchange protocol
[IEEE 11073-10415]	IEEE Std 11073-10415™ - 2008. Weighing scale
[IEEE 11073-10417]	IEEE Std 11073-10417™ - 2009. Glucose meter
[IEEE 11073-10404]	IEEE Std 11073-10404™ - 2008. Pulse Oximeter
[IEEE 11073-10407]	IEEE Std 11073-10407™ - 2008. Blood pressure monitor
[IEEE 11073-10408]	IEEE Std 11073-10408™ - 2008. Thermometer
[IEEE 11073-10421]	IEEE P11073-10421™/D11. Peak Flow
[IEEE 11073-10419]	IEEE P11073-10419™ /D7. Insulin Pump

[IEEE 11073-10441]	IEEE Std 11073-10441™ - 2008. Cardiovascular
[IEEE 11073-10442]	IEEE Std 11073-10442™ - 2008. Strength
[IEEE 11073-10471]	IEEE Std 11073-10471™ - 2009. Activity Hub
[IEEE 11073-10472]	IEEE Std 11073-10472™ - 2010. Adherence Monitor
[USB PHDC]	USB Personal Healthcare Device Class v1.0 plus February 15, 2008 errata
[BT HDP]	Bluetooth Health Device Profile and Multi-Channel Adaptation Protocol. Version 1.0
[Continua DG]	Continua Design Guidelines v1.5. April 2010.
[Basic Profile]	WS-I Basic Profile Version 1.1
[Basic Security Profile]	WS-I Basic Security Profile Version 1.0
[Reliable Messaging]	Web Services Reliable Messaging Version 1.1
[IHE PCD-01]	IHE PCD Technical Framework Vol2: Transactions. August 8, 2010.
[IHE-ITI-TF 2x – App.V]	IHE IT Infrastructure Technical Framework, Volume 2x Revision 6.0: Appendix V
[HL7 Message]	HL7® Messaging Standard Version 2.6
[RFC 3195]	Reliable Delivery for syslog. IETF. November 2001
[RFC 3164]	BSD syslog Protocol. IETF. August 2001
[RFC 3881]	Security Audit and Access Accountability Message XML
[TCRL]	Test Case Reference List v1.0
[TI]	Continua_1.5_WAN Testable items excel sheet v0.2
[Sender PICS & PIXIT]	WAN Sender_1.5_PICS and PIXIT excel sheet v0.3

Special Word Usage

The key words “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “MAY”, “MAY NOT” in this document are to be interpreted as in Continua Design Guidelines Version 1.0 August 11, 2008 paragraph 3.3.1 and [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

Revision History

VERSION	DATE	REVISION HISTORY
V1.0	2010-04-20	- First official release
D1.1	2010-11-05	- Interim draft release (adding WAN TPs)
D1.5	2010-12-21	- Finalized WAN TPs for Release
V1.5	2010-12-21	- Second official release (TCWG Approval)
V1.5r06	2011-11-11	- Revision approved in TCWG F2F Singapore

TEST PROCEDURES

TP Definition Conventions

The Test Purposes are defined according to the following rules:

- **TP Id:** It is a unique identifier (IOP/<GR>/<SGR>/<XX> – <NNN>). It is specified according to the naming convention defined below:
  - Each Interoperability Test Purpose Identifier is introduced by the prefix "IOP".
  - <GR> identifies a group of test cases. Valid groups are: PAN and WAN.
  - <SGR> identifies a subgroup of test cases
  - <XX> identifies the type of testing
    - BV: Valid Behavior Test
    - BI: Invalid Behavior Test
  - <NNN> is a sequential number that identifies test purpose
- **TP Label:** It is TP's title.
- **Initial Condition:** indicates the DUT state to which the TP is applied.
- **Test Procedure:** describes the steps to be followed in order to execute the test case
- **Pass/Fail Criteria:** describes criteria to decide whether the DUT passes or fails the test case.
- **Notes:** includes additional optional information provided to the TP reader.

