Draft ETSI EN 301 649 V2.3.0 (2014-11)

Digital Enhanced Cordless Telecommunications (DECT); DECT Packet Radio Service (DPRS)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/1a5e403-7024-420a-9e4a-60ebf46acd93/etsi-en-301-649-v2.3.0-2015-03

Reference
REN/DECT-00305

Keywords
access, data, DECT, DPRS, frame relay,
IMT-2000, internet, interoperability, interworking,
IP, IPv6, LAN, mobility, multimedia, packet mode,
profile, radio, synchronization, 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

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/3ee03-7024-
210-9e4a-ef46ac03/etsi-en-301-649-v2.3.1-2015-03

Important notice

The present document can be downloaded from:
http://www.etsi.org

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
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

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.

© European Telecommunications Standards Institute 2014.
All rights reserved.

DECT™, **PLUGTESTS**™, **UMTS**™ and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE**™ are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.
GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights 15
Foreword 15
Modal verbs terminology 15
1 Scope 16
2 References 16
2.1 Normative references 17
2.2 Informative references 18
3 Definitions, symbols and abbreviations 19
3.1 Definitions 19
3.2 Symbols 20
3.3 Abbreviations 21
4 Description of services 24
4.1 The DECT Packet Radio Service (DPRS) 24
4.1.1 Service objectives 24
4.1.2 Characteristics of the DECT packet data service 25
4.1.3 Performance Objectives 26
4.1.4 DPRS U-plane Services 26
4.1.5 DPRS operation modes (Classes) 27
4.1.6 DPRS System Categories 27
4.2 Protocol architecture 28
4.2.1 Reference configuration for Internet Protocol and LANs 29
4.2.1.1 Reference configuration for Internet Protocol 29
4.2.1.2 Reference configuration for IEEE 802.3 [13] 30
4.3 Service and feature definitions 30
4.3.1 PHL service definitions 31
4.3.2 MAC service definitions 31
4.3.3 DLC service definitions 33
4.3.4 NWK feature definitions 34
4.3.5 Application service definitions 36
4.3.6 Distributed Communication 36
4.3.7 Management Entity 36
4.3.8 Call Control (CC) and Mobility Management (MM) Service Class 37
4.3.9 U-plane Service and Interworking type 37
4.3.10 DPRS System Categories 37
4.4 General Class/Service/Interworking support 38
4.5 System categories 38
4.5.1 Mapping between DPRS categories and features/services 38
4.5.2 Supported data rates for equipment declaring compliance to a data category 40
4.5.3 Indication of compliance with a data category 42
5 PHL requirements 43
5.1 Physical Layer services 43
5.2 Modulation schemes 43
5.3 PHL service to procedure mapping 44
5.4 PHL layer procedures 44
5.4.1 General radio requirements 44
5.4.2 Minimum Normal Transmit Power (NTP) 44
5.4.3 Radio receiver sensitivity 45
5.4.4 Z-field 45
5.4.5 Sliding collision detection 45
5.4.6 Physical channel availability 45
5.4.7 Synchronization window 45
5.4.8 Power management 45
5.4.9 Fast hopping radio 45

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f1aeed03-7024-420a-9e4a-60eb640acd93/etsi-en-301-649-v2.3.1-2015-03

