International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

H.846

(04/2017)

SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

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

Conformance of ITU-T H.810 personal health system: Personal Health Devices interface Part 6: Personal Health Gateway

Recommendation ITU-T H.846

ITU-T

ITU International Telecommunication Union

ITU-T H-SERIES RECOMMENDATIONS

AUDIOVISUAL AND MULTIMEDIA SYSTEMS

CHARACTERISTICS OF VISUAL TELEPHONE SYSTEMS	H.100–H.199
INFRASTRUCTURE OF AUDIOVISUAL SERVICES	
General	H.200–H.219
Transmission multiplexing and synchronization	H.220–H.229
Systems aspects	H.230–H.239
Communication procedures	H.240–H.259
Coding of moving video	H.260–H.279
Related systems aspects	H.280–H.299
Systems and terminal equipment for audiovisual services	H.300–H.349
Directory services architecture for audiovisual and multimedia services	H.350–H.359
Quality of service architecture for audiovisual and multimedia services	H.360–H.369
Telepresence	H.420–H.429
Supplementary services for multimedia	H.450–H.499
MOBILITY AND COLLABORATION PROCEDURES	
Overview of Mobility and Collaboration, definitions, protocols and procedures	H.500–H.509
Mobility for H-Series multimedia systems and services	H.510–H.519
Mobile multimedia collaboration applications and services	H.520–H.529
Security for mobile multimedia systems and services	H.530–H.539
Security for mobile multimedia collaboration applications and services	H.540–H.549
Mobility interworking procedures	H.550–H.559
Mobile multimedia collaboration inter-working procedures	H.560–H.569
BROADBAND, TRIPLE-PLAY AND ADVANCED MULTIMEDIA SERVICES	
Broadband multimedia services over VDSL	H.610–H.619
Advanced multimedia services and applications	H.620–H.629
Ubiquitous sensor network applications and Internet of Things	H.640–H.649
IPTV MULTIMEDIA SERVICES AND APPLICATIONS FOR IPTV	
General aspects	H.700–H.719
IPTV terminal devices	H.720–H.729
IPTV middleware	H.730–H.739
IPTV application event handling	H.740–H.749
IPTV metadata	H.750–H.759
IPTV multimedia application frameworks	H.760–H.769
IPTV service discovery up to consumption	H.770–H.779
Digital Signage	H.780–H.789
E-HEALTH MULTIMEDIA SERVICES AND APPLICATIONS	
Personal health systems	H.810–H.819
Interoperability compliance testing of personal health systems (HRN, PAN, LAN, TAN and WAN)	**H.820–H.859**
Multimedia e-health data exchange services	H.860–H.869

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

Recommendation ITU-T H.846

Conformance of ITU-T H.810 personal health system: Personal Health Devices interface Part 6: Personal Health Gateway

Summary

Recommendation ITU-T H.846 provides a test suite structure (TSS) and the test purposes (TP) for Personal Health Gateways in the Personal Health Devices (PHD) interface, based on the requirements defined in the Recommendations of the ITU-T H.810 sub-series, of which Recommendation ITU-T H.810 (2016) is the base Recommendation. The objective of this test specification is to provide a high probability of interoperability at this interface.

Recommendation ITU-T H.846 is a transposition of Continua Test Tool DG2016, Test Suite Structure & Test Purposes, Personal Health Devices Interface; Part 6: Device Specializations. Personal Health Gateway (Version 1.9, 2016-09-20), that was developed by the Personal Connected Health Alliance. A number of versions of this specification existed before transposition.

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

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T H.846	2015-01-13	16	11.1002/1000/12275
2.0	ITU-T H.846	2016-07-14	16	11.1002/1000/12953
3.0	ITU-T H.846	2017-04-29	16	11.1002/1000/13233

Keywords

Conformance testing, Continua Design Guidelines, e-health, IEEE 11073 device specialization, ITU-T H.810, personal area network, personal connected health devices, Personal Health Devices interface, Personal Health Gateway, touch area network.

---

* 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

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

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

Table of Contents

Page

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

Introduction

This Recommendation is a transposition of Continua Test Tool DG2016, Test Suite Structure & Test Purposes, Personal Health Devices Interface; Part 6: Device Specializations. Personal Health Gateway (Version 1.9, 2016-09-20), that was developed by the Personal Connected Health Alliance. The table below shows the revision history of this test specification; it may contain versions that existed before transposition.

Version	Date	Revision history
1.4	2012-10-05	Initial release for Test Tool DG2011. It uses "TSS&TP_1.5_PAN-LAN_ PART_6_v1.3.doc" as a baseline and adds the following maintenance bugs fixes: • TP/PLT/MAN/CLASS/AM/BV-032: Modified according to bug report 874 • TP/PLT/MAN/CLASS/PF/BV-013: Modified according to bug report 875
1.5	2013-05-24	Initial release for Test Tool DG2012. It uses "TSS&TP_DG2011_PAN-LAN_PART_6_v1.4.doc" as a baseline and adds new features included in [b-CDG 2012]: • Adds Glucose Meter new spec version • Adds Body Composition Analyser Device Specialization • Adds Basic Electrocardiograph Device Specialization
1.6	2014-01-24	Initial release for Test Tool DG2013. It uses "TSS&TP_DG2012_PAN-LAN_PART_6_v1.5.doc" as a baseline and adds new features included in [ITU-T H.810 (2013)]/[b-CDG 2013]: • Adds BLE Glucose Meter • Adds BLE SSP support • Adds NFC new transport • Adds INR Device Specialization
1.7	2014-04-24	TM Lite & Doc Enhancements (Test Tool v4.0 Maintenance Release 1). It uses "TSS&TP_DG2013_PLT_PART_6_v1.6.doc" as a baseline and adds new features included in Documentation Enhancements: • "Other PICS" row has been added
1.8	2015-07-01	Initial release for Test Tool DG2015. It uses "TSS&TP_DG2013_PLT_ PART_6_v1.7.doc" as a baseline and adds new features included in [ITU-T H.810 (2015)]/[b-CDG 2015]
1.9	2016-09-20	Initial release for Test Tool DG2016. It uses "TSS&TP_DG2015_PLT_ PART_6_v1.8.doc" as a baseline and adds new features included in [ITU-T H.810 (2016)]/[b-CDG 2016]

Recommendation ITU-T H.846

Conformance of ITU-T H.810 personal health system: Personal Health Devices interface Part 6: Personal Health Gateway

1 Scope

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

The TSS and TP for the Personal Health Devices interface have been divided into the parts specified below. This Recommendation covers Part 6.

– Part 1: Optimized exchange protocol. Personal Health Device

– Part 2: Optimized exchange protocol. Personal Health Gateway

– Part 3: Continua design guidelines. Personal Health Device

– Part 4: Continua design guidelines. Personal Health Gateway

– Part 5: Device specializations. Personal Health Devices interface. This document is divided into the following subparts:

  - Part 5A: Weighing scales
  - Part 5B: Glucose meter
  - Part 5C: Pulse oximeter
  - Part 5D: Blood pressure monitor
  - Part 5E: Thermometer
  - Part 5F: Cardiovascular fitness and activity monitor
  - Part 5G: Strength fitness equipment
  - Part 5H: Independent living activity hub
  - Part 5I: Adherence monitor
  - Part 5J: Insulin pump
  - Part 5K: Peak expiratory flow monitor
  - Part 5L: Body composition analyser
  - Part 5M: Basic electrocardiograph
  - Part 5N: International normalized ratio monitor
  - Part 5O: Sleep apnoea breathing therapy equipment (SABTE)
  - Part 5P: Continuous glucose monitor (CGM)

---

[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.

– **Part 6: Device specializations. Personal Health Gateway**
– Part 7: Continua Design Guidelines. BLE Personal Health Device
– Part 8: Continua Design Guidelines. BLE Personal Health Gateway
– Part 9: Personal Health Devices Transcoding Whitepaper. Personal Health Devices
– Part 10: Personal Health Devices Transcoding Whitepaper. Personal Health Gateway

2 References

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

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

[ISO/IEEE 11073-10404] ISO/IEEE 11073-10404:2010, *Health informatics – Personal health device communication – Part 10404: Device specialization – Pulse oximeter.*
https://www.iso.org/standard/54572.html

[ISO/IEEE 11073-10406] ISO/IEEE 11073-10406-2012, *Health informatics – Personal health device communication – Part 10406: Device specialization – Basic electrocardiograph (ECG) (1- to 3-lead ECG).*
https://www.iso.org/standard/61876.html

[ISO/IEEE 11073-10407] ISO/IEEE 11073-10407:2010, *Health informatics – Personal health device communication – Part 10407: Device specialization – Blood pressure monitor, version 1.0.*
http://www.iso.org/standard/54573.html

[ISO/IEEE 11073-10408] ISO/IEEE 11073-10408:2010, *Health informatics – Personal health device communication – Part 10408: Device specialization – Thermometer.*
https://www.iso.org/standard/54309.html

[ISO/IEEE 11073-10415] ISO/IEEE 11073-10415:2010, *Health informatics – Personal health device communication – Part 10415: Device specialization – Weighing scale.*
https://www.iso.org/standard/54310.html

[ISO/IEEE 11073-10417] ISO/IEEE 11073-10417:2014, *Health informatics – Personal health device communication – Part 10417: Device specialization – Glucose meter.*
https://www.iso.org/standard/61896.html

[ISO/IEEE 11073-10418C] ISO/IEEE 11073-10418-2014, *Health informatics – Personal health device communication – Part 10418: Device specialization – International Normalized Ratio (INR) monitor*, including ISO/IEEE 11073-10418:2014/Cor 1:2016.
https://www.iso.org/standard/61897.html with
https://www.iso.org/standard/70740.html

[ISO/IEEE 11073-10419] ISO/IEEE 11073-10419:2016, *Health informatics – Personal health device communication – Part 10419: Device specialization – Insulin pump*.
https://www.iso.org/standard/69528.html

[ISO/IEEE 11073-10420] ISO/IEEE 11073-10420-2012, *Health informatics – Personal health device communication – Part 10420: Device specialization – Body composition analyzer*.
https://www.iso.org/standard/61055.html

[ISO/IEEE 11073-10421] ISO/IEEE 11073-10421:2012, *Health informatics – Personal health device communication – Part 10421: Device specialization – Peak expiratory flow monitor (peak flow).*
https://www.iso.org/standard/61056.html

[ISO/IEEE 11073-10424] ISO/IEEE 11073-10424:2016, *Health informatics – Personal health device communication – Part 10424: Device specialization – Sleep apnoea breathing therapy equipment (SABTE)*. https://www.iso.org/standard/68906.html
NOTE – equivalent to IEEE 11073-10424-2014, *Health informatics – Personal health device communication – Part 10424: Device Specialization – Sleep Apnoea Breathing Therapy Equipment (SABTE).*
http://dx.doi.org/10.1109/IEEESTD.2014.6911927

[ISO/IEEE 11073-10425] ISO/IEEE 11073-10425:2016, *Health informatics – Personal health device communication - Part 10425: Device specialization – Continuous glucose monitor (CGM).*
https://www.iso.org/standard/67821.html

[ISO/IEEE 11073-10441] ISO/IEEE 11073-10441-2015, *Health informatics – Personal Health Device Communication – Part 10441: Device Specialization – Cardiovascular Fitness and Activity Monitor*, (Revision of IEEE Std 11073-10441-2008).
https://www.iso.org/standard/64868.html

[ISO/IEEE 11073-104xx] ISO/IEEE 11073-104xx (in force), *Health informatics – Personal health device communication – Device specialization*.
NOTE – This is shorthand to refer to the collection of device specialization standards that utilize [ISO/IEEE 11073-20601-2015A], where xx can be any number from 01 to 99, inclusive.

[ISO/IEEE 11073-10442] ISO/IEEE 11073-10442:2015, *Health informatics – Personal health device communication – Part 10442: Device specialization – Strength fitness equipment.*
http://standards.ieee.org/findstds/standard/11073-10442-2008.html

[ISO/IEEE 11073-10471] ISO/IEEE 11073-10471:2010, *Health informatics – Personal health device communication – Part 10471: Device specialization – Independent living activity hub.*
https://www.iso.org/standard/54328.html

[ISO/IEEE 11073-10472] ISO/IEEE 11073-10472:2012, *Health informatics – Personal health device communication – Part 10472: Device specialization – Medication monitor*.
https://www.iso.org/standard/54364.html

[ISO/IEEE 11073-20601-2015A] 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. https://www.iso.org/standard/54331.html with https://www.iso.org/standard/63972.html
[ISO/IEEE 11073-20601-2016C]	ISO/IEEE 11073-20601:2016, *Health informatics – Personal health device communication – Part 20601: Application profile – Optimized exchange protocol*, including ISO/IEEE 11073-20601:2016/Cor.1:2016. https://www.iso.org/standard/=66717.html with https://www.iso.org/standard/71886.html

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

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

3.1.2 manager [ISO/IEEE 11073-20601-2016C]: A node receiving data from one or more agent systems. Some examples of managers include a cellular phone, health appliance, set top box, or a computer system.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATS	Abstract Test Suite
BPM	Blood pressure monitor
CDG	Continua Design Guidelines
CGM	Continuous Glucose Monitor
DUT	Device Under Test
GUI	Graphical User Interface
INR	International Normalized Ratio
IP	Insulin Pump
IUT	Implementation Under Test
MAP	Mean arterial pressure
MDS	Medical Device System
NaN	Not a number
NFC	Near Field Communication
NRes	Not at this resolution
PAN	Personal Area Network
PCO	Point of Control and Observation

PCT Protocol Conformance Testing

PHD Personal Health Device

PHDC Personal Healthcare Device Class

PHG Personal Health Gateway

PICS Protocol Implementation Conformance Statement

PIXIT Protocol Implementation extra Information for Testing

SABTE Sleep Apnoea Breathing Therapy Equipment

SCR Static Conformance Review

SDP Service Discovery Protocol

SOAP Simple Object Access Protocol

TCRL Test Case Reference List

TCWG Test and Certification Working Group

TP Test Purpose

TSS Test Suite Structure

UI User interface

USB Universal Serial Bus

WDM Windows Driver Model

5 Conventions

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

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

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

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

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

– MAY is equivalent to "is permitted".

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

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

In this document, "0x" denotes a number in hexadecimal format and a B after a number enclosed by single quotation marks (e.g. '0100'B) denotes a number in binary format. INT-Ux is used to denote an unsigned integer number with x bits (e.g. INT-U16 is an unsigned integer with 16 bits).

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

6 Test suite structure (TSS)

The test purposes (TPs) for the Personal Health Devices interface have been divided into the main subgroups specified below. Annex A describes the TPs for subgroups 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.3.7, 2.3.8, 2.3.9, 2.3.10, 2.3.11, 2.3.12, 2.3.13, 2.3.14, 2.3.15 and 2.3.16 (shown in bold).

– Group 1: Personal Health Device (PHD)
  - Group 1.1: Transport (TR)

- Subgroup 1.1.1: Design guidelines: Common (DGC)
- Subgroup 1.1.2: USB design guidelines (UDG)
- Subgroup 1.1.3: Bluetooth design guidelines (BDG)
- Subgroup 1.1.4: Pulse oximeter design guidelines (PODG)
- Subgroup 1.1.5: Cardiovascular design guidelines (CVDG)
- Subgroup 1.1.6: Activity hub design guidelines (HUBDG)
- Subgroup 1.1.7: ZigBee design guidelines (ZDG)
- Subgroup 1.1.8: Glucose meter design guidelines (GLDG)
- Subgroup 1.1.9: Bluetooth low energy design guidelines (BLEDG)
- Subgroup 1.1.10: Basic electrocardiograph design guidelines (ECGDG)
- Subgroup 1.1.11: NFC design guidelines (NDG)

- Group 1.2: IEEE 20601 Optimized exchange protocol (OXP)
  - Subgroup 1.2.1: PHD domain information model (DIM)
  - Subgroup 1.2.2: PHD service model (SER)
  - Subgroup 1.2.3: PHD communication model (COM)
- Group 1.3: Devices class specializations (CLASS)
  - Subgroup 1.3.1: Weighing scales (WEG)
  - Subgroup 1.3.2: Glucose meter (GL)
  - Subgroup 1.3.3: Pulse oximeter (PO)
  - Subgroup 1.3.4: Blood pressure monitor (BPM)
  - Subgroup 1.3.5: Thermometer (TH)
  - Subgroup 1.3.6: Cardiovascular (CV)
  - Subgroup 1.3.7: Strength (ST)
  - Subgroup 1.3.8: Activity hub (HUB)
  - Subgroup 1.3.9: Adherence monitor (AM)
  - Subgroup 1.3.10: Insulin pump (IP)
  - Subgroup 1.3.11: Peak flow (PF)
  - Subgroup 1.3.12: Body composition analyser (BCA)
  - Subgroup 1.3.13: Basic electrocardiograph (ECG)
  - Subgroup 1.3.14: International normalized ratio (INR)
  - Subgroup 1.3.15: Sleep apnoea breathing therapy equipment (SABTE)
  - Subgroup 1.3.16: Continuous glucose monitor (CGM)
- Group 1.4: Personal health device transcoding whitepaper (PHDTW)
  - Subgroup 1.4.1: Whitepaper general requirements (GEN)
  - Subgroup 1.4.2: Whitepaper thermometer requirements (TH)
  - Subgroup 1.4.3: Whitepaper blood pressure requirements (BPM)
  - Subgroup 1.4.4: Whitepaper heart rate requirements (HR)
  - Subgroup 1.4.5: Whitepaper glucose meter requirements (GL)
  - Subgroup 1.4.6: Whitepaper weight scale requirements (WS)
  - Subgroup 1.4.7: Whitepaper pulse oximeter requirements (PLX)
  - Subgroup 1.4.8: Whitepaper continuous glucose monitoring requirements (CGM)

– Group 2: Personal Health Gateway (PHG)
  - Group 2.1: Transport (TR)
    - Subgroup 2.1.1: Design guidelines: Common (DGC)
    - Subgroup 2.1.2: USB design guidelines (UDG)
    - Subgroup 2.1.3: Bluetooth design guidelines (BDG)
    - Subgroup 2.1.4: Cardiovascular design guidelines (CVDG)
    - Subgroup 2.1.5: Activity hub design guidelines (HUBDG)
    - Subgroup 2.1.6: ZigBee design guidelines (ZDG)
    - Subgroup 2.1.7: Bluetooth low energy design guidelines (BLEDG)
    - Subgroup 2.1.8: NFC design guidelines (NDG)
  - Group 2.2: IEEE 20601 Optimized exchange protocol (OXP)
    - Subgroup 2.2.1: General (GEN)
    - Subgroup 2.2.2: PHD domain information model (DIM)
    - Subgroup 2.2.3: PHD service model (SER)
    - Subgroup 2.2.4: PHD communication model (COM)
  - 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)**
    - **Subgroup 2.3.11: Peak flow (PF)**
    - **Subgroup 2.3.12: Body composition analyser (BCA)**
    - **Subgroup 2.3.13: Basic electrocardiograph (ECG)**
    - **Subgroup 2.3.14: International normalized ratio (INR)**
    - **Subgroup 2.3.15: Sleep apnoea breathing therapy equipment (SABTE)**
    - **Subgroup 2.3.16: Continuous glucose monitor (CGM)**
  - Group 2.4: Personal health device transcoding whitepaper (PHDTW)
    - Subgroup 2.4.1: Whitepaper general requirements (GEN)
    - Subgroup 2.4.2: Whitepaper thermometer requirements (TH)
    - Subgroup 2.4.3: Whitepaper blood pressure requirements (BPM)
    - Subgroup 2.4.4: Whitepaper heart rate requirements (HR)
    - Subgroup 2.4.5: Whitepaper glucose meter requirements (GL)
    - Subgroup 2.4.6: Whitepaper weight scale requirements (WS)
    - Subgroup 2.4.7: Whitepaper pulse oximeter requirements (PLX)
    - Subgroup 2.4.8: Whitepaper continuous glucose monitoring requirements (CGM)

7 Electronic attachment

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

In the electronic attachment, letters "C" and "I" in the column labelled "Mandatory" are used to distinguish between "PICS" and "PIXIT" respectively during testing. If the cell is empty, the corresponding PICS is "independent". If the field contains a "C", the corresponding PICS is dependent on other PICS, and the logical expression is detailed in the "SCR_Expression" field. The static conformance review (SCR) is used in the test tool to assert whether the PICS selection is consistent.

Annex A

Test purposes

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

A.1 TP definition conventions

The test purposes (TPs) are defined according to the following rules:

- **TP Id**: This is a unique identifier (TP/TT>/<DUT>/<GR>/<SGR>/<XX> – <NNN>). It is specified according to the naming convention defined 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.
    - PHD: Personal Health Device
    - PHG: Personal Health Gateway
  - <GR>: This identifies a group of test cases.
  - <SGR>: This identifies a subgroup of test cases.
  - <XX>: This identifies the type of testing.
    - BV: Valid behaviour test
    - BI: Invalid behaviour test
  - <NNN>: This is a sequential number that identifies the test purpose.
- **TP label**: This is the TP's title.
- **Coverage**: This contains the specification reference and clause to be checked by the TP.
  - Spec: This indicates the earliest version of the specification from which the testable items to be checked by the TP were included.
  - Testable item: This contains the testable items to be checked by the TP.
- **Test purpose**: This is a description of the requirements to be tested.
- **Applicability**: This contains the PICS items that define if the test case is applicable or not for a specific device. When a TP contains an "ALL" in this field it means that it applies to the device under test within that scope of the test (specialization, transport used, etc.).
- **Other PICS**: This contains additional PICS items (apart from the PICS specified in the Applicability row) which are used within the test case implementation and can modify the final verdict. When this row is empty, it means that only the PICS specified in the Applicability row are used within the test case implementation.
- **Initial condition**: This indicates the state to which the DUT needs to be moved at the beginning of TC execution.

- **Test procedure**: This describes the steps to be followed in order to execute the test case.
- **Pass/Fail criteria**: This provides criteria to decide whether the DUT passes or fails the test case.

