

# ETSI TS 129 002 V17.4.0 (2023-09)



**Digital cellular telecommunications system (Phase 2+) (GSM);  
Universal Mobile Telecommunications System (UMTS);  
LTE;  
5G;  
Mobile Application Part (MAP) specification  
(3GPP TS 29.002 version 17.4.0 Release 17)**

<https://standards.iteh.ai>

Document Preview  
ETSI TS 129 002 V17.4.0 (2023-09)

<https://standards.iteh.ai/catalog/standards/sist/eadc65de-cab1-4fda-95c0-3f498e359216/etsi-ts-129-002-v17-4-0-2023-09>



---

**Reference**

RTS/TSGC-0429002vh40

---

**Keywords**

5G,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 - APE 7112B  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° w061004871

---

**Important notice**

The present document can be downloaded from:

<https://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 prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

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/CommitteeSupportStaff.aspx>

If you find a security vulnerability in the present document, please report it through our

Coordinated Vulnerability Disclosure Program:

<https://www.etsi.org/standards/coordinated-vulnerability-disclosure>

---

**Notice of disclaimer & limitation of liability**

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

---

**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 2023.  
All rights reserved.

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

**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 a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

---

## Legal Notice

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. These shall be interpreted as being references to the corresponding ETSI deliverables. (2023-09)

The cross reference between 3GPP and ETSI identities can be found under <https://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
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	28
1 Scope .....	30
2 References .....	30
3 Abbreviations .....	36
4 Void.....	36
5 Overload and compatibility overview .....	36
5.1 Overload control.....	37
5.1.1 Overload control for MSC (outside MAP) .....	37
5.1.2 Overload control for MAP entities .....	37
5.1.3 Congestion control for Signalling System No. 7 .....	41
5.2 Compatibility.....	41
5.2.1 General.....	41
5.2.2 Strategy for selecting the Application Context (AC) version .....	41
5.2.2.1 Proposed method.....	41
5.2.2.2 Managing the version look-up table.....	42
5.2.2.3 Optimising the method.....	43
6 Requirements concerning the use of SCCP and TC.....	43
6.1 Use of SCCP.....	43
6.1.1 SCCP Class .....	43
6.1.2 Sub-System Number (SSN) .....	43
6.1.3 SCCP addressing .....	44
6.1.3.1 Introduction.....	44
6.1.3.2 The Mobile-services Switching Centre (MSC) .....	46
6.1.3.2.1 MSC interaction during handover or relocation .....	46
6.1.3.2.2 MSC for short message routing .....	46
6.1.3.2.3 MSC for location request routing .....	46
6.1.3.2.4 MSC for LMU Control.....	46
6.1.3.3 The Home Location Register (HLR).....	47
6.1.3.3.1 During call set-up .....	47
6.1.3.3.2 Before location updating completion.....	47
6.1.3.3.3 After location updating completion.....	47
6.1.3.3.4 VLR restoration .....	48
6.1.3.3.5 During Network-Requested PDP Context Activation .....	48
6.1.3.3.6 Before GPRS location updating completion.....	48
6.1.3.3.7 After GPRS location updating completion .....	49
6.1.3.3.8 Query for a Location Request.....	49
6.1.3.4 The Visitor Location Register (VLR) .....	49
6.1.3.4.0 General .....	49
6.1.3.4.1 Inter-VLR information retrieval .....	49
6.1.3.4.2 HLR request .....	49
6.1.3.4.3 CSS request .....	50
6.1.3.5 The Interworking MSC (IWMSC) for Short Message Service .....	50
6.1.3.6 The Equipment Identity Register (EIR) .....	50
6.1.3.7 Void.....	50
6.1.3.8 The Serving GPRS Support Node (SGSN) .....	50
6.1.3.8.0 General .....	50
6.1.3.8.1 HLR request .....	50
6.1.3.8.2 GMSC request.....	50
6.1.3.8.3 CSS request .....	50

