



**Intelligent Transport Systems (ITS);
Test specifications for the channel congestion control
algorithms operating in the 5,9 GHz range;
Part 3: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT)**

Reference

DTS/ITS-0040027

Keywords

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Contents

Intellectual Property Rights	4
Foreword.....	4
1 Scope	5
2 References	5
2.1 Normative references	5
2.2 Informative references.....	6
3 Definitions and abbreviations.....	6
3.1 Definitions	6
3.2 Abbreviations	6
4 ATS conventions	6
4.1 Test Architecture	6
4.2 ATS structure	6
4.2.1 Test case grouping	6
4.2.2 Test case identifiers	7
Annex A (normative): Partial PIXIT proforma	8
A.1 Introduction	8
A.2 PIXIT items	8
Annex B (informative): TTCN-3 library modules.....	10
B.1 Electronic annex, zip file with TTCN-3 code	10
History	11

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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 3 of a multi-part deliverable covering the test specifications for the channel congestion control algorithms operating in the 5,9 GHz range; Conformance Testing, as identified below:

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

1 Scope

The present document specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the test specifications for the channel congestion control algorithms operating in the 5,9 GHz range as specified in TS 102 687 [i.2] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5] and ETS 300 406 [6].

The test notation used in the ATS is TTCN-3 (see ES 201 873-1 [7]).

The following test specification and design considerations can be found in the body of the present document:

- the overall test suite structure;
- the testing architecture;
- the test methods and port definitions;
- the test configurations;
- TTCN styles and conventions;
- the partial PIXIT proforma;
- the modules containing the TTCN-3 ATS.

Annex A provides the Partial Implementation Extra Information for Testing (PIXIT) Proforma of the ATS.

Annex B provides the Testing and Test Control Notation (TTCN-3) part of the ATS.

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 102 724: "Intelligent Transport Systems (ITS); Harmonized Channel Specifications for Intelligent Transport Systems operating in the 5 GHz frequency band".
- [2] ETSI TS 102 917-1: "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)".
- [3] ETSI TS 102 917-2: "Intelligent Transport Systems (ITS); Test specifications for the channel congestion control algorithms operating in the 5,9 GHz range; Part 2: Test Suite Structure and Test Purposes (TSS & TP)".
- [4] ISO/IEC 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".

- [5] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".
- [6] ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [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".

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.

- [i.1] ETSI EG 202 798 (V1.1.1): "Intelligent Transport Systems (ITS); Testing; Framework for conformance and interoperability testing".
- [i.2] 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".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-7 [5], and TS 102 724 [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [4], ISO/IEC 9646-7 [5], and TS 102 724 [1] apply.

4 ATS conventions

Test purposes of the present document address the channel congestion control algorithms operating in the 5,9 GHz range.

The definitions and procedures as defined in ITS testing framework in EG 202 798 [i.1] have been applied.

4.1 Test Architecture

The test architecture defined in TS 102 917-2 [3] clause 4 applies.

4.2 ATS structure

4.2.1 Test case grouping

The ATS structure is based on the Test Purposes for channel congestion control algorithms operating in the 5,9 GHz range as defined in TS 102 917-2 [3].

4.2.2 Test case identifiers

The test case names are built up according to the following scheme:

"<TC>"_"<Group index>"_"<TC number>"

NOTE: This naming scheme provides a 1-1 correspondence of TP identifiers as defined in TS 102 917-2 [3] and test case names.

The TP identifier of TC_XXX_01 is TP_XXX_01.

The test cases have been divided according to the functionalities into several groups.

- TC_XXX_XX XXX

Annex A (normative): Partial PIXIT proforma

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

A.1 Introduction

This partial PIXIT proforma contained in the present document is provided for completion, when the related Abstract Test Suite is to be used against the Implementation Under Test (IUT).

The completed partial PIXIT will normally be used in conjunction with the completed PICS, as it adds precision to the information provided by the PICS.

A.2 PIXIT items

Each PIXIT item corresponds to a Module Parameter of the ATS.

Table A.1: Acceptable Transmission Power Values

Item	Acceptable Transmission Power Values: Give an acceptable Transmission power ...	Reference	Value
1	for the CCH in the Relaxed state	[1] 5.4.3.2, table 1	
2	for the CCH in the Active state	[1] 5.4.3.2, table 1	
3	for the CCH in the Restrictive state	[1] 5.4.3.2, table 1	
4	for the SCH1 in the Relaxed state	[1] 5.4.3.2, table 2	
5	for the SCH1 in the Active state	[1] 5.4.3.2, table 2	
6	for the SCH1 in the Restrictive state	[1] 5.4.3.2, table 2	
7	for the SCH2 in the Relaxed state	[1] 5.4.3.2, table 3	
8	for the SCH2 in the Active state	[1] 5.4.3.2, table 3	
9	for the SCH2 in the Restrictive state	[1] 5.4.3.2, table 3	
10	for the SCH3 in the Relaxed state	[1] 5.5.3, table 4	
11	for the SCH3 in the Active state	[1] 5.5.3, table 4	
12	for the SCH3 in the Restrictive state	[1] 5.5.3, table 4	
13	for the SCH4 in the Relaxed state	[1] 5.5.3, table 5	
14	for the SCH4 in the Active state	[1] 5.5.3, table 5	
15	for the SCH4 in the Restrictive state	[1] 5.5.3, table 5	
NOTE:	The values given in this table have to be below or equal to the values in TS 102 917-1 [2], table A.5.		

Table A.2: Unachievable Transmission Power Values

Item	Unachievable Transmission Power Values: Give a Transmission power value that cannot be achieved ...	Reference	Value
1	for the CCH in the Relaxed state	[1] 5.4.3.2, table 1	
2	for the CCH in the Active state	[1] 5.4.3.2, table 1	
3	for the CCH in the Restrictive state	[1] 5.4.3.2, table 1	
4	for the SCH1 in the Relaxed state	[1] 5.4.3.2, table 2	
5	for the SCH1 in the Active state	[1] 5.4.3.2, table 2	
6	for the SCH1 in the Restrictive state	[1] 5.4.3.2, table 2	
7	for the SCH2 in the Relaxed state	[1] 5.4.3.2, table 3	
8	for the SCH2 in the Active state	[1] 5.4.3.2, table 3	
9	for the SCH3 in the Relaxed state	[1] 5.5.3, table 4	
10	for the SCH3 in the Active state	[1] 5.5.3, table 4	
11	for the SCH3 in the Restrictive state	[1] 5.5.3, table 4	
12	for the SCH4 in the Relaxed state	[1] 5.5.3, table 5	
13	for the SCH4 in the Active state	[1] 5.5.3, table 5	
14	for the SCH4 in the Restrictive state	[1] 5.5.3, table 5	

NOTE: The values given in this table have to be **above** the values in TS 102 917-1 [2], table A.5.

Table A.3: Miscellaneous Values

Item	Values: Give a value for ...	Reference	Value
1	the content of the reference burst to be sent on the radio interface		
2	the allowed delta between requested and measured power value		
3	the number of frames to be requested in a test; used to calculate the overall test duration		

Annex B (informative): TTCN-3 library modules

B.1 Electronic annex, zip file with TTCN-3 code

The TTCN-3 library modules are contained in archive ts_10291703v010101p0.zip which accompanies the present document.

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

History

Document history		
V1.1.1	January 2013	Publication