6 MAC layer requirements 46
6.1 MAC services 46
6.2 MAC service to procedure mapping 47
7 DLC-layer requirements 52
7.1 DLC services 52
7.2 DLC feature to procedure mapping 52
8 NWK layer requirements 53
8.1 NWK features 54
8.2 NWK feature to procedure mapping 55
8.3 Application features 59
8.4 Application feature to procedure mapping 60
8.5 Distributed Communications 60
8.5.1 Distributed Communications features 60
8.6 Distributed Communications feature to procedure mapping 60
9 Management Entity Requirements 61
9.1 Introduction 61
9.1.1 Management Entity (ME) operation modes 61
9.1.2 Management Entity (ME) mode to procedures mapping 62
9.2 Description of the DPRS operation principles 62
9.2.1 General 62
9.2.2 Service class 1 63
9.2.3 Service class 2 63
9.2.4 Service class 3 63
9.2.5 Service class 4 63
9.3 Resource and physical connection management for Class 1 and Class 2 systems 64
9.3.1 Requirements applicable to the Fixed Part (FP) 64
9.3.1.1 Conditions for resumption and management procedures 64
9.3.1.1.1 General 64
9.3.1.1.2 ME procedures for FT initiated connection resumption 64
9.3.1.2 Connection Suspension conditions 66
9.3.1.2.1 General 66
9.3.1.2.2 Connection suspension due to no data activity 66
9.3.1.2.3 Connection suspension due to violation of the minimum number of bearers (MAC Bandwidth command) 66
9.3.1.2.4 Connection suspension by loss of all received bearers 66
9.3.1.2.5 Activation of Fast Scan mode and/or high duty cycle paging detection after Connection suspension 67
9.3.1.3 Conditions for Bandwidth modification 67
9.3.1.3.1 General 67
9.3.2 Requirements applicable to the Portable Part (PP) 67
9.3.2.1 Conditions for connection resumption 67
9.3.2.1.1 Procedure for PT initiated Connection resumption 68
9.3.2.1.2 "RFP-busy-for-data" flag 68
9.3.2.1.3 Waiting time for collision avoidance after deactivation of "RFP-busy-for-data" flag 68
9.3.2.1.4 Bandwidth after resumption 68
9.3.2.1.5 Resumption rejection by the FT 68
9.3.2.2 Conditions for Connection Suspension 68
9.3.2.2.1 General 68
9.3.2.2.2 Connection suspension due to no data activity 69
9.3.2.2.3 Connection suspension due to violation of the minimum number of bearers (MAC Bandwidth command) 69
9.3.2.2.4 Connection suspension by loss of all received bearers 69
9.3.2.2.5 Activation of fast scan mode after Connection suspension 69
9.3.2.3 Conditions for Bandwidth modification 69
9.3.2.3.1 General 69
9.3.2.3.2 Rules for the bandwidth request by the PP 69
9.4 Logical Connection and virtual call management 70
9.4.1 Requirements for class 1 devices 70
9.4.2 Requirements for class 2 devices 70
9.4.2.1 General Description 70

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/facce03-7024-420a-ad3-60ebfaac83/etsi-en-301-649-v2.3.1-2015-03

9.4.2.2 Normal procedures of virtual call setup and release....71
9.4.2.2.1 Identification of the call as a DPRS call....71
9.4.2.2.2 Bandwidth attributes of the call....71
9.4.2.2.3 Creation of DLC link and MAC logical connection....71
9.4.2.2.4 Temporary states during the setup procedure....71
9.4.2.3 Abnormal release of Virtual Calls....71
9.4.2.4 Release of Logical Connection....72
9.4.2.5 The handshake (stay alive) procedure....72
9.4.3 Requirements for class 3 devices....73
9.4.3.1 General Description....73
9.4.3.1.1 Identification of the call as a DPRS call....73
9.4.3.1.2 Connection attributes....73
9.4.4 Requirements for class 4 devices....73
9.4.4.1 General Description....73
9.4.4.1.1 Identification of the call as a DPRS call....73
9.5 Resource and physical connection management for Class 3 and Class 4 devices....73
9.5.1 Simplified Class 3 connection management....73
9.5.2 Suspend management (Tx side)....73
9.5.3 Suspend management (Rx side)....74
9.5.4 Resume management....74
9.5.5 Stay alive (timer control)....74
9.5.6 Stay alive (periodic resume)....74
9.5.7 Simplified Class 4 connection management....74

10 MAC layer procedures....74
10.1 General....74
10.1.1 Frame and multiframe structure....74
10.1.2 Bit mappings....75
10.1.2.1 Multiple bitmappings rule....75
10.1.3 Void....75
10.1.4 Scrambling....75
10.1.5 Error control....75
10.1.6 Void....75
10.1.7 Void....75
10.1.8 RFP idle receiver scan sequence....75
10.1.9 PT receiver scan sequence....75
10.1.10 PT states and state transitions....76
10.1.10.1 PT states and state transitions for PTs not supporting fast setup....76
10.1.10.2 PT states and state transitions for PTs supporting fast setup....76
10.1.10.2.1 Fast setup control information provided by the FT....77
10.1.10.2.2 PT states and state transitions when PT and FT supports complete setup detection....77
10.1.10.2.3 PT states and state transitions when PT and FT supports Selective setup detection only....78
10.1.10.2.4 Fast setup control information provided using MAC paging....78
10.1.11 Identities....78
10.2 Non continuous broadcast....79
10.2.1 Request for specific Q channel information....79
10.2.2 Request for a new dummy....79
10.3 Downlink broadcast....79
10.3.1 N_T messages....79
10.3.2 Q_T messages....80
10.3.2.1 Q_T - static system information....80
10.3.2.2 Q_T - FP capabilities....81
10.3.2.2.1 Standard FP Capabilities....81
10.3.2.2.2 Extended FP Capabilities....81
10.3.2.2.3 Extended FP Capabilities part 2....82
10.3.2.3 Q_T - SARI list contents....82
10.3.2.4 Multiframe number....82
10.4 Paging broadcast....83
10.4.1 Paging message formats....83
10.4.1.1 Long or full page message format....83
10.4.1.2 Short page message format....84
10.4.1.3 Zero length page message format....84