6.1.3.9	The Gateway GPRS Support Node (GGSN).....	50
6.1.3.10	The Gateway MSC (GMSC) for Short Message Service .....	51
6.1.3.10A	Void.....	51
6.1.3.10A.1	Void.....	51
6.1.3.10A.2	Void.....	51
6.1.3.10B	The Gateway Mobile Location Centre (GMLC).....	51
6.1.3.10C	The CSG Subscriber Server (CSS).....	51
6.1.3.11	Summary table .....	51
6.2	Use of TC .....	55
7	General on MAP services.....	55
7.1	Terminology and definitions .....	55
7.2	Modelling principles.....	55
7.3	Common MAP services.....	56
7.3.1	MAP-OPEN service.....	57
7.3.2	MAP-CLOSE service .....	60
7.3.3	MAP-DELIMITER service.....	60
7.3.4	MAP-U-ABORT service .....	60
7.3.5	MAP-P-ABORT service .....	61
7.3.6	MAP-NOTICE service .....	62
7.3.7	Void.....	63
7.3.8	Void.....	63
7.3.9	Void.....	63
7.3.10	Void.....	63
7.4	Sequencing of services .....	63
7.5	General rules for mapping of services onto TC.....	64
7.5.1	Mapping of common services.....	64
7.5.2	Mapping of user specific services.....	65
7.6	Definition of parameters.....	66
7.6.1	Common parameters .....	66
7.6.1.1	Invoke Id .....	66
7.6.1.2	Linked Id.....	66
7.6.1.3	Provider error .....	66
7.6.1.4	User error .....	66
7.6.2	Numbering and identification parameters.....	70
7.6.2.1	IMSI.....	70
7.6.2.2	TMSI.....	70
7.6.2.3	IMEI.....	70
7.6.2.3a	IMEISV .....	70
7.6.2.4	Previous location area Id .....	70
7.6.2.5	Stored location area Id .....	70
7.6.2.6	Current location area Id.....	70
7.6.2.7	Target location area Id .....	70
7.6.2.8	Target cell Id .....	70
7.6.2.8A	Target RNC Id.....	70
7.6.2.9	Void.....	70
7.6.2.10	Originating entity number .....	71
7.6.2.11	MSC number .....	71
7.6.2.12	Target MSC number.....	71
7.6.2.13	HLR number .....	71
7.6.2.14	VLR number .....	71
7.6.2.15	HLR Id .....	71
7.6.2.16	LMSI.....	71
7.6.2.17	MS ISDN .....	71
7.6.2.17A	Additional MSISDN.....	71
7.6.2.18	OMC Id .....	71
7.6.2.19	Roaming number .....	71
7.6.2.19A	Relocation Number List .....	71
7.6.2.20	Void.....	71
7.6.2.21	Handover number.....	71
7.6.2.22	Forwarded-to number.....	72
7.6.2.22A	Long forwarded-to number .....	72

7.6.2.22B	Long FTN Supported .....	72
7.6.2.23	Forwarded-to subaddress .....	72
7.6.2.24	Called number .....	72
7.6.2.25	Calling number.....	72
7.6.2.26	Originally dialled number .....	72
7.6.2.27	Service centre address.....	72
7.6.2.28	Zone Code .....	72
7.6.2.29	MSIsdn-Alert .....	72
7.6.2.30	Location Information .....	72
7.6.2.30a	Location Information for GPRS .....	72
7.6.2.30b	Location Information for EPS .....	72
7.6.2.31	GMSC Address .....	72
7.6.2.32	VMSC Address .....	73
7.6.2.33	Group Id .....	73
7.6.2.34	North American Equal Access preferred Carrier Id .....	73
7.6.2.35	Void.....	73
7.6.2.36	Void.....	73
7.6.2.37	Serving cell Id .....	73
7.6.2.38	SGSN number .....	73
7.6.2.39	SGSN address .....	73
7.6.2.40	GGSN address.....	73
7.6.2.41	GGSN number.....	73
7.6.2.42	APN.....	73
7.6.2.43	Network Node number.....	74
7.6.2.43A	Network Node Diameter Address .....	74
7.6.2.44	PDP-Type.....	74
7.6.2.44A	Extension PDP-Type .....	74
7.6.2.45	PDP-Address.....	74
7.6.2.45A	Extension PDP-Address .....	74
7.6.2.46	Additional number .....	74
7.6.2.46A	Additional Network Node Diameter Address .....	74
7.6.2.46B	Third Number.....	74
7.6.2.46C	Third Network Node Diameter Address .....	74
7.6.2.47	P-TMSI .....	74
7.6.2.48	B-subscriber number .....	75
7.6.2.49	B-subscriber subaddress.....	75
7.6.2.50	LMU Number .....	75
7.6.2.51	MLC Number.....	75
7.6.2.52	Multicall Bearer Information .....	75
7.6.2.53	Multiple Bearer Requested.....	75
7.6.2.54	Multiple Bearer Not Supported.....	75
7.6.2.55	PDP-Charging Characteristics.....	75
7.6.2.56	Selected RAB ID.....	75
7.6.2.57	RAB ID .....	75
7.6.2.58	gsmSCF Address.....	75
7.6.2.59	V-GMLC Address.....	75
7.6.2.60	Void.....	75
7.6.2.61	H-GMLC Address.....	75
7.6.2.62	PPR Address .....	76
7.6.2.63	Routeing Number.....	76
7.6.2.64	Additional V-GMLC Address.....	76
7.6.2.65	MME Name.....	76
7.6.2.66	3GPP AAA Server Name.....	76
7.6.2.67	CSS number .....	76
7.6.2.68	SGSN Name .....	76
7.6.2.69	SGSN Realm.....	76
7.6.3	Subscriber management parameters.....	76
7.6.3.1	Category .....	76
7.6.3.2	Equipment status .....	76
7.6.3.2a	BMUEF .....	76
7.6.3.3	Extensible Bearer service.....	76
7.6.3.4	Extensible Teleservice .....	76

