

ETSI EN 300 444 V2.2.1 (2010-06)

European Standard (Telecommunications series)

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

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Reference

REN/DECT-000255

Keywords

access, DECT, generic, profile, mobility, radio,
synchronization, TDD, TDMA, IMT-2000**ETSI**650 Route des Lucioles
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Contents

Intellectual Property Rights	9
Foreword.....	9
1 Scope	10
2 References	10
2.1 Normative references	10
2.2 Informative references.....	11
3 Definitions, symbols and abbreviations	11
3.1 Definitions.....	11
3.2 Symbols.....	14
3.3 Abbreviations	14
4 Feature definitions.....	15
4.1 NetWorK (NWK) features	16
4.2 Speech coding and audio features	17
4.3 Application features	18
5 Service definitions.....	19
5.1 DLC service definitions.....	19
5.2 MAC service definitions	19
6 Inter-operability requirements.....	20
6.1 General	20
6.2 NWK features.....	21
6.3 DLC services	22
6.4 MAC services.....	22
6.5 PHysical Layer (PHL) services	23
6.6 Application features	23
6.7 Speech coding and audio features	23
6.8 Feature/service to procedure mapping.....	24
6.8.1 NWK feature to procedure mapping.....	24
6.8.2 DLC service to procedure mapping	26
6.8.3 MAC service to procedure mapping.....	27
6.8.4 Application feature to procedure mapping.....	28
6.8.5 Speech coding and audio feature to procedure mapping.....	28
6.9 General requirements	28
6.9.1 NWK layer message contents	28
6.9.2 Transaction identifier.....	28
6.9.3 Length of a NWK layer message	28
6.9.4 Handling of error and exception conditions.....	28
6.9.5 GAP default setup attributes	29
6.9.6 Coexistence of MM and CC procedures	29
6.9.7 Coding rules for information elements	29
7 Procedure description.....	30
8 NWK layer procedures.....	30
8.1 Summary of outgoing call messages, normal cases.....	30
8.2 Outgoing call request.....	32
8.2.1 Associated procedures	32
8.2.1.1 Timer P-<CC.03> management	32
8.2.2 Exceptional cases.....	33
8.2.2.1 Timer P-<CC.03> expiry	33
8.2.2.2 PT releases the outgoing call request	33
8.2.2.3 FT rejects the outgoing call request	34
8.3 Overlap sending.....	34
8.3.1 Associated procedure.....	35

8.3.1.1	Timer F-<CC.01> management	35
8.3.2	Exceptional cases	35
8.3.2.1	PT releases the outgoing call request	35
8.3.2.2	FT rejects the outgoing call request	35
8.3.2.3	Timer F-<CC.01> expiry	36
8.3.2.4	FT releases the outgoing call request	36
8.4	Outgoing call proceeding	36
8.4.1	Exceptional cases	37
8.4.1.1	PT releases the outgoing call request	37
8.4.1.2	FT releases the outgoing call request	37
8.5	Outgoing call confirmation	38
8.5.1	Exceptional cases	38
8.5.1.1	PT releases the outgoing call request	38
8.5.1.2	FT releases the outgoing call request	39
8.6	Outgoing call connection	39
8.7	Normal call release	40
8.7.1	Associated procedures	40
8.7.1.1	Timer P-<CC.02> management	40
8.7.1.2	Timer F-<CC.02> management	41
8.7.2	Exceptional cases	41
8.7.2.1	Release collisions	41
8.7.2.2	Timer F-<CC.02> expiry	42
8.7.2.3	Timer P-<CC.02> expiry	42
8.8	Abnormal call release	42
8.9	Partial release	43
8.10	Sending keypad information	44
8.11	Summary of incoming call related messages, normal cases	45
8.12	Incoming call request	46
8.12.1	Associated procedure	47
8.12.1.1	Timer F-<CC.03> management	47
8.12.2	Exceptional cases	48
8.12.2.1	FT releases the incoming call request	48
8.12.2.2	PT rejects the incoming call request	48
8.12.2.3	Timer F-<CC.03> expiry	49
8.12.3	Collective and group ringing	49
8.13	Incoming call confirmation	49
8.13.1	Exceptional cases	50
8.13.1.1	FT releases the incoming call transaction	50
8.13.1.2	PT releases the incoming call transaction	50
8.14	PT alerting	51
8.15	Incoming call connection	51
8.15.1	Associated procedure	52
8.15.1.1	Timer P-<CC.05> management	52
8.15.2	Exceptional cases	52
8.15.2.1	FT releases the incoming call transaction	52
8.15.2.2	PT releases the incoming call transaction	53
8.15.2.3	Timer P-<CC.05> expiry	53
8.16	Display	54
8.17	Terminal capability indication	54
8.18	Internal call setup	55
8.19	Internal call keypad	55
8.20	Service call setup	56
8.21	Service call keypad	56
8.22	Identification of PP	56
8.22.1	Associated procedure	57
8.22.1.1	Timer F-<MM_ident.2> management	57
8.22.2	Exceptional cases	57
8.22.2.1	Identity not existing in the PT	57
8.22.2.2	Timer F-<MM_ident.2> expiry	57
8.23	Authentication of FT	58
8.23.1	Associated procedure	58
8.23.1.1	Timer P-<MM_auth.1> management	58

