



**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
Mobile radio interface signalling layer 3;
General Aspects
(3GPP TS 24.007 version 15.1.0 Release 15)**



ReferenceRTS/TSGC-0124007v10

Keywords

GSM,LTE,UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

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

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

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

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

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

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

Copyright Notification

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

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

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

© ETSI 2018.

All rights reserved.

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

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

oneM2M logo is protected for the benefit of its Members.

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

Intellectual Property Rights

Essential patents

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

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

Trademarks

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

Foreword

This 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.....	12
1 Scope	13
2 References	13
3 Definitions and abbreviations.....	15
3.1 Definitions	15
3.2 Abbreviations	15
4 Introduction	15
4.1 General	15
4.2 Applicability of functional blocks	17
4.3 Technique of description	17
4.3.1 Service description.....	18
4.3.2 Abstract service primitives	18
4.3.3 Protocols and peer-to-peer communication	18
4.3.4 Contents of layer 3 related Technical Specifications.....	20
5 Structure of layer 3 functions	20
5.1 Basic groups of functions	20
5.2 Protocol architecture.....	22
6 Services provided by signalling layer 3 at the MS side.....	35
6.1 Registration services.....	35
6.1.1 Service state diagram for MS not supporting GPRS service	35
6.1.2 Service primitives	36
6.1.2.1 MMR_REG_REQ.....	36
6.1.2.2 MMR_REG_CNF	36
6.1.2.3 Void.....	36
6.1.2.4 MMR_NREG_REQ	36
6.1.2.5 MMR_NREG_IND	36
6.1.3 Registration Services for CTS-Services.....	36
6.1.3.1 MMR_CTS_ATTACH_REQ.....	36
6.1.3.2 MMR_CTS_ATTACH_CNF.....	36
6.1.3.3 MMR_CTS_ATTACH_REJ.....	36
6.1.3.4 MMR_CTS_DETACH_IND	37
6.1.3.5 MMR_CTS_ENROLL_REQ.....	37
6.1.3.6 MMR_CTS_ENROLL_CNF	37
6.1.3.7 MMR_CTS_ENROLL_REJ	37
6.1.3.8 MMR_CTS_DE_ENROLL_IND.....	37
6.2 Call Control services	37
6.2.1 Service state diagram.....	37
6.2.2 Service primitives	40
6.2.2.1 MNCC_SETUP_REQ.....	40
6.2.2.2 MNCC_SETUP_IND.....	40
6.2.2.3 MNCC_SETUP_RES	40
6.2.2.4 MNCC_SETUP_CNF.....	40
6.2.2.5 MNCC_SETUP_COMPL_REQ	40
6.2.2.6 MNCC_SETUP_COMPL_IND	41
6.2.2.7 MNCC_REJ_REQ	41
6.2.2.8 MNCC_REJ_IND	41
6.2.2.9 MNCC_CALL_CONF_REQ	41
6.2.2.10 MNCC_CALL_PROC_IND	41
6.2.2.11 MNCC_PROGRESS_IND.....	41
6.2.2.12 MNCC_ALERT_REQ	41

