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European Standard (Telecommunications series)

**Digital Enhanced Cordless Telecommunications (DECT);
DECT Packet Radio Service (DPRS) Test Case Library (TCL);
Part 8: Abstract Test Suite (ATS) -
Network (NWK) layer -
Portable radio Termination (PT)**

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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 8 of a multi-part deliverable covering the Digital Enhanced Cordless Telecommunications (DECT); DECT Packet Radio Service (DPRS) Test Case Library (TCL), as identified below:

- Part 1: "Test Suite Structure (TSS) and Test Purposes (TP) - Medium Access Control (MAC) layer";
- Part 2: "Abstract Test Suite (ATS) - Medium Access Control (MAC) layer - Portable radio Termination (PT)";
- Part 3: "Abstract Test Suite (ATS) - 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 - Portable radio Termination (PT)";
- Part 6: "Abstract Test Suite (ATS) - Data Link Control (DLC) layer - Fixed radio Termination (FT)";
- Part 7: "Test Suite Structure (TSS) and Test Purposes (TP) - Network (NWK) layer";
- Part 8: "Abstract Test Suite (ATS) - Network (NWK) layer - Portable radio Termination (PT)";**
- Part 9: "Abstract Test Suite (ATS) - Network (NWK) layer - Fixed radio Termination (FT)".

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Date of adoption of this EN:	13 October 2000
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1 Scope

The present document contains the Abstract Test Suite (ATS) specification to test the DECT Packet Radio Service (DPRS) Network (NWK) layer at the Portable radio Termination (PT).

The objective of this test specification is to provide a basis for conformance tests for DECT equipment giving a high probability of air interface inter-operability between different manufacturers' DECT equipment.

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [8] and ISO/IEC 9646-2 [9]) as well as the ETSI rules for conformance testing (ETS 300 406 [7]) 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.
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- [1] ETSI EN 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".
 - [2] ETSI EN 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".
 - [3] ETSI EN 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".
 - [4] ETSI EN 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".
 - [5] ETSI EN 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".
 - [6] ETSI EN 301 649: "Digital Enhanced Cordless Telecommunications (DECT); DECT Packet Radio Services (DPRS)".
 - [7] ETSI ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
 - [8] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts". (See also CCITT Recommendation X.290).
 - [9] 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).

- [10] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The tree and tabular combined notation". (See also CCITT Recommendation X.292).
- [11] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".
- [12] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation conformance statement".
- [13] ETSI EN 300 444: "Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP)".

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 [8], ISO/IEC 9646-2 [9]; and
- b) the definitions given in EN 300 175-1 [1], EN 300 175-5 [3], EN 300 175-6 [4] and EN 300 175-7 [5].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [8], ISO/IEC 9646-6 [11], ISO/IEC 9646-7 [12] and EN 300 175-5 [3] apply. In particular, the following abbreviations apply:

AC	Authentication Code
AR	Access Rights
ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
AU	Authentication
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability tests
CC	Call Control
CH	Ciphering
DLC	Data Link Control
FP	Fixed Part
FT	Fixed radio Termination
ID	Identification
IPEI	International Portable Equipment Identity
IPUI	International Portable User Identity
IUT	Implementation Under Test
KA	Key Allocation
LO	Location
LT	Lower Tester
MAC	Medium Access Control
MM	Mobility Management
NWK	Network
PARK	Portable Access Rights Key
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PHL	Physical Layer
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation Extra Information for Testing

PP	Portable Part
PT	Portable radio Termination
REP	Radio End Point
RF	Radio Frequency
RFP	Radio Fixed Part
RPN	Radio Fixed Part Number
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)

