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# SIST EN 300 757 V1.2.1:2003

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**Digitalne izboljġane brezvrviļ ne telekomunikacije (DECT) ï Nizkohitrostna storitev sporoļ anja (LRMS), vkljuļ no s storitvijo kratkih sporoļ il (SMS)**

Digital Enhanced Cordless Telecommunications (DECT); Low Rate Messaging Service (LRMS) including Short Messaging Service (SMS)

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*European Standard (Telecommunications series)*

# Digital Enhanced Cordless Telecommunications (DECT); Low Rate Messaging Service (LRMS) including Short Message Service (SMS)

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SIST EN 300 757 V1.2.1:2003



# Contents

Intellectual Property Rights ..... 8
Foreword ..... 8
Introduction ..... 8
1 Scope ..... 9
2 References ..... 10
3 Definitions, symbols and abbreviations ..... 11
3.1 Definitions ..... 11
3.2 Symbols ..... 11
3.3 Abbreviations ..... 11
4 Description of services ..... 13
4.1 General ..... 13
4.2 Low Rate Messaging Service (LRMS) ..... 13
4.2.1 Point-To-Point (PTP) ..... 13
4.2.2 Point-To-Multipoint (PTM) ..... 14
4.3 Short Message Service (SMS) ..... 14
4.4 Service objectives ..... 14
5 Low Rate Messaging Service (LRMS) ..... 15
5.1 Reference configuration ..... 15
5.2 Functional description ..... 16
5.2.1 General ..... 16
5.2.2 Exceptions for Point-To-Multipoint (PTM) service ..... 16
5.2.2.1 MMS relations to outside networks (horizontal model) ..... 16
5.2.2.2 Architecture ..... 16
5.2.2.3 MMS relations to the upper/lower layers (vertical model) ..... 16
5.2.2.4 Phases of the horizontal interactions ..... 16
5.3 Physical layer requirements ..... 17
5.4 MAC layer requirements ..... 17
5.4.1 Requirements Point-To-Point (PTP) service ..... 17
5.4.2 Requirements Point-To-Multipoint (PTM) service ..... 17
5.4.3 Capabilities ..... 18
5.4.3.1 Services ..... 18
5.4.3.2 Protocol parameters ..... 18
5.4.3.3 Messages ..... 19
5.4.3.4 Message parameters ..... 21
5.4.3.5 Functions implemented ..... 22
5.4.3.6 Timer support ..... 23
5.4.3.7 Procedure support ..... 23
5.5 DLC layer requirements ..... 24
5.5.1 Requirements C-plane Point-To-Point (PTP) service ..... 24
5.5.2 Requirements C-plane Point-To-Multipoint (PTM) service ..... 24
5.5.3 Requirements U-plane ..... 25
5.5.4 Capabilities ..... 25
5.5.4.1 C-plane services ..... 25
5.5.4.2 C-plane procedures ..... 25
5.5.4.2.1 Point to point acknowledged operation ..... 25
5.5.4.2.2 Unacknowledged operation ..... 27
5.5.4.2.3 Broadcast operation ..... 27
5.5.4.2.4 Management procedures ..... 27
5.5.4.3 C-plane PDU frame structure ..... 28
5.5.4.4 C-plane messages ..... 29
5.5.4.5 C-plane timers ..... 33
5.5.4.6 C-plane protocol error handling ..... 33
5.6 Network layer requirements ..... 34

iTeh STANDARD PREVIEW
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SIST EN 300 757 V1.2.1:2003
https://standards.iteh.ai/catalog/standards/sist/1e6f6b94-434d-4679-a47d-2a1f2685d30e/sist-en-300-757-v1.2.1-2003

