

ETSI TS 101 376-4-8 V3.1.1 (2009-07)

Technical Specification

**GEO-Mobile Radio Interface Specifications (Release 3);
Third Generation Satellite Packet Radio Service;
Part 4: Radio interface protocol specifications;
Sub-part 8: Mobile Radio Interface Layer 3 Specifications;
GMR-1 3G 44.008**

ITEH STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/361655c7-a7f1-4a01-998f-b8450876b524/etsi-ts-101-376-4-8-v3.1.1-2009-07>



ReferenceRTS/SES-00309-4-8

Keywords

GMPRS, GMR, GPRS, GSM, GSO, interface,
layer 3, management, MES, mobile, mobility,
MSS, radio, satellite, S-PCN

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

Individual copies of the present document can be downloaded from:
<http://www.etsi.org>

The present document may be available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the 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 except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2009.
All rights reserved.

DECT™, PLUGTESTS™, UMTS™, TIPHON™, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

LTE™ is a Trade Mark of ETSI currently being 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	13
Foreword.....	13
Introduction	14
1 Scope	16
1.1 Scope of the present document.....	16
1.2 Application to the interface structures.....	16
1.3 Structure of Layer 3 procedures	16
1.4 Use of logical channels.....	16
1.5 Overview of control procedures	17
1.5.1 List of procedures	17
1.6 Applicability of implementations	19
1.6.1 Packet services.....	19
2 References	20
2.1 Normative references	20
2.2 Informative references.....	22
3 Definitions and abbreviations.....	23
3.1 Definitions	23
3.2 Abbreviations	24
3.3 Random values	24
4 Radio resource management procedures	24
4.1 Overview/general	24
4.1.1 General (A/Gb mode only).....	24
4.1.2 Services provided to upper layers.....	25
4.1.2.1 Idle mode	25
4.1.2.2 Establishment and release of an RR connection.....	25
4.1.2.3 RR connected mode	25
4.1.2.4 Packet idle mode (A/Gb mode only).....	25
4.1.2.5 Packet transfer mode (A/Gb mode only).....	25
4.1.3 Services required from data link and physical layers.....	25
4.1.4 RR states	25
4.1.5 Change of dedicated channels.....	25
4.1.6 Procedure for service request and contention resolution	25
4.2 Idle mode procedures	26
4.2.1 Mobile Earth Station (MES) side.....	26
4.2.2 Network side.....	26
4.2.2.1 System information broadcasting.....	26
4.2.2.1.1 Classes and segments	26
4.2.2.1.2 Transmission schedules	26
4.2.2.1.3 Change information	27
4.2.2.1.4 Encoding and decoding rules.....	27
4.2.2.1.5 Future extensions	29
4.2.2.1.6 Anchored(A) and Temporary(T) BCCH (A/Gb mode only)	29
4.2.2.1.7 Multiplexing of CCCH and PCCCH (A/Gb mode only)	29
4.2.2.1.7a Multiplexing of CCCH and PCCCH (Iu mode only)	30
4.2.2.2 GPS satellite ephemeris data broadcasting.....	30
4.2.2.2a GPS satellite ephemeris data broadcasting on GBCH3.....	31
4.2.2.3 GPS almanac data transmission	31
4.3 RR connection establishment	31
4.3.1 RR connection establishment initiated by the Mobile Earth Station (MES): immediate assignment procedure	31
4.3.1.1 Spot beam selection to access the network	32
4.3.1.2 Permission to access the network.....	32
4.3.1.3 Initiation of the immediate assignment procedure (A/Gb mode only)	32

