

ETSI EN 300 175-4 V2.7.1 (2017-11)



Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard available at
<https://standards.iteh.ai/catalog/standards/sis/42549c7-85c7-49af-b5eb-090718ed60e1/etsi-en-300-175-4-v2-7-1>

Reference

REN/DECT-00307-4

KeywordsDECT, DLC, IMT-2000, mobility, radio, TDD,
TDMA**ETSI**650 Route des Lucioles
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

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2017.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	13
Foreword.....	13
Modal verbs terminology.....	13
1 Scope	14
2 References	14
2.1 Normative references	14
2.2 Informative references.....	15
3 Definitions, symbols and abbreviations	16
3.1 Definitions.....	16
3.2 Symbols and abbreviations.....	16
4 Data Link Control (DLC) layer overview	19
4.1 General	19
4.2 C-plane services	20
4.3 U-plane services	20
4.4 Lower Layer Management Entity (LLME)	24
5 C-plane service characteristics	24
5.1 Data link service (LAPC+Lc).....	24
5.1.1 General.....	24
5.1.2 LAPC types of operation	25
5.1.3 Establishment of information transfer modes	25
5.1.3.1 Data Link Identifier (DLI)	25
5.1.3.2 LAPC states.....	25
5.2 Broadcast service (Lb).....	26
6 Frame structures for C-plane services	27
6.1 Data link service frame structure.....	27
6.1.0 Frame format type FA.....	27
6.1.1 General frame structure	27
6.1.2 Lc frame delimiting and transparency	28
6.1.3 Transmission order	28
6.1.4 Routing to logical channels.....	28
6.1.4.0 General	28
6.1.4.1 C _F /CL _F logical channel.....	29
6.1.4.2 C _S /CL _S logical channel.....	29
6.1.5 Invalid frames	29
6.2 Broadcast service frame structure.....	30
6.2.1 Standard frame structure	30
6.2.2 Extended frame structure	30
7 Elements of procedures and formats of fields for C-plane peer-to-peer communication.....	31
7.1 General	31
7.2 Address field formats	31
7.3 Address field parameters	31
7.3.1 RESErved bit (RES).....	31
7.3.2 Command Response (C/R) bit	31
7.3.3 SAPI field	31
7.3.4 New Link Flag (NLF) bit.....	32
7.3.5 LLN-field.....	32
7.3.6 Data Link Identifiers (DLI).....	32
7.4 Control field formats	33
7.5 Control field parameters	33
7.5.1 Poll/Final (P/F) bit	33
7.5.2 Multiple frame operation variables and sequence numbers	33
7.5.2.1 Modulus	33

7.5.2.2	Send state Variable V(S)	33
7.5.2.3	Acknowledge state Variable V(A)	34
7.5.2.4	Send sequence Number N(S)	34
7.5.2.5	Receive state Variable V(R)	34
7.5.2.6	Receive sequence Number N(R)	34
7.5.3	Unacknowledged operation variables and sequence numbers	34
7.5.4	Supervisory and Unnumbered function bits S and U	34
7.6	Length indicator field format	34
7.7	Length indicator field parameters	35
7.7.1	Length indicator field extension bit (N)	35
7.7.2	More data bit (M)	35
7.7.3	Length parameter (L _i)	35
7.7.4	Extended length parameter (L _{JJ})	36
7.7.5	Reserved bit (RES)	36
7.8	Fill field format	36
7.9	Checksum field format	36
7.10	Checksum field parameters	36
7.11	Commands and responses	37
7.11.0	General	37
7.11.1	Information (I) command	38
7.11.2	Receive Ready (RR) command/response	38
7.11.3	Receive Not Ready (RNR) command/response	39
7.11.4	REJect (REJ) command/response	39
7.11.5	Set Asynchronous Balanced Mode (SABM) command	39
7.11.6	Disconnect Mode (DM) response	39
7.11.7	Unnumbered Information (UI) command	39
7.11.8	DISConnect (DISC) command	40
7.11.9	Unnumbered ACK (UA) response	40
8	Primitives	40
8.1	Primitive types	40
8.2	Primitives to the MAC layer (lower layer)	40
8.3	Primitives to the NWK layer (higher layer)	41
8.3.0	General	41
8.3.1	Parameter definitions	41
8.3.2	S-SAP primitives	42
8.3.2.0	List of primitives	42
8.3.2.1	DL_ESTABLISH primitive	42
8.3.2.2	DL_RELEASE primitive	43
8.3.2.3	DL_DATA primitive	43
8.3.2.4	DL_UNIT_DATA primitive	43
8.3.2.5	DL_SUSPEND primitive	43
8.3.2.6	DL_RESUME primitive	44
8.3.2.7	DL_ENC_KEY primitive	44
8.3.2.8	DL_ENCRYPT primitive	44
8.3.2.9	DL_SERVICE_MOD primitive	45
8.3.3	B-SAP primitives	45
8.3.3.0	List of primitives	45
8.3.3.1	DL_BROADCAST primitive	45
8.3.3.2	DL_EXPEDITED primitive	45
8.4	Primitives to the interworking unit	46
8.4.0	General	46
8.4.1	Parameter definitions	46
8.4.2	LU _X -SAP primitives	46
8.4.2.0	List of primitives	46
8.4.2.1	DL_U_DATA primitive	46
8.4.2.2	DL_U_UNIT_DATA primitive	47
8.4.2.3	DL_U_ERROR primitive	47
9	C-plane peer-to-peer procedures	47
9.1	General	47
9.2	Point-to-point acknowledged operation	48

