

# ETSI TS 102 497 V1.2.1 (2018-12)



**Digital Enhanced Cordless Telecommunications (DECT);  
DECT in the 1 920 MHz to 1 930 MHz Unlicensed Personal  
Communications Services (UPCS) frequency band;  
Specific requirements**

*iTeh STANDARD PREVIEW  
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**Keywords**data, DECT, interworking, multimedia, profile,  
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F-06921 Sophia Antipolis Cedex - 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

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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 DECT Common Interface (CI) specification ETSI EN 300 175, parts 1 [1] to 8 [8], to enable DECT terminals to interwork in the public and private environment.

In addition, for the purpose of interoperability and wherever it is found appropriate, the present document takes into consideration requirements specified in various DECT profiles; reference to relevant profiles is provided whenever appropriate.

General attachment requirements are based on ETSI EN 301 406 [9].

Further details on the DECT system may be found in ETSI TR 101 178 [i.1].

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# Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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# Introduction

Since its introduction in the early 90s the DECT technology has enjoyed world-wide acceptance with most of the countries accepting in full the original DECT requirements specified in the extensive DECT standards set developed and published by ETSI ([www.etsi.org](http://www.etsi.org)). Some regions, due to specific local requirements, have used the DECT standard and modified it to comply with those specific requirements.

In September 2004 the United States (US) Federal Communications Commission (FCC), in FCC 04-219 [11], Sixth Report and Order, Third Memorandum Opinion and Order, and Fifth Memorandum Opinion and Order, introduced modifications to the requirements applicable to the 1 920 MHz to 1 930 MHz Unlicensed Personal Communications Services (UPCS) frequency band. The modification enhanced the existing rules for isochronous UPCS operations in the 1 920 MHz to 1 930 MHz band in order to provide additional flexibility, thereby permitting the deployment of additional unlicensed devices in the band operating on a wider variety of technologies aimed at providing "a wide array of mobile and ancillary fixed communication services to individuals and businesses".

The present document provides the necessary requirements to allow DECT terminals deployment in the US 1 920 MHz to 1 930 MHz UPCS frequency band in accordance to the new rules. Clause 4 provides the basic DECT protocol reference model and indicates the affected functionality areas. Clause 5 specifies the relevant requirements. Annex A provides information on market acceptance and product availability of DECT.

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# 1 Scope

The present document specifies that set of technical requirements for Digital Enhanced Cordless Telecommunications (DECT) Fixed Part (FP) and DECT Portable Part (PP) necessary for the support and provision to the user of various multimedia services in the 1 920 MHz to 1 930 MHz Unlicensed Personal Communication Service (UPCS) frequency band in accordance with the modifications introduced by the United States (US) Federal Communications Commission (FCC) FCC 04-219, Sixth Report and Order, Third Memorandum Opinion and Order, and Fifth Memorandum Opinion and Order [11].

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## 2 References

### 2.1 Normative 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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

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

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 301 406: "Digital Enhanced Cordless Telecommunications (DECT); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".
- [10] Void.
- [11] FCC 04-219: "Sixth Report and Order, Third Memorandum Opinion and Order, and Fifth Memorandum Opinion and Order".
- [12] 47CFR15, FCC Part 15: "Radio Frequency Devices".

- [13] ANSI C63.17:2013: "American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices".
- [14] ANSI C63.4: "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz".
- [15] ANSI/IEEE C95.1™: "Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz".
- [16] Recommendation ITU-R M.1457: "Detailed specifications of the radio interfaces of International Mobile Telecommunications-2000 (IMT-2000)".
- [17] FCC 02-151: "Federal Communications Commission, Second Report and Order, Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices".

## 2.2 Informative 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 referenced document (including any amendments) applies.

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

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".

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## 3 Definition of terms, symbols and abbreviations

### 3.1 Terms

For the purposes of the present document, the terms given in ETSI EN 300 175-1 [1] apply.

