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Digital Enhanced Cordless Telecommunications (DECT); Cordless Terminal Mobility (CTM); CTM Access Profile (CAP)

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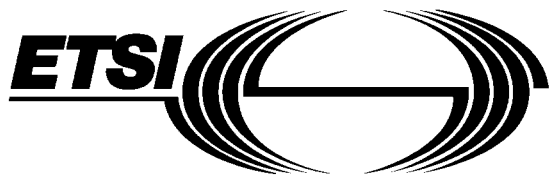
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Foreword

This European Telecommunication Standard (ETS) has been produced by the Digital Enhanced Cordless Telecommunications (DECT) Project of the European Telecommunications Standards Institute (ETSI).

This ETS is based on ETS 300 175, parts 1 to 8 [1] to [8] and ETS 300 444 [12].

Transposition dates	
Date of adoption:	3 October 1997
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Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 July 1998
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1 Scope

This European Telecommunication Standard (ETS) specifies that set of technical requirements for Digital Enhanced Cordless Telecommunications (DECT) Fixed Part (FP) and DECT Portable Part (PP) necessary for the support of the Cordless Terminal Mobility (CTM) Access Profile (CAP).

The objective of the ETS is to ensure the air interface interoperability of DECT CAP PPs and DECT CAP FPs if applied.

The CTM service allows users of cordless terminals to be mobile within and between networks. Where radio coverage is provided and the cordless terminal has appropriate access rights the user shall be able to make calls from, and to receive calls at, any location within the fixed public and/or private networks, and may move without interruption of a call in progress.

This ETS covers the DECT access requirements for CTM phase 2 as defined in the CTM phase 2 service description, DE/NA-010061 [14].

The main objectives of the CAP are:

- maintain compatibility with the DECT Generic Access Profile (GAP), identifying only components not mandatory in the GAP to be added to obtain capabilities needed in the CTM context;
- maintain compatibility with ETS 300 175 [1] to [8], for procedures not defined in the GAP.

The CTM access profile is seen as an extension of the GAP mandatory base covering the requirements for CTM phase 2.

CAP supports telephony teleservice and provides 32 kbit/s Adaptive Differential Pulse Code Modulation (ADPCM) speech bearer service.

CTM supplementary services with no impact on the air interface are not considered in the CAP.

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: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview". |
| [2] | ETS 300 175-2: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical layer (PHL)". |
| [3] | ETS 300 175-3: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) layer". |
| [4] | ETS 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer". |
| [5] | ETS 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer". |
| [6] | ETS 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing". |
| [7] | ETS 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features". |

- [8] ETS 300 175-8: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech coding and transmission".
- [9] ETS 300 176: "Digital Enhanced Cordless Telecommunications (DECT); Approval test specification".
- [10] TBR 6: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements".
- [11] TBR 10 (1997): "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements; Telephony applications".
- [12] ETS 300 444 (1995): "Digital European Cordless Telecommunications (DECT); Generic Access Profile (GAP)".
- [13] TBR 22: "Attachment requirements for terminal equipment for Digital Enhanced Cordless Telecommunications (DECT) Generic Access Profile (GAP) applications".
- [14] DEN/NA-010061: "Cordless Terminal Mobility (CTM); Phase 2; Service Description".
- [15] ETS 300 650: "Integrated Services Digital Network (ISDN); Message Waiting Indication (MWI) supplementary service; Service description".
- [16] ETS 300 745-1: "Integrated Services Digital Network (ISDN); Message Waiting Indication (MWI) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [17] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [18] ETS 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

3 Definitions, abbreviations and symbols

3.1 Definitions

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

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

NOTE 1: An operative PP is assumed to be ready to receive calls.

authentication: The process whereby a CTM subscriber is positively verified to be a legitimate user of the CTM service.

NOTE 2: Authentication is generally performed at call set-up, but may also be done at any other time (e.g. during a call).

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

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

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 4: 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 5: Call may sometimes be used to refer to processes of all layers, since lower layer processes are implicitly required.

DECT network: 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 6: A DECT network 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.

external handover: The process of switching a call in progress from one fixed part to another fixed part.

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 7: A DECT FP contains the logical elements of at least one 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 8: A FT only includes elements that are defined in the DECT Common Interface (CI) standard. This includes radio transmission elements together with a selection of layer 2 and layer 3 elements.

geographically unique identity: This term relates to FP identities, Primary Access Rights Identities (PARIs) and Radio Fixed Part Identities (RFPIs). It indicates that two systems with the same PARI, or respectively two Radio Fixed Parts (RFPs) with the same RFPI, can not be reached or listened to at the same geographical position.