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
http://standards.iteh.ai/catalog/standards/sist/f1ace03-7024-4208-9d3a-60e8ef4cacd93/etsi-en-301-649-v2.3.1-2015-03

10.4.1.4 MAC resume and control page message format....85
10.4.1.5 MAC layer information in zero and short length paging messages....85
10.4.1.5.1 RFP status....85
10.4.2 MAC layer information messages procedures....86
10.4.2.1 Blind slot information for circuit mode service....86
10.4.2.2 Bearer handover/replacement information....87
10.4.2.3 Other bearer position....87
10.4.2.4 Recommended other bearer position....87
10.4.2.5 Dummy or C/L bearer position....87
10.4.2.6 C/L bearer position....87
10.4.2.7 RFP-status and Modulation Types....87
10.4.2.8 Blind slot information for packet mode service....87
10.4.3 Paging Procedures....87
10.4.3.1 LCE Paging....87
10.4.3.2 MAC Paging....88
10.4.3.2.1 Support of MAC Paging commands for resume and paging detection control....88
10.4.3.2.2 Support of MAC Paging codes for control of fast setup....88
10.4.4 Paging detection....88
10.4.4.1 Normal duty cycle....88
10.4.4.2 High duty cycle....89
10.4.4.3 Low duty cycle....89
10.5 Logical Connection Setup....89
10.6 Logical Connection Release....89
10.7 Connection Modification....90
10.7.1 Connection Modification to change bandwidth....90
10.7.1.1 Bandwidth negotiation....90
10.7.1.1.1 Bandwidth negotiation with A-field messages....91
10.7.1.1.2 Bandwidth negotiation with B-field messages....91
10.7.1.1.3 Order and sequence of operations....92
10.7.1.2 Bandwidth modification....92
10.7.1.2.1 Order and sequence of operations....93
10.7.1.3 Suspend....93
10.7.1.4 Resume....97
10.7.1.5 Bandwidth modification rejection and error handling....97
10.7.1.5.1 Error handling....98
10.7.2 Connection modification to change service type, slot type, modulation type or adaptive code rate....98
10.7.2.1 Connection modification to change MAC service type....98
10.7.2.2 Connection modification to change slot type....99
10.7.2.3 Connection modification to change the modulation scheme and adaptive code rate....99
10.7.2.4 ATTRIBUTES_T.req/cfm....99
10.8 Physical Connection Setup....100
10.8.1 Single bearer physical connection setup....100
10.8.2 Multibearer Physical Connection setup....101
10.9 Physical Connection Release....101
10.10 Bearer Setup....101
10.10.1 Duplex bearer setup procedures....101
10.10.1.1 MAC control messages....101
10.10.1.2 PT initiated initial duplex bearer setup (pilot bearer)....103
10.10.1.2.1 Prerequisites....103
10.10.1.2.2 Usage of channel list procedures....103
10.10.1.2.3 Detailed procedure description....103
10.10.1.3 FT initiated initial duplex bearer setup (pilot bearer)....105
10.10.1.3.1 Prerequisites....106
10.10.1.3.2 Usage of channel list procedures....106
10.10.1.3.3 Detailed procedure description....106
10.10.1.4 PT initiated additional duplex bearer setup....108
10.10.1.4.1 Use of the procedure and Master side....108
10.10.1.4.2 Prerequisites....108
10.10.1.4.3 Usage of channel list procedures....108
10.10.1.4.4 Detailed procedure description....110
10.10.1.5 FT initiated additional duplex bearer setup....113
10.10.2 Double simplex bearer setup....113

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f1acce03-7024-420b-8c4c-60f0b1f6ac03/etsi-en-301-649-v2.3.1-2015-03

