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**Digital Enhanced Cordless Telecommunications (DECT);
DECT Multimedia Access Profile (DMAP);
Application Specific Access Profile (ASAP)**

**ETSI**

Reference

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Keywords

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# Contents

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# 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: | 29 March 2002 |
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| Date of withdrawal of any conflicting National Standard (dow): | 31 December 2002 |

# 1    Scope

The scope of the present document is to define a data Application Specific Access Profile (ASAP) intended mainly for home and small office and home office (SOHO) markets combining a selection of DECT data services with DECT voice services offered by Generic Access Profile (GAP), thereby allowing terminals to provide true integrated multimedia services.

The aim of the present document is to guarantee a sufficient level of interoperability and to provide an easy route for development of DECT data applications, with the features of the present document being a common fall-back option available in all compliant to this profile equipment.

# 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 and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]         ETSI EN 300 176-1: "Digital Enhanced Cordless Telecommunications (DECT); Approval test specification; Part 1: Radio".

[2]         ETSI EN 300 176-2: "Digital Enhanced Cordless Telecommunications (DECT); Approval test specification; Part 2: Speech".

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

[4]         ETSI EN 301 649: "Digital Enhanced Cordless Telecommunications (DECT); DECT Packet Radio Services (DPRS)".

[5]         ISO/IEC 8802-3: "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) access method and physical layer specifications".

[6]         ISO/IEC 8802-5 (1998): "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 5: Token ring access method and physical layer specifications".

[7]         ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation conformance statements".

[8]         ETSI EN 300 494: "Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP); Profile Test Specification (PTS)".

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 649 [4] and EN 300 444 [3] apply.

## 3.2 Symbols

The symbols defined in this clause are applied for procedures, features, and services in the present document if not explicitly otherwise stated. The interpretation of status columns in all tables is as follows:

| | |
|---|---|
| M | for mandatory to support (provision mandatory, process mandatory); |
| O | for optional to support (provision optional, process mandatory); |
| O.x | option comprising number of items; |
| I | for out-of-scope (provision optional, process optional) not subject for testing; |
| C | for conditional to support (process mandatory); |
| N/A | for not-applicable (in the given context the specification makes it impossible to use this capability); |
| X | excluded, not allowed. |

Provision mandatory, process mandatory means that the indicated feature service or procedure shall be implemented as described in the present document, and may be subject to testing.

Provision optional, process mandatory means that the indicated feature, service or procedure may be implemented, and if implemented, the feature, service or procedure shall be implemented as described in the present document, and may be subject to testing.

NOTE: The used notation is based on the notation proposed in ISO/IEC 9646-7 [7].

## 3.3 Abbreviations

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

| | |
|---|---|
| ASAP | Application Specific Access Profile |
| C-Plane | Control Plane |
| DECT | Digital Enhanced Cordless Telecommunications |
| DLC | Data Link Control |
| DMAP | DECT Multimedia Access Profile |
| DPRS | DECT Packet Radio Service |
| FP | Fixed Part |
| FREL | Frame RELay |
| FT | Fixed radio Termination |
| FU | Fragmentation U-plane service |
| GAP | Generic Access Profile |
| IP | Internet Protocol |
| LAN | Local Area Network |
| LCE | Link Control Entity |
| LU | LAP-U service |
| MAC | Medium Access Control |
| ME | Management Entity |
| MM | Mobility Management |
| NWK | NetWorK |
| PC | Personal Computer |
| PHL | PHysical Layer |
| PP | Portable Part |
| PPP | Point to Point Protocol |
| PT | Portable radio Termination |
| SOHO | Small Office and Home Office |
| TBR | Technical Basis for Regulation |

| U-plane | User-plane |
| WLAN | Wireless LAN |
| WV.24 | Wireless V.24 |

# 4        Service objectives

At the moment of drafting of the present document the post DECT base standard standardization work has for a long time focused on two major streams of standards: a stream dealing with voice services and a stream dealing with data services. This has reflected the two major spheres of interest of the DECT community:

-    the voice media (e.g. transmission of voice over a wireless telephone equipment); and

-    the data related media (e.g. transmission of data between wireless PCs, peripherals, etc.).

