

ETSI TS 144 018 V13.0.0 (2016-01)



**Digital cellular telecommunications system (Phase 2+) (GSM);
Mobile radio interface layer 3 specification;
Radio Resource Control (RRC) protocol
(3GPP TS 44.018 version 13.0.0 Release 13)**

PREVIEW
https://standards.iteh.ai/standards/etah/144-018-v13-0-0-7c8a-41fe-9c5e-679f3e39405/etah/144-018-v13-0-0-7c8a-41fe-9c5e-679f3e39405/2016-01-01



Reference

RTS/TSGG-0244018vd00

Keywords

LTE

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
<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:
<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.

© European Telecommunications Standards Institute 2016.
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.

Intellectual Property Rights

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.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

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.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	18
1 Scope	19
1.1 Scope of the Technical Specification	19
1.2 Application to the interface structures.....	19
1.3 Structure of layer 3 procedures.....	19
1.4 Test procedures	19
1.5 Use of logical channels.....	20
1.6 Overview of control procedures	20
1.6.1 List of procedures	20
1.7 Applicability of implementations	21
1.7.1 Voice Group Call Service (VGCS) and Voice Broadcast Service (VBS).....	21
1.7.2 General Packet Radio Service (GPRS).....	22
1.7.3 Multimedia Broadcast/Multicast Service (MBMS).....	22
1.8 Restrictions	22
2 References	22
2.1 Abbreviations	26
2.1.1 Random values.....	26
2.1.2 Vocabulary.....	27
3 Radio Resource management procedures.....	29
3.1 Overview/General	29
3.1.1 General.....	29
3.1.2 Services provided to upper layers	30
3.1.2.1 Idle mode	30
3.1.2.2 Dedicated mode.....	30
3.1.2.3 Group receive mode	30
3.1.2.4 Group transmit mode.....	31
3.1.2.5 Packet idle mode	31
3.1.2.6 Packet transfer mode	31
3.1.2.7 Dual transfer mode (DTM)	31
3.1.3 Services required from data link and physical layers.....	32
3.1.4 Change of dedicated channels.....	32
3.1.4.1 Change of dedicated channels using SAPI = 0.....	32
3.1.4.2 Change of dedicated channels using other SAPIs than 0	32
3.1.5 Procedure for Service Request and Contention Resolution	32
3.1.6 Preemption.....	34
3.2 Idle mode procedures and general procedures in packet idle and packet transfer modes.....	34
3.2.1 Mobile Station side	34
3.2.2 Network side	36
3.2.2.1 System information broadcasting.....	36
3.2.2.2 Paging	38
3.2.2.3 Sending of ETWS Primary Notification	38
3.2.3 Inter-RAT cell re-selection based on priority information.....	39
3.2.3.1 General	39
3.2.3.2 Common priorities information.....	39
3.2.3.3 Provision of individual priorities information.....	40
3.2.4 (void).....	40
3.3 RR connection establishment	40
3.3.1 RR connection establishment initiated by the mobile station	40
3.3.1.1 Entering the dedicated mode : immediate assignment procedure	41
3.3.1.1.1 Permission to access the network	41