10.10.2.1 MAC control messages 113
10.10.2.2 Upstream double simplex bearer setup 115
10.10.2.2.1 Use of the procedure and T-side 115
10.10.2.2.2 Prerequisites 115
10.10.2.2.3 Channel selection and usage of channel list procedures 115
10.10.2.2.4 Detailed procedure description 116
10.10.2.3 Downstream double simplex bearer setup 117
10.10.2.3.1 Use of the procedure and T-side 118
10.10.2.3.2 Prerequisites 118
10.10.2.3.3 Channel selection and usage of channel list procedures 118
10.10.2.3.4 Detailed procedure description 118
10.11 Bearer Release procedures 120
10.11.1 Unacknowledged release 121
10.11.2 Crossed release (duplex bearers only) 121
10.11.3 Acknowledged release 121
10.11.4 Fast release 122
10.11.5 Definition of the procedure to use and the Master side for the different release cases 122
10.11.5.1 Suspend cases 122
10.11.5.1.1 FT initiated suspend 122
10.11.5.1.2 PT initiated suspend 123
10.11.5.2 Bandwidth modification cases 123
10.11.5.2.1 Reversal of asymmetric connection: from asymmetric downlink to uplink 123
10.11.5.2.2 Reversal of asymmetric connection: from asymmetric uplink to downlink 123
10.11.5.2.3 Modification from asymmetric downlink to symmetric 123
10.11.5.2.4 Modification from asymmetric uplink to symmetric 123
10.11.5.2.5 Modification from symmetric to asymmetric downlink (with release of duplex bearers) 124
10.11.5.2.6 Modification from symmetric to asymmetric uplink (with release of duplex bearers) 124
10.11.6 Listen for setup control codes in Release message 124
10.12 Advanced connection handover 124
10.13 I channel operation 124
10.13.1 Protected I channel error_detect mode 125
10.13.2 Protected I channel error_correct mode 125
10.13.2.1 Unilateral jump 125
10.13.2.2 Bearer reset 125
10.13.3 Connectionless SI_P mode 125
10.14 C channel operation 126
10.14.1 C_S channel 126
10.14.2 C_F channel 126
10.14.2.1 Priority schema of the C_F channel 126
10.15 Encryption 127
10.15.1 Encryption process - initialization and synchronization 127
10.15.2 Encryption mode control 128
10.15.2.1 M_T message 129
10.15.2.2 PT procedure for enabling encryption 129
10.15.2.3 PT procedure for disabling encryption 129
10.15.3 Handover encryption process 129
10.16 Quality control 129
10.16.1 RFPI handshake 129
10.16.2 PT frequency correction 129
10.16.3 Bearer quality report 130
10.16.3.1 Bearer quality report for asymmetric bearers 130
10.16.4 Bearer and connection control 130
10.16.5 A-CRC handshake 131
10.17 Physical channel selection 131
10.18 Bearer replacement 132
10.19 Bearer handover request 132
10.20 G_F channel 132
10.20.1 G_F channel data 132
10.20.1.1 G_F channel transmission 132
10.20.1.2 G_F channel reception 132
10.21 Time multiplexers 132
10.21.1 A-field Multiplexer 132

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f7ae6ff3-7024-42a8-9e4a-60cbf46acf93/etsi-en-301-649-v2.3.1-2015-03

10.21.1.1 Tail Multiplexer (T-MUX) 132
10.21.1.2 A-tail identifications 133
10.21.2 B-field control Multiplexer (E/U-MUX) 133
10.21.2.1 B-field control Multiplexer (E/U-MUX), basic modes 133
10.21.2.1.1 U-type Multiplexer 133
10.21.2.1.2 E-type Multiplexer, all MAC control 133
10.21.2.1.3 E/U-Mux priority schema 133
10.21.2.1.4 B-field identifications (basic) 133
10.21.2.2 B-field control Multiplexer (E/U-MUX), C_F modes 133
10.21.2.2.1 E-type Multiplexer, all modes 133
10.21.2.2.2 E/U-Mux priority schema 134
10.21.2.2.3 B-field identifications (C_F) 134
10.21.2.3 B-field control Multiplexer (E/U-MUX), E+U modes 134
10.21.2.3.1 E+U-type Multiplexer 134
10.21.2.3.2 E/U-Mux priority schema 134
10.21.2.3.3 B-field identifications (E+U type) 134
10.22 I_{PF} channel 134
10.22.1 I_{PF} channel general 134
10.22.2 I_{PF} channel advanced procedures 135
10.22.3 I_{PF} channel error_correct procedures 135
10.22.4 SI_{PF} channel 135
10.23 A-field (M_T) procedures 135
10.23.1 General 135
10.23.2 PT initiated A-field advanced bearer setup 135
10.23.2.1 M_T access request message 136
10.23.2.2 M_T Attributes_T.req/cfm message 136
10.23.3 A-field connection/bearer release 137
10.23.3.1 M_T message 138
10.23.4 A-field bearer handover request 138
10.23.4.1 M_T message 138
10.23.5 A-field connection handover request 138
10.23.5.1 M_T message 138

