ETSI TS 101 811-1-1 V1.1.1 (2000-09)

Technical Specification
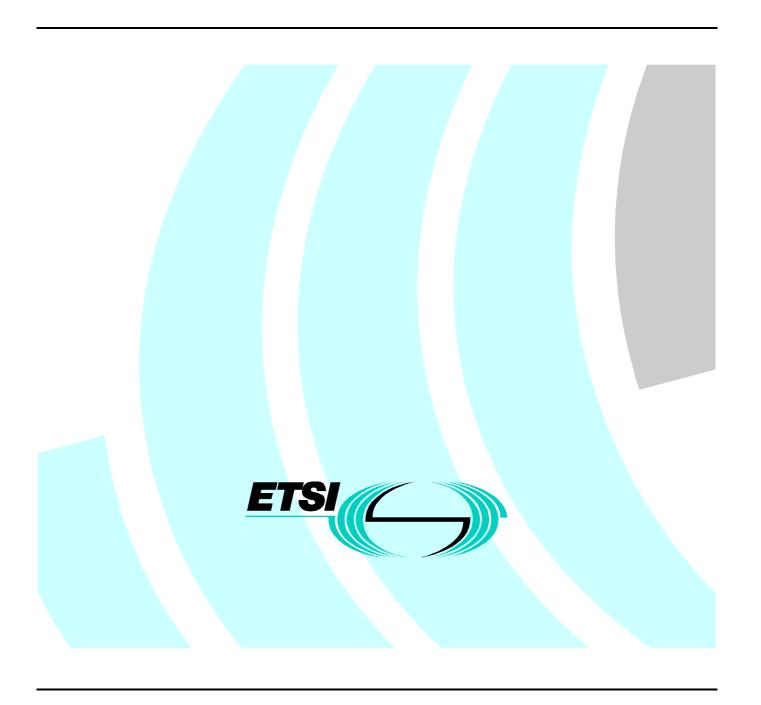
**Broadband Radio Access Networks (BRAN);
HIPERLAN Type 2;
Conformance testing for
the packet based convergence layer;
Part 1: Common part
Sub-part 1: Protocol Implementation Conformance
Statement (PICS) proforma**

ETSI

Reference
DTS/BRAN-0024T04-1-1

Keywords
access, HIPERLAN, PICS

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Broadband Radio Access Networks (BRAN).

The present document is sub-part 1 of a multi-part deliverable covering Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Conformance testing for the packet based convergence layer; Part 1: Common part, as identified below:

Sub-part 1: **"Protocol Implementation Conformance Statement (PICS) proforma";**

Sub-part 2: "Test Suite Structure and Test Purposes (TSS&TP) specification";

Sub-part 3: "Abstract Test Suite (ATS) specification".

Introduction

To evaluate 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 packet based convergence layer for HIPERLAN 2; Part 1: Common part, as defined in TS 101 493-1 [1] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [4] and ETS 300 406 [2].

It details in tabular form the implementation options, i.e. the optional functions additional to those which are mandatory to implement.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1]   ETSI TS 101 493-1 (V1.1.1): "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Packet based Convergence Layer; Part 1: Common Part".

[2]   ETSI ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[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".

3 Definitions and abbreviations

3.1 Definitions

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

- terms defined in TS 101 493-1 [1];

- terms defined in ISO/IEC 9646-1 [3] and in ISO/IEC 9646-7 [4].

In particular, the following terms, defined in ISO/IEC 9646-1 [3], apply:

Implementation Conformance Statement (ICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

ICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS.

Protocol ICS (PICS): ICS for an implementation or system claimed to conform to a given protocol specification.

3.2   Abbreviations

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

AP   Access Point
CC   Central Controller
CL   Convergence Layer
CPCS   Common Part Convergence Sublayer
DLC   Data Link Control
EC   Error Control
ICS   Implementation Conformance Statement
IUT   Implementation Under Test
MT   Mobile Terminal
MTU   Maximum Transmission Unit
PAD   Packet Assembly/Disassembly facility
PDU   Protocol Data Unit
PICS   Protocol ICS
SAR   Segmentation and Re-assembly
SCS   System Conformance Statement
SUT   System Under Test
T_RAS   Re-ASsembly Timer

4   Conformance to this PICS proforma specification

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

A PICS which conforms to the present document shall be a conforming PICS proforma completed in accordance with the guidance for completion given in Clause A.1.