The main objectives for this interest have been the better quality of the transmission, the avoidance of cable installation, the convenience of not being attached to a cable (i.e. the personal mobility), the number of the accessible services, etc.

With the increased user interest into the wireless voice media DECT has proved to be one of the favourite technologies to provide wireless telephone terminals providing a great variety of voice services. The basic general voice services that DECT could offer and the requirements to the terminals in regard to provision of such services are described in EN 300 444 [3], the DECT Generic Access Profile (GAP).

With the constantly increasing usage of computers, and computer-like devices and peripherals, especially at home, the user being highly satisfied with the wireless voice services is turning his attention to the world of the wireless data media. The basic general packet oriented data services that DECT could offer and the requirements to the terminals in regard to provision of such services are described in EN 301 649 [4], the DECT data Packet Radio Service (DPRS) Profile.

This profile focuses on a Multi Media application solution combining voice media and data media services and requirements.

The reference model of this DECT Multi Media application is schematically depicted on the figure below.

Figure 1 shows only the FT side where data and voice are combined, a PT may provide either voice either data or both. When both are provided the PT will have the same structure as the FT from the figure below, otherwise the PT shall contain only voice or data related blocks.

It is not a requirement for this profile to mandate connection of the FT to an external network. For example, in the case of FT providing WLAN, the FT need not be connected to an external network at all. The external data protocols required for support in regard to this profile are indicated in clause 5. External voice protocols that can be supported are at least those required by GAP.
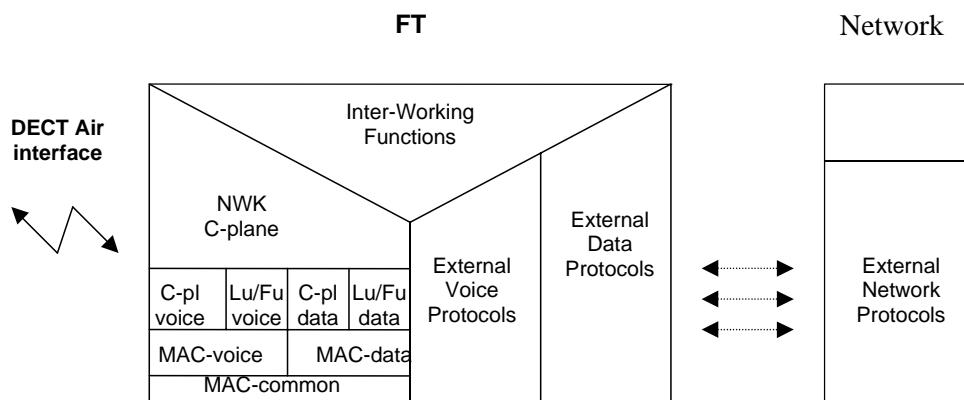


**Figure 1: Reference configuration for DMAP profile**

# 5 Relevant requirements

In any case the requirements of EN 300 176-1 [1] shall apply.

For the Wireless V.24 and Wireless LAN (ISO/IEC 8802-3 [5] (Ethernet)) applications the requirements of the EN 301 649 [4] relevant for Class 2 equipment shall apply with the modifications stated in clause 6 of the present document.

When voice services are provided the requirements of EN 300 176-2 [2], EN 300 444 [3] shall apply as well. The standard EN 300 494 [8] shall apply as well.

If other profiles or interconnection to special networks are implemented other standards as appropriate may apply.

Additional, not covered by other standards requirements are described in clause 6.3 and annexes.

# 6 Profile specific requirements

## 6.1 General

The requirements tables in the following clauses are derived from the EN 301 649 [4] and the status of each particular item in regard to the required support for this profile is explicitly stated when it constitutes change to the status indicated in EN 301 649 [4].

The exact description of a modification of an existing requirement and additional requirements are provided in clause 6.3.

## 6.2 Requirements tables

### 6.2.1 General

The tables listed in this clause define all the protocol elements i.e. features, services, and procedures which are mandatory, optional, or conditional under the provision of another protocol element, or outside the scope of the present document, or in some context not applicable according to the status column designation as defined in clause 3.

All optional elements shall be process mandatory according to the procedures described in the present document.