SIST EN 300 757 V1.2.1:2003



5.6.1 Requirements Point-To-Point (PTP) service ... 34
5.6.2 Requirements Point-To-Multipoint (PTM) service ... 34
5.7 Management entity requirements ... 34
5.8 Generic interworking conventions ... 35
5.8.1 MMSP procedures ... 35
5.8.2 Multimedia Messaging Service - Service Access Point (MMS-SAP) ... 35
5.8.3 MMSP primitives Point-To Point (PTM) service ... 35
5.8.3.1 C-MMS primitives ... 35
5.8.3.2 M-MMS primitives ... 36
5.8.3.3 Parameters ... 36
5.8.4 MMSP primitives Point-To-Multipoint Serive ... 36
5.8.4.1 M-MMS primitives ... 36
5.8.4.2 Parameters ... 36

6 MMSP protocol definition ... 36
6.1 General ... 36
6.2 Functional description ... 37
6.2.1 General ... 37
6.2.2 MMS relations to outside networks (horizontal model) ... 37
6.2.3 Architecture ... 38
6.2.3.1 General ... 38
6.2.3.2 MMSP call control part (C-MMS) ... 39
6.2.3.3 MMSP messaging part (M-MMS) ... 39
6.2.4 MMS relations to the upper/lower layers (vertical model) ... 39
6.2.4.1 General ... 39
6.2.4.2 MMS relation to the DECT upper layers ... 40
6.2.4.2.1 General ... 40
6.2.4.2.2 M-MMS ... 40
6.2.4.2.3 C-MMS ... 41
6.2.5 MMS relations to outside networks (vertical and horizontal model) ... 41
6.2.5.1 General ... 41
6.2.5.2 Phases of the horizontal interactions ... 41
6.2.5.2.1 General ... 41
6.2.5.2.2 PP originated outgoing MMS call ... 41
6.2.5.2.3 Example of a typical PP initiated message ... 43
6.2.5.2.4 PP terminated incoming MMS call ... 43
6.3 MMSP protocol messages and procedures ... 44
6.3.1 C-MMS messages and procedures ... 44
6.3.2 M-MMS ... 44
6.3.2.1 Summary of the M-MMS messages ... 44
6.3.2.2 MMS SEND procedure ... 44
6.3.2.2.1 {MMS-SEND} message contents ... 45
6.3.2.2.2 {MMS-SEND-RPY} message contents ... 45
6.3.2.3 MMS SEND-REQ procedure ... 46
6.3.2.3.1 {MMS-SEND-REQ} message contents ... 46
6.3.2.3.2 {MMS-SEND-RPY} message contents ... 47
6.3.2.4 MMS RETRIEVE procedure ... 47
6.3.2.4.1 {MMS-RETRIEVE} message contents ... 48
6.3.2.4.2 {MMS-RETRIEVE-RPY} message contents ... 48
6.3.2.5 MMS RETRIEVE-HDR procedure ... 48
6.3.2.5.1 {MMS-RETRIEVE-HDR} message contents ... 49
6.3.2.5.2 {MMS-RETRIEVE-RPY} message contents ... 49
6.3.2.6 MMS-EXT-CMD procedure ... 50
6.3.2.6.1 {MMS-EXT-CMD} message contents ... 50
6.3.2.6.2 {MMS-EXT-CMD-RPY} message contents ... 51
6.3.2.7 MMS-STATUS procedures ... 51
6.3.2.7.1 {MMS-STATUS} message contents ... 52
6.3.2.7.2 {MMS-STATUS-RPY} message contents ... 52
6.3.2.8 MMS-ESC-CMD procedure ... 52
6.3.2.8.1 {MMS-ESC-CMD} message contents ... 53
6.3.2.8.2 {MMS-ESC-CMD-RPY} message contents ... 53
6.3.2.8.3 Generic interworking conventions for the {MMS-ESC-CMD} command and reply ... 53

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 757 V1.2.1:2003
https://standards.iteh.ai/catalog/standards/sist/e0d48e84-434d-4679-a47d-9d762607d20a/sist-en-300-757-v1-2-1-2003

