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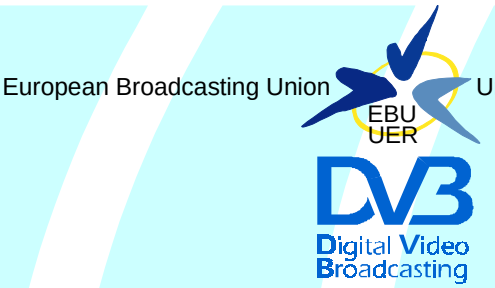
European Standard (Telecommunications series)

Digital Video Broadcasting (DVB); Interaction channel through the Digital Enhanced Cordless Telecommunications (DECT)



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1 Contents

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Foreword

This European Standard (Telecommunications series) has been produced by the Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalisation ELECtrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE: The EBU/ETSI JTC was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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DVB Project

Founded in September 1993, the DVB Project is a market-led consortium of public and private sector organizations in the television industry. Its aim is to establish the framework for the introduction of MPEG-2 based digital television services. Now comprising over 200 organizations from more than 25 countries around the world, DVB fosters market-led systems, which meet the real needs, and economic circumstances, of the consumer electronics and the broadcast industry.

National transposition dates	
Date of adoption of this EN:	24 July 1998
Date of latest announcement of this EN (doa):	31 October 1998
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1 Scope

The present document is the baseline specification for the provision of an interaction channel based on the Digital Enhanced Cordless Telecommunications (DECT) to Digital Video Broadcasting (DVB) systems.

The DVB Project does not intend to specify an interaction channel solution associated to each broadcast system because the interoperability of different delivery media to transport the interaction channel is desirable. Therefore, the DECT solution for the interaction channel apply to satellite, cable, MATV, Satellite Master Antenna TeleVision (SMATV), terrestrial, microwave or any future DVB broadcasting or distribution system.

The solutions provided in the present document for an interaction channel through the DECT are a part of a wider set of alternatives to implement interactive services for DVB systems.

2 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.

2.1 Normative references

[1] ETS 300 802: "Digital Video Broadcasting (DVB); Network-independent protocols for DVB interactive services".

[2] EN 50201: "Interfaces for DVB-IRDs" CENELEC.

[3] ETS 300 765-2: "Digital Enhanced Cordless Telecommunications (DECT); Radio in the Local Loop (RLL) Access Profile (RAP); Part 2: Advanced telephony services".

[4] EN 301 240: "Digital Enhanced Cordless Telecommunications (DECT); Data Services Profile (DSP); Point-to-Point Protocol (PPP) interworking for internet access and general multi-protocol datagram transport".

[5] ETS 300 700: "Digital Enhanced Cordless Telecommunications (DECT); Wireless Relay Station (WRS)".

2.2 Informative references

[6] DVB-A008 (October 1995): "Commercial requirements for asymmetric interactive services supporting broadcast to the home with narrow-band return channels".

[7] ETS 300 765-1: "Digital Enhanced Cordless Telecommunications (DECT); Radio in the Local Loop (RLL) Access Profile (RAP); Part 1: Basic telephony services".

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

[9] DE/RES-03039: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); DECT/ISDN Interworking for Intermediate System Configuration, Part 1: Interworking Specification and Part 2: Access profile".

[10] ETR 308: "Digital Enhanced Cordless Telecommunications (DECT); Services, facilities and configurations for DECT in the local loop".

[11] ETR 185: "Digital European Cordless Telecommunications (DECT); Data Services Profile (DSP); Profile overview".

[12] ETS 300 651: "Digital Enhanced Cordless Telecommunications (DECT); Data Services Profile (DSP); Generic data link service;(Service type C, class 2)".

[13] 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)".

3 Abbreviations

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

A/V	Audio/Video
BC	Broadcast Channel
CI	Common Interface
CTA	Cordless Terminal Adapter
DAM	DECT Authentication Module
DECT	Digital Enhanced Cordless Telecommunications
DSP	Data Services Profile
FP	Fixed Part
FT	Fixed Termination
GAP	Generic Access Profile
IC	Interaction Channel
IIM	Interactive Interface Module
IN	Interactive Network
INA	Interactive Network Adapter
IRD	Integrated Receiver Decoder
ISDN	Integrated Services Digital Network
IWU	Inter-Working Unit
LAP	Link Access Protocol
LLME	Lower Layer Management Entity
MAC	Medium Access Control
MATV	Master Antenna Television
NIU	Network Interface Unit
NTU	Network Termination Unit
NWK	Network
OSI	Open Systems Interconnection
PHL	Physical
PP	Portable Part
PPP	Point to Point Protocol
PSTN	Public Switched Telephone Network
RAP	Radio in the local loop Access Profile
RF	Radio Frequency
RLL	Radio in the Local Loop
SMATV	Satellite Master Antenna TeleVision
STB	Set Top Box
STU	Set Top Unit
WRS	Wireless Relay Station

4 Reference model

A reference model for the system architecture of narrow-band interaction channels in a broadband scenario (asymmetric interactive services) is presented in this clause.

4.1 Protocol stack model

Within the Digital Video Broadcasting (DVB) commercial requirements for asymmetric interactive services supporting broadcast to the home with narrow-band return channel (see DVB-A008 [6]), a simple communications model has been used to identify the necessity and importance of each commercial requirement consisting of the following layers (the layers do not coincide exactly with the Open Systems Interconnection (OSI) layers):

Physical layer: Where all the physical (electrical) transmission parameters are defined;

Transport layer: Defines all the relevant data structures and communication protocols like data containers, etc.;

Application layer: Is the interactive application software and runtime environment (e.g. home shopping application, script interpreter, etc.).

The present document addresses the lower two layers (the physical and transport layers), leaving the application layer open to competitive market forces. A simplified model of the OSI layers was adopted to facilitate the production of specifications for these nodes. Figure 1 points out the lower layers of the simplified model and identifies some of the key parameters. Following the user requirements for interactive services, no attempt will be made to consider higher layers in the present document.