6.2.2.13	MNCC_ALERT_IND	41
6.2.2.14	MNCC_NOTIFY_REQ	41
6.2.2.15	MNCC_NOTIFY_IND	41
6.2.2.16	MNCC_DISC_REQ	41
6.2.2.17	MNCC_DISC_IND	41
6.2.2.18	MNCC_REL_REQ	41
6.2.2.19	MNCC_REL_IND	42
6.2.2.20	MNCC_REL_CNF	42
6.2.2.21	MNCC_FACILITY_REQ	42
6.2.2.22	MNCC_FACILITY_IND	42
6.2.2.23	MNCC_START_DTMF_REQ	42
6.2.2.24	MNCC_START_DTMF_CNF	42
6.2.2.25	MNCC_STOP_DTMF_REQ	42
6.2.2.26	MNCC_STOP_DTMF_CNF	42
6.2.2.27	MNCC_MODIFY_REQ	42
6.2.2.28	MNCC_MODIFY_IND	42
6.2.2.29	MNCC_MODIFY_RES	42
6.2.2.30	MNCC_MODIFY_CNF	42
6.2.2.31	MNCC_SYNC_IND	42
6.3	Call independent Supplementary Services Support	43
6.3.1	Service state diagram	43
6.3.2	Service primitives	43
6.3.2.1	MNSS_BEGIN_REQ	43
6.3.2.2	MNSS_BEGIN_IND	43
6.3.2.3	MNSS_FACILITY_REQ	43
6.3.2.4	MNSS_FACILITY_IND	44
6.3.2.5	MNSS_END_REQ	44
6.3.2.6	MNSS_END_IND	44
6.4	Short Message Services Support	44
6.5	Session Management Services for GPRS-Services	44
6.5.1	Session Management Services for SMREG-SAP	45
6.5.1.1	SMREG-PDP-ACTIVATE-REQ	45
6.5.1.2	SMREG-PDP-ACTIVATE-CNF	45
6.5.1.3	SMREG-PDP-ACTIVATE-REJ	45
6.5.1.4	SMREG-PDP-ACTIVATE-IND	45
6.5.1.5	SMREG-PDP-DEACTIVATE-REQ	46
6.5.1.6	SMREG-PDP-DEACTIVATE-CNF	46
6.5.1.7	SMREG-PDP-DEACTIVATE-IND	46
6.5.1.8	SMREG-PDP-MODIFY-IND	46
6.5.1.9	Void	46
6.5.1.10	Void	46
6.5.1.11	Void	46
6.5.1.12	Void	46
6.5.1.13	Void	46
6.5.1.14	SMREG-PDP-ACTIVATE-REJ-RSP	46
6.5.1.15	SMREG-PDP-ACTIVATE-SEC-REQ	46
6.5.1.16	SMREG-PDP-ACTIVATE-SEC-CNF	47
6.5.1.17	SMREG-PDP-ACTIVATE-SEC-REJ	47
6.5.1.18	SMREG-PDP-MODIFY-REQ	47
6.5.1.19	SMREG-PDP-MODIFY-CNF	47
6.5.1.20	SMREG-PDP-MODIFY-REJ	47
6.5.1.21	SMREG-MBMS-ACTIVATE-REQ	47
6.5.1.22	SMREG-MBMS-ACTIVATE-CNF	47
6.5.1.23	SMREG-MBMS-ACTIVATE-REJ	47
6.5.1.24	SMREG-MBMS-ACTIVATE-REJ-RSP	47
6.5.1.25	SMREG-MBMS-ACTIVATE-IND	47
6.5.2	Session Management Services for SNSM-SAP (GSM only)	49
6.5.3	Session Management Services for RABMSM-SAP (UMTS only)	49
6.5.3.1	RABMSM-ACTIVATE-IND	50
6.5.3.2	RABMSM-ACTIVATE-RSP	50
6.5.3.3	RABMSM-DEACTIVATE-IND	50
6.5.3.4	RABMSM-DEACTIVATE-RSP	50