8.23.2	Exceptional cases	59
8.23.2.1	Authentication algorithm/key not supported	59
8.23.2.2	Authentication challenge RES has wrong value	59
8.23.2.3	Timer P-<MM_auth.1> expiry	59
8.24	Authentication of PP	60
8.24.1	Associated procedure	61
8.24.1.1	Timer F-<MM_auth.1> management	61
8.24.2	Exceptional cases	61
8.24.2.1	Authentication algorithm/key not supported	61
8.24.2.2	Timer F-<MM_auth.1> expiry	61
8.25	Authentication of user	61
8.25.1	Associated procedure	62
8.25.1.1	Timer F-<MM_auth.2> management	62
8.25.2	Exceptional cases	62
8.25.2.1	Authentication algorithm/key not supported	62
8.25.2.2	Timer F-<MM_auth.2> expiry	62
8.26	Incrementing the ZAP value	62
8.27	Storing the DCK	63
8.28	Location registration	64
8.28.1	Associated procedures	65
8.28.1.1	Timer P-<MM_locate.1> management	65
8.28.1.2	Timer F-<MM_ident.1> management	65
8.28.2	Exceptional cases	66
8.28.2.1	FT rejects the location registration procedure	66
8.28.2.2	Failure of location registration procedure	66
8.28.2.3	PT rejects the identity assignment	66
8.28.2.4	Timer F-<MM_identity.1> expiry	67
8.29	Location update	67
8.30	Obtaining access rights	68
8.30.1	Associated procedure	69
8.30.1.1	Timer P-<MM_access.1> management	69
8.30.2	Exceptional cases	69
8.30.2.1	FT rejects the access rights	69
8.30.2.2	Timer P-<MM_access.1> expiry	70
8.31	FT terminating access rights	70
8.31.1	Associated procedure	71
8.31.1.1	Timer F-<MM_access.2> management	71
8.31.2	Exceptional cases	71
8.31.2.1	PT rejects the termination request	71
8.31.2.2	Timer F-<MM_access.2> expiry	71
8.32	Key allocation	72
8.32.1	Associated procedures	73
8.32.1.1	Timer F-<MM_key.1> management	73
8.32.1.2	Timer P-<MM_auth.1> management	73
8.32.2	Exceptional cases	73
8.32.2.1	Timer F-<MM_key.1> expiry	73
8.32.2.2	Timer P-<MM_auth.1> expiry	73
8.32.2.3	Allocation-type element is unacceptable	74
8.32.2.4	Authentication of PT fails	74
8.32.2.5	Authentication of FT fails	74
8.33	Cipher-switching initiated by FT	75
8.33.1	Associated procedure	76
8.33.1.1	Timer F-<MM_cipher.1> management	76
8.33.2	Exceptional cases	76
8.33.2.1	PT rejects the cipher request	76
8.33.2.2	Timer F-<MM_cipher.1> expiry	76
8.34	Cipher-switching initiated by PT	77
8.34.1	Associated procedure	78
8.34.1.1	Timer P-<MM_cipher.2> management	78
8.34.2	Exceptional cases	78
8.34.2.1	FT rejects the cipher request	78
8.34.2.2	Timer P-<MM_cipher.2> expiry	78