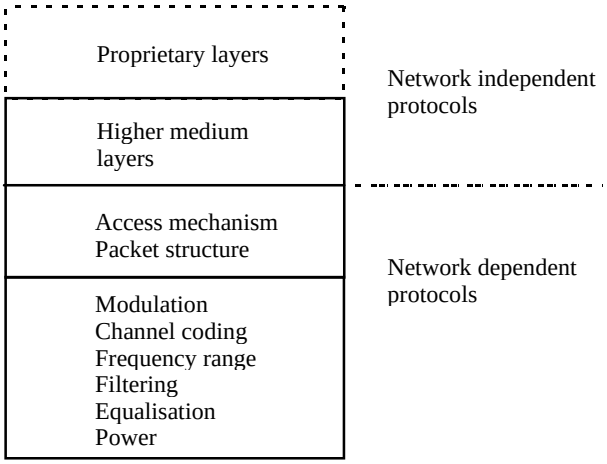


Figure 1: Layer structure for generic system reference model

The present document addresses the Digital Enhanced Cordless Telecommunications (DECT) specific aspects only. The network-independent protocols are specified separately in ETS 300 802 [1].

4.2 System model

Figure 2 shows the system model which is to be used within DVB for interactive services. In the system model, two channels are established between the service provider and the user:

a) **Broadcast Channel (BC):** A uni-directional broadband BC including video, audio and data. BC is established from the service provider to the users. It may include the forward interaction path.

b) **Interaction Channel (IC):** A bi-directional interaction channel is established between the service provider and the user for interaction purposes. It is formed by:

- **Return interaction path** (return channel): From the user to the service provider. It is used to make requests to the service provider or to answer questions. It is a narrow-band channel. Also commonly known as return channel.

- **Forward interaction path:** From the service provider to the user. It is used to provide some sort of information by the service provider to the user and any other required communication for the interactive service provision. It may be embedded into the broadcast channel. It is possible that this channel is not required in some simple implementations which make use of the BC for the carriage of data to the user.

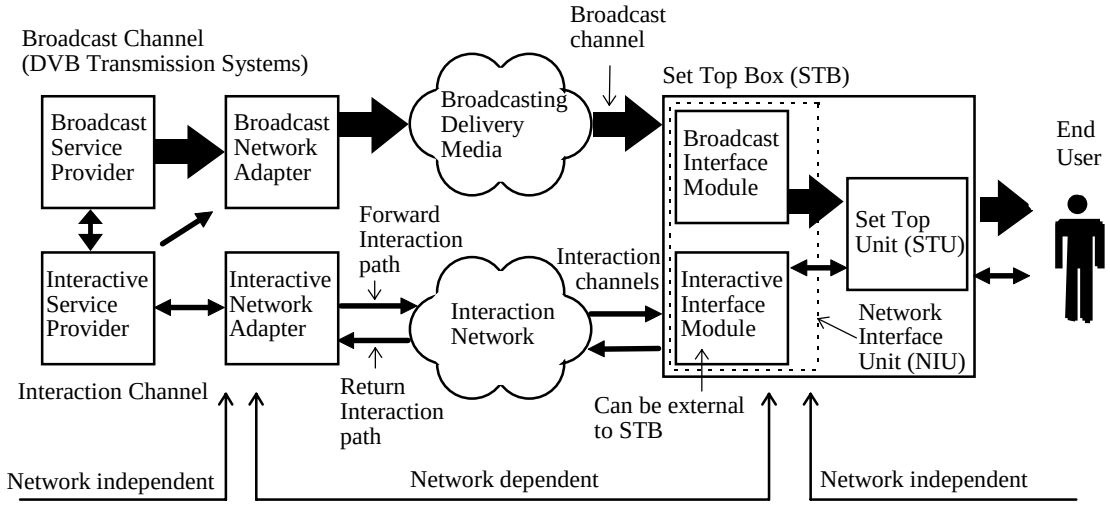


Figure 2: A generic system reference model for interactive systems

The user terminal, here named Set Top Box (STB), is formed by the:

a) Network Interface Unit (NIU), consisting of the:

   1) Broadcast Interface Module (BIM);

   2) Interactive Interface Module (IIM); and

b) Set Top Unit (STU).

The user terminal provides interfaces for both broadcast and interaction channels. The interface between the user terminal and the interaction network is via the IIM.

5 DVB interaction channel specification for DECT

A DECT infrastructure can support the implementation of the interaction channel for DVB broadcasting systems by providing a wireless bi-directional communication path between the user terminal and an infrastructure connecting to the service provider.

The basic characteristics of DECT are described in annex A.

5.1 System architecture

The Interactive Interface Module (IIM) is implemented through a DECT Portable Part (PP) (see figure 3). The DECT PP can be internal or external to the STB.

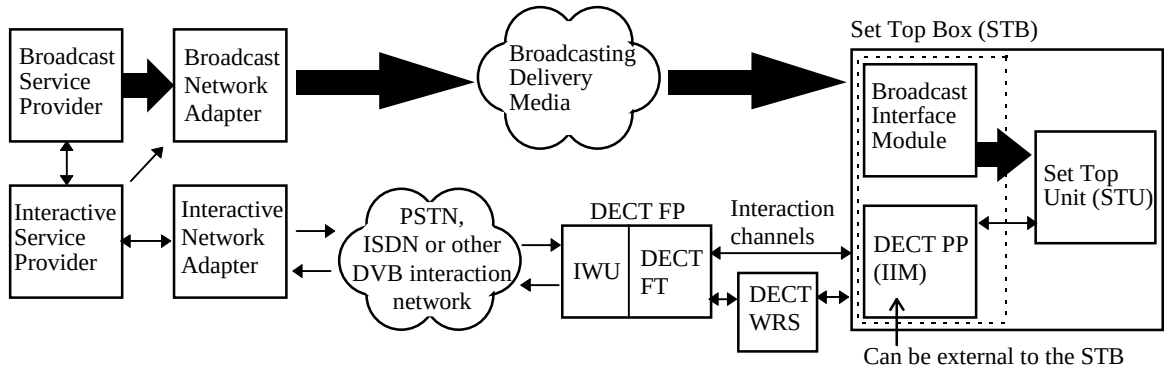


Figure 3: System architecture when DECT is used as the interaction channel

DECT is a wireless access technology, not a complete network or system. Therefore, DECT Fixed Parts (FP) are part of the interaction network. A DECT FP includes an Inter-Working Unit (IWU) which handles the interconnection of DECT with the Interactive Network Adapter (INA) via another interaction network.