SIST EN 300 757 V1.2.1:2003



6.3.2.9 Procedures for the use of the MMS-message identifier ..... 54
6.3.2.10 Multi-part message procedures ..... 54
6.3.2.10.1 Multi-part send procedures ..... 54
6.3.2.10.2 Multi-part retrieve procedures ..... 55
6.3.2.11 Unsupported MMS command and IE compatibility procedures ..... 55
6.3.2.11.1 Unsupported MMS commands procedure ..... 55
6.3.2.11.2 Unsupported Information elements procedure ..... 55
6.4 MMSP information elements ..... 55
6.4.1 Summary of M-MMSP information elements ..... 55
6.5 Parameters of M-MMSP service primitives ..... 56
6.5.1 M_MMS_SEND- {req, ind} ..... 56
6.5.2 M_MMS_SEND_REQ- {req, ind} ..... 57
6.5.3 M_MMS_SEND_RPY- {req, ind} ..... 57
6.5.4 M_MMS_RETRIEVE- {req, ind} ..... 58
6.5.5 M_MMS_RETRIEVE_RPY- {req, ind} ..... 58
6.5.6 M_MMS_EXT_CMD- {req, ind} ..... 59
6.5.7 M_MMS_EXT_CMD_RPY- {req, ind} ..... 59
6.5.8 M_MMS_STATUS- {req, ind} ..... 60
6.5.9 M_MMS_STATUS_RPY- {req, ind} ..... 60
6.5.10 M_MMS_ESC_CMD- {req, ind} ..... 61
6.5.11 M_MMS_ESC_CMD_RPY- {req, ind} ..... 61

7 Short Message Service (SMS) ..... 62
7.1 Feature and service definitions ..... 62
7.1.1 Application features ..... 62
7.1.2 MMS features ..... 62
7.1.3 NWK features ..... 62
7.1.4 DLC services ..... 62
7.2 General requirements ..... 62
7.2.1 Reference configurations ..... 62
7.2.2 Protocol architecture ..... 62
7.3 Interoperability requirements ..... 63
7.3.1 Application features ..... 63
7.3.2 MMS features ..... 64
7.3.3 NWK features ..... 64
7.3.4 DLC services ..... 64
7.3.5 MAC services ..... 64
7.3.6 PHL services ..... 64
7.3.7 Application feature to procedure mapping ..... 65
7.3.8 MMS feature to procedure mapping ..... 65
7.3.9 NWK feature to procedure mapping ..... 65
7.3.10 DLC feature to procedure mapping ..... 66
7.4 Application procedures ..... 66
7.4.1 Incoming message storage ..... 66
7.4.2 Message encapsulation ..... 66
7.4.3 General interworking requirements ..... 66
7.4.3.1 Mapping of SMS message transfers onto CC- transactions ..... 66
7.4.3.2 Authentication and ciphering ..... 66
7.4.4 Message/primitive interworking ..... 67
7.5 MMS procedures ..... 67
7.5.1 Messaging send procedure ..... 67
7.6 NWK layer procedure descriptions ..... 69
7.6.1 Summary of outgoing call messages, normal case ..... 69
7.6.2 Outgoing messaging call request ..... 69
7.6.3 Outgoing messaging call connect ..... 69
7.6.4 Summary of incoming call messages, normal case ..... 70
7.6.5 Incoming messaging call request ..... 70
7.6.6 Incoming messaging call connect ..... 71
7.6.7 Message transfer ..... 71
7.6.8 Terminal capability indication ..... 72
7.7 DLC layer procedures ..... 72
7.7.1 Class B link establishment ..... 72

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(standards.iteh.ai)
SIST EN 300 757 V1.2.1:2003
https://standards.iteh.ai/catalog/standards/sist/e0d48e84-434d-4679-a47d-3d762607d20a/sist-en-300-757-v1-2-1-2003