OVERVIEW

This document contains the Interoperability Test Suite developed for use by Continua members in verifying real world interoperability during a Plugfest and during the certification of a Continua device. It is organized by functionality within a device to test the PM Store, Scanner and temporary measurements.

Depending on the nature of the two devices executing the procedures defined below, some devices may find it difficult or impossible to perform. In this case, a best effort will be made to execute as much of the procedures as possible and the rest will be skipped.

The test purposes shown as Optional are not required for certification but are strongly recommended to be run within a Plugfest and when performing self-testing.

PAN-IF Functional Test Purposes

The following test procedures document a process that starts by having an application which is controlling a manager issue a request to enter the *Unassociated* state defined within Figure 10 of ISO/IEEE Std 11073-20601 (Manager State Machine Diagram). If the application does not have explicit control over this process it should use a power on sequence to reach this state.

General Procedures - PAN

TP ID		IOP/PAN/GEN/BV-001 (Single Device Connection)
TP Label/Suite		Basic Interoperability test: Single Agent connection to a Manager
Coverage	Spec	IEEE 11073-20601, Section 8.1
	Compliance Classifier	Mandatory
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that Agent and Manager can connect and send a single measurement.
Applicability		All devices.
Initial Condition		Manager and Agent are disconnected and powered off.
Test Procedure		1. Power on the Manager and Agent. 2. Establish a transport link by physically connecting (USB) or initiating pairing and connecting (via Bluetooth or Zigbee). 3. Wait for Manager and Agent to perform Association and Configuration to move to the Operating State. 4. Send a data measurement from the Agent to the Manager. 5. Verify on the Manager that the Agent's data appears. 6. Disconnect Agent to the Manager properly.
Pass/Fail Criteria		In step 5, Agent's data appears on the Manager, if applicable. In step 6, Agent and Manager appear to be in the disconnected state.

TP ID		IOP/PAN/GEN/BV-002 (Unexpected Disconnection)
TP Label/Suite		Basic Interoperability test: Bluetooth Link Loss, USB Unplug
Coverage	Spec	Design Guideline, Section 1.1
	Compliance	Optional

	Classifier	
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that a manager and agent can gracefully recover from a physical loss of the transport link of Bluetooth, Zigbee or USB and send data properly after re-establishment.
Applicability		
Initial Condition		Manager and Agent are disconnected and powered off..
Test Procedure		1. Power on the Manager and Agent. 2. Establish a transport link by physically connecting (USB) or initiating pairing and connecting (Bluetooth or Zigbee). 3. Wait for the Manager and Agent to perform Association and Configuration to move to the Operating State. 4. Unplug the USB physical transport or disrupt the Bluetooth transport. a. For Bluetooth, disruption can be done by moving Agent out of range of Manager or by putting it in a RF shielding box. 5. Verify that the Agent and Manager transition to the disconnected state. 6. Reestablish a transport link connection back between Agent and Manager 7. Wait for the Manager and Agent to perform Association and Configuration to move to the Operating State. 8. Send a data measurement from the Agent to the Manager. 9. Verify on the Manager that the Agent's data appears. 10. Disconnect Agent to the Manager properly.
Pass/Fail Criteria		In step 5, Manager and Agent appear to be in disconnected state, but remain responsive (i.e. does not crash). In step 6, transport link connection is able to be re-established. In step 9, data appears on the Manager.

TP ID		**IOP/PAN/GEN/BV-003 (Unexpected Power Off)**
TP Label/Suite		Basic Interoperability test: Power off
Coverage	Spec	Design Guideline, Section 1.1
	Compliance Classifier	Optional
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that a manager and agent can gracefully recover from the loss of an associated device.