3.3.1.1.1a	Implicit reject indication from the network	41
3.3.1.1.2	Initiation of the immediate assignment procedure	42
3.3.1.1.3	Answer from the network	43
3.3.1.1.3.1	On receipt of a CHANNEL REQUEST message	43
3.3.1.1.3.2	Assignment rejection	44
3.3.1.1.3.2a	Implicit Reject procedure	44
3.3.1.1.4	Assignment completion	45
3.3.1.1.4.1	Early classmark sending	45
3.3.1.1.4.2	Service information sending	46
3.3.1.1.5	Abnormal cases	46
3.3.1.2	Entering the group transmit mode: uplink access procedure	47
3.3.1.2.1	Mobile station side	47
3.3.1.2.1.1	Uplink investigation procedure - talker priority not supported by the network	47
3.3.1.2.1.1a	Uplink investigation procedure - talker priority supported by the network	47
3.3.1.2.1.2	Uplink access procedure with talker priority not supported by the network	48
3.3.1.2.1.2a	Uplink access procedure - with talker priority supported by the network using uplink access procedure	49
3.3.1.2.1.2a.1	Talker priority normal, privileged or emergency	49
3.3.1.2.1.2a.2	Emergency mode reset request	49
3.3.1.2.1.2b	Priority uplink request procedure	50
3.3.1.2.1.2b.1	Talker priority privileged or emergency	50
3.3.1.2.1.2b.2	Emergency mode reset request	51
3.3.1.2.1.2b.3	Validation of priority uplink requests for ciphered voice group calls	51
3.3.1.2.1.2c	Uplink access procedure for sending application-specific data	51
3.3.1.2.1.2c.1	General	51
3.3.1.2.1.2c.2	Using the Voice Group Call Channel	51
3.3.1.2.1.2c.3	Using the RACH	52
3.3.1.2.2	Network side - talker priority not supported by the network	52
3.3.1.2.2a	Network side - network supports talker priority using uplink access procedure	52
3.3.1.2.2a.1	Uplink FREE	52
3.3.1.2.2a.1.1	Uplink Access cause - Normal, Privileged, or Emergency priority request	52
3.3.1.2.2a.1.2	Uplink Access cause - Emergency mode reset request	53
3.3.1.2.2a.2	Uplink BUSY	53
3.3.1.2.2a.2.1	Uplink Access with cause priority less than or equal to current talker priority	53
3.3.1.2.2a.2.2	Uplink Access with cause priority higher than current talker priority	53
3.3.1.2.2a.2.3	Uplink Access with cause Emergency mode reset request	53
3.3.1.2.2b	Network side - network supports talker priority using priority uplink procedure	53
3.3.1.2.2b.1	Uplink FREE	53
3.3.1.2.2b.1.1	Uplink Access cause - Normal, Privileged, or Emergency priority request	53
3.3.1.2.2b.1.2	Uplink Access cause - Emergency mode reset request	54
3.3.1.2.2b.2	Uplink BUSY	54
3.3.1.2.2b.2.1	Priority Uplink Request with cause priority less than or equal to current talker priority	54
3.3.1.2.2b.2.2	Priority Uplink Request with cause priority higher than current talker priority	54
3.3.1.2.2b.2.3	Priority Uplink Request with cause Emergency mode reset request	54
3.3.1.2.2b.2.4	Validation of Priority Uplink Requests for ciphered voice group calls	54
3.3.1.2.2c	Network side - network supports sending application-specific data by mobile station	55
3.3.1.2.2c.1	General	55
3.3.1.2.2c.2	Using the Voice Group Call Channel	55
3.3.1.2.2c.3	Using the RACH	55
3.3.1.2.3	Abnormal cases	55
3.3.1.3	Dedicated mode and GPRS	55
3.3.1.4	Preliminary Access Barring Check	55
3.3.2	Paging procedure for RR connection establishment	56
3.3.2.1	Paging initiation by the network	56
3.3.2.1.1	Paging initiation using paging subchannel on CCCH	56
3.3.2.1.2	Paging initiation using paging subchannel on PCCCH	57
3.3.2.1.3	Paging initiation using PACCH	57
3.3.2.2	Paging response	58
3.3.2.3	Abnormal cases	58
3.3.3	Notification procedure	58
3.3.3.1	Notification of a call	58
3.3.3.2	Joining a VGCS or VBS call	59

