ETSI GS mWT 029-1 V1.1.1 (2024-12)

millimetre Wave Transmission (mWT); Conformance Test Specification for Wireless Transport Profile for Standard SDN Northbound Interfaces; Part 1: Implementation Conformance Statement (ICS)

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) millimetre Wave Transmission (mWT).

The present document is part 1 of a multi-part deliverable covering Conformance Test Specification for Standard SDN northbound APIs, as identified below:

Part 1: "Implementation Conformance Statement (ICS)";

Part 2: "Test Suite Structure (TSS) and Test Purposes (TP)";

Part 3: "Abstract Test Suite (ATS) and partial Implementation eXtra Information for Testing (PIXIT)".

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.

Introduction

The development of standardized conformance test specifications is considered as a validation activity and is an integral part of the ETSI strategy for ensuring interoperability. The mWT Conformance Testing methodology consists of:

- Selection of Implementations Under Test (IUT).
- Identification of reference points.

- Development of test specifications, which includes:
  - development of "Implementation Conformance Statements" (ICS);
  - development of "Test Suite Structure (TSS) and Test Purposes (TP)";
  - development of "Abstract Test Suite" (ATS).

The present document focuses on ICS development.

1 Scope

Based on the testing methodology guidelines and framework specified in ETSI GS mWT 024 [1], the present document specifies part 1 of a multi-part conformance test specification for the mWT Standard SDN northbound APIs for the exchange of messages complying with the ETSI GS mWT 024 [1] specifications will refer to.

The present document specifies the Test requirements and Implementation Conformance Statement (ICS). Conformance testing can be performed either by means of ETSI mWT Testing Platform.

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 in the ETSI docbox.

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.

[1] ETSI GS mWT 024 (V1.2.1): "millimetre Wave Transmission (mWT); Definition of a Wireless Transport Profile for Standard SDN Northbound Interfaces".

[2] IETF RFC 8453: "Framework for Abstraction and Control of TE Networks (ACTN)".

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] ISO/IEC 9646-7 (1995): "Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 7: Implementation Conformance Statements".

3 Definition of terms, symbols and abbreviations

3.1 Terms

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

access ethernet link: external ethernet link that is connected to a final user (e.g. NodeB), usually of UNI-C type

domain: (by default) entirety of the domain controlled by the PNC implementing the MPI under consideration

edge ethernet LTP: ethernet LTP that is connected to an external ethernet link

ethernet connection: bi-directional construct comprising two uni-directional ethernet links connecting a couple of ethernet LTPs

external ethernet link: ethernet link that has one termination inside and the other one outside of the domain managed by the PNC

full ethernet connectivity: complete reachability of all ethernet edge LTPs with one another

homogeneous region: subset of microwave network elements within a domain, that have full ethernet connectivity, and provide the same VLAN functionality on all edge LTPs

inter-domain ethernet link: external ethernet link that is connected to a transport domain (e.g. router, DWDM, etc.) or to another MW domain, usually of NNI type

internal ethernet link: ethernet link connecting Ethernet LTPs belonging the TE Ethernet topology of the domain managed by the PNC

multi-region domain: microwave domain that is composed internally by more than one homogeneous region, lacking full ethernet connectivity amongst them

partial ethernet connectivity: incomplete reachability of some ethernet edge LTPs with one another

VLAN isolation: capability of a homogeneous region to isolate the internal VLAN addressing space for path selection from any external one

VLAN transparency: lack of VLAN isolation capability by a homogeneous region

3.2 Symbols

Void.

3.3 Abbreviations

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

API	Application Programming Interface
ATS	Abstract Test Suite
BWP	Bandwidth Profile
DWDM	Dense Wavelength Division Multiplexing
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
LTP	Link termination point
MPI	MDSC-PNC Interface
MW	Microwave
mWT	millimetre Wave Transmission
NNI	Network Network Interface
PDU	Protocol Data Unit
PICS	Partial Implementation Conformance Statement
PIXIT	Partial Implementation eXtra Information for Testing
PNC	Provisioning Network Controller
RFC	Request for Comments
SDN	Software Defined Networking
TE	Traffic Engineering
TLS	Transport Layer Security
TP	Test Purpose
TSS	Test Suite Structure
UNI-C	User Network Interface - Customer Edge
VLAN	Virtual Local Area Network

4 Conformance requirement concerning ICS

A PICS pro forma which conforms to this PICS pro forma specification shall be technically equivalent to annex A of the present document and shall preserve the numbering and ordering of the items in annex A.

A PICS which conforms to the present document shall:

a) describe an implementation which claims to conform to ETSI GS mWT 024 [1];

b) be a conforming PICS pro forma which has been completed in accordance with the instructions for completion given in clause A.2;

c) include the information necessary to uniquely identify both the supplier and the implementation.

Annex A (normative): mWT ICS Pro forma

A.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 mWT PICS pro forma in this annex so that it can be used for its intended purposes and may further publish the completed PICS pro forma.

A.1 Guidance for completing the ICS Pro forma

A.1.1 Purpose and structure

The purpose of the present document is to provide a mechanism whereby a supplier of an implementation of the requirements defined in relevant specifications may provide information about the implementation in a standardized manner.