Applicability	All devices.
Initial Condition	Manager and Agent are disconnected and powered off..
Test Procedure	1. Power on the Manager and Agent. 2. Establish a transport link by physically connecting (USB) or initiating pairing and connecting (Bluetooth). 3. Wait for the Manager and Agent to perform Association and Configuration to move to the Operating State. 4. Abruptly power off the Agent. a. This may require physically unplugging the USB device or removing the battery without properly powering down. The purpose is to cause the Agent to disappear without initiating any shutdown procedure. 5. Verify that Manager transition to the disconnected state. 6. Power on the Agent. Re-establish transport link. 7. Wait for the Manager and Agent to perform Association and Configuration to move to the Operating State. 8. Send a data measurement from the Agent to the Manager. 9. Verify on the Manager that the Agent's data appears. 10. Abruptly power off the Manager. 11. Verify that Agent transition to the disconnected state. 12. Power on the Manager. Re-establish transport link. 13. Wait for the Manager and Agent to perform Association and Configuration to move to the Operating State. 14. Send a data measurement from the Agent to the Manager. 15. Verify on the Manager that the Agent's data appears.
Pass/Fail Criteria	In step 5, Manager appears to transition to the disconnected state, but is still responsive. In step 9, Agent's data appears on the Manager. In step 11, Agent appears to transition to the disconnected state, but is still responsive. In step 15, Agent's data appears on the Manager.

TP ID		**IOP/PAN/GEN/BV-004 (Multiple Device Connection)**
TP Label/Suite		Multiple Device Connections: Multiple Agent Connections
Coverage	Spec	IEEE 11073-20601, Section 8.1
	Compliance Classifier	Mandatory if manager supports multiple devices.
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that if a Manager supports connecting multiple Agents either through the same interface or multiple interfaces (Bluetooth, Zigbee and USB) and that the data

	from multiple Agents is separately checked in the manager correctly. Activities on one connection do not interrupt data collection on the other interface.
Applicability	All devices.
Initial Condition	Manager and two Agents are disconnected and powered off.
Test Procedure	Scenario 1 (verify data from two Agents to Manager) 1. Power on the Manager and two Agents. 2. Establish a transport link between Agent 1 and the Manager by physically connecting (USB) or initiating pairing and connecting (Bluetooth). 3. Send a data measurement from Agent1 to the Manager. 4. Verify on the Manager that Agent1's data appears. 5. Establish a transport link between Agent2 and the Manager by physically connecting (USB) or initiating pairing and connecting (Bluetooth). 6. Send a data measurement from Agent2 to the Manager. 7. Verify on the Manager that Agent2's data appears. 8. Repeat steps 3-6 once more. Scenario 2 (verify order of Agent connection to Manager) 9. Power off the Manager and two Agents from scenario 1 above. 10. Power on the Manager and two Agents. 11. Establish a transport link between two Agents and the Manager by physically connecting (USB) or initiating pairing and connecting (Bluetooth or Zigbee). 12. Send a data measurement from Agent1 to the Manager. 13. Send a data measurement from Agent2 to the Manager. 14. Verify on the Manager the order of data received from Agent1 and Agent2. 15. Repeat steps 12-14 once more.
Pass/Fail Criteria	In step 4, Agent1's data appears on the manager and is properly associated with Agent1. In step 6, Agent2's data appears on the manager and is properly associated with Agent2. In step 14, Agent1's data appears first on the Manager and Agent2's data appears second.
	If different transports, Test lab may need to verify via trace facility whether or not the order is correct via Agent1 and Agent2.

Temporary Measurements - PAN

TP ID		**IOP/PAN/TM/BV-001 (Temp. stored measurements)**
TP Label/Suite		Basic Interoperability test: Temporarily stored measurements, single device connection.
Coverage	Spec	IEEE 11073-20601 7.4.7 Temporary stored measurements
	Compliance	Mandatory for Managers. For Agents this is optional.

