SLOVENSKI STANDARD
SIST EN 301 242:2000

01-julij-2000

Digitalne izboljġane brezvrviļ ne telekomunikacije (DECT) - Globalni sistem mobilnih komunikacij (GSM) - Integracija DECT/GSM, terminal z dvojnim naļ inom delovanja

Digital Enhanced Cordless Telecommunications (DECT); Global System for Mobile communications (GSM); DECT/GSM integration based on dual-mode terminals

Ta slovenski standard je istoveten z: **EN 301 242 Version 1.2.2**

ICS:

33.070.30	Digitalne izboljġane brezvrviļ ne telekomunikacije (DECT)	Digital Enhanced Cordless Telecommunications (DECT)
33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)

SIST EN 301 242:2000 **en**

ETSI EN 301 242 V1.2.2 (1999-09)

European Standard (Telecommunications series)

Digital Enhanced Cordless Telecommunications (DECT); Global System for Mobile communications (GSM); DECT/GSM integration based on dual-mode terminals

Reference
REN/DECT-010137 (bi000ipc.PDF)

Keywords
DECT, GSM, radio, terminal

ETSI

Postal address
F-06921 Sophia Antipolis Cedex - FRANCE

Office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16
Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Internet
secretariat@etsi.fr
Individual copies of this ETSI deliverable
can be downloaded from
http://www.etsi.org
If you find errors in the present document, send your
comment to: editor@etsi.fr

Contents

Intellectual Property Rights 5
Foreword 5
1 Scope 6
2 References 6
3 Definitions and abbreviations 8
3.1 Definitions 8
3.2 Abbreviations 8
4 General on DECT/GSM DMTs 9
4.1 DECT and GSM modes 9
4.2 Dual mode operation 9
4.2.1 General on manually switched operation 10
4.2.1.1 GSM-only mode 10
4.2.1.2 DECT-only mode 10
4.2.2 General on automatically switched operation 10
4.2.3 General on parallel operation 10
4.2.3.1 Single active mode 10
4.2.3.2 Double active modes 11
4.3 Service access 11
4.4 DECT profiles 11
5 Requirements on manually switched operation 11
5.1 Manual mode selection 11
5.2 Procedures 12
5.2.1 At switch-on 12
5.2.2 User re-selection of mode 12
6 Requirements on automatically switched operation 12
6.1 General 12
6.2 Mode selection 12
6.2.1 General requirements 12
6.2.2 Procedures 13
6.2.2.1 At switch-on 13
6.2.2.2 Background scanning 13
6.2.2.3 Mode switching 13
6.2.2.4 Automatic mode selection 14
6.2.2.4.1 Preferred use of GSM networks 14
6.2.2.4.2 Preferred use of DECT networks 14
6.2.2.4.3 Protection against excessive signalling 15
6.2.2.5 User re-selection of mode 15
7 Requirements on parallel operation 16
7.1 Parallel mode DMT 16
7.2 Mode selection 16
7.3 Power on and initial registration 16
7.4 Procedure while in parallel idle modes 16
7.5 Procedures while in active communication in one mode 16
7.5.1 Procedure while in active communication in DECT mode 17
7.5.2 Procedure while in active communication in GSM mode 17
7.6 Procedure while in active communication in both GSM and DECT modes 17
7.7 Loss of coverage 18

Annex A (normative): Testing of DECT/GSM DMTs 19
A.1 Radio testing 19
A.2 Acoustic testing 20
A.3 Protocol testing 21
Annex B (normative): Timers and constants 22
B.1 Timers 22
B.2 Constants 22
History 23

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Digital Enhanced Cordless Telecommunications (DECT).

National transposition dates	
Date of adoption of this EN:	27 August 1999
Date of latest announcement of this EN (doa):	30 November 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2000
Date of withdrawal of any conflicting National Standard (dow):	31 May 2000

1 Scope

The present document specifies the additional requirements to the existing Global System for Mobile communications (GSM) and Digital Enhanced Cordless Telecommunication (DECT) standards needed for DECT/GSM Dual Mode Terminals (DMTs) that can be switched manually between DECT and GSM mode and/or can perform background scanning and switch automatically between GSM and DECT modes and/or can have both GSM and DECT modes activated at the same time.

