



**Common information sharing environment service and
Data Model (CDM);
Testing;
Conformance test specifications for CISE;
Part 3: Abstract Test Suite (ATS) and
Protocol Implementation eXtra Information for Testing (PIXIT);
Release 1**

Disclaimer

The present document has been produced and approved by the european Common information sharing environment service and Data Model (CDM) ETSI Industry Specification Group (ISG) and represents the views of those members who participated in this ISG.

It does not necessarily represent the views of the entire ETSI membership.

Reference

DGS/CDM-0014

Keywords

ATS, data sharing, PIXIT, testing

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from the
ETSI [Search & Browse Standards application](#).

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format on [ETSI deliver](#).

Users should be aware that the present document may be revised or have its status changed,
this information is available in the [Milestones listing](#).

If you find errors in the present document, please send your comments to
the relevant service listed under [Committee Support Staff](#).

If you find a security vulnerability in the present document, please report it through our
[Coordinated Vulnerability Disclosure \(CVD\)](#) program.

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2024.
All rights reserved.

Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology.....	5
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references.....	6
3 Definition of terms, symbols and abbreviations.....	7
3.1 Terms.....	7
3.2 Symbols.....	7
3.3 Abbreviations	7
4 Abstract Test Method	7
4.1 Introduction	7
4.2 Abstract protocol tester	8
4.3 Test Configuration.....	8
4.3.1 Introduction.....	8
4.3.2 Config_CISE_1.....	8
4.3.3 Config_CISE_2.....	8
4.3.4 Config_CISE_3.....	9
4.4 Test architecture	9
4.5 Ports and ASPs (Abstract Services Primitives)	9
4.5.0 Overview	9
4.5.1 Primitives of the httpPort.....	9
4.5.2 Primitives of the http_notifPort	10
4.5.3 Primitives of the utPort	10
4.5.3.1 Introduction.....	10
4.5.3.2 UpperTester primitives.....	10
4.5.3.2.0 Overview	10
4.5.3.2.1 Common Trigger payload.....	10
5 External functions	11
6 ATS conventions	11
6.1 Introduction	11
6.2 Naming conventions.....	12
6.2.1 Introduction.....	12
6.2.2 General guidelines	12
6.2.3 CDM specific TTCN-3 naming conventions	13
6.2.4 Usage of Log statements.....	13
6.2.5 Test Case (TC) identifier	14
6.3 On line documentation	14
Annex A (informative): ATS in TTCN-3.....	15
A.1 TTCN-3 files and other related modules.....	15
Annex B (normative): Partial PIXIT pro forma for Security.....	16
B.1 The right to copy	16
B.2 Introduction	16
B.3 Identification summary.....	16
B.4 ATS summary	16
B.5 Test laboratory.....	17

B.6	Client identification.....	17
B.7	SUT	17
B.8	Protocol layer information.....	18
B.8.1	Protocol identification	18
B.8.2	IUT information	18
Annex C (normative): PCTR pro forma for Security.....		26
C.1	The right to copy	26
C.2	Introduction	26
C.3	Identification summary.....	26
C.3.1	Protocol conformance test report.....	26
C.3.2	IUT identification	26
C.3.3	Testing environment.....	27
C.3.4	Limits and reservation	27
C.3.5	Comments.....	27
C.4	IUT Conformance status	27
C.5	Static conformance summary	28
C.6	Dynamic conformance summary.....	28
C.7	Static conformance review report.....	28
C.8	Test campaign report.....	28
C.9	Observations.....	28
	History	29

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) european Common information sharing environment service and Data Model (CDM).

The present document is part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.11].

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document provides parts of the Abstract Test Suite (ATS) for the CDM service APIs for the exchange of messages complying with the CDM Data Model, in accordance with the relevant guidance given in ISO/IEC 9646-7 [i.5].

The ISO standards for the methodology of conformance testing (ISO/IEC 9646-1 [i.2] and ISO/IEC 9646-2 [i.3]) as well as the ETSI rules for conformance testing (ETSI ETS 300 406 [i.6]) are used as a basis for the test methodology.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI EG 202 798: "Intelligent Transport Systems (ITS); Testing; Framework for conformance and interoperability testing".
- [i.2] ISO/IEC 9646-1 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".
- [i.3] ISO/IEC 9646-2 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 2: Abstract Test Suite specification".
- [i.4] ISO/IEC 9646-6 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 6: Protocol profile test specification".
- [i.5] ISO/IEC 9646-7 (1995): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".
- [i.6] ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [i.7] ETSI ES 201 873-1: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language".

- [i.8] ETSI GS CDM 004: "Common information sharing environment service and Data Model (CDM); Service Model; Release 1".
- [i.9] ETSI GS CDM 005: "Common information sharing environment service and Data Model (CDM); Data Model; Release 1".
- [i.10] ETSI GS CDM 007-2: "Common information sharing environment service and Data Model (CDM); Testing; Conformance test specifications for CISE; Part 2: Test Suite Structure and Test Purposes (TSS & TP); Release 1".
- [i.11] ETSI GS CDM 007-1: "Common information sharing environment service and Data Model (CDM); Testing; Conformance test specifications for CISE; Part 1: Test requirements and Protocol Implementation Conformance Statement (PICS) proforma; Release 1".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI GS CDM 004 [i.8], ETSI GS CDM 005 [i.9], ISO/IEC 9646-6 [i.4] and ISO/IEC 9646-7 [i.5] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ATM	Abstract Test Method
ATS	Abstract Test Suite
BV	Valid Behaviour tests
CDM	CISE Data Model
CISE	Common Information Sharing Environment
ES	ETSI Standard
HTML	HyperText Markup Language
HTTP	Hypertext Transfer Protocol
IUT	Implementation Under Test
PCTR	Protocol Conformance Testing Report
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SUT	System Under Test
TC	Test Case
TP	Test Purposes
TS	Test System
TTCN	Testing and Test Control Notation
UT	Upper Tester

4 Abstract Test Method

4.1 Introduction

The following clauses describe the ATM used to test the conformance test specifications for CISE.

