

3GPP TSG CN Plenary Meeting #16
5th – 7th June 2002 Marco Island, USA.

NP-020255

Source: TSG CN WG4
Title: CRs on Rel-5 Location Service Enhancement
Agenda item: 8.4
Document for: APPROVAL

Introduction:

This document contains 6 CRs on Rel-5 Work Item "LCS1", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #16 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.008	052	1	N4-020740	Rel-5	LCS: Codeword and Service Type	B	5.0.0
23.016	026		N4-020687	Rel-5	LCS: Codeword and Service Type	B	5.0.0
24.030	013		N4-020405	Rel-5	LCS: Codeword and Service Type	B	5.0.0
24.080	016		N4-020406	Rel-5	LCS: Codeword and Service Type	B	5.0.0
29.002	421	5	N4-020703	Rel-5	LCS: Codeword and Service Type	B	5.1.0
29.002	450		N4-020608	Rel-5	Correction to LCS in the PS domain	F	5.1.0

CR-Form-v5.1

CHANGE REQUEST

⌘ **23.008 CR 052** ⌘ rev **1** ⌘ Current version: **5.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ LCS: Service Type and Codeword		
Source:	⌘ CN4		
Work item code:	⌘ LCS1	Date:	⌘ 13/05/2002
Category:	⌘ B	Release:	⌘ REL-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ SA#15 has approved Stage1 and Stage 2 cr's for the introduction of additional privacy checks based on Codeword and Service Type for a Positioning Request. According to the stage 2 CR, N4-020527 was agreed at the CN4#13 for the introduction of additional privacy checks based Codeword and Service Type. However, the procedure for Codeword based privacy check was changed at SA2#24 in order to solve the security and performance problems(See S2-021475). This CR, together with the companion CR's, provides the corresponding modifications to the relevant specifications.
Summary of change:	⌘ Addition of Service Type and Codeword related data to the HLR data
Consequences if not approved:	⌘ The functionalities defined at Stage2 would not be implemented in other specifications creating a serious misalignment.

Clauses affected:	⌘ 2.16.1.1, 2.16.1.4, 2.16.1.5, 5.1, 5.2	
Other specs	⌘ <input type="checkbox"/> Other core specifications	⌘ CR 026 23.016 CR 013 24.030 CR 016 24.080 CR 421 29.002
affected:	<input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	
Other comments:	⌘ The related Stage 1 and Stage 2 CR's already approved by SA#15 are the following: 22.071 cr 031 (SP-020047) 22.071 cr 032 (SP-020047) 23.271 cr 069r1 (SP-020138) In addition to this, the related Stage 2 CR's improving codeword check mechanism and service type approved by SA2#24 are the following:	

23.271 cr 084r5 (S2-021475)
23.271 cr 089r1 (S2-021265)

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** FIRST MODIFIED SECTION ****

2.16 Data related to Location Services

2.16.1 Subscriber Data stored in HLR

2.16.1.1 Privacy Exception List

This data contains the privacy classes for any target MS ~~which that~~ identify the LCS clients permitted to locate the MS. For a detailed definition of this data, refer to 3GPP TS 23.271.

2.16.1.2 GMLC Numbers

This data contains the GMLC addresses for an MS subscriber. These addresses may be used to verify that a location request from specific LCS clients is authorized for the target MS.

2.16.1.3 MO-LR List

This data contains the classes of MO-LR that are permitted for the MS subscriber. For a detailed definition of this data, refer to 3GPP TS 23.271.

2.16.1.4 Service Types

This data contains the privacy settings for any target MS that identify the permitted service types for LCS clients requesting positioning of the MS. For a detailed definition of this data, refer to 3GPP TS 23.271.

2.16.1.5 Codeword Handling Information

This data contains the privacy setting for any target MS that identifies the handling of Codeword in HLR when the GMLC has indicated the applicability of Codeword Checks in MAP Send Routing Info for LCS. For a detailed definition of this data, refer to 3GPP TS 23.271.

**** NEXT MODIFIED SECTION ****

5.1 Non-GPRS Network Access Mode Data Storage

Table 1: Overview of data stored for non-GPRS Network Access Mode (CS)

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE
IMSI	2.1.1.1	M	M	P
Network Access Mode	2.1.1.2	M	-	P
International MS ISDN number	2.1.2	M	M	P
multinumbering MSISDNs	2.1.3	C	-	P
Basic MSISDN indicator	2.1.3.1	C	-	P
MSISDN-Alert indicator	2.1.3.2	C	-	P
TMSI	2.1.4	-	C	T
LMSI	2.1.8	C	C	T
Mobile Station Category	2.2.1	M	M	P
LMU Identifier	2.2.2	C	C	P
RAND, SRES and Kc	2.3.1	-	C	T
RAND, XRES, CK, IK and AUTN	2.3.2	M	C	T
Ciphering Key Sequence Number	2.3.3	-	M	T
Key Set Identifier (KSI)	2.3.4	-	M	T
MSRN	2.4.1	-	C	T
Location Area Identity	2.4.2	-	M	T
VLR number	2.4.5	M	-	T
MSC number	2.4.6	M	C	T
HLR number	2.4.7	-	C	T
Subscription restriction	2.4.10	C	-	P
RSZI lists	2.4.11.1	C	-	P
Zone Code List	2.4.11.2	-	C	P
MSC area restricted flag	2.4.12	M	-	T
LA not allowed flag	2.4.13	-	M	T
ODB-induced barring data	2.4.15.1	C	-	T
Roaming restriction due to unsupported feature	2.4.15.2	M	M	T
Cell Global ID or Service Area ID	2.4.16	-	C	T
LSA Identity	2.4.17.1	C	C	P
LSA Priority	2.4.17.2	C	C	P
LSA Preferential Access Indicator	2.4.17.2A	C	C	P
LSA Active Mode Support Indicator	2.4.17.2B	C	C	P
LSA Only Access Indicator	2.4.17.3	C	C	P
LSA Active Mode Indicator	2.4.17.4	C	C	P
VPLMN Identifier	2.4.17.5	C	-	P
Provision of bearer service	2.5.1	M	M	P
Provision of teleservice	2.5.2	M	M	P
BC allocation	2.5.3	C	C	P
IMSI detached flag	2.7.1	-	C	T
Confirmed by Radio Contact indicator	2.7.4.1	-	M	T
Subscriber Data Confirmed by HLR indicator	2.7.4.2	-	M	T
Location Information Confirmed in HLR indicator	2.7.4.3	-	M	T
Check SS indicator	2.7.4.4	M	-	T
MS purged for non-GPRS flag	2.7.5	M	-	T
MNRR	2.7.7	C	-	T
Subscriber status	2.8.1	C	C	P
Barring of outgoing calls	2.8.2.1	C	C	P
Barring of incoming calls	2.8.2.2	C	-	P
Barring of roaming	2.8.2.3	C	-	P
Barring of premium rate calls	2.8.2.4	C	C	P
Barring of supplementary service management	2.8.2.5	C	C	P
Barring of registration of call forwarding	2.8.2.6	C	-	P
Barring of invocation of call transfer	2.8.2.7	C	C	P
Operator determined barring PLMN-specific data	2.8.3	C	C	P
Notification to CSE flag for ODB	2.8.4	C	-	T
gsmSCF address list for ODB	2.8.5	C	-	P
Handover Number	2.9.1	-	C	T
Messages Waiting Data	2.10.1	C	-	T
Mobile Station Not Reachable Flag	2.10.2	C	M	T
Memory Capacity Exceeded Flag	2.10.3	C	-	T
Trace Reference	2.11.1	C	C	P
Trace Type	2.11.2	C	C	P
Operations Systems Identity	2.11.3	C	C	P