3.3.3.2.1	General	59
3.3.3.2.2	Segmentation of notifications	60
3.3.3.2.2.1	General.....	60
3.3.3.2.2.2	Segmentation of notifications on NCH	60
3.3.3.2.2.4	Segmentation of notifications on PCH.....	62
3.3.3.3	Reduced NCH monitoring mechanism.....	63
3.3.3.4	Notification response procedure.....	64
3.4	Procedures in dedicated mode and in group transmit mode	64
3.4.1	SACCH procedures.....	64
3.4.1.1	General	64
3.4.1.2	Measurement Report and Enhanced Measurement Report	65
3.4.1.2.1	Parameters for Measurements and Reporting.....	66
3.4.1.2.1.1	Deriving the 3G Neighbour Cell list from the 3G Neighbour Cell Description sent on BCCH or on SACCH.....	67
3.4.1.2.1.1a	Deriving the E-UTRAN Neighbour Cell list from the Repeated E-UTRAN Neighbour Cell information sent on BCCH or on SACCH	68
3.4.1.2.1.1b	Deriving the E-UTRAN Neighbour Cell list from the Repeated E-UTRAN Neighbour Cell information sent on BCCH or on SACCH (abnormal cases)	69
3.4.1.2.1.2	Deriving the GSM Neighbour Cell list from the BSICs and the BA (list).....	70
3.4.1.2.1.3	Deriving the Neighbour Cell list from the GSM Neighbour Cell list and the 3G Neighbour Cell list.....	70
3.4.1.2.1.4	Real Time Differences	70
3.4.1.2.1.5	Report Priority Description.....	70
3.4.1.2.1.6	GPRS Parameters.....	71
3.4.1.2.1.7	The 3G Cell Reselection list	71
3.4.1.2.1.7a	(void).....	71
3.4.1.2.1.7b	Closed Subscriber Group Information	71
3.4.1.2.1.7c	The 3G Frequency list.....	71
3.4.1.2.1.8	CCN Support description	72
3.4.1.2.1.9	3G_CCN_ACTIVE Description	72
3.4.1.2.1.9a	E-UTRAN_CCN_ACTIVE Description.....	72
3.4.1.2.1.10	GSM Neighbour Cell Selection parameters.....	72
3.4.1.2.1.11	Fast Acquisition of System Information	73
3.4.1.2.1.12	Reporting of CSG Cells and Hybrid Cells	74
3.4.1.3	Extended measurement report \$(MAFA)\$.....	74
3.4.2	Transfer of messages and link layer service provision	75
3.4.3	Channel assignment procedure.....	75
3.4.3.1	Channel assignment initiation	75
3.4.3.2	Assignment completion.....	77
3.4.3.3	Abnormal cases	77
3.4.4	Handover procedure.....	78
3.4.4.1	Handover initiation.....	79
3.4.4.2	Physical channel establishment.....	82
3.4.4.2.1	Finely synchronized cell case	82
3.4.4.2.2	Non synchronized cell case	82
3.4.4.2.3	Pseudo-synchronized cell case	83
3.4.4.2.4	Pre-synchronized cell case.....	83
3.4.4.3	Handover completion	84
3.4.4.4	Abnormal cases	84
3.4.4a	Handover to UTRAN procedure.....	85
3.4.4a.1	Handover to UTRAN initiation.....	86
3.4.4a.2	Handover to UTRAN completion	86
3.4.4a.3	Abnormal cases	86
3.4.4b	Handover to CDMA2000 procedure.....	87
3.4.4b.1	Handover to CDMA2000 initiation.....	87
3.4.4b.2	Handover to CDMA2000 completion	87
3.4.4b.3	Abnormal cases	87
3.4.4c	Intermode handover to GERAN <i>Iu mode</i> procedure.....	88
3.4.4c.1	General	88
3.4.4c.2	Initiation of the handover to GERAN <i>Iu mode</i> procedure.....	88
3.4.4c.3	Completion of the Handover to GERAN <i>Iu Mode</i> procedure	88
3.4.4c.4	Abnormal cases	89

