ETSI TS 101 808-5 V1.1.1 (2000-09)

Technical Specification

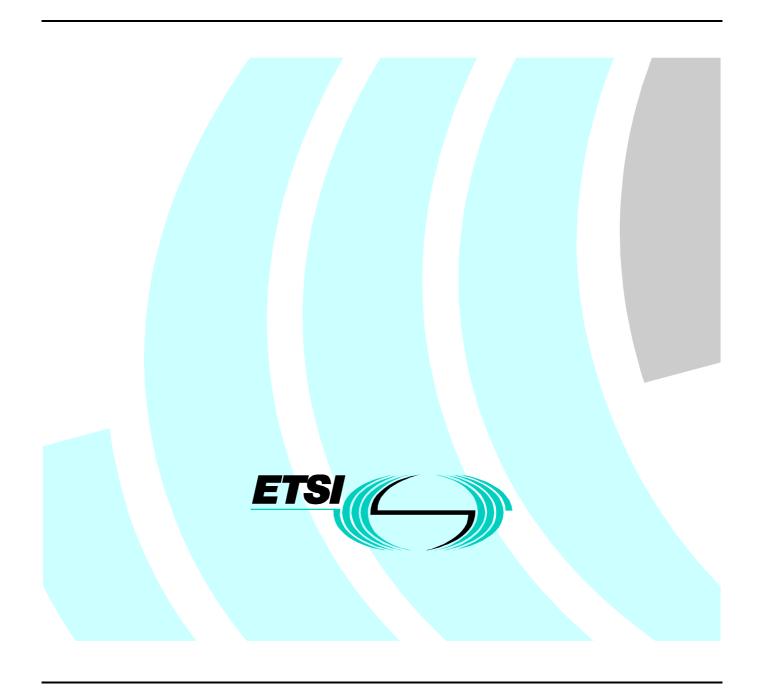**Digital Enhanced Cordless Telecommunications (DECT);
Wireless Relay Station (WRS);
Test Case Library (TCL);
Part 5: Abstract Test Suite (ATS) -
Data Link Control (DLC) layer;
Cordless Radio Fixed Part Portable radio
Termination (CRFP_PT)**

ETSI

Reference

DTS/DECT-040166-5

Keywords

ATS, DECT, DLC, testing, WRS

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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Digital Enhanced Cordless Telecommunications (DECT).

The present document is part 5 of a multi-part deliverable covering the Digital Enhanced Cordless Telecommunications (DECT); Wireless Relay Station (WRS); Test Case Library (TCL), as identified below:

Part 1: "Test Suite Structure (TSS) and Test Purposes (TP) for Medium Access Control (MAC) layer";

Part 2: "Abstract Test Suite (ATS) for Medium Access Control (MAC) layer - Cordless Radio Fixed Part Portable radio Termination (CRFP_PT)";

Part 3: "Abstract Test Suite (ATS) for Medium Access Control (MAC) layer - Cordless Radio Fixed Part Fixed radio Termination (CRFP_FT)";

Part 4: "Test Suite Structure (TSS) and Test Purposes (TP) - Data Link Control (DLC) layer";

Part 5: "Abstract Test Suite (ATS) - Data Link Control (DLC) layer; Cordless Radio Fixed Part Portable radio Termination (CRFP_PT)";

Part 6: "Abstract Test Suite (ATS) - Data Link Control (DLC) layer; Cordless Radio Fixed Part Fixed radio Termination (CRFP_FT)";

Part 7: "Test Suite Structure (TSS) and Test Purposes (TP) - Network (NWK) layer";

Part 8: "Abstract Test Suite (ATS) for Network (NWK) layer - Cordless Radio Fixed Part Portable radio Termination (CRFP_PT)";

Part 9: "Abstract Test Suite (ATS) for Network (NWK) layer - Cordless Radio Fixed Part Fixed radio Termination (CRFP_FT)".

1 Scope

The present document contains the Abstract Test Suite (ATS) specification to test the DECT Wireless Relay Station (WRS) Data Link Control (DLC) layer at the Portable radio Termination (PT).

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

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [5] and ISO/IEC 9646-2 [6]) as well as the ETSI rules for conformance testing (ETS 300 406 [2]) are used as a basis for the test methodology.

Annex A provides the Tree and Tabular Combined Notation (TTCN) part of this ATS.

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

Annex C provides the Protocol Conformance Test Report (PCTR) Proforma of this ATS.

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 EN 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) Layer".

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

[3]   ETSI EN 300 497-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Test Case Library (TCL); Part 5: Abstract Test Suite (ATS) - Data Link Control (DLC) layer".

[4]   ETSI EN 300 700: "Digital Enhanced Cordless Telecommunications (DECT); Wireless Relay Station (WRS)".