A terminal that claims being compliant to this profile shall be capable of indicate and proving the indicated support to the application(s) as defined in the following table:

**Table 1: General Application support**

| Application | FP | PP |
|---|---|---|
| Voice | M | O.101 |
| Wireless V.24 | O.100 | O.101 |
| Wireless LAN | O.100 | O.101 |
| Distributed Communication | O | O |
| O.100: At least one of these options shall be supported. | | |
| O.101: At least one of these options shall be supported. | | |

## 6.2.2 NWK layer

In regard to voice the requirements as indicated in EN 300 444 [3], clauses 6, 8 and 13 shall apply.

In regard to the WV.24 and WLAN applications NWK layer requirements the following modifications to EN 301 649 [4], clause 8, shall apply.

**Table 2: NWK features status in regard to EN 301 649 [4]**

| Feature supported | | | | | | |
|---|---|---|---|---|---|---|
| Features | | | Status | | | |
| Item no. | Name of feature | Ref. | PT | | FT | |
| | | | WV.24 | WLAN | WV.24 | WLAN |
| DPRS-N.1 | Outgoing call | 4.3.4 | O.201 | O.201 | O.202 | O.202 |
| DPRS-N.3 | On hook (full release) | 4.3.4 | M | M | O | O |
| DPRS-N.8 | Incoming call | 4.3.4 | O.201 | O.201 | O.202 | O.202 |
| DPRS-N.11 | Location registration | 4.3.4 | M | M | C201 | C201 |
| DPRS-N.12 | On air key allocation | 4.3.4 | M | M | M | M |
| DPRS-N.15 | Alerting | 4.3.4 | C202 | C202 | O | O |
| DPRS-N.20 | Terminate access rights FT initiated | 4.3.4 | M | M | M | M |
| DPRS-N.26 | Authentication of FT | 4.3.4 | O | O | M | M |
| O.201, O.202: At least one of these options shall be supported.<br>C201: IF Fast Setup supported THEN M ELSE O.<br>C202: IF Incoming call THEN M ELSE I. | | | | | | |

**Table 3: NWK feature to procedure mapping in regard to EN 301 649 [4]**

| Feature/Procedure mapping | | | | | | |
|---|---|---|---|---|---|---|
| Feature/Procedure | | | Status | | | |
| Feature Name | Procedure name | Ref. | PT | | FT | |
| | | | WV.24 | WLAN | WV.24 | WLAN |
| DPRS-N.2, Off Hook | | 4.3.4 | M | M | M | M |
| | Outgoing call request | 12.1 | O.301 | O.301 | O.302 | O.302 |
| | Incoming call connection | 12.2 | O.301 | O.301 | O.302 | O.302 |
| O.301, O.302: At least one of these options shall be supported. | | | | | | |

## 6.2.3 DLC Layer

In regard to Voice the requirements as indicated in EN 300 444 [3], clauses 6 and 9, shall apply.

In regard to the WV.24 and WLAN applications the DLC layer requirements as indicated in EN 301 649 [4], clause 7, shall apply.

## 6.2.4 MAC layer

In regard to Voice the requirements as indicated in EN 300 444 [3], clauses 6 and 10, shall apply.

In regard to the WV.24 and WLAN applications the MAC layer requirements as indicated in EN 301 649 [4], clause 6, shall apply.

## 6.2.5 Management Entity (ME)

In regard to the WV.24 and WLAN applications ME requirements the following modifications to EN 301 649 [4], clause 9, shall apply.

Requirements related to DPRS Class 1 terminals are out of scope.

### 6.2.6     Application features

In regard to Voice the requirements as indicated in EN 300 444 [3], clauses 6 and 14, shall apply.

In regard to the WV.24 and WLAN applications the Application Features requirements as defined in EN 301 649 [4], clause 8, shall apply.

### 6.2.7     Distributed communications

In regard to the WV.24 and WLAN applications the requirements as defined in EN 301 649 [4], clause 9, shall apply.

Voice applications may implement these requirements as well.

## 6.3          Profile specific procedures description

### 6.3.1     General

This clause identities differences and additions to the feature/services/procedures definitions/descriptions as specified in EN 301 649 [4] and EN 300 444 [3].

In addition new specific to this profile requirements are provided as well.

### 6.3.2     Management Entity requirements

The requirements as specified in EN 301 649 [4], clause 9 shall apply.