8.35	Indirect FT initiated link establishment.....	78
8.35.1	Associated procedure.....	79
8.35.1.1	Timer F-<LCE.03> management.....	79
8.35.2	Exceptional cases.....	80
8.35.2.1	The IPUI received in the {LCE-PAGE-RESPONSE} does not match.....	80
8.35.2.2	Timer <LCE.03> expiry.....	80
8.35.2.3	Release from the higher entity.....	81
8.36	Direct PT initiated link establishment.....	81
8.36.1	Exceptional case.....	82
8.36.1.1	Link establishment failure.....	82
8.37	Link release "normal".....	82
8.37.1	Associated procedure.....	84
8.37.1.1	Timer <LCE.01> management.....	84
8.37.2	Exceptional cases.....	84
8.37.2.1	Timer <LCE.01> expiry.....	84
8.37.2.2	Outstanding data has been discarded.....	84
8.38	Link release "abnormal".....	85
8.39	Link release "maintain".....	85
8.39.1	Associated procedure.....	85
8.39.1.1	Timer <LCE.02> management.....	85
8.40	Enhanced FT initiated U- plane connection.....	86
8.41	Calling Line Identification Presentation (CLIP) Indication.....	86
8.42	Calling Name Identification Presentation (CNIP) Indication.....	87
8.43	Internal Call Calling Line Identification Presentation (CLIP).....	87
8.44	Internal Call Calling Name Identification Presentation (CNIP).....	88
8.45	Enhanced security procedures.....	90
8.45.1	Encryption of all calls.....	90
8.45.2	Re-keying during a call.....	91
8.45.3	Early encryption.....	91
8.45.4	Subscription requirements.....	92
8.45.5	Enhanced security regarding legacy devices.....	92
8.45.5.1	Behaviour of FPs regarding legacy PPs.....	92
8.45.5.2	Behaviour of PPs regarding legacy FPs.....	93
8.45.5.3	Behaviour regarding legacy 'repeater' devices.....	93
9	DLC layer procedures.....	94
9.1	Class A link establishment.....	94
9.1.1	Associated procedures.....	96
9.1.1.1	Timer P<DL.07> management.....	96
9.1.1.2	Re-transmission counter management.....	96
9.1.1.3	Multiple frame operation variables management.....	96
9.1.1.4	Lower Layer Management Entity (LLME) establishment of a MAC connection.....	96
9.1.2	Exceptional cases.....	97
9.1.2.1	Timer P<DL.07> expiry.....	97
9.1.2.2	Receipt of a request for link release.....	98
9.1.2.3	Receipt of an indication for a connection release.....	98
9.2	Class A Acknowledged Information transfer.....	98
9.2.1	Acknowledgement with an I_frame.....	98
9.2.2	Acknowledgement with a RR_frame.....	99
9.2.3	Class A acknowledged information transfer with segment reassemble.....	100
9.2.4	Associated procedures.....	100
9.2.4.1	Timer <DL.04> management.....	100
9.2.4.2	Re-transmission counter management.....	100
9.2.4.3	Multiple frame operation variables management.....	100
9.2.5	Exceptional cases.....	101
9.2.5.1	Timer <DL.04> expiry.....	101
9.2.5.2	Receipt of a request for link release.....	101
9.2.5.3	Receipt of an indication for a connection release.....	101
9.2.5.4	DLC wants to make a connection handover.....	101
9.3	Class A link release.....	102
9.3.1	Associated procedures.....	102
9.3.1.1	LLME U-plane release.....	102

9.3.1.2	LLME release a MAC connection	102
9.4	Class A link re-establishment.....	102
9.5	C _S channel fragmentation and recombination	102
9.6	Normal broadcast	102
9.7	Class A basic connection handover.....	103
9.7.1	Voluntary handover	104
9.7.2	Associated procedure.....	104
9.7.2.1	LLME connection handover management	104
9.7.3	Exceptional case	104
9.7.3.1	Receipt of a request for link release	104
9.8	Encryption switching.....	104
9.8.1	Associated procedure.....	105
9.8.1.1	Providing Encryption key to the MAC layer.....	105
9.8.2	Exceptional cases.....	105
9.8.2.1	Encryption fails.....	105
9.8.2.2	Connection handover of ciphered connections.....	105
9.9	U-plane class 0/min delay	105
9.9.1	Associated procedure.....	105
9.9.1.1	LLME U-plane establishment	105
9.10	FU1 frame operation	106
10	MAC layer procedures	106
10.1	General	106
10.2	Downlink broadcast.....	107
10.2.1	N _T message	107
10.2.2	Q _T - static system information	107
10.2.3	Q _T - FP capabilities.....	108
10.2.3.1	Q _T - Extended FP capabilities	108
10.2.3.2	Q _T - Extended FP capabilities (part 2)	108
10.2.4	Q _T - SARI list contents	109
10.3	Paging broadcast	109
10.3.1	Short page, normal/extended paging.....	110
10.3.2	Zero page, normal/extended paging	110
10.3.3	Blind slot information.....	111
10.3.4	Bearer handover information	111
10.4	Setup of basic connection, basic bearer setup (A-field)	111
10.4.1	M _T message.....	112
10.4.2	Associated procedures	112
10.4.2.1	Timer T200 management	112
10.4.2.2	Counter N200 management.....	112
10.4.3	Exceptional cases.....	113
10.4.3.1	Bearer setup attempt fails N200+1 times	113
10.4.3.2	Timer T200 expiry	114
10.5	Connection/bearer release	114
10.5.1	M _T message.....	115
10.6	Bearer handover request.....	115
10.6.1	M _T message.....	115
10.7	Connection handover request	115
10.7.1	M _T message.....	116
10.8	C _S channel data.....	116
10.9	Q2 bit setting	116
10.10	RFPI handshake.....	116
10.11	Antenna diversity	116
10.12	Sliding collision.....	116
10.13	Encryption process - initialization and synchronization.....	116
10.14	Encryption mode control.....	117
10.14.1	M _T message.....	117
10.15	Handover encryption process	117
10.16	Extended frequency allocation	117
10.17	Re-keying	118
10.18	Early Encryption	118