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

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

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

[8]   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:

   a) the terms given in ISO/IEC 9646-1 [5];

   b) the definitions given in EN 300 175-4 [1]; and

   c) the PT side of the WRS is called WRS_PT side. The FT side of the WRS is called WRS_FT side.

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [5], ISO/IEC 9646-6 [7], ISO/IEC 9646-7 [8] and given in EN 300 175-4 [1] apply. In particular, the following abbreviations apply:

ATM	Abstract Test Method
ATS	Abstract Test Suite
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability tests
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control
FP	Fixed Part
FT	Fixed radio Termination
IUT	Implementation Under Test
MAC	Medium Access Control
NWK	Network
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation Extra Information for Testing
PMID	Portable Part MAC Identity
PP	Portable Part
PT	Portable radio Termination
RF	Radio Frequency
RFP	Radio Fixed Part
SAP	Service Access Point
SUT	System Under Test
TC	Test Case
TP	Test Purposes
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

4   Abstract Test Method (ATM)

In the referenced standard EN 300 700 [4] no new requirements regarding to the existing requirements defined in EN 300 175-4 [1] for the Data Link Control (DLC) layer are introduced. This means that no new abstract test method is defined and therefore the valid abstract test method applicable to the present document is defined in the relevant clause of EN 300 497-5 [3].

5   Untestable Test Purposes (TP)

In the referenced standard EN 300 700 [4] no new requirements regarding to the existing requirements defined in EN 300 175-4 [1] for the Data Link Control (DLC) layer are introduced. This means that no new untestable test purposes are defined and therefore the valid untestable test purposes applicable to the present document are defined in the relevant clause of EN 300 497-5 [3].

6   ATS Conventions

In the referenced standard EN 300 700 [4] no new requirements regarding to the existing requirements defined in EN 300 175-4 [1] for the Data Link Control (DLC) layer are introduced. This means that no new ATS conventions are defined and therefore the valid ATS conventions applicable to the present document are defined in the relevant clause of EN 300 497-5 [3].

7   Test case and test purpose mapping

In the referenced standard EN 300 700 [4] no new requirements regarding to the existing requirements defined in EN 300 175-4 [1] for the Data Link Control (DLC) layer are introduced. This means that no new mapping between test purpose and test case is defined and therefore the valid mapping applicable to the present document is defined in the relevant clause of EN 300 497-5 [3].

Annex A (normative):
Abstract Test Suite (ATS)

In the referenced standard EN 300 700 [4] no new requirements regarding to the existing requirements defined in EN 300 175-4 [1] for the Data Link Control (DLC) layer are introduced. This means that no new abstract test suite is defined and provided. The valid abstract test suite applicable is defined in the relevant clause of EN 300 497-5 [3]. The PDF and MP files for the ATS are provided in the files associated with EN 300 497-5 [3].

Annex B (normative):
Partial PIXIT proforma for DECT WRS DLC PT

The PIXIT proforma is based on ISO/IEC 9646-6. Any additional needed information can be found in this international standard document.

B.1 Identification summary

Table B.1

PIXIT Number:	
Test Laboratory Name:	
Date of Issue:	
Issued to:	

B.2 ATS summary

Table B.2

Protocol Specification:	EN 300 700
Protocol to be tested:	
ATS Specification:	TS 101 808-5
Abstract Test Method:	TS 101 808-5 clause 4

B.3 Test laboratory

Table B.3

Test Laboratory Identification:	
Test Laboratory Manager:	
Means of Testing:	
Service Access Point (SAP) Address:	

B.4   Client identification

Table B.4

Client Identification:	
Client Test manager:	
Test Facilities required:	

B.5   SUT

Table B.5

Name:	
Version:	
SCS Number:	
Machine configuration:	
Operating System Identification:	
IUT Identification:	
PICS Reference for IUT:	
Limitations of the SUT:	
Environmental Conditions:	

B.6   Protocol layer information

B.6.1   Protocol identification

Table B.6

Name:	DECT - Data Link Control Layer - EN 300 700
Version:	
PICS References:	

B.6.2   IUT information

B.6.2.1   General configuration

Table B.7: General configuration

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_pt	BOOLEAN	Indicate the IUT type (PT = TRUE - FT = FALSE)	
2	TSPX_chn	BOOLEAN	Indicate the desired signalling channel for testing signalling procedure (For IN or IP testing only C_S channel is used). For C_S write FALSE and write TRUE for CF	
3	TSPX_slot	SLOT_TYPE	Indicate the slot type to be use in MAC connection for the test suite (Half = 0 - Full = 1 - Double = 2)	