A.2 Subgroup 2.3.1: Weighing scales (WEG)

TP Id		TP/PLT/PHG/CLASS/WEG/BV-001		
TP label		Association procedure PHG WEG		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	Weighing.Association 8;O	Weighing.Association 12;M	Weighing.Association 13;M
		Weighing.Association 14;M	Weighing.Association 15;M	Weighing.Association 16;M
		Weighing.Association 17;M	Weighing.Association 18;M	Weighing.Association 19;M
		Weighing.Association 20;M	Weighing.Association 21;M	Weighing.Association 22;M
		Weighing.Association 23;M		
Test purpose		Check that: Association Response data exchange (data-proto-id, data- proto-info): [data-proto-info field parameters]The Personal Health Gateway (PHG) may use this field (System-Id) to determine the identity of the weighing scale with which it is associating and, optionally, to implement a simple access restriction policy [AND] [association response]: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] [association response]: In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 (i.e. , data-proto-id = 0x5079) [AND] [association response data-proto-info field parameters]: The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] [association response data-proto-info field parameters]: The PHG shall respond with a single selected encoding rule that is supported by both Personal Health Device (PHD) and PHG. [AND] [association response data-proto-info field parameters]: The PHG shall support at least the MDER encoding rules [AND] [association response data-proto-info field parameters]: The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] [association response data-proto-info field parameters]: The field functional-units shall have all bits reset except for those relating to a Test Association [AND] [association response data-proto-info field parameters]: The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] [association response data-proto-info field parameters]: The system-id field shall contain the		

	unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] [association response data-proto-info field parameters]: The field dev-config-id shall be manager-config-response (0) [AND] [association response data-proto-info field parameters]: The field data-req-mode-capab shall be 0 [AND] [association response data-proto-info field parameters]: The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_024
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16449 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0; 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected-unknown,field-value= 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-

	proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version ❑ field- type = Protocol Version ❑ field-length = 4 bytes (BITS-32) ❑ field-value= 0x80 0x00 0x00 0x00 f. encoding-rules ❑ field-type = EncodingRules ❑ field-length = 2 bytes (BITS-16) ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time g. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes (BITS-32) ❑ field-value= Bit 0 must be set (nom-version1) h. functional units ❑ field-type = FunctionalUnits ❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8

	❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 b
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/WEG/BV-002		
TP label		Configuration Event Report. Weighing Scale standard configuration		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4.. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x05 0xDC (Weighing Scales). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x05 0xDC 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message.		

	c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	See bug http://continua.plugfests.com/show_bug.cgi?id= 123

TP Id		TP/PLT/PHG/CLASS/WEG/BV-003		
TP label		Attribute-Value-Map. Order change.		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				

Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Body Weight Object) to reverse the values to: MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_SIMP. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date first followed by a weight value (in kilograms since it is the standard configuration unit code). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS). The weight observation should be a reasonable kilogram weight observation. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes. E.g. if there is a user interface (UI), verify that the measurement and date are displayed properly. • In steps 2, 6 and 12 verify that the PHG under test uses kilograms as the unit-code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/WEG/BV-004		
TP label		Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22;M		

Test purpose	Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS. The PHG accepts the measurements (fixed format event report) and shows them correctly when the unit-code is changed.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_024 AND C_MAN_WEG_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (Body Weight Numeric standard configuration Unit code attribute is set to MDC_DIM_KILO_G)
Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Body Weight Object) to set the values to: MDC_ATTR_NU_VAL_OBS_SIMP, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use pounds MDC_DIM_LB (1760). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_SIMP attribute. 6. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses pounds as the unit-code for the measurement reports.
Notes	

TP Id		TP/PLT/PHG/CLASS/WEG/BV-005		
TP label		Unit-Code. Change from default kilograms to pounds – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 20;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024 AND C_MAN_WEG_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Body Weight Object) to pounds nomenclature code MDC_DIM_LB (1760). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in pounds followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report with an observation in kilograms followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies pounds to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/WEG/BV-005_A		
TP label		Unit-Code. Do not change from default kilograms to pounds – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 20;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024 AND (NOT(C_MAN_WEG_001))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Body Weight Object) to pounds nomenclature code MDC_DIM_LB (1760). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in pounds followed by date and time stamp.		

	4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.
Pass/Fail criteria	• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.
Notes	

TP Id		TP/PLT/PHG/CLASS/WEG/BV-006		
TP label		Unit-Code. Use default kilograms – variable format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 20;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in kilograms. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/WEG/BV-007		
TP label		Unit-Code. Change from default kilograms to pounds – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 20;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024 AND C_MAN_WEG_001		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. Send a confirmed variable format event report to set the unit code to pounds MDC_DIM_LB (1760) for handle 1 (Body Weight Object) and a measurement in pounds 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in pounds (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report with an observation in kilograms followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to kilograms by the standard configuration). 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies pounds to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/WEG/BV-008		
TP label		Maximum APDU size: Weighing Scale		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 858
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(832 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2646 (MDC_ATTR_NU_VAL_OBS_SIMP)`
	`attribute-value: 68`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed format event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/WEG/BV-009		
TP label		Special values. Not a number – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight Object) containing an observation with the value for "not a number" (NaN, [exponent 0, mantissa +(2**23 –1) = 0x007FFFFF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking		

	the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/WEG/BV-010		
TP label		Special values. Not a number – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 27; C		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight Object) containing an observation with the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/WEG/BV-011		
TP label		Special values. Not at this resolution – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight Object) containing an observation with the value for "not at this resolution" (NRes, [exponent 0, mantissa –(2**23) = 0x00800000]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as		

	if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/WEG/BV-012		
TP label		Special values. Not at this resolution – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 27; C		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight Object) containing an observation with the value for NRes ([exponent 0, mantissa – (2**23) = 0x00800000]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/WEG/BV-013		
TP label		Special values. Positive infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 containing an observation with the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 –2) = 0x007FFFFE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/WEG/BV-014		
TP label		Special values. Positive infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 27; C		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight Object) containing an observation with the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 –2) = 0x007FFFFE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/WEG/BV-015		
TP label		Special values. Negative infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight Object) containing an observation with the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 –2) = 0x00800002]) and a time stamp.		

	2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/WEG/BV-016		
TP label		Special values. Negative infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 27; C		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight Object) containing an observation with the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 –2) = 0x00800002]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/WEG/BV-017		
TP label		Special values. Reserved – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 22; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight		

	Object) containing an observation with the value that is reserved (Reserved for future use, [exponent 0, mantissa –(2**23–1) = 0x00800001]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/WEG/BV-018		
TP label		Special values. Reserved – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10415]		
	Testable items	WeightNumClass 27; C		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_024		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight Object) containing an observation with the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**23–1) = 0x00800001]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

A.3 Subgroup 2.3.2: Glucose meter (GL)

TP Id		TP/PLT/PHG/CLASS/GL/BV-000		
TP label		Association procedure PHG GL		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	ManProcAs 1;M	ManProcAs 2;M	ManProcAs 3;M
		ManProcAs 4;M	ManProcAs 5;M	ManProcAs 6;M
		ManProcAs 7;M	ManProcAs 8;M	ManProcAs 9;M
		ManProcAs 10;M	ManProcAs 11;M	ManProcAs 12;M
Test purpose		Check that:		

	The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601. [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16440 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0

	2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected–unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version ❑ field- type = Protocol Version ❑ field-length = 4 bytes (BITS-32) ❑ field-value= 0x80 0x00 0x00 0x00 f. encoding-rules ❑ field-type = EncodingRules ❑ field-length = 2 bytes (BITS-16) ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time g. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes (BITS-32) ❑ field-value= Bit 0 must be set (nom-version1) h. functional units ❑ field-type = FunctionalUnits ❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set

	i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/GL/BV-001		
TP label		Configuration Event Report. Glucose Meter standard configuration 1700		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	ConfProc 4;M	MDSEvents 2;M	ObjAccServ 5;M
	Spec	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field. [AND] A PHG shall support both single-person and multi-person event reports.		

	[AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019
Other PICS	C_MAN_OXP_085
Initial condition	The simulated PHD and the PHG under test are in the Unassociated state. The simulated PHD implements a glucose meter device specialization with standard configuration 1700.
Test procedure	1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x06 0xA4 (Glucose Meter – Std Config 1700). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x06 0xA4 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message

	❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state, the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one Blood Glucose (Capillary Whole blood reference method) measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-001_A		
TP label		Configuration Event Report. Glucose Meter standard configuration 1701		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	ConfProc 4;M	MDSEvents 2;M	ObjAccServ 5;M
	Spec	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field. [AND] A PHG shall support both single-person and multi-person event reports. [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state. The simulated PHD implements a glucose meter device specialization with standard configuration 1701.		

Test procedure	1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x06 0xA5 (Glucose Meter – Std Config 1701). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x06 0xA5 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 Wait until the Operating state is reached in both cases. 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one Blood Glucose (Undetermined

	plasma reference method) measurement and other fixed event report with Control Solution measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-002		
TP label		Maximum APDU size: Glucose Meter without PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10417]		
	Testable items	ComChar 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 5080
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(5056 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 100`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed format event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-002_A		
TP label		Maximum APDU size: Glucose Meter with PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10417]		
	Testable items	ComChar 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_OXP_003		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		
Test procedure		1. The simulated PHD sends a Confirmed variable event report:		

	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 64472
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(64448 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 80`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed format event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-003		
TP label		Blood Glucose Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Blood Glucose Object) to reverse the values to: MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC.		

	4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date first followed by a blood glucose value (in mg/dL since it is the standard configuration unit code). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS). The observation should be a reasonable mg/dL blood glucose observation. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses mg/dL as the unit code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-004		
TP label		Blood Glucose Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_GL_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (Blood Glucose Numeric standard configuration Unit code attribute is set to MDC_DIM_MILLI_G_PER_DL)		

Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Blood Glucose Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use MDC_DIM_MILLI_MOLE_PER_L (4722). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC attribute. 6. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses mmol/L as the unit code for the measurement reports.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-005		
TP label		Blood Glucose Unit-Code. Change from default mg/dL to mmol/L – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 8;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_GL_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Blood Glucose Object) to mmol/L nomenclature code MDC_DIM_MILLI_MOLE_PER_L (4722). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in mmol/L followed by date and time stamp.		

	4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report with an observation in mg/dL followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies mmol/L to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies mg/dL to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-005_A		
TP label		Blood Glucose Unit-Code. Do not change from default mg/dL to mmol/L – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 8;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019 AND (NOT(C_MAN_GL_001))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Blood Glucose Object) to mmol/L nomenclature code MDC_DIM_MILLI_MOLE_PER_L (4722). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in mmol/L followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.		

Pass/Fail criteria	• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-006		
TP label		Blood Glucose Unit-Code. Use default mg/dL – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 8;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in mg/dL. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies mg/dL to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/GL/BV-007		
TP label		Blood Glucose Unit-Code. Change from default mg/dL to mmol/L – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 8;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL [AND]		

	Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_GL_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. Send a confirmed variable format event report to set the unit code to mmol/L MDC_DIM_MILLI_MOLE_PER_L (4722) for handle 1 (Blood Glucose Object) and a measurement in mmol/L. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in mmol/L (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report with an observation in mg/dL followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to mg/dL by the standard configuration). 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies mmol/L to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies mg/dL to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-008		
TP label		Special values. Not a number – fixed format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				

Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Blood Glucose Object) containing an observation value with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-009		
TP label		Special values. Not a number – variable format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 20; M		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or by blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-010		
TP label		Special values. Not at this resolution – fixed format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		

Other PICS		
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes		This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-011		
TP label		Special values. Not at this resolution – variable format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 20; M		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI,, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-012		
TP label		Special values. Positive infinity – fixed format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-013		
TP label		Special values. Positive infinity – variable format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 20; M		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-014		
TP label		Special values. Negative infinity – fixed format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		

Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-015		
TP label		Special values. Negative infinity – variable format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 20; M		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-016		
TP label		Special values. Reserved – fixed format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 10; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not		

	use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-017		
TP label		Special values. Reserved – variable format (Std Config 1700)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	BloodGL 20; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1700.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Blood Glucose Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-018		
TP label		Control Solution Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8;M		

Test purpose	Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_ABS
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a Control Solution confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Control Solution Object) to reverse the values to: MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date first followed by a control solution value (in mg/dL since it is the standard configuration unit code). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS). The observation should be a reasonable mg/dL blood glucose observation. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses mg/dL as the unit code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-019		
TP label		Control Solution Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_GL_002		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (Control Solution Numeric standard configuration Unit code attribute is set to MDC_DIM_MILLI_G_PER_DL).		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Control Solution Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use MDC_DIM_MILLI_MOLE_PER_L (4722). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC attribute. 6. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses mmol/L as the unit code for the measurement reports.		
Notes				

TP Id		TP/PLT/PHG/CLASS/GL/BV-020		
TP label		Control Solution Unit-Code. Change from default mg/dL to mmol/L – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 6;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		

Test purpose	Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_GL_002
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 2 (Control Solution Object) to mmol/L nomenclature code MDC_DIM_MILLI_MOLE_PER_L (4722). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in mmol/L followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report with an observation in mg/dL followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies mmol/L to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies mg/dL to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-021		
TP label		Control Solution Unit-Code. Do not change from default mg/dL to mmol/L – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 6;M		

Test purpose	Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019 AND (NOT(C_MAN_GL_002))
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 2 (Control Solution Object) to mmol/L nomenclature code MDC_DIM_MILLI_MOLE_PER_L (4722). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in mmol/L followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.
Pass/Fail criteria	• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-022		
TP label		Control Solution Unit-Code. Use default mg/dL – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 6;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in mg/dL. 2. The simulated PHD waits until it receives a confirmation.		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data properly and applies mg/dL to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-023		
TP label		Control Solution Unit-Code. Change from default mg/dL to mmol/L – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 6;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019 AND C_MAN_GL_002		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report to set the unit code to mmol/L MDC_DIM_MILLI_MOLE_PER_L (4722) for handle 2 (Control Solution Object) and a measurement in mmol/L. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in mmol/L (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report with an observation in mg/dL followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to mg/dL by the standard configuration). 10. The simulated PHD waits until it receives a confirmation.		

Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies mmol/L to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies mg/dL to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/GL/BV-024		
TP label		Special values. Not a number – fixed format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Solution Object) containing an observation value with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-025		
TP label		Special values. Not a number – variable format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 12; M		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		

Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Solution Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-026		
TP label		Special values. Not at this resolution – fixed format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Solution Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-027		
TP label		Special values. Not at this resolution – variable format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 12; M		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		

Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Solution Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-028		
TP label		Special values. Positive infinity – fixed format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Solution Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-029		
TP label		Special values. Positive infinity – variable format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 12; M		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				

Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Solution Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-030		
TP label		Special values. Negative infinity – fixed format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Solution Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-031		
TP label		Special values. Negative infinity – variable format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 12; M		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Solution Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/GL/BV-032		
TP label		Special values. Reserved – fixed format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 8; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_019		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Solution Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/GL/BV-033		
TP label		Special values. Reserved – variable format (Std Config 1701)		
Coverage	**Spec**	[ISO/IEEE 11073-10417]		
	Testable items	CtrlSol 12; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		

Applicability	C_MAN_OXP_000 AND C_MAN_OXP_019
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Solution Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

A.4 Subgroup 2.3.3: Pulse oximeter (PO)

TP Id		TP/PLT/PHG/CLASS/PO/BV-003		
TP label		Association procedure PHG PO		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	PulseAssocResp 1;M	PulseAssocResp 2;M	PulseAssocResp 5;M
		PulseAssocResp 6;M	PulseAssocResp 7;M	PulseAssocResp 8;M
		PulseAssocResp 9;M	PulseAssocResp 10;M	PulseAssocResp 11;M
Test purpose		Check that: In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 (i.e. , data-proto-id = 0x5079) [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the field functional-units shall have all bits reset except for those relating to a Test Association [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the system-id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the field dev-config-id shall be manager-config-response		

	[AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the field data-req-mode-capab-flags shall be 0 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_026
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16443 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected–unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes

- field-value= 0x50 0x79 (20601)

e. protocol-version
   - field- type = Protocol Version
   - field-length = 4 bytes (BITS-32)
   - field-value= 0x80 0x00 0x00 0x00

f. encoding-rules
   - field-type = EncodingRules
   - field-length = 2 bytes (BITS-16)
   - field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version
   - field- type = NomenclatureVersion
   - field-length = 4 bytes (BITS-32)
   - field-value= Bit 0 must be set (nom-version1)

h. functional units
   - field-type = FunctionalUnits
   - field-length = 4 bytes (BITS-32)
   - field-value =
     - Bit 0 must be 0
     - Bits 1 and 2 may be set
     - The rest of the bits must not be set

i. system type
   - field- type = SystemType
   - field-length = 4 bytes (BITS-32)
   - field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

j. system-id
   - field- type = OCTET STRING
   - field-length = 8 bytes
   - field-value = (EUI-64 manufacturer and device)

k. dev-config-id
   - field- type = ConfigId
   - field-length = 2 bytes
   - field-value = 0x00 0x00 (manager-config-response)

l. data-req-mode-flags (DataReqModeCapab)
   - field- type = DataReqModeFlags
   - field-length = 2 bytes
   - field-value = 0x00 0x00
   - PHG response to data-req-mode-flags is always 0.

m. data-req-init-agent-count (DataReqModeCapab)
   - field- type = INT-U8
   - field-length = 1 byte
   - field-value = 0x00

n. data-req-init-manager-count (DataReqModeCapab)
   - field- type = INT-U8

	❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/PO/BV-004		
TP label		Configuration Event Report. Pulse Oximeter standard configuration 400		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x01 0x90 (PulseOximeter). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x01 0x90. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00		

	d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	See http://continua.plugfests.com/show_bug.cgi?id= 123

TP Id		TP/PLT/PHG/CLASS/PO/BV-005		
TP label		Configuration Event Report. Pulse Oximeter standard configuration 401		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more)of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-		

	id set to 0x01 0x91 (PulseOximeter). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x01 0x91. 4. The PHG under test must respond with: b. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) c. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. d. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 e. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX f. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG g. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config".

	• The measurement is correctly presented.
Notes	See http://continua.plugfests.com/show_bug.cgi?id= 123

TP Id		TP/PLT/PHG/CLASS/PO/BV-006		
TP label		Maximum APDU size: Pulse Oximeter		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		

Test purpose	Check that: If a PHG receives APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitiations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_026
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 5080
	`ObservationScan ::= {`
	`obj-handle: 1 (SPO2)`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(5056 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1 (SPO2)`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 98`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/PO/BV-007		
TP label		Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 11;M		
Test purpose		Check that: For [Standard-Configuration] [Attribute-Value-Map] attribute must be present and with value MDC_ATTR_NU_VAL_OBS_BASIC		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 0x190.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (SpO_2 Object) to set the values to: MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC. For handle 10 (Pulse Rate Object), set the attribute value map to: MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. 4. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 4, verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past).		
Notes				

TP Id		TP/PLT/PHG/CLASS/PO/BV-008		
TP label		Unit-Code. Use default % and beats per minute (BPM) – variable format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 10;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] [Unit-Code] value is MDC_DIM_PERCENT [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only]		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 0x190.
Test procedure	1. Send a confirmed variable format event report for handle 1 using a measurement in % and for handle 10 using a measurement in BPM. 2. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data properly and applies % and BPM to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/PO/BV-009		
TP label		Supplemental-Type: SpO_2 — Standard configuration 0x191		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	Spo2StandConf 1;C		
Test purpose		Check that: For SpO2 numeric Object the and for Dev-Configuration-Id to 0x191 the Supplemental-Types attribute shall contain a single entry in its SupplementalTypeList, and its value shall be MDC_MODALITY_SPOT.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 0x191.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report from handle 1 (SpO_2 Object) that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		In step 2. Verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes and Supplemental-Type for Object with handle 1 is MDC_MODALITY_SPOT (e.g. if there is a UI, verify that the measurement and date are displayed properly).		
Notes				

TP Id		TP/PLT/PHG/CLASS/PO/BV-010		
TP label		Supplemental-Type: Pulse Rate— Standard configuration 0x191		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	PulseRateStandConf 1;C		
Test purpose		Check that: For Pulse Rate numeric Object the and for Dev-Configuration-Id to 0x191 the Supplemental-Types attribute shall contain a single entry in its SupplementalTypeList, and its value shall be		

	MDC_MODALITY_SPOT.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_026
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 0x191.
Test procedure	1. Simulated PHD sends a confirmed fixed format event report from handle 10 (Pulse Rate Object) that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC. 2. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	In step 2. Verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes and Supplemental-Type for Object with handle 10 is MDC_MODALITY_SPOT (e.g. if there is a UI, verify that the measurement and date are displayed properly).
Notes	

TP Id		TP/PLT/PHG/CLASS/PO/BV-011		
TP label		Special values. Not a number – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 11; M	PulseRateNumObjAttr 28; M	
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PO/BV-012		
TP label		Special values. Not a number – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 16; C	PulseRateNumObjAttr 33; C	

Test purpose	Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_026
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PO/BV-013		
TP label		Special values. Not at this resolution – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 11; M	PulseRateNumObjAttr 28; M	
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PO/BV-014		
TP label		Special values. Not at this resolution – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 16; C	PulseRateNumObjAttr 33; C	

Test purpose	Check that: The PHG receives NRes value (variable format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_026
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PO/BV-015		
TP label		Special values. Positive infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 11; M	PulseRateNumObjAttr 28; M	
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PO/BV-016		
TP label		Special values. Positive infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 16; C	PulseRateNumObjAttr 33; C	

Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026
Other PICS		
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes		This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PO/BV-017		
TP label		Special values. Negative infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 11; M	PulseRateNumObjAttr 28; M	
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PO/BV-018
TP label		Special values. Negative infinity – variable format
Coverage	**Spec**	[ISO/IEEE 11073-10404]

	Testable items	SpO2NumObjAttr 16; C	PulseRateNumObjAttr 33; C	
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PO/BV-019		
TP label		Special values. Reserved – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 11; M	PulseRateNumObjAttr 28; M	
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id	TP/PLT/PHG/CLASS/PO/BV-020
TP label	Special values. Reserved – variable format

Coverage	**Spec**	[ISO/IEEE 11073-10404]		
	Testable items	SpO2NumObjAttr 16; C	PulseRateNumObjAttr 33; C	
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_026		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (SpO_2 Object) and handle 10 (Pulse Rate Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

A.5 Subgroup 2.3.4: Blood pressure monitor (BPM)

TP Id		TP/PLT/PHG/CLASS/BPM/BV-000		
TP label		Association procedure PHG BPM		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	ConfProc_4;M	AsProc_14;M	AsProc_15;M
		AsProc_16;M	AsProc_17;M	AsProc_18;M
		AsProc_19;M	AsProc_20;M	AsProc_21;M
		AsProc_22;M	AsProc_23;M	AsProc_24;M
		AsProc_25;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field (see Table 3). [AND] In the association response message sent by the PHG: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND]		

	The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_020
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16437 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result

- ❑ field- type = AssociateResult
- ❑ field-length = 2 bytes
- ❑ field-value = One of the following:
  - If association is accepted, field-value= 0x00 0x00.
  - If association is rejected-permanent, field-value= 0x00 0x01.
  - If association is rejected-transient, field-value= 0x00 0x02.
  - If association is accepted-unknown-config, field-value= 0x00 0x03.
  - If association is rejected-no-common-protocol, field-value= 0x00 0x04.
  - If association is rejected-no-common-parameter, field-value= 0x00 0x05.
  - If association is rejected–unknown = 0x00 0x06.
  - If association is rejected-unauthorized, field-value= 0x00 0x07.
  - If association is rejected-unsupported-assoc-version, field-value= 0x00 0x08.

c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id))

d. data-proto-id
- ❑ field- type = DataProtoId
- ❑ field-length = 2 bytes
- ❑ field-value= 0x50 0x79 (20601)

e. protocol-version
- ❑ field- type = Protocol Version
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value= 0x80 0x00 0x00 0x00

f. encoding-rules
- ❑ field-type = EncodingRules
- ❑ field-length = 2 bytes (BITS-16)
- ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version
- ❑ field- type = NomenclatureVersion
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value= Bit 0 must be set (nom-version1)

h. functional units
- ❑ field-type = FunctionalUnits
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value =
  - Bit 0 must be 0
  - Bits 1 and 2 may be set
  - The rest of the bits must not be set

i. system type
- ❑ field- type = SystemType
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

j. system-id
- ❑ field- type = OCTET STRING

	❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/BPM/BV-001		
TP label		Configuration Event Report. Blood Pressure Meter standard configuration		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	MDSEvents 8;M		
	Spec	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A blood pressure monitor PHG shall respond to an [MDS-Configuration-Event] using a [Confirmed] event report response. The Response shall include the event-reply-info [ConfigReportRsp] [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		

Other PICS	C_MAN_OXP_085
Initial condition	The simulated PHD and the PHG under test are in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x02 0xBC (Blood Pressure Meter). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x02 0xBC 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in Operating state the PHG is forced to enable the scanner object.

	Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement with: ❑ event_type = MDC_NOTI_SCAN_REPORT_FIXED ❑ event_info = ScanReportInfoFixed ▪ obs_scan_fixed: Sys-Diast-MAP 120-90-100 mmHg and pulse rate 60 BPM
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	See bug http://continua.plugfests.com/show_bug.cgi?id= 123

TP Id		TP/PLT/PHG/CLASS/BPM/BV-003		
TP label		Attribute-Value-Map. Order change.		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_23;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present.The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report with a report from handle 1 (Non-invasive blood pressure) that matches the Attribute-Value-Map order of MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, MDC_ATTR_TIME_STAMP_ABS and handle 2 (pulse) that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_TIME_STAMP_ABS 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 to reverse the values to: MDC_ATTR_TIME_STAMP_ABS, then MDC_MDC_ATTR_NU_CMPD_VAL_OBS_BASIC and to reverse handle 2 values to: MDC_ATTR_TIME_STAMP_ABS, MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with handle 1 values set to the date first followed by blood pressure values (in millimetres of mercury (MDC_DIM_MMHG) since it is the standard configuration unit code) and handle 2 values set to the date first followed by pulse rate (in beats per minute (MDC_DIM_BEAT_PER_MIN)). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then		

	• The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report for handles 1 and 2 following the standard configuration attribute-value-format (MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, MDC_ATTR_TIME_STAMP_ABS) and (MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_TIME_STAMP_ABS), respectively. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). If the PHG only displays the values from handle 1 (non-invasive blood pressure) that is fine since the specification implies that PHD s nor PHG have to support (pulse) but the pulse object must be there in the standard configuration. • In steps 2, 6 and 12 verify that the PHG under test uses millimetres of mercury as the unit code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past).
Notes	• This may require the simulated PHD to provide a proper date-and-time attribute in the MDS object. • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.

TP Id		TP/PLT/PHG/CLASS/BPM/BV-004		
TP label		Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_23;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present. The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020 AND C_MAN_BPM_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (Non-invasive blood pressure Compound Numeric standard configuration Unit code attribute is set to millimetres of mercury (MDC_DIM_MMHG)).		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Non-invasive blood pressure) to set the values to: MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. For handle 2 (pulse), set the attribute value map to: MDC_ATTR_MSMT_STAT, MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute of handle 1, use MDC_DIM_KILO_PASCAL (3843), for handle 2, use		

	MDC_DIM_BEAT_PER_MIN (2720). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with handle 1 reporting just a MDC_ATTR_NU_CMPD_VAL_OBS_BASIC attribute and handle 2 just a MDC_ATTR_NU_VAL_OBS_BASIC. 6. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses kilopascals and beats per minute as the unit codes for the measurement reports.
Notes	

TP Id		TP/PLT/PHG/CLASS/BPM/BV-005		
TP label		Unit-Code. Change from default millimetres of mercury (mmHg) to kilopascals (kPa) – fixed format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_21;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MMHG [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020 AND C_MAN_BPM_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (non-invasive blood pressure) to kPa nomenclature code MDC_DIM_KILO_PASCAL (3843). NOTE – No need to change handle 2 (pulse), since the only option is beats/minute. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report for handle 1 using a measurement in kPa (e.g., 16 kPa is 120 mmHg and 10 kPa is 80 mmHg) followed by date and time stamp and for handle 2 using a measurement in beats per minute followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal).		

	6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report for handle 1 using a measurement in mmHg followed by date and time stamp and for handle 2 using a measurement in beats per minute followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies kPa and BPM to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies mmHg and BPM to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BPM/BV-005_A		
TP label		Unit-Code. Do not change from default millimetres of mercury (mmHg) to kilopascals (kPa) – fixed format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_21;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MMHG		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020 AND (NOT(C_MAN_BPM_001))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (non-invasive blood pressure) to kPa nomenclature code MDC_DIM_KILO_PASCAL (3843). NOTE – No need to change handle 2 (pulse), since the only option is beats/minute. 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report for handle 1 using a measurement in kPa (e.g., 16 kPa is 120 mmHg and 10 kPa is 80 mmHg) followed by date and time stamp and for handle 2 using a measurement in beats per minute followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.		

Pass/Fail criteria	• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.
Notes	

TP Id		TP/PLT/PHG/CLASS/BPM/BV-006		
TP label		Unit-Code. Use default millimetres of mercury (mmHg) and beats per minute (BPM) – variable format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_21;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MMHG		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report for handle 1 using a measurement in mmHg and for handle 2 using a measurement in BPM. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies mmHg and BPM to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/BPM/BV-007		
TP label		Unit-Code. Change from default millimetres of mercury (mmHg) to kilopascals (kPa) – variable format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_21;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		

Test purpose	Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MMHG [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_020 AND C_MAN_BPM_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. Send a confirmed variable format event report to set the unit code to kPa MDC_DIM_KILO_PASCAL (3843) for handle 1 (non-invasive blood pressure) and a measurement in kPa. For handle 2, set the unit code to beats per minute MDC_DIM_BEAT_PER_MIN (2720) and a BPM measurement value. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in kPa and beats/min (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report for handle 1 with an observation in mmHg (i.e., do not send the unit-code attribute it should be set to mmHg by the standard configuration). For handle 2, use an observation of BPM. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies kPa and BPM to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies mmHg and BPM to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BPM/BV-008		
TP label		Metric-id-list. Standard configuration		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_17;M		

Test purpose	Check that: For [Standard-Configuration] the [Metric-Id-List] attribute shall be present. The value of the [Metric-Id-List] attribute shall be MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, then MDC_PRESS_BLD_NONINV_MEAN.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_020
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (non-invasive blood pressure object) containing an observation with the compound field values (SFLOAT) set to (120.0, 80.0, 93.3) and for handle 2 containing an observation (SFLOAT) of 60.0. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data and applies the data properly as systolic = 120.0, diastolic = 80.0, mean arterial pressure (MAP) = 93.3, and pulse = 60.0.
Notes	If there are no other tests for various different FLOAT and SFLOAT values, the values above at least help cover the negative exponent values (e.g. 120.0 is 0xF4B0 as the SFLOAT).

TP Id		TP/PLT/PHG/CLASS/BPM/BV-009		
TP label		Metric-id-list. Id order change – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_17;M		
Test purpose		Check that: For [Standard-Configuration] the [Metric-Id-List] attribute shall be present. The value of the [Metric-Id-List] attribute shall be MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, then MDC_PRESS_BLD_NONINV_MEAN.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (non-invasive blood pressure object) setting MDC_ATTR_ID_PHYSIO_LIST to (MDC_PRESS_BLD_NONINV_MEAN, MDC_PRESS_BLD_NONINV_SYS, then MDC_PRESS_BLD_NONINV_DIA). 2. The simulated PHD sends a confirmed fixed event report for handle 1 containing an observation with the compound field values (SFLOAT) set to (106.6, 140.0, 90.0) along with a known time stamp, and Pulse Rate of 60 BPM along with a known time stamp. 3. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly as systolic = 140.0, diastolic = 90.0, MAP = 106.6.		
Notes				

TP Id		TP/PLT/PHG/CLASS/BPM/BV-010		
TP label		Metric-id-list. Id order change – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_17;M		
Test purpose		Check that: For [Standard-Configuration] the [Metric-Id-List] attribute shall be present. The value of the [Metric-Id-List] attribute shall be MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, then MDC_PRESS_BLD_NONINV_MEAN.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (non-invasive blood pressure object) setting MDC_ATTR_ID_PHYSIO_LIST to (MDC_PRESS_BLD_NONINV_DIA, MDC_PRESS_BLD_NONINV_MEAN, then MDC_PRESS_BLD_NONINV_SYS) in the first observation scan. In a second observation scan, for handle 1 set the compound field values (SFLOAT) to (74.0, 86.0, 110.0) along with a known time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly as systolic = 110.0, diastolic = 74.0, MAP = 86.0.		
Notes				

TP Id		TP/PLT/PHG/CLASS/BPM/BV-011		
TP label		Metric-id-list. Reduced ids – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_17;M		
Test purpose		Check that: For [Standard-Configuration] the [Metric-Id-List] attribute shall be present. The value of the [Metric-Id-List] attribute shall be MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, then MDC_PRESS_BLD_NONINV_MEAN.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (non-invasive blood pressure object) setting MDC_ATTR_METRIC_STRUCT_SMALL to {ms-struct-compound-fix, 2}, MDC_ATTR_ID_PHYSIO_LIST to (MDC_PRESS_BLD_NONINV_SYS, then MDC_PRESS_BLD_NONINV_DIA) and MDC_ATTR_ATTRIBUTE_VAL_MAP to {MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, 8, MDC_ATTR_TIME_STAMP_ABS, 8}. 2. The simulated PHD sends a confirmed fixed event report for handle 1 containing an		

	observation with the compound field values (SFLOAT) set to (135.5, 86.3) along with a known time stamp. 3. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly as systolic = 135.5, diastolic = 86.3.
Notes	

TP Id		TP/PLT/PHG/CLASS/BPM/BV-012		
TP label		Metric-id-list. Reduced ids – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_17;M		
Test purpose		Check that: For [Standard-Configuration] the [Metric-Id-List] attribute shall be present. The value of the [Metric-Id-List] attribute shall be MDC_PRESS_BLD_NONINV_SYS, MDC_PRESS_BLD_NONINV_DIA, then MDC_PRESS_BLD_NONINV_MEAN.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (non-invasive blood pressure object) setting MDC_ATTR_METRIC_STRUCT_SMALL to {ms-struct-compound-fix, 2} and MDC_ATTR_ID_PHYSIO_LIST to (MDC_PRESS_BLD_NONINV_DIA, then MDC_PRESS_BLD_NONINV_SYS). 2. The simulated PHD waits until it receives a confirmation from the PHG under test. 3. The simulated PHD sends a confirmed variable event report for handle 1 containing an observation with the compound field values (SFLOAT) set to (150.0, 95.0) along with a known time stamp. 4. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly as systolic = 150.0, diastolic = 95.0.		
Notes				

TP Id		TP/PLT/PHG/CLASS/BPM/BV-013		
TP label		Maximum APDU size: Blood Pressure Meter		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A]		
	Testable items	CommonCharac 4;M		

Test purpose	Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitiations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_020
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 856
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(824 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2677 (MDC_ATTR_NU_CMPD_VAL_OBS_BASIC)`
	`attribute-value: (130 / 85 / 100)`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/BPM/BV-014		
TP label		Special values. Not a number – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_23; M	PulsRat_22; M	
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BPM/BV-015		
TP label		Special values. Not a number – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_45; C	PulsRat_42; M	
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BPM/BV-016		
TP label		Special values. Not at this resolution – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_23; M	PulsRat_22; M	
Test purpose		Check that:		

	The PHG receives NRes value (fixed format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_020
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate) containing all observation values set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BPM/BV-017		
TP label		Special values. Not at this resolution – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_45; C	PulsRat_42; M	
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BPM/BV-018		
TP label		Special values. Positive infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_23; M	PulsRat_22; M	

Test purpose	Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_020
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BPM/BV-019		
TP label		Special values. Positive infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_45; C	PulsRat_42; M	
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BPM/BV-020
TP label		Special values. Negative infinity – fixed format
Coverage	**Spec**	[ISO/IEEE 11073-10407]

	Testable items	SystDiast_23; M	PulsRat_22; M	
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BPM/BV-021		
TP label		Special values. Negative infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_45; C	PulsRat_42; M	
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate) containing all observation values set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BPM/BV-022		
TP label		Special values. Reserved – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_23; M	PulsRat_22; M	
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate) containing all observation values set to the value for reserved (Reserved for future use, [exponent 0, mantissa -(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BPM/BV-023		
TP label		Special values. Reserved – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10407]		
	Testable items	SystDiast_45; C	PulsRat_42; M	
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_020		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Systolic/Diastolic/MAP Object) and handle 2 (Pulse Rate Object) containing all observation values set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a		

	measurement).
Notes	This test case has been considered as an implicit test case.

A.6 Subgroup 2.3.5: Thermometer (TH)

TP Id		TP/PLT/PHG/CLASS/TH/BV-003		
TP label		Association procedure PHG TH		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	TH_CM_Assoc10 ;M	TH_CM_Assoc14 ;M	TH_CM_Assoc15 ;M
		TH_CM_Assoc16 ;M	TH_CM_Assoc17 ;M	TH_CM_Assoc18 ;M
		TH_CM_Assoc19 ;M	TH_CM_Assoc20 ;M	
Test purpose		Check that: The PHG may use this field to determine the identity of the thermometer with which it is associating and, optionally, to implement a simple access restriction policy [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The fields data-req-mode-capab, data-req-init-agent, data-req-init-manager-count shall be 0. If the PHD supports only the thermometer specialization data-req-init-agent-count shall be 1.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The PHG is in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B		

- ❑ dev-config-id = 16447
- ❑ data-rep-mode-capab =
  - data_req_mode_flags= '0000000000000001'B
  - data_req_init_agent_count = 1
  - data_req_init_manager_count = 0
- ❑ option-list.length= 0

2. The PHG under test sends an association response. The fields of interest are:
   a. APDU Type
      - ❑ field-length = 2 bytes
      - ❑ field-value = 0xE3 0x00 (AareApdu)
   b. Result
      - ❑ field- type = AssociateResult
      - ❑ field-length = 2 bytes
      - ❑ field-value = One of the following:
        - If association is accepted, field-value= 0x00 0x00.
        - If association is rejected-permanent, field-value= 0x00 0x01.
        - If association is rejected-transient, field-value= 0x00 0x02.
        - If association is accepted-unknown-config, field-value= 0x00 0x03.
        - If association is rejected-no-common-protocol, field-value= 0x00 0x04.
        - If association is rejected-no-common-parameter, field-value= 0x00 0x05.
        - If association is rejected–unknown = 0x00 0x06.
        - If association is rejected-unauthorized, field-value= 0x00 0x07.
        - If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08.
   c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id))
   d. data-proto-id
      - ❑ field- type = DataProtoId
      - ❑ field-length = 2 bytes
      - ❑ field-value= 0x50 0x79 (20601)
   e. protocol-version
      - ❑ field- type = Protocol Version
      - ❑ field-length = 4 bytes (BITS-32)
      - ❑ field-value= 0x80 0x00 0x00 0x00
   f. encoding-rules
      - ❑ field-type = EncodingRules
      - ❑ field-length = 2 bytes (BITS-16)
      - ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time
   g. nomenclature version
      - ❑ field- type = NomenclatureVersion
      - ❑ field-length = 4 bytes (BITS-32)
      - ❑ field-value= Bit 0 must be set (nom-version1)
   h. functional units
      - ❑ field-type = FunctionalUnits

	❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/TH/BV-004		
TP label		Configuration Event Report. Thermometer standard configuration		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4.		

	Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_025
Other PICS	C_MAN_OXP_085
Initial condition	The simulated PHD and the PHG under test are in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x03 0x20 (Thermometer). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x03 0x20. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list

	set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-005		
TP label		Maximum APDU size: Thermometer		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitiations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 856
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....(832 bytes)...... 00'O`
		`}`
		`}`
		`}`
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
		`attribute-value: 36`
		`}`
		`}`
		`}`
		2. Check the response of the PHG under test.		

	3. The simulated PHD sends a Confirmed fixed event report with one measurement. 4. Check the response of the PHG under test.
Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-006		
TP label		Attribute-Value-Map. Order change.		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Body Temperature Object) to reverse the values to: MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date first followed by a body temperature value (in Celsius degrees since it is the standard configuration unit code). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS). The observation should be a reasonable Celsius degrees body temperature observation. 12. The simulated PHD waits until it receives a confirmation.		

Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses Celsius degrees as the unit code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-007		
TP label		Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025 AND C_MAN_TH_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (Body Temperature Numeric standard configuration Unit code attribute is set to MDC_DIM_DEGC).		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Body Temperature Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use MDC_DIM_FAHR (4416). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC attribute. 6. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses Fahrenheit degrees as the unit code for the measurement reports.		

Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-008		
TP label		Unit-Code. Change from default Celsius degrees to Fahrenheit degrees – fixed format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp15;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_DEGC [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025 AND C_MAN_TH_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Body Temperature Object) to Fahrenheit nomenclature code MDC_DIM_FAHR (4416). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in Fahrenheit degrees followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report with an observation in Celsius degrees followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In step 4, verify that the PHG under test is able to accept the data properly and applies Fahrenheit degrees to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies		

	Celsius degrees to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-008_A		
TP label		Unit-Code. Do not change from default Celsius degrees to Fahrenheit degrees – fixed format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp15;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_DEGC		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025 AND (NOT(C_MAN_TH_001))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Body Temperature Object) to Fahrenheit nomenclature code MDC_DIM_FAHR (4416). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in Fahrenheit degrees followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.		
Pass/Fail criteria		• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.		
Notes				

TP Id		TP/PLT/PHG/CLASS/TH/BV-009		
TP label		Unit-Code. Use default Celsius degrees – variable format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp15;M	Communication 9; M	

Test purpose	Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_DEGC
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_025
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. Send a confirmed variable format event report using a measurement in Celsius degrees. 2. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data properly and applies Celsius degrees to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-010		
TP label		Unit-Code. Change from default Celsius degrees to Fahrenheit degrees – variable format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp15;M		
	Spec	[b-ITU-T H.810 (2015)]		
	Testable items	Communication 9; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_DEGC [AND] Continua PAN client components that receive a report of a configuration change shall apply the change to future measurements only		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025 AND C_MAN_TH_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. Send a confirmed variable format event report to set the unit code to Fahrenheit degrees MDC_DIM_FAHR (4416) for handle 1 (Body Temperature Object) and a measurement in Fahrenheit degrees. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in Fahrenheit degrees (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report with an observation in Celsius degrees followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to Celsius degrees by the standard configuration). 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies Fahrenheit degrees to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies Celsius degrees to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/TH/BV-011		
TP label		Special values. Not a number – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Temperature Object) containing an observation value with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as		

	if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/TH/BV-012		
TP label		Special values. Not a number – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp21; C		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Temperature Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/TH/BV-013		
TP label		Special values. Not at this resolution – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Temperature Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/TH/BV-014		
TP label		Special values. Not at this resolution – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp21; C		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Temperature Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ TH /BV-015		
TP label		Special values. Positive infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Temperature Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/TH/BV-016		
TP label		Special values. Positive infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp21; C		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Temperature Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/TH/BV-017		
TP label		Special values. Negative infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard		

	configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1(Body Temperature Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/TH/BV-018		
TP label		Special values. Negative infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp21; C		
Test Purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Temperature Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/TH/BV-019		
TP label		Special values. Reserved – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp17; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				

Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Temperature Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/TH/BV-020		
TP label		Special values. Reserved – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10408]		
	Testable items	Num Objec Temp21; C		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_025		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Temperature Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

A.7 Subgroup 2.3.6: Cardiovascular (CV)

TP Id		TP/PLT/PHG/CLASS/CV/BV-002		
TP label		Association procedure PHG CV		
Coverage	**Spec**	[ISO/IEEE 11073-10441]		
	Testable items	AssocResp1;M	AssocResp2;M	AssocResp3;M
		AssocResp4;M	AssocResp5;M	AssocResp6;M
		AssocResp7;M	AssocResp8;M	AssocResp9;M

		AssocResp10;M	AssocResp11;M	AssocResp12;M
Test purpose		Check that: In the association response message sent by the PHG: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0		
Applicability		C_MAN_OXP_000 AND (C_MAN_OXP_023)		
Other PICS				
Initial condition		The PHG is in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16438 ❑ data-rep-mode-capab =		

- data_req_mode_flags= '0000000000000001'B
- data_req_init_agent_count = 1
- data_req_init_manager_count = 0

❑ option-list.length= 0

2. The PHG under test sends an association response. The fields of interest are:
   a. APDU Type
      ❑ field-length = 2 bytes
      ❑ field-value = 0xE3 0x00 (AareApdu)
   b. Result
      ❑ field- type = AssociateResult
      ❑ field-length = 2 bytes
      ❑ field-value = One of the following:
         - If association is accepted, field-value= 0x00 0x00.
         - If association is rejected-permanent, field-value= 0x00 0x01.
         - If association is rejected-transient, field-value= 0x00 0x02.
         - If association is accepted-unknown-config, field-value= 0x00 0x03.
         - If association is rejected-no-common-protocol, field-value= 0x00 0x04.
         - If association is rejected-no-common-parameter, field-value= 0x00 0x05.
         - If association is rejected–unknown = 0x00 0x06.
         - If association is rejected-unauthorized, field-value= 0x00 0x07.
         - If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08.
   c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id))
   d. data-proto-id
      ❑ field- type = DataProtoId
      ❑ field-length = 2 bytes
      ❑ field-value= 0x50 0x79 (20601)
   e. protocol-version
      ❑ field- type = Protocol Version
      ❑ field-length = 4 bytes (BITS-32)
      ❑ field-value= 0x80 0x00 0x00 0x00
   f. encoding-rules
      ❑ field-type = EncodingRules
      ❑ field-length = 2 bytes (BITS-16)
      ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time
   g. nomenclature version
      ❑ field- type = NomenclatureVersion
      ❑ field-length = 4 bytes (BITS-32)
      ❑ field-value= Bit 0 must be set (nom-version1)
   h. functional units
      ❑ field-type = FunctionalUnits
      ❑ field-length = 4 bytes (BITS-32)
      ❑ field-value =

	▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/CV/BV-003		
TP label		Maximum APDU size: Cardiovascular		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitiations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		

Applicability	C_MAN_OXP_000 AND C_MAN_OXP_023 AND NOT(C_MAN_CV_030)
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 64472
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(64448 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2633 (MDC_ATTR_ENUM_OBS_VAL_SIMP_OID)`
	`attribute-value: 1017 (MDC_HF_ACT_WALK)`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

A.8 Subgroup 2.3.7: Strength (ST)

TP Id		TP/PLT/PHG/CLASS/ST/BV-001		
TP label		Association procedure PHG ST		
Coverage	**Spec**	[ISO/IEEE 11073-10442]		
	Testable items	StrenAssocRes 1;M	StrenAssocRes 2;M	StrenAssocRes 3;M
		StrenAssocRes 4;M	StrenAssocRes 5;M	StrenAssocRes 6;M
		StrenAssocRes 7;M	StrenAssocRes 8;M	StrenAssocRes 9;M
		StrenAssocRes 10;M	StrenAssocRes 11;M	
Test purpose		Check that: In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 (i.e., data-proto-id = 0x5079) [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the		

	version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000). [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. [AND] The PHG shall support at least the MDER encoding rules. [AND] The version of the nomenclature used shall be set to nom-version1 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure which shall contain the field functional-units. It shall have all bits reset except for those relating to a Test Association. [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure which shall contain the field system-type. It shall be set to sys-type-manager (i.e., system-type = 0x80000000). [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure which contain the System-Id field. It shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier. [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure which shall contain the following parameter values:The field dev-config-id shall be manager-config-response (0). [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and the contain the field data-req-mode-capab. data-req-mode-capab Shall be 0. [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure and shall contain the fields data-req-init-* count = 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_022
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16445 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are:

a. APDU Type
   - ❑ field-length = 2 bytes
   - ❑ field-value = 0xE3 0x00 (AareApdu)

b. Result
   - ❑ field- type = AssociateResult
   - ❑ field-length = 2 bytes
   - ❑ field-value = One of the following:
     - If association is accepted, field-value= 0x00 0x00.
     - If association is rejected-permanent, field-value= 0x00 0x01.
     - If association is rejected-transient, field-value= 0x00 0x02.
     - If association is accepted-unknown-config, field-value= 0x00 0x03.
     - If association is rejected-no-common-protocol, field-value= 0x00 0x04.
     - If association is rejected-no-common-parameter, field-value= 0x00 0x05.
     - If association is rejected–unknown = 0x00 0x06.
     - If association is rejected-unauthorized, field-value= 0x00 0x07.
     - If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08.

c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id))

d. data-proto-id
   - ❑ field- type = DataProtoId
   - ❑ field-length = 2 bytes
   - ❑ field-value= 0x50 0x79 (20601)

e. protocol-version
   - ❑ field- type = Protocol Version
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value= 0x80 0x00 0x00 0x00

f. encoding-rules
   - ❑ field-type = EncodingRules
   - ❑ field-length = 2 bytes (BITS-16)
   - ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version
   - ❑ field- type = NomenclatureVersion
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value= Bit 0 must be set (nom-version1)

h. functional units
   - ❑ field-type = FunctionalUnits
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value =
     - Bit 0 must be 0
     - Bits 1 and 2 may be set
     - The rest of the bits must not be set

i. system type
   - ❑ field- type = SystemType

	❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/ST/BV-002		
TP label		Maximum APDU size: Strength		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitiations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_022		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 64472
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(64448 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2633 (MDC_ATTR_ENUM_OBS_VAL_SIMP_OID)`
	`attribute-value: 284 (MDC_MUSC_HEAD_FACIAL)`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

A.9 Subgroup 2.3.8: Activity hub (HUB)

TP Id		TP/PLT/PHG/CLASS/HUB/BV-003		
TP label		Association procedure PHG HUB		
Coverage	**Spec**	[ISO/IEEE 11073-10471]		
	Testable items	AssocResp1;M	AssocResp2;M	AssocResp3;M
		AssocResp4;M	AssocResp5;M	AssocResp6;M
		AssocResp7;M	AssocResp8;M	AssocResp9;M
		AssocResp10;M	AssocResp11;M	
Test purpose		Check that: In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND]		

	The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND (C_MAN_OXP_021)
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16441 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01.