4.2 Abstract protocol tester

The abstract protocol tester used by the test suite is described in Figure 1. The Test System simulates valid and invalid protocol behaviour and analyses the reaction of the IUT.

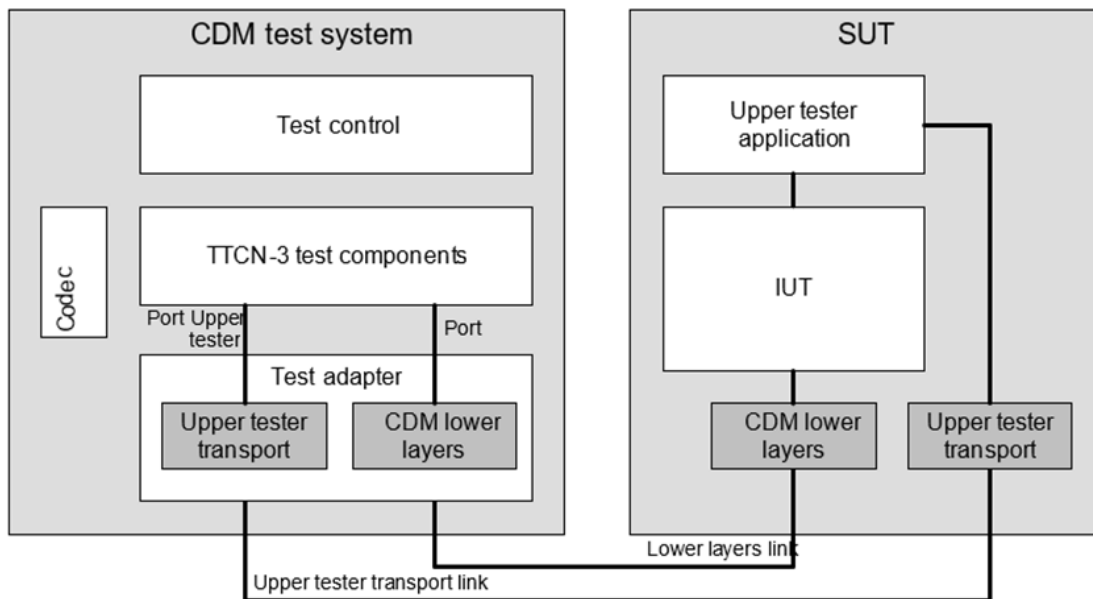


Figure 1: Abstract protocol tester - CISE ATS

4.3 Test Configuration

4.3.1 Introduction

This test suite uses three test configurations as defined in clauses below.

4.3.2 Config_CISE_1

The CISE Node is acting as the IUT and the TS is simulation an Adaptor. This configuration is used to test the interface between the CISE Node and the CISE Adaptor.

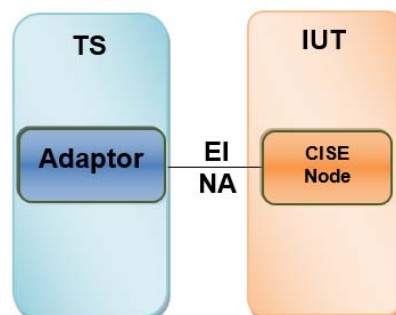


Figure 2: Config_CISE_1 to validate interface between IUT and the CISE Adaptor

4.3.3 Config_CISE_2

The CISE Node is acting as the IUT and the TS is simulating both the Adaptor and the CISE network. This configuration is used to test the interface between the CISE Node and the CISE Network.

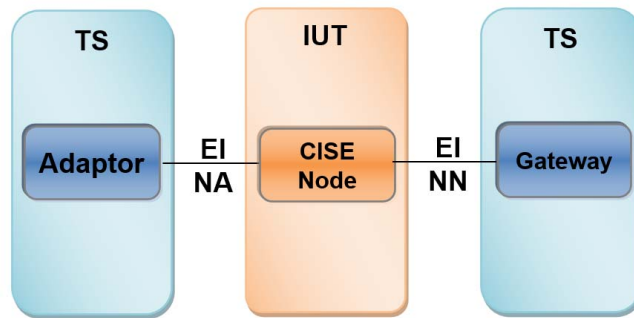


Figure 3: Config_CISE_2 to validate interface between IUT and the CISE Network

4.3.4 Config_CISE_3

The CISE Adaptor is acting as the IUT. This configuration is used to test the interface between the CISE Adaptor and the CISE Node.