6.5.3.5	RABMSM-DEACTIVATE-REQ	50
6.5.3.6	RABMSM-MODIFY-IND	50
6.5.3.7	RABMSM-MODIFY-RSP	50
6.5.3.8	RABMSM-STATUS-REQ	50
6.6	Registration Services for GPRS-Services	50
6.6.1	Registration Services for GMMREG-SAP	51
6.6.1.1	GMMREG-ATTACH-REQ	51
6.6.1.2	GMMREG-ATTACH-CNF	51
6.6.1.3	GMMREG-ATTACH-REJ	51
6.6.1.4	GMMREG-DETACH-REQ	51
6.6.1.5	GMMREG-DETACH-CNF	51
6.6.1.6	GMMREG-DETACH-IND	51
6.7	Services provided to SMDCP entities by GPRS Logical Link Control services	52
6.7.1	Service state diagram for QoS1-SAP, QoS2-SAP, QoS3-SAP and QoS4-SAP	53
6.7.2	Service primitives for QoS1-SAP, QoS2-SAP, QoS3-SAP and QoS4-SAP	53
6.7.2.1	LL-ESTABLISH-REQ	53
6.7.2.2	LL-ESTABLISH-CNF	54
6.7.2.3	LL-ESTABLISH-IND	54
6.7.2.4	LL-ESTABLISH-RSP	54
6.7.2.5	LL-RELEASE-REQ	54
6.7.2.6	LL-RELEASE-CNF	54
6.7.2.7	LL-RELEASE-IND	54
6.7.2.8	LL-XID-REQ	54
6.7.2.9	LL-XID-IND	54
6.7.2.10	LL-XID-RSP	54
6.7.2.11	LL-XID-CNF	54
6.7.2.12	LL-DATA-REQ	54
6.7.2.13	LL-DATA-CNF	54
6.7.2.14	LL-DATA-IND	54
6.7.2.15	LL-UNITDATA-REQ	54
6.7.2.16	LL-UNITDATA-IND	54
6.7.2.17	LL-STATUS-IND	54
6.8	Location services at the type A LMU side	55
6.8.1	Service state diagram	55
6.8.2	Service primitives	56
6.8.2.1	MNLCS_BEGIN_REQ	56
6.8.2.2	MNLCS_BEGIN_IND	56
6.8.2.3	MNLCS_FACILITY_REQ	56
6.8.2.4	MNLCS_FACILITY_IND	56
6.8.2.5	MNLCS_END_REQ	56
6.8.2.6	MNLCS_END_IND	56
7	Services provided by signalling layer 3 on the Network side	56
7.1	Call control services	56
7.1.1	Service state diagram	57
7.1.2	Service primitives	60
7.1.2.1	MNCC_SETUP_REQ	60
7.1.2.2	MNCC_SETUP_IND	60
7.1.2.3	MNCC_SETUP_RSP	60
7.1.2.4	MNCC_SETUP_CNF	60
7.1.2.5	MNCC_SETUP_COMPL_REQ	60
7.1.2.6	MNCC_SETUP_COMPL_IND	60
7.1.2.7	MNCC_REJ_REQ	61
7.1.2.8	MNCC_REJ_IND	61
7.1.2.9	MNCC_CALL_CONF_IND	61
7.1.2.10	MNCC_CALL_PROC_REQ	61
7.1.2.11	MNCC_PROGRESS_REQ	61
7.1.2.12	MNCC_ALERT_REQ	61
7.1.2.13	MNCC_ALERT_IND	61
7.1.2.14	MNCC_NOTIFY_REQ	61
7.1.2.15	MNCC_NOTIFY_IND	61
7.1.2.16	MNCC_DISC_REQ	61