- If association is rejected-transient, field-value= 0x00 0x02.
- If association is accepted-unknown-config, field-value= 0x00 0x03.
- If association is rejected-no-common-protocol, field-value= 0x00 0x04.
- If association is rejected-no-common-parameter, field-value= 0x00 0x05.
- If association is rejected–unknown = 0x00 0x06.
- If association is rejected-unauthorized, field-value= 0x00 0x07.
- If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08.

c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id))

d. data-proto-id
   - ❑ field- type = DataProtoId
   - ❑ field-length = 2 bytes
   - ❑ field-value= 0x50 0x79 (20601)

e. protocol-version
   - ❑ field- type = Protocol Version
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value= 0x80 0x00 0x00 0x00

f. encoding-rules
   - ❑ field-type = EncodingRules
   - ❑ field-length = 2 bytes (BITS-16)
   - ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version
   - ❑ field- type = NomenclatureVersion
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value= Bit 0 must be set (nom-version1)

h. functional units
   - ❑ field-type = FunctionalUnits
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value =
     - Bit 0 must be 0
     - Bits 1 and 2 may be set
     - The rest of the bits must not be set

i. system type
   - ❑ field- type = SystemType
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

j. system-id
   - ❑ field- type = OCTET STRING
   - ❑ field-length = 8 bytes
   - ❑ field-value = (EUI-64 manufacturer and device)

k. dev-config-id
   - ❑ field- type = ConfigId
   - ❑ field-length = 2 bytes

	❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/HUB/BV-004		
TP label		Maximum APDU size: Activity Hub		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitiations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_021		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 5080
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....(5054 bytes)...... 00'O`
		`}`
		`}`		

	}
	ObservationScan ::= {
	obj-handle: 1
	attributes: AttributeList ::= {
	AVA-Type ::= {
	attribute-id: 2661 (MDC_ATTR_ENUM_OBS_VAL_SIMP_BIT_STR)
	attribute-value: 0x80 0x00 0x00 0x00
	}
	}
	}
	
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

A.10 Subgroup 2.3.9: Adherence monitor (AM)

TP Id		TP/PLT/PHG/CLASS/AM/BV-000		
TP label		Configuration Event Report. Adherence Monitor standard configuration 7200		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x1c 0x20 (MedicalMonitor). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x1c 0x20. 4. The PHG under test must respond with: a. APDU Type		

	❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/AM/BV-001		
TP label		Configuration Event Report. Adherence Monitor standard configuration 7201		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		

Test purpose	Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_016
Other PICS	C_MAN_OXP_085
Initial condition	The simulated PHD and the PHG under test are in the Unassociated state.

Test procedure	1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x1c 0x21 (MedicalMonitor). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x1c 0x21. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.

Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/AM/BV-002		
TP label		Configuration Event Report. Adherence Monitor standard configuration 7202		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x1c 0x22 (MedicalMonitor). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x1c 0x22. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00		

	d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/AM/BV-003		
TP label		Configuration Event Report. Adherence Monitor standard configuration 7203		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-		

	id set to 0x1c 0x23 (MedicalMonitor). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x1c 0x23. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 Wait until the Operating state is reached in both cases. 5. IF C_MAN_OXP_085: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.

Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/AM/BV-004		
TP label		Maximum APDU size: Adherence Monitor		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 984
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....(960 bytes)...... 00'O`
		`}`
		`}`
		`}`
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
		`attribute-value: 3`
		`}`
		`}`
		`}`
		2. Check the response of the PHG under test.
		3. The simulated PHD sends a Confirmed fixed event report with one measurement.
		4. Check the response of the PHG under test.		

Pass/Fail criteria		• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".		
Notes				

TP Id		TP/PLT/PHG/CLASS/AM/BV-005		
TP label		Attribute-Value-Map. Order change. (0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage12; M		
Test purpose		Check that: For [Standard-Configuration, Fixed Dosage Medication Object] the [Attribute-Value-Map] attribute shall be present and with value MDC_ATTR_TIME_STAMP_ABS , then MDC_ATTR_NU_VAL_OBS_BASIC		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC. 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Fixed Dosage Medication Object) to reverse the values to:, MDC_ATTR_NU_VAL_OBS_BASIC then MDC_ATTR_TIME_STAMP_ABS. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the measurement followed by the date (absolute-time-stamp). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_TIME_STAMP_ABS, then MDC_ATTR_NU_VAL_OBS_BASIC). The observation should be a reasonable Fixed Dosage Medication observation. 12. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.		

Notes	

TP Id		TP/PLT/PHG/CLASS/AM/BV-006		
TP label		Attribute-Value-Map. Order change. (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage12; M	UserFeedback12; M	StatReporter12; M
Test purpose		Check that: For [Standard-Configuration, Variable Dosage Medication Object] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_TIME_STAMP_ABS| MDC_ATTR_NU_VAL_OBS_SIMP [AND] For [Standard-Configuration, User Feedback Object] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_TIME_STAMP_ABS | MDC_ATTR_NU_CMPD_VAL_OBS_BASIC [AND] For [Standard-Configuration, Status Reporter Object] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_TIME_STAMP_ABS| | MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of: • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_BASIC for Variable Dosage Medication Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_CMPD_VAL_OBS_BASIC for User Feedback Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR for Status Reporter Object 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Variable Dosage Medication Object), of handle 4 (User Feedback objec) and of handle 3 (Status Reporter Object) to reverse the values to: • MDC_ATTR_NU_VAL_OBS_BASIC then MDC_ATTR_TIME_STAMP_ABS for Variable Dosage Medication Object • MDC_ATTR_NU_CMPD_VAL_OBS_BASIC then MDC_ATTR_TIME_STAMP_ABS for User Feedback Object • MDC_ATTR_ENUM_OBS_VAL_BASIC_BIT_STR then MDC_ATTR_TIME_STAMP_ABS for Status Reporter Object 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the measurement date (absolute-time-stamp) for every object.		

	6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (Observed value defined for every object, then MDC_ATTR_TIME_STAMP_ABS). The observations should be reasonable Variable Dosage Medication, User Feedback and Status Reporter values. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses ml as the unit code for Variable Dosage Medication report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/AM/BV-007		
TP label		Metric-id-list. Standard configuration		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	UserFeedback9; M		
Test purpose		Check that: For [Standard-Configuration, User Feedbackl Object]. Metric-Id List attribute shall be present and with value {MDC_AI_MED_UF_LOCATION, MDC_AI_MED_UF_RESPONSE}		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 4 (user feedback) containing an observation with the compound field values (SFLOAT) set to (1, 0), for handle 2 containing an observation (FLOAT) of 3 and for handle 3 containing an observation (Enum-Observed-Value-Basic-Bit-Str) with bit 0 set to 1 (*A medication dosage was not dispensed within the regimen allowed timing*).		

	2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data and applies the data properly as User Feedback: location = 1, response = 0, Variable Dosage Medication= 3 and Status Reporter informing that medication dosage was not dispensed within the regimen allowed timing (bit 0 set to 1).
Notes	

TP Id		TP/PLT/PHG/CLASS/AM/BV-008		
TP label		Metric-id-list. Id order change – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	UserFeedback9; M		
Test purpose		Check that: For [Standard-Configuration, User Feedbackl Object]. Metric-Id List attribute shall be present and with value {MDC_AI_MED_UF_LOCATION, MDC_AI_MED_UF_RESPONSE}		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 4 (user feedback) setting MDC_ATTR_ID_PHYSIO_LIST to (MDC_AI_MED_UF_RESPONSE, then MDC_AI_MED_UF_LOCATION). 2. The simulated PHD sends a confirmed fixed event report for handle 4 containing a time-stamp and an observation with the compound field values (SFLOAT) set to (2, 3), for handle 2 containing a time-stamp and observation for Variable Dosage Medication of 3ml and for handle 3 containing a time-stamp and observation for Status reporter (Bit 0 set to 1). 3. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data and time stamp and applies the data (for compound value) properly as Location = 3, Response = 2.		
Notes				

TP Id		TP/PLT/PHG/CLASS/AM/BV-009		
TP label		Metric-id-list. Id order change – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	UserFeedback9; M		
Test purpose		Check that: For [Standard-Configuration, User Feedbackl Object]. Metric-Id List attribute shall be present and with value {MDC_AI_MED_UF_LOCATION, MDC_AI_MED_UF_RESPONSE}		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				

Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 4 (user feedback) setting MDC_ATTR_ID_PHYSIO_LIST to (MDC_AI_MED_UF_RESPONSE, then MDC_AI_MED_UF_LOCATION). In a second observation scan, for handle 4 set the compound field values (SFLOAT) to (4, 5) along with a known time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly as Location = 5, Response = 4.
Notes	

TP Id		TP/PLT/PHG/CLASS/AM/BV-010		
TP label		Metric-id-list. Reduced ids – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	UserFeedback9; M		
Test purpose		Check that: For [Standard-Configuration, User Feedbackl Object]. Metric-Id List attribute shall be present and with value {MDC_AI_MED_UF_LOCATION, MDC_AI_MED_UF_RESPONSE}		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 4 (user feedback) setting MDC_ATTR_ID_PHYSIO_LIST to (MDC_AI_MED_UF_LOCATION) and MDC_ATTR_ATTRIBUTE_VAL_MAP to { MDC_ATTR_TIME_STAMP_ABS, 8, MDC_ATTR_NU_CMPD_VAL_OBS_BASIC, 6}. 2. The simulated PHD sends a confirmed fixed event report for handle 4 containing an observation with the compound field values (SFLOAT) set to (5) along with a known time stamp. 3. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly location= 5.		
Notes				

TP Id		TP/PLT/PHG/CLASS/AM/BV-011		
TP label		Metric-id-list. Reduced ids – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	UserFeedback9; M		
Test purpose		Check that: For [Standard-Configuration, User Feedbackl Object]. Metric-Id List attribute shall be present		

	and with value {MDC_AI_MED_UF_LOCATION, MDC_AI_MED_UF_RESPONSE}.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_016
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 4 (user feedback) setting MDC_ATTR_ID_PHYSIO_LIST to (MDC_AI_MED_UF_LOCATION). 2. The simulated PHD waits until it receives a confirmation from the PHG under test. 3. The simulated PHD sends a confirmed variable event report for handle 4 containing an observation with the compound field values (SFLOAT) set to (3.0) along with a known time stamp. 4. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data and time stamp and applies the data properly as location = 3.0.
Notes	

TP Id		TP/PLT/PHG/CLASS/AM/BV-012		
TP label		Special values. Not a number – fixed format (0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage12; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Fixed Dosage Medication Object) containing an observation with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-013
TP label		Special values. Not a number – variable format(0x1c20)
Coverage	**Spec**	[ISO/IEEE 11073-10472]

	Testable items	FixedDosage22; C		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Fixed Dosage Medication Object) containing an observation with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-014		
TP label		Special values. Not at this resolution – fixed format(0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage12; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Fixed Dosage Medication) containing an observation with the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-015
TP label		Special values. Not at this resolution – variable format (0x1c20)
Coverage	**Spec**	[ISO/IEEE 11073-10472]

	Testable items	FixedDosage22; C		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Fixed Dosage Medication) containing an observation with the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-016		
TP label		Special values. Positive infinity – fixed format (0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage12; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 containing an observation with the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-017
TP label		Special values. Positive infinity – variable format(0x1c20)
Coverage	**Spec**	[ISO/IEEE 11073-10472]

	Testable items	FixedDosage22; C		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Fixed Dosage Medication) containing an observation with the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-018		
TP label		Special values. Negative infinity – fixed format (0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage12; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Fixed Dosage Medication) containing an observation with the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id	TP/PLT/PHG/CLASS/AM/BV-019
TP label	Special values. Negative infinity – variable format (0x1c20)

Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage22; C		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Fixed Dosage Medication) containing an observation with the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-020		
TP label		Special values. Reserved – fixed format (0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage12; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Fixed Dosage Medication) containing an observation with the value that is reserved (Reserved for future use, [exponent 0, mantissa –(2**11–1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-021		
TP label		Special values. Reserved – variable format (0x1c20)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	FixedDosage22; C		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c20).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Fixed Dosage Medication) containing an observation with the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11–1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-022		
TP label		Special values. Not a number – fixed format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage12; M	UserFeedback12; M	
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF] for Variable Dosage Medication, and [exponent 0, mantissa +(2**11 –1) = 0x07FF] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/AM/BV-023		
TP label		Special values. Not a number – variable format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage20; C	UserFeedback23; C	
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF] for Variable Dosage Medication and [exponent 0, mantissa +(2**11 –1) = 0x07FF] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-024		
TP label		Special values. Not at this resolution – fixed format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage12; M	UserFeedback12; M	
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for NRes ([exponent 0, mantissa +(2**23) = 0x00800000] for Variable Dosage Medication and [exponent 0, mantissa –(2**11) = 0x0800] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/AM/BV-025		
TP label		Special values. Not at this resolution – variable format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage20; C	UserFeedback23; C	
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for NRes ([exponent 0, mantissa +(2**23) = 0x00800000] for Variable Dosage Medication and [exponent 0, mantissa -(2**11) = 0x0800] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-026		
TP label		Special values. Positive infinity – fixed format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage12; M	UserFeedback12; M	
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 – 2) = 0x007FFFFE]		

	for Variable Dosage Medication and [exponent 0, mantissa +(2**11 –2) = 0x07FE] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/AM/BV-027		
TP label		Special values. Positive infinity – variable format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage20; C	UserFeedback23; C	
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 – 2) = 0x007FFFFE] for Variable Dosage Medication and [exponent 0, mantissa +(2**11 –2) = 0x07FE] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-028		
TP label		Special values. Negative infinity – fixed format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage12; M	UserFeedback12; M	
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				

Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 – 2) = 0x00800002] for Variable Dosage Medication and [exponent 0, mantissa –(2**11 -2) = 0x0802] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/AM/BV-029		
TP label		Special values. Negative infinity – variable format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage20; C	UserFeedback23; C	
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 – 2) = 0x00800002] for Variable Dosage Medication and [exponent 0, mantissa –(2**11 –2) = 0x0802] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/AM/BV-030		
TP label		Special values. Reserved – fixed format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage12; M	UserFeedback12; M	
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not		

	use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_016
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**23 – 1) = 0x00800001] for Variable Dosage Medication and [exponent 0, mantissa –(2**11 –1) = 0x0801] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/AM/BV-031		
TP label		Special values. Reserved – variable format (0x1c23)		
Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	VarDosage20; C	UserFeedback23; C	
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x1c23).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Variable Dosage Medication) and handle 4 (User Feedback) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**23 – 1) = 0x00800001] for Variable Dosage Medication and [exponent 0, mantissa –(2**11 –1) = 0x0801] for User Feedback). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id	TP/PLT/PHG/CLASS/AM/BV-032
TP label	Association procedure PHG AM

Coverage	**Spec**	[ISO/IEEE 11073-10472]		
	Testable items	MM_AssocReq9; M	MM_AssocResp1; M	MM_AssocResp2; M
		MM_AssocResp3; M	MM_AssocResp4; M	MM_AssocResp5; M
		MM_AssocResp6; M	MM_AssocResp7; M	MM_AssocResp8; M
		MM_AssocResp9; M	MM_AssocResp10; M	MM_AssocResp11; M
		MM_AssocResp12; M		
Test purpose		Check that: In the association response message sent by the PHG: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_016		
Other PICS				
Initial condition		The PHG is in the Unassociated state.		

Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16481 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected–unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version ❑ field- type = Protocol Version ❑ field-length = 4 bytes (BITS-32) ❑ field-value= 0x80 0x00 0x00 0x00 f. encoding-rules ❑ field-type = EncodingRules ❑ field-length = 2 bytes (BITS-16) ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

	g. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes (BITS-32) ❑ field-value= Bit 0 must be set (nom-version1) h. functional units ❑ field-type = FunctionalUnits ❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A]. data-req-init-agent-count verification has been updated according to IEEE PHD errata. See http://continua.plugfests.com/show_bug.cgi?id= 786 for further details.

A.11 Subgroup 2.3.10: Insulin pump (IP)

TP Id		TP/PLT/PHG/CLASS/IP/BV-000		
TP label		Association procedure PHG Insulin Pump		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	ManProcAsIP 1;M	ManProcAsIP 2;M	ManProcAsIP 3;M
		ManProcAsIP 4;M	ManProcAsIP 5;M	ManProcAsIP 6;M
		ManProcAsIP 7;M	ManProcAsIP 8;M	ManProcAsIP 9;M
		ManProcAsIP 10;M	ManProcAsIP 11;M	ManProcAsIP 12;M
Test purpose		Check that: The result field shall be set to an appropriate response from those defined in [ISO/IEEE 11073-20601-2016C]. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version 2 [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] If the PHD supports only the insulin pump specialization, data-req-init-agent-count shall be 1 and data-req-init-manager-count shall be 0		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The PHG is in the Unassociated state.		

Test procedure	1. The simulated PHD sends an Association Request to the PHG under test, with the fields: ❑ protocol-version = '00100000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16440 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. PHG under test sends an Association Response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted , field- value= 0x00 0x00. ▪ If association is rejected-permanent , field- value= 0x00 0x01. ▪ If association is rejected-transient , field- value= 0x00 0x02. ▪ If association is accepted-unknown-config , field- value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field- value= 0x00 0x04. ▪ If association is rejected -no-common-parameter, field- value= 0x00 0x05. ▪ If association is rejected –unknown = 0x00 0x06. ▪ If association is rejected -unauthorized, field- value= 0x00 0x07. ▪ If association is rejected –unsupported-assoc-version , field- value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version ❑ field- type = Protocol Version ❑ field-length = 4 bytes (BITS-32) ❑ field-value= 0x80 0x00 0x00 0x00 f. encoding-rules ❑ field-type = EncodingRules ❑ field-length = 2 bytes (BITS-16) ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

	g. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes (BITS-32) ❑ field-value= Bit 0 must be set (nom-version1) h. functional units ❑ field-type = FunctionalUnits ❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field- value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field- value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field- value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field- value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field- value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-001
TP label		Configuration Event Report. Insulin Pump standard configuration
Coverage	**Spec**	[ISO/IEEE 11073-10419]

	Testable items	ConfProcIP 4;M	MDSEventsIP 2;M	ObjAccServIP 5;M
	Spec	[ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field [AND] A PHG shall support both single-person and multi-person event reports. [AND] An Insulin pump PHG shall respond to an [MDS-Configuration-Event] using a [Confirmed] event report response. The Response shall include the event-reply-info [ConfigReportRsp] [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state. The simulated PHD implements an Insulin Pump device specialization with Standard Configuration (1900)		
Test procedure		1. The simulated PHD sends an Association Request to the PHG under test with dev-config-id set to 0x07 0x6C (Insulin Pump PHD – Std Config 1900) 2. The PHG under test responds an Association Response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unkown-config) IF the result of the Association Response was “accepted-unkown-config” 3. The simulated PHD sends a configuration event report with config-report-id set to 0x07 0x08 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field- value= it must be the same that the invoke-id of the simulated PHD’s message.		

	c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same that config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until Operating state is reached in both cases 6. Simulated PHD sends a fixed event report with one Insulin Pump measurement
Pass/Fail criteria	• The PHG under test must respond either to the Association Request with an "accepted" message or to the Configuration Event Report with an "accepted-config" • The measurement is correctly presented
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-002_A		
TP label		Maximum APDU size: Insulin Pump without PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4; M		
	Spec	[ISO/IEEE 11073-10419]		
	Testable items	ComCharIP 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the		

	specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_071
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 7128
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....( 7104 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 3`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a “rors-cmip-confirmed-event-report” • In step 4 the PHG under test must respond with a “rors-cmip-confirmed-event-report”
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-002_B		
TP label		Maximum APDU size: Insulin Pump with PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4; M		
	Spec	[ISO/IEEE 11073-10419]		
	Testable items	ComCharIP 3; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on		

	apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_071 AND C_MAN_OXP_003
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 5080
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....( 5056 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 3`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a “rors-cmip-confirmed-event-report” • In step 4 the PHG under test must respond with a “rors-cmip-confirmed-event-report”
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-003		
TP label		Bolus Delivered Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard		

	configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed format event report with that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO 2. The simulated PHD waits until it receives a confirmation 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Bolus Delivered Object) to reverse the values to: MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation 5. Send a confirmed fixed format event report with the date first followed by an Bolus Delivered value. 6. The simulated PHD waits until it receives a confirmation 7. The simulated PHD sends an Association Release Request (normal) 8. The simulated PHD waits until there is a Association Release Response 9. The simulated PHD sends an Association Request using the same standard configuration that was used previously 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO). The observation should be a reasonable Bolus Delivered observation. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In Step 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In Step 2, 6 and 12 verify the PHG under test uses MDC_DIM_INTL_UNIT as the unit-code for the measurement report (or reports the proper value after convert to another unit-code) • In Step 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, need to be careful about just sending these messages back to back since the ability to look at things like a UI may need there to be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-004		
TP label		Bolus Delivered Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present		

	The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_071
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration (1900). (Bolus Delivered Numeric standard configuration Unit code attribute is set to MDC_DIM_INTL_UNIT)
Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Bolus Delivered Numeric Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation 3. Send a confirmed fixed format event report with the new data layout. For unit-code Attribute, use MDC_DIM_INTL_UNIT (5472). 4. The simulated PHD waits until it receives a confirmation 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC Attribute. 6. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In Step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In Step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement is displayed properly) • In Step 4 and 6, verify the PHG under test uses MDC_DIM_INTL_UNIT as the unit-code for the measurement reports
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-005		
TP label		Bolus Delivered Unit-Code. Use default Bolus Delivered units - variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 20; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_INTL_UNIT		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (1900).		
Test procedure		1. Send a confirmed variable format event report using a measurement in using MDC_DIM_INTL_UNIT units. 2. The simulated PHD waits until it receives a confirmation		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies		

	MDC_DIM_INTL_UNIT unit to the observation (e.g. if there is a UI verify the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-006		
TP label		Bolus Delivered Special values. Not a number - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Bolus Delivered Object) containing an observation value with the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-007		
TP label		Bolus Delivered Special values. Not a number - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 44; M		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-008		
TP label		Bolus Delivered Special values. Not at this resolution - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The Simulated PHD sends a confirmed fixed event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-009		
TP label		Bolus Delivered Special values. Not at this resolution - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 44; M		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-010		
TP label		Bolus Delivered Special values. Positive infinity - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-011		
TP label		Bolus Delivered Special values. Positive infinity - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 44; M		
Test purpose		Check that: PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-012		
TP label		Bolus Delivered Special values. Negative infinity - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for negative infinity (– INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-013		
TP label		Bolus Delivered Special values. Negative infinity - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 44; M		
Test purpose		Check that: PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for negative infinity (– INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-014		
TP label		Bolus Delivered Special values. Reserved - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 22; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-015		
TP label		Bolus Delivered Special values. Reserved - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	BolusDer 44; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1900.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Bolus Delivered Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801])		

	2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-016		
TP label		Current Basal Rate Setting Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a Current Basal Rate Setting confirmed fixed format event report with that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO 2. The simulated PHD waits until it receives a confirmation 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Current Basal Rate Setting Numeric Object) to reverse the values to: MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation 5. Send a confirmed fixed format event report with the date first followed by a Current Basal Rate Setting value (in MDC_DIM_INTL_UNIT_PER_HR units since it is the standard configuration unit-code). 6. The simulated PHD waits until it receives a confirmation 7. The simulated PHD sends an Association Release Request (normal) 8. The simulated PHD waits until there is a Association Release Response 9. The simulated PHD sends an Association Request using the same standard configuration that was used previously 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO). The observation should be a reasonable Current Basal Rate Setting observation.		