B.6.2.2   Parameter values

Table B.8: Parameter values

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_n250	INTEGER	Indicate the value of the re-transmission counter for Class A establishment procedure.	
2	TSPX_k1	INTEGER	If supported, indicate the value of Class 1 sending window.	
3	TSPX_rpn	RPN	FT's Radio fixed Part Number.	
4	TSPX_rpn1	RPN	Second FT's Radio fixed Part Number for Intercell Handover.	
5	TSPX_dummy_bearer_duration	INTEGER	Value of wait timer used to delay the test case after setting up a second dummy bearer in case of intercell handover testing.	
6	TSPX_intracell_behaviour	INTEGER	Value 0,1 for handling intracell bearer handover 0 = Normal tester behaviour 1 = force tester to ignore all intracell handover request.	
7	TSPX_decay_rate	INTEGER	Ramp gradient for power down the RFP power. Used for the TSO equivalent to the MAC TSC_action7. Shall be between 0 and 10 dB/s.	

B.6.2.3   Timer values

Table B.9: Timer values

Item	Parameter	Parameter Type	Type	Value
1	TSPX_dl04_value	INTEGER	Indicate the value of the Class A established state re-transmission timer.	
2	TSPX_dl07_value	INTEGER	Indicate the value of the Class A establishment timer.	
3	TSPX_dlu01_value	INTEGER	Indicate the of the Class 1 timer.	

B.6.2.4 Network parameter values

Table B.10: Network parameter values

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_ari	ARI	Access Rights Identity	
2	TSPX_pmid_assigned	PMID	Portable MAC Identity	
3	TSPX_fid	FIXED_IDENTITY	Fixed Identity	
4	TSPX_pid	PORTABLE_IDENTITY	Portable Identity	
5	TSPX_ipui_class	IPUI-CLASS	Class of international portable user identity	
6	TSPX_ipui	BITSTRING	International Portable User Identity	

B.6.3 Procedural Information

B.6.3.1 Class U procedural information

Table B.11: Class U reception procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_cu_receive_on_co	BOOLEAN	In case of an open Mac connection exist, the IUT is able to receive Class U information frame (UI frame) in this connection?	TRUE FALSE
2	TSPX_cu_rec_proc_defined	BOOLEAN	Is it possible to determine if the IUT received a Class U information frame (UI frame)?	TRUE FALSE
3	TPSPX_ui_pdu_on_co	BITSTRING	If item 1 and item 2 are TRUE: Indicate in the following lines the desired information field for the UI frame.	
	TSO_iut_ui_received	Test suite Operation	If item 1 and item 2 are TRUE: Indicate in the following lines the procedure to determine the reception of the UI frame.	
4	TPSPX_ui_pdu_on_cl	BITSTRING	If item 1 is FALSE and item 2 is TRUE: Indicate in the following lines the desired information field for the UI frame.	
	TSO_iut_ui_received	Test suite Operation	If item 1 is FALSE and item 2 is TRUE: Indicate in the following lines the procedure to determine the reception of the UI frame.	

Table B.12: Class U transmission procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_cu_snd_proc_defined	BOOLEAN	Is it possible to force the IUT to transmit a Class U information frame (UI frame)?	TRUE FALSE
	STP_invoke_uplink_data for PT part STP_invoke_downlink_data for FT part	Implicit Send	If item 1 is TRUE: Indicate in the following lines the procedure to transmit the UI frame.	

B.6.3.2   Class A procedural information

Table B.13: Class A procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_ca_accept_est	BOOLEAN	Does the IUT react properly in case of reception of the Class A establishment request?	TRUE FALSE
2	TSPX_ca_re_establish_invoke	BOOLEAN	Only if the IUT is a Portable Part (PP): Is it possible to force the IUT to initiate Class A link re-establishment?	TRUE FALSE
	STP_invoke_ca_re_establishment	Implicit Send	If item 2 is TRUE: Indicate in the following lines the procedure to force the IUT to re-establish the Class A link.	
3	TSPX_ca_initiate_est	BOOLEAN	Is the IUT able to initiate Class A link establishment?	TRUE FALSE

B.6.3.3 Paging procedural information

Table B.14: Paging procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_lbs_proc_defined	BOOLEAN	Only if the IUT is a Fixed Part (FP): Is it possible to force the IUT to transmit a LCE-PAGE-REQUEST message in short format (3 octets)?	TRUE FALSE
	STP_invoke_short_page	Implicit Send	If item 1 is TRUE: Indicate in the following lines the procedure to force the transmission of the LCE-PAGE-REQUEST message in short format.	
2	TSPX_lbl_proc_defined	BOOLEAN	Only if the IUT is a FP: Is it possible to force the IUT to transmit a LCE-PAGE-REQUEST message in long format (5 octets)?	TRUE FALSE
	STP_invoke_long_page	Implicit Send	If item 2 is TRUE: Indicate in the following lines the procedure to force the transmission of the LCE-PAGE-REQUEST message in long format.	