9.2.1	Procedure for the use of the P/F bit	48
9.2.1.1	Class A acknowledged information transfer	48
9.2.1.2	Class B acknowledged information transfer	48
9.2.2	Use of LLN	48
9.2.2.1	Class A operation	48
9.2.2.2	Class B operation	48
9.2.3	Link establishment and information transfer in class A operation.....	49
9.2.3.1	Establishing class A operation	49
9.2.3.2	Class A acknowledged information transfer	49
9.2.3.3	Transmission of class A I-frames	50
9.2.3.4	Reception of class A I-frames	50
9.2.3.5	Receiving acknowledgements	50
9.2.3.6	Waiting for acknowledgement	51
9.2.3.7	Release of class A operation	51
9.2.3.8	Re-establishment of class A operation	51
9.2.4	Establishing class B multiple frame operation.....	52
9.2.4.1	Overview	52
9.2.4.2	Class B multiple frame establishment procedures.....	52
9.2.4.3	Class B LLN assignment procedures	53
9.2.4.3.0	General	53
9.2.4.3.1	PT establishment	54
9.2.4.3.2	FT establishment	54
9.2.5	Link maintenance and information transfer in class B multiple frame operation	54
9.2.5.0	General	54
9.2.5.1	Transmitting I-frames.....	55
9.2.5.2	Receiving I-frames	55
9.2.5.2.0	General	55
9.2.5.2.1	P bit set to 1	55
9.2.5.2.2	P bit set to 0.....	55
9.2.5.3	Sending and receiving acknowledgements.....	56
9.2.5.3.1	Sending acknowledgements	56
9.2.5.3.2	Receiving acknowledgements	56
9.2.5.4	Receiving REJ-frames.....	56
9.2.5.5	Receiving RNR-frames	57
9.2.5.6	LAPC own receiver busy condition.....	58
9.2.5.7	Waiting acknowledgement.....	59
9.2.5.8	Appropriate supervisory frame.....	59
9.2.6	Release of class B multiple frame operation.....	59
9.2.7	Link suspension and resumption.....	60
9.2.7.1	Link suspension.....	60
9.2.7.1.0	General	60
9.2.7.1.1	Class B acknowledged suspend.....	60
9.2.7.1.2	Unacknowledged suspend	61
9.2.7.2	Class B link resumption	62
9.2.7.3	Connection handover	63
9.2.7.3.0	General	63
9.2.7.3.1	Class A connection handover	65
9.2.7.3.2	Class B connection handover	65
9.2.7.3.3	Expiry of connection handover timer	66
9.2.8	Re-establishment of class B multi-frame operation.....	66
9.2.8.1	Criteria for re-establishment.....	66
9.2.8.2	Procedure	66
9.2.9	Exception handling	67
9.2.9.1	General	67
9.2.9.2	Class B exception condition reporting and recovery.....	67
9.2.9.2.0	General	67
9.2.9.2.1	N(S) sequence error	67
9.2.9.2.2	N(R) sequence error	68
9.2.9.2.3	Timer recovery condition	68
9.2.9.2.4	Collision of identical transmitted and received commands	68
9.3	Unacknowledged operation.....	68
9.3.1	Use of LLN for unacknowledged information transfer.....	68