For the DECT side, the DECT/GSM Interworking Profile (IWP) is not considered.

2 References

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

- 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, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] ETS 300 434-2: "Digital Enhanced Cordless Telecommunications (DECT); Integrated Services Digital Network (ISDN); DECT/ISDN interworking for end system configuration; Part 2: Access profile".

[2] EN 300 444: "Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP)".

[3] ETS 300 511: "European digital cellular telecommunications system (Phase 2); Man-Machine Interface (MMI) of the Mobile Station (MS) (GSM 02.30)".

[4] ETS 300 607-1: "Digital cellular telecommunications system (Phase 2); Mobile Station (MS) conformance specification; Part 1: Conformance specification (GSM 11.10-1 version 4.22.0)".

[5] EN 300 824: "Digital Enhanced Cordless Telecommunications (DECT); Cordless Terminal Mobility (CTM); CTM Access Profile (CAP)".

[6] ETR 341: "Digital Enhanced Cordless Telecommunications (DECT); Global System for Mobile communications (GSM); DECT/GSM Interworking Profile; Profile overview".

[7] TR 101 072: "Digital Enhanced Cordless Telecommunications (DECT); Global System for Mobile Communications (GSM); DECT/GSM integration based on dual-mode terminals".

[8] EN 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".

[9] EN 300 175-2: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical layer (PHL)".

[10] EN 300 175-3: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) layer".

[11] EN 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".

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

[13] EN 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".

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

[15] EN 300 175-8: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech coding and transmission".

[16] TBR 6: "Radio Equipment and Systems (RES); Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements".

[17] TBR 10: "Radio Equipment and Systems (RES); Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements: Telephony applications".

[18] TBR 19: "European digital cellular telecommunications system (Phase 2); Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Access".

[19] TBR 20: "European digital cellular telecommunications system (Phase 2); Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Telephony".

[20] TBR 22: "Radio Equipment and Systems (RES); Attachment requirements for terminal equipment for Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP) applications".

[21] TBR 31: "Digital cellular telecommunications system (Phase 2); Attachment requirements for mobile stations in the DCS 1 800 band and additional GSM 900 band; Telephony".

[22] TBR 32: "Digital cellular telecommunications system (Phase 2); Attachment requirements for mobile stations in the DCS 1 800 band and additional GSM 900 band; Access".

[23] EN 301 440: "Digital Enhanced Cordless Telecommunications (DECT); Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment for DECT/ISDN interworking profile applications".

[24] ITU-T Recommendation G.111: "Loudness ratings (LRs) in an international connection".

[25] EN 301 439: "Digital Enhanced Cordless Telecommunications (DECT); Global System for Mobile communications (GSM); Attachment requirements for DECT/GSM dual-mode terminal equipment".

[26] TR 101 176: "Digital Enhanced Cordless Telecommunications (DECT); Global System for Mobile communications (GSM); DECT/GSM advanced integration of DECT/GSM dual-mode terminal equipment".

3 Definitions and abbreviations

3.1 Definitions

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

active communication: state, where a communication link has been established between the DMT and a fixed part in either GSM or DECT mode

active mode: GSM or DECT mode after being selected and switch on procedures for that mode being performed

automatic switched operation: DMT is in either GSM or DECT mode and switches automatically between these modes when it looses current coverage or finds preferred coverage

background scanning: process whereby a DMT in manually or automatically switched operation attempts to identify the existence of stable networks in the mode other than the one it is in to which the terminal has access rights

dual mode terminal: terminal comprising both GSM and DECT parts

GSM coverage: sum of all GSM Public Land Mobile Network (PLMN) coverages where the DMT has at least limited service

