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Širokopasovna radijska dostopovna omrežja (BRAN) – Zelo zmogljivo radijsko lokalno omrežje (HIPERLAN), tip 2 – Specifikacija za preskušanje skladnosti protokola krmiljenja podatkovnih povezav (DLC) – 2. del: Podplast kontrole radijske povezave (RLC) – 2. poddel: Zgradba preskušalnega niza in namen preskušanja (TSS&TP) – Specifikacija

Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Conformance testing for the Data Link Control (DLC) protocol; Part 2: Radio Link Control (RLC) sublayer; Sub-part 2: Test Suite Structure and Test Purposes (TSS&TP) specification

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Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Conformance testing for the Data Link Control (DLC) protocol; Part 2: Radio Link Control (RLC) sublayer; Sub-part 2: Test Suite Structure and Test Purposes (TSS&TP) specification

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Broadband Radio Access Networks (BRAN).

The present document is sub-part 2 of a multi-part deliverable covering Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Conformance testing for the Data Link Control (DLC) protocol; Part 2: Radio Link Control (RLC) sublayer, 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".

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Date of adoption of this EN:	19 January 2001
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1 Scope

The present document contains the Test Suite Structure (TSS) and Test Purposes (TP) to test the BRAN HIPERLAN Type 2; Data Link Control (DLC) protocol; Radio Link Control (RLC) sublayer [1].

The objective of the present document is to provide a basis for conformance tests for HIPERLAN Type 2 equipment giving a high probability of air interface inter-operability between different manufacturers' 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, 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 101 761-2 (V1.1.1): "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Data Link Control (DLC) Layer; Part 2: Radio Link Control (RLC) sublayer".

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

[3] ISO/IEC 9646-1 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts". (See also CCITT Recommendation X.290 (1991)).

[4] ISO/IEC 9646-2 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification". (See also CCITT Recommendation X.291 (1991)).

[5] ISO/IEC 9646-6 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".

[6] ISO/IEC 9646-7 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation conformance statement".

3 Definitions and abbreviations

3.1 Definitions

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

a) the terms defined in ISO/IEC 9646-7 [6]; and

b) the definitions in TS 101 761-2 [1].

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], the abbreviations defined in TS 101 761-2 [1] apply. In particular, the following abbreviations apply:

ACF	Association Control Function
AP	Access Point
APT	Access Point Transceiver
ARQ	Automatic Repeat Request
BCH	Broadcast CHannel
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability tests
CC	Central Controller
CL	Convergence Layer
DFS	Dynamic Frequency Selection
DLC	Data Link Control
DUC	DLC User Connection
DCC	DLC user Connection Control
DM	Direct Mode
EC	Error Control
IUT	Implementation Under Test
IV	Initialization Vector
MAC	Medium Access Control
MAC ID	MAC Identifier
MT	Mobile Terminal
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
RLC	Radio Link Control
RRC	Radio Resource Control
TP	Test Purposes
TSS	Test Suite Structure

4 Test suite structure

4.1 Structure

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

Test Suite	Protocol group	Protocol subgroup	Test group				
			CA	BV	BI	BO	TI
RLC-AP/ RLC-MT	Association control function	RBCH association	x				
		Mac ID assignment	x				
		Link_Capability	x				
		Encryption	x				
		Authentication	x				
		Common Key	x				
		Info_Transfer	x				
		Multicast	x				
		Disassociation	x				
		Key refresh	x				
	Radio Resource Control	DFS Requesting	x				
		DFS Reporting	x				
		Sector Handover	x				
		Radio Handover	x				
		Network Handover	x				
		Sleep	x				
		Alive	x				
		Absence	x				
	DLC user connection	CM Set-up	x				
		CM Release	x				
		CM Modify	x				
		CM Reset	x				
		DM Set-up					
		DM Release					
		DM Modify					
		DM Relay					

Figure 1: TSS for HIPERLAN 2 RLC

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

4.2 Test groups

The test groups are organized in three levels. The first level creates three protocol groups 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, BO and TI.

4.2.1 Protocol groups

The protocol groups identify the RLC services: Association control function, Radio resource control function, and DLC user connection function, as defined in TS 101 761-2 [1].

4.2.1.1 Association control function

The association control function group is divided in ten functional modules. The first functional module identifies the RBCH association procedures. The second functional module identifies the Mac Id assignment procedures. The third functional module distinguishes the Link Capability procedures. The fourth functional module distinguishes the Encryption procedures. The fifth functional module distinguishes the Authentication procedures. The sixth functional module distinguishes the information transfer procedures. The seventh functional module distinguishes the common key distribution procedures. The eighth functional module distinguishes the multicast procedures. The ninth functional module distinguishes the disassociation procedures. The last functional module identifies the key refresh procedures.

4.2.1.2 Radio resource control function

The Radio resource control protocol group is divided in eight functional modules.

- The first functional module distinguishes the DFS requesting procedures.
- The second functional module distinguishes the DFS reporting procedures.
- The third functional module distinguishes the Sector handover procedures.
- The fourth functional module identifies the radio handover procedures.
- The fifth functional module distinguishes the network handover procedures.
- The sixth functional module distinguishes the sleep procedures.
- The seventh functional module distinguishes the alive procedures.
- The last functional module distinguishes the absence procedures.

4.2.1.3 DLC user connection function

The DLC user connection protocol group is divided in eight functional modules.

- The first functional module identifies the centralized mode set-up procedures.
- The second functional module identifies the centralized mode release procedures.
- The third functional module identifies the centralized mode modify procedures.
- The fourth functional module identifies the centralized mode reset procedures.
- The fifth functional module distinguishes the direct mode set-up procedures.
- The sixth functional module distinguishes the direct mode release procedures.
- The seventh functional module distinguishes the direct mode modify procedures.
- The last functional module distinguishes the direct mode relay procedures.

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 the TS, 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 the TS, after receipt of a syntactically invalid PDU.