	12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In Step 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In Step 2, 6 and 12 verify the PHG under test uses MDC_DIM_INTL_UNIT_PER_HR units as the unit-code for the measurement report (or reports the proper value after convert to another unit-code) • In Step 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, need to be careful about just sending these messages back to back since the ability to look at things like a UI may need there to be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-017		
TP label		Current Basal Rate Setting Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (Current Basal Rate Setting Numeric standard configuration Unit code attribute is set to MDC_DIM_INTL_UNIT_PER_HR)		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Current Basal Rate Setting Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation 3. Send a confirmed fixed format event report with the new data layout. For unit-code Attribute, use MDC_DIM_INTL_UNIT_PER_HR (5696). 4. The simulated PHD waits until it receives a confirmation 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC Attribute. 6. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In Step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In Step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement is displayed properly)		

	• In Step 4 and 6, verify the PHG under test uses MDC_DIM_INTL_UNIT_PER_HR as the unit-code for the measurement reports
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-018		
TP label		Current Basal Rate Setting Unit-Code. Use default Current Basal Rate Setting units - variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 20; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_INTL_UNIT_PER_HR		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement using MDC_DIM_INTL_UNIT_PER_HR unit code 2. The simulated PHD waits until it receives a confirmation		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies the appropriate units to the observation (e.g. if there is a UI verify the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/IP/BV-019		
TP label		Current Basal Rate Setting Special values. Not a number - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Current Basal Rate Setting Object) containing an observation value with the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-020		
TP label		Current Basal Rate Setting Special values. Not at this resolution - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-021		
TP label		Current Basal Rate Setting Special values. Positive infinity - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp		

	2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-022		
TP label		Current Basal Rate Setting Special values. Negative infinity - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for negative infinity (– INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-023		
TP label		Current Basal Rate Setting Special values. Reserved - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 22;M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Current Basal		

	Rate Setting Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-024		
TP label		Current Basal Rate Setting Special values. Not a number - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 44; M		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-025		
TP label		Current Basal Rate Setting Special values. Not at this resolution - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 44; M		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-026		
TP label		Current Basal Rate Setting Special values. Positive infinity - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 44; M		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-027		
TP label		Current Basal Rate Setting Special values. Negative infinity - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 44; M		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard		

	configuration.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for negative infinity (– INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/IP/BV-028		
TP label		Current Basal Rate Setting Special values. Reserved - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	CurrBasRate 44; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_071		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Current Basal Rate Setting Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail Criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/IP/BV-029_A		
TP label		Schedule-Store Class methods. Get-Schedule-Segment-Info method 1		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchStoreMeth 2; M	SchStoreMeth 5; M	SchStoreMeth 8; M
Test purpose		Check that: If a PHG invokes the [Get-Schedule-Segment-Info] method it shall use the operation type roiv-cmip-confirmed-action, the Action-type MDC_ACT_SCHED_SEG_GET_INFO and the action-info-args SchedSegmSelection. [AND] For an PHG supporting the Schedule-Store class the support of the [Get-Schedule-Segment-		

	Info], [Get-Schedule-Segment-Id-List] and [Trig-Schedule-Segment-Data-Xfer] methods is mandatory [AND] The PHG shall support at least the choice all-sched-segments in the SegmSelection action-info-args of the Get-Schedule-Segment-Info method.
Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state. The simulated PHD has at least one schedule segment with data stored and the Schedule-Store-Capab attribute indicates that it supports all the possible actions.
Test procedure	1. Make the PHG under test perform a [Get-Schedule-Segment-Info] action to recover the information of all the schedule-segments. 2. The simulated PHD receives the message: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length = 2 bytes ❑ field-value= This value identifies the message; the confirmed response that will be sent by the simulated PHD shall have the same invoke-id. c. obj-handle ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <Handle of an existing Schedule-Store> d. action-type (roiv-cmip-confirmed-action) ❑ field-type = OID-Type ❑ field-length = 2 bytes ❑ field-value = 0x0C 0x24 (MDC_ACT_SCHED_SEG_GET_INFO) e. action-info-args ❑ SchedSegmSelection = all-sched-segments (0)
Pass/Fail criteria	The PHG shall perform Get-Schedule-Segment-Info with all-sched-segments choice and the format of the received message must be the one specified
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-029_B		
TP label		Schedule-Store Class methods. Get-Schedule-Segment-Info method 2		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchStoreMeth 2; M	SchStoreMeth 5; M	SchStoreMeth 9; O
Test purpose		Check that: If a PHG invokes the [Get-Schedule-Segment-Info] method it shall use the operation type roiv-cmip-confirmed-action, the Action-type MDC_ACT_SCHED_SEG_GET_INFO and the action-info-args SchedSegmSelection.		

	[AND] For a PHG supporting the Schedule-Store class the support of the [Get-Schedule-Segment-Info], [Get-Schedule-Segment-Id-List] and [Trig-Schedule-Segment-Data-Xfer] methods is mandatory [AND] The PHG may support the choice sched-segm-id-list in the SegmSelection action-info-args of the Get-Schedule-Segment-Info method.
Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state. The simulated PHD has at least one schedule segment with data stored and the Schedule-Store-Capab attribute indicates that it supports all the possible actions.
Test procedure	1. Make the PHG under test perform a [Get-Schedule-Segment-Info] action to recover the information of specific schedule-segments. 2. The simulated PHD receives the message: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length = 2 bytes ❑ field-value= This value identifies the message; the confirmed response that will be sent by the simulated PHD shall have the same invoke-id. c. obj-handle ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <Handle of an existing Schedule-Store> d. action-type (roiv-cmip-confirmed-action) ❑ field-type = OID-Type ❑ field-length = 2 bytes ❑ field-value = 0x0C 0x24 (MDC_ACT_SCHED_SEG_GET_INFO) e. action-info-args ❑ SchedSegmSelection = sched-segm-id-list ▪ SchedSegmIdList = <List of the selected schedule-segments´ instance numbers>
Pass/Fail criteria	If the PHG supports Get-Schedule-Segment-Info action with sched-segm-id-list choice, the format of the received message must be the one specified.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-030		
TP label		Schedule-Store Class methods. Get-Schedule-Segment-Id-List		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchStoreMeth 2; M	SchStoreMeth 13; M	

Test purpose	Check that: If a PHG invokes the [Get-Schedule-Segment-Id-List] method it shall use the operation type roiv-cmip-confirmed-action, the Action-type MDC_ACT_SCHED_SEG_GET_ID_LIST and the action-info-args set to empty [AND] For a PHG supporting the Schedule-Store class the support of the [Get-Schedule-Segment-Info], [Get-Schedule-Segment-Id-List] and [Trig-Schedule-Segment-Data-Xfer] methods is mandatory
Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state. The simulated PHD has at least one schedule segment with data stored and the Schedule-Store-Capab attribute indicates that it supports all the possible actions.
Test procedure	1. Make the PHG under test perform a [Get-Schedule-Segment-Id-List] action to recover a list of schedule-segments' instance numbers. 2. The simulated PHD receives the message: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length = 2 bytes ❑ field-value= This value identifies the message; the confirmed response that will be sent by the simulated PHD shall have the same invoke-id. c. obj-handle ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <Handle of an existing Schedule-Store> d. action-type (roiv-cmip-confirmed-action) ❑ field-type = OID-Type ❑ field-length = 2 bytes ❑ field-value = 0x0C 0x25 (MDC_ACT_SCHED_SEG_GET_ID_LIST) e. action-info-args ❑ <empty>
Pass/Fail criteria	The PHG shall perform Get-Schedule-Segment-Id-List action, and the format of the received message must be the one specified.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-031		
TP label		Schedule-Store Class methods. Trig-Schedule-Segment-Data-Xfer		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchStoreMeth 2; M	SchStoreMeth 15; M	SchedStoreTX 10; M
Test purpose		Check that:		

	If a PHG invokes the [Trig-Schedule-Segment-Data-Xfer] method it shall use operation type roiv-cmip-confirmed-action, the Action-type MDC_ACT_SCHED_SEG_TRIG_XFER and the action-info-args TrigSchedSegmDataXferReq [AND] For an PHG supporting the schedule-store class the support of the [Get-Schedule-Segment-Info], [Get-Schedule-Segment-Id-List] and [Trig-Schedule-Segment-Data-Xfer] methods is mandatory [AND] The PHG retrieves specific schedule-segments by using the Trig-Schedule-Segment-Data-Xfer ACTION method with the handle of the schedule-store object to access. The argument to this ACTION method is the instance number of the segment to transfer.
Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state. The simulated PHD has at least one schedule segment with data stored and the Schedule-Store-Capab attribute indicates that it supports all the possible actions.
Test Procedure	1. Make the PHG under test perform a [Trig-Schedule-Segment-Data-Xfer] action. 2. The simulated PHD receives the message: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length = 2 bytes ❑ field-value= This value identifies the message; the confirmed response that will be sent by the simulated PHD shall have the same invoke-id. c. obj-handle ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <Handle of an existing Schedule-Store> d. action-type (roiv-cmip-confirmed-action) ❑ field-type = OID-Type ❑ field-length = 2 bytes ❑ field-value = 0x0C 0x26 (MDC_ACT_SCHED_SEG_TRIG_XFER) e. action-info-args ❑ TrigSchedSegmDataXferReq.seg-inst-no = <One of the existing schedule-segments´ instance number>
Pass/Fail criteria	The PHG shall perform Trig-Schedule-Segment-Data-Xfer Action and the format of the received message must be the one specified.
Notes	

TP Id	TP/PLT/PHG/CLASS/IP/BV-032_A
TP label	Schedule-Store Class methods. Segment-Data-Event 1

Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchedStoreEvent 3; M		
Test purpose		Check that: The PHGs must respond to [Schedule-Segment-Data-Event] events when received. When responding to a [Schedule-Segment-Data-Event] event the event-reply-info parameter shall be ScheduleSegmentDataResult.		
Applicability		C_MAN_OXP_000 AND C_MAN_IP_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state. The simulated PHD has at least one schedule segment with data stored and the Schedule-Store-Capab attribute indicates that it supports all the possible actions.		
Test procedure		1. Make the PHG under test perform a Trig-Schedule-Segment-Data-Xfer 2. The simulated PHD responds to the message with a "TrigSchedSegmDataXferRsp" 3. The simulated PHD sends a Confirmed event report: a. Data APDU ❑ Type = Invoke | Confirmed Event Report ❑ Action = 0x0C 0x27 (MDC_NOTI_SCHED_SEGMENT_DATA) ❑ ScheduleSegmentDataEvent. SchedSegmDataEventDescr = SEQUENCE: ▪ sched-segm-instance ▪ sched-segm-evt-entry-index ▪ sched-segm-evt-entry-count ▪ sched-segm-evt-status = Bit 0 must be set (first entry) 4. The PHG under test sends a response to the previous message a. Data APDU ❑ Type = Response | Confirmed Event Report ❑ Action = 0x0C 0x27 (MDC_NOTI_SCHED_SEGMENT_DATA) ❑ ScheduleSegmentDataResult SchedSegmDataEventDescr = SEQUENCE: ▪ sched-segm-instance = <The one previously sent by the simulated PHD> ▪ sched-segm-evt-entry-index = <The one previously sent by the simulated PHD> ▪ sched-segm-evt-entry-count = <The one previously sent by the simulated PHD> ▪ sched-segm-evt-status = Bits 0, 1 must be the same as the previously recorded. Bit and 4 must NOT be set. One of bits 8 or 12 must be set		
Pass/Fail criteria		The format of the received message must be the one specified.		
Notes				

TP Id		TP/PLT/PHG/CLASS/IP/BV-032_B
TP label		Schedule-Store Class methods. Segment-Data-Event 2
Coverage	**Spec**	[ISO/IEEE 11073-10419]

	Testable items	SchedStoreEvent 3; M		
Test purpose		Check that: A PHG must respond to [Schedule-Segment-Data-Event] events when received. When responding to a [Schedule-Segment-Data-Event] event the event-reply-info parameter shall be ScheduleSegmentDataResult.		
Applicability		C_MAN_OXP_000 AND C_MAN_IP_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state. The simulated PHD has at least one schedule segment with data stored and the Schedule-Store-Capab attribute indicates that it supports all the possible actions.		
Test procedure		1. Make the PHG under test perform a Trig-Schedule-Segment-Data-Xfer 2. The simulated PHD responds to the message with a "TrigSchedSegmDataXferRsp" 3. The simulated PHD sends a Confirmed event report: a. Data APDU ❑ Type = Invoke | Confirmed Event Report ❑ Action = 0x0C 0x27 (MDC_NOTI_SCHED_SEGMENT_DATA) ❑ ScheduleSegmentDataEvent. SchedSegmDataEventDescr = SEQUENCE: ▪ sched-segm-instance ▪ sched-segm-evt-entry-index ▪ sched-segm-evt-entry-count ▪ sched-segm-evt-status = Bit 4 (schsevtsta-agent-abort) must be set 4. PHG under test sends a response to the previous message a. Data APDU ❑ Type = Response | Confirmed Event Report ❑ Action = 0x0C 0x27 (MDC_NOTI_SCHED_SEGMENT_DATA) ❑ ScheduleSegmentDataResult SchedSegmDataEventDescr = SEQUENCE: ▪ sched-segm-instance = <The one previously sent by the simulated PHD> ▪ sched-segm-evt-entry-index = <The one previously sent by the simulated PHD> ▪ sched-segm-evt-entry-count = <The one previously sent by the simulated PHD> ▪ sched-segm-evt-status = Bits 4 and 8 must be set		
Pass/Fail criteria		The format of the received message must be the one specified.		
Notes				

TP Id		TP/PLT/PHG/CLASS/IP/BV-033_A		
TP label		Schedule-Store Class. Metric data transfer 1		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchedStoreTX 1; O	SchedStoreTX 3_A; M	
Test purpose		Check that:		

	The PHG may query each schedule-store to determine the number of schedule-segments that exist within the schedule-store. [AND] The attribute-id-list shall be left empty to query for all attributes of the schedule-store object.
Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The PHG under test is in the Operating state. The simulated PHD has one Schedule-Store object.
Test procedure	1. Make the PHG under test perform a GET service to the Schedule-Store object. 2. Received message by the simulated PHD must be: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length= 2 bytes ❑ field-value= <Not relevant for this test> c. CHOICE: ❑ field-value= 0x01 0x03 (roiv-cmip-get) d. obj-Handle: ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <The handle of the Schedule-Store> e. attribute-Id-List: ❑ field-type = AttributeIdList ❑ field-count = 0x00 0x00 ❑ field-length = 0x00 0x00
Pass/Fail criteria	The format of the received message in step 2 must be the one specified.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-033_B		
TP label		Schedule-Store Class. Metric data transfer 2		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchedStoreTX 23;M	SchedStoreTX 24;M	
Test purpose		Check that: When the PHG receives an event report, it shall reply with a ScheduleSegmentDataResult response that shall contain the same schedule-store-handle, sched-segm-instance number, sched-segm-evt-entry-index, and sched-segm-evt-entry-count. [AND] In the sched-segm-evt-status, the PHG shall set the schsevtsta-manager-confirm bit.		

Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The PHG under test is in the Operating state. The simulated PHD has one Schedule-Store with at least one Schedule-Segment that contains data.
Test procedure	1. Make the PHG under test retrieve the information stored in a Schedule-Segment 2. The simulated PHD responds to the TrigSchedSegmDataXferReq with an appropriate TrigSchedSegmDataXferRsp message 3. The simulated PHD sends a ScheduleSegmentDataEvent to the PHG 4. The PHG under test must respond with a ScheduleSegmentDataResult message, the fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length= 2 bytes ❑ field-value= <The same of the sent ScheduleSegmentDataEvent> c. CHOICE: ❑ field-value= 0x02 0x01 (rors-cmip-confirmed-event-report) d. Obj-Handle: ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <The same of the sent ScheduleSegmentDataEvent> e. CurrentTime ❑ field-type = RelativeTime ❑ field-length = 4 bytes ❑ field-value = <Not relevant for this test> f. Event-type ❑ field-type = OID-Type ❑ field-length = 2 bytes ❑ field-value = 0x0C 0x27 (MDC_NOTI_SCHED_SEGMENT_DATA) g. ScheduleSegmentDataResult SchedSegmDataEventDescr = SEQUENCE: ❑ field-length = 12 bytes ❑ field-value = • sched-segm-instance = <The same of the sent ScheduleSegmentDataEvent> • sched-segm-evt-entry-index = <The same of the sent ScheduleSegmentDataEvent> • sched-segm-evt-entry-count = <The same of the sent ScheduleSegmentDataEvent> • sched-segm-evt-status = Bit 8 (schsevtsta-manager-confirm)
Pass/Fail criteria	The format of the received message in step 4 must be the one specified.
Notes	

TP Id		TP/PLT/PHG/CLASS/IP/BV-034
TP label		Schedule-Store Class. Specific attributes query
Coverage	**Spec**	[ISO/IEEE 11073-10419]
	Testable items	SchedStoreTX 3_B; O
Test purpose		Check that: Specific attributes of a Schedule-Store object may be queried by listing the desired attribute IDs found in Table E.1.
Applicability		C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS		
Initial condition		The PHG under test is in the Operating state. The simulated PHD has one Schedule-Store object.
Test procedure		1. Make the PHG under test perform a GET request to a specific list of Schedule-Store attributes 2. Received message by the simulated PHD must be: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. invoke-id ❑ field-type = InvokeIDType ❑ field-length= 2 bytes ❑ field-value= <Not relevant for this test> c. CHOICE: ❑ field-value= 0x01 0x03 (roiv-cmip-get) d. Obj-Handle: ❑ field-type = HANDLE ❑ field-length = 2 bytes ❑ field-value = <The handle of the Schedule-Store> e. Attribute-Id-List: ❑ field-type = AttributeIdList ❑ field-count = <It contains one attribute or more> ❑ field-value = <Attribute-Id match Attribute-id defined for Schedule-Store attributes (Table E.1)>
Pass/Fail criteria		The format of the received message in step 2 must be the one specified.
Notes		

TP Id		TP/PLT/PHG/CLASS/IP/BV-035		
TP label		Schedule-Store Class. Transfer Timeout		
Coverage	**Spec**	[ISO/IEEE 11073-10419]		
	Testable items	SchedSegmAttr 20; M		

Test purpose	Check that: If the [Schedule-Segment-Transfer-Timeout] expires prior to the reception of the complete schedule segment, the PHG shall transition to the Unassociated state as described in subclause 8.9.5.6 in [ISO/IEEE 11073-20601-2016C].
Applicability	C_MAN_OXP_000 AND C_MAN_IP_001
Other PICS	
Initial condition	The PHG under test is in the Operating state and the simulated PHD has at least one Schedule-Segment with data.
Test procedure	1. Make the PHG under test perform a [Trig-Schedule-Segment-Data-Xfer] action to retrieve data from a Schedule-Segment. 2. The simulated PHD sends a response including TrigSchedSegmXferRsp = tschsxr-successful(0) (the request can be honored) 3. The PHD does no send any ScheduleSegmentDataEvent for at least a period of time equal to [Schedule-Segment-Transfer-Timeout]
Pass/Fail criteria	PHG under test must wait for the last ScheduleSegmentDataEvent message for a period equal to the value of [Schedule-Segment-Transfer-Timeout]. When the time expires, PHG under test must send an abort to the simulated PHD
Notes	Due to the delay introduced by transport layer and decoder for received APDU, Test Tool accuracy maybe is not enough to measure this time-out. To get a better accuracy, it is necessary to run this test case using a hardware sniffer.

A.12 Subgroup 2.3.11: Peak flow (PF)

TP Id		TP/PLT/PHG/CLASS/PF/BV-000		
TP label		Configuration Event Report. Peak Flow standard configuration 2100		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x08 0x34 (Peak Flow) 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes		

	❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x08 0x34. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value = MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/PF/BV-001		
TP label		Maximum APDU size: Peak Flow		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 1996
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....(1970 bytes)..... 00'O`
		`}`
		`}`
		`}`
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 2646 (MDC_ATTR_NU_VAL_OBS_SIMP)`
		`attribute-value: 500`
		`}`
		`}`
		`}`
		2. Check the response of the PHG under test.
		3. The simulated PHD sends a Confirmed fixed event report with one measurement.
		4. Check the response of the PHG under test.		

