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Digital Enhanced Cordless Telecommunications (DECT); Approval test specification;
Part 1: Radio

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à!^: ç|çã } ^/á |^ \ [{ ~ } ä åä Telecommunications (DECT)
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Foreword

This 2nd edition European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS contains text pertaining to approval testing of the Digital Enhanced Cordless Telecommunications (DECT) Common Interface. Such text should be considered as guidance to approval (or licensing) authorities.

Details of the DECT Common Interface may be found in ETS 300 175 parts 1 to 7 [1] to [7]. Further details of the DECT system may be found in the ETSI Technical Reports, ETR 015, ETR 043, and ETR 056 (see annex A).

This ETS consists of 2 parts as follows:

Part 1: "Radio";

Part 2: "Speech".

Transposition dates	
Date of adoption of this ETS:	25 October 1996
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1 Scope

This European Telecommunications Standard (ETS) specifies the approval tests applicable to all Digital Enhanced Cordless Telecommunications (DECT) equipment accessing the DECT frequency band 1 880 MHz to 1 900 MHz (including provisions for testing other or extended frequency bands) and the approval tests applicable to DECT speech transmission using CCITT Recommendation G.726 [14] ADPCM speech codec at 32 kbit/s.

The aims of this ETS are to ensure:

- efficient use of frequency spectrum;
- no harm done to any connected network and its services;
- no harm done to other radio networks and services;
- no harm done to other DECT equipment or its services;
- interworking of terminal equipment via the public network,

through testing those provisions of ETS 300 175, parts 1 to 7 [1] to [7] which are relevant to these aims.

The tests of this ETS split into two parts:

- this part covers testing of radio frequency parameters, security elements and those DECT protocols that facilitate the radio frequency tests and efficient use of frequency spectrum;
- part 2 describes testing of DECT 32 kbit/s ADPCM speech requirements between network interface and DECT PT, or between a DECT CI air interface and alternatively a DECT PT or FT. Part 2 is not applicable to terminal equipment specially designed for the disabled (e.g. with amplification of received speech as an aid for the hard-of-hearing).

DECT comprises two equipment elements, referred to as a Fixed Part (FP) and a Portable Part (PP). Part 2 of this ETS is structured to allow type approval of either:

- a) the FP and PP together; or
- b) the FP and PP as separate items.

Where the DECT FP is connected to a PSTN, and there are any national peculiarities in the requirements for voice telephony, these shall be accommodated within the FP.

Additional tests apply for equipment implementing ETSI defined profiles (e.g. GAP, DECT-GSM, DECT-ISDN). These tests are found in related ETSs and may supersede the requirements of this ETS.

2 Normative references

This ETS incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 175-1 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".
- [2] ETS 300 175-2 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical Layer".
- [3] ETS 300 175-3 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) layer".
- [4] ETS 300 175-4 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".
- [5] ETS 300 175-5 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".
- [6] ETS 300 175-6 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".
- [7] ETS 300 175-7 (1996): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".
- [8] ETS 300 175-8: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech coding and transmission".
- [9] 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)).
- [10] CCITT Recommendation V.11 (1988): "Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s".
- [11] CCITT Recommendation O.153 (1988): "Basic parameters for the measurement of error performance at bit rates below the primary rate".
- [12] 91/263/EEC: "Council Directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity" (Terminal Directive).
- [13] EN 55022: "Limits and methods of measurements of radio interferers characteristics of information technology equipment".
- [14] CCITT Recommendation G.726: "40, 32, 24, 16 kbit/s adaptive differential pulse code modulation (ADPCM)".

- [15] 89/336/EEC: "Council Directive of 3rd May 1989 on the approximation of the laws of the Member States relating to Electromagnetic Compatibility" (EMC Directive).

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

antenna diversity: Antenna diversity implies that the Radio Fixed Part (RFP) for each bearer independently can select different antenna properties such as gain, polarization, coverage patterns, and other features that may effect the practical coverage. A typical example is space diversity, provided by two vertically polarized antennas separated by 10 - 20 cm.

bearer hand over: The internal hand over process provided by the Medium Access Control (MAC) layer, whereby one MAC connection can modify its underlying bearers while maintaining the service provided to the Data Link Control (DLC) layer.

NOTE 1: Bearer hand over is slot based.

cell: The domain served by a single antenna system (including a leaky feeder) of one FP.

NOTE 2: A cell may include more than one source of radiated Radio Frequency energy (i.e. more than one Radio End Point).

Central Control Fixed Part (CCFP): A physical grouping that contains the central elements of a FP. A FP shall contain a maximum of one CCFP.

NOTE 3: A CCFP controls one or more RFPs.

conducted measurements: Measurements which are made using a direct connection to the equipment under test.

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DECT-like carrier: A modulated RF DECT carrier used for interference testing which conforms to the requirements in ETS 300 175-2 [2] in terms of frequency and timing and uses a pseudo-random sequence for modulation.

Double Slot (SLOT): One 12th of a Time Division Multiple Access (TDMA) frame which is used to support one high capacity physical channel.

duplex bearer: The use of two simplex bearers operating in opposite directions on two physical channels. These pairs of channels always use the same RF carrier and always use evenly spaced slots (i.e. separated by 0,5 TDMA frame).

Equipment Under Test (EUT): The equipment submitted to the test laboratory for type examination.

Fixed Part (DECT Fixed Part) (FP): A physical grouping that contains all of the elements in the DECT network between the local network and the DECT air interface.

NOTE 4: A DECT FP contains the logical elements of at least one Fixed radio Termination (FT), plus additional implementation specific elements.

Fixed radio Termination (FT): A logical group of functions that contains all of the DECT processes and procedures on the fixed side of the DECT air interface.

NOTE 5: A FT only includes elements that are defined in the DECT CI standard. This includes radio transmission elements (layer 1) together with a selection of layer 2 and layer 3 elements.

full slot (slot): One 24th of a TDMA frame which is used to support one physical channel.