7.6.3.5	Extensible Basic Service Group .....	77
7.6.3.6	GSM bearer capability .....	77
7.6.3.7	Subscriber Status .....	77
7.6.3.8	CUG Outgoing Access indicator .....	77
7.6.3.9	Operator Determined Barring General Data .....	77
7.6.3.10	ODB HPLMN Specific Data .....	79
7.6.3.11	Regional Subscription Data .....	79
7.6.3.12	Regional Subscription Response .....	80
7.6.3.13	Roaming Restriction Due To Unsupported Feature .....	80
7.6.3.14	Extensible SS-Info .....	80
7.6.3.15	Extensible forwarding information .....	80
7.6.3.16	Extensible forwarding feature .....	80
7.6.3.17	Extensible SS-Status .....	80
7.6.3.18	Extensible Forwarding Options .....	81
7.6.3.19	Extensible No reply condition timer .....	81
7.6.3.20	Extensible Call barring information .....	81
7.6.3.21	Extensible Call barring feature .....	81
7.6.3.22	CUG info .....	81
7.6.3.23	CUG subscription .....	81
7.6.3.24	CUG interlock .....	82
7.6.3.25	CUG index .....	82
7.6.3.26	CUG feature .....	82
7.6.3.27	Inter CUG options .....	82
7.6.3.28	Intra CUG restrictions .....	82
7.6.3.29	Extensible SS-Data .....	82
7.6.3.30	Subscriber State .....	83
7.6.3.31	Requested Info .....	83
7.6.3.31A	Requested Domain .....	83
7.6.3.32	Suppression of Announcement .....	83
7.6.3.33	Suppress T-CSI .....	83
7.6.3.34	GMSC CAMEL Subscription Info .....	83
7.6.3.35	VLR CAMEL Subscription Info .....	83
7.6.3.36	Supported CAMEL Phases in the VLR .....	83
7.6.3.36A	Supported CAMEL Phases in the SGSN .....	83
7.6.3.36B	Offered CAMEL4 CSIs in the VLR .....	83
7.6.3.36C	Offered CAMEL4 CSIs in the SGSN .....	83
7.6.3.36D	Offered CAMEL4 CSIs .....	83
7.6.3.36E	Offered CAMEL4 CSIs in interrogating node .....	83
7.6.3.36F	Offered CAMEL4 CSIs in VMSC .....	83
7.6.3.36G	Offered CAMEL4 Functionalities .....	84
7.6.3.36H	Supported CAMEL Phases .....	84
7.6.3.36I	Supported CAMEL Phases in interrogating node .....	84
7.6.3.37	CUG Subscription Flag .....	84
7.6.3.38	CAMEL Subscription Info Withdraw .....	84
7.6.3.39	Voice Group Call Service (VGCS) Data .....	84
7.6.3.40	Voice Broadcast Service (VBS) Data .....	84
7.6.3.41	ISDN bearer capability .....	84
7.6.3.42	Lower layer Compatibility .....	84
7.6.3.43	High Layer Compatibility .....	84
7.6.3.44	Alerting Pattern .....	84
7.6.3.45	GPRS Subscription Data Withdraw .....	84
7.6.3.45A	EPS Subscription Data Withdraw .....	84
7.6.3.46	GPRS Subscription Data .....	85
7.6.3.46A	EPS Subscription Data .....	85
7.6.3.47	QoS-Subscribed .....	85
7.6.3.48	VPLMN address allowed .....	85
7.6.3.49	Roaming Restricted In SGSN/MME Due To Unsupported Feature .....	85
7.6.3.50	Network Access Mode .....	85
7.6.3.51	Mobile Not Reachable Reason .....	85
7.6.3.52	Cancellation Type .....	85
7.6.3.53	All GPRS Data .....	85
7.6.3.54	Complete Data List Included .....	85