11 DLC layer procedures 139
11.1 LU10 Enhanced Frame RELay service (EFREL) 139
11.1.1 Window size 139
11.1.2 U-plane transmission class 2 140
11.1.2.1 Sending side procedures 140
11.1.2.2 Receiving side procedure 140
11.1.3 SDU transmission and delivery mode 140
11.2 FU 10 framing (FU10a, FU10b, FU10c) 140
11.2.1 FU10a 140
11.2.2 FU10b 141
11.2.3 FU10c 141
11.2.3.1 Insertion of FU10c frames in FU10a frames of the opposite link 141
11.3 Class A operation 142
11.3.1 Class A link establishment 142
11.3.1.1 Lower Layer Management Entity (LLME) establishment of a MAC connection 142
11.3.2 Class A acknowledged information transfer 144
11.3.3 Class A link release 144
11.3.4 Class A link re-establishment 144
11.4 Class U operation 144
11.4.1 Class U use of LLN for unacknowledged information transfer 145
11.4.2 Class U link establishment 145
11.4.3 Class U unacknowledged information transfer 145
11.4.4 Class U unacknowledged release 145
11.5 Lc frame delimiting and sequencing service 145
11.5.1 C_S channel fragmentation and recombination 145
11.5.2 C_F channel fragmentation and recombination 145
11.5.3 Selection of logical channels (C_S and C_F) 145
11.6 Broadcast Lb service 145
11.6.1 Normal broadcast 145

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f1acce03-7024-4203-9e4a-60e3ef4dcd03/etsi-en-301-649-v2.3.1-2015-03

11.6.2 Expedited broadcast 147
11.7 Connection handover 147
11.7.1 Class A connection handover 147
11.7.1.1 Voluntary handover 148
11.7.1.2 Associated procedure 148
11.7.1.2.1 LLME connection handover management 148
11.7.1.3 Exceptional case 148
11.7.1.3.1 Receipt of a request for link release 148
11.8 Connection modification 148
11.9 Encryption switching 150
11.9.1 Associated procedure 150
11.9.1.1 Providing Encryption key to the MAC layer 150
11.9.2 Exceptional cases 150
11.9.2.1 Encryption fails 150
11.9.2.2 Connection handover of ciphered connections 150
11.10 Connectionless point-to-multipoint transmission 150

12 NWK layer procedures 151
12.1 PT initiated virtual call request 151
12.2 FT initiated virtual call request 152
12.3 Terminal capability indication 153
12.4 Internal call keypad 156
12.5 Call Resources/Parameters negotiation 156
12.5.1 General requirements 156
12.5.2 Allowable values on initiating side 157
12.5.3 Negotiation process 160
12.5.4 Allowable values in the answer 161
12.5.5 Default values for class 2 on initiating side 165
12.5.6 Exceptional cases 167
12.5.7 IP address allocation (IP IWU only) 167
12.6 Service Change procedures 167
12.6.1 Service change - Bandwidth Change (including symmetry type indicator) 167
12.6.1.1 Associated procedures 170
12.6.1.1.1 Timer F/P < CC_service > management 170
12.6.1.2 Exceptional cases 170
12.6.1.2.1 Service change request is rejected 170
12.6.1.3 Examples 170
12.6.2 Service change - slot type change 171
12.6.2.1 Associated procedures 171
12.6.2.2 Exceptional cases 171
12.6.2.3 Examples 171
12.6.3 Service change - MAC service change 172
12.6.3.1 Associated procedures 172
12.6.3.2 Exceptional cases 172
12.6.3.3 Examples 172
12.6.4 Service change - modultation schema change 172
12.6.4.1 Associated procedures 172
12.6.4.2 Exceptional cases 172
12.6.4.3 Examples 172
12.6.5 Service change - DPRS Management Class and other Call-attributes change 173
12.6.5.1 Associated procedures 173
12.6.5.2 Exceptional cases 173
12.6.5.3 Examples 173
12.6.6 Service change - MAC Packet lifetime, DLC Window size, DLC Transit delay and C_F channel attributes change 173
12.6.6.1 Associated procedures 174
12.6.6.2 Exceptional cases 174
12.6.6.3 Examples 174
12.7 Service change - IWU-attributes change 174
12.7.1 IWU-attributes change - General 174
12.7.1.1 Associated procedures 175
12.7.1.2 Exceptional cases 175