7.1.2.17	MNCC_DISC_IND.....	61
7.1.2.18	MNCC_REL_REQ.....	61
7.1.2.19	MNCC_REL_IND.....	61
7.1.2.20	MNCC_REL_CNF.....	62
7.1.2.21	MNCC_FACILITY_REQ.....	62
7.1.2.22	MNCC_FACILITY_IND.....	62
7.1.2.23	MNCC_START_DTMF_IND.....	62
7.1.2.24	MNCC_START_DTMF_RSP.....	62
7.1.2.25	MNCC_STOP_DTMF_IND.....	62
7.1.2.26	MNCC_STOP_DTMF_RSP.....	62
7.1.2.27	MNCC_MODIFY_REQ.....	62
7.1.2.28	MNCC_MODIFY_IND.....	62
7.1.2.29	MNCC_MODIFY_RES.....	62
7.1.2.30	MNCC_MODIFY_CNF.....	62
7.2	Call independent Supplementary Services Support.....	62
7.2.1	Service state diagram.....	62
7.2.2	Service primitives.....	63
7.2.2.1	MNSS_BEGIN_REQ.....	63
7.2.2.2	MNSS_BEGIN_IND.....	63
7.2.2.3	MNSS_FACILITY_REQ.....	63
7.2.2.4	MNSS_FACILITY_IND.....	63
7.2.2.5	MNSS_END_REQ.....	64
7.2.2.6	MNSS_END_IND.....	64
7.3	Short Message Services Support.....	64
7.4	Services provided to SMDCP and SMS entities by GPRS Logical Link Control services.....	64
7.4.1	Service state diagram for QoS1-SAP, QoS2-SAP, QoS3-SAP and QoS4-SAP.....	64
7.4.2	Service primitives for QoS1-SAP, QoS2-SAP, QoS3-SAP and QoS4-SAP.....	64
7.4.2.1	LL-ESTABLISH-REQ.....	64
7.4.2.2	LL-ESTABLISH-CNF.....	64
7.4.2.3	LL-ESTABLISH-IND.....	65
7.4.2.4	LL-ESTABLISH-RSP.....	65
7.4.2.5	LL-RELEASE-REQ.....	65
7.4.2.6	LL-RELEASE-CNF.....	65
7.4.2.7	LL-RELEASE-IND.....	65
7.4.2.8	LL-XID-REQ.....	65
7.4.2.9	LL-XID-IND.....	65
7.4.2.10	LL-XID-RSP.....	65
7.4.2.11	LL-XID-CNF.....	65
7.4.2.12	LL-DATA-REQ.....	65
7.4.2.13	LL-DATASENT-IND.....	65
7.4.2.14	LL-DATA-CNF.....	65
7.4.2.15	LL-DATA-IND.....	65
7.4.2.16	LL-UNITDATA-REQ.....	65
7.4.2.17	LL-UNITDATA-IND.....	65
7.4.2.18	LL-STATUS-IND.....	65
7.5	Session Management Services for GPRS and MBMS.....	66
7.5.1	Session Management Services for SMREG-SAP.....	66
7.5.1.1	SMREG-PDP-ACTIVATE-REQ.....	66
7.5.1.2	SMREG-PDP-ACTIVATE-REJ.....	66
7.5.1.3	SMREG-PDP-DEACTIVATE-REQ.....	66
7.5.1.4	SMREG-PDP-DEACTIVATE-CNF.....	66
7.5.1.5	SMREG-PDP-MODIFY-REQ.....	66
7.5.1.6	SMREG-PDP-MODIFY-CNF.....	67
7.5.1.7	SMREG-PDP-MODIFY-REJ.....	67
7.5.1.8	SMREG-MBMS-ACTIVATE-REQ.....	67
7.5.1.9	SMREG-MBMS-ACTIVATE-REJ.....	67
7.5.2	Session Management Services for SNSM-SAP.....	67
7.6	Location services at the Network side.....	67
7.6.1	Service state diagram.....	67
7.6.2	Service primitives.....	68
7.6.2.1	MNLCS_BEGIN_REQ.....	68
7.6.2.2	MNLCS_BEGIN_IND.....	68