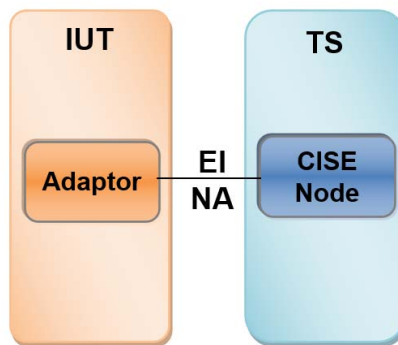


Figure 4: Config_CISE_3 to validate interface between IUT and the CISE Node

4.4 Test architecture

The test Suite is based on the test architecture described in ETSI ES 201 873-1 [i.7]. The test system communicates with the CISE IUT over the httpPort and over the utPorts as described in clause 4.5.

4.5 Ports and ASPs (Abstract Services Primitives)

4.5.0 Overview

Three ports are used by the CISE ATS:

- The communication Port, httpPort, of type HttpPort.
- The notificacation Port, http_notifPort, of type HttpPort.
- The Upper Tester Port, utPort, of type HttpPort.

4.5.1 Primitives of the httpPort

Four types of primitives are used in the httpPort:

- PullRequest.
- Push.

- Acknowledgement.
- Feedback.

4.5.2 Primitives of the http_notifPort

Four types of primitives are used in the httpPort:

- PullRequest.
- Push.
- Acknowledgement.
- Feedback.

4.5.3 Primitives of the utPort

4.5.3.1 Introduction

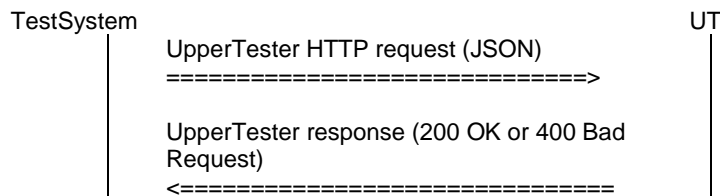
The Upper Tester port uses these types of primitives:

- The UtTrigger primitive used to trigger the event in the IUT to send a CDM message.

4.5.3.2 UpperTester primitives

4.5.3.2.0 Overview

The UpperTester primitives are sent by the test system to request the IUT to trigger a message. The communication exchange is initiated by the test system and consists in an HTTP request - response exchange as described below. The UpperTester result message is specific to each primitive and may be used to indicate the success of the request or to report some values.



4.5.3.2.1 Common Trigger payload

4.5.3.2.1.0 Overview

Table 1 contains the common data elements of the message to be triggered.

Table 1: Common Trigger payload

Name	Type	Value
Message Id	Json.String	UUID format
Context Id	Json.String	UUID format
Correlation ID	Json.String	UUID format
Creation Date/Time	Json.String	
Priority	Json.String	
Sender Id	Json.String	UUID format
Recipient Id	Json.String	UUID format

Name	Type	Value
Message Type	Json.String	PullRequest Discovery Subscribe GetSubscription Unsubscribe
UtDescription	Structure	Specific to the Message Type

4.5.3.2.1.1 Triggering a pull request for a Vessel service

Table 2 contains the data elements specific to a Vessel service (ETSI GS CDM 005 [i.9]).

Table 2: Vessel service specific payload

Name	Type	Value
IMO Number	Json.String	UUID format
Type	Json.String	UUID format

4.5.3.2.1.2 Triggering a pull request for an Action service

Table 3 contains the data elements specific to a Action service (ETSI GS CDM 005 [i.9]).

Table 3: Action service specific payload

Name	Type	Value
IMO Number	Json.String	UUID format
Type	Json.String	UUID format

5 External functions

The external functions, described in Table 4, have been defined in order to perform cryptographic operations and handle complex computations.

Table 4: External functions

Function	Parameters			Return	
	Dir.	Name	Type	Value	Type
fx_getCurrentTimeUtc	in			Current time since 01/01/1970 in UTC format	UInt64
fx_enc_base64	in	p_to_encode	octetstring	B64 decoded value	octetstring
fx_dec_base64	in	p_to_decode	octetstring	Signature	octetstring
	in	p_privateKey	octetstring		
fx_get_current_date_time	in	p_shift_time	integer	Time increment	charstring

6 ATS conventions

6.1 Introduction

The ATS conventions are intended to give a better understanding of the ATS but they also describe the conventions made for the development of the ATS. These conventions shall be considered during any later maintenance or further development of the ATS.

The ATS conventions contain the testing and the naming conventions described in clause 6.2. The testing conventions describe the functional structure of the ATS. The naming conventions describe the structure of the naming of all ATS elements.

To define the ATS, the guidelines of ETSI ETS 300 406 [i.6] were considered.

6.2 Naming conventions

6.2.1 Introduction

This test suite follows the naming convention guidelines provided in ETSI EG 202 798 [i.1].

6.2.2 General guidelines

The naming convention is based on the following underlying principles:

- in most cases, identifiers should be prefixed with a short alphabetic string (specified in Table 5) indicating the type of TTCN-3 element it represents;
- suffixes should not be used except in those specific cases identified in Table 8;
- prefixes and suffixes should be separated from the body of the identifier with an underscore ("_");

EXAMPLE 1: `c_sixteen`, `t_wait`.

- only module names, data type names and module parameters should begin with an upper-case letter. All other names (i.e. the part of the identifier following the prefix) should begin with a lower-case letter;
- the start of second and subsequent words in an identifier should be indicated by capitalizing the first character. Underscores should not be used for this purpose.

EXAMPLE 2: `f_initialState`.

Table 5 specifies the naming guidelines for each element of the TTCN-3 language indicating the recommended prefix, suffixes (if any) and capitalization.

Table 5: ETSI TTCN-3 generic naming conventions

Language element	Naming convention	Prefix	Example identifier
Module	Use upper-case initial letter	none	IPv6Templates
Group within a module	Use lower-case initial letter	none	messageGroup
Data type	Use upper-case initial letter	none	SetupContents
Message template	Use lower-case initial letter	m_	m_setupInit
Message template with wildcard or matching expression	Use lower-case initial letters	mw_	mw_anyUserReply
Modifying message template	Use lower-case initial letter	md_	md_setupInit
Modifying message template with wildcard or matching expression	Use lower-case initial letters	mdw_	mdw_anyUserReply
Signature template	Use lower-case initial letter	s_	s_callSignature
Port instance	Use lower-case initial letter	none	signallingPort
Test component instance	Use lower-case initial letter	none	userTerminal
Constant	Use lower-case initial letter	c_	c_maxRetransmission
Constant (defined within component type)	Use lower-case initial letter	cc_	cc_minDuration
External constant	Use lower-case initial letter	cx_	cx_macId
Function	Use lower-case initial letter	f_	f_authentication()
External function	Use lower-case initial letter	fx_	fx_calculateLength()
Altstep (incl. Default)	Use lower-case initial letter	a_	a_receiveSetup()
Test case	Use ETSI numbering	TC_	TC_CDM_NODE_PULL_RE QUEST_BV_07
Variable (local)	Use lower-case initial letter	v_	v_macId
Variable (defined within a component type)	Use lower-case initial letters	vc_	vc_systemName
Timer (local)	Use lower-case initial letter	t_	t_wait
Timer (defined within a component)	Use lower-case initial letters	tc_	tc_authMin
Module parameters for PICS	Use all upper case letters	PICS_	PICS_CDM_VESSEL_SER VICE
Module parameters for other parameters	Use all upper case letters	PX_	PX_VESSEL_NAME

Language element	Naming convention	Prefix	Example identifier
Formal Parameters	Use lower-case initial letter	p_	p_macId
Enumerated Values	Use lower-case initial letter	e_	e_syncOk

6.2.3 CDM specific TTCN-3 naming conventions

Next to such general naming conventions, Table 6 shows specific naming conventions that apply to the CDM TTCN-3 test suite.

Table 6: CDM specific TTCN-3 naming conventions

Language element	Naming convention	Prefix	Example identifier
CDM Module	Use upper-case initial letter	Its"IUTname"_"	AtsCise_
Module containing types and values	Use upper-case initial letter	Its"IUTname"_"TypesAndValues	AtsCisei_TypesAndValues
Module containing Templates	Use upper-case initial letter	Its"IUTname"_"Templates	AtsCise_Templates
Module containing test cases	Use upper-case initial letter	Its"IUTname"_"TestCases	AtsCise_TestCases
Module containing functions	Use upper-case initial letter	Its"IUTname"_"Functions	AtsCise_Functions
Module containing external functions	Use upper-case initial letter	Its"IUTname"_"ExternalFunction s	AtsCise_ExternalFunction s
Module containing components, ports and message definitions	Use upper-case initial letter	Its"IUTname"_"Interface	AtsCise_Interface
Module containing main component definitions	Use upper-case initial letter	Its"IUTname"_"TestSystem	AtsCise_TestSystem
Module containing the control part	Use upper-case initial letter	Its"IUTname"_"TestControl	AtsCise_TestControl

6.2.4 Usage of Log statements

All TTCN-3 log statements use the following format using the same order:

- Three asterisks.
- The TTCN-3 test case or function identifier in which the log statement is defined.
- One of the categories of log: INFO, WARNING, ERROR, PASS, FAIL, INCONC, TIMEOUT.
- Free text.
- Three asterisks.

EXAMPLE 1:

```
log("*** TC_CDM_NODE_MULTI_PULL_REQ_BV_01: INFO: Preamble: Received and answered the Request ***")
```

Furthermore, the following rules are applied for the CISE ATS:

- Log statements are used in the body of the functions, so that invocation of functions are visible in the test logs.
- All TTCN-3 *setverdict* statements are combined with a log statement following the same above rules (see example 2).

EXAMPLE 2:

```
setverdict(pass, "*** TC_CDM_NODE_MULTI_PULL_REQ_BV_01: PASS: Response correctly accepted ***")
```

6.2.5 Test Case (TC) identifier

Table 7 shows the test case naming convention, which follows the same naming convention as the test purposes.

Table 7: TC naming convention

Identifier	TC <root> <tgt> <gr> <sub-gr> <sn> <x>	Sub-Group	Category
	<root> = root	CDM	CISE Conformance Test
	<tgt> = target	NODE_EI_NA	CISE Node/Adaptor interface
		NODE_IF_NC	CISE Node/Gateway interface
		ADAPTOR	Adaptor
		SECURITY	Security
	<gr> = group	PULL_REQUEST	PullRequest communication
		PULL_MULTI_P ULL_REQ	PullRequest multicast communication
		PULL_DISC	PullRequest Discovery
		SUB	Subscription
		SUB_LOOK	Subscribers lookup
		SUB_DELETE	Subscription deletion
		PUSH_NOTIFY	Notification communication
		ACK	Asynchronous acknowledgement
		FEEDBACK	Feedback communication
	<sn> = test case sequential number	N/A	01 to 99
	<x> = category	BV	Valid Behaviour tests
		BO	Invalid Behaviour Tests

EXAMPLE: TP identifier: TP_CDM_NODE_MULTI_PULL_REQ_BV_01
TC identifier: TC_CDM_NODE_MULTI_PULL_REQ_BV_01

6.3 On line documentation

The T3D tool enables providing on-line documentation browser in HTML, by tagging TTCN-3 comments. These tags are defined in Table 8.

