

8 [[]HJbY]nVc`ýUbYVfYnj fj] bYhY_ca i b]_UWYfB97HL!`DfcZ`dcXUh_cj b]`
glcf]hYj`fB GDŁ!`A YXgYVc`bc`XYcj Ub`Y`dfc`c`U`c`_U`c`_U`fDDDL`df]`Xcglcdi`Xc
]bhYfbYHJ]b`dfYbcgi`ffUbgdcfhi Łgd`cýbY[Uj Y dfc`c`g_Y[UXUH[fUa U

Digital Enhanced Cordless Telecommunications (DECT); Data Services Profile (DSP);
Point-to-Point Protocol (PPP) interworking for internet access and general multi-protocol
datagram transport

iteh STANDARD PREVIEW **(standards.iteh.ai)**

[https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-
b59d331a88b/sist-en-301-240-v1-1-3-2003](https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b59d331a88b/sist-en-301-240-v1-1-3-2003)

Ta slovenski standard je istoveten z: EN 301 240 Version 1.1.3

ICS:

33.070.30 Öä ãæ } ^ Á à [|za } ^ Digital Enhanced Cordless
à!^: ç|cã } ^ Á | ^ [{ ~ } ã æ Telecommunications (DECT)
ÖÖÖVD

SIST EN 301 240 V1.1.3:2003

en

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST EN 301 240 V1.1.3:2003

<https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003>

EN 301 240 V1.1.3 (1998-06)

European Standard (Telecommunications series)

**Digital Enhanced Cordless Telecommunications (DECT);
Data Services Profile (DSP);
Point-to-Point Protocol (PPP) interworking for internet access
and general multi-protocol datagram transport**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 301 240 V1.1.3:2003](https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003)

<https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003>



Reference

DEN/DECT-020099 (bhc00ie0.PDF)

Keywords

DECT, data, internet, mobility, point-to-point
protocol

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

<http://www.etsi.fr>

<http://www.etsi.org>

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1998.
All rights reserved.

Contents

Intellectual Property Rights.....	4
Foreword	4
1 Scope	5
2 Normative references	5
3 Definitions and abbreviations	6
3.1 Definitions	6
3.2 Abbreviations.....	6
4 Description of services.....	7
4.1 Reference configuration.....	7
4.2 Service objectives	7
5 PHL layer requirements	8
6 MAC layer requirements.....	8
7 DLC layer requirements.....	8
7.1 C-Plane requirements.....	8
7.2 U-Plane requirements.....	8
8 NWK layer requirements	8
9 Management entity requirements.....	9
9.1 Link resource management	9
10 Generic interworking conventions and procedures.....	9
10.1 LU3 SDU format	9
10.2 Control frame for PPP lower layer up signal.....	10
10.3 Call control interworking.....	10
10.3.1 PP originated call	10
10.3.2 PP terminated call	12
Annex A (normative): Interworking specific codings	13
Annex B (normative): Interworking conventions to specific fixed network services.....	14
B.1 Native PPP service	14
B.1.1 Reference configuration.....	14
B.1.2 IWU attributes specific codings.....	14
B.2 Modem service	14
B.2.1 Interworking with octet-stuffed framing	14
B.2.1.1 Reference configuration	15
B.2.1.2 Specific interworking conventions	15
B.2.2 Interworking with bit-stuffed framing.....	16
B.2.2.1 Reference configuration	16
B.2.2.2 Specific interworking conventions	16
B.2.3 IWU attributes specific codings.....	16
B.3 ISDN service	18
B.3.1 Interworking with bit-synchronous framing.....	18
B.3.1.1 Reference configuration	18
B.3.2 Interworking with octet-synchronous framing	19
B.3.2.1 Reference configuration	19
B.3.3 IWU attributes specific codings.....	19
History	20

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 **free of charge** from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://www.etsi.fr/ipr> or <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:	19 June 1998
Date of latest announcement of this EN (doa):	30 september 1998
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 1999
Date of withdrawal of any conflicting National Standard (dow):	31 March 1999

[SIST EN 301 240 V1.1.3:2003](https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003)

<https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003>

1 Scope

The present document defines a profile for Digital Enhanced Cordless Telecommunications (DECT) systems conforming to EN 300 175, parts 1 to 7 [1] to [7]. It is part of a family of profiles that build upon and extend each other, aimed at the general connection of terminals supporting non-voice services to a fixed infra-structure, private and public.

The present document is intended for use in roaming applications and so specifies mobility class 2. It thus specifies the requirements on the Network (NWK) layer Call Control (CC) and Mobility Management (MM) entities, to provide full public services.