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f1acce03-7024-4203-9e4a-60e8f4dacd23/etsi-en-301-649-v2.3.1-2015-03

12.7.1.3 Examples 175
12.7.2 Interworking type change 175
12.7.3 IP address change (IP IWU) 175
12.7.4 Maximum SDU size change 175
12.8 Dynamic Parameters Allocation 175
12.8.1 General requirements 175
12.8.2 Sent IE and Default IE Dynamic Parameter Allocation 176
12.8.2.1 Sent-IE mechanism 176
12.8.2.2 Default-IE mechanisms 176
12.8.2.3 Support of these mechanisms 176
12.8.2.4 Simultaneous use of both mechanisms (one from each side) 177
12.8.3 Transport of the <<SETUP CAPABILITY>> IE (when used) 177
12.8.4 Service and parameter settings support indication (PT or FT) 178
12.8.5 Application media protocol support indication (PT and FT) 181
12.8.6 Allowed and mandatory values for DPRS Class 2 PT and FT devices 183
12.8.7 Allowed values for DPRS Class 3 and 4 devices (PT or FT) 185
12.8.8 Transport with {MM-INFO-SUGGEST} message (FT to PT) 187
12.8.9 Transport with {CLMS-FIXED} message (FT to PT) 187
12.8.10 Class 2 Default Dynamic Parameters Allocation for PT and FT devices 187
12.9 Cipher-switching initiated by PT 188
12.10 Temporary Identity Assign 189
12.10.1 Associated procedures 189
12.10.1.1 Timer F-< MM_ident.1 > management 189
12.10.2 Exceptional cases 190
12.10.2.1 PT rejects the identity assignment 190
12.11 Indirect FT initiated link establishment 190
12.11.1 Indirect FT initiated link establishment for devices supporting complete MAC control procedures (DPRS-M.5) 190
12.11.1.1 Initial setup paging 190
12.11.1.1.1 Assumptions for Short paging format or for Full format with IPUI 190
12.11.1.1.2 Coding for Full paging format with TPUI 190
12.11.1.1.3 Message in case of short format 191
12.11.1.1.4 Message in case of full format with TPUI 192
12.11.1.1.5 Message in case of full format with IPUI 193
12.11.1.2 DPRS Resume paging 193
12.11.1.2.1 Assumptions for Short paging format 193
12.11.1.2.2 Coding for Full paging format with TPUI 193
12.11.1.2.3 Message in case of short format 194
12.11.1.2.4 Message in case of full format with TPUI 195
12.11.1.2.5 LCE Resume Procedure description 196
12.11.2 Indirect FT initiated link establishment for devices supporting simplified A-field MAC control procedures (DPRS-M.30) 196
12.11.2.1 Initial setup paging 196
12.11.2.1.1 Assumptions for Short paging format or for Full format with IPUI 196
12.11.2.1.2 Coding for Full paging format with TPUI 196
12.11.2.1.3 Message in case of short format 197
12.11.2.1.4 Message in case of full format with TPUI 197
12.11.2.2 DPRS Resume paging 198
12.11.2.2.1 Assumptions for Short paging format 198
12.11.2.2.2 Coding for Full paging format with TPUI 198
12.11.2.2.3 Message in case of short format 198
12.11.2.2.4 Message in case of full format with TPUI 199
12.11.2.2.5 LCE Resume Procedure description 200
12.12 Fast paging 200
12.13 Collective and Group Ringing 200
12.14 Direct FT initiated link establishment 201
12.14.1 Exceptional case 202
12.14.1.1 Link establishment failure 202
12.15 Void 203
12.16 Broadcast attributes management 203
12.16.1 Higher Layer capabilities 203
12.16.2 Extended Higher Layer capabilities 203

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/acce03-7024-42ba-a4a6-60bb16ac0...etsi-en-301-649-v2.3.1-2015-03

12.16.3 Extended Higher Layer capabilities part 2 204
12.17 U-plane handling 204
12.18 Management of MM procedures 205
12.19 Management - PMID 205
12.20 Length of NWK layer messages 205
12.21 Identities 206