The PICS pro forma is subdivided into clauses for the following categories of information:

- instructions for completing the PICS pro forma;
- identification of the implementation;
- identification of the protocol;
- PICS pro forma tables (for example: major capabilities, etc.).

A.1.2 Instructions for completing the ICS pro forma

The supplier of the implementation shall complete the ICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

More detailed instructions are given at the beginning of the different clauses of the ICS proforma.

A.2 Guidance for completing the PICS pro forma

A.2.1 Purposes and structure

The purpose of the present document is to provide a mechanism whereby a supplier of an implementation of the requirements defined in relevant specifications may provide information about the implementation in a standardized manner.

The PICS pro forma is subdivided into clauses for the following categories of information:

- instructions for completing the PICS pro forma;
- identification of the implementation;
- identification of the protocol;
- PICS pro forma tables (for example: major capabilities, etc.).

A.2.2 Abbreviations and conventions

This annex does not reflect dynamic conformance requirements but static ones. In particular, a condition for support of a PDU parameter does not reflect requirements about the syntax of the PDU (i.e. the presence of a parameter) but the capability of the implementation to support the parameter.

In the sending direction, the support of a parameter means that the implementation is able to send this parameter (but it does not mean that the implementation always sends it).

In the receiving direction, it means that the implementation supports the whole semantic of the parameter that is described in the main part of the present document.

The PICS pro forma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7.

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Reference column

The reference column gives reference to ETSI GS mWT 024 unless otherwise stated.

Status column

The status column describes the status of the item. Predicate in conditional and optional items is of form of Reference to items, as described below.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7, are used for the support column:

Y or y	supported by the implementation
N or n	not supported by the implementation
N/A, n/a or -	no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status)

References to items

For each possible item answer (answer in the support column) within the PICS pro forma there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a dot character ".", followed by the item number in the table.

EXAMPLE: A.5.2.1 is the reference to the answer of item 2.1 in table A.5.

A.2.3 Instructions for completing the PICS pro forma

The supplier of the implementation may complete the PICS pro forma in each of the spaces provided. More detailed instructions are given at the beginning of the different clauses of the PICS pro forma.

A.3 Identification of the Equipment

A.3.1 Introduction

Identification of the Equipment shall be filled in so as to provide as much details as possible regarding version numbers and configuration options.

Both the product supplier information and client information shall be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS shall be named as the contact person.

A.3.2 Date of the statement

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A.3.3 Equipment Under Test identification

Name:

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Hardware configuration:

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Software configuration:

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A.3.4 Product supplier

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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A.3.5 Client

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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A.3.6 PICS contact person

Name:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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A.4 Identification of the protocol

The present document applies to the following specification: ETSI GS mWT 024 and IETF RFC 8453.

A.5 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No) .....

NOTE: Answering "No" to this question indicates non-conformance to the standard specification ETSI GS mWT 024. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS pro forma.

A.6 PICS pro forma tables

Unless stated otherwise, the column references of all tables below indicate the clause numbers of ETSI GS mWT 024.

Table A.1: IUT role

Item	Entity type	Mnemonic	Reference	Condition	Support
1	Multi-Domain Service Coordinator	IUT_MDSC	IETF RFC 8453, clause 4.2.1.1, clause 3	C.1	O Yes O No
2	Provisioning Network Controller	IUT_PNC	IETF RFC 8453, clause 4.2.1.1 IETF RFC 8453, clause 3	C.2	O Yes O No
C.1: Multi-Domain Service Coordinator is out of scope. C.2: Shall be supported					

Table A.2: RESTCONF support

Item	Entity type	Mnemonic	Reference	Condition	Support
1	RESTConf support	RESTCONF	IETF RFC 8453, clause 4.3.2	m	O Yes O No

Table A.3: Abstraction Level

Item	Entity type	Mnemonic	Reference	Condition	Support
1	Black box	ABSTRACT_BB	IETF RFC 8453, clause 4.3.2	C.1	O Yes O No
2	Partially Transparent	PARTIALLY_TRANS	IETF RFC 8453, clause 4.3.3	C.1	O Yes O No
C.1: At least one shall be supported.					

Table A.4: IUT Topologies Discovery

Item	Entity type	Mnemonic	Reference	Condition	Support
1	Microwave topology	MW_TOPO	IETF RFC 8453, clause 4.2.1.1	C.1	O Yes O No
2	Ethernet Topology	ETH_TOPO	IETF RFC 8453, clause 4.2.1.1	C.1	O Yes O No
3	Ethernet Service	ETH_SERVICE	IETF RFC 8453, clause 4.2.1.1	C.1	O Yes O No
C.1: At least one shall be supported.					

Table A.5: BWPs Service Model

Item	Entity type	Mnemonic	Reference	Condition	Support
1	Creation in one POST request	BWP_SVS_IN_ONE_REQUEST	IETF RFC 8453, clause 4.2.2.2	m	O Yes O No

Table A.6: Security

Item	Entity type	Mnemonic	Reference	Condition	Support
1	TLS supported	SEC_TLS	IETF RFC 8453, clause 9.2	m	O Yes O No

Annex B (informative): Bibliography

- ISO/IEC 9646-1 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".
- ISO/IEC 9646-2 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 2: Abstract Test Suite specification".
- ISO/IEC 9646-6 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 6: Protocol profile test specification".
- ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- 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".

History

Document history		
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