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE
HLR Trace Type	2.11.4	C	-	P
MAP Error On Trace	2.11.5	C	-	T
Trace Activated in VLR	2.11.6	C	C	T
Foreign Subscriber Registered in VLR	2.11.7	-	C	P
VGCS Group Membership List	2.12.1	C	C	P
VBS Group Membership List	2.12.2	C	C	P
Broadcast Call Initiation Allowed List	2.12.2.1	C	C	P
Originating CAMEL Subscription Information (O-CSI)	2.14.1.1/3.1	C	C	P
Terminating CAMEL Subscription Information (T-CSI)	2.14.1.2	C	-	P
VMSC Terminating CAMEL Subscription Information (VT-CSI)	2.14.1.2/3.2	C	C	P
Location Information/Subscriber state Information	2.14.1.3	C	-	P
USSD CAMEL subscription information(U-CSI)	2.14.1.4	C	-	P
SS invocation notification (SS-CSI)	2.14.1.5/3.2	C	C	P
Translation information flag(TIF-CSI)	2.14.1.6/3.6	C	C	P
Dialled service CAMEL Subscription Information (D-CSI)	2.14.1.11/3.7	C	C	P
USSD General CAMEL service information (UG-CSI)	2.14.2	C	-	P
O-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		T
SS-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		T
VT-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		T
Short Message Service CAMEL Subscription Information(MO-SMS-CSI)	2.14.1.8/2.14.3.5	C	C	P
Short Message Service CAMEL Subscription Information(MT-SMS-CSI)	2.14.1.9/2.14.3.6	C	C	P
MO-SMS-CSI VLR Negotiated CAMEL Capability Handling	2.14.2.1	C		T
MT-SMS-CSI VLR Negotiated CAMEL Capability Handling	2.14.2.1	C		P
M-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		T
VLR Supported CAMEL Phases	2.14.2.3	C		T
GsmSCF address for CSI	2.14.2.4	C		P
IST Alert Timer	2.15.1	C	C	P
Privacy Exception List	2.16.1.1	C	C	P
GMLC Numbers	2.16.1.2	C	C	P
MO-LR List	2.16.1.3	C	C	P
<u>Service Types</u>	<u>2.16.1.4</u>	<u>C</u>	<u>C</u>	<u>P</u>
<u>Codeword Handling Information</u>	<u>2.16.1.5</u>	<u>C</u>		<u>P</u>
Age Indicator	2.17.1	C	C	T
CS Allocation/Retention priority	2.18.1	C	C	P

**** NEXT MODIFIED SECTION ****

5.2 GPRS Network Access Mode Storage

Table 2: Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE
IMSI	2.1.1.1	M	M	M	M	P
Network Access Mode	2.1.1.2	M	-	C note1	-	P
International MS ISDN number	2.1.2	M	M	M	-	T
multinumbeing MSISDNs	2.1.3	C	-	-	-	T
Basic MSISDN indicator	2.1.3.1	C	-	-	-	T
MSISDN-Alert indicator	2.1.3.2	C	-	-	-	T
P-TMSI	2.1.5	-	-	C	-	T
TLLI	2.1.6	-	-	C	-	T
Random TLLI	2.1.7	-	-	C	-	T
IMEI	2.1.9	-	-	C	-	T
RAND/SRES and Kc	2.3.1	-	-	C	-	T
RAND, XRES, CK, IK, AUTN	2.3.2	M	-	C	-	T
Ciphering Key Sequence Number	2.3.3	-	-	M	-	T
Key Set Identifier (KSI)	2.3.4	-	-	M	-	T
Selected Ciphering Algorithm	2.3.5	-	-	M	-	T
Current Kc	2.3.6	-	-	M	-	T
P-TMSI Signature	2.3.7	-	-	C	-	T
Routing Area Identity	2.4.3	-	-	M	-	T
VLR Number	2.4.5	M	-	C note2	-	T
SGSN Number	2.4.8.1	M	C note2	-	-	T
GGSN Number	2.4.8.2	M	-	-	-	P
RSZI Lists	2.4.11.1	C	-	-	-	P
Zone Code List	2.4.11.2	-	-	C	-	P
LA not allowed flag	2.4.13	-	-	M	-	T
SGSN area restricted flag	2.4.14	M	-	-	-	T
Roaming Restriction in the SGSN ..	2.4.15.2	M	-	M	-	T
Cell Global ID or Service Area ID	2.4.16	-	-	C	-	T
LSA Identity	2.4.17.1	C	C	C	-	P
LSA Priority	2.4.17.2	C	C	C	-	P
LSA Preferential Access Indicator	2.4.17.2A	C	C	C	-	P
LSA Active Mode Support Indicator	2.4.17.2B	C	C	C	-	P
LSA Only Access Indicator	2.4.17.3	C	C	C	-	P
LSA Active Mode Indicator	2.4.17.4	C	C	C	-	P
VPLMN Identifier	2.4.17.5	C	-	-	-	P
Provision of teleservice	2.5.2	C	-	C	-	P
Transfer of SM option	2.5.4	M	-	-	-	P
MNRG	2.7.2	M	-	M	M	T
MM State	2.7.3	-	-	M	-	T
Subscriber Data Confirmed by HLR Indicator	2.7.4.2	-	-	M	-	T
Location Info Confirmed by HLR Indicator	2.7.4.3	-	-	M	-	T
MS purged for GPRS flag	2.7.6	M	-	-	-	T
MNRR	2.7.7	C	-	-	-	T
Subscriber Status	2.8.1	C	-	C	-	P
Barring of outgoing calls	2.8.2.1	C	-	-	-	P
Barring of roaming	2.8.2.3	C	-	C	-	P
Barring of Packet Oriented Services	2.8.2.8	C	-	C	-	P
ODB PLMN-specific data	2.8.3	C	-	C	-	P
Notification to CSE flag for ODB	2.8.4	C	-	-	-	T
gsmSCF address list for ODB	2.8.5	C	-	-	-	P
Trace Activated in SGSN	2.11.7	C	-	C	-	P
PDP Type	2.13.1	C	-	C	M	P
PDP Address	2.13.2	C	-	C	M	P
NSAPI	2.13.3	-	-	C	C	T
PDP State	2.13.4	-	-	C	-	T
New SGSN Address	2.13.5	-	-	C	-	T
Access Point Name	2.13.6	C	-	C	C	P/T
GGSN Address in Use	2.13.7	-	-	C	-	T
VPLMN Address Allowed	2.13.8	C	-	C	-	P
Dynamic Address	2.13.9	-	-	-	C	T
SGSN Address	2.13.10	-	-	-	M	T
GGSN-list	2.13.11	M	-	-	-	T
Quality of Service Subscribed	2.13.12	C	-	C	-	P

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE
Quality of Service Requested	2.13.13	-	-	C	-	T
Quality of Service Negotiated	2.13.14	-	-	C	M	T
SND	2.13.15	-	-	C	C	T
SNU	2.13.16	-	-	C	C	T
DRX Parameters	2.13.17	-	-	M	-	T
Compression	2.13.18	-	-	C	-	T
NGAF	2.13.19	-	-	C note2	-	T
Classmark	2.13.20	-	-	M	-	T
TID	2.13.21	-	-	C	C	T
Radio Priority	2.13.22	-	-	C	-	T
Radio Priority SMS	2.13.23	-	-	C	-	T
PDP Context Identifier	2.13.24	C	-	C	-	T
PDP Context Charging Characteristics	2.13.25	C	-	C	C	P
GPRS CAMEL Subscription Information (GPRS-CSI)	2.14.1.10/2.14.4.4	C	-	C	-	C
MO Short Message Service CAMEL Subscription Information(MO-SMS-CSI)	2.14.1.8/2.14.4.1	C	-	C	-	C
MT Short Message Service CAMEL Subscription Information(MT-SMS-CSI)	2.14.1.9/2.14.4.2	C	-	C	-	C
MO-SMS-CSI SGSN Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
MT-SMS-CSI SGSN Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
Mobility Management for GPRS event notification (MG-CSI)	2.14.1.12/2.14.4.4	C	-	C	-	C
MG-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
GPRS-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	T
SGSN Supported CAMEL Phases	2.14.2.3	C	-	-	-	T
GsmSCF address for CSI	2.14.2.4	C	-	-	-	P
Age Indicator	2.16.1	C	-	C	-	T
Subscribed Charging Characteristics	2.19.1	C	-	C	C	P
Privacy Exception List	2.16.1.1	C	-	C	-	P
GMLC Numbers	2.16.1.2	C	-	C	-	P
MO-LR List	2.16.1.3	C	-	C	-	P
Service Types	2.16.1.4	C	-	C	-	P
Codeword Handling Information	2.16.1.5	C	-	-	-	P

The HLR column indicates only GPRS related use, i.e. if the HLR uses a parameter in non-GPRS Network Access Mode but not in GPRS Network Access Mode, it is not mentioned in this table 2.

Note 1: This parameter is relevant in the SGSN only when the Gs interface is installed.

Note 2: The VLR column is applicable if Gs interface is installed. It only indicates GPRS related data to be stored and is only relevant to GPRS subscribers registered in VLR.

For special condition of storage see in clause 2. See clause 3 for explanation of M, C, T and P in table 2.