4.3.1.3a	Initiation of the immediate assignment procedure (Iu mode only).....	33
4.3.1.4	Answer from the network.....	34
4.3.1.4.1	On receipt of a CHANNEL REQUEST message (A/Gb mode only).....	34
4.3.1.4.2	IMMEDIATE ASSIGNMENT from network for MES requesting circuit service (A/Gb mode only)	34
4.3.1.4.3	Immediate Assignment from network for MES requesting packet service	35
4.3.1.4.4	Assignment rejection (IMMEDIATE ASSIGNMENT REJECT from network) (A/Gb mode only)	35
4.3.1.4.4a	Assignment rejection (IMMEDIATE ASSIGNMENT REJECT from network) (Iu mode only)	35
4.3.1.4.5	Extended immediate assignment procedure (A/Gb mode)	38
4.3.1.4.6	Position verification procedure (A/Gb mode only)	39
4.3.1.4.6a	Position verification procedure (Iu mode only)	39
4.3.1.5	Assignment procedure completion (A/Gb mode only).....	40
4.3.1.6	Abnormal cases (A/Gb mode only).....	40
4.3.2	RR connection establishment initiation by the network: paging procedure.....	40
4.4	RR connection transfer phase (A/Gb mode only).....	40
4.5	RR connection release procedure (A/Gb mode only).....	40
4.6	Receiving an RR STATUS message by an RR entity	40
4.7	RR procedures on CCCH related to temporary block flow establishment	41
4.7.1	Packet paging procedure using CCCH.....	41
4.7.1.1	Packet paging initiation by the network	41
4.7.1.1a	Packet paging initiation by the network (Iu Mode only)	42
4.7.1.2	On receipt of a packet paging request	42
4.7.2	Packet access procedure using CCCH	42
4.7.2.1	Entering the packet transfer mode: packet access procedure	42
4.7.2.1.1	Permission to access the network	42
4.7.2.1.2	Initiation of the packet access procedure: channel request (A/Gb mode only).....	43
4.7.2.1.2a	Initiation of the packet access procedure: channel request (Iu mode only)	43
4.7.2.1.3	Packet immediate assignment.....	43
4.7.2.1.4	Packet access completion.....	46
4.7.2.1.5	Abnormal cases.....	46
4.7.2.2	Sending an RLC/MAC control message: single block packet access procedure	46
4.7.3	Packet downlink assignment procedure using CCCH (A/Gb mode only)	46
4.7.3.1	Entering the packet transfer mode: packet downlink assignment procedure.....	46
4.7.3.1.1	General	46
4.7.3.1.2	Initiation of the packet downlink assignment procedure	46
4.7.3.1.3	Packet downlink assignment completion.....	47
4.7.3.1.4	Abnormal cases	48
4.7.3.2	Sending an RLC/MAC control message: single block packet downlink assignment procedure	48
4.8	GMPRS suspend procedure on CCCH (A/Gb mode only).....	48
4.8.1	Initiation of GMPRS suspend procedure	48
4.8.2	Completion of GMPRS suspend procedure	48
4.8.3	Abnormal cases.....	49
4.9	GMPRS resume procedure on CCCH (A/Gb mode only).....	49
4.9.1	Initiation of GMPRS resume procedure.....	49
4.9.2	Completion of GMPRS resume procedure	49
4.9.3	Abnormal cases.....	50
5	Elementary procedures for mobility management	50
5.1	General	50
5.1.1	MM and GMM procedures	50
5.1.1.1	Types of MM and GMM procedures	50
5.1.1.1.1	Integrity Checking of Signalling Messages in the Mobile Station (Iu mode only).....	50
5.1.1.1.1a	Integrity protection for emergency call (Iu mode only).....	50
5.1.1.2	MM-GMM co-ordination for GMPRS MEs (A/Gb mode only).....	50
5.1.1.2.1	GMPRS MS operating in mode A or B in a network that operates in mode I.....	50
5.1.1.2.2	GPRS MS operating in mode A or B in a network that operates in mode II or III.....	50
5.1.1.3	Core Network System Information for MM (Iu mode only).....	50
5.1.1.4	Core Network System Information for GMM (Iu mode only).....	50
5.1.2	MM sublayer states.....	51
5.1.3	GPRS mobility management (GMM) sublayer states.....	51