7.6.3.55	PDP Context Identifier .....	85
7.6.3.56	LSA Information .....	85
7.6.3.57	SoLSA support indicator .....	86
7.6.3.58	LSA Information Withdraw .....	86
7.6.3.59	LMU Indicator .....	86
7.6.3.60	LCS Information .....	86
7.6.3.61	GMLC List .....	86
7.6.3.62	LCS Privacy Exception List .....	86
7.6.3.62A	Additional LCS Privacy Exception List .....	86
7.6.3.63	LCS Privacy Exception Parameters .....	86
7.6.3.64	External Client List .....	87
7.6.3.65	Internal Client List .....	87
7.6.3.65A	MO-LR List .....	87
7.6.3.65B	Privacy Notification to MS User .....	87
7.6.3.65C	GMLC List Withdraw .....	87
7.6.3.65D	Service Type List .....	87
7.6.3.66	IST Alert Timer .....	87
7.6.3.67	Call Termination Indicator .....	87
7.6.3.68	IST Information Withdraw .....	87
7.6.3.69	IST Support Indicator .....	87
7.6.3.70	Super-Charger Supported In HLR .....	88
7.6.3.71	Super-Charger Supported In Serving Network Entity .....	88
7.6.3.72	Age Indicator .....	88
7.6.3.73	GPRS enhancements support indicator .....	88
7.6.3.74	Extension QoS-Subscribed .....	88
7.6.3.75	SGSN CAMEL Subscription Info .....	88
7.6.3.75A	Extension-2 QoS-Subscribed .....	88
7.6.3.75B	Extension-3 QoS-Subscribed .....	88
7.6.3.75C	Extension-4 QoS-Subscribed .....	88
7.6.3.76	MO-SMS-CSI .....	88
7.6.3.76a	MT-SMS-CSI .....	89
7.6.3.77	GPRS-CSI .....	89
7.6.3.78	CAMEL subscription info .....	89
7.6.3.83	Call Barring Data .....	89
7.6.3.84	Call Forwarding Data .....	89
7.6.3.85	ODB Data .....	90
7.6.3.86	Requested Subscription Info .....	90
7.6.3.87	CS Allocation/Retention priority .....	90
7.6.3.88	ODB Info .....	90
7.6.3.89	Suppress VT-CSI .....	90
7.6.3.90	Suppress Incoming Call Barring .....	90
7.6.3.91	gsmSCF Initiated Call .....	90
7.6.3.91a	SuppressMTSS .....	90
7.6.3.92	Call barring support indicator .....	90
7.6.3.93	MNP Info Result .....	90
7.6.3.94	Allowed Services .....	90
7.6.3.95	Unavailability Cause .....	91
7.6.3.96	MNP Requested Info .....	91
7.6.3.97	Access Restriction Data .....	91
7.6.3.98	Supported RAT types indicator .....	91
7.6.3.99	UE SRVCC Capability .....	91
7.6.3.100	Temporary Empty CSG Subscription data Indicator .....	91
7.6.3.101	WLAN-offloadability .....	91
7.6.3.102	IMSI-Group-Id .....	91
7.6.4	Supplementary services parameters .....	91
7.6.4.1	SS-Code .....	91
7.6.4.1A	SS-Code 2 .....	92
7.6.4.2	SS-Status .....	92
7.6.4.3	SS-Data .....	92
7.6.4.4	Override Category .....	92
7.6.4.5	CLI Restriction Option .....	92
7.6.4.6	Forwarding Options .....	93