*** END OF MODIFICATIONS ***

CR-Form-v5.1

CHANGE REQUEST

⌘ **23.016 CR 026** ⌘ rev **-** ⌘ Current version: **5.0.0** ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ LCS: Codeword and Service Type		
Source:	⌘ CN4		
Work item code:	⌘ LCS1	Date:	⌘ 02/05/2002
Category:	⌘ B	Release:	⌘ REL-5
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Reason for change:	⌘ SA#15 has approved Stage1 and Stage 2 cr's for the introduction of additional privacy checks based on Codeword and Service Type for a Positioning Request. According to the stage 2 CR, N4-020527 was agreed at the CN4#13 for the introduction of additional privacy checks based Codeword and Service Type. However, the procedure for Codeword based privacy check was changed at SA2#24 in order to solve the security and performance problems(See S2-021475). This CR, together with the companion CR's, provides the corresponding modifications to the relevant specifications.
Summary of change:	⌘ Addition of Service Type related data
Consequences if not approved:	⌘ The functionalities defined at Stage2 would not be implemented in other specifications creating a serious misalignment.

Clauses affected:	⌘ 3.2, 4.5.4 fig16	
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ CR 013 24.030 CR 016 24.080 CR 421 29.002
Other comments:	⌘ The related Stage 1 and Stage 2 CR's already approved by SA#15 are the following: 22.071 cr 031 (SP-020047) 22.071 cr 032 (SP-020047) 23.271 cr 069r1 (SP-020138) In addition to this, the related Stage 2 CR's improving codeword check mechanism and service type approved by SA2#24 are the following: 23.271 cr 084r5 (S2-021475)	

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** FIRST MODIFIED SECTION ****

3.2 Definitions

Unchanged text removed for clarity

The following **groups of non-GPRS subscriber information** are defined:

- Subscriber information (Group A):
 - International Mobile Subscriber Identity (IMSI);
 - basic Mobile Station International ISDN Number (MSISDN);
 - category;
 - subscriber status;
 - LMU identifier (GSM only).
- Basic service information (Group B):
 - Bearer Service list;
 - Teleservice list.

NOTE 3: VBS and VGCS entitlement data are subsumed under Teleservices.

- Supplementary Service (SS) information (Group C):
 - forwarding information;
 - call barring information;
 - Closed User Group (CUG) information;
 - eMLPP data;
 - MC data;
 - SS Data;
- Operator Determined Barring (ODB) information (Group D):
 - ODB Data for non-GPRS services;
- Roaming restriction information (Group E):
 - roaming restriction due to unsupported feature.
- Regional subscription information (Group F):
 - regional subscription data.
- VBS/VGCS subscription information (Group G):
 - VBS subscription data;
 - VGCS subscription data.
- CAMEL subscription information (Group H):
 - Originating CAMEL Subscription Information (O-CSI);
 - Dialed Service CAMEL Subscription Information (D-CSI);
 - VMSC Terminating CAMEL Subscription Information (VT-CSI);
 - Supplementary Service Invocation Notification CAMEL Subscription Information (SS-CSI);
 - Translation Information Flag CAMEL Subscription Information (TIF-CSI);
 -
 - Mobile Originating Short Message Service CAMEL Subscription Information (MO-SMS-CSI);
 - Mobile Terminating Short Message Service CAMEL Subscription Information (MT-SMS-CSI);
 -
 - Mobility Management Event Notification CAMEL Subscription Information (M-CSI).
- LSA Information (Group I):
 - LSA data.
- Super-Charger (SC) Information (Group K):
 - Age Indicator;
- Location Services (LCS) information (Group X):
 - GMLC List;
 - LCS Privacy Exception List;
 - MO-LR List.

- LCS Service Types.
- IST Information (Group J):
 - IST data.
- Bearer Service Priority Information (Group L):
 - Bearer Service Priority Data.

The following **groups of GPRS subscriber information** are defined:

- Subscriber information (Group P1):
 - International Mobile Subscriber Identity (IMSI);
 - basic Mobile Station International ISDN Number (MSISDN);
 - subscriber status.
- Basic service information (Group P2):
 - Teleservice list.
- Operator Determined Barring (ODB) information (Group P3):
 - ODB Data for GPRS services.
- Roaming restriction information (Group P4):
 - roaming restriction in SGSN due to unsupported feature.
- Regional subscription information (Group P5):
 - regional subscription data.
- GPRS subscription information (Group P6):
 - GPRS subscription data.
- SGSN CAMEL subscription information (Group P7):
 - GPRS CAMEL subscription information;
 -
 - Mobile Originating Short Message Service CAMEL Subscription Information (MO-SMS-CSI);
 - Mobile Terminating Short Message Service CAMEL Subscription Information (MT-SMS-CSI);
 - Mobility Management Event for GPRS Notification CAMEL Subscription Information (MG-CSI).
- LSA Information (Group P8):
 - LSA data.
- Super-Charger (SC) Information (Group P9):
 - Age Indicator.
- Charging Information (Group P10):
 - Subscribed Charging Characteristics.
- Location Services (LCS) information (Group P11):
 - GMLC List;
 - LCS Privacy Exception List;

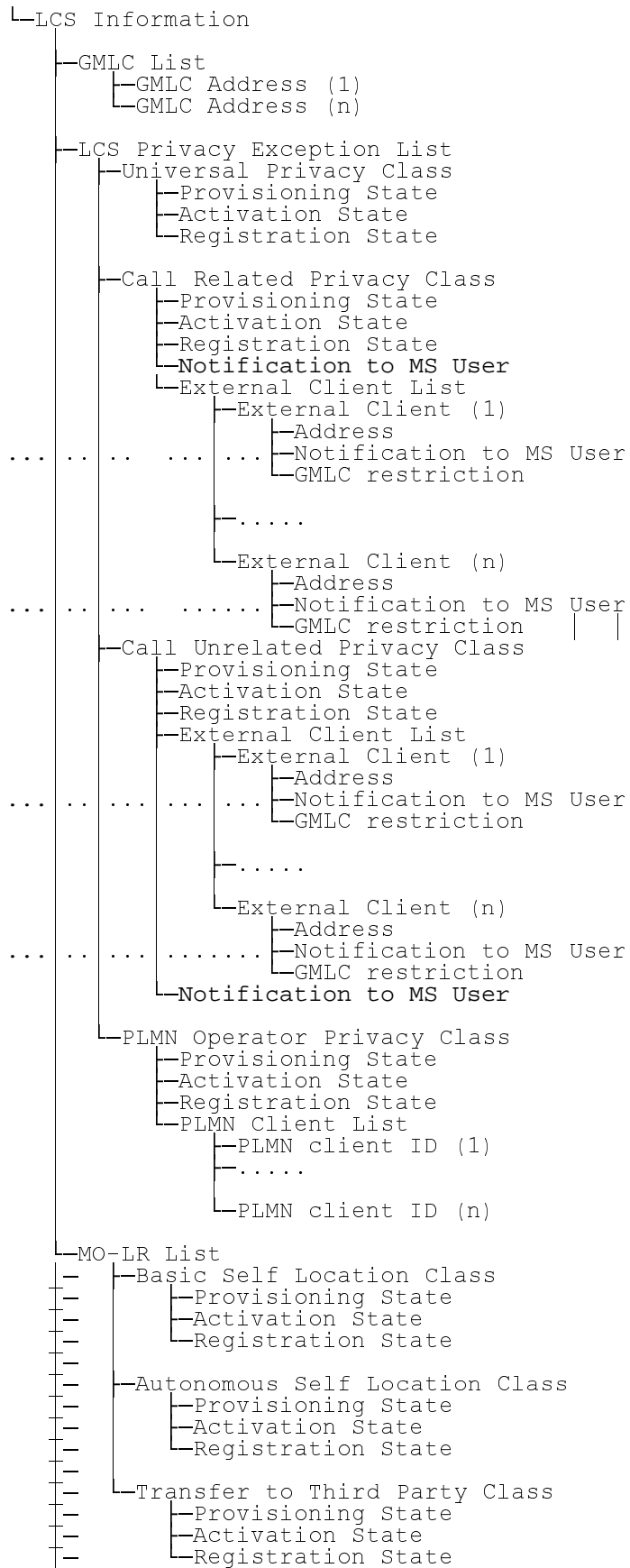
- - MO-LR List.

- LCS Service Types.

**** NEXT MODIFIED SECTION ****

4.5.4 Consistency of Supplementary Service data

Unchanged text removed for clarity



					--LCS Service Types
					--Provisioning State
					--Activation State
					--Registration State
					--Service Type List
					--Service Type Identity (1)
...		--Notification to MS User
					--GMLC restriction
					--.....
					--Service Type Identity (n)
...		--Notification to MS User
					--GMLC restriction

information see 3GPP TS 23.271 and 3GPP TS 29.002.

