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Radio Equipment and Systems (RES);Digital European Cordless Telecommunications (DECT) Common interface Part 1: Overview

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI), and was adopted, having passed through the ETSI standards approval procedure (Public Enquiry 23: 1991-09-02 to 1991-12-27, Vote 22: 1992-05-25 to 1992-07-17).

The ETS forms part 1 of a series of 9 laying down the arrangements for the Digital European Cordless Telecommunications (DECT) Common Interface, and provides an overview of the whole ETS.

The following aspects of this ETS are subject to controlled distribution:

a) DECT identities, as defined in Part 6;

b) DECT cryptographic algorithms.

The cryptographic algorithms specify the details of the DECT standard authentication algorithm and the DECT standard cipher.

These aspects are distributed on an individual basis. Further information and details of the current distribution procedures can be obtained from the ETSI Secretariat at the address on the first page of this document.

Further details of the DECT system may be found in ETSI Technical Reports, ETR 015 [16] and ETR 043 [15], and also in draft ETSI Technical Report: "Digital European Cordless Telecommunications System description document [17]".

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1 Scope

This part of ETS 300 175 gives an introduction and overview of the complete Digital European Cordless Telecommunications (DECT) Common Interface.

This part contains an abstract of the other parts of the DECT standard together with a general description of:

- the objectives of this ETS;
- the DECT Common Interface;
- the protocol architecture of DECT.

This part also provides an extensive vocabulary, in particular it contains the common definitions of all the technical terms used in different parts of this ETS.

2 Normative references

This European Telecommunication Standard (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: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 1: Overview".

[2] ETS 300 175-2: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 2: Physical layer".

[3] ETS 300 175-3: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 3: Medium access control layer".

[4] ETS 300 175-4: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 4: Data link control layer".

[5] ETS 300 175-5: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 5: Network layer".

[6] ETS 300 175-6: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 6: Identities and addressing".

[7] ETS 300 175-7: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 7: Security features".

[8] ETS 300 175-8: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 8: Speech coding and transmission".

[9] ETS 300 175-9: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface Part 9: Public access profile".

[10] Reserved.

[11] Reserved.

[12] I-ETS 300 176: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Approval test specification".

[13] Reserved for future ETS version of [12].

[14] CEPT Recommendation T/SGT SF2 (89) 6/0: "Draft Recommendation T/SF Services and Facilities of Digital European Cordless Telecommunications".

[15] ETR 043: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common interface Services and facilities requirements specification".

[16] ETR 015: "Digital European Cordless Telecommunications Reference document".

[17] Draft Technical Report: "Digital European Cordless Telecommunications System description document".

[18] ETR 042: "Radio Equipment and Systems; Digital European Cordless Telecommunications (DECT) A Guide to the DECT features that influence the traffic capacity and the maintenance of high radio link transmission quality, including the results of simulations".

[19] Reserved for future DECT related document.

[20] CCIR Report 662 (1978): "Definition of spectrum use and efficiency".

[21] CCITT Recommendation X.200 (1988): "Reference Model of Open Systems Interconnection for CCITT applications".

[22] CCITT Recommendation X.210 (1988): "OSI layer service conventions".

[23] ECMA TR/44 (1989): "An architectural framework for private networks".

[24] CCITT Recommendation T.50 (1988): "International Alphabet No. 5".

[25] International Standard ISO.2022 (1986 E): "Information processing - ISO 7-bit and 8-bit coded character sets - Code extension techniques".

[26]-[28] Reserved.

[29] European Telecommunication Standard ETS 300 102-1: "ISDN User-network interface layer; Specification for basic call control".

[30] European Telecommunication Standard ETS 300 102-2: "ISDN User-network interface layer 3 Specification Description Language (SDL) diagrams".

[31] ETS 300 133-1 to -7: "Paging Systems (PS); European Radio Message System (ERMES)".

3 Definitions and abbreviations

3.1 Definitions

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

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

Attach: the process whereby a portable part within the coverage area of a fixed part to which it has access rights, notifies this fixed part that it is operative. The reverse process is detach, which reports the portable part as inoperative.

NOTE: An operative portable part is assumed to be ready to receive calls.

Authentication (of a subscriber): the process whereby a DECT subscriber is positively verified to be a legitimate user of a particular fixed part.

NOTE: Authentication is generally performed at call set-up, but may also be done at any other time (e.g. during a call).

Bearer: see Medium Access Control (MAC) bearer or bearer service.

Bearer handover: the internal handover process provided by the 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.

Bearer service: a type of telecommunication service that provides a defined capability for the transmission of signals between user-network interfaces.

NOTE: The DECT user-network interface corresponds to the top of the DECT network layer (layer 3).

Broadcast: a simplex point-to-multipoint mode of transmission.

NOTE: The transmitter may disregard the presence or absence of receivers.

C-plane: the control plane of the DECT protocol stacks, which contains all of the internal DECT protocol control, but may also include some external user information.

NOTE: The C-plane stack always contains protocol entities up to and including the network layer.

Call: all of the NetWorK (NWK) layer processes involved in one network layer peer-to-peer association.

NOTE: Call may sometimes be used to refer to processes of all layers, since lower layer processes are implicitly required.

Cell: the domain served by a single antenna(e) system (including a leaky feader) of one fixed part.

NOTE: A cell may include more than one source of radiated Radio Frequency (RF) energy (i.e. more than one radio end point).

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

NOTE: A CCFP controls one or more RFPs.

Centrex: an implementation of a private telecommunication network exchange that is not located on the premises of the private network operator. It may be co-located with, or physically a part of a public exchange.

Channel: see physical channel.

Cluster: a logical grouping of one or more cells between which bearer handover is possible. A Cluster Control Function (CCF) controls one cluster.

NOTE: Internal handover to a cell which is not part of the same cluster can only be done by connection handover.

Connection: see "MAC connection".

Connection handover: the internal handover process provided by the DLC layer, whereby one set of DLC entities (C-plane and U-plane) can reroute data from one MAC connection to a second new MAC connection, while maintaining the service provided to the network layer.

NOTE: Connection handover is DLC frame based.

ConnectionLess mode (C/L): a transmission mode that transfers one packet (one self contained unit) of data from one source point to one (or more) destination points in a single phase.

NOTE: Connectionless transmissions require the peer-to-peer associations to be prearranged, and the transmission is unacknowledged at that layer.

Connection Oriented mode (C/O): a transmission mode that transfers data from one source point to one or more destination points using a protocol based on three phases: "Set-up", "Data transfer" and "Release".

NOTE: Connection oriented mode requires no prearranged associations between peer entities (unlike C/L mode).

Coverage area: the area over which reliable communication can be established and maintained.

DECT NetWork (DNW): a network that uses the DECT air interface to interconnect a local network to one or more portable applications. The logical boundaries of the DECT network are defined to be at the top of the DECT network layer.

NOTE: A DECT NetWork (DNW) is a logical grouping that contains one or more fixed radio terminations plus their associated portable radio termination. The boundaries of the DECT network are not physical boundaries.

DLC broadcast: a simplex "connectionless" mode of transmission from the DLC broadcast entity of one fixed radio termination to the DLC broadcast entities in one or more portable radio terminations.

NOTE: The transmitter may disregard the presence or absence of receivers.

DLC data link (DLC LINK): an association between two DLC layer entities. This can either be one C-plane association or one U-plane association.

NOTE: This is not the same as a MAC connection.

DLC frame: the format used to structure all messages that are exchanged between DLC layer peer entities.

NOTE: Different DLC frames are used in the C-plane and the U-plane, and there is more than one format of DLC frame in each plane.