NOTE 9: For PARI and RFPI see abbreviations.

global network: A telecommunication network capable of offering a long distance telecommunication service.

NOTE 10: The term does not include legal or regulatory aspects, nor does it indicate if the network is a public or a private network.

globally unique identity: The identity is unique within DECT (without geographical or other restrictions).

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

NOTE 11: There are two physical forms of handover, intra-cell handover and inter-cell handover.

incoming call: A call received at a PP.

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

internal handover: Handover processes that are completely internal to one FT. Internal handover reconnects the call at the lower layers, while maintaining the call at the NWK layer.

NOTE 12: The lower layer reconnection can either be at the Data Link Control (DLC) layer (connection handover) or at the MAC layer (bearer handover).

interoperability: The capability of FPs and PPs, that enable a PP to obtain access to teleservices in more than one location area and/or from more than one operator (more than one service provider).

interoperator roaming: Roaming between FP coverage areas of different operators (different service providers).

Interworking Unit (IWU): A unit that is used to interconnect sub networks.

NOTE 13: The IWU will contain the interworking functions necessary to support the required sub network interworking.

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

intraoperator roaming: Roaming between different FP coverage areas of the same operator (same service provider).

Local Network (LNW): A telecommunication network capable of offering local telecommunication services.

NOTE 14: The term does not include legal or regulatory aspects, nor does it indicate if the network is a public network or a private network.

locally unique identity: A unique identity within one FP or location area, depending on application.

location area: The domain in which a PP may receive (and/or make) calls as a result of a single location registration.

location registration: The process whereby the position of a DECT PT is determined to the level of one location area, and this position is updated in one or more databases.

NOTE 15: These databases are not included within a DECT FT.

MAC Connection (CONNECTION): An association between one source MAC Multi-Bearer Control (MBC) entity and one destination Medium Access Control (MAC) Multi-Bearer Control (MBC) entity. This provides a set of related MAC services (a set of logical channels), and it can involve one or more underlying MAC bearers.

outgoing call: A call originating from a PP.

Portable Application (PA): A logical grouping that contains all the elements that lie beyond the DECT network boundary on the portable side.

NOTE 16: The functions contained in the PA may be physically distributed, but any such distribution is invisible to the DECT network.

Portable Part (DECT Portable Part) (PP): A physical grouping that contains all elements between the user and the DECT air interface. PP is a generic term that may describe one or several physical pieces.

NOTE 17: A DECT PP is logically divided into one PT plus one or more PAs.

Portable radio Termination (PT): A logical group of functions that contains all of the DECT processes and procedures on the portable side of the DECT air interface.

NOTE 18: A PT 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.

Radio Fixed Part (RFP): One physical sub-group of a FP that contains all the radio end points (one or more) that are connected to a single system of antennas.

roaming: The movement of a PP from one FP coverage area to another FP coverage area, where the capabilities of the FPs enable the PP to make or receive calls in both areas.

NOTE 19: Roaming requires the relevant FPs and PP to be interoperable.

subscription registration: The infrequent process whereby a subscriber obtains access rights to one or more FPs.

NOTE 20: Subscription registration is usually required before a user can make or receive calls.

supplementary service: A service that modifies or supplements a basic telecommunications service.

teleservice: A type of telecommunications service that provides the complete capability, including terminal equipment functions, for communication between users, according to protocols that are established by agreement.

3.2 Abbreviations

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

AC	Authentication Code
ADPCM	Adaptive Differential Pulse Code Modulation
ARC	Access Rights Class
ARD	Access Rights Details
ARI	Access Rights Identity
B	Business environment
BCD	Binary Coded Decimal
CAP	CTM Access Profile
CC	Call Control
CI	Common Interface
CLIP	Calling Line Identification Presentation
CTM	Cordless Terminal Mobility
D	DECT reference point
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control
DSAA	DECT Standard Authentication Algorithm
DSCA	DECT Standard Cipher Algorithm
DTMF	Dual Tone Multi-Frequency
EMC	Equipment Manufacturer Code
FLEN	Frame Length
FP	Fixed Part
FT	Fixed radio Termination
GAP	Generic Access Protocol
IE	Information Element
IPEI	International Portable Equipment Identity
IPUI	International Portable User Identity
ISDN	Integrated Services Digital Network
IWU	Interworking Unit
KS'	FP authentication Session Key
KS	PP authentication Session Key
LA	Location Area
LAI	Location Area Identification
LAL	Location Area Level