3.4.4d	CS to PS SRVCC procedure	89
3.4.4d.1	CS to PS SRVCC procedure initiation	89
3.4.4d.2	CS to PS SRVCC procedure completion	90
3.4.4d.3	Abnormal cases	90
3.4.5	Frequency redefinition procedure	90
3.4.5.1	Abnormal cases	91
3.4.6	Channel mode modify procedure	91
3.4.6.1	Normal channel mode modify procedure	91
3.4.6.1.1	Initiation of the channel mode modify procedure	91
3.4.6.1.2	Completion of channel mode modify procedure	92
3.4.6.1.3	Abnormal cases	92
3.4.6.2	Channel mode modify procedure for a voice group call talker	92
3.4.6.2.1	Initiation of the channel mode modify procedure	92
3.4.6.2.2	Completion of mode change procedure	93
3.4.6.2.3	Abnormal cases	93
3.4.7	Ciphering mode setting procedure	93
3.4.7.1	Ciphering mode setting initiation	93
3.4.7.2	Ciphering mode setting completion	93
3.4.7a	Selective Ciphering of Downlink SACCH	94
3.4.8	Additional channel assignment procedure	94
3.4.8.1	Additional assignment procedure initiation	95
3.4.8.2	Additional assignment procedure completion	95
3.4.8.3	Abnormal cases	95
3.4.9	Partial channel release procedure	95
3.4.9.1	Partial release procedure initiation	95
3.4.9.2	Abnormal cases	95
3.4.10	Classmark change procedure	96
3.4.11	Classmark interrogation procedure	96
3.4.11.1	Classmark interrogation initiation	96
3.4.11.2	Classmark interrogation completion	96
3.4.12	Indication of notifications and paging information	97
3.4.13	RR connection release procedure	97
3.4.13.1	Normal release procedure	97
3.4.13.1.1	Channel release procedure initiation in dedicated mode and in group transmit mode	97
3.4.13.1.1a	Channel release procedure initiation in dual transfer mode	99
3.4.13.1.2	Abnormal cases	99
3.4.13.2	Radio link failure in dedicated mode or dual transfer mode	99
3.4.13.2.1	Mobile side	100
3.4.13.2.2	Network side	100
3.4.13.3	RR connection abortion in dedicated mode or dual transfer mode	100
3.4.13.4	Uplink release procedure	101
3.4.13.5	Radio link failure in group transmit mode	101
3.4.13.5.1	Mobile side	101
3.4.13.5.2	Network side	101
3.4.13.6	RR connection abortion requested by upper layers	101
3.4.14	Receiving a RR STATUS message by a RR entity	102
3.4.15	Group receive mode procedures	102
3.4.15.1	Mobile station side	102
3.4.15.1.1	Reception of the VGCS or VBS channel	102
3.4.15.1.1.1	General	102
3.4.15.1.1.2	Reception on ciphered VGCS or VBS channel	102
3.4.15.1.2	Monitoring of downlink messages and related procedures	102
3.4.15.1.2.1	(void)	103
3.4.15.1.2.2	(void)	103
3.4.15.1.2.3	Channel mode modify procedure	103
3.4.15.1.2.4	Notification and paging information	103
3.4.15.1.2.4.1	Use of Reduced NCH monitoring	103
3.4.15.1.2.5	Uplink status messages	103
3.4.15.1.2.6	Channel release message	103
3.4.15.1.2.7	Information on paging channel restructuring	104
3.4.15.1.3	Uplink reply procedure	104
3.4.15.1.4	Leaving the group receive mode	104

3.4.15.1.4.1	Returning to idle mode.....	104
3.4.15.1.4.2	Going to group transmit mode	104
3.4.15.2	Network side	105
3.4.15.2.1	Provision of messages on the VGCS or VBS channel downlink.....	105
3.4.15.2.1.1	General.....	105
3.4.15.2.1.2	Provision of general information messages	105
3.4.15.2.1.3	Provision of messages related to the voice group call uplink channel	106
3.4.15.2.1.4	Provision of messages related to the voice broadcast uplink channel.....	106
3.4.15.2.2	Release of the VGCS or VBS Channels	106
3.4.15.2a	VBS/VGCS reconfiguration procedure.....	107
3.4.15.2a.1	Normal behaviour	107
3.4.15.2a.2	Abnormal cases	107
3.4.15.3	Failure cases.....	108
3.4.15.3a	Additional Information procedure.....	108
3.4.15.3b	SMS to on going group call procedure.....	108
3.4.16	Configuration change procedure.....	109
3.4.16.1	Configuration change initiation.....	109
3.4.16.2	Configuration change completion	109
3.4.16.3	Abnormal cases	109
3.4.17	Mapping of user data substreams onto timeslots in a multislot configuration.....	109
3.4.18	Handling of classmark information at band change.....	110
3.4.19	(void)	110
3.4.20	(void)	110
3.4.21	Application Procedures.....	110
3.4.21.1	General	110
3.4.21.2	Location Services (LCS)	110
3.4.21.2A	Earthquake and Tsunami Warning System (ETWS).....	111
3.4.21.3	Application Information Transfer	111
3.4.21.3.1	Normal Procedure without Segmentation.....	111
3.4.21.3.2	Normal Procedure with Segmentation.....	111
3.4.21.3.3	Abnormal Cases.....	112
3.4.22	RR procedures related to packet resource establishment while in dedicated mode	112
3.4.22.1	Packet request procedure while in dedicated mode.....	112
3.4.22.1.1	Entering the dual transfer mode.....	113
3.4.22.1.1.1	Permission to access the network.....	113
3.4.22.1.1.2	Initiation of establishment of the packet request procedure.....	113
3.4.22.1.1.3	Answer from the network	114
3.4.22.1.1.3.1	Packet assignment.....	114
3.4.22.1.1.3.2	RR reallocation only	115
3.4.22.1.1.3.3	Packet request rejection	115
3.4.22.1.1.4	Packet request completion	115
3.4.22.1.1.5	Abnormal cases.....	115
3.4.22.2	Packet notification procedure in dedicated mode.....	117
3.4.22.2.1	Packet notification initiation by the network	117
3.4.22.2.2	Packet notification response	117
3.4.22.3	Packet downlink assignment in dedicated mode.....	117
3.4.22.3.1	Initiation of the packet downlink assignment procedure in dedicated mode	117
3.4.22.3.2	Packet downlink assignment completion.....	118
3.4.22.3.3	Abnormal cases	118
3.4.22.4	Modification of packet resources while in DTM	119
3.4.23	RR procedures related to packet resource maintenance while in dual transfer mode	120
3.4.23.1	General	120
3.4.23.2	RR and packet resource reallocation whilst in dual transfer mode	120
3.4.23.2.1	General	120
3.4.23.2.2	Normal resource reallocation case.....	121
3.4.23.2.3	Abnormal cases	121
3.4.24	RR procedures related to packet resource release while in dual transfer mode	123
3.4.25	GPRS suspension procedure.....	123
3.4.25.1	General	123
3.4.25.2	MS in class B mode of operation	123
3.4.25.3	Dual transfer mode not supported	124
3.4.26	GPRS Transparent Transport Procedure.....	124