Figure 16: LCS Information

Unchanged text removed for clarity

*** END OF MODIFICATIONS ***

CHANGE REQUEST

⌘ **24.030 CR 013** ⌘ rev **-** ⌘ Current version: **5.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ LCS: Codeword and Service Type		
Source:	⌘ CN4		
Work item code:	⌘ LCS1	Date:	⌘ 25/03/2002
Category:	⌘ B	Release:	⌘ REL-5
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ SA#15 has approved Stage1 and Stage 2 cr's for the introduction of additional privacy checks based on Codeword and Service Type for a Positioning Request. This CR, together with the companion CR's, provides the corresponding Stage 3 modifications.
Summary of change:	⌘ Addition of Codeword and Service Type to the LCS-LocationNotification
Consequences if not approved:	⌘ The functionalities defined at Stage2 would not be implemented in Stage3 creating a serious misalignment.

Clauses affected:	⌘ 4.1.1		
Other specs affected:	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	CR 421 29.002 CR 016 24.080
Other comments:	⌘ The related Stage 1 and Stage 2 CR's already approved by SA#15 are the following: 22.071 cr 031 (SP-020047) 22.071 cr 032 (SP-020047) 23.271 cr 069r1 (SP-020138)		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** **FIRST MODIFIED SECTION** ****

4 Network initiated location services operations

4.1 Location Notification

4.1.1 Normal operation

The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the MS. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

In case of privacy verification the MS shall respond to the request by sending a RELEASE COMPLETE message containing the mobile subscriber's response in a return result component (figure 4.1).

If the timer expires in the network before any response from the MS (e.g. due to no response from the user), the network shall interpret this by applying the default treatment defined in TS 23.271 (i.e. disallow location if barred by subscription and allow location if allowed by subscription).

In the case of location notification no response is required from the MS, the MS shall terminate the dialogue by sending a RELEASE COMPLETE message containing a LocationNotification return result.

If the MS is unable to process the request received from the network, it shall return an error indication by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080

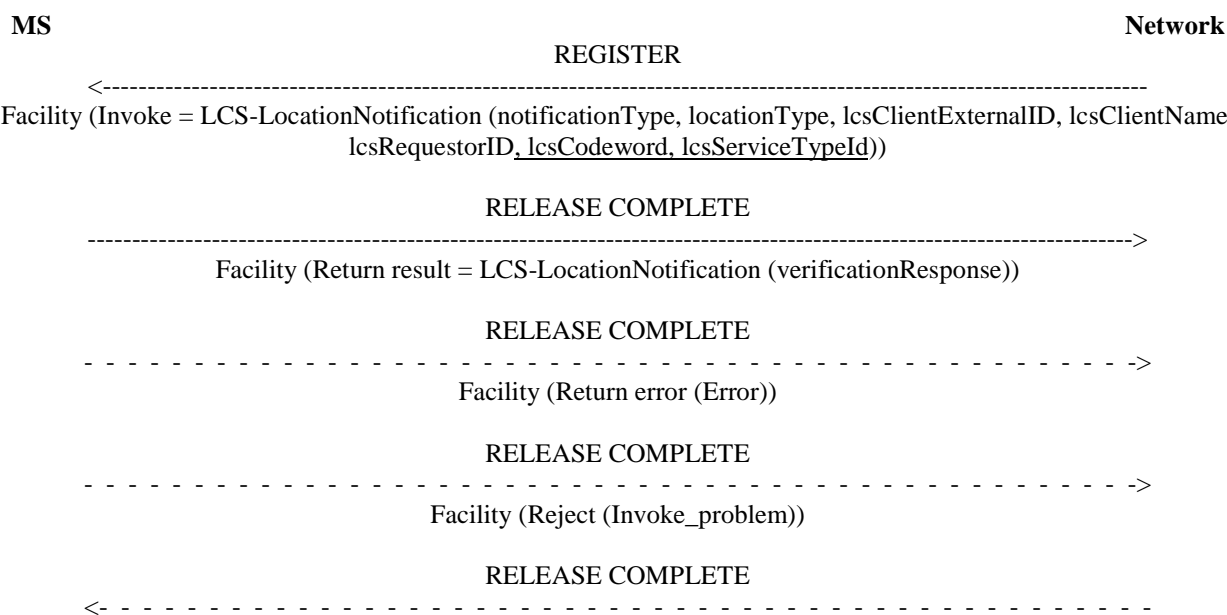


Figure 4.1: Location Notification

**** **END OF MODIFICATIONS** ****

CHANGE REQUEST

⌘ **24.080 CR 016** ⌘ rev **-** ⌘ Current version: **5.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ LCS: Codeword and Service Type		
Source:	⌘ Ericsson		
Work item code:	⌘ LCS1	Date:	⌘ 25/03/2002
Category:	⌘ B	Release:	⌘ REL-5
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ SA#15 has approved Stage1 and Stage 2 cr's for the introduction of additional privacy checks based on Codeword and Service Type for a Positioning Request. This CR, together with the companion CR's, provides the corresponding Stage 3 modifications.
Summary of change:	⌘ Addition of Codeword and Service Type to the LCS-LocationNotification
Consequences if not approved:	⌘ The functionalities defined at Stage2 would not be implemented in Stage3 creating a serious misalignment.

Clauses affected:	⌘ 4.4.2		
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	⌘ CR 421 29.002	⌘ CR 013 24.030
Other comments:	⌘ The related Stage 1 and Stage 2 CR's already approved by SA#15 are the following: 22.071 cr 031 (SP-020047) 22.071 cr 032 (SP-020047) 23.271 cr 069r1 (SP-020138)		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** FIRST MODIFIED SECTION ****

4.4 Data types and identifiers

4.4.1 General

The data types used in the SS protocol specifications are described in the ASN.1 module provided in subclause 4.4.2, while subclause 4.4.3 provides an overview of the identifiers used in SS ASN.1 specifications.

Since size constraints are subject to modifications named values have been defined in the following module for the upper boundaries of the value ranges associated to several sub-type specifications.

4.4.2 ASN.1 data types

This subclause provides an ASN.1 module defining the abstract data types in operations and errors specification. Only data types which are specific for this specification are defined. All other data types are imported from MAP together with the import of operations and errors.

```

SS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
    ss-DataTypes (2) version7 (7)}

DEFINITIONS

IMPLICIT TAGS ::=

BEGIN

-- exports all data types defined in this module

IMPORTS

SS-Code
FROM MAP-SS-Code {
    ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
    map-SS-Code (15) version7 (7)}

-- imports MAP-SS-DataTypes
SS-Status, USSD-DataCodingScheme, USSD-String, CCBS-Feature
-- USSD-DataCodingScheme, USSD-String were introduced because of CNAP.
FROM MAP-SS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
    map-SS-DataTypes (14) version7 (7)}

CUG-Index,
NotificationToMSUser
FROM MAP-MS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
    map-MS-DataTypes (11) version7 (7)}

maxSignalInfoLength,
ISDN-AddressString,
ISDN-SubaddressString,
AlertingPattern,
LCSClientExternalID,
AddressString,
LCSServiceTypeId
FROM MAP-CommonDataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
    map-CommonDataTypes (18) version7 (7)}

LocationType,
LCSClientName,
LCS-QoS,
Horizontal-Accuracy,
ResponseTime,
Ext-GeographicalInformation,
SupportedGADShapes,