5.2 Physical interfaces

The physical interfaces relate to how the DECT PP is connected to the STU, how the DECT FP is connected to other interaction networks and the wireless physical interfaces between DECT PP, DECT FP and DECT Wireless Relay Stations (WRS). The DECT profiles specify the physical interfaces for different services and applications (see subclause 5.4).

In the case of a DECT PP external to the STB, the DVB-IRD interfaces are described in EN 50201 [2].

5.3 Calling procedures

The signalling protocols are specified by the DECT profiles (see subclause 5.4).

5.4 DECT profiles

The connection of DECT to different networks, the operation of the DECT air interface and the signalling protocols for specific services and applications are described in the DECT profiles. A DVB operator using DECT as the interaction channel should use DECT profiles. Several DECT profiles can be supported in a DECT system, which means that other profiles can be supported in parallel with the profile used to carry the DVB network independent protocols for interactive services (see ETS 300 802 [1]).

The default implementations described in subclauses 5.4.1 and 5.4.2 are based on the Radio in the local loop Access Profile (RAP) (see ETS 300 765-2 [3]) and the Data Services Profile (DSP) PPP interworking (see EN 301 240 [4]). The RAP offers valuable operation and maintenance functions. DSP PPP interworking offers effective handling of data traffic and describes the interworking to different fixed networks. When accessing an external DECT infrastructure, RAP functions are used in combination with the DSP PPP interworking.

Due to the flexible nature of the DECT standard, several other implementation possibilities exist. Some of the implementation alternatives are described in annex B.

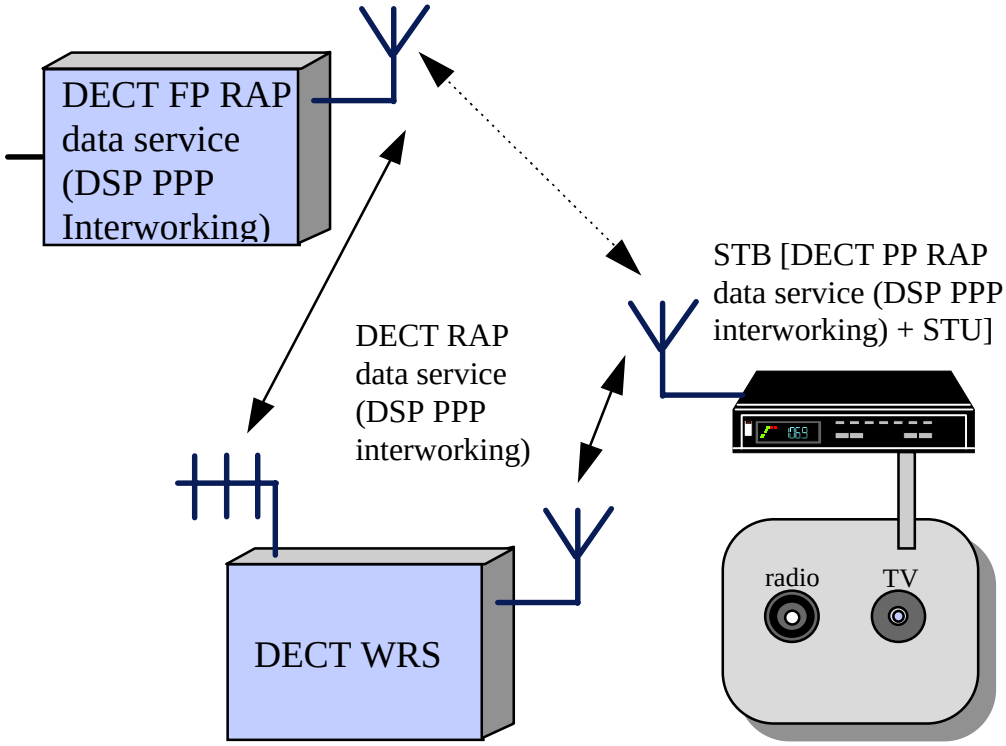
5.4.1 Recommended DECT profiles when the DECT infrastructure is external to the home

The RAP (see ETS 300 765-1 [7] and ETS 300 765-2 [3]), describes how DECT is used in Radio in the Local Loop (RLL) scenarios.

It is recommended that the IIM is represented by a DECT PP internal to the STB with a RAP Data service (see ETS 300 765-2 [3]) according to the DSP PPP interworking (see EN 301 240 [4]) implemented, when the interaction channel is through a DECT infrastructure, external to the home (see figure 4).

The DECT PP (IIM) communicates with a DECT RAP data service (DSP PPP interworking) infrastructure comprised of FPs and possible WRSs (see ETS 300 700 [5]).

A WRS relays intelligently the DECT signals between DECT FPs and DECT PPs. This STB implementation should be the default implementation when DECT is used as the interaction channel in DVB.