	Classifier	
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that an Agent can establish a connection to a Manager for sending temporarily stored measurements in Agent's local memory.
Applicability		Agent supports temporary stored measurements.
Initial Condition		Manager and Agent are disconnected and powered off.
Test Procedure		1. Power on Agent. Leave the Manager powered off. 2. Take from one to five personal health measurements on the device (For example, if the device is a blood pressure monitor, take the user's blood pressure five times.). 3. Power on Manager 4. Establish a transport link by physically connecting (USB) or initiating pairing and connecting (Bluetooth or Zibee). 5. Wait for Manager and Agent to perform Association and Configuration to move to the Operating State. 6. If necessary, perform manual steps on Manager or Agent to ensure stored data is transferred from Agent to Manager. 7. Verify on the Manager that the all transmitted data from the Agent appears.
Pass/Fail Criteria		In step 7, Agent's data appears on the Manager.

PM Store - PAN

TP ID		**IOP/PAN/PM/BV-001**
TP Label/Suite		Basic Interoperability test: PM-Store for long term storage
Coverage	Spec	IEEE 11073-20601 6.3.7.1 General
	Compliance Classifier	Mandatory
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that an Agent can send persistently stored measurements in Agent's PM-Store when requested by Manager.
Applicability		Agent supports PM-Store as indicated by PICS and Agent provides a mechanism for enabling use of PM-Store.

	Manager supports PM-Store as indicated by PICS and Manager provides a mechanism for enabling use of PM-Store.
Initial Condition	Manager and Agent are disconnected and powered off.
Test Procedure	1. Power on Agent. Leave the Manager powered off. 2. Take five personal health measurements on the device (For example, if the device is a pulse oximeter, ensure at least five oxygen saturation readings are taken.). 3. Power on Manager. 4. Establish a transport link by physically connecting (USB) or initiating pairing and connecting (Bluetooth). 5. Wait for Manager and Agent to perform Association and Configuration to move to the Operating State. 6. If necessary, perform manual steps on Manager and/or Agent to ensure stored data is transferred from Agent to Manager. 7. Verify on the Manager that the all transmitted data from the Agent appears.
Pass/Fail Criteria	In step 7, Agent's data requested by Manager appears on the Manager.

Scanner - PAN

TP ID		IOP/PAN/SC/BV-001
TP Label/Suite		Basic Interoperability test: Scanner for Periodic or Episodic data
Coverage	Spec	IEEE 11073-20601 6.3.9 Scanner Classes
	Compliance Classifier	Mandatory
	Test Track	Foundation
	Device Type	Manager, Agent
Test Purpose		The purpose of this test is to verify that an Agent can send Scanner reports.
Applicability		Agent supports Scanners and Agent provides a mechanism for enabling use of Scanners. Manager supports Scanners and Manager provides a mechanism for enabling use of Scanners.
Initial Condition		Manager and Agent are disconnected and powered off..
Test Procedure		1. Power on the Manager and Agent. 2. Establish a transport link by physically connecting (USB) or

	initiating pairing and connecting (Bluetooth). 3. Wait for Manager and Agent to perform Association and Configuration to move to the Operating State 4. If necessary, perform manual step on Agent and Manager to enable Scanner functionality such that the Manager will enable the Agent's Scanner. 5. Verify on the Manager that the transmitted data from the Agent appears.
Pass/Fail Criteria	In step 5, Agent's data appears on the Manager.

WAN-IF Functional Test Purposes

The following WAN-IF test procedures document a process that starts by having an application, the WAN Sender, which typically resides on an Application Hosting Device (AHD) and is responsible for sending the appropriate HL7 messaging representing the desired measurements taken. The WAN Sender then transmits the measurements to a WAN Device (WD), the WAN Receiver, which typically resides on a WAN Hosting Server and is responsible for receiving and handling the desired measurements and performing any further and more intelligent processes.

