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Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP)

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Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP)

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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 based on EN 300 175, parts 1 [1] to 8 [8]. General attachment requirements and speech attachment requirements are based on EN 301 406 [11] (replacing TBR 006) and EN 300 176-2 [10] (previously covered by TBR 010).

The present document has been developed in accordance to the rules of documenting a profile specification as described in ISO/IEC 9646-6 [12].

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(National transposition dates)

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Date of withdrawal of any conflicting National Standard (dow):	30 June 2002

1 Scope

The present document 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 Generic Access Profile (GAP).

The GAP is applicable to all DECT Portable radio Terminations (PT) and Fixed radio Terminations (FT) which under the scope of EN 300 176-2 [10] (i.e. 3,1 kHz telephony teleservice) and specifies the minimum functionality that is supported by all other 3,1 kHz voice profiles.

The objective of the present document is to ensure the Air Interface (AI) inter-operability of DECT equipment capable of 3,1 kHz telephony applications, in such a way that any DECT PT conforming to the procedures described in the present document is inter-operable with any DECT FT conforming to the procedures described in the present document.

The profile consists of the minimum mandatory requirements that allow a 3,1 kHz teleservice connection to be established, maintained and released between a FT and a PT with the appropriate access rights, irrespective of whether the FP provides residential, business or public access services.

In addition, the present document defines the features, services, procedures etc. for both the FT and the PT, which are provision mandatory either in the PT or in the FT, as well as some elements that are provision optional but still process mandatory.

Mobility Management (MM) procedures at the DECT AI to support incoming calls and outgoing calls are included.

Inter-working between the FT and the attached network is outside the scope of the present document.

2 References

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The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

[SIST EN 300 444 V1.4.1:2003](https://standards.iteh.ai/catalog/standards/sist/b3619209-d613-43ce-9d90-2c77313de377/sist-er-300-444-v1-4-1-2003)

- 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.
- [1] ETSI EN 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".
 - [2] ETSI EN 300 175-2: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical layer (PHL)".
 - [3] ETSI EN 300 175-3: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) layer".
 - [4] ETSI EN 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".
 - [5] ETSI EN 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".
 - [6] ETSI EN 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".
 - [7] ETSI EN 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".
 - [8] ETSI EN 300 175-8: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech coding and transmission".

- [9] ETSI EN 300 176-1: "Digital Enhanced Cordless Telecommunications (DECT); Approval test specification; Part 1: Radio".
- [10] ETSI EN 300 176-2: "Digital Enhanced Cordless Telecommunications (DECT); Approval test specification; Part 2: Speech".
- [11] ETSI EN 301 406: "Digital Enhanced Cordless Telecommunications (DECT); Harmonized EN for Digital Enhanced Cordless Telecommunications (DECT) covering essential requirements under article 3.2 of the R&TTE Directive; Generic radio".
- [12] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".
- [13] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [14] ISO/IEC 8073 (1997): "Information technology - Open Systems Interconnection - Protocol for providing the connection-mode transport service".

3 Definitions, symbols and abbreviations

3.1 Definitions

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

attach: 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: process whereby a DECT subscriber is positively verified to be a legitimate user of a particular FP

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

bearer service: 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 (NWK) layer (layer 3).

C-plane: 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 NWK layer.

call: all of the NWK layer processes involved in one NWK 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: network that uses the DECT AI 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 NWK layer.

NOTE 6: A DECT network is a logical grouping that contains one or more FTs plus their associated PT. The boundaries of the DECT network are not physical boundaries.

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 AI

NOTE 7: A DECT FP contains the logical elements of at least one FT, plus additional implementation specific elements.

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

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, PARIs and RFPIs. It indicates that two systems with the same PARI, or respectively two RFPs with the same RFPI, cannot be reached or listened to at the same geographical position.

NOTE 9: For PARI and RFPI, see abbreviations.

global network: 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: identity is unique within DECT (without geographical or other restrictions)

handover: 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: call received at a PP

inter-cell handover: 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 Medium Access Control (MAC) layer (bearer handover).

inter-operability: capability of FPs and PPs, that enable a PP to obtain access to teleservices in more than one Location Area (LA) and/or from more than one operator (more than one service provider)

inter-operator roaming: roaming between FP coverage areas of different operators (different service providers)

Interworking Unit (IWU): 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: switching of a call in progress from one physical channel of one cell to another physical channel of the same cell

intra-operator roaming: roaming between different FP coverage areas of the same operator (same service provider)

Local Network (LNW): 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: unique identity within one FP or LA, depending on application

Location Area (LA): domain in which a PP may receive (and/or make) calls as a result of a single location registration

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

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

MAC connection (connection): association between one source MAC Multiple Bearer Control (MBC) entity and one destination MAC 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: call originating from a PP

Portable Application (PA): 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): physical grouping that contains all elements between the user and the DECT AI

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): logical group of functions that contains all of the DECT processes and procedures on the portable side of the DECT AI

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

registration: ambiguous term that should always be qualified. See either location registration or subscription registration

roaming: 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 inter-operable.

RS: value used to establish authentication session keys

subscription registration: 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.

3.2 Symbols

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

M	mandatory to support (provision mandatory, process mandatory)
O	optional to support (provision optional, process mandatory)
I	out-of-scope (provision optional, process optional) not subject for testing
C	conditional to support (process mandatory)
N/A	not applicable (in the given context the specification makes it impossible to use this capability)

Provision mandatory, process mandatory means that the indicated feature service or procedure shall be implemented as described in the present document, and may be subject to testing.

Provision optional, process mandatory means that the indicated feature, service or procedure may be implemented, and if implemented, the feature, service or procedure shall be implemented as described in the present document, and may be subject to testing.

NOTE: The used notation is based on the notation proposed in ISO/IEC 9646-7 [13].