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

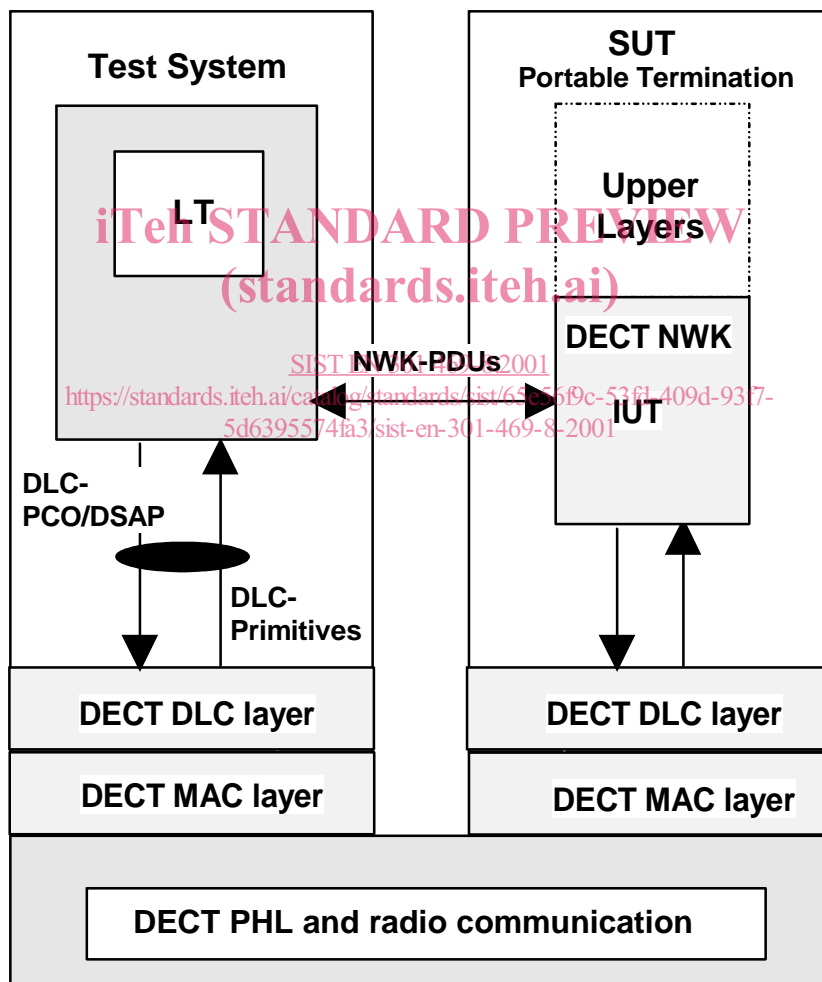


Figure 1: RS test Method embedded variant

- LT:** a lower tester (LT) 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 (ASP) and NWK Protocol Data Units (PDUs).
- Notional UT** no explicit upper tester (UT) exists in the system under test. 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 IWU might be taken into account. An example of such controls could be to provoke restarting of the IUT through the Q interface.

The DLC primitives are defined according to EN 300 175-4 [2], subclauses 8.3.2 (S-SAP primitives) and 8.3.3 (B-SAP primitives).

5 Untestable Test Purposes (TP)

Due to the ATMs chosen for this ATS or other restrictions, the test purposes in table 1 have been identified as being in the untestable category, and therefore have not been derived into final test case:

Table 1: Untestable TP

Test purpose	Reason

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6 ATS Conventions

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This clause describes the conventions applied to define the ATS and gives the naming conventions chosen for the different elements of the ATS.

The ATS conventions are intended to give a better understanding of the ATS but they describe also the conventions made for the development of the ATS, thus for any later maintenance purposes or further development of the ATS the conventions described in this clause shall be considered.

The ATS conventions contain two subclauses, the naming conventions and the implementation conventions. The naming conventions describe the structure of the naming of all ATS elements. The implementation conventions describe the functional structure of the ATS.

To define the ATS, the guidelines of ETS 300 406 [7] were considered.

6.1 Naming conventions

6.1.1 Declarations part

This subclause describes the naming conventions chosen for the elements of the ATS declarations part.

6.1.1.1 Test suite type and structured type definitions

The test suite type and test suite structured type identifiers describe the information elements, and are written in uppercase:

EXAMPLE: **PROTOCOL_DISCRIMINATOR** simple type
 FILLSTRING structured type

6.1.1.2 Test suite operations definitions

The test suite operation identifiers are composed of substrings in lowercase letters, except for standard prefix "TSO_". Each substring is separated by an underscore character ("_").

EXAMPLE: TSO_compute_checksum.

6.1.1.3 Test suite parameter declarations

The test suite parameter identifiers are composed of substrings in lowercase letters, except for the standard prefix "TSP_". Each substring is separated by an underscore character ("_").

EXAMPLE 1: TSP_window_size.

If the test suite parameter references a Protocol Implementation Conformance Statement (PICS) item, the letter "C" is added to the standard prefix.

EXAMPLE 2: TSPC_pics_item_s23.

If the test suite parameter references a PIXIT item, the letter "X" is added to the standard prefix.

EXAMPLE 3: TSPX_pixit_item_2.

Exception: If the test suite parameter represents a system parameter or value, only the name defined in the specifications is used (e.g. V_S = send sequence variable).

Complete names as defined in the specifications are used.

6.1.1.4 Test case selection expression definitions

All selection expression names for test groups are to be preceded with the prefix "SENG_".

All selection expression names for test cases are to be preceded with the prefix "SENC_".

6.1.1.5 Test suite constant declarations

The test suite constant identifiers are composed of substrings in lowercase letters, except for the prefix "TSC_". Each substring is separated by an underscore character ("_").

EXAMPLE: TSC_retry.

Exception: If the TSC represents a system parameter or value, only the name defined in the specifications is used (e.g. N250).

Complete names as defined in the specifications are used.

6.1.1.6 Test suite variable declarations

The test suite variable identifiers are composed of substrings in lowercase letters, except for the prefix "TSV_". Each substring is separated by an underscore character ("_").

EXAMPLE: TSV_count.

Complete names as defined in the specifications are used.

6.1.1.7 Test case variable declarations

The test case variable identifiers are composed of substrings in lowercase letters, except for the prefix "TCV_". Each substring is separated by an underscore character ("_").

EXAMPLE: TCV_cr_value.

Complete names as defined in the specifications are used.