```

```

Add-GeographicalInformation,
LCSRequestorID,
LCSCodeword
FROM MAP-LCS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-LCS-DataTypes (25) version7 (7)}
;

-- data types definition

SS-UserData ::= IA5String (SIZE (1.. maxSignalInfoLength))

NotifySS-Arg ::= SEQUENCE{
    ss-Code [1] SS-Code OPTIONAL,
    ss-Status [4] SS-Status OPTIONAL,
    ss-Notification [5] SS-Notification OPTIONAL,
    callIsWaiting-Indicator [14] NULL OPTIONAL,
    callOnHold-Indicator [15] CallOnHold-Indicator OPTIONAL,
    mpty-Indicator [16] NULL OPTIONAL,
    cug-Index [17] CUG-Index OPTIONAL,
    clirSuppressionRejected [18] NULL OPTIONAL,
    ... ,
    ect-Indicator [19] ECT-Indicator OPTIONAL,
    nameIndicator [20] NameIndicator OPTIONAL,
    ccbs-Feature [21] CCBS-Feature OPTIONAL,
    alertingPattern [22] AlertingPattern OPTIONAL,
    multicall-Indicator [23] Multicall-Indicator OPTIONAL}

-- The nameIndicator is defined because of CNAP.

Multicall-Indicator ::= ENUMERATED {
    nbr-SNexceeded (0),
    nbr-Userexceeded (1)}

ForwardChargeAdviceArg ::= SEQUENCE{
    ss-Code [0] SS-Code,
    chargingInformation [1] ChargingInformation,
    ...}

SS-Notification ::= OCTET STRING (SIZE (1))

-- Bit 8 7 6 5 4 00000 (Unused)

-- Bit 3 Call is forwarded indication to A-subscriber
-- (calling subscriber)
-- 0 No information content
-- 1 Outgoing call has been forwarded to C

-- Bit 2 Call is forwarded indication to B-subscriber
-- (forwarding subscriber)
-- 0 No information content
-- 1 Incoming call has been forwarded to C

-- Bit 1 Call is forwarded indication to C-subscriber
-- (forwarded-to subscriber)
-- 0 No information content
-- 1 Incoming call is a forwarded call

ChargingInformation ::= SEQUENCE{
    e1 [1] E1 OPTIONAL,
    e2 [2] E2 OPTIONAL,
    e3 [3] E3 OPTIONAL,
    e4 [4] E4 OPTIONAL,
    e5 [5] E5 OPTIONAL,
    e6 [6] E6 OPTIONAL,
    e7 [7] E7 OPTIONAL,
    ...}

E1 ::= INTEGER (0..max10TimesUnitsPerTime)
max10TimesUnitsPerTime INTEGER ::= 8191

E2 ::= INTEGER (0..max10TimesTimeInterval)
max10TimesTimeInterval INTEGER ::= 8191

E3 ::= INTEGER (0..max100TimesScalingFactor)
max100TimesScalingFactor INTEGER ::= 8191

```

```

E4 ::= INTEGER (0..max10TimesIncrement)
max10TimesIncrement INTEGER ::= 8191

E5 ::= INTEGER (0..max10TimesIncrementPerDataInterval)
max10TimesIncrementPerDataInterval INTEGER ::= 8191

E6 ::= INTEGER (0..maxNumberOfSegmentsPerDataInterval)
maxNumberOfSegmentsPerDataInterval INTEGER ::= 8191

E7 ::= INTEGER (0..max10TimesInitialTime)
max10TimesInitialTime INTEGER ::= 8191

CallOnHold-Indicator ::= ENUMERATED {
    callRetrieved (0),
    callOnHold (1)}

ForwardCUG-InfoArg ::= SEQUENCE {
    cug-Index [0] CUG-Index OPTIONAL,
    suppressPrefCUG [1] NULL OPTIONAL,
    suppressOA [2] NULL OPTIONAL,
    ...}

ECT-Indicator ::= SEQUENCE {
    ect-CallState [0] ECT-CallState,
    rdn [1] RDN OPTIONAL,
    ...}

ECT-CallState ::= ENUMERATED {
    alerting (0),
    active (1)}

NameIndicator ::= SEQUENCE {
    callingName [0] Name OPTIONAL,
    ...}

Name ::= CHOICE {
    namePresentationAllowed [0] NameSet,
    presentationRestricted [1] NULL,
    nameUnavailable [2] NULL,
    namePresentationRestricted [3] NameSet}

NameSet ::= SEQUENCE {
    dataCodingScheme [0] USSD-DataCodingScheme,
    lengthInCharacters [1] INTEGER,
    nameString [2] USSD-String,
    ...}

-- NameIndicator, Name and NameSet are defined because of CNAP.
-- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
-- following encoding:
-- bit 7 6 5 4 3 2 1 0
-- | 0 0 0 0 | 1 1 1 1|

RDN ::= CHOICE {
    presentationAllowedAddress [0] RemotePartyNumber,
    presentationRestricted [1] NULL,
    numberNotAvailableDueToInterworking [2] NULL,
    presentationRestrictedAddress [3] RemotePartyNumber}

RemotePartyNumber ::= SEQUENCE {
    partyNumber [0] ISDN-AddressString,
    partyNumberSubaddress [1] ISDN-SubaddressString OPTIONAL,
    ...}

AccessRegisterCCEntryArg ::= SEQUENCE {
    ...}

CallDeflectionArg ::= SEQUENCE {
    deflectedToNumber [0] AddressString,
    deflectedToSubaddress [1] ISDN-SubaddressString OPTIONAL,
    ...}

UserUserServiceArg ::= SEQUENCE {
    uUS-Service [0] UUS-Service,
    uUS-Required [1] BOOLEAN,
    ... }

UUS-Service ::= ENUMERATED {

```



```

uUS1 (1),
uUS2 (2),
uUS3 (3),
... }

```

```

-- exception handling:
-- In case of UUS-Service with any other value, indicated as "UUS required",
-- but not understood by the MS, the call will be cleared.

```

```

LocationNotificationArg ::= SEQUENCE {
  notificationType [0] NotificationToMSUser,
  locationType     [1] LocationType,
  lcsClientExternalID [2] LCSClientExternalID OPTIONAL,
  lcsClientName     [3] LCSClientName     OPTIONAL,
  ...,
  lcsRequestorID   [4] LCSRequestorID   OPTIONAL,
  lcsCodeword      [5] LCSCodeword      OPTIONAL,
  lcsServiceTypeId [6] LCSServiceTypeId  OPTIONAL }

```

```

-- exception handling:
-- At reception of an unrecognised notificationType value the receiver shall reject the
-- operation with a return error cause of unexpected data value.
-- At reception of an unrecognised locationType value the receiver shall reject the
-- operation with a return error cause of unexpected data value.

```

```

LocationNotificationRes ::= SEQUENCE {
  verificationResponse [0] VerificationResponse OPTIONAL,
  ...}

```

```

VerificationResponse ::= ENUMERATED {
  permissionDenied (0),
  permissionGranted (1),
  ... }

```

```

-- exception handling:
-- an unrecognized value shall be treated the same as value 0 (permissionDenied)

```

```

LCS-MOLRArg ::= SEQUENCE {
  molr-Type [0] MOLR-Type,
  locationMethod [1] LocationMethod OPTIONAL,
  lcs-QoS [2] LCS-QoS OPTIONAL,
  lcsClientExternalID [3] LCSClientExternalID OPTIONAL,
  mlc-Number [4] ISDN-AddressString OPTIONAL,
  gpsAssistanceData [5] GPSAssistanceData OPTIONAL,
  ...,
  supportedGADShapes [6] SupportedGADShapes OPTIONAL}

```

```

-- The parameter locationMethod shall be included if and only if the molr-Type is set to value
-- deCipherringKeys or assistanceData.
-- The parameter gpsAssistanceData shall be included if and only if the molr-Type is set to value
-- assistanceData and LocationMethod is set to value assistedGPS.

```

```

MOLR-Type ::= ENUMERATED {
  locationEstimate (0),
  assistanceData (1),
  deCipherringKeys (2),
  ... }

```

```

-- exception handling:
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

```

```

LocationMethod ::= ENUMERATED {
  msBasedEOTD (0),
  msAssistedEOTD (1),
  assistedGPS (2),
  ...,
  msBasedOTDOA (3),
  msAssistedOTDOA (4)
}

```

```

-- exception handling:
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

```

```

GPSAssistanceData ::= OCTET STRING (SIZE (1..38))
-- Octets 1 to 38 are coded in the same way as the octets 3 to 7+2n of Requested GPS Data IE
-- in GSM 09.31.