Pass/Fail criteria		• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".		
Notes				

TP Id		TP/PLT/PHG/CLASS/PF/BV-002
TP label		Attribute-Value-Map. Order change. (0x0834)
Coverage	**Spec**	[ISO/IEEE 11073-10421]

	Testable items	PEF12; M	PersBest12; M	FEV1S12; M
		ReadStatus12; M		
Test purpose		Check that: For [Standard-Configuration, PEF object the [Attribute-Value-Map] attribute shall be present. The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS [AND] For [Standard-Configuration, Personal Best object] the [Attribute-Value-Map] attribute shall be present. The value of the [Attribute-Value-Map] attribute shall be value MDC_ATTR_NU_ VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS [AND] For [Standard-Configuration, FEV1] the [Attribute-Value-Map] attribute shall be present. The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS [AND] For [Standard-Configuration, Reading status] the [Attribute-Value-Map] attribute shall be present. The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC_BIT_STRING, then MDC_ATTR_TIME_STAMP_ABS		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of: • MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS for PEF Object • MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS for Personal Best Object • MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS for FEV1 Object • MDC_ATTR_NU_VAL_OBS_BASIC_BIT_STRING then MDC_ATTR_TIME_STAMP_ABS for Reading status Object 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (PEF Object), of handle 2 (Personal Best object), of handle 3 (FEV1 Object) and of handle 5 (Reading status Object) to reverse the values to: • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_SIMP for PEF Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_SIMP for Personal Best Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_SIMP for FEV1 Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_BASIC_BIT_STRING for Reading status Object 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date (absolute-time-stamp) by a measurement data for every object. 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal).		

	8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (Observed value defined for every object, then MDC_ATTR_TIME_STAMP_ABS). The observations should be reasonable PEF, Personal Best, FEV1 and Reading status values. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses l/min as the unit code for PEF and Personal best report, and it uses l as the unit code for FEV1 report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/PF/BV-003		
TP label		Special values. Not a number – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF12; M	PersBest12; M	FEV1S12; M
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PF/BV-004		
TP label		Special values. Not a number – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF20; C	PersBest20; C	FEV1S20; C
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurements are displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PF/BV-005		
TP label		Special values. Not at this resolution – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF12; M	PersBest12; M	FEV1S12; M
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1)containing an observation value set to the value for NRes ([exponent 0, mantissa +(2**23) = 0x00800000]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurements are displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PF/BV-006		
TP label		Special values. Not at this resolution – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF20; C	PersBest20; C	FEV1S20; C
Test purpose		Check that: The PHG receives NRes value (variable format event report) bu it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for NRes ([exponent 0, mantissa +(2**23) = 0x00800000]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PF/BV-007		
TP label		Special values. Positive infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF12; M	PersBest12; M	FEV1S12; M
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) bu it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 – 2) = 0x007FFFFE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PF/BV-008		
TP label		Special values. Positive infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF20; C	PersBest20; C	FEV1S20; C
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 – 2) = 0x007FFFFE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PF/BV-009		
TP label		Special values. Negative infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF12; M	PersBest12; M	FEV1S12; M
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 – 2) = 0x00800002]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is		

	displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PF/BV-010		
TP label		Special values. Negative infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF20; C	PersBest20; C	FEV1S20; C
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 – 2) = 0x00800002]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PF/BV-011		
TP label		Special values. Reserved – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF12; M	PersBest12; M	FEV1S12; M
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**23 – 1) = 0x00800001]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		

Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/PF/BV-012		
TP label		Special values. Reserved – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PEF20; C	PersBest20; C	FEV1S20; C
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_018		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (0x0834).		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1(PEF), handle 2 (Personal Best) and handle 3 (FEV1) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**23 – 1) = 0x00800001]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/PF/BV-013		
TP label		Association procedure PHG PF		
Coverage	**Spec**	[ISO/IEEE 11073-10421]		
	Testable items	PF_AssocResp1; M	PF_AssocResp2; M	PF_AssocResp3; M
		PF_AssocResp4; M	PF_AssocResp5; M	PF_AssocResp6; M
		PF_AssocResp7; M	PF_AssocResp8; M	PF_AssocResp9; M
		PF_AssocResp10; M	PF_AssocResp11; M	PF_AssocResp12; M
Test purpose		Check that: In the association response message sent by the PHG: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-		

	20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_016
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16481 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes

	❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected–unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version ❑ field- type = Protocol Version ❑ field-length = 4 bytes (BITS-32) ❑ field-value= 0x80 0x00 0x00 0x00 f. encoding-rules ❑ field-type = EncodingRules ❑ field-length = 2 bytes (BITS-16) ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time g. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes (BITS-32) ❑ field-value= Bit 0 must be set (nom-version1) h. functional units ❑ field-type = FunctionalUnits ❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

	j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A]. data-req-init-agent-count verification has been updated according to IEEE PHD errata. See http://continua.plugfests.com/show_bug.cgi?id= 787 for further details.

A.13 Subgroup 2.3.12: Body composition analyser (BCA)

TP Id		TP/PLT/PHG/CLASS/BCA/BV-000		
TP label		Configuration Event Report. Body Composition Analyser standard configuration 2000		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS		C_MAN_OXP_085		

Initial condition	The simulated PHD and the PHG under test are in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x07D0 (BCA). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x07D0. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases.

	6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/BCA/BV-001		
TP label		Maximum APDU size: Body Composition Analyser		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4; M		
	Spec	[ISO/IEEE 11073-10420]		
	Testable items	CommChar1; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		
Test procedure		1. The simulated PHD sends a Confirmed variable event report: a. ScanReportInfoVar. obs_scan_var: ❑ Count = 2 ❑ Length = 7696 `ObservationScan ::= { obj-handle: 1 attributes: AttributeList ::= { AVA-Type ::= { attribute-id: 61441 attribute-value: '00.....(7670 bytes)..... 00'O } } } ObservationScan ::= { obj-handle: 1 attributes: AttributeList ::= { AVA-Type ::= { attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC) attribute-value: 70 } } }` 2. Check the response of the PHG under test. 3. The simulated PHD sends a Confirmed fixed event report with one measurement.		

	4. Check the response of the PHG under test.
Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-002		
TP label		Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21; M	BodyHeight22; M	BodyFat23; M
Test purpose		Check that: For [Standard-Configuration, Body Weight] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS [AND] For [Standard-Configuration, Body Height] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS. [AND] For [Standard-Configuration, Body Fat object] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of: • MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS for Body Weight Object • MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS for Body Height Object • MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_ABS for Body Fat Object 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Body Weight Object), of handle 2 (Body Height object) and of handle 3 (Body Fat Object) to reverse the values to: • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_SIMP for Body Weight Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_SIMP for Body Height Object • MDC_ATTR_TIME_STAMP_ABS then MDC_ATTR_NU_VAL_OBS_SIMP for Body Fat Object 4. The simulated PHD waits until it receives a confirmation.		

	5. Send a confirmed fixed format event report with the date (absolute-time-stamp) by a measurement data for every object. 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (Observed value defined for every object, then MDC_ATTR_TIME_STAMP_ABS). The observations should be reasonable Body Weight, Body Height and Body Fat. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses kg as the unit code for Body Weight, it uses cm as the unit code for Body Height, and it uses % as the unit code for Body Fat report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-003		
TP label		Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21;M		
Test purpose		Check that: For [Standard-Configuration, Body Weight] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_NU_VAL_OBS_SIMP, then MDC_ATTR_TIME_STAMP_ABS PHG accepts the measurements (fixed format event report) and shows them correctly when the unit-code is changed.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (Body Weight Numeric standard configuration Unit code attribute is set to MDC_DIM_KILO_G)		

Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Body Weight Object) to set the values to: MDC_ATTR_NU_VAL_OBS_SIMP, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_ABS. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use pounds MDC_DIM_LB (1760). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_SIMP attribute. 6. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses pounds as the unit code for the measurement reports.
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-004		
TP label		Unit-Code Body Weight. Change from default kilograms to pounds – fixed format observation.		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 19; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Body Weight Object) to pounds nomenclature code MDC_DIM_LB (1760). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in pounds followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then		

	• The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report with an observation in kilograms followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies pounds to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-005		
TP label		Unit-Code Body Weight. Do not change from default kilograms to pounds – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 19; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND (NOT(C_MAN_BCA_001))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 1 (Body Weight Object) to pounds nomenclature code MDC_DIM_LB (1760). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in pounds followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.		
Pass/Fail criteria		• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.		
Notes				

TP Id		TP/PLT/PHG/CLASS/BCA/BV-006		
TP label		Unit-Code Body Weight. Use default kilograms – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 19; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in kilograms. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/BCA/BV-007		
TP label		Unit-Code Body Weight. Change from default kilograms to pounds – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 19; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_KILO_G		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_001		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report to set the unit code to pounds MDC_DIM_LB (1760) for handle 1 (Body Weight Object) and a measurement in pounds. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in pounds (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal).		

	6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report with an observation in kilograms followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to kilograms by the standard configuration). 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies pounds to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-008		
TP label		Unit-Code Body Height. Change from default centimetres to inches – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyHeight20; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_CENTI_M.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_002		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 2 (Body Height Object) to inches nomenclature code MDC_DIM_INCH (1376). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in inches followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal). 6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then		

	• The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a fixed event report with an observation in centimetres followed by date and time stamp. 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies inches to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies centimetres to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-009		
TP label		Unit-Code Body Height. Do not change from default centimetres to inches – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyHeight20; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_CENTI_M		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND (NOT(C_MAN_BCA_002))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 2 (Body Height Object) to inches nomenclature code MDC_DIM_INCH (1376). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in inches followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.		
Pass/Fail criteria		• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.		
Notes				

TP Id		TP/PLT/PHG/CLASS/BCA/BV-010		
TP label		Unit-Code Body Height. Use default centimetres – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyHeight20; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_CENTI_M		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in centimetres. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies centimetres to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/BCA/BV-011		
TP label		Unit-Code Body Height. Change from default centimetres to inches – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyHeight20; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_CENTI_M		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_002		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report to set the unit code to inches MDC_DIM_INCH (1376) for handle 2 (Body Height Object) and a measurement in inches. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in inches (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends an association release request (normal).		

	6. The simulated PHD waits until it receives an association release response. 7. The simulated PHD sends an association request using the same configuration that was used initially. 8. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 9. The simulated PHD sends a confirmed variable event report with an observation in centimetres followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to kilograms by the standard configuration). 10. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies inches to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 10, verify that the PHG under test is able to accept the data properly and applies centimetres to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-012		
TP label		Unit-Code Body Fat. Change from default % to kilograms/pounds – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyFat21; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_PERCENT		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_003		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 3 (Body fat Object) to kilograms nomenclature code MDC_DIM_KILO_G (1731). 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report using a measurement in kilograms followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 3 (Body fat Object) to pounds nomenclature code MDC_DIM_LB (1760). 6. The simulated PHD waits until it receives a confirmation. 7. Send a confirmed fixed format event report using a measurement in kilograms followed by date and time stamp. 8. The simulated PHD waits until it receives a confirmation.		

	9. The simulated PHD sends an association release request (normal). 10. The simulated PHD waits until it receives an association release response. 11. The simulated PHD sends an association request using the same configuration that was used initially. 12. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 13. The simulated PHD sends a fixed event report with an observation in % followed by date and time stamp. 14. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies kilograms to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 8, verify that the PHG under test is able to accept the data properly and applies pounds to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 14, verify that the PHG under test is able to accept the data properly and applies % to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-013		
TP label		Unit-Code Body Fat. Do not change from default % to kilograms/pounds – fixed format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyFat21; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_PERCENT		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND (NOT(C_MAN_BCA_003))		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Unit-Code of handle 3 (Body Fat Object) to kilograms nomenclature code MDC_DIM_KILO_G (1731). 2. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or until TO cer-mds expires. 3. If the PHG has sent a confirmation in step 2, send a confirmed fixed format event report using a measurement in inches followed by date and time stamp. 4. The simulated PHD waits until it receives a confirmation, roer message, abrt message, release association or rorj message or TO cer-mds expires. 5. If the PHG has sent a confirmation in step 4, ask to the operator if the measurements have been properly received and displayed.
Pass/Fail criteria	• In step 2, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 4, verify that PHG sends a confirmation, or TOcer-mds expires, or PHG sends a roer message, abrt message, release association or rorj message. • In step 5, verify that measurements do not appear, or if they do appear, they are somehow designated as 'unsupported' data.
Notes	

TP Id		TP/PLT/PHG/CLASS/BCA/BV-014		
TP label		Unit-Code Body Fat. Use default % – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyFat21; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_PERCENT		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in centimetres. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies centimetres to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id	TP/PLT/PHG/CLASS/BCA/BV-015
TP label	Unit-Code Body Fat. Change from default % to kilograms/pounds – variable format observation

Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	BodyFat21; M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_PERCENT		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027 AND C_MAN_BCA_003		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report to set the unit code to kilograms MDC_DIM_KILO_G (1731) for handle 3 (Body Fat Object) and a measurement in kilograms. 2. The simulated PHD waits until it receives a confirmation. 3. Send a second confirmed variable format event report with just a measurement in kilograms (i.e., do not transmit the unit-code attribute in the event report). 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed variable format event report to set the unit code to pounds MDC_DIM_LB (1760) for handle 3 (Body Fat Object) and a measurement in pounds. 6. The simulated PHD waits until it receives a confirmation. 7. Send a second confirmed variable format event report with just a measurement in pounds (i.e., do not transmit the unit-code attribute in the event report). 8. The simulated PHD waits until it receives a confirmation. 9. The simulated PHD sends an association release request (normal). 10. The simulated PHD waits until it receives an association release response. 11. The simulated PHD sends an association request using the same configuration that was used initially. 12. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until it receives a confirmation from the confirmed configuration event report just sent. 13. The simulated PHD sends a confirmed variable event report with an observation in % followed by date and time stamp (i.e., do not send the unit-code attribute it should be set to kilograms by the standard configuration). 14. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In steps 2 and 4, verify that the PHG under test is able to accept the data properly and applies kilograms to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In steps 6 and 8, verify that the PHG under test is able to accept the data properly and applies pounds to the observations (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units). • In step 14, verify that the PHG under test is able to accept the data properly and applies centimetres to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/BCA/BV-016		
TP label		Special values. Not a number – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21; M	BodyHeight22; M	BodyFat23; M
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BCA/BV-017		
TP label		Special values. Not a number – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 26; M	BodyHeight38; M	BodyFat39; M
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for NaN ([exponent 0, mantissa +(2**23 –1) = 0x007FFFFF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BCA/BV-018		
TP label		Special values. Not at this resolution – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21; M	BodyHeight22; M	BodyFat23; M
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for NRes ([exponent 0, mantissa +(2**23) = 0x00800000]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BCA/BV-019		
TP label		Special values. Not at this resolution – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 26; M	BodyHeight38; M	BodyFat39; M
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for NRes ([exponent 0, mantissa +(2**23) = 0x00800000]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BCA/BV-020		
TP label		Special values. Positive infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21; M	BodyHeight22; M	BodyFat23; M
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 –2) = 0x007FFFFE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BCA/BV-021		
TP label		Special values. Positive infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 26; M	BodyHeight38; M	BodyFat39; M
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**23 –2) = 0x007FFFFE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if		

	they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BCA/BV-022		
TP label		Special values. Negative infinity – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21; M	BodyHeight22; M	BodyFat23; M
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 –2) = 0x00800002]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BCA/BV-023		
TP label		Special values. Negative infinity – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 26; M	BodyHeight38; M	BodyFat39; M
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**23 –2) = 0x00800002]).		

	2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BCA/BV-024		
TP label		Special values. Reserved – fixed format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 21; M	BodyHeight22; M	BodyFat23; M
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value that is reserved (Reserved for future use, [exponent 0, mantissa –(2**23–1) = 0x00800001]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/BCA/BV-025		
TP label		Special values. Reserved – variable format		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	WeightNumClass 26; M	BodyHeight38; M	BodyFat39; M
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_027		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		

Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (Body Weight), handle 2 (Body Height) and handle 3 (Body Fat) containing an observation with the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**23–1) = 0x00800001]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/BCA/BV-026		
TP label		Association procedure PHG BCA		
Coverage	**Spec**	[ISO/IEEE 11073-10420]		
	Testable items	ManProcAsResp1; M	ManProcAsResp2; M	ManProcAsResp3; M
		ManProcAsResp4; M	ManProcAsResp5; M	ManProcAsResp6; M
		ManProcAsResp7; M	ManProcAsResp8; M	ManProcAsResp9; M
		ManProcAsResp10; M	ManProcAsResp11; M	ManProcAsResp12; M
		ManProcAsResp13; C		
Test purpose		Check that: In the association response message sent by the PHG: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version1 (i.e., protocol-version = 0x80000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier		

	[AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_027
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '10000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16481 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected -no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected-unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected-unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId

	❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version ❑ field- type = Protocol Version ❑ field-length = 4 bytes (BITS-32) ❑ field-value= 0x80 0x00 0x00 0x00 f. encoding-rules ❑ field-type = EncodingRules ❑ field-length = 2 bytes (BITS-16) ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time g. nomenclature version ❑ field- type = NomenclatureVersion ❑ field-length = 4 bytes (BITS-32) ❑ field-value= Bit 0 must be set (nom-version1) h. functional units ❑ field-type = FunctionalUnits ❑ field-length = 4 bytes (BITS-32) ❑ field-value = ▪ Bit 0 must be 0 ▪ Bits 1 and 2 may be set ▪ The rest of the bits must not be set i. system type ❑ field- type = SystemType ❑ field-length = 4 bytes (BITS-32) ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager) j. system-id ❑ field- type = OCTET STRING ❑ field-length = 8 bytes ❑ field-value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00 n. data-req-init-manager-count (DataReqModeCapab)

	❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

A.14 Subgroup 2.3.13: Basic electrocardiograph (ECG)

TP Id		TP/PLT/PHG/CLASS/ECG/BV-000		
TP label		Configuration Event Report. Basic ECG specialization/Heart Rate profile standard configuration 600		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x0258 (HR). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x0258. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = it must be the same as the invoke-id of the simulated PHD's message.		

	c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value = MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	The PHG can request Get MDS while they are in the Associated state.

TP Id		TP/PLT/PHG/CLASS/ECG/BV-001		
TP label		Maximum APDU size: Basic ECG specialization/Heart Rate profile without PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10406]		
	Testable items	CommChar1; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the		

	specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_029
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 1248
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(1224 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (2646 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 79`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed fixed event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/ECG/BV-002		
TP label		Maximum APDU size: Basic ECG specialization/ Simple ECG profile without PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10406]		
	Testable items	CommChar1; M		

Test purpose	Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_030
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 7136
	`ObservationScan ::= {`
	`obj-handle: 9`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(7112 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 9`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2454 (MDC_ATTR_UNIT_CODE)`
	`attribute-value: 2194 (MDC_DIM_MILLI_VOLT)`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed variable event report with one attribute update.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/ECG/BV-003		
TP label		Maximum APDU size: Basic ECG Specialization/Heart Rate profile with PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10406]		
	Testable items	CommChar1; M		

Test purpose	Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_003 AND C_MAN_OXP_029
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHG sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 64472
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(64448 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 79`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed format event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/ECG/BV-004		
TP label		Maximum APDU size: Basic ECG/Simple ECG profile with PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10406]		
	Testable items	CommChar1; M		

Test purpose	Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_003 AND C_MAN_OXP_030
Other PICS	
Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 64472
	`ObservationScan ::= {`
	`obj-handle: 9`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(64448 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 9`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2454 (MDC_ATTR_UNIT_CODE)`
	`attribute-value: 2194 (MDC_DIM_MILLI_VOLT)`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a Confirmed variable event report with one attribute update.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/ECG/BV-005		
TP label		Basic ECG Specialization/Heart Rate profile. Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate22; M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_REL		

Applicability	C_MAN_OXP_000 AND C_MAN_OXP_029
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of: ❑ MDC_ATTR_NU_VAL_OBS_BASIC then MDC_ATTR_TIME_STAMP_REL for Heart Rate Object 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Heart Rate Object) to reverse the values to: ❑ MDC_ATTR_TIME_STAMP_REL then MDC_ATTR_NU_VAL_OBS_BASIC for Heart Rate Object 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date (relative-time-stamp) by a measurement data for Heart Rate Object. 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC then MDC_ATTR_TIME_STAMP_REL). The observations should be reasonable Heart Rate. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses beats/min as the unit code for Heart Rate (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/ECG/BV-006
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Not a number – fixed format (Std Config 600)
Coverage	**Spec**	[ISO/IEEE 11073-10406]

	Testable items	HeartRate22; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Heart Rate Object) containing an observation value with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ECG/BV-007		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Not a number – variable format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate44; M		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Heart Rate Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id	TP/PLT/PHG/CLASS/ECG/BV-008
TP label	Basic ECG Specialization/Heart Rate profile. Special values. Not at this resolution – fixed

		format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate22; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Heart Rate Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ECG/BV-009		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Not at this resolution – variable format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate44; M		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Heart Rate Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ECG/BV-010		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Positive infinity – fixed format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate22; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Heart Rate Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ECG/BV-011		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Positive infinity – variable format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate44; M		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Heart Rate Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/ECG/BV-012		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Negative infinity – fixed format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate22; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Heart Rate Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ECG/BV-013		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Negative infinity – variable format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate44; M		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Heart Rate Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		

Pass/Fail criteria	• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/ECG/BV-014		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Reserved – fixed format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate22; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 600.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Heart Rate Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/ECG/BV-015		
TP label		Basic ECG Specialization/Heart Rate profile. Special values. Reserved – variable format (Std Config 600)		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	HeartRate44; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_029		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1701.		

Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (Heart Rate Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.
Pass/Fail criteria	• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/ECG/BV-016		
TP label		Association procedure PHG ECG		
Coverage	**Spec**	[ISO/IEEE 11073-10406]		
	Testable items	ManProcAsResp1; M	ManProcAsResp2; M	ManProcAsResp3; M
		ManProcAsResp4; M	ManProcAsResp6; M	ManProcAsResp7; M
		ManProcAsResp8; M	ManProcAsResp9; M	ManProcAsResp10; M
		ManProcAsResp11; M	ManProcAsResp12; M	ManProcAsResp13; M
		ManProcAsResp14; C		
Test purpose		Check that: In the association response message sent by the PHG: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version2 (i.e., protocol-version = 0x40000000) [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier		

	[AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] The fields data-req-init-*-count shall be 0
Applicability	C_MAN_OXP_000 AND (C_MAN_OXP_029 OR C_MAN_OXP_030)
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '01000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16481 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected-unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected-unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId

- ❑ field-length = 2 bytes
- ❑ field-value= 0x50 0x79 (20601)

e. protocol-version
- ❑ field- type = Protocol Version
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value= 0x40 0x00 0x00 0x00

f. encoding-rules
- ❑ field-type = EncodingRules
- ❑ field-length = 2 bytes (BITS-16)
- ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version
- ❑ field- type = NomenclatureVersion
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value= Bit 0 must be set (nom-version1)

h. functional units
- ❑ field-type = FunctionalUnits
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value =
  - Bit 0 must be 0
  - Bits 1 and 2 may be set
  - The rest of the bits must not be set

i. system type
- ❑ field- type = SystemType
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

j. system-id
- ❑ field- type = OCTET STRING
- ❑ field-length = 8 bytes
- ❑ field-value = (EUI-64 manufacturer and device)

k. dev-config-id
- ❑ field- type = ConfigId
- ❑ field-length = 2 bytes
- ❑ field-value = 0x00 0x00 (manager-config-response)

l. data-req-mode-flags (DataReqModeCapab)
- ❑ field- type = DataReqModeFlags
- ❑ field-length = 2 bytes
- ❑ field-value = 0x00 0x00
- ❑ PHG response to data-req-mode-flags is always 0.

m. data-req-init-agent-count (DataReqModeCapab)
- ❑ field- type = INT-U8
- ❑ field-length = 1 byte
- ❑ field-value = 0x00

n. data-req-init-manager-count (DataReqModeCapab)

	❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field-value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

A.15 Subgroup 2.3.14: International normalized ratio (INR)

TP Id		TP/PLT/PHG/CLASS/INR/BV-000		
TP label		Association procedure PHG INR		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	ManProcAs 1;M	ManProcAs 2;M	ManProcAs 3;M
		ManProcAs 4;M	ManProcAs 5;M	ManProcAs 6;M
		ManProcAs 7;M	ManProcAs 8;M	ManProcAs 9;M
		ManProcAs 10;M	ManProcAs 11;M	ManProcAs 12;M
Test purpose		Check that: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601. [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version 2 [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0		

	[AND] If the PHD supports only the INR specialization, data-req-init-agent-count shall be set to 0 and data-req-init-manager-count shall be set to 0.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_067
Other PICS	
Initial condition	The PHG is in the Unassociated state.
Test procedure	1. The simulated PHD sends an association request to the PHG under test, with the fields: ❑ protocol-version = '01000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16440 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an association response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field-value= 0x00 0x00. ▪ If association is rejected-permanent, field-value= 0x00 0x01. ▪ If association is rejected-transient, field-value= 0x00 0x02. ▪ If association is accepted-unknown-config, field-value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field-value= 0x00 0x04. ▪ If association is rejected-no-common-parameter, field-value= 0x00 0x05. ▪ If association is rejected–unknown = 0x00 0x06. ▪ If association is rejected-unauthorized, field-value= 0x00 0x07. ▪ If association is rejected–unsupported-assoc-version, field-value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601) e. protocol-version

- ❑ field- type = Protocol Version
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value= 0x80 0x00 0x00 0x00

f. encoding-rules

- ❑ field-type = EncodingRules
- ❑ field-length = 2 bytes (BITS-16)
- ❑ field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version

- ❑ field- type = NomenclatureVersion
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value= Bit 0 must be set (nom-version1)

h. functional units

- ❑ field-type = FunctionalUnits
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value =
  - Bit 0 must be 0
  - Bits 1 and 2 may be set
  - The rest of the bits must not be set

i. system type

- ❑ field- type = SystemType
- ❑ field-length = 4 bytes (BITS-32)
- ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

j. system-id

- ❑ field- type = OCTET STRING
- ❑ field-length = 8 bytes
- ❑ field-value = (EUI-64 manufacturer and device)

k. dev-config-id

- ❑ field- type = ConfigId
- ❑ field-length = 2 bytes
- ❑ field-value = 0x00 0x00 (manager-config-response)

l. data-req-mode-flags (DataReqModeCapab)

- ❑ field- type = DataReqModeFlags
- ❑ field-length = 2 bytes
- ❑ field-value = 0x00 0x00
- ❑ PHG response to data-req-mode-flags is always 0.

m. data-req-init-agent-count (DataReqModeCapab)

- ❑ field- type = INT-U8
- ❑ field-length = 1 byte
- ❑ field-value = 0x00

n. data-req-init-manager-count (DataReqModeCapab)

- ❑ field- type = INT-U8
- ❑ field-length = 1 byte
- ❑ field-value = 0x00

Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	Value for protocol-version has been modified according to [ISO/IEEE 11073-20601-2015A].

TP Id		TP/PLT/PHG/CLASS/INR/BV-001		
TP label		Configuration Event Report. INR monitor standard configuration 1800		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	ConfProc 4;M	MDSEvents 2;M	ObjAccServ 5;M
	Spec	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field . [AND] A PHG shall support both single-person and multi-person event reports. [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state. The simulated PHD implements an INR monitor device specialization with standard configuration 1800.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x07 0x08 (INR monitor – Std Config 1800) 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x07 0x08. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu)		

	b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value= it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one INR measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-002		
TP label		Configuration Event Report. Glucose Meter standard configuration 1801		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	ConfProc 4;M	MDSEvents 2;M	ObjAccServ 5;M
	Spec	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		

	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field . [AND] A PHG shall support both single-person and multi-person event reports. [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state. The simulated PHD implements an INR monitor device specialization with standard configuration 1801.		
Test procedure		1. The simulated PHD sends an association request to the PHG under test with dev-config-id set to 0x07 0x09 (INR monitor – Std Config 1801). 2. The PHG under test responds with an association response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unknown-config) If the result of the association response was "accepted-unknown-config" 3. The simulated PHD sends a configuration event report with config-report-id set to 0x06 0xA5. 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = it must be the same as the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes		

	❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same as config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases. 6. The simulated PHD sends a fixed event report with one INR measurement and other fixed event report with Control Solution measurement.
Pass/Fail criteria	• The PHG under test must respond either to the association request with an "accepted" message or to the Configuration Event Report with an "accepted-config". • The measurement is correctly presented.
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-003		
TP label		Maximum APDU size: INR monitor without PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10418C]		
	Testable items	ComChar 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 856
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(832 bytes)..... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 1`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed format event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-004		
TP label		Maximum APDU size: INR monitor with PM-Store		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10418C]		
	Testable items	ComChar 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067 AND C_MAN_OXP_003		
Other PICS				

Initial condition	The PHG under test is in the Operating state.

Test procedure	1. The simulated PHD sends a Confirmed variable event report:
	a. ScanReportInfoVar. obs_scan_var:
	❑ Count = 2
	❑ Length = 64472
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 61441`
	`attribute-value: '00.....(64448 bytes)...... 00'O`
	`}`
	`}`
	`}`
	`ObservationScan ::= {`
	`obj-handle: 1`
	`attributes: AttributeList ::= {`
	`AVA-Type ::= {`
	`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
	`attribute-value: 1`
	`}`
	`}`
	`}`
	2. Check the response of the PHG under test.
	3. The simulated PHD sends a confirmed fixed format event report with one measurement.
	4. Check the response of the PHG under test.

Pass/Fail criteria	• In step 2 the PHG under test must respond with a "rors-cmip-confirmed-event-report". • In step 4 the PHG under test must respond with a "rors-cmip-confirmed-event-report".
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-005		
TP label		INR Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10; M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation.		

	3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (INR Object) to reverse the values to: MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date first followed by an INR value. 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO). The observation should be a reasonable INR observation. 12. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In steps 2, 6 and 12 verify that the PHG under test uses INR unit as the unit code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-006		
TP label		INR Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (INR Numeric standard configuration Unit code attribute is set to		

	MDC_DIM_INR)
Test procedure	1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (INR Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use MDC_DIM_INR (6608). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC attribute. 6. The simulated PHD waits until it receives a confirmation.
Pass/Fail criteria	• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses INR unit as the unit code for the measurement reports.
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-007		
TP label		INR Unit-Code. Use default INR units – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 8;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_INR		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in INR unit. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies INR unit to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id	TP/PLT/PHG/CLASS/INR/BV-008
TP label	Special values. Not a number – fixed format (Std Config 1800)

Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (INR Object) containing an observation value with the value for NaN ([exponent 0, mantissa +(2**11 – 1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-009		
TP label		Special values. Not a number – variable format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 20; R		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (INR Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-010		
TP label		Special values. Not at this resolution – fixed format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (INR Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-011		
TP label		Special values. Not at this resolution – variable format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 20; R		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (INR Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-012		
TP label		Special values. Positive infinity – fixed format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (INR Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-013		
TP label		Special values. Positive infinity – variable format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 20; R		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (INR Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-014		
TP label		Special values. Negative infinity – fixed format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (INR Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-015		
TP label		Special values. Negative infinity – variable format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 20; R		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (INR Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/INR/BV-016		
TP label		Special values. Reserved – fixed format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 10; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (INR Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-017		
TP label		Special values. Reserved – variable format (Std Config 1800)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	INR 20; R		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (INR Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but		

	does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/INR/BV-018		
TP label		Control Calibration Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a Control Solution confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation. 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Control Calibration Object) to reverse the values to: MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation. 5. Send a confirmed fixed format event report with the date first followed by a control calibration value (in INR units since it is the standard configuration unit code). 6. The simulated PHD waits until it receives a confirmation. 7. The simulated PHD sends an association release request (normal). 8. The simulated PHD waits until there is an association release response. 9. The simulated PHD sends an association request using the same standard configuration that was used previously. 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration. • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO). The observation should be a reasonable INR units INR observation. 12. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In steps 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly).		

	• In steps 2, 6 and 12 verify that the PHG under test uses INR units as the unit code for the measurement report (or reports the proper value after conversion to another unit code). • In steps 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, it is necessary to be careful about sending these messages back to back since the ability to look at things like an UI may require that there be pauses for operator verification.
Notes	

TP Id		TP/PLT/PHG/CLASS/INR/BV-019		
TP label		Control Calibration Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (Control Calibration Numeric standard configuration Unit code attribute is set to MDC_DIM_INR).		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 2 (Control Calibration Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation. 3. Send a confirmed fixed format event report with the new data layout. For the unit-code attribute, use MDC_DIM_INR (6608). 4. The simulated PHD waits until it receives a confirmation. 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC attribute. 6. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI, verify that the measurement is displayed properly). • In steps 4 and 6, verify that the PHG under test uses INR units as the unit code for the measurement reports.		
Notes				

TP Id		TP/PLT/PHG/CLASS/INR/BV-020		
TP label		Control Calibration Unit-Code. Use default INR units – variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 6;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_INR		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in INR units. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data properly and applies INR units to the observation (e.g. if there is a UI, verify that the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/INR/BV-021		
TP label		Special values. Not a number – fixed format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Calibration Object) containing an observation value with the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-022		
TP label		Special values. Not at this resolution – fixed format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Calibration Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-023		
TP label		Special values. Positive infinity – fixed format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Calibration Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-024		
TP label		Special values. Negative infinity – fixed format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7; M		
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Calibration Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-025		
TP label		Special values. Reserved – fixed format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 7; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 2 (Control Calibration Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp. 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/INR/BV-026		
TP label		Special values. Not a number – variable format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 13; R		
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Calibration Object) containing an observation value set to the value for NaN ([exponent 0, mantissa +(2**11 –1) = 0x07FF]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-027		
TP label		Special values. Not at this resolution – variable format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 13; R		
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Calibration Object) containing an observation value set to the value for NRes ([exponent 0, mantissa –(2**11) = 0x0800]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/INR/BV-028		
TP label		Special values. Positive infinity – variable format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 13; R		
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Calibration Object) containing an observation value set to the value for positive infinity (+INFINITY, [exponent 0, mantissa +(2**11 –2) = 0x07FE]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/INR/BV-029		
TP label		Special values. Negative infinity – variable format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 13; R		
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Calibration Object) containing an observation value set to the value for negative infinity (–INFINITY, [exponent 0, mantissa –(2**11 –2) = 0x0802]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is		

	displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/INR/BV-030		
TP label		Special values. Reserved – variable format (Std Config 1801)		
Coverage	**Spec**	[ISO/IEEE 11073-10418C]		
	Testable items	CtrlCal 13; R		
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_067		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1801.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 2 (Control Calibration Object) containing an observation value set to the value for reserved (Reserved for future use, [exponent 0, mantissa –(2**11 –1) = 0x0801]). 2. The simulated PHD waits until it receives a confirmation from the PHG under test.		
Pass/Fail criteria		• Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI, verify that the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

A.16 Subgroup 2.3.15: Sleep apnoea breathing therapy equipment (SABTE)

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-000		
TP label		Association procedure PHG SABTE		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	ManProcAs 1;M	ManProcAs 2;M	ManProcAs 3;M
		ManProcAs 4;M	ManProcAs 5;M	ManProcAs 6;M
		ManProcAs 7;M	ManProcAs 8;M	ManProcAs 9;M
		ManProcAs 10;M	ManProcAs 11;M	ManProcAs 12;M
Test purpose		Check that: The result field shall be set to an appropriate response from those defined in ISO/IEEE P11073-20601. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601. [AND]		

	The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version 2 [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND] The field data-req-mode-capab shall be 0 [AND] If the PHD supports only the SABTE specialization, data-req-init-agent-count shall be set to 0 and data-req-init-manager-count shall be set to 0.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_069
Other PICS	
Initial condition	The PHG is the Unassociated state.
Test procedure	1. Simulated PHD sends an Association Request to the PHG under test, with the fields: ❑ protocol-version = '01000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16440 ❑ data-rep-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an Association Response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result

- field- type = AssociateResult
- field-length = 2 bytes
- field-value = One of the following:
  - If association is accepted , field- value= 0x00 0x00.
  - If association is rejected-permanent , field- value= 0x00 0x01.
  - If association is rejected-transient , field- value= 0x00 0x02.
  - If association is accepted-unknown-config , field- value= 0x00 0x03.
  - If association is rejected-no-common-protocol, field- value= 0x00 0x04.
  - If association is rejected -no-common-parameter, field- value= 0x00 0x05.
  - If association is rejected –unknown = 0x00 0x06.
  - If association is rejected -unauthorized, field- value= 0x00 0x07.
  - If association is rejected –unsupported-assoc-version , field- value= 0x00 0x08.

c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id))

d. data-proto-id
- field- type = DataProtoId
- field-length = 2 bytes
- field-value= 0x50 0x79 (20601)

e. protocol-version
- field- type = Protocol Version
- field-length = 4 bytes (BITS-32)
- field-value= 0x80 0x00 0x00 0x00

f. encoding-rules
- field-type = EncodingRules
- field-length = 2 bytes (BITS-16)
- field-value= depends on the encoding rules supported/selected, but only one can be supported at a time

g. nomenclature version
- field- type = NomenclatureVersion
- field-length = 4 bytes (BITS-32)
- field-value= Bit 0 must be set (nom-version1)

h. functional units
- field-type = FunctionalUnits
- field-length = 4 bytes (BITS-32)
- field-value =
  - Bit 0 must be 0
  - Bits 1 and 2 may be set
  - The rest of the bits must not be set

i. system type
- field- type = SystemType
- field-length = 4 bytes (BITS-32)
- field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)

j. system-id
- field- type = OCTET STRING

	❑ field-length = 8 bytes ❑ field- value = (EUI-64 manufacturer and device) k. dev-config-id ❑ field- type = ConfigId ❑ field-length = 2 bytes ❑ field- value = 0x00 0x00 (manager-config-response) l. data-req-mode-flags (DataReqModeCapab) ❑ field- type = DataReqModeFlags ❑ field-length = 2 bytes ❑ field- value = 0x00 0x00 ❑ PHG response to data-req-mode-flags is always 0. m. data-req-init-agent-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field- value = 0x00 n. data-req-init-manager-count (DataReqModeCapab) ❑ field- type = INT-U8 ❑ field-length = 1 byte ❑ field- value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	[AT4wireless] Value for protocol-version has been modified according to 20601-2015A.

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-001		
TP label		Configuration Event Report. SABTE standard configuration 2400		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	ConfProc 4;M	MDSEvents 2;M	ObjAccServ 5;M
	Spec	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a “Remote Operation Response | Confirmed Event Report” data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field . [AND] A PHG shall support both single-person and multi-person event reports. [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance		

	(or rejection) of the PHD.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_069
Other PICS	C_MAN_OXP_085
Initial condition	The simulated PHD and the PHG under test are the Unassociated state. The simulated PHD implements a SABTE device specialization with Standard Configuration 2400
Test procedure	1. The simulated PHD sends an Association Request to the PHG under test with dev-config-id set to 0x09 0x60 (SABTE – Std Config 2400) 2. The PHG under test responds an Association Response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unkown-config) IF the result of the Association Response was “accepted-unkown-config” 3. The simulated PHD sends a configuration event report with config-report-id set to 0x07 0x08 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field- value= it must be the same that the invoke-id of the simulated PHD’s message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value: 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value= MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same that config-report-id of the simulated PHD’s message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list

	set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object Wait until the Operating state is reached in both cases 6. The simulated PHD sends a fixed event report with one SABTE measurement
Pass/Fail criteria	• The PHG under test must respond either to the Association Request with an "accepted" message or to the Configuration Event Report with an "accepted-config" • The measurement is correctly presented
Notes	

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-002		
TP label		Maximum APDU size: SABTE		
Coverage	**Spec**	[ISO/IEEE 11073-20601-2015A] and [ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4;M		
	Spec	[ISO/IEEE 11073-10424]		
	Testable items	ComChar 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 64472
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....(64448 bytes)..... 00'O`
		`}`
		`}`
		`}`
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`		

	attribute-value: 1 } } } 2. Check the response of the PHG under test 3. Simulated PHD sends a confirmed fixed format event report with one measurement. 4. Check the response of the PHG under test
Pass/Fail criteria	• In step 2 the PHG under test must respond with a “rors-cmip-confirmed-event-report” • In step 4 the PHG under test must respond with a “rors-cmip-confirmed-event-report”
Notes	

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-003		
TP label		Attribute-Value-Map. Order change		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 10; M	DFG 10; M	DevMode 8; M
		TherMode 8; M		
Test purpose		Check that: For [Standard-Configuration, Duration of Patient Use] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO [AND] For [Standard-Configuration, Duration of Flow Generation] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_BO. [AND] For [Standard-Configuration, Device Mode Set] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_ENUM_OBS_VAL_SIMP_OID then MDC_ATTR_TIME_STAMP_BO. [AND] For [Standard-Configuration, Therapy Mode Set] the [Attribute-Value-Map] attribute shall be present and its value shall be MDC_ATTR_ENUM_OBS_VAL_SIMP_OID then MDC_ATTR_TIME_STAMP_BO.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report with that matches the Attribute-Value-Map order of: a. MDC_ATTR_NU_VAL_OBS_BASIC then MDC_ATTR_TIME_STAMP_BO for Duration of Patient Use Object b. MDC_ATTR_NU_VAL_OBS_SIMP then MDC_ATTR_TIME_STAMP_BO for Duration of Flow Generation Object c. MDC_ATTR_ENUM_OBS_VAL_SIMP_OID, then MDC_ATTR_TIME_STAMP_BO for Device Mode Set		

	d. MDC_ATTR_ENUM_OBS_VAL_SIMP_OID, then MDC_ATTR_TIME_STAMP_BO for Therapy Mode Set. 2. The simulated PHD waits until it receives a confirmation 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Duration of Patient Use) Object) handle 2 (Duration of Flow Generation Object), handle 3 (Device Mode Set Object) and handle 4 (Therapy Mode Set Object) to reverse the values to: a. MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_BASIC for Duration of Patient Use Object. b. MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_SIMP for Duration of Flow Generation Object. c. MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_ENUM_OBS_VAL_SIMP_OID for Device Mode Set Object. d. MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_ENUM_OBS_VAL_SIMP_OID for Therapy Mode Set Object. 4. The simulated PHD waits until it receives a confirmation 5. Send a confirmed fixed format event report with the date first followed by a value for every object. 6. The simulated PHD waits until it receives a confirmation 7. The simulated PHD sends an Association Release Request (normal) 8. The simulated PHD waits until there is a Association Release Response 9. The simulated PHD sends an Association Request using the same standard configuration that was used previously 10. If the PHG under test responds with association request response with "accepted-unknown-config", then • The simulated PHD sends the confirmed configuration event report with the standard configuration • The simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (Observed value defined for every object, then MDC_ATTR_TIME_STAMP_BO). The observation should be reasonable Duration of Patient Use, Duration of Flow Generation, Device Mode Set and Therapy Mode Set observations. 12. The simulated PHD waits until it receives a confirmation
Pass/Fail criteria	• In Step 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In Step 2, 6 and 12 verify the PHG under test uses minutes as the unit-code for Duration of Patient Use and Duration of Flow Generation measurement reports (or reports the proper value after convert to another unit-code) • In Step 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation's time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, need to be careful about just sending these messages back to back since the ability to look at things like a UI may need there to be pauses for operator verification.
Notes	

TP Id	TP/PLT/PHG/CLASS/SABTE/BV-004
TP label	Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map

Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 10;M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration. (Duration of Patient Use Numeric standard configuration Unit code attribute is set to MDC_DIM_MIN)		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Duration of Patient Use Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation 3. Send a confirmed fixed format event report with the new data layout. For unit-code Attribute, use MDC_DIM_MIN (2208). 4. The simulated PHD waits until it receives a confirmation 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC Attribute. 6. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		• In Step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In Step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement is displayed properly) • In Step 4 and 6, verify the PHG under test uses Duration of Patient Use unit as the unit-code for the measurement reports		
Notes				

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-005		
TP label		Unit-Code Duration of Patient Use. Use default minutes - variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 8;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MIN		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration.
Test procedure	1. Send a confirmed variable format event report using a measurement in minutes 2. The simulated PHD waits until it receives a confirmation
Pass/Fail criteria	Verify that the PHG under test is able to accept the data properly and applies minutes to the observation (e.g. if there is a UI verify the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-006		
TP label		Unit-Code Duration of Flow Generation. Use default minutes - variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DFG 8;M		
Test purpose		Check that: For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MIN		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. Send a confirmed variable format event report using a measurement in minutes. 2. The simulated PHD waits until it receives a confirmation.		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data properly and applies minutes to the observation (e.g. if there is a UI verify the measurement and date are displayed properly even if they are converted to a different set of units).		
Notes				

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-007		
TP label		Special values. Not a number - fixed format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 10; M	DFG 10; M	
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		

Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value with the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF for Duration of Patient Use], [exponent 0, mantissa +(2**23 –1) = 0x007FFFFF for Duration of Flow Generation]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-008		
TP label		Special values. Not a number – variable format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 12; M	DFG 12; M	
Test purpose		Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value with the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF for Duration of Patient Use], [exponent 0, mantissa +(2**23 –1) = 0x007FFFFF for Duration of Flow Generation]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-009		
TP label		Special values. Not at this resolution - fixed format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 10; R	DFG 10; R	
Test purpose		Check that:		

	The PHG receives NRes value (fixed format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_069
Other PICS	
Initial condition	The simulated PHD and PHG under test are in the Operating state using the standard configuration 2400.
Test procedure	1. The simulated PHD sends a confirmed fixed event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800 for Duration of Patient Use], [exponent 0, mantissa –(2**23) = 0x00800000 for Duration of Flow Generation]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-010		
TP label		Special values. Not at this resolution - variable format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 12; R	DFG 12; R	
Test purpose		Check that: The PHG receives NRes value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800 for Duration of Patient Use], [exponent 0, mantissa –(2**23) = 0x00800000 for Duration of Flow Generation]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-011
TP label		Special values. Positive infinity - fixed format (Std Config 2400)
Coverage	**Spec**	[ISO/IEEE 11073-10424]

