



**Intelligent Transport Systems (ITS);
Test specifications for the channel congestion control
algorithms operating in the 5,9 GHz range;
Part 1: Protocol Implementation Conformance Statement (PICS)**

Reference

DTS/ITS-0040025

Keywords

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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 - NAF 742 C
Association à but non lucratif enregistrée à la
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Contents

Intellectual Property Rights	4
Foreword.....	4
Introduction	4
1 Scope	5
2 References	5
2.1 Normative references	5
2.2 Informative references.....	5
3 Definitions and abbreviations.....	6
3.1 Definitions	6
3.2 Abbreviations	6
4 Conformance	6
Annex A (normative): PICS proforma.....	7
A.1 Guidance for completing the ICS proforma	7
A.1.1 Purposes and structure.....	7
A.1.2 Abbreviations and conventions	7
A.1.3 Instructions for completing the PICS proforma.....	8
A.2 Identification of the Network Equipment.....	8
A.2.1 Date of the statement	9
A.2.2 Network Equipment Under Test identification.....	9
A.2.3 Product supplier.....	9
A.2.4 Client	10
A.2.5 PICS contact person	10
A.3 Identification of the protocol.....	11
A.4 Global statement of conformance.....	11
A.5 PICS proforma tables	11
A.5.1 Roles.....	11
A.5.2 ITS Bands.....	12
A.5.3 ITS Channels.....	12
A.5.4 Maximum Transmission Power Values.....	13
A.5.5 Supported T _{Off} Values	14
A.5.6 System Capabilities	14
History	15

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Foreword

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

The present document is part 1 of a multi-part deliverable covering the test specifications for the channel congestion control algorithms operating in the 5,9 GHz range as identified below:

- Part 1: "Protocol Implementation Conformance Statement (PICS)";**
- Part 2: "Test Suite Structure (TSS) and Test Purposes (TP)";
- Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

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 channel congestion control algorithms operating in the 5,9 GHz range as specified in TS 102 687 [1] and TS 102 724 [2] and in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [4] and ETS 300 406 [5].

The supplier of a protocol implementation which is claimed to conform to TS 102 687 [1] and TS 102 724 [2] 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.

In the present document only the ITS-G5A and ITS-G5B channels are covered.

2 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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://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.

2.1 Normative references

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

- [1] ETSI TS 102 687: "Intelligent Transport Systems (ITS); Decentralized Congestion Control Mechanisms for Intelligent Transport Systems operating in the 5 GHz range; Access layer part".
- [2] ETSI TS 102 724: "Intelligent Transport Systems (ITS); Harmonized Channel Specifications for Intelligent Transport Systems operating in the 5 GHz frequency band".
- [3] ISO/IEC 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".
- [4] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection - Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".
- [5] ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

2.2 Informative references

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.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 102 687 [1], TS 102 724 [2] 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 [3].

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 [3].

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 [3].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 102 687 [1], TS 102 724 [2] and the following apply:

CCH	Control CHannel
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement

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 TS 102 687 [1] and TS 102 724 [2];
- 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.

Annex A (normative): PICS proforma

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

A.1 Guidance for completing the ICS proforma

A.1.1 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 standardised 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.1.2 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 [4].

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.

Mnemonic column

The Mnemonic column contains mnemonic identifiers for each item.

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 [4], 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 proforma there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table.

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

A.1.3 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.2 Identification of the Network Equipment

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.2.1 Date of the statement

.....

A.2.2 Network Equipment Under Test identification

Name:

.....
.....

Hardware configuration:

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

Software configuration:

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

A.2.3 Product supplier

Name:

.....

Address:

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

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

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

A.2.4 Client

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.5 PICS contact person

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

A.3 Identification of the protocol

This PICS proforma applies to the following specifications:

TS 102 687 [1], TS 102 724 [2].

A.4 Global statement of conformance

The implementation described in this PICS meets all the mandatory requirements of the referenced standards?

Yes

No

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming. Explanations may be entered in the comments field at the bottom of each table or on attached pages.

A.5 PICS proforma tables

A.5.1 Roles

Table A.2: Roles

Item	Roles: Is the IUT implemented to support the role of a ...	Reference	Status	Support
1	single transceiver ITS station?		o.1	
2	multiple transceiver ITS station?		o.1	
o.1: At least one of these capabilities shall be supported.				