Table 8: TTCN-3 comment tags

Tag	Description
@author	Specifies the names of the authors or an authoring organization which either has created or is maintaining a particular piece of TTCN-3 code.
@desc	Describes the purpose of a particular piece of TTCN-3 code. The description should be concise yet informative and describe the function and use of the construct.
@remark	Adds extra information, such as the highlighting of a particular feature or aspect not covered in the description.
@see	Refers to other TTCN-3 definitions in the same or another module.
@return	Provides additional information on the value returned by a given function.
@param	Documents the parameters of parameterized TTCN-3 definitions.
@version	States the version of a particular piece of TTCN-3 code.

The HTML files result from the compilation of the TTCN-3 modules with the T3D tool. These HTML files are ready for browsing, and contain links enabling to navigate through the ATS.

EXAMPLE:

```
/**
 * @desc Check that the IUT responds with an HTTP 200 OK Acknowledgment response when receiving
 multiple PullRequest for Vessel service - no Acknowledgment required
 * @see ETSI GS CDM 007-2 [i.10], clause 6.2.2 Pull Request multicast
 * @reference ETSI GS CDM 004 [i.8], clause 5.4.2 Pull
 */
```

Annex A (informative): ATS in TTCN-3

A.1 TTCN-3 files and other related modules

This test suite has been produced using the Testing and Test Control Notation (TTCN) according to ETSI ES 201 873-1 [i.7].

ETSI GS CDM 004 [i.8], ETSI GS CDM 005 [i.9] and ETSI GS CDM 007-2 [i.10] have been applied to develop this test suite.

This test suite has been compiled error-free using two different commercial TTCN-3 compilers.

The TTCN-3 library modules, which form parts of the present document, are accessible from the ETSI source repository:

- <https://forge.etsi.org/rep/cdm/cise-data-model.git>.

Annex B (normative): Partial PIXIT pro forma for Security

B.1 The right to copy

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the Partial PIXIT pro forma in this annex so that it can be used for its intended purposes and may further publish the completed Partial PIXIT.

B.2 Introduction

The PIXIT pro forma is based on ISO/IEC 9646-6 [i.4].

B.3 Identification summary

The Identification summary shall be as specified in Table B.1.

Table B.1: Identification summary

PIXIT Number:	
Test Laboratory Name:	
Date of Issue:	
Issued to:	

B.4 ATS summary

The ATS summary shall be as specified in Table B.2.

Table B.2: ATS summary

Protocol Specification:	ETSI GS CDM 004 [i.8], ETSI GS CDM 005 [i.9]
Protocol to be tested:	CDM protocol
ATS Specification:	ETSI GS CDM 004 [i.8], ETSI GS CDM 005 [i.9]
Abstract Test Method:	Clause 4

B.5 Test laboratory

The Test laboratory info shall be specified as in Table B.3.

Table B.3: Test laboratory info

Test Laboratory Identification:	
Test Laboratory Manager:	
Means of Testing:	
SAP Address:	

B.6 Client identification

The Client identification shall be specified as in Table B.4.

Table B.4: Client identification

Client Identification:	
Client Test manager:	
Test Facilities required:	

B.7 SUT

SUT shall be specified as in Table B.5.

Table B.5: SUT

Name:	
Version:	
SCS Number:	
Machine configuration:	
Operating System Identification:	
IUT Identification:	
PICS Reference for IUT:	
Limitations of the SUT:	
Environmental Conditions:	

B.8 Protocol layer information

B.8.1 Protocol identification

Protocol identification shall be as specified in Table B.6.

Table B.6: Protocol identification

Name:	CDM protocols ETSI GS CDM 004 [i.8] and ETSI GS CDM 005 [i.9]
Version:	
PICS References:	ETSI GS CDM 007-1 [i.11]

B.8.2 IUT information

CISE ATS PIXITs shall be as listed in Table B.7a to Table B.7p.

Table B.7a: Relevant general PIXITs

Identifier	Description	
PX_SECURITY_SIGN_HASH_ALG	Comment	Indicate the signature hash algorithm
	Type	HashAlgorithm
	Def. value	e_sha1
PX_CISE_REQUEST_ACK	Comment	Set to true if asynchronous acknowledgment messages are expected
	Type	Boolean
	Def. value	true
PX_CISE_SENDER_SERVICE_ID	Comment	Sender service (consumer)
	Type	charstring
	Def. value	
PX_CISE_UNKNOWN_SENDER_SERVICE_ID	Comment	Unknown sender service (consumer)
	Type	charstring
	Def. value	
PX_CISE_RECIPIENT_SERVICE_ID	Comment	Recipient service (provider)
	Type	charstring
	Def. value	
PX_CISE_UNKNOWN_RECIPIENT_SERVICE_ID	Comment	Unknown recipient service (provider)
	Type	charstring
	Def. value	
PX_CISE_DISCOVERY_PROFILE_SERVICE_ID	Comment	Discovery profile service
	Type	charstring
	Def. value	
PX_COUNTRY_TYPE	Comment	Country identifier
	Type	countryType
	Def. value	fR
PX_DATA_FRESHNESS_TYPE	Comment	Data freshness
	Type	dataFreshnessType
	Def. value	realTime
PX_CISE_SEA_BASSIN	Comment	Sea basin for discovery
	Type	charstring
	Def. value	northSea
PX_CISE_CONSUMER	Comment	Known vessel IMO number
	Type	serviceRoleType
	Def. value	consumer
PX_CISE_PROVIDER	Comment	Unknown vessel IMO number
	Type	derviceRoleType
	Def. value	provider
PX_SUBSCRIPTION_REFRESH_RATE	Comment	Subscription data refresh rate
	Type	duration
	Def. value	P0Y0M0DT0H1M0S

