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**Digital Enhanced Cordless Telecommunications (DECT);
New Generation DECT;
Part 4: Light Data Services;
Software Update Over The Air (SUOTA),
content downloading and HTTP based applications**

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Digital Enhanced Cordless Telecommunications (DECT).

The present document is based on ETSI EN 300 175, parts 1 [1] to 8 [8], ETSI EN 300 444 [14] and ETSI EN 301 649 [15]. General attachment requirements and speech attachment requirements are based on ETSI EN 301 406 [11] (replacing ETSI TBR 006 [i.2]) and ETSI EN 300 176-2 [10] (previously covered by ETSI TBR 010 [i.3]). Further details of the DECT system may be found in ETSI TR 101 178 [i.1].

The present document has been developed in accordance to the rules of documenting a profile specification as described in ISO/IEC 9646-6 [i.14].

The information in the present document is believed to be correct at the time of publication. However, DECT standardization is a rapidly changing area, and it is possible that some of the information contained in the present document may become outdated or incomplete within relatively short time-scales.

The present document is part 4 of a multi-part deliverable covering the New Generation DECT as identified below:

- Part 1: "Wideband speech";
- Part 2: "Support of transparent IP packet data";
- Part 3: "Extended wideband speech services";
- Part 4: "Light Data Services; Software Update Over The Air (SUOTA), content downloading and HTTP based applications";**
- Part 5: "Additional feature set nr. 1 for extended wideband speech services".

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1 Scope

The present document specifies a set of functionalities of the New Generation DECT.

The functionalities defined in this profile are based on DECT base standard, ETSI EN 300 175, parts 1 [1] to 8 [8], DECT Generic Access Profile (GAP), ETSI EN 300 444 [14], and DECT Packet Radio Service (DPRS), ETSI EN 301 649 [15].

The New Generation DECT provides the following basic new functionalities:

- wideband voice service;
- packet-mode data service supporting Internet Protocol with efficient spectrum usage and high data rates.

All DECT devices claiming to be compliant with this Application Profile will offer at least the basic services defined as mandatory. In addition to that, optional features can be implemented to offer additional DECT 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

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".
- [2] ETSI EN 300 175-2: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical layer (PHL)".
- [3] ETSI EN 300 175-3: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) layer".
- [4] ETSI EN 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".
- [5] ETSI EN 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".
- [6] ETSI EN 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".
- [7] ETSI EN 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".
- [8] ETSI EN 300 175-8: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech and audio coding and transmission".

- [9] ETSI EN 300 176-1: "Digital Enhanced Cordless Telecommunications (DECT); Test specification; Part 1: Radio".
- [10] ETSI EN 300 176-2: "Digital Enhanced Cordless Telecommunications (DECT); Test specification; Part 2: Audio and speech".
- [11] ETSI EN 301 406: "Digital Enhanced Cordless Telecommunications (DECT); Harmonized EN for Digital Enhanced Cordless Telecommunications (DECT) covering the essential requirements under article 3.2 of the R&TTE Directive; Generic radio".
- [12] Void.
- [13] Void.
- [14] ETSI EN 300 444: "Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP)".
- [15] ETSI EN 301 649: "Digital Enhanced Cordless Telecommunications (DECT); DECT Packet Radio Service (DPRS)".
- [16] ETSI TS 102 527-1: "Digital Enhanced Cordless Telecommunications (DECT); New Generation DECT; Part 1: Wideband Speech".
- [17] ETSI TS 102 527-3: "Digital Enhanced Cordless Telecommunications (DECT); New Generation DECT; Part 3: Extended Wideband Speech Services".
- [18] Void.
- [19] IETF RFC 2616: "Hypertext Transfer Protocol -- HTTP/1.1".
- [20] IETF RFC 1034: "Domain names - concepts and facilities" (STD 13).
- [21] IETF RFC 1035: "Domain names - implementation and specification" (STD 13).
- [22] W3C Recommendation 23 November 2010: "XHTML™ 1.1 - Module-based XHTML - Second Edition".
- NOTE: <http://www.w3.org/TR/2010/REC-xhtml11-20101123/>.
- [23] IETF RFC 3629 (2003): "UTF-8, a transformation format of ISO 10646".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI TR 101 178: "Digital Enhanced Cordless Telecommunications (DECT); A high Level Guide to the DECT Standardization".
- [i.2] ETSI TBR 006: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements".
- [i.3] ETSI TBR 010: "Digital Enhanced Cordless Telecommunications (DECT); General Terminal Attachment Requirements; Telephony Applications".
- [i.4] Void.
- [i.5] The Broadband Forum's (formerly DSL-Forum) Technical Report 069 (TR-069): "Technical Reports for a Customer Premises Equipment (CPE) WAN Management Protocol".
- [i.6] Web pages of the Unicode Consortium.

NOTE: <http://www.unicode.org/>.