SIST EN 300 757 V1.2.1:2003



7.7.1.1 Associated procedures ..... 74
7.7.1.1.1 Timer <DL.02> management ..... 74
7.7.1.1.2 Re-transmission counter management ..... 74
7.7.1.1.3 Multiple frame operation variables management ..... 74
7.7.1.2 Exceptional cases ..... 75
7.7.1.2.1 Timer <DL.02> expiry ..... 75
7.7.1.2.2 Receipt of a request for link release ..... 75
7.7.1.2.3 Receipt of an indication for a connection release ..... 75
7.7.2 Class B multiple frame operation ..... 75
7.7.2.1 Class B multiple frame operation with segment reassemble ..... 78
7.7.2.2 Associated procedures ..... 78
7.7.2.2.1 Timer <DL.04> management ..... 78
7.7.2.2.2 Re-transmission counter management ..... 78
7.7.2.2.3 Multiple frame operation variables management ..... 78
7.7.2.2.4 Exception handling ..... 78
7.7.2.3 Exceptional cases ..... 78
7.7.2.3.1 Timer <DL.04> expiry ..... 78
7.7.2.3.2 Receipt of a request for link release ..... 78
7.7.2.3.3 Receipt of an indication for a connection release ..... 79
7.7.2.3.4 DLC wants to make a connection handover ..... 79
7.7.3 Class B link release ..... 79
7.7.3.1 Associated procedures ..... 81
7.7.3.1.1 LLME U-plane release ..... 81
7.7.3.1.2 LLME release a MAC connection ..... 81
7.7.3.1.3 Timer <DL.00> management ..... 81
7.7.3.2 Exceptional cases ..... 81
7.7.3.2.1 Timer <DL.00> expiry ..... 81
7.7.3.2.2 Receipt of an indication for a connection release ..... 82
7.7.3.3.3 Collision of identical transmitted and received commands ..... 82
7.7.4 Class B link suspension and resumption ..... 82
7.7.4.1 Unacknowledged suspend ..... 82
7.7.4.2 Class B link resumption ..... 82
7.7.4.3 Associated procedures ..... 82
7.7.4.3.1 Timer <DL.03> management ..... 82
7.7.4.4 Exceptional cases ..... 82
7.7.4.4.1 Timer <DL.03> expiry ..... 82
7.7.4.4.2 Receipt of an indication for a connection release ..... 83
7.7.5 Class B link re-establishment ..... 83
7.7.5.1 Associated procedures ..... 85
7.7.5.1.1 Timer <DL.02> management ..... 85
7.7.5.2 Exceptional cases ..... 85
7.7.5.2.1 Timer <DL.02> expiry ..... 85
7.7.5.2.2 Receipt of a request for link release ..... 85
7.7.5.2.3 Receipt of an indication for a connection release ..... 85
7.7.5.2.4 Collision of identical transmitted and received commands ..... 85
7.8 MAC layer procedures ..... 86
7.9 PHY layer requirements ..... 86
7.10 Management procedures ..... 86
7.10.1 Broadcast attribute management ..... 86

**Annex A (normative): Support of MMSP by the DECT lower layers ..... 87**

A.1 Profile-specific information elements ..... 87
A.1.1 MMS Generic Header information element ..... 87
A.1.2 MMS Object Header information element ..... 91
A.1.3 MMS Extended Header information element ..... 96

A.2 MMSP message implementation ..... 97
A.2.1 General ..... 97
A.2.2 C-MMS primitives mapping rules ..... 97
A.2.2.1 LRMS PTP C-MMS primitives ..... 97
A.2.2.2 LRMS PTM C-MMS primitives ..... 97
A.2.3 M-MMS message mapping rules ..... 97

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 757 V1.2.1:2003
https://standards.iteh.ai/catalog/standards/sist/e0d48e84-434d-4679-a47d-2d7e2e0f7d10a/sist-en-300-757-v1-2-1-2003

SIST EN 300 757 V1.2.1:2003



A.2.3.1 General rules for LRMS PTP ..... 97
A.2.3.2 General rules for LRMS PTM ..... 97
A.2.3.3 Information element mapping rules ..... 98