The Management Entity is responsible for the decision as which type of connections, i.e. basic or advanced, should be used for connections that do not need U-plane.

In the case when no U-plane will be needed for a connection, e.g. to transmit only MM messages, the initiating side shall choose whether a basic or an advanced connection should be used depending on the services supported by the initiator and by the receiver. Those type of connection supported by both peers shall be chosen. If the peers support both data and voice, either basic or advanced connection may be chosen and the peer side shall accept the request.

When using the short paging format for connections without U-plane to the FT does not have a possibility to indicate what type of connection the PT should start (for any type of connection without U-plane the code '000' in the LCE header is used). In this case the PT again shall base its decision on the services supported by both peers and if both support voice and data, the FT shall be respectively prepared to handle any type of connection establishment.

If one type of connection has been established for a call without U-plane and one of the sides would like to use the same connection for a follow up call using U-plane, the service change procedure may be used to modify the type of the connection if necessary. The support of service change procedure is optional, therefore release of the connection and starting it on new with the proper type is recommended.

For terminals that support both services, and Incoming calls that need U-plane, the Collective ringing procedure utilizing short paging message shall be used only for voice calls. For data calls, the long paging format shall be used.

### 6.3.3     MAC layer requirements

The requirements as specified in EN 301 649 [4], clause 10 in regard to data services and as specified in EN 300 444 [3], clause 10, in regard to voice services shall apply.

### 6.3.4     DLC layer requirements

The requirements as specified in EN 301 649 [4], clause 11 in regard to data services and as specified in EN 300 444 [3], clause 9, in regard to voice services shall apply.

## 6.3.5 NWK layer requirements

The requirements as specified in EN 301 649 [4], clause 12 in regard to data services and as specified in EN 300 444 [3], clause 8, in regard to voice services shall apply with the following additions.

Only one subscription for both data and voice services is allowed. PTs shall indicate both services in the relevant <<Terminal capabilities>> information element fields as specified in GAP and in DPRS. All requirements as indicated in EN 300 444 [3] and EN 301 649 [4] in regard to terminal subscription shall apply during this only one subscription.

This rule shall apply for any other procedure that includes different messages content in the case for voice and in the case for data, e.g. Location registration.

# Annex A (normative):
# Operating parameters

## A.1    General

In regard to the present document the requirements for operating parameters as specified in EN 301 649 [4], annex A, fully apply with modifications included in this annex.

**Table A.1: Operating parameters requirements in regard to EN 301 649 [4]**

| DPRS classes of terminals | Support |
|---|---|
| Class 2 | M |
| Class 1 | I |

# Annex B (normative):
# Wireless LAN

## B.1    General

In regard to the present document the requirements for the interworking conventions for the Frame Relay (FREL) service as specified in EN 301 649 [4], annex B, fully apply with modifications included in this annex.

**Table B.1: FREL interworking requirements in regard to EN 301 649 [4]**

| External Protocol | Support |
|---|---|
| ISO/IEC 8802-3 [5] (Ethernet) | M |
| ISO/IEC 8802-5 [6] (Token Ring) | I |
| Internet Protocol (IP) | I |
| Point to Point Protocol (PPP) | I |

# Annex C (normative):
# Wireless V.24

## C.1    General

In regard to the present document the requirements for the interworking conventions for the character-oriented service as specified in EN 301 649 [4], annex C, fully apply with modifications included in this annex.

**Table C.1: Character-oriented service requirements in regard to EN 301 649 [4]**

| External Protocol | Support |
|---|---|
| V.24 | M |

# Annex D (normative):
# Distributed communications

In regard to the present document the requirements for the distributed communications as specified in EN 301 649 [4], annex E, fully apply.

# Annex E (informative):
# Bibliography

ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".

ETSI TBR 6: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements".

ETSI TBR 10: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements; Telephony applications".

ISO/IEC 2022 (1994): "Information Technology - Character code structure and extension techniques".

ISO/IEC 8859-1 (1987): "Information technology - 8-bit single-byte coded graphic character sets - Part 1: Latin alphabet No. 1".

ISO/IEC 8073 (1997): "Information technology - Open Systems Interconnection - Protocol for providing the connection-mode transport service".

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

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

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

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

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

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

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

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

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

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

# History

| Document history | | |
|---|---|---|
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