The present document builds upon services offered by the data service profiles as defined in ETS 300 701 [9] and ETS 300 651 [8]. It specifies an interworking profile for non-voice equipment with roaming mobility, providing Point-to-Point Protocol (PPP) transmission to allow dial-up internet access and general multi-protocol datagram transport. PPP packet transfers on the DECT air interface are specified via a high efficient DECT packet transmission protocol. However, interworking to the fixed network may be via a number of interface protocols, including X.25, frame relay, Asynchronous Transfer Mode (ATM), and traditional circuit switched voice band modem and Integrated Services Digital Network (ISDN) connection.

The present document defines the specific requirements on the Physical (PHL), Medium Access Control (MAC), data Link Control (DLC) and NWK layers of DECT. The standard also specifies Management Entity (ME) requirements and generic interworking conventions which ensure the efficient use of the DECT spectrum.

2 Normative references

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case the latest version applies.

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

- [8] ETS 300 651: "Digital Enhanced Cordless Telecommunications (DECT); Data Services Profile (DSP); Generic data link service; Service type C, class 2".
- [9] ETS 300 701: "Digital Enhanced Cordless Telecommunications (DECT); Data Services Profile (DSP); Generic frame relay service with mobility (service types A and B, class 2)".
- [10] RFC 1618 (1994): "PPP over ISDN".
- [11] RFC 1661 (1994): "The Point-to-Point Protocol (PPP)".
- [12] RFC 1662 (1994): "PPP in HDLC-like Framing".
- [13] RFC 1989 (1996): "PPP Link Quality Monitoring".

3 Definitions and abbreviations

3.1 Definitions

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

interworking unit: A unit that is used to interconnect subnetworks.

interworking functions: Functions contained into the interworking unit, in order to support the required subnetwork interworking.

mobility class 2: Private and public roaming applications for which terminals may move between Fixed Parts (FPs) within a given domain and for which association of service parameters is explicit at the time of service request.

service type C: Non-transparent connection of data streams requiring Link Access Procedure (LAP) services, optimised for high reliability and low additional complexity. This builds upon the services offered by the type A or B profiles.

<https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003>

3.2 Abbreviations

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

ACCM	Async-Control-Character-Map
ATM	Asynchronous Transfer Mode
CC	Call Control
C-plane	Control Plane
CRC	Cyclic Redundancy Check
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control
DSP	Data Services Profile
FP	Fixed Part
FT	Fixed radio Termination
HDLC	High level Data Link Control
I _p	higher layer Information channel (Protected)
ISDN	Integrated Services Digital Network
IWF	InterWorking Functions
IWU	InterWorking Unit
LAP	Link Access Procedure
LAP-C	Link Access Procedure (Control)
LAP-U	Link Access Procedure (U-plane)
LCP	Link Control Protocol
LLS	Lower Layer Status
MAC	Medium Access Control
ME	Management Entity
MM	Mobility Management
MNCC	Mobile Network Call Control

NWK	Network
PDU	Protocol Data Unit
PHL	Physical
PICS	Protocol Implementation Conformance Statement
PP	Portable Part
PPP	Point-to-Point Protocol
PT	Portable radio Termination
RFC	Request For Comment
RFP	Radio Fixed Part
SAP	Service Access Point
SAPI	Service Access Point Identity
SDU	Service Data Unit
U-plane	User plane

4 Description of services

4.1 Reference configuration

The reference configuration for this profile shall be as shown in figure 1.

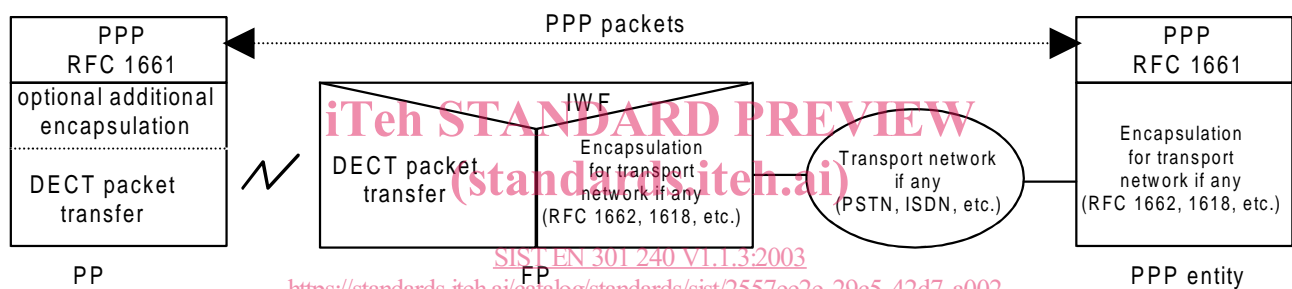


Figure 1: Profile reference configuration (U-plane)

This profile is aimed at applications requiring the transport of PPP packets to a peer entity. A typical application is the on-demand access to an internet service provider. The DECT air interface will be accessed by means of the standard procedures already defined by the C.2 data services profile, ETS 300 651 [8]. A PP wishing to access this service shall request the PPP profile by means of the standard DECT signalling, specifying also the address of the peer entity, and the method of encapsulation.