7.6.2.3	MNLCS_FACILITY_REQ.....	69
7.6.2.4	MNLCS_FACILITY_IND.....	69
7.6.2.5	MNLCS_END_REQ.....	69
7.6.2.6	MNLCS_END_IND.....	69
8	Services assumed from signalling layers 1 and 2.....	69
8.1	Priority.....	69
8.2	Unacknowledged information transfer.....	69
8.3	Acknowledged information transfer.....	69
8.4	Random access.....	70
8.5	Channel management and measurements.....	70
9	Interlayer service interfaces on the MS side.....	70
9.1	Services provided by the Radio Resource Management entity.....	70
9.1.1	Service state diagram.....	71
9.1.2	Service primitives.....	72
9.1.2.1	RR_EST_REQ.....	72
9.1.2.2	RR_EST_IND.....	72
9.1.2.3	RR_EST_CNF.....	72
9.1.2.4	RR_REL_IND.....	72
9.1.2.5	RR_SYNC_IND.....	72
9.1.2.5a	Void.....	73
9.1.2.5b	Void.....	73
9.1.2.6	RR_DATA_REQ.....	73
9.1.2.7	RR_DATA_IND.....	73
9.1.2.7a	Void.....	73
9.1.2.8	RR_UNIT_DATA_IND.....	73
9.1.2.9	RR_ABORT_REQ.....	73
9.1.2.10	RR_ABORT_IND.....	73
9.1.3	Services provided by the Radio Resource Management entity for CTS.....	73
9.1.3.1	CTS_RR_ALIVE_CHECK_IND.....	73
9.2	Services provided by the Mobility Management entity.....	74
9.2.1	Service state diagram.....	75
9.2.2	Service primitives.....	76
9.2.2.1	MMXX_EST_REQ.....	76
9.2.2.2	MMXX_EST_IND.....	76
9.2.2.3	MMXX_EST_CNF.....	76
9.2.2.4	MMXX_REL_REQ.....	76
9.2.2.5	MMXX_REL_IND.....	76
9.2.2.6	MMXX_DATA_REQ.....	76
9.2.2.7	MMXX_DATA_IND.....	77
9.2.2.8	MMXX_UNIT_DATA_REQ.....	77
9.2.2.9	MMXX_UNIT_DATA_IND.....	77
9.2.2.10	MMCC_SYNC_IND.....	77
9.2.2.11	MMXX_REEST_REQ.....	77
9.2.2.12	MMXX_REEST_CNF.....	77
9.2.2.13	MMXX_ERR_IND.....	77
9.2.2.14	MMXX_PROMPT_IND.....	77
9.2.2.15	MMXX_PROMPT_REJ.....	77
9.3	Services provided by radio resource management entity for GPRS services.....	77
9.3.1	Service primitives for GRR-SAP (GSM only).....	78
9.3.2	Service primitives for GMMRR-SAP (GSM only).....	78
9.3.2.1	GMMRR-ASSIGN-REQ.....	78
9.3.2.2	GMMRR-PAGE-IND.....	78
9.3.3	Service primitives for RABMAS-SAP (UMTS only).....	78
9.3.3.1	RABMAS-RAB-ESTABLISH-IND.....	78
9.3.3.2	RABMAS-RAB-ESTABLISH-RES.....	78
9.3.3.3	RABMAS-RAB-ESTABLISH-REJ.....	78
9.3.3.4	RABMAS-RAB-RELEASE-IND.....	78
9.3.3.5	RABMAS-RAB-RELEASE-RES.....	78
9.3.3.6	RABMAS-STATUS-IND.....	79
9.3.4	Service primitives for GMMAS-SAP (UMTS only).....	79