3.4.27	RR procedures related to dedicated mode MBMS notification	124
3.4.27.1	General	124
3.4.27.2	MBMS announcement procedure in dedicated mode	125
3.4.27.2.1	General	125
3.4.27.2.2	MBMS announcement initiation by the network.....	125
3.4.27.2.3	MBMS notification response.....	125
3.4.28	Transmission of application-specific data by the talker.....	125
3.4.28.1	General	125
3.5	RR procedures on CCCH related to temporary block flow establishment	126
3.5.1	Packet paging procedure using CCCH.....	126
3.5.1.1	Packet paging initiation by the network.....	126
3.5.1.2	On receipt of a packet paging request	127
3.5.1.3	Packet Paging for MBMS notification on CCCH	127
3.5.1.3.1	General	127
3.5.1.3.2	MBMS pre-notification	127
3.5.1.3.3	MBMS notification.....	128
3.5.1.3.4	Response to MBMS notification	128
3.5.2	Packet access procedure using CCCH	129
3.5.2.1	Entering the packet transfer mode: packet access procedure	129
3.5.2.1.1	Permission to access the network	130
3.5.2.1.2	Initiation of the packet access procedure: channel request	130
3.5.2.1.3	Packet immediate assignment.....	134
3.5.2.1.3.1	On receipt of a CHANNEL REQUEST or EGPRS PACKET CHANNEL REQUEST message.....	134
3.5.2.1.3.2	One phase packet access	135
3.5.2.1.3.3	Single block packet access.....	137
3.5.2.1.3.3a	Multiblock packet access	138
3.5.2.1.3.4	Packet access rejection.....	138
3.5.2.1.4	Packet access completion	139
3.5.2.1.5	Abnormal cases	139
3.5.2.2	Sending an RLC/MAC control message: single block packet access procedure	139
3.5.3	Packet downlink assignment procedure using CCCH	139
3.5.3.1	Entering the packet transfer mode: packet downlink assignment procedure.....	140
3.5.3.1.2	Initiation of the packet downlink assignment procedure	140
3.5.3.1.3	Packet downlink assignment completion.....	142
3.5.3.1.4	Abnormal cases	142
3.5.3.2	Sending an RLC/MAC control message: single block packet downlink assignment procedure.....	143
3.5.3.2a	Sending an RLC/MAC control message: multiple blocks packet downlink assignment procedure....	143
3.5.4	MBMS packet access procedure using CCCH.....	144
3.5.4.1	General	144
3.5.4.2	On receipt of a CHANNEL REQUEST message.....	144
3.5.4.3	On receipt of an IMMEDIATE ASSIGNMENT message	144
3.5.4.4	On receipt of an IMMEDIATE ASSIGNMENT REJECT message	145
3.5.4.5	On receipt of an MBMS ASSIGNMENT message	145
3.5.4.6	Abnormal cases	145
3.6	RR Procedures in packet transfer mode	145
3.6.1	RR Connection establishment using enhanced DTM CS establishment.....	145
3.6.2	Completion of RR Connection establishment.....	145
3.6.2.1	Connection established in response to an encapsulated IMMEDIATE ASSIGNMENT message.....	145
3.6.2.2	Connection established in response to an encapsulated DTM ASSIGNMENT COMMAND message	145
3.7	DTM Handover procedure	146
3.7.1	General.....	146
3.7.2	DTM Handover from GERAN A/Gb mode to GERAN A/Gb mode procedure.....	146
3.7.2.1	Abnormal cases	147
3.7.3	DTM Handover from GERAN A/Gb mode to UTRAN procedure.....	147
3.8	Network sharing	148
3.8.1	General.....	148
3.8.2	Network side	148
3.8.3	Mobile station side.....	149
3.8.4	Abnormal cases.....	150
3.9	Power Efficient Operation (PEO).....	151