General Procedures - WAN

TP ID		**IOP/WAN/GEN/BV-001 (Single Device Connection)**
TP Label/Suite		Basic Interoperability test: Single Sender connection to Receiver
Coverage	Spec	IEEE 11073-20601, Section 8.1
	Compliance Classifier	Mandatory
	Test Track	Foundation
	Device Type	WAN Sender, Receiver
Test Purpose		The purpose of this test is to verify that a Sender and Receiver can connect and send a single measurement.
Applicability		All WAN devices.
Initial Condition		Sender and Receiver are disconnected. Receiver has a Web Service enabled and Sender is ready to send a data measurement.
Test Procedure		1. Connect the Sender and the Receiver. 2. Send a data measurement via WAN transport, configured for the desired service(s), from the Sender to the Receiver. 3. Verify on the Receiver that the Sender's data appears. 4. Disconnect Sender from the Receiver.
Pass/Fail Criteria		In step 2, Sender's data appears on the Receiver, if applicable. In step 4, Sender and Receiver appear to be in the disconnected state.
Notes		As the WAN Sender may support a reduced set of device specializations, the above test purpose shall be repeated for WAN Senders sending a PCD-01 message for each device specializations supported (Test Operator shall repeat the Test Procedure execution sending a data from different device specializations supported by WAN Sender).

Batch Measurements - WAN

TP ID		**IOP/WAN/BM/BV-001 (batch measurements)**
TP Label/Suite		Basic Interoperability test: Batch measurements, single device connection.
Coverage	Spec	IEEE 11073-20601 7.4.7 Batch measurements
	Compliance Classifier	Mandatory
	Test Track	Foundation
	Device Type	Sender, Receiver
Test Purpose		The purpose of this test is to verify that an Sender can establish a connection to a Receiver and transmit a batch of observations in Sender's local memory to the Receiver
Applicability		Sender supports storing data and sending in batch mode.
Initial Condition		Sender and Receiver are disconnected. Receiver has a Web Service enabled and Sender is ready to send data.
Test Procedure		1. Gather a collection of personal health measurements (greater than one and less than twenty) on the Sender. 2. Connect the Sender and Receiver. 3. If necessary perform manual steps on the Sender or the Receiver to ensure all stored data is transferred from Sender to Receiver. 4. Verify on the Receiver that the all transmitted data from the Sender appears.
Pass/Fail Criteria		In step 4, all of Sender's data appears on the Receiver.
Notes		As the WAN Sender may support a reduced set of device specializations, the above test purpose shall be repeated for WAN Senders sending a PCD-01 message for each device specializations supported (Test Operator shall repeat the Test Procedure execution sending a data from different device specializations supported by WAN Sender).

Continuous Measurements - WAN

TP ID		IOP/WAN/CM/BV-001
TP Label/Suite		Basic Interoperability test: Continuous Flow of Measurements
Coverage	Spec	IEEE 11073-20601 6.3.7.1 General
	Compliance Classifier	Mandatory
	Test Track	Foundation
	Device Type	Sender, Receiver
Test Purpose		The purpose of this test is to verify that a Sender can send a continuous, uninterrupted flow of data when requested by Receiver.
Applicability		Sender supports streaming data as indicated by PICS Receiver supports receiving streaming data as indicated by PICS
Initial Condition		Sender and Receiver are disconnected. Receiver has a WebService enabled and Sender is ready to send a data measurement.
Test Procedure		1. Connect the Sender and Receiver. 2. If necessary, perform manual steps on Sender and/or Receiver to begin the flow of streaming data from Sender to Receiver. 3. Continue to stream data for up to five minutes. 4. Verify on the Receiver that the all transferred data from the Sender appears.
Pass/Fail Criteria		In step 4, all Sender's data requested by Receiver appears on the Receiver.
Notes		As the WAN Sender may support a reduced set of device specializations, the above test purpose shall be repeated for WAN Senders sending a PCD-01 message for each device specializations supported (Test Operator shall repeat the Test Procedure execution sending a data from different device specializations supported by WAN Sender).