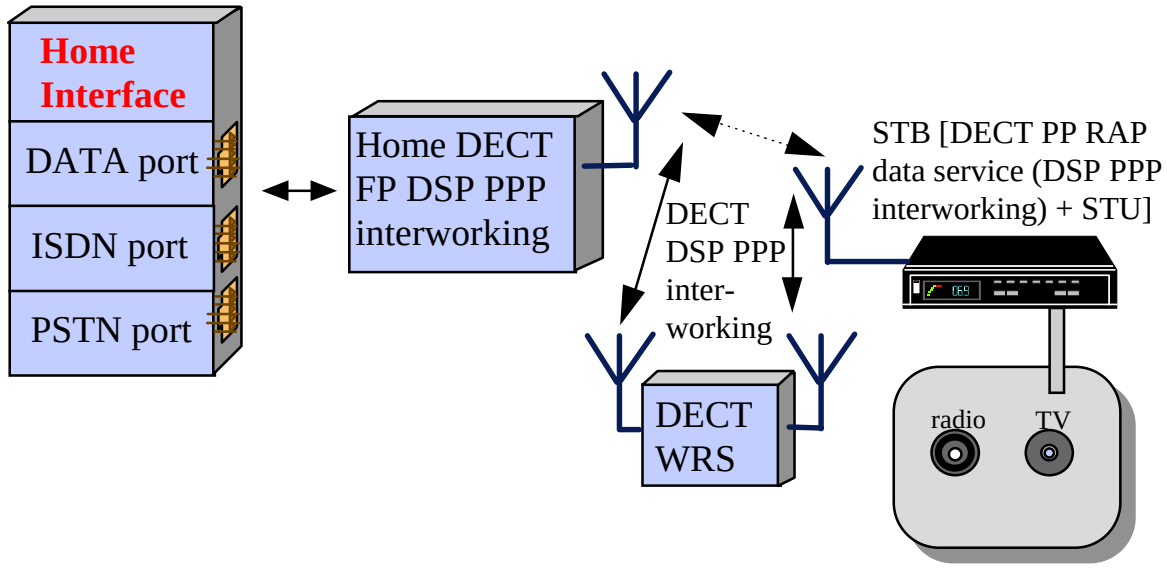


NOTE: A DECT PP, supporting a RAP data service (DSP PPP interworking), is implemented in the STB. The STB communicates either directly with an FP (dashed line) or via a WRS (unbroken line). The WRS can be located internal to the home.

Figure 4: Default implementation of an interaction channel through a DECT infrastructure, external to the home

5.4.2 Recommended DECT profiles when the DECT infrastructure is internal to the home

DECT can be used in the home as a wireless interface to a network. In figure 5, a home DECT FP is connected to a fixed network interface and provides the STB with a wireless interaction channel. The DECT STB implementation is the same as when the DECT FP is external to the home. The DECT PP RAP data service (DSP PPP interworking) terminal should notice that the home FP does not support RAP features, and therefore not use the RAP procedures. This STB implementation should be the default implementations when DECT is used as the interaction channel in DVB.



NOTE: A DECT PP, supporting a RAP data service (DSP PPP interworking), is implemented in the STB. The STB communicates either directly with an FP (dashed line) or via a WRS (unbroken line).

Figure 5: Default implementation of an interaction channel through a DECT infrastructure, internal to the home

5.5 Forced disconnection

In an implementation incorporating connections to the Public Switched Telephone Network (PSTN), the communication on the interaction channel should not block an emergency call attempt. The DECT profiles allow this functionality in several ways. If not implemented, the application should allow a forced disconnection in the case of an emergency call.

Annex A (informative): Basic characteristics of DECT

A.1 DECT introduction

DECT is a general radio access technology that can be used by many different applications to connect to different telecommunication networks.

DECT offers both telephony and data communication services to users within the coverage area. The system is based on a micro-cellular concept that provides low-power radio access between portable parts and DECT fixed parts at ranges up to a few kilometres.

DECT equipment is commercially available.

The basic technical characteristics of DECT are as follows:

Frequency band:	1 880 to 1 900 MHz (extended frequency band is under investigation);
Carriers:	10 × 1 728 MHz;
Carrier multiplex:	TDMA (Time Division Multiple Access), 24 full slots per frame (which can form 12 duplex channels);
Peak transmit power:	250 mW;
Modulation:	GFSK (Gaussian Frequency Shift Keying), BT (Bandwidth Time product) = 0,5;
Frame length:	10 ms;
Basic duplexing:	TDD (Time Division Duplex) using two slots on the same carrier;
Gross bit rate:	1 152 kbit/s per carrier;
Net bit rates:	8 kbit/s B-field (traffic) per half slot (unprotected mode); 6,4 kbit/s B-field (traffic) per half slot (protected mode); 32 kbit/s B-field (traffic) per full slot (unprotected mode); 25,6 kbit/s B-field (traffic) per full slot (protected mode); 80 kbit/s B-field (traffic) per double slot (unprotected mode); 64 kbit/s B-field (traffic) per double slot (protected mode); 6,4 kbit/s A-field (control/signalling) per half slot, slot and double slot.

DECT has features that could be suitable in an interactive DVB system.

DECT can handle a lot of users in a small area (urban and suburban situation) and support a broad range of services.

DECT has algorithms for authentication of both the base station and the terminal as well as a simple encryption scheme DECT Authentication Module ((DAM) card support).

A Wireless Relay Station (WRS) can be used to extend the coverage.

There is no need for traditional frequency planning as DECT uses dynamic channel selection.

In the rest of this annex, more information is provided concerning the main functionality of the DECT standard.

A.2 DECT standard

The structure of the basic DECT standard, see ETS 300 175 parts 1 to 9, is based on the layered principles used in the ISO Open Systems Interconnection (OSI) model. The complete DECT Common Interface (CI) corresponds to the lower 3 layers of the ISO OSI model, but DECT defines 4 layers of protocol. These lower layers differ from the OSI model because the OSI model takes no account of either the uncertainties introduced by using radio transmissions at the physical layer or of the concept of handover.

A structure of four layers is used for the signalling protocols as shown in figure A.1.

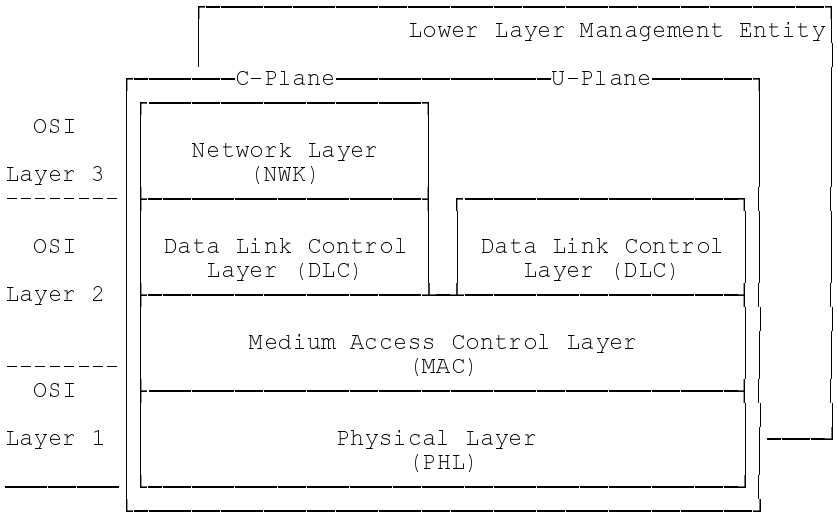


Figure A.1: The DECT layered structure

The top of the NWK layer corresponds to the top of the OSI layer 3. The intermediate boundaries have no OSI equivalent but for ease of understanding an approximate correspondence is given below:

- OSI Layer 1: all of the PHL layer plus part of MAC layer;
- OSI Layer 2: most of MAC layer plus all of DLC;
- OSI Layer 3: all of the NWK layer.