```

```

LCS-MOLRRes ::= SEQUENCE {
  locationEstimate [0] Ext-GeographicalInformation OPTIONAL,

```

```
decipheringKeys      [1] DecipheringKeys      OPTIONAL,
    ...,
    add-LocationEstimate  [2] Add-GeographicalInformation  OPTIONAL}
-- Parameters locationEstimate or add-LocationEstimate (one but not both)
-- shall be included if and only if the
-- molr-Type in LocationRequestArg was set to value locationEstimate.
-- Parameter add-LocationEstimate shall not be included if the supportedGADShapes
-- parameter was not received in the LCS-MOLRArg.
-- Parameter decipheringKeys shall be included if and only if the molr-Type
-- in LocationRequestArg was set to value deCIPHERingKeys.
--
```

```
DecipheringKeys ::= OCTET STRING (SIZE (15))
-- Octets in DecipheringKeys are coded in the same way as the octets 3 to 17 of Deciphering Key IE
-- in GSM 09.31. I.e. these octets contain Current Deciphering Key, Next Deciphering Key and
-- Ciphering Key Flag.
```

END

*** END OF MODIFICATIONS ***

CHANGE REQUEST

⌘ **29.002 CR 421** ⌘ rev **5** ⌘ Current version: **5.1.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ LCS: Codeword and Service Type				
Source:	⌘ CN4				
Work item code:	⌘ LCS1	Date:	⌘ 02/05/2002		
Category:	⌘ B	Release:	⌘ REL-5		
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:		
	F (correction)		2 (GSM Phase 2)		
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)		
	B (addition of feature),		R97 (Release 1997)		
	C (functional modification of feature)		R98 (Release 1998)		
	D (editorial modification)		R99 (Release 1999)		
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)		
			REL-5 (Release 5)		

Reason for change:	⌘ SA#15 has approved Stage1 and Stage 2 cr's for the introduction of additional privacy checks based on Codeword and Service Type for a Positioning Request. According to the stage 2 CR, N4-020527 was agreed at the CN4#13 for the introduction of additional privacy checks based Codeword and Service Type. However, the procedure for Codeword based privacy check was changed at SA2#24 in order to solve the security and performance problems(See S2-021475). This CR, together with the companion CR's, provides the corresponding Stage 3 modifications.
Summary of change:	⌘ Addition of Codeword related parameters in SRI-for-LCS and Provide-Subscriber-Location. Addition of Service Type related parameters in Provide-Subscriber-Location and Insert-Subscriber-Data
Consequences if not approved:	⌘ The functionalities defined at Stage2 would not be implemented in Stage3 creating a serious misalignment.

Clauses affected:	⌘ 2, 7.6, 7.6.1.4, 7.6.3.60, 7.6.3.62A, 7.6.3.63, 7.6.3.65D, 7.6.4.44, 7.6.11.15, 7.6.11.18, 7.6.11.19, 7.6.11.22, 13A.1.2, 13A.1.3, 13A.2.2, 13A.2.3, 17.7.1, 17.7.5, 17.7.7, 17.7.8, 17.7.13
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications ⌘ CR 013 24.030 CR 016 24.080 CR 026 23.016
	<input type="checkbox"/> Test specifications
	<input type="checkbox"/> O&M Specifications
Other comments:	⌘ The related Stage 1 and Stage 2 CR's already approved by SA#15 are the following: 22.071 cr 031 (SP-020047)

22.071 cr 032 (SP-020047)

23.271 cr 069r1 (SP-020138)

In addition to this, the related Stage 2 CR's improving codeword check mechanism and service type approved by SA2#24 are the following:

23.271 cr 084r5 (S2-021475)

23.271 cr 089r1 (S2-021265)

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** **FIRST NEW ADDED SECTION** ****

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3G TS 21.905: "3G Vocabulary".
- [2] 3GPP TS 22.001: "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a Public Land Mobile Network (PLMN)".
- [3] 3G TS 22.002: "Bearer Services Supported by a Public Land Mobile Network (PLMN)".
- [4] 3GPP TS 22.003: "Circuit Teleservices Supported by a Public Land Mobile Network (PLMN)".
- [5] 3G TS 22.004: "General on Supplementary Services".
- [6] 3GPP TS 42.009: "Digital cellular telecommunications system (Phase 2+); Security aspects".
- [7] 3G TS 22.016: "International Mobile station Equipment Identities (IMEI)".
- [8] 3G TS 22.041: "Operator Determined Barring".
- [9] 3G TS 22.081: "Line identification supplementary services - Stage 1".
- [10] 3G TS 22.082: "Call Forwarding (CF) supplementary services - Stage 1".
- [11] 3G TS 22.083: "Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 1".
- [12] 3G TS 22.084: "Multi Party (MPTY) Supplementary Services - Stage 1".

- [13] 3G TS 22.085: "Closed User Group (CUG) supplementary services - Stage 1".
- [14] 3G TS 22.086: "Advice of charge (AoC) Supplementary Services - Stage 1".
- [15] 3G TS 22.088: "Call Barring (CB) supplementary services - Stage 1".
- [16] 3G TS 22.090: "Unstructured Supplementary Service Data (USSD); - Stage 1".
- [17] 3G TS 23.003: "Numbering, addressing and identification".
- [18] GSM 03.04: "Digital cellular telecommunications system (Phase 2+); Signalling requirements relating to routing of calls to mobile subscribers".
- [19] 3G TS 23.007: "Restoration procedures".
- [20] 3G TS 23.008: "Organisation of subscriber data".
- [21] 3G TS 23.009: "Handover procedures".
- [22] 3G TS 23.011: "Technical realization of Supplementary Services - General Aspects".
- [23] 3G TS 23.012: "Location registration procedures".
- [24] 3GPP TS 43.020: "Security related network functions".
- [25] 3G TS 23.038: "Alphabets and language".
- [26] 3G TS 23.040: "Technical realization of the Short Message Service (SMS) Point to Point (PP)".
- [26a] 3G TS 23.271: "Functional stage2 description of LCS (~~Release 4~~)".
- [27] 3G TS 23.081: "Line Identification Supplementary Services - Stage 2".
- [28] 3G TS 23.082: "Call Forwarding (CF) Supplementary Services - Stage 2".
- [29] 3G TS 23.083: "Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 2".
- [30] 3G TS 23.084: "Multi Party (MPTY) Supplementary Services - Stage 2".
- [31] 3G TS 23.085: "Closed User Group (CUG) Supplementary Services - Stage 2".
- [32] 3G TS 23.086: "Advice of Charge (AoC) Supplementary Services - Stage 2".
- [33] 3G TS 23.088: "Call Barring (CB) Supplementary Services - Stage 2".
- [34] 3G TS 23.090: "Unstructured Supplementary Services Data (USSD) - Stage 2".
- [34a] 3G TS 33.200: "3G Security; Network domain security; MAP application layer security".
- [35] 3G TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols - Stage 3".
- [36] 3G TS 24.010: "Mobile radio interface layer 3 Supplementary Services specification - General aspects".
- [37] 3G TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [37a] 3GPP TS 44.071: "Location Services (LCS) – stage 3".
- [38] 3G TS 24.080: "Mobile radio interface layer 3 supplementary services specification - Formats and coding".
- [39] 3G TS 24.081: "Line identification supplementary services - Stage 3".
- [40] 3G TS 24.082: "Call Forwarding (CF) Supplementary Services - Stage 3".
- [41] 3G TS 24.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 3".
- [42] 3G TS 24.084: "Multi Party (MPTY) Supplementary Services - Stage 3".

- [43] 3G TS 24.085: "Closed User Group (CUG) Supplementary Services - Stage 3".
- [44] 3G TS 24.086: "Advice of Charge (AoC) Supplementary Services - Stage 3".
- [45] 3G TS 24.088: "Call Barring (CB) Supplementary Services - Stage 3".
- [46] 3G TS 24.090: "Unstructured Supplementary Services Data - Stage 3".
- [47] 3GPP TS 48.002: " Base Station System - Mobile-services Switching Centre (BSS - MSC) interface principles".
- [48] 3GPP TS 48.006: "Signalling transport mechanism specification for the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".
- [49] 3G TS 48.008: "Mobile Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification".
- [49a1] 3GPP TS 48.031: "Location Services (LCS); Serving Mobile Location Centre (SMLC) – Serving Mobile Location Centre (SMLC); SMLC Peer Protocol (SMLCPP)".
- [49b] 3GPP TS 48.071: "Location Services (LCS); Serving Mobile Location Centre - Base Station System (SMLC - BSS) interface Layer 3 specification".
- [50] 3GPP TS 49.001: "General network interworking scenarios".
- [51] 3G TS 29.002: "Mobile Application Part (MAP) specification".
- [52] GSM 09.03: "Digital cellular telecommunications system (Phase 2+); Signalling requirements on interworking between the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN)".
- [53] GSM 09.04: "Digital cellular telecommunications system (Phase 2+); Interworking between the Public Land Mobile Network (PLMN) and the Circuit Switched Public Data Network (CSPDN)".
- [54] GSM 09.05: "Digital cellular telecommunications system (Phase 2+); Interworking between the Public Land Mobile Network (PLMN) and the Packet Switched Public Data Network (PSPDN) for Packet Assembly/Disassembly facility (PAD) access".
- [55] 3G TS 29.006: "Interworking between a Public Land Mobile Network (PLMN) and a Packet Switched Public Data Network/Integrated Services Digital Network (PSPDN/ISDN) for the support of Packet Switched data transmission services".
- [56] 3G TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".
- [57] 3GPP TS 29.008: "Application of the Base Station System Application Part (BSSAP) on the E-interface".
- [58] 3G TS 29.010: "Information element mapping between Mobile Station - Base Station System and BSS - Mobile-services Switching Centre (MS - BSS - MSC) Signalling procedures and the Mobile Application Part (MAP)".
- [59] 3G TS 29.011: "Signalling interworking for Supplementary Services".
- [59a] 3GPP TS 49.031: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".
- [60] GSM 09.90: "Digital cellular telecommunications system (Phase 2+); Interworking between Phase 1 infrastructure and Phase 2 Mobile Stations (MS)".
- [61] GSM 12.08: "Digital cellular telecommunications system (Phase 2); Subscriber and Equipment Trace".
- [62] ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3 specifications for basic call control".