A.3 Network layer segmentation rules for LRMS PTP ..... 98
A.3.1 Procedure at the sending side ..... 98
A.3.2 Procedure at the receiving side ..... 99

**Annex B (informative): Profile selection coding ..... 100**

B.1 <<BASIC SERVICE>> coding ..... 100

B.2 <<IWU-ATTRIBUTES>> coding ..... 100

B.3 <<CONNECTION ATTRIBUTES>> coding ..... 100

**Annex C (informative): Typical message mapping sequences ..... 102**

C.1 Summary of SMS-RP requirements ..... 102

C.2 Message sequences ..... 102

Bibliography ..... 104

History ..... 105

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 300 757 V1.2.1:2003
https://standards.iteh.ai/catalog/standards/sist/e0d48e84-434d-4679-a47d-3d762607d20a/sist-en-300-757-v1-2-1-2003

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# Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Digital Enhanced Cordless Telecommunications (DECT).

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| Date of adoption of this EN: | 19 January 2001 |
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# Introduction

The present document replaces the former ETS 300 757, known as the E.2 profile, and the former ETS 301 678, known as CTM FP2. It defines profiles for Digital Enhanced Cordless Telecommunications (DECT) systems conforming to EN 300 175 parts 1 [1] to 8 [8]. It is part of a family of profiles aimed at the general connection of terminals supporting non-voice services to a fixed infrastructure, private and public.

SIST EN 300 757 V1.2.1:2003



# 1 Scope

The Low Rate Messaging Service (LRMS), specified in the present document, provides a means for the slow, acknowledged or unacknowledged, transfer of multimedia message objects, including the Short Message Service (SMS). It provides both point-to-point and point-to-multipoint messaging. This service may be used for private and public roaming applications.

The present document defines the requirements on the Physical (PHY), Medium Access Control (MAC), Data Link Control (DLC) and Network (NWK) layers of DECT. The standard also specifies management entity requirements and generic interworking conventions, which ensure the efficient use of the DECT spectrum.

The present document further mandates how to implement a GSM like Short Message Service (SMS), Point to Point (PTP), which uses a sub-set of the Low Rate Messaging Service (LRMS) mentioned before as a bearer service. SMS-PTP includes the following two services:

- SMS Mobile Originated (SMS-MO), for transport of short messages from PT to FT;
- SMS Mobile Terminated (SMS-MT), for transport of short messages from FT to PT.

The Short Message Service, Cell Broadcast is outside the scope of the present document.

In order to facilitate re-use of excising GSM Service Centres, the present document applies the upper GSM protocols up-to and including the GSM SMS-RP protocol. Therefore, interworking functions handling the encapsulation of GSM SMS-RP messages are specified.

The following picture shows the protocols defined in the present document.