13 Distributed Communications 206
13.1 Void 206
13.2 General Requirements 206
13.2.1 DCDL-net 206
13.2.2 Subscription 206
13.2.3 Communication 206
13.3 Procedure description 206
13.3.1 HyP Identities 206
13.3.2 Membership Access Rights Allocation 206
13.3.3 Re-initialization of membership access rights 207
13.3.4 Members Data Transfer 207
13.3.5 Presence/Absence Indication 207
13.3.6 Bandwidth management 207
13.3.7 Direct Link Establishment 207
13.3.8 Indirect Link Establishment 207
13.3.9 MASTER management 208
13.3.9.1 MASTER assign 208
14.3.9.2 MASTER Change 208
13.3.9.3 DCDL-net System bearer management 208
13.3.10 Common Subscription Database management 208
13.3.11 Handover issues 208
13.4 Elements of Messages/Information Elements 208
13.5 Usage of PPs or FPs in DCDL-net 208

Annex A (normative): Operating parameters 209

A.1 ME operating parameters 209
A.1.1 Constants (applicable to class 1 and class 2 devices) 209
A.1.2 Equations 209
A.1.2.1 Waiting time for collision avoidance (WtA) 209
A.1.2.1.1 Description 209
A.1.2.1.2 Formula 209
A.1.2.2 Waiting time for congestion avoidance (WtB) 210
A.1.2.2.1 Description 210
A.1.2.2.2 Formula 210
A.1.3 Variable parameters (class 2 systems only) 210
A.1.3.1 Parameters set by the FP (class 2 systems only) 210
A.1.3.2 Negotiable parameters between FP and PP (class 2 systems only) 211
A.1.3.2.1 Conditions of negotiation 211
A.1.3.2.1.1 Negotiation of T909 211
A.1.3.2.1.2 Negotiation of T911 211
A.1.4 Configuration capabilities for class 1 devices 212

A.2 Default coding of <<IWU-ATTRIBUTES>>, << CALL-ATTRIBUTES >>, << CONNECTION-ATTRIBUTES >>, << WINDOW SIZE >>, << TRANSIT DELAY >> and << SETUP-CAPABILITY >> information elements for DPRS Basic Services 215
A.2.1 Default setup attributes for basic service "light data service, with Class 4 DPRS management" (code "1001"B) 215
A.2.2 Default setup attributes for basic service "light data service with Class 3 DPRS management" (code "1010"B) 218

Annex B (normative): Interworking conventions for the Frame Relay (FREL) service 220

B.1 Scope of this annex 220
B.1.1 Typical configuration for the Frame Relay service 220

B.2 Specific codings for mobility class 2 221

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f1acce03-7024-420a-9e4a-0b5b16ac0932/etsi-en-301-649-v2.3.1-2015-03

B.2.1 IWU-ATTRIBUTES information element coding 221
B.2.1.1 Profile subtype attributes (octet group 6) of IWU-ATTRIBUTES information element 222
B.2.1.1.1 IEEE 802.3/Ethernet 222
B.2.1.1.2 IEEE 802.5 (Token-Ring) 222
B.2.1.1.3 Internet Protocol (IP) 223
B.2.1.1.3.1 Dynamic IP address allocation 224
B.2.1.1.4 DPRS Generic media encapsulation 224
B.2.1.1.4.1 Description of the different fields: 224
B.2.1.1.4.2 Optional control octets 225
B.2.1.1.4.3 D-GMEP Protocol identifier codes 227
B.2.2 IWU attributes implemented 228

B.3 Generic Frame Relay service interworking conventions 228
B.3.1 DLC U-plane service 228
B.3.2 Transmission bit order 228
B.3.3 Support of SDU size 229
B.3.4 SI_P connectionless downlink 229

B.4 IEEE 802.3/Ethernet 229
B.4.1 Typical configuration 229
B.4.1.1 Examples of implementation of the external transport network 229
B.4.2 Specific interworking conventions 230
B.4.2.1 Use of the connectionless downlink SI_P service 231
B.4.2.2 Special conventions for mobility class 1 systems 231

B.5 IEEE 802.5 (token ring) 231
B.5.1 Typical configuration 231
B.5.1.1 Examples of implementation of the external transport network 231
B.5.2 Specific interworking conventions 232
B.5.2.1 Special conventions for mobility class 1 systems 232
B.5.2.2 Use of the connectionless downlink SI_P service 232

B.6 Internet protocol 232
B.6.1 Typical configuration 232
B.6.1.1 Examples of implementation of the external transport network 232
B.6.2 Specific interworking conventions 233
B.6.2.1 Special conventions for mobility class 1 systems 233