9.3.2	Class U link establishment.....	68
9.3.3	Unacknowledged information transfer.....	68
9.3.3.1	Transmission of unacknowledged information	68
9.3.3.2	Reception of unacknowledged information	68
9.3.4	Unacknowledged release	69
9.4	Broadcast operation	69
9.4.1	Normal operation	69
9.4.1.1	Procedure in the Fixed radio Termination (FT)	69
9.4.1.2	Procedure in the Portable radio Termination (PT)	69
9.4.2	Expedited operation	69
9.4.2.1	Procedure in the Fixed radio Termination (FT)	69
9.4.2.2	Procedure in the Portable radio Termination (PT)	70
9.5	MAC layer interfaces	70
9.5.1	MC-SAP	70
9.5.1.1	C-plane overview	70
9.5.1.2	C-plane service data procedures.....	70
9.5.1.3	U-plane service data	71
9.5.2	MB-SAP	71
9.5.2.0	General.....	71
9.5.2.1	C-plane service data procedures.....	71
9.5.2.2	U-plane service data	72
9.5.3	MA-SAP	72
9.5.3.1	Overview.....	72
9.5.3.2	Service data procedures.....	72
10	Management procedures.....	72
10.1	Lower Layer Management Entity (LLME)	72
10.2	MAC connection management.....	73
10.2.0	General.....	73
10.2.1	MAC connection set-up	73
10.2.2	MAC connection release.....	73
10.2.3	MAC connection modification	74
10.2.4	MAC connection identifiers.....	74
10.2.4.1	Overview.....	74
10.2.4.2	Advanced MAC Connection Identifiers (AMCI).....	75
10.2.4.3	Basic MAC Connection Identifiers (BMCI)	75
10.2.4.4	MAC Connection Endpoint Identifier (MCEI)	75
10.2.5	Selection of logical channel (C _s or C _F).....	75
10.3	DLC C-plane (LAPC) management.....	76
10.3.0	General.....	76
10.3.1	Provision of link signature	76
10.3.2	Routing of connection oriented links	77
10.3.3	Routing of connectionless links	77
10.4	DLC U-plane (LUX) management.....	77
10.4.0	General.....	77
10.4.1	U-plane establishment.....	77
10.4.2	U-plane release	78
10.4.3	U-plane suspend and resume	78
10.5	Connection handover management	78
10.6	Cipherring management.....	79
10.6.1	Cipherring management in cases where the NWK layer executes the cipherring related MM procedure	79
10.6.1.0	General	79
10.6.1.1	Providing a key to the MAC layer	79
10.6.1.2	Starting and stopping the cipherring.....	79
10.6.1.3	Connection handover	79
10.6.2	Cipherring management in cases where the NWK layer does not execute the cipherring related MM procedure	80
10.7	Broadband data link management	80
11	U-plane service characteristics.....	80
11.1	General	80
11.2	LU1 TRansparent UnProtected service (TRUP)	81

11.3	LU2 Frame RELay service (FREL).....	82
11.3.1	General.....	82
11.3.2	Checksum operation	83
11.3.3	Segmentation and transmission class	83
11.3.4	Data transmission.....	84
11.3.4.1	Send side procedure	84
11.3.4.2	Receive side procedure	84
11.4	LU3 Frame SWItching service (FSWI).....	84
11.5	LU4 Forward Error Correction (FEC) service.....	85
11.6	LU5 Basic RATE adaption service (BRAT).....	85
11.6.1	Overview	85
11.6.2	Protected service operation	86
11.6.2.1	General	86
11.6.2.2	Data buffering and initial rate adaptation.....	87
11.6.2.3	Multi-channel set multiplexing	88
11.6.2.4	Segmentation of Multiplexed Data Units (MDU).....	89
11.6.2.5	Frame sequencing and addition of control and fill octets.....	90
11.6.2.6	Frame transmission	91
11.6.3	Unprotected service operation	91
11.6.3.1	General	91
11.6.3.2	Data buffering and initial rate adaption.....	92
11.6.3.3	Multi-channel set multiplexing	92
11.6.3.4	Segmentation of MDUs.....	93
11.6.3.5	Frame transmission	93
11.7	LU6 Secondary RATE adaption (SRAT) service	94
11.7.1	General.....	94
11.8	LU16 ESCape Service (ESC).....	95
11.8.1	General.....	95
11.9	LU7 64 kbit/s data bearer service	95
11.9.1	General.....	95
11.9.2	Physical layer service.....	95
11.9.3	MAC layer service.....	96
11.9.4	DLC layer service	96
11.9.4.1	Architectural model.....	96
11.9.4.1.0	General	96
11.9.4.1.1	Transmit (Tx) frame buffering	96
11.9.4.1.2	Receive (Rx) frame buffering	96
11.9.4.2	Automatic-Repeat-Request (ARQ) and Forward Error Control (FEC).....	97
11.9.4.2.0	General	97
11.9.4.2.1	Control field	98
11.9.4.2.2	Information field.....	100
11.9.4.2.3	ARQ checksum.....	101
11.9.4.3	Procedures for normal operation	101
11.9.4.3.0	General	101
11.9.4.3.1	Establishment and synchronization procedures	101
11.9.4.3.2	Active phase	103
11.9.4.3.3	Release.....	105
11.9.4.4	Exceptional procedures	105
11.9.4.4.0	General	105
11.9.4.4.1	Invalid frame condition	105
11.9.4.4.2	Establishment	105
11.9.4.4.3	Transmitting frames.....	105
11.9.4.4.4	Receiving frames	105
11.9.4.4.5	Sending acknowledgements	105
11.9.4.4.6	Forwarding of received data	105
11.9.4.4.7	N(R) sequence error	106
11.9.4.4.8	N(O) sequence error	106
11.9.4.4.9	N(S) sequence error.....	106
11.9.4.4.10	Format error.....	107
11.9.4.4.11	Abnormal release.....	107
11.9.4.4.12	Implicit reset.....	107
11.9.5	Network layer service	107