3.9.1	General.....	151
3.9.2	PEO Power Saving States	152
3.9.3	Extended DRX (eDRX)	152
3.9.4	BCCH Acquisition.....	152
4	Elementary procedures for Mobility Management.....	153
5	Elementary procedures for circuit-switched Call Control	153
6	Support for packet services	153
7	Examples of structured procedures	153
8	Handling of unknown, unforeseen, and erroneous protocol data	153
8.1	General	153
8.2	Message too short.....	154
8.3	(void).....	154
8.4	Unknown or unforeseen message type	154
8.5	Non-semantic mandatory information element errors	154
8.5.1	Radio resource management.....	155
8.6	Unknown and unforeseen IEs in the non-imperative message part.....	155
8.6.1	IEs unknown in the message	155
8.6.2	Out of sequence IEs	155
8.6.3	Repeated IEs	155
8.7	Non-imperative message part errors.....	156
8.7.1	Syntactically incorrect optional IEs	156
8.7.2	Conditional IE errors	156
8.8	Messages with semantically incorrect contents.....	156
8.9	Incomplete rest octets.....	156
9	Message functional definitions and contents	157
9.1	Messages for Radio Resources management.....	159
9.1.1	Additional assignment	160
9.1.1.1	Mobile Allocation	161
9.1.1.2	Starting Time.....	161
9.1.1.3	Extended TSC Set	161
9.1.2	Assignment command.....	161
9.1.2.1	Mode of the First Channel (Channel Set 1) and Mode of Channel Set "X" (2=<X=<8).....	162
9.1.2.2	Description of the Second Channel	162
9.1.2.3	Mode of the Second Channel	163
9.1.2.4	Mobile Allocation and Frequency List, after the starting time.....	163
9.1.2.5	Starting Time.....	163
9.1.2.6	Reference cell frequency list	164
9.1.2.7	Cell Channel Description	164
9.1.2.8	Cipher Mode Setting	164
9.1.2.9	VGCS target mode Indication.....	164
9.1.2.10	Description of the multislot allocation	164
9.1.2.11	Multi Rate configuration	165
9.1.2.12	VGCS Ciphering Parameters	165
9.1.2.13	Extended TSC Set, after time	165
9.1.2.14	Extended TSC Set, before time	165
9.1.3	Assignment complete.....	165
9.1.4	Assignment failure	165
9.1.5	Channel mode modify.....	166
9.1.5.1	Channel Description.....	166
9.1.5.2	VGCS target mode Indication.....	166
9.1.5.3	Multi Rate configuration	167
9.1.5.4	VGCS Ciphering Parameters	167
9.1.5.5	Extended TSC Set	167
9.1.6	Channel mode modify acknowledge.....	167
9.1.6.1	Extended TSC Set	167
9.1.7	Channel release	167
9.1.7.1	Group Channel Description / Group Channel Description 2.....	168
9.1.7.2	Group Cipher Key Number	168