Table B.7b: Vessel specific PIXITs

Identifier	Description	
PX_VESSEL_IMO_NUMBER	Comment	Known vessel IMO number
	Type	integer
	Def. value	
PX_VESSEL_UNKNOWN_IMO_NUMBER	Comment	Unknown vessel IMO number
	Type	integer
	Def. value	
PX_VESSEL_DATA_FRESHNESS_TYPE	Comment	Data freshness
	Type	DataFreshnessType
	Def. value	realTime
PX_VESSEL_POS_LATITUDE	Comment	Vessel position
	Type	charstring
	Def. value	81.0
PX_VESSEL_POS_LONGITUDE	Comment	Vessel position
	Type	charstring
	Def. value	171.0
PX_VESSEL_INVALID_POS_LATITUDE	Comment	Invalid vessel position
	Type	charstring
	Def. value	171.0
PX_VESSEL_INVALID_POS_LONGITUDE	Comment	Vessel position
	Type	charstring
	Def. value	81.0
PX_VESSEL_TYPE	Comment	Vessel type
	Type	VesselType
	Def. value	fishingVessel
PX_VESSEL_NET_TONNAGE	Comment	Vessel net tonnage, used for payload selector filters
	Type	float
	Def. value	
PX_PAYLOAD_SELECTOR_CONDITION_1	Comment	Agent UUID
	Type	charstring
	Def. value	//Vessel/NetTonnage
PX_PAYLOAD_SELECTOR_CONDITION_2	Comment	Agent UUID
	Type	charstring
	Def. value	//Vessel/MaximumSpeed

Table B.7c: Agent specific PIXITs

Identifier	Description	
PX_AGENT_UUID	Comment	Agent UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_AGENT_AGENT_ROLE	Comment	Unknown vessel IMO number
	Type	AgentRoleInEventType
	Def. value	nonSpecified
PX_AGENT_CONTACT	Comment	Agent contact point
	Type	charstring
	Def. value	BEGIN:VCARD#13;\nVERSION:3.0#13;\nPROPID:ez-vcard\n0.10.5#13;\nFN:AgentPerson#13;\nEMAIL:Person@Person#13;\nTEL:321234#13;\nEND:VCARD#13;

Table B.7d: Organization specific PIXITs

Identifier	Description	
PX_ORGANIZATION_LEGAL_NAME	Comment	Organization legal name
	Type	charstring
	Def. value	A1
PX_INVALID_ORGANIZATION_LEGAL_NAME	Comment	Unknown organization legal name
	Type	charstring
	Def. value	CAFEDECA
PX_ORGANIZATION_UUID	Comment	Organization UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_ORGANIZATION_COUNTRY	Comment	Data freshness
	Type	charstring
	Def. value	FR
PX_ORGANIZATION_CONTACT	Comment	Organization contact point
	Type	charstring
	Def. value	BEGIN:VCARD#13;\nVERSION:3.0#13;\nPROPID:ez-vcard\n0.10.5#13;\nFN:AgentPerson#13;\nEMAIL:Person@Person#13;\nTEL:321234#13;\nEND:VCARD#13;

Table B.7e: Action specific PIXITs

Identifier	Description	
PX_ACTION_UUID	Comment	Action UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_ACTION_NATURE_TYPE	Comment	Nature of the action
	Type	NatureType
	Def. value	observed
PX_ACTION_ACTION_STATUS	Comment	Action status
	Type	ActionStatus
	Def. value	nonSpecified
PX_ACTION_MISSION	Comment	Data freshness
	Type	charstring
	Def. value	FR
PX_ACTION_PRIORITY	Comment	Action priority
	Type	ActionPriorityType
	Def. value	High

Table B.7f: Anomaly specific PIXITs

Identifier	Description	
PX_ANOMALY_UUID	Comment	Anomaly UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_ANOMALY_NATURE_TYPE	Comment	Nature of the anomaly
	Type	NatureType
	Def. value	observed
PX_ANOMALY_TYPE	Comment	Type of the anomaly
	Type	AnomalyType
	Def. value	nonSpecified

Table B.7g: Period specific PIXITs

Identifier	Description	
PX_PERIOD_START_DATE	Comment	Period starting date
	Type	Date
	Def. value	
PX_PERIOD_END_DATE	Comment	Period ending date
	Type	Date
	Def. value	