11.9.5.1	LCE service	107
11.9.5.2	CC service	107
11.10	LU8 service	107
11.10.0	General.....	107
11.10.1	Physical layer service.....	107
11.10.2	MAC layer service.....	108
11.10.3	DLC layer service	108
11.11	LU9 - Unprotected Rate Adaption for V series Equipment (RAVE) Service	108
11.11.1	Overview	108
11.11.1.0	General	108
11.11.1.1	FU9 frame structure	109
11.11.1.1.1	General frame structure	109
11.11.1.1.2	FU9 buffering procedures.....	109
11.11.1.1.3	Connection handover.....	109
11.11.1.1.4	Transmission order	109
11.11.2	Alignment signal management	110
11.11.2.1	General	110
11.11.2.2	Procedures	110
11.11.3	V.24 Signalling	111
11.11.3.1	General	111
11.11.3.2	Transmitter procedures.....	112
11.11.3.3	Receiver procedures	112
11.11.4	Rate Coding	112
11.11.4.1	General	112
11.11.4.2	Transmitter procedures.....	113
11.11.4.3	Receiver procedures	113
11.11.5	DECT Independent Clocking (DIC)	114
11.11.5.1	General	114
11.11.5.2	Measurement of phase differences	114
11.11.5.3	Compensation control rules	115
11.11.5.3.1	General	115
11.11.5.3.2	Optimizing error resilience.....	115
11.11.6	Information field.....	116
11.11.6.1	General	116
11.11.6.2	User data rates.....	116
11.11.6.3	Information field filling rule	116
11.11.7	Primitives.....	117
11.12	LU10 Enhanced Frame RELay (EFREL) service	118
11.12.1	General.....	118
11.12.2	Segmentation and transmission class.....	119
11.12.3	Data transmission.....	119
11.12.3.1	Send side procedures.....	119
11.12.3.1.0	General	119
11.12.3.1.1	"Early transmission" option.....	120
11.12.3.2	Receive side procedure	120
11.12.3.2.0	General	120
11.12.3.2.1	Standard SDU delivery mode	120
11.12.3.2.2	In-sequence SDU delivery mode	120
11.12.3.2.3	PDU-in-sequence delivery mode.....	121
11.12.3.2.4	PDU-as-received delivery mode.....	121
11.12.4	SDU boundaries definition	121
11.12.4.0	General	121
11.12.4.1	Infinite SDU mode	121
11.12.5	Use over C/L downlink channels.....	122
11.12.5.0	General	122
11.12.5.1	Use over C/L downlink channels: unicast mode	122
11.12.5.2	Use over C/L downlink channels: multicast mode	122
11.12.5.2.0	General	122
11.12.5.2.1	DLC acknowledgement in multicast mode.....	122
11.13	LU11 service	122
11.13.0	General.....	122
11.13.1	Physical layer service.....	122