7.6.4.7	No reply condition timer .....	93
7.6.4.8 - 7.6.4.14	Void.....	93
7.6.4.15	Forwarding information .....	93
7.6.4.16	Forwarding feature .....	93
7.6.4.17	Void.....	93
7.6.4.18	Call barring information.....	93
7.6.4.19	Call barring feature .....	94
7.6.4.20	New password.....	94
7.6.4.21	Current password .....	94
7.6.4.22	Guidance information.....	94
7.6.4.23	Void.....	94
7.6.4.24	SS-Info .....	94
7.6.4.25 - 7.6.4.35	Void.....	94
7.6.4.36	USSD Data Coding Scheme.....	95
7.6.4.37	USSD String.....	95
7.6.4.38	Bearer service.....	95
7.6.4.38A	Bearer Service 2 .....	95
7.6.4.39	Teleservice .....	95
7.6.4.39A	Teleservice 2 .....	95
7.6.4.40	Basic Service Group.....	95
7.6.4.41	eMLPP information.....	95
7.6.4.42	SS-event .....	95
7.6.4.43	SS-event data.....	96
7.6.4.44	LCS Privacy Exceptions .....	96
7.6.4.45	Mobile Originating Location Request (MO-LR) .....	96
7.6.4.46	NbrUser.....	96
7.6.4.47	MC Subscription Data.....	96
7.6.4.48	MC Information .....	96
7.6.4.49	CCBS Request State.....	97
7.6.4.50	Basic Service Group 2.....	97
7.6.5	Call parameters .....	97
7.6.5.1	Call reference number .....	97
7.6.5.2	Interrogation type .....	97
7.6.5.3	OR interrogation .....	97
7.6.5.4	OR capability .....	97
7.6.5.5	Forwarding reason.....	97
7.6.5.6	Forwarding interrogation required .....	98
7.6.5.7	O-CSI.....	98
7.6.5.7A	D-CSI.....	98
7.6.5.7B	T-CSI.....	98
7.6.5.7C	VT-CSI.....	98
7.6.5.7D	O-IM-CSI.....	98
7.6.5.7E	D-IM-CSI.....	98
7.6.5.7F	VT-IM-CSI.....	98
7.6.5.8	Void.....	98
7.6.5.9	Void.....	98
7.6.5.10	Void.....	98
7.6.5.11	CCBS Feature .....	98
7.6.5.12	UU Data .....	99
7.6.5.14	Number Portability Status .....	99
7.6.5.15	Pre-paging supported .....	99
7.6.5.16	MT Roaming Retry Supported.....	99
7.6.5.17	MT Roaming Retry .....	99
7.6.5.18	Paging Area.....	99
7.6.5.19	Call Priority.....	99
7.6.5.20	MTRF Supported .....	99
7.6.5.21	LCLS Global Call Reference (LCLS GCR).....	99
7.6.5.22	LCLS-Negotiation.....	99
7.6.5.23	LCLS-Configuration-Preference.....	99
7.6.6	Radio parameters .....	99
7.6.6.1 - 7.6.6.3	Void.....	100
7.6.6.4	GERAN Classmark .....	100

7.6.6.5	BSSMAP Service Handover .....	100
7.6.6.5A	BSSMAP Service Handover List .....	100
7.6.6.6	RANAP Service Handover .....	100
7.6.6.7	HO-Number Not Required .....	100
7.6.6.8	Integrity Protection Information .....	100
7.6.6.9	Encryption Information .....	100
7.6.6.10	Radio Resource Information .....	100
7.6.6.10A	Radio Resource List .....	100
7.6.6.10B	Chosen Radio Resource Information .....	100
7.6.6.11	Key Status .....	100
7.6.6.12	Selected UMTS Algorithms .....	100
7.6.6.13	Allowed GSM Algorithms .....	100
7.6.6.14	Allowed UMTS Algorithms .....	101
7.6.6.15	Selected GSM Algorithm .....	101
7.6.6.16	Iu-Currently Used Codec .....	101
7.6.6.17	Iu-Supported Codecs List .....	101
7.6.6.17A	Iu-Available Codecs List .....	101
7.6.6.18	Iu-Selected Codec .....	101
7.6.6.19	RAB Configuration Indicator .....	101
7.6.6.20	UESBI-Iu .....	101
7.6.6.21	Alternative Channel Type .....	101
7.6.6.22	AoIP-Supported Codecs List Anchor .....	101
7.6.6.23	AoIP-Available Codecs List Map .....	101
7.6.6.24	AoIP-Selected Codec Target .....	101
7.6.7	Authentication parameters .....	102
7.6.7.1	Authentication set list .....	102
7.6.7.2	Rand .....	102
7.6.7.3	Sres .....	102
7.6.7.4	Kc .....	102
7.6.7.5	Xres .....	102
7.6.7.5A	Ck .....	102
7.6.7.5B	Ik .....	102
7.6.7.5C	Autn .....	102
7.6.7.5D	KASME .....	102
7.6.7.6	Cksn .....	102
7.6.7.6A	Ksi .....	102
7.6.7.6B	Auts .....	102
7.6.7.7	Ciphering mode .....	103
7.6.7.8	Current Security Context .....	103
7.6.7.9	Failure cause .....	103
7.6.7.10	Re-attempt .....	103
7.6.7.11	Access Type .....	103
7.6.8	Short message parameters .....	103
7.6.8.1	SM-RP-DA .....	103
7.6.8.2	SM-RP-OA .....	103
7.6.8.3	MWD status .....	103
7.6.8.4	SM-RP-UI .....	104
7.6.8.5	SM-RP-PRI .....	104
7.6.8.6	SM Delivery Outcome .....	104
7.6.8.7	More Messages To Send .....	104
7.6.8.8	Alert Reason .....	104
7.6.8.9	Absent Subscriber Diagnostic SM .....	104
7.6.8.10	Alert Reason Indicator .....	104
7.6.8.10A	Additional Alert Reason Indicator .....	104
7.6.8.11	Additional SM Delivery Outcome .....	104
7.6.8.12	Additional Absent Subscriber Diagnostic SM .....	104
7.6.8.13	Delivery Outcome Indicator .....	105
7.6.8.14	GPRS Node Indicator .....	105
7.6.8.14A	IMS Node Indicator .....	105
7.6.8.15	GPRS Support Indicator .....	105
7.6.8.16	SM-RP-MTI .....	105
7.6.8.17	SM-RP-SMEA .....	105