Table B.7h: Document specific PIXITs

Identifier	Description	
PX_CERTIFICATE_DOCUMENT_SUBJECT_UUID	Comment	Certificate document subject UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_CERTIFICATE_DOCUMENT_SUBJECT	Comment	Certificate document subject
	Type	charstring
	Def. value	Tonnage Certificate
PX_CERTIFICATE_DOCUMENT_TITLE	Comment	Certificate document title
	Type	charstring
	Def. value	Tonnage Certificate
PX_CERTIFICATE_DOCUMENT_VERSION	Comment	Certificate document version
	Type	charstring
	Def. value	V1.0.1
PX_CERTIFICATE_DOCUMENT_CONTENT	Comment	Certificate document content
	Type	charstring
	Def. value	
PX_CERTIFICATE_DOCUMENT_B64_CONTENT	Comment	Certificate document content encoded B64
	Type	charstring
	Def. value	
PX_CERTIFICATE_DOCUMENT_B64_CONTENT_HASH	Comment	Hash of the B64 certificate document content
	Type	charstring
	Def. value	171.0
PX_CERTIFICATE_DOCUMENT_B64_INVALID_HASH	Comment	Altered hash of the B64 certificate document content
	Type	charstring
	Def. value	81.0
PX_CERTIFICATE_DOCUMENT_TYPE	Comment	Document type
	Type	CertificateDocumentType
	Def. value	tonnageCertificate

Table B.7i: Incident specific PIXITs

Identifier	Description	
PX_INCIDENT_UUID	Comment	Incident UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_INCIDENT_NATURE_TYPE	Comment	Nature of the incident
	Type	NatureType
	Def. value	observed
PX_INCIDENT_CERTAINTY	Comment	Certainty of the incident
	Type	CertaintyType
	Def. value	likely
PX_INCIDENT_DEATHS_ON_BOARD	Comment	Are there deaths on board?
	Type	integer
	Def. value	0
PX_INCIDENT_DISEASES_ON_BOARD	Comment	Are there diseases on board?
	Type	Boolean
	Def. value	false

Identifier	Description	
PX_INCIDENT_INFECTON_ON_BOARD	Comment	Are there infections on board?
	Type	Boolean
	Def. value	false
PX_INCIDENT_NUMBER_OF_IILL_PERSONS	Comment	Number of ill persons
	Type	integer
	Def. value	5
PX_INCIDENT_RESPONSE_URGENCY	Comment	Urgency of the response to the incident
	Type	UrgencyType
	Def. value	future
PX_INCIDENT_SEVERITY	Comment	Incident severity
	Type	SeverityType
	Def. value	severe
PX_INCIDENT_SICK_ANIMAL_ON_BOARD	Comment	Are there sick animals on board?
	Type	Boolean
	Def. value	true

Table B.7j: Meteo Oceanographic Conditions specific PIXITs

Identifier	Description	
PX_METEO_AIR_TEMP	Comment	Air temperature
	Type	float
	Def. value	21.0
PX_METEO_CLOUD_CEILING	Comment	Cloud ceiling
	Type	integer
	Def. value	1
PX_METEO_CLOUD_COVER	Comment	Cloud coverage
	Type	CloudCoverType
	Def. value	clearSky
PX_METEO_PRECIPITATION	Comment	Is the weather rainy?
	Type	integer
	Def. value	0
PX_METEO_SALINITY	Comment	Sea salinity
	Type	float
	Def. value	5.9
PX_METEO_SEA_CONDITION	Comment	Sea condition
	Type	SeaConditionType
	Def. value	calm_rippled
PX_METEO_SEA_LEVEL_PRESSURE	Comment	Sea level pressure
	Type	float
	Def. value	1.0
PX_METEO_SOURCE_TYPE	Comment	Source of the meteo conditions information
	Type	SourceType
	Def. value	observed
PX_METEO_WATER_TEMPERATURE	Comment	Surface sea temperature
	Type	float
	Def. value	10.2

Table B.7k: Risk specific PIXITs

Identifier	Description	
PX_RISK_UUID	Comment	Risk UUID
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_RISK_LEVEL	Comment	Level of the risk
	Type	RiskLevelType
	Def. value	medium
PX_RISK_PROBABILITY	Comment	Risk probability
	Type	RiskProbabilityType
	Def. value	probable

Identifier	Description	
PX_RISK_SEVERITY	Comment	Data freshness
	Type	RiskSeverityType
	Def. value	negligible
PX_RISK_TYPE	Comment	Risk type
	Type	RiskType
	Def. value	illegalFishing

Table B.7l: Cargo specific PIXITs

Identifier	Description	
PX_CARGO_NAME	Comment	Cargo name
	Type	charstring
	Def. value	
PX_CARGO_UUID	Comment	Cargo identifier
	Type	charstring
	Def. value	787aa3e9b91b-5bc2-0cf5-80a8-183a716b8d59
PX_CARGO_POS_LATITUDE	Comment	Cargo position
	Type	charstring
	Def. value	81.0
PX_CARGO_POS_LONGITUDE	Comment	Cargo position
	Type	charstring
	Def. value	171.0
PX_CARGO_TYPE	Comment	Cargo type
	Type	CargoType
	Def. value	largeFreightContainers