11.13.2	MAC layer service	122
11.13.3	DLC layer service	123
11.14	LU12 UNprotected Framed service (UNF)	123
11.14.1	General.....	123
11.14.2	DLC layer service	123
11.14.2.0	General	123
11.14.2.1	Segmentation.....	124
11.14.2.2	Data transmission.....	125
11.14.2.2.1	Send side procedure.....	125
11.14.2.2.2	Receive side procedure.....	125
11.15	LU13 Enhanced Frame RELay service with CRC (EFREL-CRC)	126
11.15.1	General.....	126
11.15.2	SDU CRC generation.....	126
11.15.3	Use over C/L downlink channels	126
11.15.3.0	General	126
11.15.3.1	Use over C/L downlink channels: unicast mode	127
11.15.3.2	Use over C/L downlink channels: multicast mode	127
11.15.3.2.0	General	127
11.15.3.2.1	DLC acknowledgement in multicast mode.....	127
11.16	LU14 Enhanced Frame RELay service with CCM (EFREL-CCM)	127
11.16.1	General.....	127
11.16.2	LU14 SDU structure	127
11.16.2.0	General	127
11.16.2.1	SDU sizes	128
11.16.2.2	Security model	128
11.16.2.3	SDU processing.....	129
11.16.2.4	Limitations	129
11.16.2.5	CCM sequence numbers	129
11.16.2.6	CCM control procedures	129
11.16.3	Use over C/L downlink channels	130
11.16.3.0	General	130
11.16.3.1	Use over C/L downlink channels: unicast mode	130
11.16.3.2	Use over C/L downlink channels: multicast mode	130
11.16.3.2.0	General	130
11.16.3.2.1	DLC acknowledgement in multicast mode.....	130
12	Frame structures for U-plane services.....	130
12.1	General	130
12.2	FU1 frame structure.....	131
12.2.1	General frame structure	131
12.2.2	FU1 buffering procedures	132
12.2.3	Minimum delay (speech) operation	133
12.2.4	Connection handover	133
12.2.5	Transmission order	133
12.3	FU2 frame structure.....	133
12.3.1	General frame structure	133
12.3.2	FU2 buffering procedures	134
12.3.3	Connection handover	134
12.3.4	Transmission order	134
12.4	FU3 frame structure.....	134
12.4.1	General frame structure	134
12.4.2	FU3 buffering procedures	135
12.4.3	Connection handover	136
12.4.4	Transmission order	136
12.5	FU4 frame structure.....	136
12.5.1	General frame structure	136
12.5.2	FU4 buffering procedures	137
12.5.3	Connection handover	137
12.5.4	Transmission order	137
12.6	FU5 frame structure.....	137
12.6.1	General frame structure	137
12.6.2	FU5 buffering procedures	138

12.6.3	Connection handover	139
12.6.4	Transmission order	139
12.7	FU6 frame structure.....	139
12.7.1	General frame structure	139
12.7.2	FU6 buffering procedures.....	140
12.7.3	Connection handover	140
12.7.4	Transmission order	140
12.8	FU7 frame structure.....	140
12.9	FU8 frame structure.....	140
12.10	FU9 frame structure.....	140
12.11	FU10 frame structure.....	141
12.11.1	General frame structure	141
12.11.1.0	General	141
12.11.1.1	Specific for MAC service I_{PK}	143
12.11.2	Transmission of FU10c and FU10d frames	144
12.11.2.0	General	144
12.11.2.1	Insertion of the FU10c frame in an FU10a frame of the opposite link.....	144
12.11.2.2	Transmission of the F10c frame using the G_F channel.....	144
12.11.2.3	Insertion of the FU10d frame in an FU10a frame of the opposite link	145
12.11.2.4	Transmission of the FU10d frame using the G_{FA} channel.....	145
12.11.3	FU10 buffering procedures	145
12.11.4	Connection handover	145
12.11.5	Transmission order	145
12.12	FU12 frame structure.....	146
12.12.1	General frame structure	146
12.12.2	FU12 buffering procedures	146
12.12.3	Connection handover	147
12.12.4	Transmission order	147
13	Elements of procedures and formats of fields for U-plane peer-to-peer communication	147
13.1	General	147
13.2	Address elements.....	147
13.2.1	Address field format	147
13.2.2	Address field parameters	148
13.3	Length indicator elements	148
13.3.1	Length indicator field format	148
13.3.1.1	Length indicator field format for all services except LU10	148
13.3.1.2	Length indicator field format for service LU10	148
13.3.2	Length indicator field parameters	149
13.3.2.1	Length indicator field parameters for all services except LU10.....	149
13.3.2.2	Length indicator field parameters for LU10 service	150
13.3.2.2.0	General	150
13.3.2.2.1	Meaning of the more (M) bit	152
13.4	Sequence number elements	153
13.4.1	Send sequence number format	153
13.4.2	Send sequence number parameters	153
13.4.3	Receive sequence number format	153
13.4.4	Receive sequence number parameters	154
13.5	Fill elements - Fill field format	154
14	U-plane peer-to-peer procedures	154
14.1	General	154
14.2	Frame transmission principles	154
14.2.1	Sequence numbering.....	154
14.2.2	Acknowledgements.....	155
14.2.2.1	Sending acknowledgements	155
14.2.2.2	Receiving acknowledgements	155
14.2.3	Transmission classes.....	155
14.2.3.0	General	155
14.2.3.1	Class 0: No LU_X retransmission or sequencing.....	155
14.2.3.2	Class 1: no LU_X retransmission.....	156
14.2.3.2.0	General	156