Annex A (normative):
Protocol ICS proforma for TS 101 493-1

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.

A.1   Guidance for completing the PICS 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 TS 101 493-1 may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into subclauses for the following categories of information:

- guidance for completing the PICS proforma;

- identification of the implementation;

- identification of the TS 101 493-1;

- global statement of conformance;

- roles;

- major capabilities;

- PDUs;

- PDU parameters.

A.1.2   Abbreviations and conventions

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.

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, 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 a unique group of related optional items and the logic of their selection which is defined immediately following the table;

ci   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 a 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.

Reference column

The reference column makes reference to TS 101 493-1, except where explicitly stated otherwise.

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).

If this PICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the space for comments provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE 1:   ?3: IF prof1 THEN Y ELSE N

NOTE 2: As stated in ISO/IEC 9646-7, 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 PICS proforma a unique reference exists, 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. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 2:   A.5/4 is the reference to the answer of item 4 in Table A.5 of Annex A.

EXAMPLE 3:   A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in Table A.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.1.3   Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS 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, using the notation described in subclause A.1.2.

However, the tables containing in "user role" or "Mobile Terminal MT" subclause shall only be completed for MT implementations, and the tables containing in "network role" or "Access Point AP" subclause shall only be completed for AP implementations.

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

More detailed instructions are given at the beginning of the different subclauses of the PICS proforma.

A.2   Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) 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   Implementation Under Test (IUT) identification

IUT name:

....

....

IUT version:

....

A.2.3   System Under Test (SUT) identification

SUT name:

....

....

Hardware configuration:

....

....

....

Operating system:

....

A.2.4   Product supplier

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

A.2.5   Client (if different from product supplier)

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

A.2.6   PICS contact person

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

Name:

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

A.3   Identification of the TS 101 493-1 V1.1.1

This PICS proforma applies to the following standard:

TS 101 493-1 V1.1.1: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Packet based Convergence Layer; Part 1: Common Part".

A.4   Global statement of conformance

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

> NOTE: Answering "No" to this question indicates non-conformance to the TS 101 493-1 specification. 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 proforma.

A.5   Roles

Table A.1: Roles

Item	Role	Reference	Status	Support
1	Mobile Terminal MT	4	o.1	
2	Access Point AP	4	o.1	

o.1:   It is mandatory to support at least one of these items.

Comments: According to the answer to items of Table A.1 of this proforma, the completed PICS becomes a PICS relative to an AP or to an MT. If you want to describe both AP and MT, then two copies of this PICS proforma shall be filled in, one copy for MT, another one for AP.

A.6   PICS for Mobile Terminal MT or Access Point AP

This subclause contains the PICS proforma tables describing the protocol related either to the Mobile Terminal MT or to the Access Point AP. They need to be completed according to the type of implementation declared in Table A.1.

A.6.1   Major capabilities

Table A.2: Major capabilities

Item	Capabilities	Reference	Status	Support
1	Common Part Convergence Sublayer procedures	5.3	m	
2	Segmentation and Re-assembly procedures	5.4	m	

A.6.1.1   Common Part Convergence Sublayer procedures

Table A.3: CPCS procedures

Item	Capabilities	Reference	Status	Support
1	CPCS at the sender	5.3.4.2	m	
2	CPCS at the receiver	5.3.4.3	m	

A.6.1.1.1   Common Part Convergence Sublayer - send mode

Table A.4: CPCS at the sender

Item	Capabilities	Reference	Status	Support
1	Compute length (octets) of variable payload present in CPCS_SDU	5.3.4.2, 5.3.3.2	m	
2	Add CPCS_PDU PAD (for 48 octets alignment)	5.3.4.2, 5.3.3.2	m	
3	Build CPCS_PDU trailer then add it to CPCS_PDU(last 4 octets)	5.3.4.2, 5.3.3.2	m	
4	Deliver CPCS_PDU to the SAR	5.3.4.2, 5.3.3.2	m	

A.6.1.1.2   Common Part Convergence Sublayer - receive mode

Table A.5: CPCS at the receiver

Item	Capabilities	Reference	Status	Support
1	Check the length field in CPCS_PDU trailer and discard PDU if PAD is greater than 47 or if not enough data received	5.3.4.3	m	
2	Discard PDU when CPCS PDU payload greater than MTU and report error	5.3.4.3	m	
3	Discard PDU when value of CPCS PDU length field is zero	5.3.4.3	m	
4	Extract payload and deliver it to CPCS user	5.3.4.3	m	

A.6.1.2 Segmentation and Re-assembly procedures

Table A.6: SAR procedures

Item	Capabilities	Reference	Status	Support
1	SAR at the sender	5.4.3.2	m	
2	SAR at the receiver	5.4.3.3	m	

A.6.1.2.1 Segmentation and Re-assembly - send mode

Table A.7: SAR at the sender

Item	Capabilities	Reference	Status	Support
1	Segment CPCS info into 48 octets segments, as payload of SAR_PDUs	5.4.3.2	m	
2	Add SAR_PDU header (8 CL tags, 4 CL flags) in each PDU	5.4.3.2	m	
3	Set SAR Stop bit to 0 except in the last SAR_PDU where it is set to 1	5.4.3.2	m	

A.6.1.2.2 Segmentation and Re-assembly - receive mode

Table A.8: SAR at the receiver

Item	Capabilities	Reference	Status	Support
1	Extract SAR_PDU header	5.4.3.3	m	
2	Place SAR_PDU payloads (48 octets) into reassembly buffer	5.4.3.3	m	
3	Handle reassembly timer (T_RAS), and discard reassembly buffer when timer expires	5.4.3.3	o	
4	Check number of octets in reassembly buffer, and discard buffer contents when greater than MTU+3	5.4.3.3	m	
5	Deliver reassembly buffer to CPCS when SAR stop bit is set to 1, then clear buffer	5.4.3.3	m	

A.6.2 PDUs

A.6.2.1 CPCS_PDU descriptions

Table A.9: CPCS_PDU

Item	PDU	Sending			Receiving		
		Reference	Status	Support	Reference	Status	Support
1	CPCS_PDU	5.3.3.2	m		5.3.3.2	m	

Comments:

A.6.2.2 SAR_PDU descriptions

Table A.10: SAR_PDU

Item	PDU	Sending			Receiving		
		Reference	Status	Support	Reference	Status	Support
1	SAR_PDU	5.4.2.2	m		5.4.2.2	m	

Comments:

A.6.3   PDU parameters

A.6.3.1   Parameters of CPCS_PDUs

Table A.11: CPCS_PDU

Item	Capabilities	Reference	Status	Support
1	CPCS_SDU variable payload	5.3.3.2	m	
2	PAD (0-47 octets)	5.3.3.2	m	
3	Trailer (4 octets)	5.3.3.2	m	

Comments:

A.6.3.2   Parameters of SAR_PDUs

Table A.12: SAR_PDU

Item	Capabilities	Reference	Status	Support
1	CL tags (8 bits)	5.4.2.2	m	
2	CL flags (4 bits)	5.4.2.2	m	
3	payload (48 octets of CPCS_PDU)	5.4.2.2	m	

Comments:

A.6.3.3   Miscellaneous parameters

Table A.13: MTU and RAS timer

Item	<Item description>	Reference	Status	Support	Values	
					Allowed	Supported
1	Maximum Transmission Unit (MTU) value	5.3.5	m		max 65 535 octets	
2	Re_ASsembly timer (T_RAS)	5.4.3.3	o		Not specified	

History

Document history		
V1.1.1	September 2000	Publication