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Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Test Case Library (TCL); Part 7: Abstract Test Suite (ATS) for Network (NWK) layer - Portable radio Termination (PT)

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**Digital Enhanced Cordless Telecommunications (DECT);
Common Interface (CI); Test Case Library (TCL);
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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Digital Enhanced Cordless Telecommunications (DECT).

The present document is part 7 of a multi-part EN covering the Common Interface (CI) 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 - Portable radio Termination (PT)";
- Part 3: "Abstract Test Suite (ATS) for Medium Access Control (MAC) layer - Fixed radio Termination (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";
- Part 6: "Test Suite Structure (TSS) and Test Purposes (TP) - Network (NWK) layer - Portable radio Termination (PT)";
- Part 7: "Abstract Test Suite (ATS) for Network (NWK) layer - Portable radio Termination (PT)";**
- Part 8: "Test Suite Structure (TSS) and Test Purposes (TP) - Network (NWK) layer - Fixed radio Termination (FT)";
- Part 9: "Abstract Test Suite (ATS) for Network (NWK) layer - Fixed radio Termination (FT)".

National transposition dates

Date of adoption of this EN:	17 September 1999
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1 Scope

The present document contains the Abstract Test Suite (ATS) to test the Network (NWK) layer, Portable radio Termination (PT).

The objective of this test specification is to provide a basis for approval tests for DECT equipment giving a high probability of air interface inter-operability between different manufacturer's DECT equipment. This test specification contains the Abstract Test Suite for testing of the NWK layer at the PT.

The ISO standard for the methodology of conformance testing (ISO/IEC 9646 parts 1 to 7 [9] to [15]) as well as the ETSI rules for conformance testing (protocol and profile conformance testing specifications, standardization methodology ETS 300 406 [7]) are used as basis for the test methodology.

Test specifications for the Physical Layer (PHL) are provided in other DECT standards.

Annex B provides the partial Protocol Implementation Extra Information for Testing (PIXIT) Proforma.

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] EN 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".
- [2] EN 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".
- [3] EN 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".
- [4] EN 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".
- [5] EN 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".
- [6] ETS 300 497-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI) Test Case Library (TCL); Part 1: Test Suite Structure (TSS) and Test Purposes (TP) for Medium Access Control (MAC) layer".
- [7] ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [8] EN 300 444: "Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP)".
- [9] ISO/IEC 9646-1: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 1: General concepts".
- [10] ISO/IEC 9646-2: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract Test Suite Specification".

- [11] ISO/IEC 9646-3: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 3: The Tree and Tabular Combined Notation (TTCN)".
- [12] ISO/IEC 9646-4: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 4: Test realization".
- [13] ISO/IEC 9646-5: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 5: Requirements on test laboratories and clients for the Conformance Assessment process".
- [14] ISO/IEC 9646-6: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 6: Protocol Profile Test Specification".
- [15] ISO/IEC 9646-7: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework - Part 7: Implementation Conformance statement".
- [16] ETR 141: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; The Tree and Tabular Combined Notation (TTCN) style guide".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the definitions given in ISO/IEC 9646-1 [9], ISO/IEC 9646-2 [10], EN 300 175-1 [1], EN 300 175-5 [3], EN 300 175-6 [4] and EN 300 175-7 [5] apply.

3.2 DECT abbreviations

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

AC	Authentication Code
ASP	Abstract Service Primitive
ATS	Abstract Test Suite
AU	Authentication
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability
CC	Call Control
CH	Ciphering
CI	Call Information
CR	Call Release
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control
FT	Fixed radio Termination
HP	Handover Procedure
IC	Incoming Call
ID	Identification
IPEI	International Portable Equipment Identity
IPUI	International Portable User Identity
IUT	Implementation Under Test
IWU	Interworking Unit
KA	Key Allocation
LC	Link Control entity
LE	Connection oriented Link Establishment
LO	Location
LR	Connection oriented Link Release
LT	Lower Tester