A.5.2 ITS Bands

Table A.3: ITS Bands

Item	ITS Bands: Does IUT support the usage of the...	Reference	Status	Support
1	ITS-G5A band?	[2] 5.4	m	
2	ITS-G5B band?	[2] 5.5	o	

A.5.3 ITS Channels

Table A.4: ITS Channels

Item	ITS Channels: Does IUT support the usage of the...	Reference	Status	Support
1	CCH?	[2] 5.4.2	m	
2	SCH1?	[2] 5.4.2	o	
3	SCH2?	[2] 5.4.2	o	
4	SCH3?	[2] 5.5.2	c.1	
5	SCH4?	[2] 5.5.2	c.1	

c.1: o if A.3/2, else n/a

A.5.4 Maximum Transmission Power Values

Table A.5: Maximum Transmission Power Values

Item	Maximum Transmission Power Values: Give the maximum Transmission power ...	Reference	Status	Support Value [dBm]
1	for the CCH in the Relaxed state.	[2] 5.4.3.2 table 1	m	
2	for the CCH in the Active state.	[2] 5.4.3.2 table 1	m	
3	for the CCH in the Restrictive state.	[2] 5.4.3.2 table 1	m	
4	for the SCH1 in the Relaxed state.	[2] 5.4.3.2 table 2	c.2	
5	for the SCH1 in the Active state.	[2] 5.4.3.2 table 2	c.2	
6	for the SCH1 in the Restrictive state.	[2] 5.4.3.2 table 2	c.2	
7	for the SCH2 in the Relaxed state.	[2] 5.4.3.2 table 3	c.3	
8	for the SCH2 in the Active state.	[2] 5.4.3.2 table 3	c.3	
9	for the SCH2 in the Restrictive state.	[2] 5.4.3.2 table 3	c.3	
10	for the SCH3 in the Relaxed state.	[2] 5.5.3 table 4	c.4	
11	for the SCH3 in the Active state.	[2] 5.5.3 table 4	c.4	
12	for the SCH3 in the Restrictive state.	[2] 5.5.3 table 4	c.4	
13	for the SCH4 in the Relaxed state.	[2] 5.5.3 table 5	c.5	
14	for the SCH4 in the Active state.	[2] 5.5.3 table 5	c.5	
15	for the SCH4 in the Restrictive state.	[2] 5.5.3 table 5	c.5	
c.2: m if A.4/2, else n/a c.3: m if A.4/3, else n/a c.4: m if A.4/4, else n/a c.5: m if A.4/5, else n/a				

A.5.5 Supported T_{Off} Values

Table A.6: Supported T_{Off} Values

Item	T_{Off} Values: Does the IUT support the T_{Off} value restrictions ...	Reference	Status	Support
1	for the CCH in the Relaxed state?	[2] 5.4.3.2 table 1	m	
2	for the CCH in the Active state?	[2] 5.4.3.2 table 1	m	
3	for the CCH in the Restrictive state?	[2] 5.4.3.2 table 1	m	
4	for the SCH1 in the Relaxed state?	[2] 5.4.3.2 table 2	c.6	
5	for the SCH1 in the Active state?	[2] 5.4.3.2 table 2	c.6	
6	for the SCH1 in the Restrictive state?	[2] 5.4.3.2 table 2	c.6	
7	for the SCH2 in the Relaxed state?	[2] 5.4.3.2 table 3	c.7	
8	for the SCH2 in the Active state?	[2] 5.4.3.2 table 3	c.7	
9	for the SCH2 in the Restrictive state?	[2] 5.4.3.2 table 3	c.7	
10	for the SCH3 in the Relaxed state?	[2] 5.5.3 table 4	c.8	
11	for the SCH3 in the Active state?	[2] 5.5.3 table 4	c.8	
12	for the SCH3 in the Restrictive state?	[2] 5.5.3 table 4	c.8	
13	for the SCH4 in the Relaxed state?	[2] 5.5.3 table 5	c.9	
14	for the SCH4 in the Active state?	[2] 6.5.2 table 5	c.9	
15	for the SCH4 in the Restrictive state?	[2] 6.5.2 table 5	c.9	

c.6: m if A.4/2, else n/a
c.7: m if A.4/3, else n/a
c.8: m if A.4/4, else n/a
c.9: m if A.4/5, else n/a

A.5.6 System Capabilities

Table A.7 System Capabilities

Item	System Capabilities: Does IUT support the ...	Reference	Status	Support
1	channel load measurements?	[2] 5.2	m	
2	receiver signal strength indicator statistics measurements?	[2] 5.2	m	
3	frame transmission indications per frame?	[2] 5.2	m	
4	transmission power reduction indications per frame?	[2] 5.2	m	
5	channel usage order CCH, SCH1, SCH2?	[2] 5.4.3.2	m	
6	channel usage order SCH3, SCH4?	[2] 5.5.3	c.10	

c.10: m if A.3/2, else n/a

History

Document history		
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