A.2.1 Physical (PHL) layer

The physical layer divides the radio spectrum into the physical channels. This division occurs in two fixed dimensions, frequency and time. The frequency and time division uses Time Division Multiple Access (TDMA) operation on multiple RF carriers. Ten carriers are provided in the frequency band 1 880 MHz to 1 900 MHz.

DECT also provides for possible extensions of the band to meet future demand. On each carrier the TDMA structure defines 24 time slots (when full slots are used) in a 10 ms frame, where each time slot may be used to transmit one self contained packet of data, see figure A.2.

Each transmitted packet contains a synchronization field, together with control information, service information and error control.

Each FP radio end point operates according to a local timing reference and the PHL is the responsible for transmitting packets of data under direct control of the MAC layer. Adjacent FPs may be synchronized. This provides some advantages, particularly in high traffic situations.

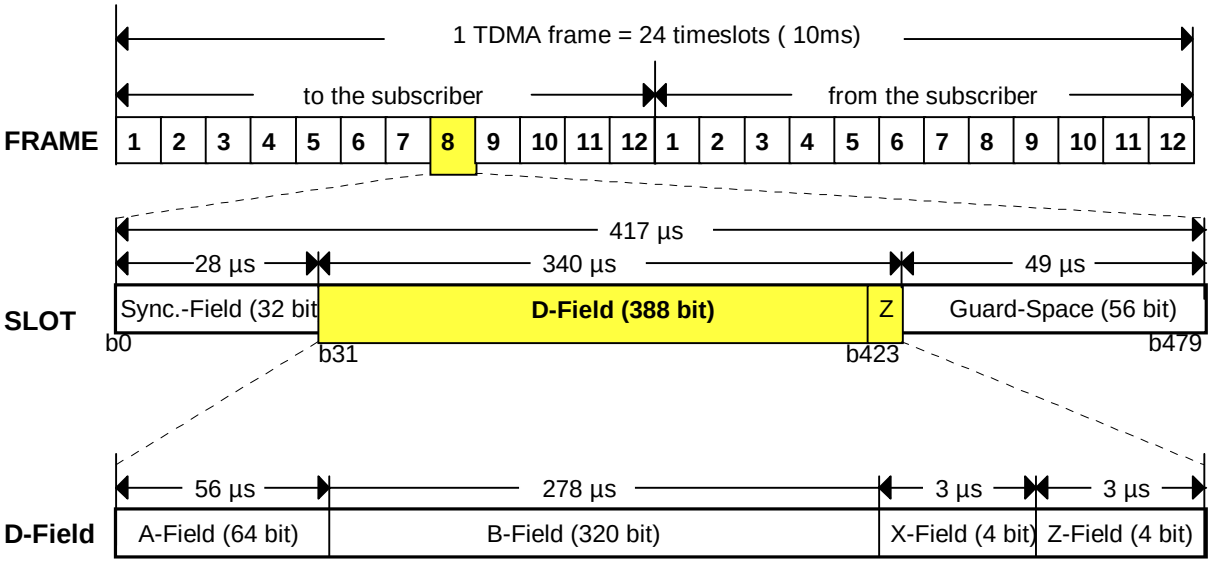


Figure A.2: Example of the full slot framing structure

A.2.2 Medium Access Control (MAC) layer

The MAC layer performs two main functions. Firstly, it selects physical channels, and then establishes and releases connections on those channels. Secondly, it multiplexes (and demultiplexes) control information, together with higher layer information and error control information, into slot-sized packets.

These functions are used to provide three independent services; a broadcast service, a connection oriented service and a connectionless service.

The broadcast service is a special DECT feature: it multiplexes a range of broadcast information into a reserved field (the A-field), and this field appears as part of all active transmissions. The broadcast service is always transmitted in every cell (even in the absence of user traffic) on at least one physical channel. These "beacon" transmissions allow PPs to quickly identify all FPs that are within range, to select one, and to lock to it without requiring any portable transmissions.

A.2.3 Data Link Control (DLC) layer

The DLC layer is concerned with the provision of very reliable data links to the NWK layer. Many of the imperfections of the radio transmissions are already removed by the efforts of the MAC layer, and the DLC layer is designed to work closely with the MAC layer to provide higher levels of data integrity than can be provided by the MAC layer alone.

The DECT layered model separates into two planes of operation at the DLC layer; the C-plane and the U-plane.

The C-plane is common to all applications, and provides very reliable links for the transmission of internal control signalling and limited quantities of user information traffic. Full error control is provided with a balanced Link Access Protocol (LAP).

The U-plane provides a family of alternative services, where each service is optimized to the particular need of a specific type of services. The simplest service is the transparent unprotected service used for speech transmission.

Other services support circuit mode and packet mode data transmission, with varying levels of protection.

A.2.4 Network (NWK) layer

The NWK layer is the main signalling layer of the protocol. It adopts a similar style to the ISDN layer 3 protocol and offers a similar level of functions. The NWK layer operates using an exchange of messages between peer entities.

The basic set of messages supports the establishment, maintenance and release of calls. Additional messages support a range of extended capabilities.

The basic Call Control (CC) provides a circuit switched service selected from one of the range of DLC options.

Other network layer services are Supplementary Services (SS), Connection oriented Message Service (COMS), ConnectionLess Message Service (CLMS) and Mobility Management (MM). These services are arranged as independent entities, and a particular application can be realized using more than one.

The MM is a particularly important group of services. This group contains the procedures that support the special cordless mobility of PPs, for example authentication and location registration.

A.2.5 Lower Layer Management Entity (LLME)

The LLME contains defined procedures that concern more than one layer. Most of these procedures have only local significance, and they are defined in general terms to allow for alternative implementations. The location of some selected LLME procedures is as follows:

MAC layer: creation, maintenance and release of bearers, by activating and deactivating pairs of physical channels; physical channel management, including the choice of free physical channels and the assessment of the quality of received signals.