7.6.8.18	IP-SM-GW SM Delivery Outcome .....	105
7.6.8.19	IP-SM-GW Absent Subscriber Diagnostic SM .....	105
7.6.8.20	IP-SM-GW Indicator .....	105
7.6.8.21	SM Delivery Timer .....	105
7.6.8.22	SM Delivery Start Time .....	105
7.6.8.23	Maximum Retransmission Time .....	105
7.6.8.24	Requested Retransmission Time .....	105
7.6.8.25	Maximum UE Availability Time .....	106
7.6.8.26	SMS-GMSC Alert Event .....	106
7.6.8.27	SMS-GMSC Address .....	106
7.6.8.28	SMS-GMSC Diameter Address .....	106
7.6.8.29	New SGSN Number .....	106
7.6.8.30	New MME Number .....	106
7.6.8.31	New SGSN Diameter Address .....	106
7.6.8.32	New MME Diameter Address .....	106
7.6.8.33	New MSC Number .....	106
7.6.8.34	SMSF 3GPP Absent Subscriber Diagnostic SM .....	106
7.6.8.35	SMSF Non 3GPP Absent Subscriber Diagnostic SM .....	106
7.6.8.36	SMSF 3GPP Delivery Outcome Indicator .....	106
7.6.8.37	SMSF Non-3GPP Delivery Outcome Indicator .....	107
7.6.8.38	SMSF 3GPP SM Delivery Outcome .....	107
7.6.8.39	SMSF Non-3GPP SM Delivery Outcome .....	107
7.6.8.40	SMSF 3GPP Absent Subscriber Diagnostic SM .....	107
7.6.8.41	SMSF Non 3GPP Absent Subscriber Diagnostic SM .....	107
7.6.9	Access and signalling system related parameters .....	107
7.6.9.1	AN-apdu .....	107
7.6.9.2	CM service type .....	107
7.6.9.3	Access connection status .....	107
7.6.9.4	External Signal Information .....	108
7.6.9.5	Access signalling information .....	108
7.6.9.6	Location update type .....	108
7.6.9.7	Protocol ID .....	108
7.6.9.8	Network signal information .....	108
7.6.9.8A	Network signal information 2 .....	109
7.6.9.9	Call Info .....	109
7.6.9.10	Additional signal info .....	109
7.6.10	System operations parameters .....	109
7.6.10.1	Network resources .....	110
7.6.10.2	Trace reference .....	110
7.6.10.2A	Trace reference 2 .....	110
7.6.10.3	Trace type .....	110
7.6.10.4	Additional network resources .....	110
7.6.10.5	Trace depth list .....	110
7.6.10.6	Trace NE type list .....	110
7.6.10.7	Trace interface list .....	110
7.6.10.8	Trace event list .....	110
7.6.10.9	Trace support indicator .....	111
7.6.10.10	Trace Propagation List .....	111
7.6.10.11	MDT-Configuration .....	111
7.6.10.12	MDT User Consent .....	111
7.6.11	Location Service Parameters .....	111
7.6.11.1	Age of Location Estimate .....	111
7.6.11.2	Deferred MT-LR Response Indicator .....	111
7.6.11.3	Deferred MT-LR Data .....	111
7.6.11.4	LCS Client ID .....	111
7.6.11.5	LCS Event .....	111
7.6.11.7	LCS Priority .....	111
7.6.11.8	LCS QoS .....	111
7.6.11.9	CS LCS Not Supported by UE .....	112
7.6.11.10	PS LCS Not Supported by UE .....	112
7.6.11.11	Location Estimate .....	112
7.6.11.11A	GERAN Positioning Data .....	112