The Interworking Unit (IWU), if necessary, shall set up a point-to-point connection through the transport network. When such a connection is established, IWU shall encapsulate PPP packets in the way selected by the user.

4.2 Service objectives

The profile has the following service objectives:

Table 1

Offered services	Status
point-to-point SDU transfer PP-FP	Yes
point-to-point SDU transfer FP-PP	Yes
Service change and negotiation	Yes
Data streaming	Optional
Segmentation of higher layer user information	Mandatory
in-band user control signalling	Optional
Encryption	Optional

Table 2

Performance	
Maximum sustainable throughput	24 kbit/s per bearer
Establishment of PT to FT link	50 ms
Establishment of FT to PT link	50 - 160 ms
Undetected error rate	Less than 10^{-10} per bit
Services	point-to-point SDU transfer PP-FP point-to-point SDU transfer FP-PP
maximum supported PPP packet size	1 526 octets

5 PHL layer requirements

The requirements of the service type C, mobility class 2, defined in ETS 300 651 [8], shall apply.

6 MAC layer requirements

The requirements of the service type C, mobility class 2, defined in ETS 300 651 [8], shall apply.

7 DLC layer requirements

7.1 C-Plane requirements

The requirements of the service type C, mobility class 2, defined in ETS 300 651 [8], shall apply.

7.2 U-Plane requirements

The requirements of the service type C, mobility class 2, defined in ETS 300 651 [8], shall apply. In particular, segmentation of higher layer user messages in the information field shall be supported, as described in ETS 300 651 [8], subclause A.3.3.5. Any implementation of FP and PP claiming to conform to this profile will support a maximum size of the information field in the LU3 frame of 1 526 octets.

8 NWK layer requirements

The requirements of the service type C, mobility class 2, defined in ETS 300 651 [8] shall apply.

The call control entity shall support the packet mode procedures, as described in EN 300 175-5 [5] and indicated by turning off condition C1 and turning on condition C7 in annexes F and G of ETS 300 651 [8].

9 Management entity requirements

9.1 Link resource management

The request to suspend the call is issued by the InterWorking Functions (IWF) to the DECT network layer through service primitives, but it shall be a management entity decision as to when to suspend or to resume a call.

The ME may choose at any time to suspend the call according to implementation-specific algorithms. In any case, the ME shall suspend or release the call at least if all the following conditions are satisfied:

- the encapsulation entity in the IWF has not passed a whole PPP packet for transmission to LAP-U for a period of 5/n seconds, where n is the number of active duplex and double simplex MAC bearers related to the LAP-U connection;
- the segmentation entity in the IWF contains no pending data in its receiving PPP packet assembly buffers;
- LAP-U is in an idle condition, as defined in ETS 300 651 [8] annex A, subclause A.6.2;
- there is no peer-to-peer signalling procedure ongoing or pending.

The ME involving the PP and the FP shall not resume the call until either of the following conditions are met:

- there is data to be sent over the U-plane;
- there is a signalling message to be sent by a C-Plane entity.

The LU3 entity in the Portable Part shall never signal any Down/Up events to the PPP entity, as a consequence of a call suspension/resumption.

Reporting-period timers for the Link Quality Monitoring protocol, as defined in RFC 1989 [13], should be negotiated by the PPP entities, during the LCP setup phase, in such a way that their value is much greater than 5 seconds, so that this protocol does not interfere with the suspension/resumption management procedure.

<https://standards.iteh.ai/catalog/standards/sist/2557ee2e-29c5-42d7-a002-b5f9d331a88b/sist-en-301-240-v1-1-3-2003>

10 Generic interworking conventions and procedures

10.1 LU3 SDU format

The upper layer entities in both the Portable Part and the IWF shall exchange PPP data with the LU3 entities by means of protocol SDUs. Three different types of SDUs are defined:

- type A shall contain a PPP packet, as defined in RFC 1661 [11];
- type B shall contain a PPP frame as defined in RFC 1662 [12] subclause 3.1;
- type C shall contain a PPP frame as for type B, together with octets inserted by the octet transparency procedure as defined in RFC 1662 [12].

For each interworking service, the proper annex will specify which type of SDU shall be used.

To ensure interoperability between different equipment, all PPs claiming to conform to this profile shall support SDU type A. The support of SDU types B and C shall be mandatory except for PPs designed to provide this service with a maximum data rate in excess of 64 kbit/s.