



**Intelligent Transport Systems (ITS);
Testing;
Interoperability test specifications for ITS V2X use cases;
Part 1: Test requirements and Interoperability Feature
Statement (IFS) pro forma**

Reference

DTS/ITS-44

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Contents

Intellectual Property Rights	4
Foreword.....	4
Modal verbs terminology.....	4
1 Scope	5
2 References	5
2.1 Normative references	5
2.2 Informative references.....	5
3 Definitions and abbreviations.....	5
3.1 Definitions.....	5
3.2 Abbreviations	6
4 Conformance requirement concerning PICS.....	6
Annex A (normative): AutoInterop PICS Pro forma	7
A.1 The right to copy	7
A.2 Guidance for completing the ICS pro forma	7
A.2.1 Purposes and structure.....	7
A.2.2 Abbreviations and conventions	7
A.2.3 Instructions for completing the ICS pro forma.....	9
A.3 Identification of the implementation	9
A.3.1 Introduction	9
A.3.2 Date of the statement	9
A.3.3 Equipment Under Test (EUT) identification	9
A.3.4 System Under Test (SUT) identification	9
A.3.5 Product supplier.....	10
A.3.6 Client (if different from product supplier).....	10
A.3.7 ICS contact person.....	11
A.4 Identification of the protocol.....	11
A.5 Global statement of conformance.....	11
A.6 Tables	12
Annex B (informative): Bibliography.....	13
History	14

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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 C-ITS test specification for automated interoperability testing as identified below:

- Part 1: "**Test requirements and Interoperability Feature Statement (IFS) pro forma**";
- Part 2: "Test Suite Structure and Test Purposes (TSS & TP)";
- Part 3: "Abstract Test Suite (ATS) and Protocol 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).

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1 Scope

The present document provides parts of the Test requirements and Interoperability Feature Statement (IFS) pro forma for ITS Interoperability scenarios. The objective of the present document is to provide a basis for automated interoperability testing.

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 302 636-4-1 (V1.2.1): "Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 1: Media-Independent Functionality".
- [2] ISO/IEC 9646-1 (1994): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".
- [3] ISO/IEC 9646-7 (1995): "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".

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 TS 103 192-2: "Intelligent Transport Systems (ITS); Testing; Interoperability test specifications for ITS V2X use cases; Part 2: Test Suite Structure and Test Purposes (TSS & TP)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 302 636-4-1 [1], ISO/IEC 9646-1 [2] and ISO/IEC 9646-7 [3] apply.

3.2 Abbreviations

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

ATS	Abstract Test Suite
BTP	Basic Transport Protocol
CAM	Co-operative Awareness Messages
CAN	Controller Area Network
DENM	Decentralized Environmental Notification Message
EUT	Equipment Under Test
ICS	Implementation Conformance Statement
IFS	Interoperability Feature Statement
ITS	Intelligent Transport Systems
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SUT	System Under Test
TP	Test Purpose
TSS	Test Suite Structure

4 Conformance requirement concerning PICS

If it claims to conform to the present document, the actual PICS pro forma to be filled in by a supplier shall be technically equivalent to the text of the PICS pro forma given in annex A, and shall preserve the numbering, naming and ordering of the pro forma items.

An ICS which conforms to the present document shall be a conforming PICS pro forma completed in accordance with the instructions for completion given in clause A.1.

Annex A (normative): AutoInterop PICS 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 AutoInterop PICS pro forma in this annex so that it can be used for its intended purposes and may further publish the completed AutoInterop PICS.

A.2 Guidance for completing the ICS pro forma

A.2.1 Purposes and structure

The purpose of this PICS pro forma is to provide a mechanism whereby a supplier may provide information about the implementation in a standardized manner.

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

- guidance for completing the ICS pro forma;
- identification of the implementation;
- global statement of conformance;
- PICS pro forma tables.

A.2.2 Abbreviations and conventions

The ICS pro forma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [3].

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?".

Status column

The following notations, defined in ISO/IEC 9646-7 [3], are used for the status column:

- | | |
|-----|---|
| m | mandatory - the capability is required to be supported. |
| o | optional - the capability may be supported or not. |
| n/a | not applicable - in the given context, it is impossible to use the capability. |
| x | prohibited (excluded) - there is a requirement not to use this capability in the given context. |

- o.i qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.
- c.i conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table.
- i irrelevant (out-of-scope) - capability outside the scope of the reference specification. No answer is requested from the supplier.

NOTE 1: This use of "i" status is not to be confused with the suffix "i" to the "o" and "c" statuses above.

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 [3], 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).

NOTE 2: As stated in ISO/IEC 9646-7 [3], support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
example: 5 .. 20
- list of values: <value1>, <value2>, ..., <valueN>
example: 2, 4, 6, 8, 9
example: '1101'B, '1011'B, '1111'B
example: '0A'H, '34'H, '2F'H
- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
example: reject(1), accept(2)
- length: size (<min size> ... <max size>)
example: size (1 ... 8)

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

References to items

For each possible item answer (answer in the support column) within the ICS pro forma a unique reference exists, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a slash character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 1: A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 2: A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

Prerequisite line

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

A.2.3 Instructions for completing the ICS pro forma

The supplier of the implementation shall complete the ICS pro forma 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 pro forma.

A.3 Identification of the implementation

A.3.1 Introduction

Identification of the Implementation Under Test (EUT) and the system in which it resides (the System Under Test (SUT)) shall 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 shall both be filled in if they are different.

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

A.3.2 Date of the statement

.....

A.3.3 Equipment Under Test (EUT) identification

EUT name:

.....

.....

EUT version:

.....

A.3.4 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

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

Operating system:

.....

A.3.5 Product supplier

Name:

.....

Address:

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

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

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

A.3.6 Client (if different from product supplier)

Name:

.....

Address:

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

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

A.3.7 ICS contact person

(A person to contact if there are any queries concerning the content of the ICS)

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.4 Identification of the protocol

This ICS pro forma applies to the following standard: ETSI TS 103 192-2 [i.1].

A.5 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)

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

A.6 Tables

Table A.1: C-ITS protocol settings

Item	Type	Reference	Status	Support
1	PICS_CAM_BTP_DESTINATION_PORT		m	
2	PICS_CAM_BTP_SOURCE_PORT		m	
3	PICS_CAM_ITS_AID		m	
4	PICS_DENM_BTP_DESTINATION_PORT		m	
5	PICS_DENM_BTP_SOURCE_PORT		m	
6	PICS_DENM_ITS_AID		m	

Table A.2: Position references

Item	AutoInterop vehicle profile	Reference	Status	Support
1	PICS_Z1_D1_EP		m	
2	PICS_Z1_D2_EP		m	
3	PICS_Z1_D3_EP		m	
4	PICS_UC2_HEAVY_TRUCK_POS		m	
5	PICS_POS0		m	
6	PICS_POS1		m	
7	PICS_POS2		m	
8	PICS_POS3		m	
9	PICS_POS4		m	
10	PICS_TARGET_GEOAREA		m	

Table A.3: DENM cause references

Item	AutoInterop vehicle profile	Reference	Status	Support
1	PICS_UC2_CAUSE		m	
2	PICS_UC2_SUBCAUSE		m	

Annex B (informative): Bibliography

- ETSI ES 201 873-5 (V4.5.1): "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 5: TTCN-3 Runtime Interface (TRI)".

History

Document history		
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