MAC	Medium Access Control
ME	Management Entity
MM	Mobility Management
NWK	Network layer
OC	Outgoing Call
PARK	Portable Access Rights Key
PCO	Point of Control and Observation
PCTR	Protocol Conformance Test Report
PDU	Protocol Data Unit
PHL	Physical Layer
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation Extra Information for Testing
PT	Portable radio Termination
RPN	Radio Fixed Part Number
RS	Call Related Supplementary Services
SUT	System Under Test
TCS	Test Case Selection
TCV	Test Case Variable
TP	Test Purposes
TSC	Test Suite Constant
TSO	Test Suite Operation
TSP	Test Suite Parameter
TSS	Test Suite Structure
TSV	Test Suite Variable
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

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4 Abstract Test Method (ATM)

Clause 4 describes the ATM, the Point of Control and Observation (PCO) used to test the NWK layer of the PT.

4.1 ATM

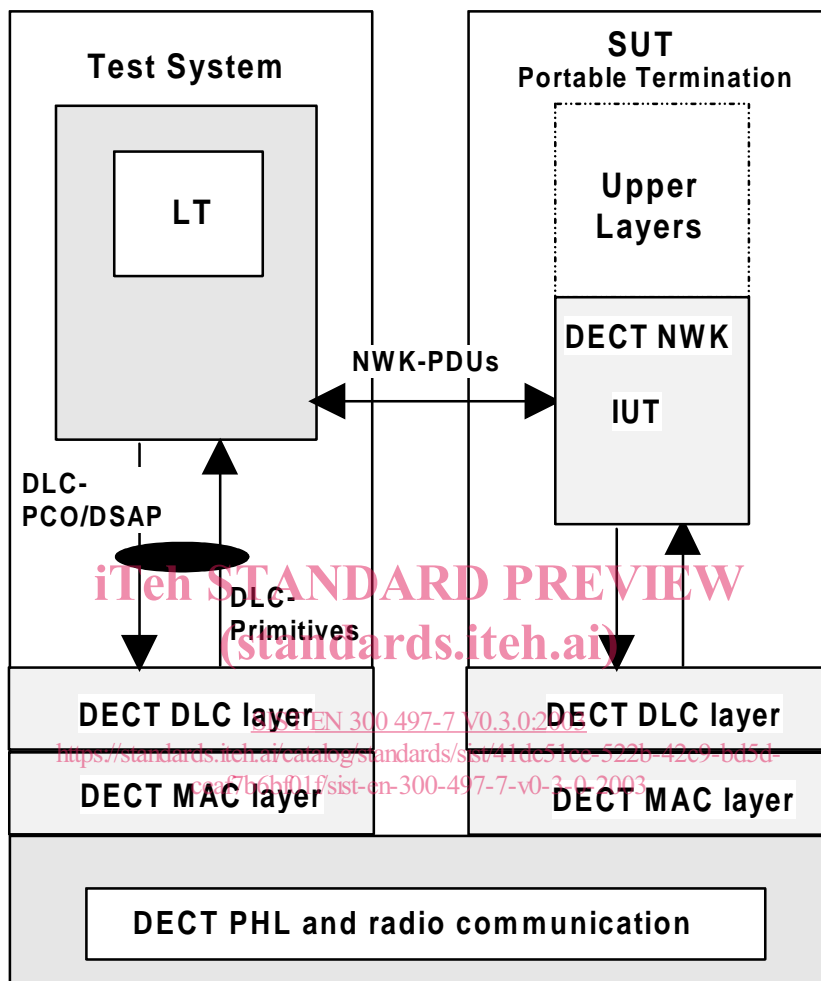


Figure 1: Remote single layer test method embedded variant

- LT1:** a lower tester (LT1) is located in a remote DECT test system. It controls and observes the behaviour of the Implementation Under Test (IUT).
- DSAP:** a unique Data Link Control (DLC) SAP is defined at the DECT interface and used to exchange service data of the NWK protocol.
- PCO:** the PCO for Network Layer testing is located on the DSAP. All test events at the PCO are specified in terms of DLC Abstract Service Primitives (ASPs) and NWK Protocol Data Units (PDUs).
- Upper layers / tester:** no explicit Upper Tester (UT) exists in the test system. However, the System Under Test (SUT) needs to carry out some UL functions to achieve some effects of test co-ordination procedures. Designing ATS, the capability of the Interworking Unit (IWU), such as PSTN, ISDN or GSM IWUs might be taken into account. An example of such controls could be to provoke restarting of the IUT through the Q interface.

4.2 DLC primitives

In subclause 4.2 the DSAP primitives are defined according to EN 300 175-4 [2], subclause 8.3.2 (S-SAP primitives) and EN 300 175-4 [2], subclause 8.3.3 (B-SAP primitives).

4.2.1 S-SAP primitives

Table 1: DL_DATA_IND primitive

ASP Declaration		
ASP NAME DL_DATA_IND	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.3
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