9.3.4.1	GMMAS-SECURITY-IND	79
9.3.4.2	GMMAS-SECURITY-RES	79
9.3.4.3	GMMAS-ESTABLISH-REQ.....	79
9.3.4.4	GMMAS-ESTABLISH-CNF.....	79
9.3.4.5	GMMAS-ESTABLISH-REJ.....	79
9.3.4.6	GMMAS- RELEASE-REQ	79
9.3.4.7	GMMAS- RELEASE-IND	79
9.3.4.8	GMMAS- DATA-REQ.....	79
9.3.4.9	GMMAS- DATA-IND.....	79
9.3.4.10	GMMAS-PAGE-IND	80
9.3.4.11	GMMAS-STATUS-IND	80
9.4	Services provided by the LLC entity for GPRS services (GSM only)	80
9.4.1	Service primitives for LLGMM-SAP	80
9.4.1.1	LLGMM-ASSIGN-REQ.....	80
9.4.1.2	LLGMM-TRIGGER-REQ.....	80
9.4.1.3	Void.....	80
9.4.1.4	LLGMM-SUSPEND-REQ	80
9.4.1.5	Void.....	80
9.4.1.6	Void.....	80
9.4.1.7	LLGMM-WINDOW-CNF	80
9.4.1.8	LL-UNITDATA-REQ.....	80
9.4.1.9	LL-UNITDATA-IND	80
9.4.1.10	LLGMM-STATUS-IND	81
9.4.2	Service primitives for LLSMS-SAP	81
9.4.2.1	LL-UNITDATA-REQ.....	81
9.4.2.2	LL-UNITDATA-IND	81
9.5	Services provided by the GMM for GPRS services.....	81
9.5.1	Service primitives for GMMSM-SAP	81
9.5.1.1	GMMSM-ESTABLISH-REQ.....	81
9.5.1.2	GMMSM-ESTABLISH-CNF	81
9.5.1.3	GMMSM-ESTABLISH-REJ	81
9.5.1.4	GMMSM-RELEASE-IND.....	82
9.5.1.5	GMMSM-UNITDATA-REQ.....	82
9.5.1.6	GMMSM-UNITDATA-IND.....	82
9.5.2	Void	82
9.5.3	Service primitives for GMMSMS-SAP	82
9.5.3.1	GMMSMS-REG-STATE-REQ	82
9.5.3.2	GMMSM- REG-STATE -RSP.....	82
9.5.4	Service primitives for PMMSMS-SAP.....	82
9.5.4.1	PMMSMS_EST_REQ	82
9.5.4.2	PMMSMS_EST_CNF.....	82
9.5.4.3	PMMSMS_ERROR_IND	82
9.5.4.4	PMMSMS_UNITDATA_REQ.....	83
9.5.4.5	PMMSMS_UNITDATA_IND.....	83
9.5.5	Service primitives for GMMRABM-SAP (UMTS only).....	83
9.5.5.1	GMMRABM-REESTABLISH-REQ.....	83
9.5.5.2	GMMRABM-REESTABLISH-RSP.....	83
9.5.5.3	GMMRABM-REESTABLISH-REJ	83
9.5.6	Service primitives for GMMSS-SAP	83
9.5.6.1	GMMSS-ESTABLISH-REQ	83
9.5.6.2	GMMSS-ESTABLISH-CNF	84
9.5.6.3	GMMSS-ESTABLISH-REJ	84
9.5.6.4	GMMSS-RELEASE-IND	84
9.5.6.5	GMMSS-UNITDATA-REQ.....	84
9.5.6.6	GMMSS-UNITDATA-IND.....	84
9.5.7	Service primitives for GMMSS2-SAP.....	84
9.5.7.1	GMMSS2-REG-STATE-REQ.....	84
9.5.7.2	GMM SS2- REG-STATE -RSP	84
10	Interlayer service interfaces on the Network side	84
10.1	Services provided by the Radio Resource Management entity	84
10.1.1	Service state diagram.....	85