DLC layer: connection management, which includes the establishment and release of connections in response to NWK layer demands; routeing of C-plane and U-plane data to suitable connections.

NWK layer: service negotiation and mapping.

A.2.6 Inter-Working Units (IWU)

Transport of the information to the end user requires additional layers of protocol. In general, an IWU will be required to provide the necessary interworking functions. This IWU plays a important role in defining the exact service that is provided, e.g. when interconnecting to other networks as the PSTN or the ISDN.

A.3 Profiles

The basic DECT standard defines the operation of the DECT air interface and is very general. To achieve interoperability for specific applications, different profiles have been defined or are in progress of being defined, e.g. the Generic Access Profile (GAP), the DECT/ISDN interworking profiles, the DECT data services profiles, the DECT/GSM (Global System for Mobile communication) interworking profile and the DECT radio in the local loop access profile.

A DECT profile standard is a chosen subset of the DECT CI standard for a specific application. It includes all requirements for interoperability for equipment from different manufacturers. If the CI standard has some ambiguity or lacks some provision, this is clarified or added in the profile standard. All defined features are process mandatory. This means that if a feature is used, it is used in a specified manner. Whether the provision of a feature is mandatory or optional is stated separately for FPs and PPs.

A.3.1 Radio in the local loop Access Profile (RAP)

Radio in the Local Loop (RLL) is also defined in the DECT standard. The RLL Access Profile (RAP) is standardized in two parts (see ETS 300 765-1 [7] and ETS 300 765-2 [3]).

ETS 300 765-1 [7] handles PSTN, analogue leased lines and 64 kbit/s bearer service. It also provides for optional mobility features by supporting GAP PP subscriber terminals and Cordless Terminal Adapter (CTAs) with WRS GAP functionality. For documents relating to RLL (basic telephony via PSTN), see figure A.3.

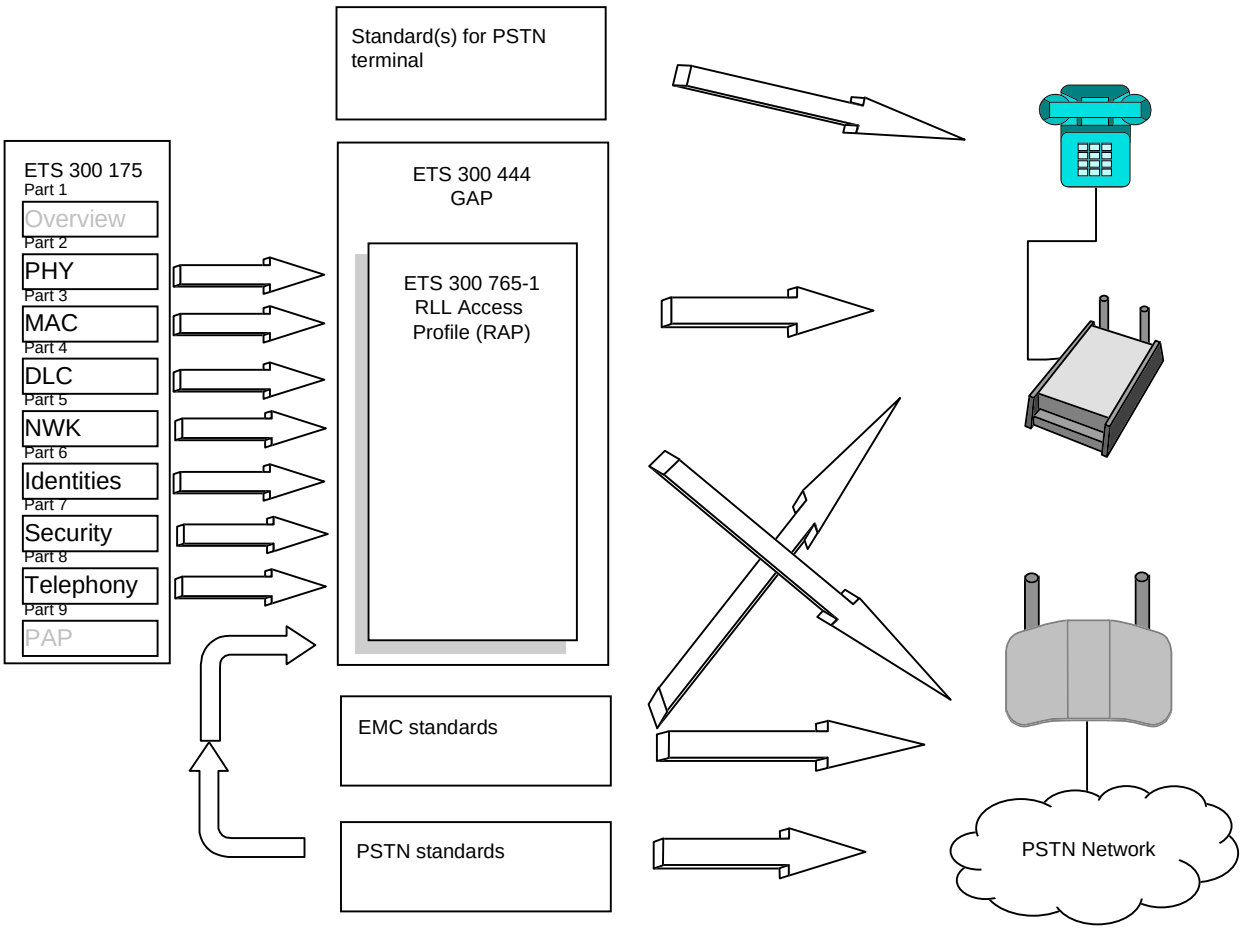


Figure A.3: Documents relating to RLL (basic telephony via PSTN)

The second part contains telecommunication services as offered by ISDN, contemporary non-voice band data services provided through for example a dedicated data port at the CTA, and support of digital leased lines. The provision of the mentioned services is not mandated by the second part of the standard, but if they are provided they shall be provided as defined. For documents relating to RLL (advanced telephony), see figure A.4.