	Testable items	DPU 10; M	DFG 10; M	
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE for Duration of Patient Use], [exponent 0, mantissa +(2**23 –2) = 0x007FFFFE for Duration of Flow Generation]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-012		
TP label		Special values. Positive infinity - variable format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 12; R	DFG 12; R	
Test purpose		Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE for Duration of Patient Use], [exponent 0, mantissa +(2**23 –2) = 0x007FFFFE for Duration of Flow Generation]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-013		
TP label		Special values. Negative infinity - fixed format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 10; M	DFG 10; M	
Test purpose		Check that: The PHG receives a –INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for negative infinity (– INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802 for Duration of Patient Use], [exponent 0, mantissa –(2**23 –2) = 0x00800002 for Duration of Flow Generation]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-014		
TP label		Special values. Negative infinity - variable format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 12; R	DFG 12; R	
Test purpose		Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for negative infinity (– INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802 for Duration of Patient Use], [exponent 0, mantissa –(2**23 –2) = 0x00800002 for Duration of Flow Generation]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		

Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-015		
TP label		Special values. Reserved - fixed format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 10; M	DFG 10; M	
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2400.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801 for Duration of Patient Use], [exponent 0, mantissa –(2**23 –1) = 0x00800001 for Duration of Flow Generation]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/SABTE/BV-016		
TP label		Special values. Reserved - variable format (Std Config 2400)		
Coverage	**Spec**	[ISO/IEEE 11073-10424]		
	Testable items	DPU 12; R	DFG 12; R	
Test purpose		Check that: The PHG receives a Reserved for future use value (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_069		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 1800.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Duration of Patient Use Object) and handle 2 (Duration of Flow Generation Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801 for Duration of Patient Use], [exponent 0, mantissa –(2**23 –1) = 0x00800001 for Duration of Flow Generation])		

	2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

A.17 Subgroup 2.3.16: Continuous glucose monitor (CGM)

TP Id		TP/PLT/PHG/CLASS/CGM/BV-000		
TP label		Association procedure PHG Continuous Glucose Monitor		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	ManProcAsCGM 1;M	ManProcAsCGM 2;M	ManProcAsCGM 3;M
		ManProcAsCGM 4;M	ManProcAsCGM 5;M	ManProcAsCGM 6;M
		ManProcAsCGM 7;M	ManProcAsCGM 8;M	ManProcAsCGM 9;M
		ManProcAsCGM 10;M	ManProcAsCGM 11;M	ManProcAsCGM 12;M
Test purpose		Check that: The result field shall be set to an appropriate response from those defined in [ISO/IEEE 11073-20601-2016C]. [AND] In the DataProtoList structure element, the data protocol identifier shall be set to data-proto-id-20601 [AND] The data-proto-info field shall be filled in with a PhdAssociationInformation structure [AND] The version of the data exchange protocol shall be set to protocol-version 2 [AND] The PHG shall respond with a single selected encoding rule that is supported by both PHD and PHG. The PHG shall support at least the MDER encoding rules [AND] The version of the nomenclature used shall be set to nom-version1 (i.e., nomenclature-version = 0x80000000) [AND] The field functional-units shall have all bits reset except for those relating to a Test Association. [AND] The field system-type shall be set to sys-type-manager (i.e., system-type = 0x80000000) [AND] The System-Id field shall contain the unique system id of the PHG device, which shall be a valid EUI-64 type identifier [AND] The field dev-config-id shall be manager-config-response (0) [AND]		

	The field data-req-mode-capab shall be 0 [AND] If the PHD supports only the CGM specialization, data-req-init-agent-count shall be 0 and data-req-init-manager-count shall be 0
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_073
Other PICS	
Initial condition	The PHG is in the Unassociated state
Test procedure	1. The simulated PHD sends an Association Request to the PHG under test, with the fields: ❑ protocol-version = '01000000000000000000000000000000'B ❑ encoding-rules= '1000000000000000'B ❑ nomenclature-version = '10000000000000000000000000000000'B ❑ functional-units = '00000000000000000000000000000000'B ❑ system-type = '00000000100000000000000000000000'B ❑ dev-config-id = 16440 ❑ data-req-mode-capab = ▪ data_req_mode_flags= '0000000000000001'B ▪ data_req_init_agent_count = 1 ▪ data_req_init_manager_count = 0 ❑ option-list.length= 0 2. The PHG under test sends an Association Response. The fields of interest are: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE3 0x00 (AareApdu) b. Result ❑ field- type = AssociateResult ❑ field-length = 2 bytes ❑ field-value = One of the following: ▪ If association is accepted, field- value= 0x00 0x00. ▪ If association is rejected-permanent, field- value= 0x00 0x01. ▪ If association is rejected-transient, field- value= 0x00 0x02. ▪ If association is accepted-unknown-config, field- value= 0x00 0x03. ▪ If association is rejected-no-common-protocol, field- value= 0x00 0x04. ▪ If association is rejected -no-common-parameter, field- value= 0x00 0x05. ▪ If association is rejected –unknown = 0x00 0x06. ▪ If association is rejected -unauthorized, field- value= 0x00 0x07. ▪ If association is rejected –unsupported-assoc-version, field- value= 0x00 0x08. c. selected-data-proto (DataProto: sequence of data-proto-id (DataProtoId) and data-proto-info(defined by data-proto-id)) d. data-proto-id ❑ field- type = DataProtoId ❑ field-length = 2 bytes ❑ field-value= 0x50 0x79 (20601)

e. protocol-version
   - ❑ field- type = Protocol Version
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value= 0x40 0x00 0x00 0x00
f. encoding-rules
   - ❑ field-type = EncodingRules
   - ❑ field-length = 2 bytes (BITS-16)
   - ❑ field-value = depends on the encoding rules supported/selected, but only one can be supported at a time
g. nomenclature version
   - ❑ field- type = NomenclatureVersion
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value = Bit 0 must be set (nom-version1)
h. functional units
   - ❑ field-type = FunctionalUnits
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value =
     - Bit 0 must be 0
     - Bits 1 and 2 may be set
     - The rest of the bits must not be set
i. system type
   - ❑ field- type = SystemType
   - ❑ field-length = 4 bytes (BITS-32)
   - ❑ field-value = 0x80 0x00 0x00 0x00 (sys-type-manager)
j. system-id
   - ❑ field- type = OCTET STRING
   - ❑ field-length = 8 bytes
   - ❑ field- value = (EUI-64 manufacturer and device)
k. dev-config-id
   - ❑ field- type = ConfigId
   - ❑ field-length = 2 bytes
   - ❑ field- value = 0x00 0x00 (manager-config-response)
l. data-req-mode-flags (DataReqModeCapab)
   - ❑ field- type = DataReqModeFlags
   - ❑ field-length = 2 bytes
   - ❑ field- value = 0x00 0x00
   - ❑ PHG response to data-req-mode-flags is always 0.
m. data-req-init-agent-count (DataReqModeCapab)
   - ❑ field- type = INT-U8
   - ❑ field-length = 1 byte
   - ❑ field- value = 0x00
n. data-req-init-manager-count (DataReqModeCapab)
   - ❑ field- type = INT-U8
   - ❑ field-length = 1 byte

	❑ field- value = 0x00
Pass/Fail criteria	All checked values are as specified in the test procedure.
Notes	

TP Id		TP/PLT/PHG/CLASS/CGM/BV-001		
TP label		Configuration Event Report. Continuous Glucose Monitor standard configuration		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	ConfProcCGM 4;M	MDSEventsCGM 2;M	ObjAccServCGM 5;M
	Spec	[ISO/IEEE 11073-20601-2016C]		
	Testable items	ConfEventRep 18;M		
Test purpose		Check that: The PHG shall respond to a configuration notification message using a "Remote Operation Response | Confirmed Event Report" data message with an MDC_NOTI_CONFIG event using the ConfigReportRsp structure for the event-info field [AND] A PHG shall support both single-person and multi-person event reports. [AND] A Continuous Glucose Monitor PHG shall respond to an [MDS-Configuration-Event] using a [Confirmed] event report response. The Response shall include the event-reply-info [ConfigReportRsp] [AND] A PHG that supports one (or more) of the ISO/IEEE 11073-104xx device specialization standards shall be able to accept all the standard device configurations specified for the profiles listed in conformance Table 23 under Gen-4. [AND] Alternatively, the PHG may request the PHD to send the standard configuration in order to enter the Configuring state and check attributes from the MDS object prior to final acceptance (or rejection) of the PHD.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS		C_MAN_OXP_085		
Initial condition		The simulated PHD and the PHG under test are in the Unassociated state. The simulated PHD implements a Continuous Glucose Monitor device specialization with Standard Configuration (2500)		
Test procedure		1. The simulated PHD sends an Association Request to the PHG under test with dev-config-id set to 0x09 0xC4 (Continuous Glucose Monitor PHD – Std Config 2500) 2. The PHG under test responds an Association Response, the field of interest is: a. Result ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 (accepted) or 0x00 0x03 (accepted-unkown-config) IF the result of the Association Response was "accepted-unkown-config"		

	3. The simulated PHD sends a configuration event report with config-report-id set to 0x09 0xC4 4. The PHG under test must respond with: a. APDU Type ❑ field-length = 2 bytes ❑ field-value = 0xE7 0x00 (PrstApdu) b. Invoke-id ❑ field- type = INT-U16 ❑ field-length = 2 bytes ❑ field-value = it must be the same that the invoke-id of the simulated PHD's message. c. Obj-Handle: ❑ field- type = HANDLE ❑ field-length = 2 bytes ❑ field-value = 0x00 0x00 d. Event-time: ❑ field- type = INT-U32 ❑ field-length = 4 bytes ❑ field-value = 0xXX 0xXX e. Event-type: ❑ field-length = 2 bytes ❑ field-value = MDC_NOTI_CONFIG f. The following six bytes indicate: ❑ Event-replay-info.length (2 bytes) ❑ ConfigReportRsp.config-report-id: it must be the same that config-report-id of the simulated PHD's message ❑ ConfigReportRsp.config-result: One of: ▪ accepted-config: 0x00 0x00 5. IF C_MAN_OXP_085 THEN: a. The PHG under test moves to Configuring/Sending GetMDS substate and issues roiv-cmip-command with handle set to 0 (request for MDS object) and attribute-id-list set to 0 to indicate all attributes. b. The simulated PHD responds with a rors-cmip-get service message in which the attribute-list contains a list of all implemented attributes of the MDS object and the mds-time-mgr-set-time bit is not set. c. Once in the Operating state the PHG is forced to enable the scanner object. Wait until the Operating state is reached in both cases 6. The simulated PHD sends a fixed event report with one CGM measurement.
Pass/Fail criteria	• The PHG under test must respond either to the Association Request with an "accepted" message or to the Configuration Event Report with an "accepted-config" • The measurement is correctly presented
Notes	

TP Id	TP/PLT/PHG/CLASS/CGM/BV-002_A
TP label	Maximum APDU size: Continuous Glucose Monitor without PM-Store

Coverage	**Spec**	[ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4; M		
	Spec	[ISO/IEEE 11073-10425]		
	Testable items	ComCharCGM 2; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 856
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....( 832 bytes)..... 00'O`
		`}`
		`}`
		`}`
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
		`attribute-value: 100`
		`}`
		`}`
		`}`
		2. Check the response of the PHG under test
		3. The simulated PHD sends a Confirmed fixed event report with one measurement.
		4. Check the response of the PHG under test		

Pass/Fail criteria		• In step 2 the PHG under test must respond with a “rors-cmip-confirmed-event-report. • In step 4 the PHG under test must respond with a “rors-cmip-confirmed-event-report.		
Notes				

TP Id	TP/PLT/PHG/CLASS/CGM/BV-002_B
TP label	Maximum APDU size: Continuous Glucose Monitor with PM-Store

Coverage	**Spec**	[ISO/IEEE 11073-20601-2016C]		
	Testable items	CommonCharac 4; M		
	Spec	[ISO/IEEE 11073-10425]		
	Testable items	ComCharCGM 3; M		
Test purpose		Check that: If a PHG receives an APDU that is larger than the PHG's receive buffer, it shall reply with an error (roer) code of protocol-violation. The PHG's receive buffer shall be at least as large as the largest buffer specified in the specializations the PHG supports. The buffer size limitations in this bullet and the next on apply to all APDUs regardless of whether a standard or extended configuration is being used.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073 AND C_MAN_OXP_003		
Other PICS				
Initial condition		The PHG under test is in the Operating state.		

Test procedure		1. The simulated PHD sends a Confirmed variable event report:
		a. ScanReportInfoVar. obs_scan_var:
		❑ Count = 2
		❑ Length = 5080
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 61441`
		`attribute-value: '00.....( 5056 bytes)..... 00'O`
		`}`
		`}`
		`}`
		`ObservationScan ::= {`
		`obj-handle: 1`
		`attributes: AttributeList ::= {`
		`AVA-Type ::= {`
		`attribute-id: 2636 (MDC_ATTR_NU_VAL_OBS_BASIC)`
		`attribute-value: 100`
		`}`
		`}`
		`}`
		2. Check the response of the PHG under test.
		3. The simulated PHD sends a Confirmed fixed event report with one measurement.
		4. Check the response of the PHG under test.		

Pass/Fail criteria		• In step 2 the PHG under test must respond with a “rors-cmip-confirmed-event-report” • In step 4 the PHG under test must respond with a “rors-cmip-confirmed-event-report”		
Notes				

TP Id	TP/PLT/PHG/CLASS/CGM/BV-003
TP label	Glucose Attribute-Value-Map. Order change

Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute SHALL BE PRESENT. The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration.		
Test procedure		1. The simulated PHD sends a confirmed fixed format event report that matches the Attribute-Value-Map order of MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO 2. The simulated PHD waits until it receives a confirmation 3. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Glucose Numeric Object) to reverse the values to MDC_ATTR_TIME_STAMP_BO, then MDC_ATTR_NU_VAL_OBS_BASIC. 4. The simulated PHD waits until it receives a confirmation 5. The simulated PHD sends a confirmed fixed format event report with the date first followed by a blood glucose value. 6. The simulated PHD waits until it receives a confirmation 7. The simulated PHD sends an Association Release Request (normal) 8. The simulated PHD waits until there is a Association Release Response 9. The simulated PHD sends an Association Request using the same standard configuration that was used previously 10. If the PHG under test responds with association request response with "accepted-unknown-config", then: • Simulated PHD sends the confirmed configuration event report with the standard configuration • Simulated PHD waits until there is a confirmation to the configuration event report that was sent. 11. The simulated PHD sends a fixed event report following the standard configuration attribute-value-format (MDC_ATTR_NU_VAL_OBS_BASIC, then MDC_ATTR_TIME_STAMP_BO). The observation should be a reasonable blood glucose observation. 12. The simulated PHD waits until it receives a confirmation		
Pass/Fail criteria		• In step 2, 6 and 12 verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In step 2, 6 and 12 verify that the PHG under test uses MDC_DIM_MILLI_G_PER_DL as the unit-code for the measurement report (or reports the proper value after convert to another unit-code) • In step 2, 6 and 12 verify that if the PHG utilizes a date / time stamp, then the PHG uses a time stamp derived from the observation time stamp (i.e. the actual observation may have occurred sometime in the past). • When automated, need to be careful about just sending these messages back to back since the ability to look at things like an UI may need a pause for operator verification.		

Notes	

TP Id		TP/PLT/PHG/CLASS/CGM/BV-004		
TP label		Glucose Attribute-Value-Map. Adding additional attributes to the Attribute-Value-Map		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: For [Standard-Configuration] the [Attribute-Value-Map] attribute shall be present The value of the [Attribute-Value-Map] attribute shall be MDC_ATTR_NU_VAL_OBS_BASIC | MDC_ATTR_TIME_STAMP_BO		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration (2500). (Glucose Numeric object [Unit-Code] attribute is set to MDC_DIM_MILLI_G_PER_DL)		
Test procedure		1. The simulated PHD sends a confirmed variable event report to change the Attribute-Value-Map configuration of handle 1 (Glucose Numeric Object) to set the values to: MDC_ATTR_NU_VAL_OBS_BASIC, MDC_ATTR_UNIT_CODE, then MDC_ATTR_TIME_STAMP_BO. 2. The simulated PHD waits until it receives a confirmation 3. The simulated PHD sends a confirmed fixed format event report with the new data layout. For unit-code Attribute, use MDC_DIM_MILLI_G_PER_DL (2130). 4. The simulated PHD waits until it receives a confirmation 5. The simulated PHD sends a confirmed variable event report with just MDC_ATTR_NU_VAL_OBS_BASIC Attribute. 6. The simulated PHD waits until it receives a confirmation		
Pass/Fail criteria		• In step 4, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement and date are displayed properly). • In step 6, verify that the PHG under test is able to accept the data properly and applies the correct bytes to the correct attributes (e.g. if there is a UI verify the measurement is displayed properly). • In step 4 and 6, verify that the PHG under test uses MDC_DIM_MILLI_G_PER_DL as the unit-code for the measurement reports.		
Notes				

TP Id		TP/PLT/PHG/CLASS/CGM/BV-005		
TP label		Glucose Unit-Code. Use default Glucose units - variable format observation		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 12; M		
Test purpose		Check that:		

	For [Standard-Configuration] the [Unit-Code] attribute shall be present The value of the [Unit-Code] attribute shall be MDC_DIM_MILLI_G_PER_DL
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_073
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration (2500).
Test procedure	1. Send a confirmed variable format event report using a measurement using MDC_DIM_MILLI_G_PER_DL units. 2. The simulated PHD waits until it receives a confirmation
Pass/Fail criteria	Verify that the PHG under test is able to accept the data properly and applies MDC_DIM_MILLI_G_PER_DL unit to the observation (e.g. if there is a UI verify the measurement and date are displayed properly even if they are converted to a different set of units).
Notes	

TP Id		TP/PLT/PHG/CLASS/CGM/BV-006		
TP label		Glucose Special values. Not a number - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: The PHG receives a NaN value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Glucose Numeric Object) containing an observation value with the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or by blanking the display area).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/CGM/BV-007		
TP label		Glucose Special values. Not a number - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 18; M		

Test purpose	Check that: The PHG receives a NaN value (variable format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_073
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for not a number (NaN (not a number) [exponent 0, mantissa +(2**11 –1) = 0x07FF]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement such as "—" or blanking the display area).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/CGM/BV-008		
TP label		Glucose Special values. Not at this resolution - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: The PHG receives NRes value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/CGM/BV-009		
TP label		Glucose Special values. Not at this resolution - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 18; M		

Test purpose	Check that: The PHG receives NRes value (variable format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_073
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for not at this resolution (NRes (not at this resolution) [exponent 0, mantissa –(2**11) = 0x0800]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/CGM/BV-010		
TP label		Glucose Special values. Positive infinity - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: The PHG receives a +INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		• Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/CGM/BV-011		
TP label		Glucose Special values. Positive infinity - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 18; M		

Test purpose	Check that: The PHG receives a +INFINITY value (variable format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_073
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for positive infinity (+INFINITY [exponent 0, mantissa +(2**11 –2) = 0x07FE]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail Criteria	Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/CGM/BV-012		
TP label		Glucose Special values. Negative infinity - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: The PHG receives a -INFINITY value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for negative infinity (–INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/CGM/BV-013		
TP label		Glucose Special values. Negative infinity - variable format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 18; M		

Test purpose	Check that: The PHG receives a –INFINITY value (variable format event report) but it does not use this value.
Applicability	C_MAN_OXP_000 AND C_MAN_OXP_073
Other PICS	
Initial condition	The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.
Test procedure	1. The simulated PHD sends a confirmed variable event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for negative infinity (–INFINITY [exponent 0, mantissa –(2**11 –2) = 0x0802]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test
Pass/Fail criteria	Verify that the PHG under test is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).
Notes	This test case has been considered as an implicit test case.

TP Id		TP/PLT/PHG/CLASS/CGM/BV-014		
TP label		Glucose Special values. Reserved - fixed format (Std Config)		
Coverage	**Spec**	[ISO/IEEE 11073-10425]		
	Testable items	Glucose 14; M		
Test purpose		Check that: The PHG receives a Reserved for future use value (fixed format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.		
Test procedure		1. The simulated PHD sends a confirmed fixed event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801]) and a time stamp 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

TP Id		TP/PLT/PHG/CLASS/CGM/BV-015
TP label		Glucose Special values. Reserved - variable format (Std Config)
Coverage	**Spec**	[ISO/IEEE 11073-10425]

	Testable items	Glucose 18; M		
Test purpose		Check that: The PHG receives a "Reserved for future use value" (variable format event report) but it does not use this value.		
Applicability		C_MAN_OXP_000 AND C_MAN_OXP_073		
Other PICS				
Initial condition		The simulated PHD and the PHG under test are in the Operating state using the standard configuration 2500.		
Test procedure		1. The simulated PHD sends a confirmed variable event report for handle 1 (Glucose Numeric Object) containing an observation value set to the value for reserved (Reserved for future use [exponent 0, mantissa –(2**11 –1) = 0x0801]) 2. The simulated PHD waits until it receives a confirmation from the PHG under test		
Pass/Fail criteria		Verify that the PHG under test either reports an error or is able to accept the data, but does not use the values as if they were an actual measurement (e.g. if there is a UI verify the measurement is displayed in some form that indicates it is not a measurement).		
Notes		This test case has been considered as an implicit test case.		

Bibliography

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

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

[b-ITU-T X.290] Recommendation ITU-T X.290 (1994), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts.*

[b-ITU-T X.296] Recommendation ITU-T X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*

[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-CDG 2013] Continua Health Alliance, Continua Design Guidelines (2013), "Endorphin", *Continua Design Guidelines*.

[b-CDG 2015] Continua Health Alliance, Continua Design Guidelines (2015), "Genome", *Continua Design Guidelines*.

[b-CDG 2016] Personal Connected Health Alliance, Continua Design Guidelines (2016), "Iris", *Continua Design Guidelines*.

[b-ETSI ETS 300 406] ETSI ETS 300 406 (1995), *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.* https://docbox.etsi.org/MTS/MTS/10-PromotionalMaterial/MBS-20111118/Referenced%20Documents/Drafting%20Rules.pdf

[b-PHD PICS & PIXIT] Personal Health Device DG2016 PICS and PIXIT excel sheet v1.11. http://handle.itu.int/11.1002/2000/12067

[b-PHG PICS & PIXIT] Personal Health Gateway DG2016 PICS and PIXIT excel sheet v1.9. http://handle.itu.int/11.1002/2000/12067

[b-TCRL] Test Case Reference List_DG2016_v1.11. http://handle.itu.int/11.1002/2000/12067

[b-TI] Continua DG2016 PHD Testable items excel sheet v1.8. http://handle.itu.int/11.1002/2000/12067

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series D	Tariff and accounting principles and international telecommunication/ICT economic and policy issues
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	**Audiovisual and multimedia systems**
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Environment and ICTs, climate change, e-waste, energy efficiency; construction, installation and protection of cables and other elements of outside plant
Series M	Telecommunication management, including TMN and network maintenance
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling, and associated measurements and tests
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks, open system communications and security
Series Y	Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities
Series Z	Languages and general software aspects for telecommunication systems

Printed in Switzerland
Geneva, 2017