9.1.7.3	UTRAN Freq List	169
9.1.7.4	Cell Channel Description	169
9.1.7.5	VGCS Cipherring Parameters	169
9.1.7.6	Talker Identity.....	169
9.1.7.7	Talker Priority Status	169
9.1.7.8	VGCS AMR Configuration.....	169
9.1.7.9	Individual priorities	169
9.1.8	Channel request	169
9.1.9	Cipherring mode command.....	171
9.1.10	Cipherring mode complete	172
9.1.10.1	Mobile Equipment Identity	172
9.1.11	Classmark change	173
9.1.11.1	Additional Mobile Station Classmark Information	173
9.1.11.2	Mobile Station Classmark	173
9.1.11a	UTRAN Classmark Change.....	173
9.1.11b	cdma2000 Classmark Change.....	174
9.1.11c	(void)	175
9.1.11d	GERAN IU Mode Classmark Change	175
9.1.12	Classmark enquiry	175
9.1.12a	(void)	176
9.1.12b	Configuration change command	176
9.1.12b.1	Description of the multislot allocation	176
9.1.12b.2	Mode of Channel Set "X" ($1 \leq X \leq 8$)	176
9.1.12c	Configuration change acknowledge.....	177
9.1.12d	Configuration change reject.....	177
9.1.12e	DTM Assignment Command.....	178
9.1.12e.1	(void).....	178
9.1.12e.2	RR Packet Uplink Assignment and RR Packet Downlink Assignment IEs	178
9.1.12e.3	MultiRate configuration	179
9.1.12e.4	Cipherring Mode Setting	179
9.1.12e.5	(void).....	179
9.1.12e.6	Mobile Allocation and Frequency List.....	179
9.1.12e.7	Mobile Allocation C2, Frequency List C2, Channel Description C2 and Description of the Downlink Packet Channel Assignment Type 2.....	179
9.1.12e.8	Extended TSC Set	179
9.1.12f	DTM Assignment Failure	180
9.1.12g	DTM Information	180
9.1.12g.1	Routeing Area Identification.....	180
9.1.12h	DTM Reject	181
9.1.12i	DTM Request.....	181
9.1.13	Frequency redefinition	182
9.1.13.1	Cell Channel Description	182
9.1.13.2	Carrier Indication	182
9.1.13.3	Mobile Allocation C2 and Channel Description C2.....	182
9.1.13.4	Extended TSC Set	182
9.1.13a	(void)	183
9.1.13b	GPRS suspension request	183
9.1.13b.1	General	183
9.1.13b.2	Routeing Area Identification.....	183
9.1.13b.3	Temporary Logical Link Identity	183
9.1.14	Handover access	183
9.1.15	Handover command.....	185
9.1.15.1	Synchronization Indication	186
9.1.15.2	Mode of the First Channel (Channel Set 1) and Mode of Channel Set "X" ($2 \leq X \leq 8$).....	186
9.1.15.3	Description of the Second Channel	186
9.1.15.4	Mode of the Second Channel	187
9.1.15.5	Frequency Channel Sequence, Frequency List, Frequency short list and Mobile Allocation, after time.	187
9.1.15.6	Starting Time.....	187
9.1.15.7	Reference cell frequency list.....	188
9.1.15.8	Real Time Difference.....	188
9.1.15.9	Timing Advance.....	188

