SLOVENSKI STANDARD
SIST ETS 300 370 E1:2003

01-december-2003

Radijska oprema in sistemi (RES) ï Profil medsebojnega delovanja digitalnih evropskih brezvrvi nih telekomunikacij in globalnega sistema mobilnih komunikacij (DECT/GSM) ï Dostop in preslikava (opis postopka/protokola govorne storitve s pasovno irino 3,1 kHz)

Radio Equipment and Systems (RES);Digital European Cordless Telecommunications/Global System for Mobile communications (DECT/GSM) inter-working profile; Access and mapping (Protocol/procedure description for 3,1 kHz speech service)

Ta slovenski standard je istoveten z: **ETS 300 370 Edition 1**

ICS:

33.060.20	Sprejemna in oddajna oprema	Receiving and transmitting equipment
33.070.30	Digitalne izboljšane brezvrvi ne telekomunikacije (DECT)	Digital Enhanced Cordless Telecommunications (DECT)
33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)

SIST ETS 300 370 E1:2003 **en**

EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 370

July 1995

Source: ETSI TC-RES

Reference: DE/RES-03017

ICS: 33.060, 33.060.20

Key words: DECT, GSM

Radio Equipment and Systems (RES); Digital European Cordless Telecommunications/ Global System for Mobile communications (DECT/GSM) inter-working profile Access and mapping (Protocol/procedure description for 3,1 kHz speech service)

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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).

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	31 Octobre 1995
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	30 April 1996
Date of withdrawal of any conflicting National Standard (dow):	30 April 1996

Introduction

This ETS is a part of a set of standards for the DECT/GSM IWP concept that includes:

- General description of service requirements, functional capabilities and information flows;
- Access and mapping (protocol/procedure description for 3,1 kHz speech service), (this ETS);
- Support of GSM Phase 2 supplementary services (for further study);
- Fixed Interconnection (for further study).

This ETS is based on Digital European Cordless Telecommunications (DECT) Common Interface specification ETS 300 175 [1] to [8] to enable DECT terminals to inter-work in the public and private environment with DECT systems which are connected to a Global System for Mobile communications (GSM) core infrastructure.

In addition, this ETS is based on the DECT Generic Access Profile (GAP) [9] to enable the same DECT/GSM terminal to inter-work with a DECT Fixed Part (FP) complying to the GAP requirements, irrespective of whether this FP provides residential, business or public access services.

This ETS utilises in addition to the only GAP related features and procedures the following:

- GSM authentication;
- derivation of the DECT ciphering key from the respective GSM cipher key;
- the GSM International Mobile Subscriber Identity (IMSI) and Temporary Mobile Subscriber Identity (TMSI); and
- the GSM Location Area Identity (LAI).

This ETS defines a general purpose, but strict, mobility profile in terms of features, procedures, data structures, information elements and fields within the information elements at the DECT air interface in order to achieve full inter-operability between equipment i.e. DECT systems and terminals, which fulfil the requirements of this ETS. This ETS also fulfils the minimum requirements of the GAP enabling backwards compatibility with the respective equipment.

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1 Scope

This ETS specifies the DECT access protocols and FP and Portable Part (PP) inter-working/mappings necessary to ensure that the Global System for Mobile communications (GSM) basic voice telephony service can be provided over DECT. To enable DECT terminals to inter-work with DECT systems which are connected to the GSM infrastructure, from the DECT side this ETS is based on the GAP [9] and on the DECT Common Interface specification ETS 300 175 [1] to [8] (for the cases not covered by GAP), from GSM side this ETS assumes inter-working with GSM Public Land Mobile Network (PLMN) phase 2.

An air-interface profile is specified for a particular set of GSM services so that inter-operability of DECT equipment for these services can be achieved. Inter-working functions/mappings are specified for Mobile Switching Centre (MSC) attachment for the DECT FP as the FP is using the A-interface towards the GSM MSC in the respect that the FP emulates a GSM Base Station Controller (BSC) with regards to the GSM messages which are relevant to this ETS. Inter-working functions/mappings for the PP are specified for MSC environment.

The provision of the GSM Subscriber Identity Module (SIM) and DECT Authentication Module (DAM) with the GSM Application (GA) within the DECT portable are also considered.

Mobility Management (MM) and circuit-switched Call Control (CC) functionality are covered.

The RR-Management and other GSM specific functionality at the GSM A-interface, interfaces to non GSM-networks, supplementary services, and other GSM data services are outside the scope of this ETS.

A PP conforming to this ETS should be capable of distinguishing a FP conforming to this ETS from a FP conforming to the GAP and to access and to react upon accordingly.

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: "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] prETS 300 444: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT): Generic Access Profile (GAP)".

[10] prETS 300 331: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) Common Interface: DECT Authentication Module".

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

[12] 91/263/EEC: "Council Directive of 29 April 1991 on the approximation of the laws of the Member states concerning telecommunications terminal equipment, including the mutual recognition of their conformity". (Terminal Directive).

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

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

[15] ETR 056: "Digital European Cordless Telecommunications System description document".

[16] prETS 300 466: "Digital European Cordless Telecommunications/Global System for Mobile Communications (DECT/GSM) Inter-working profile: General Description of Service Requirements, Functional Capabilities and Information flows".

[17] Reserved.

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

[19] GSM 01.02: "European digital cellular telecommunication system (Phase 2); General Description of a GSM PLMN".

[20] GSM 01.04: "European digital cellular telecommunication system (Phase 2); Abbreviations and acronyms".

[21] ETS 300 522: "European digital cellular telecommunication system; Network architecture GSM 03.02 - phase 2".

[22] ETS 300 551: "European digital cellular telecommunication system; GSM PLMN Access Reference Configuration GSM 04.02 - phase 2".

[23] PH2 GSM 04.08 (v4.8.0): "European digital cellular telecommunication system; Mobile Radio Interface - Layer 3 Specification GSM 04.08 - phase 2".

[24] ETS 300 580-1: "European digital cellular telecommunication system; Speech Processing Functions: General Description GSM 06.01 - phase 2".

[25] ETS 300 590: "European digital cellular telecommunication system; BSS-MSC Layer 3 Specification GSM 08.08 - phase 2".

[26] PH2 GSM 11.11: "European digital cellular telecommunication system; Specifications of the SIM/ME interface GSM 11.11 - phase 2".

[27] ISO IS 9646-1: "Information Technology - OSI Conformance Testing Methodology and Framework, Part 1: General Concepts".

[28] ISO IS 9646-6: "Information Technology - OSI Conformance Testing Methodology and Framework, Part 6: Protocol Profile Test Specification".

[29] ISO/IEC 9646-7 (1992): "Information Technology - OSI Conformance Testing Methodology and Framework, Part 7: Implementation Conformance Statements" (working draft for CD 9646-7).

3 Definitions, abbreviations and symbols

3.1 DECT definitions

For the purposes of this ETS, the following DECT 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 DECT subscriber is positively verified to be a legitimate user of a particular FP.

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

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 fixed radio termination, plus additional implementation specific elements.

Fixed Part GSM PLMN Attachment (DECT Fixed Part attached to a GSM MSC): A definition of a functional environment where a DECT system (FP) is attached to an GSM MSC. The MSC in this case refers to a functional entity providing the required MM and CC functionality defined in this ETS in order to communicate with the FP.