message_unit	PDU	EN 300 175-4 [2], subclause 8.3.1

Table 2: DL_DATA_REQ primitive

ASP Declaration		
ASP NAME DL_DATA_REQ	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.3
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
message_unit	PDU	EN 300 175-4 [2], subclause 8.3.1

Table 3: DL_ENCRYPT_CNF primitive

ASP Declaration		
ASP NAME DL_ENCRYPT_CNF	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.8
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
encryption_status	CIPHER_STATUS (INTEGER(0,1))	EN 300 175-4 [2], subclause 8.3.1

Table 4: DL_ENCRYPT_IND primitive

ASP Declaration		
ASP NAME DL_ENCRYPT_IND	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.8
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
connection_identities	CONNECTION_IDENTITIES (OCTETSTRING)	EN 300 175-4 [2], subclause 8.3.1
encryption_status	CIPHER_STATUS (INTEGER(0,1))	EN 300 175-4 [2], subclause 8.3.1

Table 5: DL_ENCRYPT_REQ primitive

ASP Declaration		
ASP NAME DL_ENCRYPT_REQ	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.8
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
connection_identities	CONNECTION_IDENTITIES (OCTETSTRING)	EN 300 175-4 [2], subclause 8.3.1
encryption_status	CIPHER_STATUS (INTEGER(0,1))	EN 300 175-4 [2], subclause 8.3.1

Table 6: DL_ENC_KEY_REQ primitive

ASP Declaration		
ASP NAME DL_ENC_KEY_REQ	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.7
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
connection_identities	CONNECTION_IDENTITIES (OCTETSTRING)	EN 300 175-4 [2], subclause 8.3.1
encryption_key	ENCRYPTION_KEY (BITSTRING[64])	EN 300 175-4 [2], subclause 8.3.1

Table 7: DL_ESTABLISH_CNF primitive

ASP Declaration		
ASP NAME DL_ESTABLISH_CNF	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.1
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6

Table 8: DL_ESTABLISH_IND primitive

ASP Declaration		
ASP NAME DL_ESTABLISH_IND	PCO TYPE S-SAP	COMMENTS EN 300 175-4 [2], subclause 8.3.2.1
Service control information		
Parameter name	Type	Comments
data_link_endpoint_identifier	DATA_LINK_ENDPOINT_IDENTIFIER (INTEGER)	EN 300 175-4 [2], subclause 7.3.6
establish_mode	ESTABLISH_MODE (INTEGER(0,1,2))	EN 300 175-4 [2], subclause 8.3.1
radio_fixed_part_number	RADIO_FIXED_PART_NUMBER (INTEGER)	EN 300 175-4 [2], subclause 8.3.1
message_unit	PDU	EN 300 175-4 [2], subclause 8.3.1