9.1.15.10	Cipher Mode Setting	188
9.1.15.11	VGCS target mode indication	188
9.1.15.12	Description of the multislot allocation	189
9.1.15.13	MultiRateconfiguration	189
9.1.15.14	Dynamic ARFCN Mapping	189
9.1.15.15	VGCS Target cell Ciphering information	189
9.1.15.16	Dedicated Service Information.....	189
9.1.15.17	Extended TSC Set, after time	189
9.1.15.18	Extended TSC Set, before time	190
9.1.15a	Inter System To UTRAN Handover Command.....	190
9.1.15b	Inter System To cdma2000 Handover Command.....	190
9.1.15c	HANDOVER TO GERAN Iu MODE Command	191
9.1.15d	Inter System To E-UTRAN Handover Command.....	191
9.1.16	Handover complete	191
9.1.16.1	Mobile Observed Time Difference	192
9.1.16.2	Mobile Observed Time Difference on Hyperframe level.....	192
9.1.17	Handover failure	192
9.1.17.1	PS Cause	192
9.1.18	Immediate assignment	192
9.1.18.0a	Dedicated mode or TBF.....	193
9.1.18.0b	Channel Description.....	193
9.1.18.0c	Packet Channel Description	193
9.1.18.0d	Request Reference.....	194
9.1.18.0e	Timing Advance.....	194
9.1.18.1	Mobile Allocation	194
9.1.18.2	Starting Time.....	194
9.1.18.3	IA Rest Octets (Frequency parameters, before time)	194
9.1.18.4	IA Rest Octets (assignment of uplink or downlink TBF)	194
9.1.18.5	Extended TSC Set	195
9.1.18a	(void)	195
9.1.18b	Immediate packet assignment	195
9.1.19	Immediate assignment extended	195
9.1.19.1	Unnecessary IEs	196
9.1.19.2	Mobile Allocation	196
9.1.19.3	Starting Time.....	196
9.1.19.4	Maximum message length.....	197
9.1.19.5	IAX Rest Octets	197
9.1.20	Immediate assignment reject.....	197
9.1.20.1	Use of the indexes	198
9.1.20.2	Filling of the message	198
9.1.20.2a	Request Reference	198
9.1.20.3	Wait Indication.....	198
9.1.20.4	IAR Rest Octets	198
9.1.21	Measurement report	198
9.1.21a	Notification/FACCH.....	199
9.1.21a.1	(void).....	202
9.1.21a.2	(void).....	202
9.1.21a.3	(void).....	202
9.1.21a.4	(void).....	202
9.1.21b	Notification/NCH	202
9.1.21b.1	(void).....	202
9.1.21b.2	(void).....	202
9.1.21c	(void)	202
9.1.21d	Notification response	202
9.1.21e	(void)	203
9.1.21f	Packet Assignment.....	203
9.1.21f.1	RR Packet Uplink Assignment and RR Packet Downlink Assignment IEs	204
9.1.21f.2	(void).....	204
9.1.21f.3	Frequency List C2, Mobile Allocation C2 and Description of the Downlink Packet Channel Assignment Type 2	204
9.1.21f.4	Extended TSC Set	204
9.1.21g	Packet Notification	204

9.1.21g.1	P-TMSI	205
9.1.21g.2	Mobile identity	205
9.1.21h	VBS/VGCS reconfigure	205
9.1.21i	VBS/VGCS reconfigure2	206
9.1.21j	MBMS Announcement	206
9.1.22	Paging request type 1	207
9.1.22.1	Unnecessary IE	208
9.1.22.2	Channels needed for Mobiles 1 and 2	208
9.1.22.3	Mobile Identities	208
9.1.22.4	P1 Rest Octets	208
9.1.23	Paging request type 2	208
9.1.23.1	Channels needed for Mobiles 1 and 2	209
9.1.23.2	Mobile Identity 3	209
9.1.23.3	P2 Rest Octets	209
9.1.24	Paging request type 3	209
9.1.24.1	Channels needed for Mobiles 1 and 2	210
9.1.24.2	P3 Rest Octets	210
9.1.25	Paging response	210
9.1.25.1	Mobile Station Classmark	211
9.1.25.2	Additional Update Parameters	211
9.1.26	Partial release	211
9.1.26.1	Channel Description	211
9.1.27	Partial release complete	212
9.1.28	Physical information	212
9.1.28a	(void)	212
9.1.29	RR Status	212
9.1.30a	Synchronization channel information	213
9.1.30b	COMPACT Synchronization channel information	213
9.1.31	System information type 1	214
9.1.32	System information type 2	214
9.1.33	System information type 2bis	215
9.1.34	System information type 2ter	215
9.1.34a	System information type 2quater	216
9.1.34b	System information type 2n	217
9.1.35	System information type 3	217
9.1.36	System information type 4	218
9.1.36.1	CBCH Channel description	219
9.1.36.2	CBCH Mobile Allocation	219
9.1.36.3	SI 4 Rest Octets	219
9.1.37	System information type 5	219
9.1.38	System information type 5bis	219
9.1.39	System information type 5ter	220
9.1.40	System information type 6	221
9.1.40.1	Cell Identity	221
9.1.40.2	Location Area Identification	221
9.1.40.3	Cell Options	221
9.1.40.4	NCC permitted	221
9.1.41	System information type 7	222
9.1.42	System information type 8	222
9.1.43	System information Type 9	223
9.1.43a	System information Type 13	223
9.1.43b	(void)	224
9.1.43c	(void)	224
9.1.43d	System information type 16	224
9.1.43e	System information type 17	224
9.1.43f	System information type 19	225
9.1.43g	System information type 18	225
9.1.43h	System information type 20	226
9.1.43i	System information type 14	226
9.1.43j	System information type 15	227
9.1.43k	System information Type 13alt	227
9.1.43m	System information type 21	228