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Technical Specification

**Broadband Radio Access Networks (BRAN);
HIPERLAN Type 2;
Conformance Testing for the
Cell based Convergence Layer;
Part 2: UNI Service Specific
Convergence Sublayer (SSCS);
Sub-part 2: Test Suite Structure and
Test Purposes (TSS&TP) specification**



Reference

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Keywords

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Foreword

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

The present document is part 2, sub-part 2 of a multi-part deliverable covering Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Conformance Testing for the Cell based Convergence Layer, as identified below:

Part 1: "Common Part";

Part 2: "UNI Service Specific Convergence Sublayer (SSCS)";

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".

1 Scope

The present document contains the Test Suite Structure (TSS) and Test Purposes (TP) to test the Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Cell based Convergence Layer; Part 2: UNI Service Specific Convergence Sublayer (SSCS).

The objective of the present document is to provide a basis for conformance tests for BRAN HIPERLAN Type 2 equipment giving a high probability of air interface inter-operability between different manufacturer's BRAN HIPERLAN Type 2 equipment.

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [3] and ISO/IEC 9646-2 [4]) as well as the ETSI rules for conformance testing (ETS 300 406 [2]) are used as a basis for the test methodology.

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI TS 101 763-2 (V1.1.1): "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Cell based Convergence Layer; Part 2: UNI Service Specific Convergence Sublayer (SSCS)".
- [2] ETSI ETS 300 406: "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". (See also ITU-T Recommendation X.290 (1991)).
- [4] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification". (See also ITU-T Recommendation X.291 (1991)).
- [5] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".
- [6] 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 terms and definitions given in TS 101 763-2 [1] and ISO/IEC 9646-7 [6] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in ISO/IEC 9646-1 [3], ISO/IEC 9646-6 [5], ISO/IEC 9646-7 [6], TS 101 763-2 [1] and the following apply:

AC	Association Control Function
AP	Access Point
ATM	Asynchronous Transfer Mode
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	CApability tests
CBCL	Cell Based Convergence Layer
CL	Convergence Layer
DL	DLC connection functions
DLC	Data Link Control
HN	HaNdoover functions
IUT	Implementation Under Test
MT	Mobile Terminal
NW	NetWork
PDU	Protocol Data unit
PICS	Protocol Implementation Conformance Statement
RLC	Radio Link Control
SSCS	Service Specific Convergence Sublayer
TP	Test Purposes
TSS	Test Suite Structure

4 Test suite structure

4.1 Structure

Figure 1 shows the UNI SSCS Test Suite Structure (TSS) including its subgroups defined for the conformance testing.

Test Suite	Protocol group	Protocol subgroup	Test group			
			CA	BV	BI	BO
UNI-AP/UNI-MT	UNI SSCS	Association	x			
		DLC-Connection	x			
		Handover	x			

Figure 1: TSS for Hiperlan 2 UNI SSCS

The test suite is structured as a tree with a first level defined as UNI-AP or UNI-MT representing the protocol group "UNI SSCS part of CBCL for AP and UNI SSCS part of CBCL for MT".

4.2 Test groups

The test groups are organized in three levels. The first level creates one protocol group representing the protocol services. The second level separates the protocol services in functional modules. The last level in each branch contains one or more of the standard ISO subgroups CA, BV, BI and BO.

4.2.1 Protocol groups

The protocol groups identify the UNI SSCS part procedures as defined in TS 101 763-2 [1].

4.2.1.1 UNI SSCS procedures

The UNI SSCS procedures group is divided in three functional modules. The first functional module identifies the association control functions. The second functional module identifies the DLC connection functions. The last functional module identifies the handover functions.

4.2.2 Main test groups

The main test groups are the capability group, the valid behaviour group, the invalid behaviour group and the inopportune behaviour group.

4.2.2.1 Capability (CA) tests

This test sub group shall provide limited testing of the major IUT capabilities aiming to insure that the claimed capabilities are correctly supported, according to the PICS.

4.2.2.2 Valid Behaviour (BV) tests

This test sub group shall verify that the IUT reacts in conformity with TS 101 763-2 [1], after receipt or exchange of valid Protocol Data units (PDUs). Valid PDUs means that the exchange of messages and the content of the exchanged messages are considered as valid.