14.2.3.2.1	Class 1: use over C/L downlink channels.....	156
14.2.3.3	Class 2: variable throughput, limited delay LU _X retransmission.....	156
14.2.3.4	Class 3: fixed throughput LU _X retransmission.....	157
14.2.4	Operation parameter negotiation.....	157
14.3	Frame transmission procedures.....	157
14.3.1	General.....	157
14.3.2	Class 0 procedures.....	157
14.3.2.0	General.....	157
14.3.2.1	Sending side procedure.....	158
14.3.2.2	Receiving side procedure.....	158
14.3.3	Class 1 procedures.....	158
14.3.3.0	General.....	158
14.3.3.1	Sending side procedure.....	158
14.3.3.2	Receiving side procedure.....	159
14.3.4	Class 2 procedures.....	159
14.3.4.0	General.....	159
14.3.4.1	Sending side procedure.....	159
14.3.4.1.0	General.....	159
14.3.4.1.1	Synchronization message sending side procedure (LU10).....	161
14.3.4.1.2	Tx side end-of-activity rule.....	161
14.3.4.1.3	Abnormal SDU termination/abort signal (LU10 only).....	162
14.3.4.1.4	Retransmission procedure.....	163
14.3.4.2	Receiving side procedure.....	163
14.3.4.2.0	General.....	163
14.3.4.2.1	Acknowledgement procedure.....	163
14.3.4.2.2	Rx side end-of-activity rule.....	165
14.3.4.2.3	Retransmission request procedure.....	165
14.3.4.2.4	SDU delivery procedure.....	166
14.3.4.2.5	Synchronization message receiver side procedure (LU10).....	166
14.3.4.2.6	Reception of an abnormal SDU termination/abort signal (LU10).....	167
14.3.5	Class 3 procedures.....	167
14.3.5.0	General.....	167
14.3.5.1	Sending side procedure.....	167
14.3.5.2	Receiving side procedure.....	168
Annex A (normative): System parameters.....		170
A.1	LAPC timer values.....	170
A.2	U-plane timer values.....	171
A.3	Constants.....	171
A.3.1	Retransmission counter (N250).....	171
A.3.2	Maximum number of CHO attempts (N251).....	171
Annex B (normative): Checksum algorithms.....		172
B.1	Arithmetic conventions.....	172
B.2	Coding algorithm.....	172
B.3	Decoding algorithm.....	172
B.4	Some examples.....	173
Annex C (informative): MAC connection states.....		174
Annex D (normative): Mapping of agreed channel rates to MCS sizes.....		175
D.0	General.....	175
D.1	Protected class operation.....	175
D.2	Unprotected class operation.....	176
Annex E (normative): LU12 applications.....		177

E.1	G.729.1 over 32 kbit/s channel.....	177
E.1.0	General	177
E.1.1	G.729.1 payload format.....	177
E.1.1.0	General.....	177
E.1.1.1	G.729.1 payload header coding	178
E.1.2	Operations	180
E.1.2.1	Encoder bit rate.....	180
E.1.2.2	Protection against random errors	180
Annex F (informative):	Bibliography.....	181
Annex G (informative):	Change history	182
History		183

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/425a69c7-85c7-49af-b5eb-090718ed60e1/etsi-en-300-175-4-v2.7.1-2017-11>

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Digital Enhanced Cordless Telecommunications (DECT).

The present document is part 4 of a multi-part deliverable ([1] to [8]). Full details of the entire series can be found in part 1 [1].

Further details of the DECT system may be found in ETSI TR 101 178 [i.1] and ETSI ETR 043 [i.2].

National transposition dates	
Date of adoption of this EN:	25 September 2017
Date of latest announcement of this EN (doa):	31 December 2017
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2018
Date of withdrawal of any conflicting National Standard (dow):	30 June 2019

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.