- [63] ETS 300 136 (1992): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service description".
- [64] ETS 300 138 (1992): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service Digital Subscriber Signalling System No.one (DSS1) protocol".
- [65] ETS 300 287: "Integrated Services Digital Network (ISDN); Signalling System No.7; Transaction Capabilities (TC) version 2".
- [66] ETR 060: "Signalling Protocols and Switching (SPS); Guide-lines for using Abstract Syntax Notation One (ASN.1) in telecommunication application protocols".
- [67] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".
- [68] ITU-T Recommendation E.212: "Identification plan for land mobile stations".
- [69] ITU-T Recommendation E.213: "Telephone and ISDN numbering plan for land mobile stations".
- [70] ITU-T Recommendation E.214: "Structuring of the land mobile global title for the signalling connection control part".
- [71] CCITT Recommendation Q.699: "Interworking between the Digital Subscriber Signalling System Layer 3 protocol and the Signalling System No.7 ISDN User part".
- [72] ITU-T Recommendation Q.711: "Specifications of Signalling System No.7; Functional description of the Signalling Connection Control Part".
- [73] ITU-T Recommendation Q.712: "Definition and function of SCCP messages".
- [74] ITU-T Recommendation Q.713: "Specifications of Signalling System No.7; SCCP formats and codes".
- [75] ITU-T Recommendation Q.714: "Specifications of Signalling System No.7; Signalling Connection Control Part procedures".
- [76] ITU-T Recommendation Q.716: "Specifications of Signalling System No.7; Signalling connection control part (SCCP) performances".
- [77] ITU-T Recommendation Q.721 (1988): "Specifications of Signalling System No.7; Functional description of the Signalling System No.7 Telephone user part".
- [78] ITU-T Recommendation Q.722 (1988): "Specifications of Signalling System No.7; General function of Telephone messages and signals".
- [79] ITU-T Recommendation Q.723 (1988): "Specifications of Signalling System No.7; Formats and codes".
- [80] ITU-T Recommendation Q.724 (1988): "Specifications of Signalling System No.7; Signalling procedures".
- [81] ITU-T Recommendation Q.725 (1988): "Specifications of Signalling System No.7; Signalling performance in the telephone application".
- [82] ITU-T Recommendation Q.761 (1988): "Specifications of Signalling System No.7; Functional description of the ISDN user part of Signalling System No.7".
- [83] ITU-T Recommendation Q.762 (1988): "Specifications of Signalling System No.7; General function of messages and signals".
- [84] ITU-T Recommendation Q.763 (1988): "Specifications of Signalling System No.7; Formats and codes".
- [85] ITU-T Recommendation Q.764 (1988): "Specifications of Signalling System No.7; Signalling procedures".
- [86] ITU-T Recommendation Q.767: "Specifications of Signalling System No.7; Application of the ISDN user part of CCITT signalling System No.7 for international ISDN interconnections".

- [87] ITU-T Recommendation Q.771: "Specifications of Signalling System No.7; Functional description of transaction capabilities".
- [88] ITU-T Recommendation Q.772: "Specifications of Signalling System No.7; Transaction capabilities information element definitions".
- [89] ITU-T Recommendation Q.773: "Specifications of Signalling System No.7; Transaction capabilities formats and encoding".
- [90] ITU-T Recommendation Q.774: "Specifications of Signalling System No.7; Transaction capabilities procedures".
- [91] ITU-T Recommendation Q.775: "Specifications of Signalling System No.7; Guide-lines for using transaction capabilities".
- [92] ITU-T Recommendation X.200: "Reference Model of Open systems interconnection for CCITT Applications".
- [93] ITU-T Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".
- [94] ITU-T Recommendation X.209 (1988): "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".
- [95] ITU-T Recommendation X.210: "Open systems interconnection layer service definition conventions".
- [97] 3G TS 23.018: "Basic Call Handling".
- [98] 3G TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 3 - Stage 2".
- [99] 3G TS 23.079: "Support of Optimal Routeing (SOR) - Stage 2".
- [100] 3GPP TS 43.068: "Voice Group Call Service (VGCS) - Stage 2".
- [101] 3GPP TS 43.069: "Voice Broadcast service (VBS) - Stage 2".
- [102] ANSI T1.113: "Signaling System No. 7 (SS7) - ISDN User Part".
- [103] GSM 03.54 "Shared Inter Working Function (SIWF) - Stage 2".
- [104] 3G TS 23.060: "General Packet Radio Service (GPRS) Description; Stage 2".
- [105] 3G TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface".
- [106] 3G TS 29.018: "General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR); Gs interface layer 3 specification".
- [107] 3G TS 23.093: "Technical Realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2".
- [108] 3G TS 23.066: "Support of Mobile Number Portability (MNP); Technical Realisation Stage 2".
- [109] ANSI T1.112 (1996): "Telecommunication – Signalling No. 7 - Signaling Connection Control Part (SCCP)".
- [110] 3G TS 23.116: "Super-Charger Technical Realisation; Stage 2."
- [111] ITU-T Recommendation Q.711: "Specifications of Signalling System No.7; Signalling System No. 7 – Functional Description of the Signalling Connection Control Part".
- [112] ITU-T Recommendation Q.712: "Specifications of Signalling System No.7; Signalling System No. 7 – Definition and Function of SCCP Messages".
- [113] ITU-T Recommendation Q.713: "Specifications of Signalling System No.7; Signalling System No. 7 – SCCP formats and codes".

- [114] ITU-T Recommendation Q.714: "Specifications of Signalling System No.7; Signalling System No. 7 – Signalling Connection Control Part Procedures".
- [115] ITU-T Recommendation Q.716: "Specifications of Signalling System No.7; Signalling System No. 7 – Signalling Connection Control Part (SCCP) Performance".
- [116] ITU-T Q.850, May 1998: "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".
- [117] 3G TS 22.135: "Multicall; Service description; Stage 1".
- [118] 3G TS 23.135: "Multicall supplementary service; Stage 2".
- [119] 3G TS 24.135: "Multicall supplementary service; Stage 3".
- [120] 3G TS 25.413: "UTRAN Iu Interface RANAP Signalling".
- [121] 3G TS 29.202: "SS7 signalling transport in core network"
- [122] 3G TS 23.032: "Universal Geographical Area Description (GAD)"
- [123] 3G TS 22.071: " Location Services (LCS); Service description, Stage 1"

**** NEXT MODIFIED SECTION ****

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in clause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Absent Subscriber Diagnostic SM	7.6.8.9	Invoke Id	7.6.1.1
Access connection status	7.6.9.3	ISDN Bearer Capability	7.6.3.41
		IST Alert Timer	7.6.3.66
		IST Information Withdrawn	7.6.3.68
		IST Support Indicator	7.6.3.69
Access signalling information	7.6.9.5	Kc	7.6.7.4
		<u>LCS Codeword</u>	<u>7.6.11.18</u>
		<u>LCS Codeword Applicability</u>	<u>7.6.11.19</u>
		<u>LCS Information</u>	<u>7.6.3.60</u>
		<u>LCS Service Type Id</u>	<u>7.6.11.15</u>
		<u>LCS Codeword Notification</u>	<u>7.6.11.22</u>
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Linked Id	7.6.1.2
Additional Location Estimate	7.6.11.21	LMSI	7.6.2.16
Additional number	7.6.2.46	Location Information	7.6.2.30
Additional signal info	7.6.9.10	Location update type	7.6.9.6
Additional SM Delivery Outcome	7.6.8.11	Long Forwarded-to Number	7.6.2.22A
		Long FTN Supported	7.6.2.22B
Age Indicator	7.6.3.72	Lower Layer Compatibility	7.6.3.42

