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Harmonised Standard for access to radio spectrum;
Part 10: Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks

Reference

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Digital Enhanced Cordless Telecommunications (DECT).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.3] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.18].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

The present document is part 10 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.19].

National transposition dates	
Date of adoption of this EN:	9 November 2021
Date of latest announcement of this EN (doa):	28 February 2022
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2022
Date of withdrawal of any conflicting National Standard (dow):	31 August 2023

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document applies to the following equipment types for IMT-FT. IMT-FT is the Digital Enhanced Cordless Telecommunications (DECT) system being a member of the ITU IMT-2000 family:

a) Base Station (BS) (termed as Fixed Part (FP) throughout the present document)

b) User Equipment (UE) (termed as Portable Part (PP) throughout the present document)

c) Cordless Terminal Adapter (CTA) (specific type of UE)

d) Repeater (termed as Wireless Relay Station (WRS) (FP and PP combined) throughout the present document)

e) Hybrid Part (HyP) (a PP with capability to act as a FP to provide PP to PP communication)

These radio equipment types can operate in all or any part of the frequency bands given in table 1.

Table 1: Radiocommunications service frequency bands

	Radiocommunications service frequency bands
Transmit	1 900 MHz to 1 980 MHz
Receive	1 900 MHz to 1 980 MHz
Transmit	2 010 MHz to 2 025 MHz
Receive	2 010 MHz to 2 025 MHz

The IMT-FT (DECT) service frequency bands for transmitting and receiving for all elements are the parts of the IMT spectrum applicable for TDD operation, 1 900 MHz to 1 980 MHz and 2 010 MHz to 2 025 MHz.

NOTE 1: IMT-FT equipment may have a second mode for providing operation also in the DECT band 1 880 MHz to 1 900 MHz. Application of DECT in the band 1 880 MHz to 1 900 MHz is covered by ETSI EN 301 406 [i.7].

Details of the DECT Common Interface may be found in ETSI EN 300 175-1 [i.12], ETSI EN 300 175 parts 2 [1] to 3 [2], ETSI EN 300 175-4 [i.13], ETSI EN 300 175 parts 5 [3] to 6 [4] and ETSI EN 300 175 parts 7 [i.14] to 8 [i.15]. Further details of the DECT system may be found in ETSI TR 101 178 [i.1]. Information about ULE may be found in ETSI TS 102 939-1 [i.16] and ETSI TS 102 939-2 [i.17].

The present document contains requirements to demonstrate that radio equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference.

NOTE 2: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.18] is given in annex A.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

[1] ETSI EN 300 175-2 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical layer (PHL)".

[2] ETSI EN 300 175-3 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) Layer".

[3] ETSI EN 300 175-5 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".

[4] ETSI EN 300 175-6 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".

[5] Void.

[6] ETSI EN 300 700 (V2.2.1) (12-2018): "Digital Enhanced Cordless Telecommunications (DECT); Wireless Relay Station (WRS)".

[7] Recommendation ITU-T O.153 (10-1992): "Basic parameters for the measurement of error performance at bit rates below the primary rate".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TR 101 178: "Digital Enhanced Cordless Telecommunications (DECT); A High Level Guide to the DECT Standardization".

[i.2] Void.

[i.3] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.

[i.4] Void.

[i.5] Void.

[i.6] Void.

[i.7] ETSI EN 301 406 (V2.2.2) (09-2016): "Digital Enhanced Cordless Telecommunications (DECT); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".

[i.8] Void.

[i.9] Void.

[i.10] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

[i.11] ISO/IEC 9646-1 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 1: General concepts".

[i.12] ETSI EN 300 175-1 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".

[i.13] ETSI EN 300 175-4 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) Layer".

[i.14] ETSI EN 300 175-7 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".

[i.15] ETSI EN 300 175-8 (V2.8.1) (12-2019): "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech and audio coding and transmission".

[i.16] ETSI TS 102 939-1: "Digital Enhanced Cordless Telecommunications (DECT); Ultra Low Energy (ULE); Machine to Machine Communications; Part 1: Home Automation Network (phase 1)".

[i.17] ETSI TS 102 939-2: "Digital Enhanced Cordless Telecommunications (DECT); Ultra Low Energy (ULE); Machine to Machine Communications; Part 2: Home Automation Network (phase 2)".

[i.18] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

[i.19] ETSI EN 301 908-1: "IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 1: Introduction and common requirements".

[i.20] ETSI EG 203 336: "Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".

3 Definition of terms, symbols and abbreviations

3.1 Terms

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

antenna diversity: feature that implies that the Radio Fixed Part (RFP) is able to select for each bearer independently different antenna properties such as gain, polarization, coverage patterns, and other features that may affect the practical coverage

NOTE: A typical example is space diversity, provided by two vertically polarized antennas separated by 10 cm to 20 cm.

Base Station (BS): usually mains powered and in a fixed location in traditional DECT systems

NOTE: Forms a bridge between the mobile parts (traditionally known as handsets) and the network. Base stations are commonly referred to as Fixed Part (FP).

bearer handover: internal handover 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: Bearer handover is slot based.

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

NOTE: 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): physical grouping that contains the central control elements of one or several FPs

NOTE: An FP may be split in the control part (CCFP) and the Radio part (RFP). A CCFP may control one or more RFPs.

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

Cordless Terminal Adapter (CTA): physical grouping that contains a DECT portable termination and a line interface

DECT distributed communications: communication capability of a DECT Local Network that allows a number of DECT terminals (a FP and number of PPs) to co-exist and directly communicate one with another

DECT-like carrier: modulated RF DECT carrier used for interference testing which conforms to the requirements in ETSI EN 300 175-2 [1] in terms of frequency and timing and uses a pseudo-random sequence for modulation

double slot: one 12th of a Time Division Multiple Access (TDMA) frame which is used to support one high capacity physical channel

duplex bearer: use of two simplex bearers operating in opposite directions on two physical channels

NOTE: These pairs of channels always use the same RF carrier and always use evenly spaced slots (i.e. separated by 0,5 TDMA frame).

environmental profile: range of environmental conditions under which equipment within the scope of the present document is required to comply with the provisions of the present document

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

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

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

fixed radio termination: logical group of functions that contains all of the DECT processes and procedures on the fixed side of the DECT air interface

NOTE: 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: one 24th of a TDMA frame which is used to support one physical channel

half slot: one 48th of a TDMA frame which is used to support one physical channel

handover: process of switching a call in progress from one physical channel to another physical channel

NOTE: These processes can be internal or external. There are two physical forms of handover: intra-cell handover and inter-cell handover. Intra-cell handover is always internal. Inter-cell handover can be internal or external.

host equipment: any equipment which has a complete user functionality when not connected to the DECT radio equipment, and to which the DECT radio equipment provides additional functionality, and to which connection is necessary for the DECT radio equipment to offer functionality

hybrid part: DECT terminal that provides FT, as well as, PT capabilities being capable of communicating directly with FT or PT

IMT-2000: International Mobile Telecommunications, Third Generation Mobile Systems

IMT-FT: International Mobile Telecommunications, FDMA/TDMA

NOTE: This is the DECT family member of IMT-2000.

inter-cell handover: switching of a call in progress from one cell to another cell

NOTE: This only defines the form of handover, it does not define a specific process.

intra-cell handover: switching of a call in progress from one physical channel of one cell to another physical channel of the same cell

NOTE: This only defines the form of handover, it does not define a specific process.