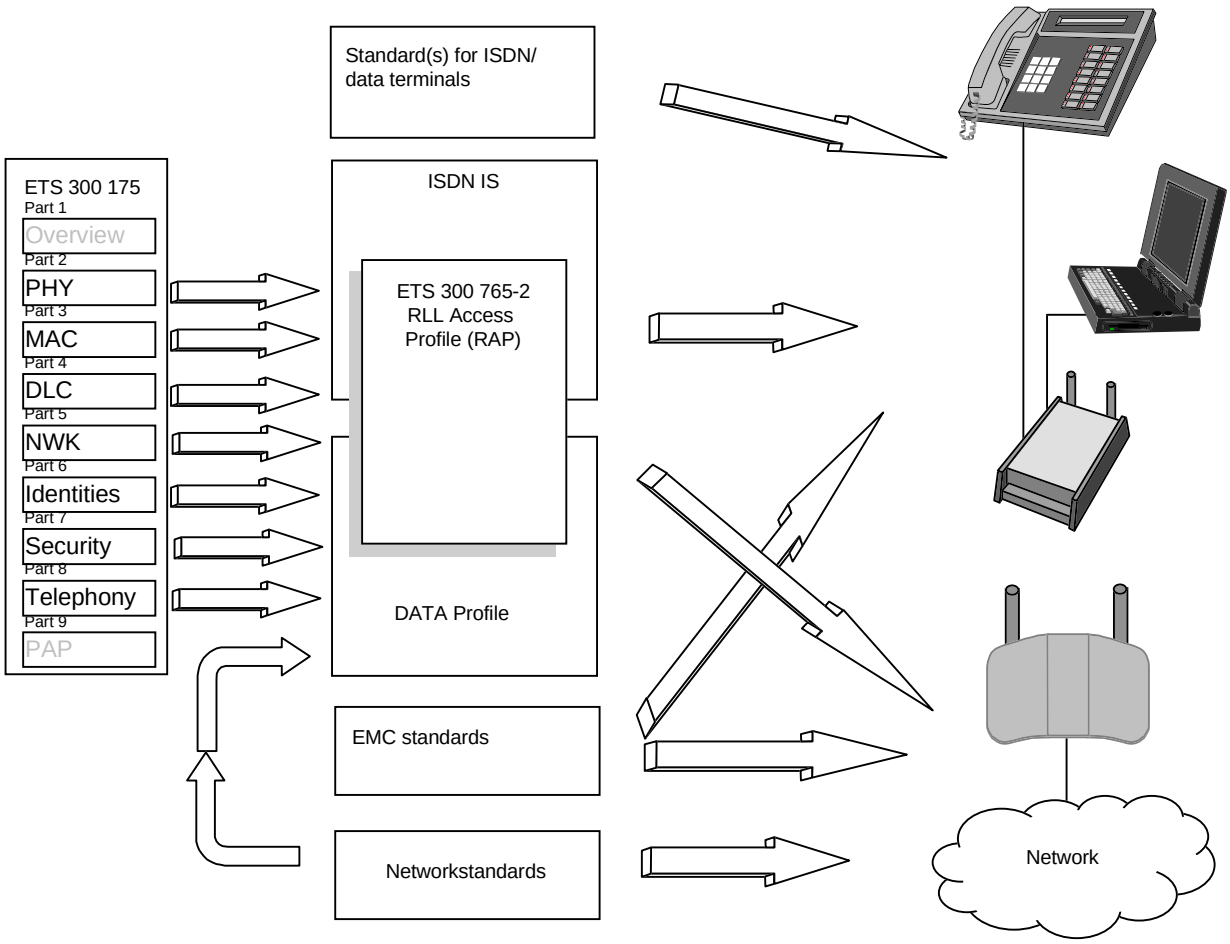


Figure A.4: Documents relating to RLL (advanced telephony)

An objective is to use as much as possible for the RLL from existing profiles: the GAP profile (see ETS 300 444 [8]), DECT-ISDN Intermediate System as defined in DE/RES-03039 [9], the data profiles, e.g. A/B.2 as defined in ETS 300 701 [13] and C.2. Therefore most of the RAP features refer to features defined in other profiles and only the necessary additional features are listed and explained in the RAP document.

The DECT RLL services are examined in detail in ETR 308 [10]. This ETR identifies the basic wired analogue PSTN services that could be replaced by an RLL system, and also identifies that there are market opportunities for much more advanced services than are possible with today's standard telephones.

A.3.2 Data Services Profiles (DSP)

The DECT standard includes data services. The services and relationships of the different profiles are described in ETR 185 [11]. The DSP are a family of profiles which build upon and extend each other, aimed at the general connection of terminals supporting non-voice services to a fixed infrastructure, private and public. The application decides which type to use, due to parameters such as data rate, latency, reliability and power consumption. They all exploit the powerful lower-layer data services of DECT, which are specifically oriented towards LAN, multimedia and serial data capability, but each member of the profile family has been optimized for a different kind of user service. The DSP are divided into six service types and two mobility classes:

- Type A: Low speed frame relay, with a net sustainable throughput of up to 24 kbit/s, optimized for bursty data, low power consumption and low complexity applications such as handportable equipment.

- Type B: High performance frame relay, with a net sustainable throughput of up to 552 kbit/s asymmetrically or 288 kbit/s symmetrically, optimized for high speed and low latency with bursty data. Equipment implementing the type B profile shall inter-operate with type A equipment.

- Type C: Non-transparent connection of data streams requiring Link Access Protocol (LAP) services, optimized for high reliability and low additional complexity. Type C builds upon the services offered by the type A/B profiles. Provision for a packet assembly/disassembly function for asynchronous data streams is also included.
- Type D: Transparent and isochronous connection of synchronous data streams optimized for interworking applications requiring continuous data streams.
- Type E: A short message transfer or paging service which may be unacknowledged or acknowledged.
- Type F: An application profile specifically supporting teleservices, such as fax building upon the services offered by the type A/B and C profiles.
- Class 1: Local area applications with pre-registered terminals.
- Class 2: Roaming applications, both public and private.

A.3.2.1 PPP interworking DSP

The ETSI project DECT approved in June 1997 a DSP for PPP interworking for public enquiry (see EN 301 240 [4]), which builds upon ETS 300 651 [12] and ETS 300 701 [13].

