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Broadband Radio Access Networks (BRAN) HIPERLAN Type 2; Conformance testing for the Data Link Control (DLC) protocol; Part 1: Basic data transport function; 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 1: Basic data transport function;
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 1: Basic data transport function, 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".

National transposition dates

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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; Conformance testing for the Data Link Control (DLC) layer; Part 1: Basic data transport function.

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.

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- [1] ETSI TS 101 761-1 (V1.1.1): "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Data Link Control (DLC) Layer; Part 1: Basic data transport functions".
- [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 (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 Statements".
-

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

AP	Access Point
ARQ	Automatic Repeat Request
BCH	Broadcast CHannel
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability tests
CC	Central Controller
DCC	DLC user Connection Control
DLC	Data Link Control
DUC	DLC User Connection
EC	Error Control
IUT	Implementation Under Test
LCH	Long CHannel
MAC	Medium Access Control
MT	Mobile Terminal
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
TSS	Test Suite Structure
TP	Test Purposes

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4 Test suite structure

4.1 Structure

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

Test Suite	Protocol group	Protocol subgroup	Test group			
			CA	BV	BI	BO
ERC-AP/ ERC-MT	DLC Error Control service	Acknowledge mode	x			
		Repetition mode	x			
		Unacknowledge mode	x			

Figure 1: TSS for HIPERLAN 2 DLC Error Control service

The test suite is structured as a tree with a first level defined as ERC-AP or ERC-MT representing the protocol group "DLC Error Control service for AP and DLC Error Control service 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 DLC Error Control service, as defined in TS 101 761-1 [1].

4.2.1.1 Transmission mode

The Error Control service group is divided in three functional modules. The first functional module identifies acknowledge mode procedures. The second functional module identifies repetition mode procedures. The last functional module identifies unacknowledge mode 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 EN, 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 EN, 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 the EN, after receipt of a syntactically correct PDU not expected in the actual message exchange.

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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 subclause 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.