Multiple Connections – WAN Receivers

TP ID		IOP/WAN/RMC/BV-001
TP Label/Suite		Basic Interoperability test: WAN Receiver: Multiple Connections
Coverage	Spec	IEEE 11073-20601

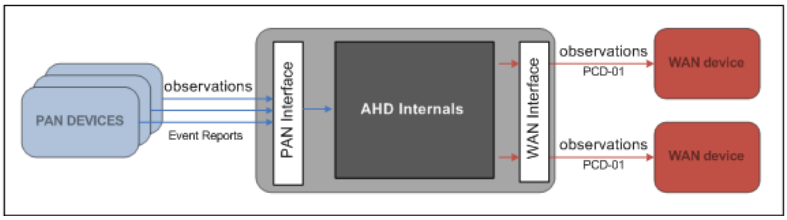
	Compliance Classifier	Mandatory for Receivers
	Test Track	Foundation
	Device Type	Receiver
Test Purpose		The purpose of this test is to verify that a WAN Receiver can connect and receive data from multiple WAN Senders.
Applicability		WAN Receiver. Receiver provides a mechanism for supporting either Single, Batch or continuous measurements.
Initial Condition		Senders and Receiver are disconnected. Receiver has a Web Service enabled and two or more Senders are ready to send data measurements.
Test Procedure		1. Connect the first Sender to the Receiver under test. 2. If necessary perform manual steps on the Sender and Receiver to enable sending data measurements 3. Send the measurement data via WAN transport, configured for the desired service(s), from the Sender to the Receiver. 4. Verify on the Receiver that the transferred data from the Sender appears. 5. Repeat the steps above using the next sender. Both the first and subsequent senders shall be working simultaneously.
Pass/Fail Criteria		In step 5, the WAN Receiver shall be able to manage multiple connections simultaneously and continuously. Each Sender is identified correctly on the WAN Receiver and each Senders data appears correctly on the Receiver.

Appendix: Future WAN TPs

1. **PAN device to check Mapping Function (Transcoding) in WAN IOP Test Configuration:** WAN Sender collects the measurement data from PAN devices (Agent) and then send its measurement to WAN Receiver. Transcoding function can be checked at the same time with the transferred data by comparing PAN Agent data to WAN Receiver data (mapping correctly from the IEEE 11073-xx to the Continua WAN(PCD-01) according to Continua Design Guideline).

   The Continua WAN Interface requires that all connections be initiated from the WAN Observation Sender Device. This one would apply if we have a WAN Sender that is also a PAN Manager. Suggested to call this an E2E IOP test, and one of the pre-conditions is that the PAN Agent, PAN Manager, WAN Sender, and WAN Receiver all have at least one device specialization in common. As there are currently not E2E data integrity requirements within the DG there is no need to check this right now. Note also that transcoder testing is not tested within the Continua Test Tool. The test tool checks that logging is recorded but not the transcoder. In the future, if E2E integrity requirements this can be added to the test tool as well as an interoperability test to verify PAN to WAN measurements or integrity is consistent.

2. **Multi Device Cases across AHDs (PAN Agents, WAN Devices):** The following scenarios suggested:



   a. Verify Single Measurement for Single PAN Agent, Single AHD (WAN Sender) and Single WAN device.

   b. Verify a single PCD-01 transaction message can contain observations from more than one device, e.g., multiple PAN Agents (Different Devices), single AHD (WAN Sender) and a single WAN device. This is done by ensuring the devices each have a unique MDS number (within the message).

   c. Verify multiple PAN Agents (Different Devices), Single AHD (WAN Sender) and two WAN devices. For example, WAN sender can transfer a different user's measurement data to the different web server.

Appendix: Glossary

Acronyms

ACRONYM	DEFINITION
DUT	Device Under Test
ETS	Executable Test Suite
GUI	Graphical User Interface
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
IXIT	Implementation eXtra Information for Testing
MDS	Medical Device System
OSI	Open Systems Interconnection
PAN	Personal Area Network
PCT	Protocol Conformance Testing
PHD	Personal Healthcare Device
PHDC	Personal Healthcare Device Class
PHM	Personal Health Manager
SDP	Service Discovery 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