The reasons for the choice of the PPP interworking DSP (see EN 301 240 [4]) for DVB applications are that it offers interworking to PPP, which the DVB network independent protocols (see ETS 300 802 [1]) makes use of, and a reliable and effective handling of data traffic over the air interface. The PPP interworking DSP and ETS 300 802 [1] make references to the PPP specifications. This means that there is a harmonized overlap, but the PPP specifications should only be implemented once. A reliable and effective handling of data traffic is important for DVB applications and results from the fact that the PPP interworking DSP builds upon the C.2 profile (Type C, mobility Class 2).

The PPP interworking DSP specifies an interworking profile for non-voice equipment with roaming mobility, providing 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, ATM, and traditional circuit switched voice band modem and ISDN connection.

The profile is intended for roaming applications and so specifies mobility Class 2. It thus specifies the requirements on the Network layer Call Control and Mobility Management entities to provide full public services. This profile defines the specific requirements on the Physical (PHL), Medium Access Control (MAC), Data Link Control (DLC) and Network (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.

A.4 Wireless Relay Station (WRS)

A WRS is a special DECT unit, that combines elements of both PPs and FPs, that is capable of intelligently relaying DECT radio transmissions to extend the coverage area (see ETS 300 700 [5]). A PP does not distinguish between a WRS and a FP.

A.5 DECT Authentication Module (DAM)

Access rights and other subscription related information can be loaded into a PP over the air, via a connector, or by inserting a chip card. To use a DAM card, a PP has to be provided with the DAM interface.

DAM is a chip card that can be programmed with DECT identities and inserted into a DECT PP with an appropriate DAM card interface. It provides one method by which a DECT system operator can load user identities, access rights information, security parameters (authentication and cipher keys) into a PP.

A DAM card can be used in conjunction with different profiles, i.e. it is not restricted to any particular application.

The DAM card is compatible with the corresponding card in GSM (the Subscriber Identity Module (SIM)).

Annex B (informative): DECT implementation alternatives

Several implementation alternatives are possible when DECT is used as the interaction channel, which are based on the facts that DECT is a flexible solution that can be adapted to several networks and cope with several different services. The DECT standard supports e.g. combined telephony/data implementations. In the default configuration described in clause 5, the RAP data service (DSP PPP interworking) has been chosen. In certain scenarios, other DECT STB implementations can be used.

If a DECT STB is used as an access to the PSTN, the RAP (see ETS 300 765-1 [7]) or the GAP (see ETS 300 444 [8]) can be implemented in the IIM. The GAP implementation offers however a very limited data capability. If a DECT STB is used as an access to ISDN, the RAP (see ETS 300 765-2 [3]) or an ISDN profile can be implemented in the IIM.

In figure B.1, a multi-service scenario is shown where the DVB platform is supported in combination with other platforms. This scenario includes an Network Termination Unit (NTU) in the home. An NTU is a unit which should be considered to be a part of the Interaction Network. A NTU can include a DECT WRS and/or a DECT CTA.

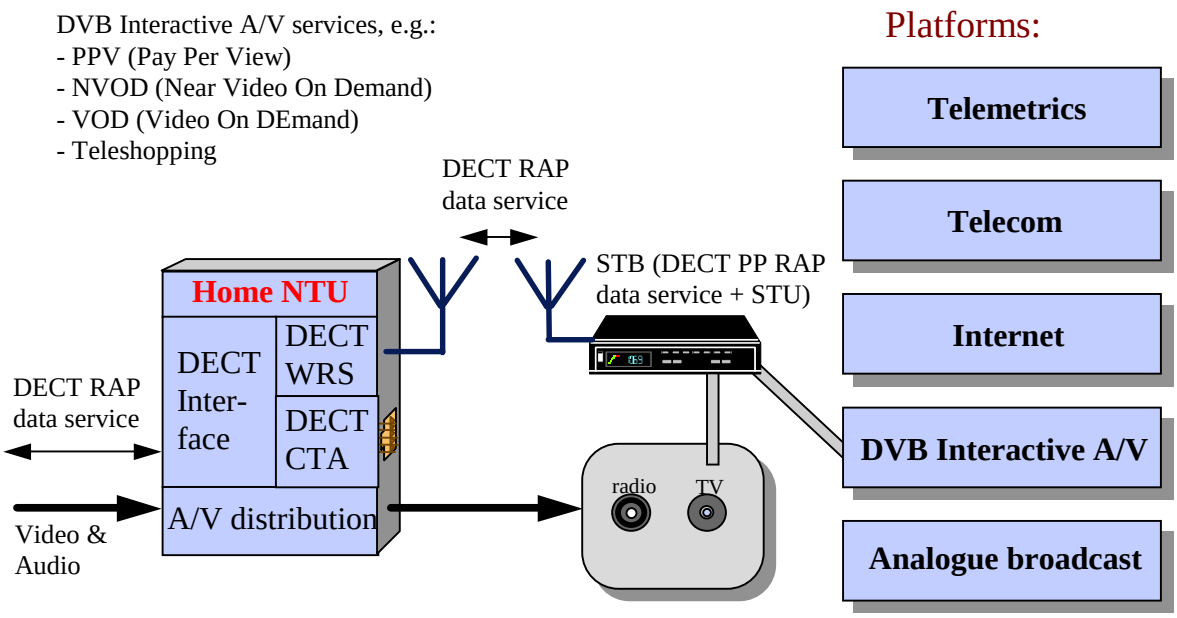


Figure B.1. DECT scenario with multi-service support

A DECT WRS offers the user mobility within the premises, which can be used to provide the STB with a wireless interface when a DECT PP is integrated in the STB.

A DECT Cordless Terminal Adapter (CTA) offers the possibility to connect different kinds of equipment to physical interface ports, e.g. a PSTN port, an ISDN port, a LAN (Ethernet, Token Ring) port or a serial link (RS-232, Universal Serial Bus) port. A DECT CTA port can be used to connect a STB using a physical interface supported by the DECT CTA and the STB. The DECT CTA includes a DECT PP and line interfaces. The IIM is in this case external to the STB and is represented by the DECT CTA.

History

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