B.7 Point-to-Point Protocol 233
B.7.1 Typical configuration 233
B.7.1.1 Examples of implementation of the external transport network 233
B.7.2 Specific interworking conventions 234
B.7.2.1 Special conventions for mobility class 1 systems 234

B.8 Interworking conventions for DPRS Generic Media Encapsulation transport mechanism 234
B.8.1 General 234
B.8.2 Interworking Requirements 235
B.8.2.1 U-plane format and protocol elements 235
B.8.2.1.1 Description of the protocol elements of the U-plane header 236
B.8.2.2 SDU handling and interface to DLC 236
B.8.2.2.1 Transmitter side procedure 236
B.8.2.2.2 Receiver side procedure 237
B.8.3 Application protocols 238
B.8.3.1 General 238
B.8.3.2 List of protocols with specific description in the present document 238
B.8.3.3 HTTP limited set nr.1 239
B.8.3.4 HTTP limited set nr.2 (Common HTTP profile) 240
B.8.3.5 HTTP limited set nr.3 (Extended HTTP profile) 240
B.8.3.6 Electronic mail (Limited set nr. 1) 240
B.8.4 Interworking to external networks 241
B.8.4.1 Generic Multiprotocol Interworking to External IP Networks 241
B.8.4.2 Multi-context Interworking to an application proxy 242
B.8.4.3 Simplified single-context Interworking to External Networks (or to an application proxy) 242

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/facce03-7024-42fa-0e4a-60e6f4bacd0/etsi-en-301-649-v2.3.1-2015-03

Annex C (normative): Interworking conventions for character-oriented services 244

C.1 Scope 244
C.1.1 Scenario A 246
C.1.2 Scenario B 246

C.2 Specific coding for mobility class 2 247
C.2.1 IWU-Attribute coding 247
C.2.2 Default-values 250
C.2.3 Negotiation of the V.24-parameters 250

C.3 Generic interworking conventions 251
C.3.1 PAD functionality 251
C.3.1.1 Character formatting 251
C.3.2 Support of SDU size 251
C.3.3 LU10 SDU delivery mode 252

C.4 V.24 circuits 252
C.4.1 General 252
C.4.2 Encapsulation 252
C.4.2.1 Description 252
C.4.2.2 Framing 252
C.4.2.3 Coding of encapsulation 253
C.4.2.3.1 DCE-emulation side interpretation 253
C.4.2.3.2 DTE-emulation side interpretation 253
C.4.2.4 SDU Structure 254
C.4.3 Interworking procedures and conventions 254
C.4.3.1 General 254
C.4.3.1.1 Data forwarding conditions 254
C.4.3.1.2 Dataflow Control 255
C.4.3.1.2.1 Software dataflow control 255
C.4.3.1.2.2 Hardware dataflow control 255
C.4.3.1.3 Transmission of U-plane data procedure 255
C.4.3.1.4 Receive of U-plane data procedure 255
C.4.3.1.5 V.24 signalling 255
C.4.3.1.6 Configuration a V.24 interface during a Connection 255
C.4.3.2 Fall back procedure 256
C.4.3.3 Procedure at the DCE-emulation side IWU 256
C.4.3.3.1 DTE-initiated VC establishment 256
C.4.3.3.2 DCE-initiated VC establishment 256
C.4.3.3.3 V.24 call release 256
C.4.3.4 Procedure at the DTE-emulation side IWU 256
C.4.3.4.1 DCE-initiated VC establishment 257
C.4.3.4.2 DTE-initiated VC establishment 257
C.4.3.4.3 V.24 call release 257

C.5 Definition of User Control Information Elements 257
C.5.1 Mandatory UIEs 257
C.5.2 Optional UIEs 257
C.5.3 Information Element Identifier 258

Annex D (normative): Support of double and long slot 259

D.1 Double and long slot support (2-level modulation) 259
D.1.1 General 259
D.1.2 Requirements 259
D.1.2.1 Frame structure and slot numbering 259
D.1.2.2 Multibearer connections 259
D.1.2.3 Modulation schemes 259
D.1.2.4 Void 259
D.1.2.5 Bit MAPs 259
D.1.2.6 C-MUX 259
D.1.2.7 Scrambling 260
D.1.2.8 CRC 260

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
https://standards.iteh.ai/catalog/standards/sist/f1acee03-7024-4200-9e4a-9ebf40cc2d03/etsi-en-301-649-v2.3.1-2015-03