11	Physical Layer (PHL) requirements	118
11.1	General	118
11.2	Minimum Normal Transmit Power (NTP)	118
11.3	Radio receiver sensitivity	118
11.4	Z-field	118
11.5	Sliding collision detection	118
11.6	Physical channel availability	119
11.7	Synchronization window	119
12	Requirements regarding the speech transmission.....	119
12.1	General	119
12.2	User controlled volume control	119
13	Management procedures.....	119
13.1	Management of MM procedures	119
13.2	Location registration initiation	119
13.3	Assigned individual TPUI management.....	120
13.4	PMID management.....	120
13.5	DCK management	120
13.6	Broadcast attributes management.....	120
13.6.1	Higher layer capabilities	121
13.6.2	Extended higher layer capabilities	121
13.6.3	Extended higher layer capabilities (part 2)	121
13.7	Storage of subscription related data	121
14	Application procedures.....	122
14.1	Subscription control	122
14.2	AC to bitstring mapping	122
14.3	Manual entry of the PARK.....	123
14.4	Terminal Identity number assignment in mono cell system.....	124
14.4.1	General.....	124
14.4.2	Procedure description	124
14.4.3	Related Procedures	125
Annex A (informative):	PP locking procedure for on-air subscription.....	126
Annex B (informative):	Tones, progress indicator and U-plane connection.....	128
B.1	General	128
B.2	Connection of U-plane and provision of tones.....	128
B.3	Provision of tones before connection of the U-plane	128
B.4	Provision of tones and <<Progress indicator>> information element.....	128
B.5	Summary	129
Annex C (normative):	Synchronization requirements for fixed parts	130
History		131

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee 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 [i.1]) and EN 300 176-2 [10] (previously covered by TBR 010 [i.2]).

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

National transposition dates	
Date of adoption of this EN:	15 June 2010
Date of latest announcement of this EN (doa):	30 September 2010
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2011
Date of withdrawal of any conflicting National Standard (dow):	31 March 2011

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

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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

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

- [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 and audio coding and transmission".
- [9] ETSI EN 300 176-1: "Digital Enhanced Cordless Telecommunications (DECT); Test specification; Part 1: Radio".
- [10] ETSI EN 300 176-2: "Digital Enhanced Cordless Telecommunications (DECT); Test specification; Part 2: Audio and speech".
- [11] ETSI EN 301 406: "Digital Enhanced Cordless Telecommunications (DECT); Harmonized EN for Digital Enhanced Cordless Telecommunications (DECT) covering the 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".
- [15] ITU-T Recommendation G.726: "40, 32, 24, 16 kbit/s Adaptive Differential Pulse Code Modulation (ADPCM)".

2.2 Informative references

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 TBR 006: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements".
- [i.2] ETSI TBR 010: "Digital Enhanced Cordless Telecommunications (DECT); General Terminal Attachment Requirements; Telephony Applications".
- [i.3] ETSI TS 102 527-3: "Digital Enhanced Cordless Telecommunications (DECT); New Generation DECT; Part 3: Extended wideband speech services".

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

NOTE 1: The reverse process is detach, which reports the PP as inoperative.

NOTE 2: 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: 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: 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: 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: 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: 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: 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: 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: related 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: For PARI and RFPI, see abbreviations clause.

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

NOTE: 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: 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 general call: internal call setup by a PP to ring all other PPs (i.e. excluding the initiator) and FP (when capable of). This is typically useful in residential environments when transferring a call.

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: 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: 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)

List access service: ability to store information on the DECT system in a set of lists on the FP and manage these lists from the PP (see TS 102 527-3 [i.3], feature [NG1.N.16]).

Local NetWork (LNW): telecommunication network capable of offering local telecommunication services

NOTE: 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: 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

NOTE: 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: 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

NOTE 1: PP is a generic term that may describe one or several physical pieces.

NOTE 2: 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: 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: Roaming requires the relevant FPs and PP to be inter-operable.

RS: value used to establish authentication session keys