5.1.3.1	GMM states in the MES	51
5.1.3.1.1	Main states.....	51
5.1.3.1.2	Substates of state GMM-DEREGISTERED.....	52
5.1.3.1.3	Substates of state GMM-REGISTERED.....	53
5.1.3.2	GPRS update status	54
5.1.3.3	GMM mobility management states on the network side	56
5.1.3.3.1	Main States	56
5.1.3.3.2	Substates of state GMM-REGISTERED	56
5.2	Behaviour of the MES in MM idle state, GMM-DEREGISTERED state and GMM-REGISTERED state	57
5.2.1	Primary service state selection.....	57
5.2.1.1	Selection of the service state after power-on.....	57
5.2.1.2	Other cases	57
5.2.2	Detailed description of MES behaviour in MM idle state (A/Gb mode only)	58
5.2.3	Service state when back to state MM idle from another state (A/Gb mode only)	58
5.2.4	Service state after position verification.....	58
5.2.5	Behaviour in state GMM-DEREGISTERED.....	58
5.2.5.1	Primary substate selection.....	58
5.2.5.1.1	Selection of the substate after power on or enabling the MESs GPRS capability	58
5.2.5.1.2	Other cases	59
5.2.5.2	Detailed description of the MES behaviour in state GMM-DEREGISTERED	59
5.2.5.2.1	Substate, NORMAL-SERVICE	59
5.2.5.2.2	Substate, ATTEMPTING-TO-ATTACH	59
5.2.5.2.3	Substate, LIMITED-SERVICE	59
5.2.5.2.4	Substate, NO-IMSI	59
5.2.5.2.5	Substate, NO-CELL	59
5.2.5.2.6	Substate, PLMN-SEARCH	60
5.2.5.2.7	Substate, ATTACH-NEEDED	60
5.2.5.2.8	Substate, SUSPENDED (A/Gb mode only)	60
5.2.5.2.9	Substate, INVALID-POSITION (A/Gb mode only)	60
5.2.5.2.10	Substate, NORMAL-SERVICE-DARK-BEAM (A/Gb mode only).....	60
5.2.5.3	Substate when back to state GMM-DEREGISTERED from another GMM state	60
5.2.6	Behaviour in state GMM-REGISTERED	61
5.2.6.1	Detailed description of the MES behaviour in state GMM-REGISTERED	61
5.2.6.1.1	Substate, NORMAL-SERVICE	61
5.2.6.1.2	Substate, SUSPENDED (A/Gb mode only)	61
5.2.6.1.3	Substate, UPDATE-NEEDED	62
5.2.6.1.4	Substate, ATTEMPTING-TO-UPDATE	62
5.2.6.1.5	Substate, NO-CELL-AVAILABLE	62
5.2.6.1.6	Substate, LIMITED-SERVICE	62
5.2.6.1.7	Substate, ATTEMPTING-TO-UPDATE-MM	62
5.2.6.1.8	Substate, NORMAL-SERVICE-DARK-BEAM (A/Gb mode only).....	62
5.2.6.1.9	Substate, NORMAL-SERVICE-ILLUMINATION-INITIATED (A/Gb mode only)	62
5.2.6.1.10	Substate, ROUTING-AREA-UPDATE-DARK-BEAM (A/Gb mode only).....	62
5.2.6.1.11	Substate, ROUTING-AREA-UPDATE-ILLUMINATION-INITIATED (A/Gb mode only).....	63
5.3	MM common procedures	63
5.3.1	TMSI reallocation procedure (A/Gb mode only).....	63
5.3.2	Authentication procedure.....	63
5.3.3	Identification procedure	63
5.3.4	IMSI detach procedure (A/Gb mode only)	63
5.3.5	Abort procedure (A/Gb mode only).....	63
5.3.6	MM information procedure (A/Gb mode only)	63
5.4	MM specific procedures (A/Gb mode only).....	63
5.5	Connection management sublayer service provision (A/Gb mode only)	63
5.5.1	MM connection establishment	63
5.5.1.1	MM connection establishment initiated by the MES	63
5.5.1.2	Abnormal cases	63
5.5.1.3	MM connection establishment initiated by the network	64
5.5.1.4	Abnormal cases	64
5.5.1.5	MM connection establishment for emergency calls	64
5.5.1.6	Call reestablishment	64
5.5.1.7	Forced release during MO MM connection establishment	64
5.5.1.8	Optimal routing	64

5.5.2	MM connection information transfer phase	65
5.5.3	MM connection release	65
5.6	Receiving an MM STATUS message by an MM entity	65
5.7	Elementary mobility management procedures for GPRS services	65
5.7.1	General	65
5.7.1.1	Lower layer failure	65
5.7.1.2	Ciphering of messages (A/Gb mode only)	65
5.7.1.3	P-TMSI signature	65
5.7.1.4	Radio resource sublayer address handling	65
5.7.1.4.1	Radio resource sublayer address handling (A/Gb mode only)	66
5.7.1.5	P-TMSI handling	66
5.7.1.6	Change of network mode of operation	66
5.7.1.7	Intersystem change between A/Gb mode and Iu mode	66
5.7.1.8	List of forbidden PLMNs for GPRS service	66
5.7.2	GPRS Mobility management timers and UMTS PS signalling connection control	66
5.7.2.1	READY timer behaviour	66
5.7.2.1.1	READY timer behaviour (A/Gb mode only)	66
5.7.2.1.2	READY timer behaviour (Iu mode only)	66
5.7.2.2	Periodic routing area updating	66
5.7.2.3	PMM-IDLE mode and PMM-CONNECTED mode (Iu mode only)	68
5.7.2.4	Handling of <i>Force to standby</i> in Iu mode (Iu mode only)	68
5.7.2.5	RA Update procedure for Signalling Connection Re-establishment (Iu mode only)	68
5.7.2.6	Cell Update triggered by low layers	68
5.7.3	GPRS attach procedure	68
5.7.3.1	GPRS attach procedure for GPRS services	69
5.7.3.1.1	GPRS attach procedure initiation	69
5.7.3.1.2	GMM common procedure initiation	69
5.7.3.1.3	GPRS attach accepted by the network	69
5.7.3.1.4	GPRS attach not accepted by the network	69
5.7.3.1.5	Abnormal cases in the MES	69
5.7.3.1.6	Abnormal cases on the network side	70
5.7.3.2	Combined GPRS attach procedure for GPRS and non-GPRS services	70
5.7.4	GPRS detach procedure	70
5.7.4.1	MES initiated GPRS detach procedure	71
5.7.4.1.1	MES initiated GPRS detach procedure initiation	71
5.7.4.1.2	MES initiated GPRS detach procedure completion for GPRS services only	71
5.7.4.1.3	MES initiated combined GPRS detach procedure completion	71
5.7.4.1.4	Abnormal cases in the MES	71
5.7.4.2	Network initiated GMPRS detach procedure	71
5.7.4.2.1	Network initiated GMPRS detach procedure initiation	71
5.7.4.2.2	Network initiated GMPRS detach procedure completion by the MES	71
5.7.4.2.3	Network initiated GMPRS detach procedure completion by the network	71
5.7.4.2.4	Abnormal cases on the network side	71
5.7.5	Routing area updating procedure	72
5.7.5.1	Normal and periodic routing area updating procedure	74
5.7.5.1.1	Normal and periodic routing area updating procedure initiation	74
5.7.5.1.2	GMM Common procedure initiation	74
5.7.5.1.3	Normal and periodic routing area updating procedure accepted by the network	74
5.7.5.1.4	Normal and periodic routing area updating procedure not accepted by the network	74
5.7.5.1.5	Abnormal cases in the MES	74
5.7.5.1.6	Abnormal cases on the network side	75
5.7.5.2	Combined routing area updating procedure	75
5.7.6	P-TMSI reallocation procedure	75
5.7.7	Authentication and ciphering procedure	76
5.7.8	Identification procedure	76
5.7.9	Paging procedure	76
5.7.9.1	Paging for GPRS services	76
5.7.9.1.1	Paging for packet services using P-TMSI	76
5.7.9.1.2	Paging for packet services using IMSI	76
5.7.9.2	Paging for non-GPRS services	76
5.7.10	Receiving a GMM STATUS message by a GMM entity	76
5.7.11	Void	77

5.7.12	GMM Information procedure	77
5.7.13	Service Request procedure (Iu mode only).....	77
6	Elementary procedures for circuit-switched call control (A/Gb mode only)	77
7	Support of packet services.....	77
8	Examples of structured procedures	77
8.1	General	77
8.1.1	Paging and alert request.....	77
8.1.2	Immediate assignment	77
8.1.3	Service request and contention resolution	77
8.1.4	Authentication.....	77
8.1.5	Ciphering mode setting (A/Gb mode only).....	77
8.1.6	Transaction phase (A/Gb mode only)	77
8.1.7	Channel release (A/Gb mode only).....	78
8.2	Abnormal cases (A/Gb mode only)	78
8.3	Selected examples (A/Gb mode only)	78
8.3.1	Location updating	78
8.3.2	Mobile originating call establishment.....	78
8.3.3	Mobile terminating call establishment	78
8.3.4	Call clearing.....	78
8.3.5	DTMF protocol control.....	78
8.3.6	Handover	78
8.3.7	In-call modification.....	78
8.3.8	Call reestablishment.....	78
8.3.9	Mobile-to-mobile call establishment	78
8.3.10	Multisatellite optimal routing for call establishment	78
9	Handling of unknown, unforeseen, and erroneous protocol data	79
10	Message functional definitions and contents.....	79
10.1	Messages for radio resources management	80
10.1.1	Additional assignment (A/Gb mode only)	81
10.1.2	Assignment command 1 and assignment command 2 (A/Gb mode only)	81
10.1.2.1	Assignment command 1	81
10.1.2.2	Assignment command 2	81
10.1.3	Assignment complete (A/Gb mode only)	81
10.1.4	Assignment failure (A/Gb mode only).....	81
10.1.5	Channel mode modify (A/Gb mode only)	81
10.1.6	Channel mode modify acknowledge (A/Gb mode only)	81
10.1.7	Channel release (A/Gb mode only).....	81
10.1.8	Channel request	81
10.1.8.1	Extended channel request (A/Gb mode only)	82
10.1.8.2	Channel request Type 1 (A/Gb mode only)	82
10.1.8.3	Channel request Type 2 (A/Gb mode only)	85
10.1.8.4	Channel Request Type 3 (Iu mode only).....	87
10.1.9	Ciphering mode command (A/Gb mode only)	90
10.1.10	Ciphering mode complete (A/Gb mode only).....	90
10.1.11	Classmark change (A/Gb mode only)	91
10.1.12	Classmark enquiry (A/Gb mode only)	91
10.1.13	Frequency redefinition (A/Gb mode only).....	91
10.1.14	Handover access (A/Gb mode only)	91
10.1.15	Handover command (A/Gb mode only).....	91
10.1.16	Handover complete (A/Gb mode only).....	91
10.1.17	Handover failure (A/Gb mode only)	91
10.1.18	Immediate assignment	91
10.1.18.1	Immediate assignment (A/Gb mode only)	91
10.1.18.2	Extended immediate assignment (A/Gb mode only).....	91
10.1.18.3	Immediate assignment Type 2 (A/Gb mode only)	91
10.1.18.3.1	USF.....	92
10.1.18.3.2	TLLI	92
10.1.18.3.3	Packet Power Control Parameters	92
10.1.18.3.4	Timing Advance Index (TAI).....	92

10.1.18.4	Immediate Assignment Type 3 (A/Gb mode only)	92
10.1.18.4.1	Page Mode	93
10.1.18.4.2	Persistence Level	93
10.1.18.4.3	TLLI	93
10.1.18.4.4	Packet Power Control Parameters	93
10.1.18.4.5	Timing Advance Index	93
10.1.18.5	Immediate Assignment Type 4 (Iu mode only).....	93
10.1.18.5.1	S-RNTI	94
10.1.18.5.2	Packet Immediate Assignment Type 4 Parameters.....	94
10.1.18.6	Immediate Assignment Type 5 (Iu mode only).....	94
10.1.18.6.1	S-RNTI	95
10.1.18.6.2	Packet Immediate Assignment Type 5 Parameters.....	95
10.1.19	Immediate assignment extended (A/Gb mode only).....	95
10.1.20	Immediate assignment reject.....	95
10.1.20.1	Immediate assignment reject type 1	95
10.1.20.2	Immediate assignment reject type 2	95
10.1.20.3	Extended immediate assignment reject (A/Gb mode only)	95
10.1.20.4	Position verification notify (A/Gb mode only)	95
10.1.20.4a	Position verification notify Type 2 (Iu mode only).....	95
10.1.20.4a.1	S-RNTI	96
10.1.20.4a.2	Position Verification Notify Type2 Parameters	96
10.1.20.5	Immediate Assignment Reject Type 3	96
10.1.20.5.1	Packet BCCH Carrier	96
10.1.20.5.2	Illumination Retry Timer.....	96
10.1.20.5.3	Pause Timer	97
10.1.20.6	Immediate Assignment Reject Type 4 (Iu mode only).....	97
10.1.20.6.1	BCCH Carrier	97
10.1.20.6.2	Illumination Retry Timer.....	97
10.1.20.6.3	Pause Timer	98
10.1.20.6.4	CN Information Info.....	98
10.1.21	Measurement report (A/Gb mode only).....	98
10.1.22	Paging request type 1	98
10.1.23	Paging request type 2.....	98
10.1.24	Paging request type 3	98
10.1.25	Paging response (A/Gb mode only).....	98
10.1.26	Partial release (A/Gb mode only)	98
10.1.27	Partial release complete (A/Gb mode only)	98
10.1.28	Physical information (A/Gb mode only).....	98
10.1.29	RR status (A/Gb mode only).....	98
10.1.30	Synchronization channel information (A/Gb mode only).....	99
10.1.31	System information type 1	99
10.1.32	System information type 2	99
10.1.33	System information type 2bis (Iu mode only)	99
10.1.34	System information type 2ter.....	99
10.1.35	System information type 3	99
10.1.36	System information type 4	99
10.1.37	System information type 5	99
10.1.38	System information type 5bis	99
10.1.39	System information type 5ter	99
10.1.40	System information type 6	99
10.1.41	System information type 7	100
10.1.42	System information type 8	100
10.1.43	Alert request (A/Gb mode only)	100
10.1.44	Position update request (A/Gb mode only)	100
10.1.45	Position update accept (A/Gb mode only)	100
10.1.46	GBCH information	100
10.1.46a	GBCH3 information	100
10.1.47	Guard time violation (A/Gb mode only).....	115
10.1.48	Link correction (A/Gb mode only)	115
10.1.49	Power control parameters update (A/Gb mode only)	115
10.1.50	TtT signalling link failure (A/Gb mode only).....	115
10.1.51	Information request (A/Gb mode only)	115

10.1.52	Information response version (A/Gb mode only)	115
10.1.53	Information response spot beam selection (A/Gb mode only).....	115
10.1.54	Information response current beam (A/Gb mode only)	115
10.1.55	Information response power control (A/Gb mode only).....	115
10.1.56	Information response position (A/Gb mode only)	115
10.1.57	Information response vendor specific (A/Gb mode only).....	115
10.1.58	Information response error (A/Gb mode only)	116
10.1.59	DTMF tone generate request (A/Gb mode only)	116
10.1.60	DTMF tone generate acknowledge (A/Gb mode only).....	116
10.1.61	GPRS Resume Response (A/Gb mode only)	116
10.1.61.1	TLLI.....	116
10.1.62	Paging Request Type 4 (Iu mode)	116
10.1.62.1	Page Mode.....	117
10.1.62.2	Paging Request Type 4 Parameters.....	117
10.2	Messages for mobility management.....	117
10.3	Messages for circuit-switched call control (A/Gb mode only).....	117
10.4	GPRS Mobility Management messages	117
10.5	GPRS Session Management messages.....	117
10.5.1	Streaming service (A/Gb mode only)	117
11	General message format and information elements coding.....	118
11.1	Overview	118
11.2	Protocol discriminator	118
11.3	Skip indicator and transaction identifier.....	118
11.3.1	Skip indicator.....	118
11.3.2	Transaction identifier	118
11.4	Message type	118
11.4.1	Radio resource management message types.....	119
11.4.2	DTRS message types	120
11.5	Other information elements.....	120
11.5.1	Common information elements.....	120
11.5.1.1	Cell identity.....	120
11.5.1.2	Ciphering key sequence number	120
11.5.1.3	Location area identification.....	120
11.5.1.4	Mobile identity	121
11.5.1.5	Mobile Earth Station (MES) classmark 1 (A/Gb mode only)	121
11.5.1.6	Mobile Earth Station (MES) classmark 2 (A/Gb mode only)	122
11.5.1.7	Mobile Earth Station (MES) classmark 3 (A/Gb mode only)	122
11.5.1.8	Spare half octet.....	122
11.5.2	Radio resource management IEs.....	122
11.5.2.1	BA range	122
11.5.2.2	Cell description	122
11.5.2.3	Cell options (BCCH).....	122
11.5.2.4	Cell selection parameters	122
11.5.2.5	Channel description.....	122
11.5.2.6	Channel mode	122
11.5.2.7	Channel mode 2	122
11.5.2.8	Channel needed	122
11.5.2.9	Cipher mode setting (A/Gb mode only)	122
11.5.2.10	Cipher response (A/Gb mode only)	122
11.5.2.11	Control channel description	122
11.5.2.12	Frequency channel sequence	123
11.5.2.13	Frequency list.....	123
11.5.2.14	Frequency short list	123
11.5.2.15	Handover reference	123
11.5.2.16	IA rest octets	123
11.5.2.17	IAR rest octets.....	123
11.5.2.18	IAX rest octets	124
11.5.2.19	L2 pseudo length.....	124
11.5.2.20	Measurement results.....	124
11.5.2.21	Mobile allocation	124
11.5.2.22	Neighbour cells description.....	124

11.5.2.23	P1 rest octets	124
11.5.2.24	P2 rest octets	124
11.5.2.25	P3 rest octets	124
11.5.2.26	Page mode	124
11.5.2.27	NCC permitted	124
11.5.2.28	Power command.....	124
11.5.2.29	RACH control parameters.....	124
11.5.2.30	Request Reference.....	125
11.5.2.31	RR cause	126
11.5.2.32	SI 1 rest octets	126
11.5.2.33	SI 2bis rest octets	126
11.5.2.34	SI 3 rest octets	126
11.5.2.35	SI 4 rest octets	126
11.5.2.36	SI 7 rest octets	126
11.5.2.37	SI 8 rest octets	126
11.5.2.38	Starting time	126
11.5.2.39	Synchronization indication.....	127
11.5.2.40	Timing offset.....	127
11.5.2.41	Time difference	127
11.5.2.42	TMSI	127
11.5.2.43	Wait indication.....	127
11.5.2.44	MES information flag (A/Gb mode only)	127
11.5.2.45	TTCH channel description (A/Gb mode only)	127
11.5.2.46	MES configuration (A/Gb mode only)	127
11.5.2.47	TtT common cipher key (A/Gb mode only)	127
11.5.2.48	Access information (A/Gb mode only)	127
11.5.2.49	Frequency offset.....	127
11.5.2.50	Extended power class (A/Gb mode only)	127
11.5.2.51	Paging Information.....	128
11.5.2.52	Position display	128
11.5.2.53	GPS position	128
11.5.2.54	Idle or dedicated mode position update information	128
11.5.2.55	BCCH carrier	129
11.5.2.56	Reject Cause	129
11.5.2.57	GPS timestamp.....	129
11.5.2.58	Timing correction.....	129
11.5.2.59	MES information 2 flag	130
11.5.2.60	Power control parameters.....	130
11.5.2.61	DTMF digits (A/Gb mode only)	130
11.5.2.62	TMSI availability mask	130
11.5.2.63	GPS almanac data	130
11.5.2.64	Frequency correction.....	130
11.5.2.65	Alerting information.....	130
11.5.2.66	Segment 1A.....	130
11.5.2.67	Segment 2A.....	131
11.5.2.68	Segment 2Abis	133
11.5.2.69	Segment 2B	134
11.5.2.70	Segment 2Bbis	135
11.5.2.71	Segment 3A.....	135
11.5.2.72	Segment 3B	135
11.5.2.73	Segment 3Bbis	135
11.5.2.74	Segment 3C	135
11.5.2.75	Segment 3D	136
11.5.2.76	Segment 3E	136
11.5.2.77	Segment 3Ebis.....	137
11.5.2.78	Segment 3F	138
11.5.2.79	Segment 3G	139
11.5.2.80	Segment 3Gbis	140
11.5.2.81	Segment 3H (A/Gb Mode)	141
11.5.2.81a	Segment 3H (Iu Mode).....	141
11.5.2.82	Segment 3I	141
11.5.2.83	Segment 3J	142

11.5.2.84	Segment 3Jbis	142
11.5.2.84a	Segment 3Kbis (Iu Mode)	143
11.5.2.84b	Segment 3L (Iu Mode)	144
11.5.2.84c	Segment 3M (Iu Mode)	145
11.5.2.85	Segment 4A	145
11.5.2.86	Segment 4B	145
11.5.2.87	Segment 4C	145
11.5.2.88	Segment 4D	145
11.5.2.89	Segment 4E	146
11.5.2.90	Segment 4F	146
11.5.2.90a	Segment 4G (Iu mode only)	146
11.5.2.90b	Segment 4H (Iu mode only)	146
11.5.2.90c	Segment 4I (Iu mode only)	146
11.5.2.90d	Segment 4J (Iu mode only)	147
11.5.2.90e	Segment 4K (Iu mode only)	147
11.5.2.91	Disconnection indication (A/Gb mode only)	147
11.5.2.92	Handover parameter (A/Gb mode only)	147
11.5.2.93	Information request code (A/Gb mode only)	147
11.5.2.94	Last spot beams information (A/Gb mode only)	147
11.5.2.95	Current spot beam information (A/Gb mode only)	147
11.5.2.96	Power control information (A/Gb mode only)	147
11.5.2.97	Version information (A/Gb mode only)	147
11.5.2.98	Information response error code (A/Gb mode only)	147
11.5.2.99	Vendor specific subcommand (A/Gb mode only)	148
11.5.2.100	MSC ID (A/Gb mode only)	148
11.5.2.101	GPS discriminator	148
11.5.2.102	Current timing offset (A/Gb mode only)	148
11.5.2.103	Pause Timer	148
11.5.2.104	Packet BCCH carrier	149
11.5.2.105	Packet Immediate Assignment Type 3 Parameters (A/Gb mode only)	149
11.5.2.106	Packet Frequency Parameters (A/Gb mode only)	150
11.5.2.107	Packet Immediate Assignment Type 2 Parameters (A/Gb mode only)	150
11.5.2.108	Illumination Retry Timer (A/Gb mode only)	151
11.5.2.109	Packet Control Channel Definition (A/Gb mode only)	152
11.5.2.109a	Packet Control Channel Definition (Iu Mode Only)	153
11.5.2.110	USF	153
11.5.2.111	GMPRS BCCH options (A/Gb mode only)	153
11.5.2.111a	GMPRS BCCH options (Iu mode only)	155
11.5.2.112	Uplink PRACH channels (A/Gb mode only)	157
11.5.2.113	Void	157
11.5.2.114	Void	157
11.5.2.115	Void	157
11.5.2.116	Void	157
11.5.2.117	Void	157
11.5.2.118	PRACH overlay (A/Gb mode only)	157
11.5.2.119	Uplink PRACH ARFCN (A/Gb mode only)	157
11.5.2.120	Uplink PRACH MAC Slots Indicator (A/Gb mode only)	158
11.5.2.121	GMPRS Resume Result (A/Gb mode only)	158
11.5.2.122	GMPRS Resume Response Rest Octets (A/Gb mode only)	158
11.5.2.123	Uplink PRACH Frequency Distance (A/Gb mode only)	159
11.5.2.124	PRACH Frame Periodicity (A/Gb mode only)	159
11.5.2.125	Packet Immediate Assignment Type 4 Parameters (Iu mode only)	159
11.5.2.126	3G Neighbour Cell Description (Iu mode only)	161
11.5.2.127	Paging Request Type 4 Parameters (Iu mode only)	162
11.5.2.128	Position Verification Notify Type 2 Parameters (Iu mode only)	163
11.5.2.129	Directed RAC (Iu mode only)	163
11.5.2.130	Packet Immediate Assignment Type 5 Parameters (Iu mode only)	164
11.5.2.131	CN Information Info	164
11.5.3	Mobility management IEs	164
11.5.4	Call control IEs (A/Gb mode only)	164
11.5.5	GMM IEs	165
11.5.5.1	Attach request	165

11.5.5.2	Attach type	165
11.5.5.3	Ciphering algorithm	165
11.5.5.4	Void.....	165
11.5.5.5	Detach type	165
11.5.5.6	DRX parameter	165
11.5.5.7	Force to standby	165
11.5.5.8	PTMSI signature	165
11.5.5.9	Identity type 2	165
11.5.5.10	IMEISV request	165
11.5.5.11	Receive N-PDU Numbers list	165
11.5.5.12	MS network capability	165
11.5.5.12a	MS Radio Access capability (A/Gb mode only)	165
11.5.5.13	Void.....	167
11.5.5.14	GMM cause.....	167
11.5.5.15	Routing Area Identification (RAI)	167
11.5.5.16	Void.....	167
11.5.5.17	Update result	167
11.5.5.18	Update type	167
11.5.5.19	A&C reference number	167
11.5.6	SM IEs	167
11.5.7	GPRS Common Information Elements.....	168
12	List of system parameters.....	168
12.1	Timers and counters for radio resource management	168
12.1.1	Timers on the MES side.....	168
12.1.2	Timers on the network side.....	170
12.1.3	Other parameters.....	171
12.2	Timers of mobility management	171
12.2.1	Timer T3240	171
12.2.2	Timers of GPRS mobility management.....	172
12.2.3	Timers of GPRS session management.....	174
12.3	Timers of circuit-switched call control.....	174
Annex A (informative):	Example of subaddress information element coding.....	175
Annex B (informative):	Void	176
Annex C (informative):	Void	177
Annex D (informative):	Void	178
Annex E (informative):	Void	179
Annex F (informative):	GMR specific cause values for radio resource management	180
Annex G (informative):	GMR specific cause values for session management	181
Annex H (informative):	Bibliography.....	182
History		183

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 (<http://webapp.etsi.org/IPR/home.asp>).

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 Technical Committee Satellite Earth Stations and Systems (SES).

The contents of the present document are subject to continuing work within TC-SES and may change following formal TC-SES approval. Should TC-SES modify the contents of the present document it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version 3.m.n

where:

- the third digit (n) is incremented when editorial only changes have been incorporated in the specification;
- the second digit (m) is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

The present document is part 4, sub-part 8 of a multi-part deliverable covering the GEO-Mobile Radio Interface Specifications (Release 3) Third Generation Satellite Packet Radio Service, as identified below:

Part 1: "General specifications";

Part 2: "Service specifications";

Part 3: "Network specifications";

Part 4: "Radio interface protocol specifications":

Sub-part 1: "Mobile Earth Station-Gateway Station System (MES-GSS) Interface";

Sub-part 2: "GMR-1 Satellite Network Access Reference Configuration";

Sub-part 3: "Channel Structures and Access Capabilities";

Sub-part 4: "Layer 1 General Requirements";

Sub-part 5: "Data Link Layer General Aspects";

Sub-part 6: "Mobile earth Station-Gateway Station Interface Data Link Layer Specifications";

Sub-part 7: "Mobile Radio Interface Signalling Layer 3 General Aspects";

Sub-part 8: "Mobile Radio Interface Layer 3 Specifications";