### 3.2 Symbols

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

$P_{NTP}$  Maximum transmit power per simultaneously active transceiver

### 3.3 Abbreviations

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

3GPP	3 <sup>rd</sup> Generation Partnership Project
AC	Alternating Current
ANSI	American National Standards Institute
CI	Common Interface
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control protocol layer
DPRS	DECT Packet Radio Service
EN	European Norm
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
F-MMS	Fixed line-Multimedia Messaging Service

FP	Fixed Part
FT	Fixed Termination
GAP	Generic Access Profile
GSM	Global System for Mobile communications
IP	Internet Protocol
ISED	Innovation, Science and Economic Development
ISM	Industrial Scientific Medical
LIC	Least Interfered Channel
LRMS	Low Rate Messaging Service
MAC	Medium Access Control protocol layer
MMS	Multimedia Messaging Service
ODAP	Open Data Access Profile
PCS	Personal Communications Services
PP	Portable Part
ppm	parts per million
RF	Radio Frequency
RSSI	Radio Signal Strength Indicator
SMS	Short Message Service
TCB	Telecommunications Certification Body
TR	Technical Report
TS	Technical Specification
UMTS	Universal Mobile Telecommunications System
UPCS	Unlicensed Personal Communications Services
US	United States
WMTS	Wireless Medical Telemetry Service

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## 4 DECT protocol reference model

Figure 1 shows which of the layers of the DECT protocol stack are affected by the UPCS rules. The layers 2b and above are not affected at all.

The layer 2a (Media Access Control layer) needs only some minor additions.

The layer 1 (Physical layer) is almost identical with standard DECT. For UPCS, the carrier frequencies used are within the band 1 920 MHz to 1 930 MHz and are broadcast by the base station. The maximum allowed transmit power is slightly lower than in standard DECT, but can also be broadcast by the base station, as specified in ETSI EN 300 175-3 [3] ((V1.9.1) or later).



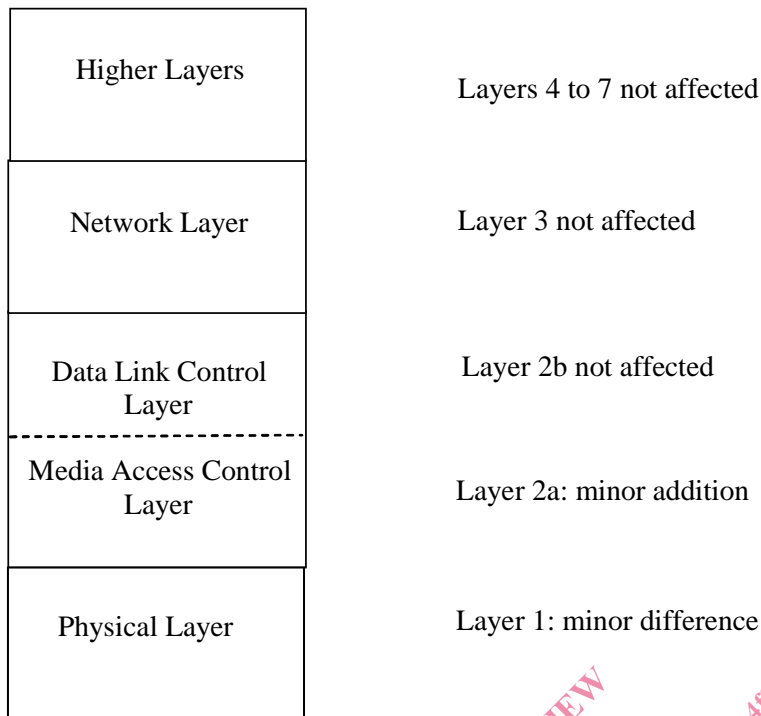


Figure 1: DECT protocol stack

## 5 DECT UPCS 1 920 MHz to 1 930 MHz FCC requirements

### 5.0 General

This clause provides a reference and/or explicitly specifies requirements to DECT terminals/systems implementations to satisfy the specific UPCS 1 920 MHz to 1 930 MHz FCC requirements [12].

NOTE: Test and Certification Procedures for UPCS equipment.

For FCC approval there are two main steps:

- Testing at laboratory accredited to test to ANSI C63.17 [13] and is listed by the FCC as an approved laboratory for UPCS testing; and
- Certification by a TCB (Telecommunication Certification Body).

After testing at an accredited laboratory, the test report and other documents are reviewed by a TCB. Once a determination is made by the TCB that a device meets the FCC rules, an FCC grant is issued by the TCB. For more information on the FCC process or recent interpretations of its rules see: <https://www.fcc.gov/engineering-technology/laboratory-division/general/equipment-authorization>.

The requirements specified below, are only those which have to be changed or added in relation to European DECT requirements [9], in order to comply with the FCC requirements [12] and its interpretation as given by the related test document ANSI C63.17 [13].

The following parameters are, or may be, affected:

- The frequency band.
- RF frequency stability.