4.2.2.3 Invalid Behaviour (BI) tests

This test sub group shall verify that the IUT reacts in conformity with TS 101 763-2 [1], after receipt of a syntactically invalid PDU.

4.2.2.4 Inopportune Behaviour (BO) tests

This test sub group shall verify that the IUT reacts in conformity with TS 101 763-2 [1], after receipt of a syntactically correct PDU not expected in the actual message exchange.

5 Test Purposes (TP)

5.1 Introduction

5.1.1 TP definition conventions

The TPs are defined following particular rules as shown in table 1.

Table 1: TP definition rules

TP Id according to the TP naming conventions	Reference. Initial condition. Stimulus. Expected behaviour.
TP Id	The TP Id is a unique identifier it shall be specified according to the TP naming conventions defined in the clause below.
Reference	The reference should contain the references of the subject to be validated by the actual TP (specification reference, clause, and paragraph).
Condition	The condition defines in which initial state the IUT has to be to apply the actual TP.
Stimulus	The stimulus defines the test event to which the TP is related.
Expected behaviour	Definition of the events that are expected from the IUT to conform to the base specification.

5.1.2 TP naming conventions

The identifier of the TP is built according to table 2.

Table 2: TP naming convention

Identifier:	TP/<st>/<pg>/<fm>/<x>-<nnn>		
	<st> = side type	AP	Access Point
		MT	Mobile Terminal
	<pg> = protocol group	ATM	UNI SSCS procedures
	<fm> = functional module	AC	Association control function
		DL	DLC connection functions
		HN	Handover functions
	x = Type of testing	CA	Capability Tests
		BV	Valid Behaviour Tests
		BI	Invalid Behaviour Tests
		BO	Inopportune Behaviour Tests
	<nnn> = sequential number	(000-999)	Test Purpose Number

EXAMPLE: TP/MT/ATM/AC/BV-010 is the tenth purpose for the valid behaviour testing of the procedures for association control function of the UNI SSCS implemented at MT side.

5.1.3 Sources of TP definitions

All TPs are specified according to TS 101 763-2 [1].

5.2 Test purposes for AP

5.2.1 Association control function

TP/AP/ATM/AC/CA-000	Reference: ETSI TS 101 763-2, clause 6.2 Initial condition: MT_disassociated_from_AP Check, that the IUT sends periodically the RBCH_ASSOCIATION message containing the CL-ID identifying the support of the Cell based ATM-Service with UNI signalling and the CL version number.
TP/AP/ATM/AC/CA-001	Reference: ETSI TS 101 763-2, clause 6.2 Initial condition: Link_Agreed_or_Encryption_active_or_Authenticated Check, that: after receiving the RLC_INFO message, the IUT replies to the LT with a RLC_INFO_ACK message containing in the <<CL-ATTRIBUTES>> IE, the connection mappings between VCI and <CL-Tag, DLC-Connection> and the matched ATM parameters.

5.2.2 DLC connection functions

TP/AP/ATM/DL/CA-000	Reference: ETSI TS 101 763-2, clause 6.2.4 Initial condition: MT_Associated_to_AP. Check, that: after receiving the RLC_SETUP message, the IUT replies to the LT with a RLC_CONNECT message including the DLC connections the MT shall use.
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5.3 Test purposes for MT

5.3.1 DLC connection functions

TP/MT/ATM/DL/CA-000	Reference: ETSI TS 101 763-2, clause 6.2.4 Initial condition: MT_Associated_to_AP. Check, that: when the association process is terminated, the IUT sends a relevant RLC_SETUP message containing the DLCC-IDs and parameters of connections that were indicated in the Mapping IE transferred as part of the association process.
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5.3.2 Handover functions

TP/MT/ATM/HN/CA-000	Reference: ETSI TS 101 763-2, clause 6.3 Initial condition: MT_Associated_to_AP. Network handover process is pending. The IUT (MT) has terminated the NW signalling process by receiving the relevant message. Check, that: after termination of the NW signalling process, the IUT initiates the exchange of higher layer information by sending a RLC_INFO message to the LT. The RLC_INFO message shall not contain values other the ones used before the handover was initiated, i.e. re-negotiation of connection parameters cannot take place
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History

Document history		
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