10.1.2	Service primitives	86
10.1.2.1	RR_EST_REQ	86
10.1.2.2	RR_EST_IND	86
10.1.2.3	RR_EST_CNF	87
10.1.2.4	RR_REL_REQ	87
10.1.2.5	RR_REL_IND	87
10.1.2.6	RR_SYNC_REQ	87
10.1.2.7	RR_SYNC_CNF	87
10.1.2.8	RR_DATA_REQ	87
10.1.2.9	RR_DATA_IND	87
10.1.2.10	RR_UNIT_DATA_REQ	87
10.1.2.11	RR_UNIT_DATA_IND	87
10.1.2.12	RR_ABORT_REQ	87
10.1.2.13	RR_ABORT_IND	87
10.2	Services provided by the Mobility Management entity	87
10.2.1	Service state diagram	88
10.2.2	Service primitives	89
10.2.2.1	MMXX_EST_REQ	89
10.2.2.2	MMXX_EST_IND	89
10.2.2.3	MMXX_EST_CNF	89
10.2.2.4	MMXX_REL_REQ	89
10.2.2.5	MMXX_REL_IND	89
10.2.2.6	MMXX_DATA_REQ	89
10.2.2.7	MMXX_DATA_IND	89
10.2.2.8	MMXX_UNIT_DATA_REQ	89
10.2.2.9	MMXX_UNIT_DATA_IND	89
10.2.2.10	MMCC_SYNC_REQ	89
10.2.2.11	MMCC_SYNC_CNF	90
10.3	Services provided by radio resource management entity for GPRS services	90
10.3.1	Service primitives for GRR-SAP	90
10.3.2	Service primitives for GMMRR-SAP	90
10.3.2.1	GMMRR-PAGE-REQ	90
10.4	Services provided by the LLC entity for GPRS services	90
10.4.1	Service primitives for LLGMM-SAP	90
10.4.1.1	LLGMM-ASSIGN-REQ	90
10.4.1.2	Void	90
10.4.1.3	LLGMM-SUSPEND-REQ	90
10.4.1.4	LLGMM-RESUME-REQ	91
10.4.1.5	Void	91
10.4.1.6	Void	91
10.4.1.7	LLGMM-PAGE-IND	91
10.4.1.8	LLGMM-PAGE-RESP-IND	91
10.4.1.9	LL-UNITDATA-REQ	91
10.4.1.10	LL-UNITDATA-IND	91
10.4.1.11	LLGMM-STATUS-IND	91
10.4.2	Service primitives for LLSMS-SAP	91
10.4.2.1	LL-UNITDATA-REQ	91
10.4.2.2	LL-UNITDATA-IND	91
10.5	Services provided by the GMM for GPRS services	91
10.5.1	Service primitives for GMMSM-SAP	91
10.5.1.1	GMMSM-RELEASE-IND	92
10.5.1.2	GMMSM-UNITDATA-REQ	92
10.5.1.3	GMMSM-UNITDATA-IND	92
10.5.2	Service primitives for PMMSMS-SAP	92
10.5.2.1	PMMSMS_REL_REQ	92
10.5.2.2	PMMSMS_ERROR_IND	92
10.5.2.3	PMMSMS_UNITDATA_REQ	92
10.5.2.4	PMMSMS_UNITDATA_IND	92
10.5.3	Service primitives for GMMSS-SAP	92
10.5.3.1	GMMSS-RELEASE-IND	92
10.5.3.2	GMMSS-UNITDATA-REQ	92
10.5.3.3	GMMSS-UNITDATA-IND	93