Table B.7m: Meta data PIXITs

Identifier	Description	
PX_METADATA_ABSTRACT	Comment	Metadata abstract
	Type	charstring
	Def. value	
PX_METADATA_COMMENTS	Comment	Metadata comments
	Type	charstring
	Def. value	
PX_METADATA_DESCRIPTION	Comment	Metadata description
	Type	charstring
	Def. value	
PX_METADATA_DESIGNATION	Comment	Metadata abstract designation
	Type	charstring
	Def. value	
PX_METADATA_FILE_MEDIA_TYPE	Comment	Metadata file schema
	Type	FileMediaType
	Def. value	
PX_METADATA_FILE_SCHEMA	Comment	Metadata file schema
	Type	charstring
	Def. value	
PX_METADATA_FILE_URI	Comment	Metadata file URI
	Type	charstring
	Def. value	
PX_METADATA_INFORMATION_RELIABILITY_LEVEL	Comment	Metadata information reliability level
	Type	InformationReliabilityLevelType
	Def. value	nonSpecified
PX_METADATA_INFORMATION_SECURITY_CLASSIFICATION	Comment	Metadata information security level
	Type	InformationSecurityClassificationType
	Def. value	nonSpecified
PX_METADATA_INFORMATIONSENSITIVITYDEGREE	Comment	Metadata file schema
	Type	InformationSensitivityDegreeType
	Def. value	nonSpecified

Identifier	Description	
PX_METADATA_LANGUAGE	Comment	Metadata language
	Type	charstring
	Def. value	UK

Table B.7n: Event PIXITs

Identifier	Description	
PX_EVENT_UUID	Comment	Event Identifier
	Type	charstring
	Def. value	

Table B.7o: Pollution PIXITs

Identifier	Description	
PX_POLLUTION_INCIDENT_UUID	Comment	Pollution incident Identifier
	Type	charstring
	Def. value	
PX_POLLUTION_INCIDENT_NATURE_TYPE	Comment	Pollution incident nature
	Type	NatureType
	Def. value	observed
PX_POLLUTION_INCIDENT_CERTAINTY	Comment	Pollution incident certainty
	Type	CertaintyType
	Def. value	likely
PX_POLLUTION_INCIDENT_DEATHS_ON_BOARD	Comment	Pollution incident death on board
	Type	integer
	Def. value	0
PX_POLLUTION_INCIDENT_DISEASES_ON_BOARD	Comment	Pollution incident decease on board
	Type	Boolean
	Def. value	false
PX_POLLUTION_INCIDENT_INFECTON_ON_BOARD	Comment	Pollution incident infection on board
	Type	Boolean
	Def. value	true
PX_POLLUTION_INCIDENT_NUMBER_OF_ILL_PERSONS	Comment	Pollution incident umber of ill persons
	Type	integer
	Def. value	10
PX_POLLUTION_INCIDENT_RESPONSE_URGENCY	Comment	Pollution incident urgency response
	Type	UrgencyType
	Def. value	immediate
PX_POLLUTION_INCIDENT_SEVERITY	Comment	Pollution incident severity
	Type	SeverityType
	Def. value	severe
PX_POLLUTION_INCIDENT_SICKANIMAL_ON_BOARD	Comment	Pollution incident sick animal on board
	Type	Boolean
	Def. value	false
PX_POLLUTION_INCIDENT_MARITIME_SAFETY_INCIDENT_TYPE	Comment	Pollution incident type
	Type	MaritimeSafetyIncidentType
	Def. value	flooding

Table B.7p: Movement PIXITs

Identifier	Description	
PX_MOVEMENT_UUID	Comment	Movement Identifier
	Type	charstring
	Def. value	
PX_MOVEMENT_NATURE_TYPE	Comment	Movement nature
	Type	NatureType
	Def. value	estimated
PX_MOVEMENT_CERTAINTY	Comment	Movement certainty
	Type	CertaintyType
	Def. value	likely

Identifier	Description	
PX_MOVEMENT_TYPE	Comment	Metadata abstract designation
	Type	MovementType
	Def. value	voyage
PX_MOVEMENT_PURPOSE	Comment	Movement Purpose
	Type	charstring
	Def. value	Manoeuvre
PX_MOVEMENT_VOYAGE_NUMBER	Comment	Number of voyage
	Type	charstring
	Def. value	

Annex C (normative): PCTR pro forma for Security

C.1 The right to copy

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PCTR pro forma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

C.2 Introduction

The PCTR pro forma is based on ISO/IEC 9646-6 [i.4].

C.3 Identification summary

C.3.1 Protocol conformance test report

A protocol conformance test report shall be as in Table C.1.

Table C.1: Protocol conformance test report

PCTR Number:	
PCTR Date:	
Corresponding SCTR Number:	
Corresponding SCTR Date:	
Test Laboratory Identification:	
Test Laboratory Manager:	
Signature:	

C.3.2 IUT identification

An IUT shall be identified as specified in Table C.2.

Table C.2: IUT identification

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.3.3 Testing environment

The testing environment shall be as specified in Table C.3.

Table C.3: Testing environment

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

C.3.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

.....

.....

.....

.....

.....

C.3.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

.....

.....

.....

.....

.....

C.4 IUT Conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause C.3 in the present document) and there are no "FAIL" verdicts to be recorded (in clause C.6 in the present document) strike the words "has or", otherwise strike the words "or has not".

C.5 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.6 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded (in clause C.8 of the present document) strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

.....
.....
.....
.....
.....

C.7 Static conformance review report

If clause C.3 indicates non-conformance, this clause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

.....
.....
.....
.....
.....

C.8 Test campaign report

For the complete list of all test cases refer to the test control module of the file described in Annex A of the present document.

C.9 Observations

Additional information relevant to the technical content of the PCTR is given here.

.....
.....
.....
.....

History

Document history		
V1.1.1	July 2024	Publication