7.6.11.11B	UTRAN Positioning Data .....	112
7.6.11.11C	GERAN GANSS Positioning Data .....	113
7.6.11.11D	UTRAN GANSS Positioning Data .....	113
7.6.11.11E	UTRAN Additional Positioning Data .....	113
7.6.11.11F	UTRAN Barometric Pressure Measurement .....	113
7.6.11.11G	UTRAN Civic Address .....	113
7.6.11.12	Location Type .....	113
7.6.11.13	NA-ESRD .....	113
7.6.11.14	NA-ESRK .....	113
7.6.11.15	LCS Service Type Id.....	113
7.6.11.16	Privacy Override .....	114
7.6.11.17	Supported LCS Capability Sets.....	114
7.6.11.18	LCS Codeword.....	114
7.6.11.19	NA-ESRK Request.....	114
7.6.11.20	Supported GAD Shapes .....	114
7.6.11.21	Additional Location Estimate.....	114
7.6.11.22	Cell Id Or SAI.....	114
7.6.11.23	LCS-Reference Number .....	114
7.6.11.24	LCS Privacy Check.....	114
7.6.11.25	Additional LCS Capability Sets.....	115
7.6.11.26	Area Event Info .....	115
7.6.11.27	Velocity Estimate .....	115
7.6.11.28	Accuracy Fulfilment Indicator .....	115
7.6.11.29	MO-LR Short Circuit Indicator.....	115
7.6.11.30	Reporting PLMN List .....	115
7.6.11.31	Periodic LDR information.....	115
7.6.11.32	Sequence Number .....	115
7.6.12	Void .....	115
7.7	Representation of a list of a basic parameter in service-primitives .....	116
8	Mobility services .....	116
8.1	Location management services.....	116
8.1.1	Void .....	116
8.1.1.1	Void.....	116
8.1.1.2	Void.....	116
8.1.1.3	Void.....	116
8.1.2	MAP_UPDATE_LOCATION service .....	116
8.1.2.1	Definition .....	116
8.1.2.2	Service primitives .....	116
8.1.2.3	Parameter definitions and use .....	117
8.1.3	MAP_CANCEL_LOCATION service .....	120
8.1.3.1	Definition .....	120
8.1.3.2	Service primitives .....	120
8.1.3.3	Parameter definitions and use .....	120
8.1.4	MAP_SEND_IDENTIFICATION service .....	121
8.1.4.1	Definition .....	121
8.1.4.2	Service primitives .....	121
8.1.4.3	Parameter definitions and use .....	122
8.1.5	Void .....	123
8.1.5.1	Void.....	123
8.1.5.2	Void.....	123
8.1.5.3	Void.....	123
8.1.6	MAP_PURGE_MS service.....	123
8.1.6.1	Definition .....	123
8.1.6.2	Service primitives .....	124
8.1.6.3	Parameter definitions and use .....	124
8.1.7	MAP_UPDATE_GPRS_LOCATION service .....	125
8.1.7.1	Definition .....	125
8.1.7.2	Service primitives .....	125
8.1.7.3	Parameter definitions and use .....	126
8.1.8	MAP-NOTE-MM-EVENT .....	130
8.1.8.1	Definition .....	130

8.1.8.2	Service primitives .....	130
8.1.8.3	Parameter use .....	131
8.1.9	MAP_UPDATE_VCSG_LOCATION service .....	132
8.1.9.1	Definition .....	132
8.1.9.2	Service primitives .....	132
8.1.9.3	Parameter definitions and use .....	133
8.1.10	MAP_CANCEL_VCSG_LOCATION service.....	133
8.1.10.1	Definition .....	133
8.1.10.2	Service primitives .....	133
8.1.10.3	Parameter definitions and use .....	134
8.2	Paging and search.....	134
8.2.1	MAP_PAGE service .....	134
8.2.1.1	Definition .....	134
8.2.1.2	Service primitives .....	134
8.2.1.3	Parameter definitions and use .....	134
8.2.2	MAP_SEARCH_FOR_MS service .....	135
8.2.2.1	Definition .....	135
8.2.2.2	Service primitives .....	135
8.2.2.3	Parameter definitions and use .....	135
8.3	Access management services .....	136
8.3.1	MAP_PROCESS_ACCESS_REQUEST service .....	136
8.3.1.1	Definition .....	136
8.3.1.2	Service primitives .....	136
8.3.1.3	Parameter definitions and use .....	136
8.4	Handover services .....	138
8.4.1	MAP_PREPARE_HANDOVER service.....	138
8.4.1.1	Definition .....	138
8.4.1.2	Service primitives .....	138
8.4.1.3	Parameter use .....	139
8.4.2	MAP_SEND_END_SIGNAL service .....	143
8.4.2.1	Definition .....	143
8.4.2.2	Service primitives .....	143
8.4.2.3	Parameter use .....	143
8.4.3	MAP_PROCESS_ACCESS_SIGNALLING service .....	143
8.4.3.1	Definition .....	143
8.4.3.2	Service primitives .....	143
8.4.3.3	Parameter use .....	144
8.4.4	MAP_FORWARD_ACCESS_SIGNALLING service .....	145
8.4.4.1	Definition .....	145
8.4.4.2	Service primitives .....	145
8.4.4.3	Parameter use .....	146
8.4.5	MAP_PREPARE_SUBSEQUENT_HANDOVER service .....	148
8.4.5.1	Definition .....	148
8.4.5.2	Service primitives .....	148
8.4.5.3	Parameter use .....	148
8.4.6	MAP_ALLOCATE_HANDOVER_NUMBER service .....	149
8.4.6.1	Definition .....	149
8.4.6.2	Service primitives .....	149
8.4.6.3	Parameter use .....	149
8.4.7	MAP_SEND_HANDOVER_REPORT service.....	150
8.4.7.1	Definition .....	150
8.4.7.2	Service primitives .....	150
8.4.7.3	Parameter use .....	150
8.5	Authentication management services .....	150
8.5.1	MAP_AUTHENTICATE service.....	150
8.5.1.1	Definition .....	150
8.5.1.2	Service primitives .....	151
8.5.1.3	Parameter use .....	151
8.5.2	MAP_SEND_AUTHENTICATION_INFO service.....	151
8.5.2.1	Definition .....	151
8.5.2.2	Service primitives .....	152
8.5.2.3	Parameter use .....	152