Annex C (normative):
Protocol Conformance Test Report (PCTR) proforma for DECT WRS DLC PT

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 PCTR proforma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

The PCTR proforma is based on ISO/IEC 9646-6. Any additional needed information can be found in the present document.

C.1 Identification summary

C.1.1 Protocol conformance test report

Table C.1

PCTR Number:	
PCTR Date:	
Corresponding SCTR Number:	
Corresponding SCTR Date:	
Test Laboratory Identification:	
Test Laboratory Manager:	
Signature:	

C.1.2 IUT identification

Table C.2

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.1.3 Testing environment

Table C.3

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Remote test method, Embedded variant with no UT
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

C.1.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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C.1.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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C.2 IUT conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause 3 in this report) and there are no "FAIL" verdicts to be recorded (in clause 6) strike the words "has or", otherwise strike the words "or has not".

C.3   Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.4   Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded (in clause 6 of this report) strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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C.5   Static conformance review report

If clause 3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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C.6　Test campaign report

Table C.4

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause 7)
TC-PT-U-CA-000	Yes/No	Yes/No		
TC-PT-U-CA-001	Yes/No	Yes/No		
TC-PT-U-CA-002	Yes/No	Yes/No		
TC-PT-U-CA-003	Yes/No	Yes/No		
TC-PT-U-BI-000	Yes/No	Yes/No		
TC-PT-U-BI-001	Yes/No	Yes/No		
TC-PT-U-BI-002	Yes/No	Yes/No		
TC-PT-U-BI-003	Yes/No	Yes/No		
TC-PT-U-BI-004	Yes/No	Yes/No		
TC-PT-U-BI-005	Yes/No	Yes/No		
TC-PT-U-BI-006	Yes/No	Yes/No		
TC-PT-U-BI-007	Yes/No	Yes/No		
TC-PT-A-CA-000	Yes/No	Yes/No		
TC-PT-A-CA-001	Yes/No	Yes/No		
TC-PT-A-CA-002	Yes/No	Yes/No		
TC-PT-A-CA-003	Yes/No	Yes/No		
TC-PT-A-CA-005	Yes/No	Yes/No		
TC-PT-A-CA-006	Yes/No	Yes/No		
TC-PT-A-CA-007	Yes/No	Yes/No		
TC-PT-A-CA-008	Yes/No	Yes/No		
TC-PT-A-BV-000	Yes/No	Yes/No		
TC-PT-A-BV-002	Yes/No	Yes/No		
TC-PT-A-BV-003	Yes/No	Yes/No		
TC-PT-A-BV-005	Yes/No	Yes/No		
TC-PT-A-BV-006	Yes/No	Yes/No		
TC-PT-A-BV-007	Yes/No	Yes/No		
TC-PT-A-BV-008	Yes/No	Yes/No		
TC-PT-A-BI-000	Yes/No	Yes/No		
TC-PT-A-BI-001	Yes/No	Yes/No		
TC-PT-A-BI-002	Yes/No	Yes/No		
TC-PT-A-BI-003	Yes/No	Yes/No		
TC-PT-A-BI-004	Yes/No	Yes/No		
TC-PT-A-BI-005	Yes/No	Yes/No		
TC-PT-A-BI-006	Yes/No	Yes/No		
TC-PT-A-BI-007	Yes/No	Yes/No		
TC-PT-A-BI-008	Yes/No	Yes/No		
TC-PT-A-BI-009	Yes/No	Yes/No		
TC-PT-A-BI-011	Yes/No	Yes/No		
TC-PT-A-BI-012	Yes/No	Yes/No		
TC-PT-A-BI-013	Yes/No	Yes/No		
TC-PT-A-BO-000	Yes/No	Yes/No		
TC-PT-A-BO-001	Yes/No	Yes/No		
TC-PT-A-BO-002	Yes/No	Yes/No		
TC-PT-A-BO-003	Yes/No	Yes/No		
TC-PT-L-CA-000	Yes/No	Yes/No		
TC-PT-L-CA-001	Yes/No	Yes/No		

C.7 Observations

Additional informations relevant to the technical content of the PCTR are given here.

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Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

- ETSI EN 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".

- ETSI EN 300 175-2: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical Layer (PHL)".

- ETSI EN 300 175-3: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) Layer".

- ETSI EN 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) Layer".

- ETSI EN 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and Addressing".

- ETSI EN 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security Features".

- ETSI EN 300 175-8: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech Coding and Transmission".

- ETSI EN 300 497-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Test Case Library (TCL); Part 4: Test Suite Structure (TSS) and Test Purposes (TP) - Data Link Control (DLC) layer".

- ISO/IEC 9646-3 (1998): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)". (See also CCITT Recommendation X.292 (1992)).

History

Document history		
V1.1.1	September 2000	Publication