GSM: in the present document, the GSM part of a DMT can be GSM 900, Digital Cellular System 1800 (DCS 1800) or GSM/DCS dual band

manually switched operation: DMT is in either GSM or DECT mode and switches between these modes only after interaction with the user

mode selection: DMT based procedure, whereby operating mode, GSM or DECT, is chosen

mode: DMT has two modes, GSM and DECT. In GSM mode the DMT behaves as a GSM Mobile Station (MS) and in DECT mode the DMT behaves as a DECT Portable Part (PP)

parallel operation: DMT has both GSM and DECT modes activated at the same time. It is capable of being location registered both to a DECT FP and a GSM PLMN at the same time and is capable of at least receiving simultaneously in both GSM and DECT modes

preferred mode: either DECT or GSM is set to be the preferred mode. The DMT in automatic switched operation automatically switches to the preferred mode when it finds a suitable network in that mode and the DMT in parallel operation uses the preferred mode for outgoing calls

3.2 Abbreviations

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

ARI	Access Rights Identity
CAP	CTM Access Profile
CTM	Cordless Terminal Mobility
DCS	Digital Cellular System
DECT	Digital Enhanced Cordless Telecommunications
DMT	Dual Mode Terminal
GAP	Generic Access Profile
GSM	Global System for Mobile communication
IAP	ISDN Access Profile
IMSI	International Mobile Subscriber Identity
IWP	Interworking Profile
MS	Mobile Station
PARK	Portable Access Rights Key
PIN	Personal Identification Number
PLMN	Public Land Mobile Network

PP	Portable Part
SIM	Subscriber Identity Module
LSTR	Listeners Sidetone Ratio
RLR	Receiving Loudness Rating
SLR	Sending Loudness Rating

4 General on DECT/GSM DMTs

4.1 DECT and GSM modes

A DMT is a terminal comprising both GSM and DECT parts, see TR 101 072 [7] and TR 101 176 [26]. The DMT is in either GSM or DECT mode or it can have both modes activated at the same time. In each mode, the DMT shall operate as the corresponding single mode terminal and shall fully comply with the relevant standards for that single mode terminal (for GSM see references in ETS 300 607-1 [4]; for DECT see EN 300 175 parts 1 to 8 [8] to [15] and EN 300 444 [2], EN 300 824 [5] or ETS 300 434-2 [1]), unless specified in the present document.

The DMT shall give an indication to the user of the mode(s) currently in use.

When one mode is being activated the DMT shall operate like a single mode terminal that is switching on. When one mode is being deactivated the DMT shall operate like a single mode terminal that is switching off.

Location registration within each mode shall be performed according to the relevant standards for single-mode terminals (for GSM see references in ETS 300 607-1 [4]; for DECT see EN 300 175 parts 1 to 8 [8] to [15] and EN 300 444 [2], EN 300 824 [5] or ETS 300 434-2 [1]) and the behaviour when switching modes is the same as when one single-mode terminal is switched-off and the second is switched-on:

- when deactivating one mode, the applicable behaviour shall be the one specified in the relevant standards for the switch off (e.g. detach procedure, if applicable), for GSM see references in ETS 300 607-1 [4]; for DECT see EN 300 175 parts 1 to 8 [8] to [15] and EN 300 444 [2], EN 300 824 [5] or ETS 300 434-2 [1];

- when activating one mode, the applicable behaviour shall be the one specified in the relevant standards for the switch on (e.g. attach procedure, if applicable), for GSM see references in ETS 300 607-1 [4]; for DECT see EN 300 175 parts 1 to 8 [8] to [15] and EN 300 444 [2], EN 300 824 [5] or ETS 300 434-2 [1].

4.2 Dual mode operation

The following ways of operation are possible for a DMT:

- **Manually switched operation** (the DMT behaves as a GSM MS or as a DECT PP):
  - GSM-only mode;
  - DECT-only mode.
- **Automatically switched operation** (the DMT behaves as a GSM MS or as a DECT PP and can switch automatically between GSM and DECT modes):
  - old mode is switched off before new mode is switched on.
- **Parallel operation** (both DECT and GSM modes are activated and the DMT is location registered both in a GSM PLMN and with a DECT FP):
  - active communication is only possible in one mode at the time; or
  - active communication is possible in both modes at the same time.

Manually switched operation shall always be implemented in a DMT. In addition, automatically switched operation and/or parallel operation can be implemented.