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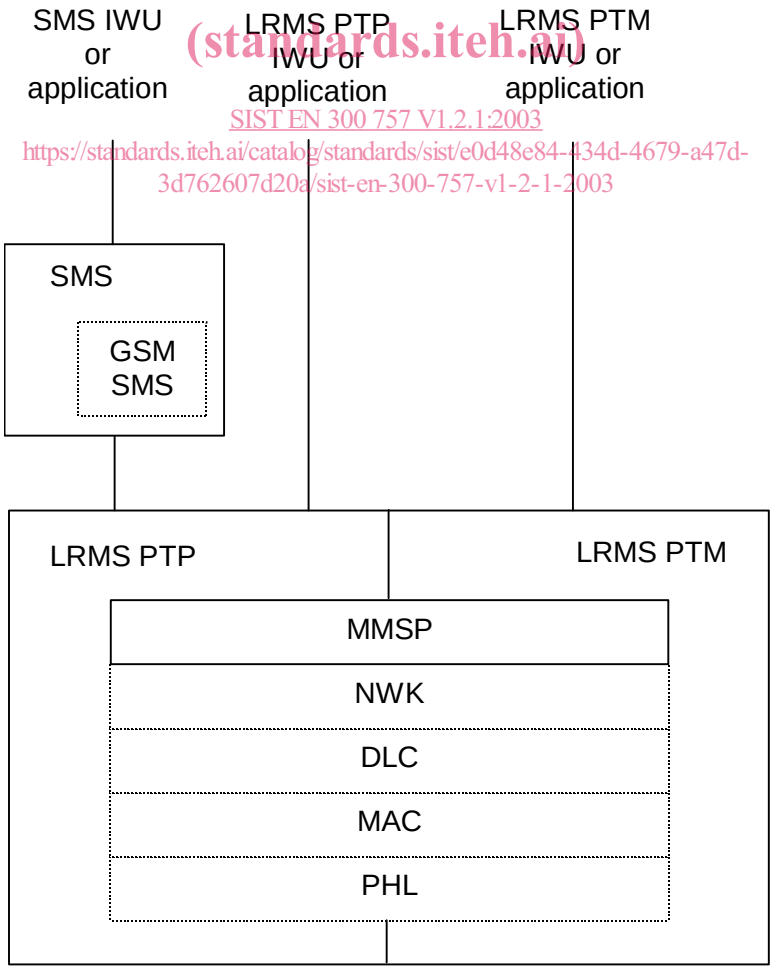

SIST EN 300 757 V1.2.1:2003



The SMS or LRMS applications are outside the scope of the present document. So is the network behind the FP. Any information provided concerning applications or the network behind the FP is provided for informative, descriptive reasons only.

# 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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, 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] 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 coding and transmission".

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

[10] ETSI ETS 300 559: "European digital cellular telecommunications system (Phase 2); Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface (GSM 04.11)".

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# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**multiframe:** repeating sequence of 16 successive Time Division Multiple Access (TDMA) frames, that allows low rate or sporadic information to be multiplexed (e.g. basic system information or paging)

**service class 1:** local area applications, for which terminals are pre-registered off-air with one or more specific fixed parts, and establishment of service and user parameters is therefore implicit, according to a profile-defined list

**service class 2:** private and public roaming applications for which terminals may move between fixed parts within a given domain and for which association of service parameters is explicit at the time of service request

**SMS-SC:** SMS Short Message Center. It is the logical entity able to store and forward short messages

**TDMA frame:** time-division multiplex of 10 ms duration, containing 24 successive full slots. A TDMA frame starts with the first bit period of full slot 0 and ends with the last bit period of full slot 23

## 3.2 Symbols

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

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

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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.

## 3.3 Abbreviations

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

| | |
|---|---|
| ACK | Acknowledgement |
| ADPCM | Adaptive Pulse Code Modulation |
| CC | Call Control |
| $C_F$ | higher layer signalling Channel (Fast) |
| CLMS | Connectionless Message Service |
| C-plane | Control Plane |
| CTM | Cordless Terminal Mobility |
| $C_S$ | higher layer signalling Channel (Slow) |
| DAM | DECT Authentication Module |
| DECT | Digital Enhanced Cordless Telecommunications |
| DLC | Data Link Control |
| FP | Fixed Part |
| FT | Fixed radio Termination |
| FTP | File Transfer Protocol |
| GAP | Generic Access Profile |
| GSM | Global System for Mobile communication |
| HTTP | Hyper Text Transfer Protocol |