8.5.3	MAP_AUTHENTICATION_FAILURE_REPORT service .....	154
8.5.3.1	Definition .....	154
8.5.3.2	Service primitives .....	154
8.5.3.3	Parameter use .....	154
8.6	Security management services .....	155
8.6.1	MAP_SET_CIPHERING_MODE service .....	155
8.6.1.1	Definitions .....	155
8.6.1.2	Service primitives .....	155
8.6.1.3	Parameter use .....	155
8.7	International mobile equipment identities management services .....	156
8.7.1	MAP_CHECK_IMEI service .....	156
8.7.1.1	Definition .....	156
8.7.1.2	Service primitives .....	156
8.7.1.3	Parameter use .....	156
8.7.2	MAP_OBTAIN_IMEI service .....	157
8.7.2.1	Definition .....	157
8.7.2.2	Service primitives .....	157
8.7.2.3	Parameter use .....	157
8.8	Subscriber management services .....	158
8.8.1	MAP-INSERT-SUBSCRIBER-DATA service .....	158
8.8.1.1	Definition .....	158
8.8.1.2	Service primitives .....	159
8.8.1.3	Parameter use .....	160
8.8.1.4	Basic service information related to supplementary services .....	174
8.8.2	MAP-DELETE-SUBSCRIBER-DATA service .....	174
8.8.2.1	Definition .....	174
8.8.2.2	Service primitives .....	174
8.8.2.3	Parameter use .....	175
8.9	Identity management services .....	180
8.9.1	MAP-PROVIDE-IMSI service .....	180
8.9.1.1	Definition .....	180
8.9.1.2	Service primitives .....	180
8.9.1.3	Parameter use .....	180
8.9.2	MAP-FORWARD-NEW-TMSI service .....	180
8.9.2.1	Definition .....	180
8.9.2.2	Service primitives .....	181
8.9.2.3	Parameter use .....	181
8.10	Fault recovery services .....	181
8.10.1	MAP_RESET service .....	181
8.10.1.1	Definition .....	181
8.10.1.2	Service primitives .....	181
8.10.1.3	Parameter definition and use .....	181
8.10.2	MAP_FORWARD_CHECK_SS_INDICATION service .....	182
8.10.2.1	Definition .....	182
8.10.2.2	Service primitives .....	182
8.10.2.3	Parameter definition and use .....	182
8.10.3	MAP_RESTORE_DATA service .....	183
8.10.3.1	Definition .....	183
8.10.3.2	Service primitives .....	183
8.10.3.3	Parameter definitions and use .....	183
8.11	Subscriber Information services .....	185
8.11.1	MAP-ANY-TIME-INTERROGATION service .....	185
8.11.1.1	Definition .....	185
8.11.1.2	Service primitives .....	185
8.11.1.3	Parameter definition and use .....	186
8.11.2	MAP-PROVIDE-SUBSCRIBER-INFO service .....	187
8.11.2.1	Definition .....	187
8.11.2.2	Service primitives .....	187
8.11.2.3	Parameter definition and use .....	187
8.11.3	MAP-ANY-TIME-SUBSCRIPTION-INTERROGATION service .....	188
8.11.3.1	Definition .....	188
8.11.3.2	Service primitives .....	188