10.6	Services provided by the Radio Resource Management entity for CTS on the fixed part	93
10.6.1	Service primitives	93
10.6.1.1	RR_CTS_ALIVE_CHECK_REQ.....	93
10.6.1.2	RR_CTS_ALIVE_CHECK_IND.....	93
10.6.1.3	RR_CTS_HUNTING_REQ.....	93
10.6.1.4	RR_CTS_GROUP_ALERTING_REQ.....	93
11	L3 Messages	94
11.1	General	94
11.1.1	Messages.....	94
11.1.2	Octets	94
11.1.3	Integer	95
11.1.3.1	Binary.....	95
11.1.3.2	2-complement binary	95
11.1.4	Spare parts	95
11.2	Standard L3 messages	95
11.2.1	Components of a standard L3 message	95
11.2.1.1	Format of standard information elements	96
11.2.1.1.1	Information element type and value part	96
11.2.1.1.2	Length indicator.....	96
11.2.1.1.3	Information element identifier.....	97
11.2.1.1.4	Categories of IEs; order of occurrence of IEI, LI, and value part.....	97
11.2.2	Description methods for IE structure	99
11.2.2.1	Tables.....	99
11.2.2.1.1	Compact notation.....	100
11.2.3	Imperative part of a standard L3 message	100
11.2.3.1	Standard L3 message header	100
11.2.3.1.1	Protocol discriminator	101
11.2.3.1.1A	Extended protocol discriminator (EPD)	101
11.2.3.1.2	Skip indicator	102
11.2.3.1.3	Transaction identifier.....	102
11.2.3.1.4	Sub-protocol discriminator	104
11.2.3.1.5	EPS bearer identity	104
11.2.3.1.6	Security header type	105
11.2.3.1a	Procedure transaction identity.....	105
11.2.3.1b	PDU session identity	105
11.2.3.2	Message type octet	106
11.2.3.2.1	Message type octet (when accessing Release 98 and older networks only)	106
11.2.3.2.2	Message type octet (when accessing Release 99 and newer networks).....	107
11.2.3.2.3	Sequenced message transfer operation	108
11.2.3.2.3.1	Variables and sequence numbers.....	109
11.2.3.2.3.1.1	Send state variable V(SD).....	109
11.2.3.2.3.1.2	Send sequence number N(SD).....	109
11.2.3.2.3.2	Procedures for the initiation, transfer execution and termination of the sequenced message transfer operation.....	109
11.2.3.2.3.2.1	Initiation.....	109
11.2.3.2.3.2.2	Transfer Execution.....	109
11.2.3.2.3.2.3	Termination.....	110
11.2.3.3	Standard information elements of the imperative part	110
11.2.4	Non-imperative part of a standard L3 message.....	110
11.2.5	Presence requirements of information elements	111
11.2.6	Description of standard L3 messages.....	112
11.3	Non standard L3 messages	112
11.3.1	Case A: BCCH and AGCH/PCH messages	112
11.3.1.1	L2 Pseudo Length octet.....	112
11.3.1.2	Rest Octets	113
11.3.1.3	Description of a modified standard L3 message	113
11.3.2	Case B: SACCH / SDCCH / FACCH messages sent in unacknowledged mode.....	113
11.3.2.1	The first octet	113
11.3.2.2	The rest of the message	113
11.3.3	Design guidelines for non standard parts.....	113
11.3.3.1	General	113

11.4	Handling of superfluous information	114
11.4.1	Information elements that are unnecessary in a message.....	114
11.4.2	Other syntactic errors.....	114
Annex A (informative):	MN-Services arrow diagram.....	115
Annex B (informative):	Description of CSN.1	123
B.1	The Basic Rules.....	123
B.1.1	Core Rules.....	123
B.1.1.1	Rule B1: Bits.....	123
B.1.1.2	Rule B2: Null String	123
B.1.1.3	Rule B3: Concatenation	123
B.1.1.4	Rule B4: Choice.....	124
B.1.1.5	Rule B5: Naming	124
B.1.1.6	Rule B6: Definition.....	125
B.1.2	Spare parts.....	125
B.1.2.1	Rule B7: Spare bits	125
B.1.2.2	Rule B8: Padding bits	125
B.1.3	Predefined sets.....	126
B.1.4	Labelling Parts.....	126
B.1.4.1	Rule A1: Labels	126
B.1.5	Goodies	127
B.1.5.1	Rule G1: Comments.....	127
B.2	Advanced rules	127
B.2.1	Rule A2: Exponent notation	127
Annex C (informative):	GPRS-Services sequence diagram.....	129
Annex D (informative):	Change history	150
History		153

Foreword

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

The present document defines the architecture of layer 3 and its sublayers on the GSM Um interface, i.e. the interface between Mobile Station and network within the 3GPP system.

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

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

ETSI STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/e82e3c14-a4c4-4bc7-85a8-774948c9b1e6/etsi-ts-124-007-v15.1.0-2018-06>