- [i.7] IEEE 802.3™: "IEEE Standard for Information technology - Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications" (also known as ISO/IEC 8802-3).
- [i.8] IEEE 802.5™: "IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 5: Token Ring Access Method and Physical Layer Specification" (also known as ISO/IEC 8802-5).
- [i.9] IETF RFC 1661: "The Point-to-Point Protocol (PPP)".
- [i.10] ISO/IEC 8859-1: "Information technology -- 8-bit single-byte coded graphic character sets -- Part 1: Latin alphabet No. 1".
- [i.11] ISO/IEC 8859-2: "Information technology -- 8-bit single-byte coded graphic character sets -- Part 2: Latin alphabet No. 2".
- [i.12] ISO/IEC 8859-15: "Information technology -- 8-bit single-byte coded graphic character sets -- Part 15: Latin alphabet No. 9".
- [i.13] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [i.14] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".
- [i.15] ETSI TS 102 527-5: "Digital Enhanced Cordless Telecommunications (DECT); New Generation DECT; Part 5: Additional feature set nr. 1 for extended wideband speech services".
- [i.16] IETF RFC 791 (1981): "Internet Protocol" (STD 5).
- [i.17] IETF RFC 768 (1980): "User Datagram Protocol" (STD 6).
- [i.18] IETF RFC 793 (1981): "Transmission Control Protocol" (STD 7).
- [i.19] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax" (STD 66).
- NOTE: IETF RFC 3986 obsoletes IETF RFC 2396.
- [i.20] IETF RFC 2817: "Upgrading to TLS within HTTP/1.1".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 301 649 [15] and the following apply:

distributed application: application available to the user on a DECT handset, for which part of the code (behaviour) and/or data is located on the handset (local tier) and part of it is located in the network (remote tier), and more specifically on one or more HTTP servers hosted by-or on behalf of-the FP's vendor

Light Data Services (LDS): basic DECT data services with limited data rate and simplified implementation

software package: set of files sharing the same version identifier, and needed by the PP for installing or upgrading an application or a firmware

NOTE: The software package is often simply referred to as the "software".

software upgrade Downloading Server (DS): site of a PP vendor, or operated on behalf of a PP vendor, from where the software image releases can be downloaded

software upgrade Management Server (MS): site of a PP vendor, or operated on behalf of a PP vendor, where information about new software image releases for handsets, and their locations (on the downloading server) can be found

Software Upgrade Over The Air (SUOTA): capability to upgrade the Software or the Firmware in the PP by means of downloading it from the FP via the DECT air interface

software version identifier: parameter that identifies a software package, including the software package version

NOTE: From PP to FP, this parameter identifies the currently installed software package. From FP to PP it identifies the software package to be installed as a result of the upgrade (and is shared by all the files needed for the upgrade). Details and examples are provided in clause 7.5.5.2.1.

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI EN 301 649 [15] and the following apply:

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

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:

- Provision mandatory, process mandatory means that the indicated feature service or procedure are 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 are 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 [i.13].

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 301 649 [15] and the following apply:

ACS	Auto-Configuration Server
ASCII	American Standard Code for Information Interchange
BER	Bit Error Rate
CISS	Call Independent Supplementary Services
CLIP	Calling Line Identification Presentation
CLSS	ConnectionLess Supplementary Service
CNIP	Calling Name Identification Presentation
D-GMEP	DPRS Generic Media Encapsulation Protocol
DBPSK	Differential Binary Phase Shift Keying
DPRS	DECT Packet Radio Service
DNS	Domain Name Server
DQPSK	Differential Quadrature Phase Shift Keying
DS	Download(ing) Server
EMC	Equipment Manufacturer Code
GAP	Generic Access Profile
GF	higher layer information control channel - a logical channel to the MAC layer
GFSK	Gaussian Frequency-Shift Keying
GMCI	Generic Media Context Identifier
GMEP	See D-GMEP

HTML	HyperText Markup Language
HTTP	HyperText Transfer Protocol
HTTPS	HTTP Secure
HW	HardWare
IE	Information Element
I _{PF}	higher layer Information channel protected, transported multiplexed with signalling in the E+U type slots
I _{PM}	higher layer Information channel (protected) with multi subfield format
I _{PMR}	higher layer Information channel (protected) with multi subfield format and error correction using MOD-2 retransmission mechanism
I _{PQ}	higher layer Information channel (protected) with single B-field
I _{PQR}	higher layer Information channel (protected) with single subfield format, with error correction using MOD-2 retransmission mechanism
LAPC	Link Access Protocol for the Control plane (a DLC layer C-plane protocol entity)
LDS	LightData Services
L _H	Length of HW Version identifier
L _S	Length of SW Version identifier
L _U	Length of URL content in this IE
MOD-2	Modulo 2
MS	Management Server
MT	MAC control channel on A-tail field, or one message on such channel
n	Current requested file number (value of the "fileNumber" parameter in the current "Handset Version indication" command)
N _f	Number of files to be downloaded for a given Software upgrade ($1 \leq N_f \leq 15$)
PD	Protocol Discriminator
QAM	Quadrature Amplitude Modulation
SIPF	higher layer connectionless channel (protected) transported multiplexed with signalling in the E+U type slots
SOAP	Simple Object Access Protocol
SSL	Secure Sockets Layer
SUOTA	Software Upgrade Over The Air
SW	SoftWare
TBR	Technical Basis for Regulation
TCP/IP	Transmission Control Protocol/Internet Protocol
TI	Transaction Identifier
TLS	Transport Layer Security
UIS	User Initiated SUOTA
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTF-8	UCS Transformation Format 8 bits
WAN	Wide Area Network
XHTML	eXtensible HyperText Markup Language
XML	eXtensible Markup Language

4 Description of services

4.1 Services covered by the present document

4.1.1 Introduction

The present document defines a set of what has been named "Light Data Services". Light Data Services are packet mode data services for specific applications, based on DPRS [15], and designed to be implementable using simplified operation modes.

The following Light Data Services are defined by the present document: