ETSI TS 102 916-1 V1.2.1 (2023-05)

TECHNICAL SPECIFICATION

**Intelligent Transport Systems (ITS);
Test specifications for the mitigation techniques to avoid
interference between Cooperative ITS-G5 and TTT DSRC;
Part 1: Protocol Implementation Conformance
Statement (PICS)**

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS).

The present document is part 1 of a multi-part deliverable covering the Test specifications for the mitigation techniques to avoid interference between Cooperative ITS-G5 and TTT DSRC, as identified below:

    Part 1:   **"Protocol Implementation Conformance Statement (PICS)";**

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

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

To evaluate protocol conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

1   Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the test specifications for the methods to ensure coexistence of cooperative ITS G5 with TTT DSRC as specified in ETSI TS 102 792 [3] and ETSI EN 302 663 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [2] and ETSI ETS 300 406 [i.2].

The supplier of a protocol implementation which is claimed to conform to ETSI TS 102 792 [3] and ETSI EN 302 663 [1] is required to complete a copy of the PICS proforma provided in annex A of the present document and is required to provide the information necessary to identify both the supplier and the implementation.

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.

[1]   ETSI EN 302 663: "Intelligent Transport Systems (ITS); ITS-G5 Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band".

[2]   ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".

[3]   ETSI TS 102 792 (V1.2.1): "Intelligent Transport Systems (ITS); Mitigation techniques to avoid interference between European CEN Dedicated Short Range Communication (CEN DSRC) equipment and Intelligent Transport Systems (ITS) operating in the 5 GHz frequency range".

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 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".

[i.2]   ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

3   Definition of terms, symbols and abbreviations

3.1   Terms

For the purposes of the present document, the terms given in ETSI TS 102 792 [3], ETSI EN 302 663 [1] and the following apply:

PICS proforma: document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which, when completed for an OSI implementation or system, becomes the PICS

NOTE: See ISO/IEC 9646-1 [i.1].

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of an Open Systems Interconnection (OSI) implementation or system, stating which capabilities have been implemented for a given OSI protocol

NOTE: See ISO/IEC 9646-1 [i.1].

static conformance review: review of the extent to which the static conformance requirements are met by the IUT, accomplished by comparing the PICS with the static conformance requirements expressed in the relevant standard(s)

NOTE: See ISO/IEC 9646-1 [i.1].

3.2   Symbols

Void.

3.3   Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 102 792 [3], ETSI EN 302 663 [1] and the following apply:

DSRC	Dedicated Short Range Communication
ICS	Implementation Conformance Statement
ITS	Intelligent Transport System
ITS-G5	Acronym for the 5,9 GHz vehicular ad-hoc network
ITS-S	ITS Station
IUT	Implementation Under Test
OBU	On Board Unit
OSI	Open Systems Interconnection
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
RSU	Road Side Unit
SUT	System under Test
TP	Test Purpose
TSS	Test Suite Structure
TTT	Transport and Traffic Telematics

4   Conformance

A PICS proforma which conforms to this PICS proforma specification shall be technically equivalent to annex A, and shall preserve the numbering and ordering of the items in annex A.

A PICS which conforms to this PICS proforma specification shall:

   a)   describe an implementation which claims to conform to ETSI TS 102 792 [3] and ETSI EN 302 663 [1];

b)   be a conforming ICS proforma which has been completed in accordance with the instructions for completion given in clause A.1;

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

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Annex A (normative):
PICS proforma

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 Security 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.2 Guidance for completing the ICS proforma

A.2.1 Purposes and structure

The purpose of this PICS proforma 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 proforma is subdivided into clauses for the following categories of information:

- instructions for completing the PICS proforma;

- identification of the implementation;

- identification of the protocol;

- PICS proforma 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.

As a consequence, PDU parameter tables in this annex are not the same as the tables describing the syntax of a PDU in the reference specification.

The PICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [2].

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 the relevant sections in core specifications.

Status column

The various status used in this annex are in accordance with the rules in table A.1.

Table A.1: Key to status codes

Status code	Status name	Meaning
m	mandatory	The capability shall be supported. It is a static view of the fact that the conformance requirements related to the capability in the reference specification are mandatory requirements. This does not mean that a given behaviour shall always be observed (this would be a dynamic view), but that it shall be observed when the implementation is placed in conditions where the conformance requirements from the reference specification compel it to do so. For instance, if the support for a parameter in a sent PDU is mandatory, it does not mean that it shall always be present, but that it shall be present according to the description of the behaviour in the reference specification (dynamic conformance requirement).
o	optional	The capability may or may not be supported. It is an implementation choice.
n/a	not applicable	It is impossible to use the capability. No answer in the support column is required.
c.<integer>	conditional	The requirement on the capability ("m", "o", "n/a") depends on the support of other optional or conditional items. <integer> is the identifier of the conditional expression.
o.<integer>	qualified optional	For mutually exclusive or selectable options from a set. <integer> is the identifier of the group of options, and the logic of selection of the options.

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 [2], 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)

A.2.3   Instructions for completing the PICS proforma

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

A.3 Identification of the Network Equipment

A.3.1 Introduction

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

The product supplier information and client information should both be filled in if they are different.

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

A.3.2 Date of the statement

....

A.3.3 Network Equipment Under Test identification

Name:

....

....

Hardware configuration:

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Software configuration:

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....

....

A.3.4 Product supplier

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....