SIST EN 300 757 V1.2.1:2003



| | |
|---|---|
| IE | Information Element |
| $I_P$ | higher layer Information channel (Protected) |
| IWF | Interworking Functions |
| IWU | Interworking Unit |
| LAP | Link Access Procedure |
| LAP-C | Link Access Procedure (Control) |
| LCE | Link Control Entity |
| LLN | Logical Link Number (DLC layer) |
| LRMS | Low Rate Messaging Service |
| M | MAC control channel |
| MAC | Medium Access Control |
| MCE | Message Control Entity |
| MMSP | Multimedia Messaging Service Protocol |
| MNCC | Mobile Network Call Control |
| MO | Mobile Originated |
| MT | Mobile Terminated |
| NLF | New Link Flag |
| NWK | Network |
| P | Paging channel |
| PDU | Protocol Data Unit |
| PHL | Physical Layer |
| PHY | Physical |
| PP | Portable Part |
| PT | Portable radio Termination |
| PTM | Point-To-Multipoint |
| PTP | Point-To-Point |
| Q | system information channel |
| RFP | Radio Fixed Part |
| RFPI | Radio Fixed Part Identifier |
| SAP | Service Access Point |
| SAPI | Service Access Point Identifier |
| SC | Service Center |
| SDU | Service Data Unit |
| SIM | Subscriber Identity Module |
| SM | Short Message |
| SM-RP | Short Message Relay Layer Protocol |
| SM-TP | Short Message Transfer Layer Protocol |
| SMS | Short Message Service |
| SMS-MO | SMS Mobile Originated |
| SMS-MT | SMS Mobile Terminated |
| TDMA | Time Division Multiple Access |
| UI | Unnumbered Information (Frame) |
| U-plane | User plane |
| WWW | World Wide Web |

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# 4 Description of services

## 4.1 General

The DECT data profile defined in the present document has been intended for message transfer or paging and is optimized for small SDUs, low PP complexity and ultra-low power consumption. Two service types are defined: Low Rate Messaging Service Point-To-Point (LRMS PTP) which may be unacknowledged or acknowledged used for point-to-point messaging and Low Rate Messaging Service Point-To-Multipoint (LRMS PTM) used for point-to-multipoint messaging. The LRMS PTM is an optional feature while LRMS PTP support is mandatory if this profile is supported.

The LRMS PTP and PTM may co-exist with other profiles and their existence should not have any effect on the functionality of the other existing profiles. That is, the LRMS functionality should have a secondary priority in respect to the profile relations.

The present document also mandates how LRMS PTP is to be used for transfer of GSM like SMS messages.

## 4.2 Low Rate Messaging Service (LRMS)

### 4.2.1 Point-To-Point (PTP)

The objectives of the LRMS PTP profile are as follows:

The LRMS PTP is a generic set of commands, information elements and functionality for file/messaging service. In most of the cases LRMS can be regarded as a DECT internal teleservice that can interwork with the similar services in external networks. In addition LRMS PTP provides means to convey transparently application specific upper layer protocol frames thus facilitating the usage of this profile as a bearer service. It provides a generic file handling/messaging services over the DECT air interface by utilizing the transportation mechanism of the DECT C-plane in the best way possible while offering a general set of functions to the applications using its services. The LRMS procedures can be accessed in a standardized way through a set of primitives. The LRMS point-to-point service may be acknowledge or unacknowledged.

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LRMS provides a compact subset of functions to messaging servers with the advantage that a single terminal with LRMS support can use a wide variety of messaging services with minimum amount of application layer complexity. If a complete set of services is needed an escape sequence has to be used or some other means such as transparent protocol transportation mechanism should be used.

The Multimedia Messaging Service Protocol (MMSP) fulfils these objectives.

MMSP that is used for the provision of LRMS services and functionality is a stateless protocol which defines a set of messages, framing rules and information elements each containing optional and mandatory information fields.

MMSP utilities the services of the DECT Call Control (CC) entity. It could be regarded as a supplementary service type of service that provides signalling/control and application specific information related to the teleservices provided by the DECT data profiles.

The MMSP layer functionality is provided by a set of specific DECT network layer CC information elements. Therefore the MMSP is not from DECT layer viewpoint a separate real protocol layer but a service provided to the application. However, from the application perspective the MMSP can be seen as a protocol layer. Therefore, the MMSP can be regarded as a virtual protocol layer.

The support of MMSP protocol in LRMS PTP is mandatory.

In general the LRMS PTP may receive or send messages during an on-going other profile based call but this requires a separate CC instance.