Alert Reason	7.6.8.8	LSA Information	7.6.3.56
Alert Reason Indicator	7.6.8.10	LSA Information Withdraw	7.6.3.58
Alerting Pattern	7.6.3.44	MC Information	7.6.4.48
All GPRS Data	7.6.3.53	MC Subscription Data	7.6.4.47
All Information Sent	7.6.1.5	Mobile Not Reachable Reason	7.6.3.51
AN-apdu	7.6.9.1	Modification request for CSI	7.6.3.81
APN	7.6.2.42	Modification request for SS Information	7.6.3.82
Authentication set list	7.6.7.1	More Messages To Send	7.6.8.7
B-subscriber Address	7.6.2.36	MS ISDN	7.6.2.17
B subscriber Number	7.6.2.48	MSC number	7.6.2.11
B subscriber subaddress	7.6.2.49	MSISdn-Alert	7.6.2.29
Basic Service Group	7.6.4.40	Multicall Bearer Information	7.6.2.52
Bearer service	7.6.4.38	Multiple Bearer Requested	7.6.2.53
Call Barring Data	7.6.3.83	Multiple Bearer Not Supported	7.6.2.54
Call barring feature	7.6.4.19	MWD status	7.6.8.3
Call barring information	7.6.4.18	NbrUser	7.6.4.45
Call Direction	7.6.5.8	Network Access Mode	7.6.3.50
Call Forwarding Data	7.6.3.84	Network node number	7.6.2.43
Call Info	7.6.9.9	Network resources	7.6.10.1
Call reference	7.6.5.1	Network signal information	7.6.9.8
Call Termination Indicator	7.6.3.67	New password	7.6.4.20
Called number	7.6.2.24	No reply condition timer	7.6.4.7
Calling number	7.6.2.25	North American Equal Access preferred Carrier Id	7.6.2.34
CAMEL Subscription Info	7.6.3.78	Number Portability Status	7.6.5.14
CAMEL Subscription Info Withdraw	7.6.3.38	ODB Data	7.6.3.85
Cancellation Type	7.6.3.52	ODB General Data	7.6.3.9
Category	7.6.3.1	ODB HPLMN Specific Data	7.6.3.10
CCBS Feature	7.6.5.8	OMC Id	7.6.2.18
CCBS Request State	7.6.4.49	Originally dialled number	7.6.2.26
Channel Type	7.6.5.9	Originating entity number	7.6.2.10
Chosen Channel	7.6.5.10	Override Category	7.6.4.4
Chosen Radio Resource Information	7.6.6.10B	P-TMSI	7.6.2.47
Ciphering mode	7.6.7.7	PDP-Address	7.6.2.45
Cksn	7.6.7.5	PDP-Context identifier	7.6.3.55
CLI Restriction	7.6.4.5	PDP-Type	7.6.2.44
CM service type	7.6.9.2	Pre-paging supported	7.6.5.15
Complete Data List Included	7.6.3.54	Previous location area Id	7.6.2.4
CS Allocation Retention priority	7.6.3.87	Protocol Id	7.6.9.7
CS LCS Not Supported by UE	7.6.11.9	Provider error	7.6.1.3
CUG feature	7.6.3.26	PS LCS Not Supported by UE	7.6.11.10
CUG index	7.6.3.25	QoS-Subscribed	7.6.3.47
CUG info	7.6.3.22	Radio Resource Information	7.6.6.10
CUG interlock	7.6.3.24	Radio Resource List	7.6.6.10A
CUG Outgoing Access indicator	7.6.3.8	Rand	7.6.7.2
CUG subscription	7.6.3.23	Regional Subscription Data	7.6.3.11
CUG Subscription Flag	7.6.3.37	Regional Subscription Response	7.6.3.12
Current location area Id	7.6.2.6	Relocation Number List	7.6.2.19A
Current password	7.6.4.21	Requested Info	7.6.3.31
Deferred MT-LR Data	7.6.11.3	Requested Subscription Info	7.6.3.86
Deferred MT-LR Response Indicator	7.6.11.2	Roaming number	7.6.2.19
eMLPP Information	7.6.4.41	Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
Encryption Information	7.6.6.9	Roaming Restriction Due To Unsupported Feature	7.6.3.13
Equipment status	7.6.3.2	Current Security Context	7.6.7.8
Extensible Basic Service Group	7.6.3.5	Selected RAB ID	7.6.2.56
Extensible Bearer service	7.6.3.3	Service centre address	7.6.2.27
Extensible Call barring feature	7.6.3.21	Serving Cell Id	7.6.2.37
Extensible Call barring information	7.6.3.20	SGSN address	7.6.2.39
Extensible Call barring information for CSE	7.6.3.79	SGSN CAMEL Subscription Info	7.6.3.75
Extensible Forwarding feature	7.6.3.16	SGSN number	7.6.2.38
Extensible Forwarding info	7.6.3.15	SIWF Number	7.6.2.35
		SoLSA Support Indicator	7.6.3.57
		SM Delivery Outcome	7.6.8.6
		SM-RP-DA	7.6.8.1
		SM-RP-MTI	7.6.8.16

Extensible Forwarding information for CSE	7.6.3.80	SM-RP-OA	7.6.8.2
Extensible Forwarding Options	7.6.3.18	SM-RP-PRI	7.6.8.5
Extensible No reply condition timer	7.6.3.19	SM-RP-SMEA	7.6.8.17
Extensible QoS-Subscribed	7.6.3.74	SM-RP-UI	7.6.8.4
Extensible SS-Data	7.6.3.29	Sres	7.6.7.3
Extensible SS-Info	7.6.3.14	SS-Code	7.6.4.1
Extensible SS-Status	7.6.3.17	SS-Data	7.6.4.3
Extensible Teleservice	7.6.3.4	SS-Event	7.6.4.42
External Signal Information	7.6.9.4	SS-Event-Data	7.6.4.43
Failure Cause	7.6.7.9	SS-Info	7.6.4.24
Forwarded-to number	7.6.2.22	SS-Status	7.6.4.2
Forwarded-to subaddress	7.6.2.23	Stored location area Id	7.6.2.5
Forwarding feature	7.6.4.16	Subscriber State	7.6.3.30
Forwarding information	7.6.4.15	Subscriber Status	7.6.3.7
Forwarding Options	7.6.4.6	Super-Charger Supported in HLR	7.6.3.70
GGSN address	7.6.2.40	Super-Charger Supported in Serving Network Entity	7.6.3.71
GGSN number	7.6.2.41	Supported CAMEL Phases in VLR	7.6.3.36
GMSC CAMEL Subscription Info	7.6.3.34	Supported CAMEL Phases in SGSN	7.6.3.36A
GPRS enhancements support indicator	7.6.3.73	Supported GAD Shapes	7.6.11.20
GPRS Node Indicator	7.6.8.14	Supported LCS Capability Sets	7.6.11.17
GPRS Subscription Data	7.6.3.46	Suppress T-CSI	7.6.3.33
GPRS Subscription Data Withdraw	7.6.3.45	Suppression of Announcement	7.6.3.32
GPRS Support Indicator	7.6.8.15	Target cell Id	7.6.2.8
Group Id	7.6.2.33	Target location area Id	7.6.2.7
GSM bearer capability	7.6.3.6	Target RNC Id	7.6.2.8A
Guidance information	7.6.4.22	Target MSC number	7.6.2.12
Handover number	7.6.2.21	Teleservice	7.6.4.39
High Layer Compatibility	7.6.3.43	TMSI	7.6.2.2
HLR Id	7.6.2.15	Trace reference	7.6.10.2
HLR number	7.6.2.13	Trace type	7.6.10.3
HO-Number Not Required	7.6.6.7	User error	7.6.1.4
IMEI	7.6.2.3	USSD Data Coding Scheme	7.6.4.36
IMSI	7.6.2.1	USSD String	7.6.4.37
Integrity Protection Information	7.6.6.8	UU Data	7.6.5.12
Inter CUG options	7.6.3.27	UUS CF Interaction	7.6.5.13
Intra CUG restrictions	7.6.3.28	VBS Data	7.6.3.40
		VGCS Data	7.6.3.39
		VLR CAMEL Subscription Info	7.6.3.35
		VLR number	7.6.2.14
		VPLMN address allowed	7.6.3.48
		Zone Code	7.6.2.28

**** NEXT MODIFIED SECTION ****

7.6.1.4 User error

This parameter can take values as follows:

NOTE: The values are grouped in order to improve readability; the grouping has no other significance.

Unchanged text removed for clarity

a) Generic error:

- system failure, i.e. a task cannot be performed because of a problem in another entity. The type of entity or network resource may be indicated by use of the network resource parameter;
- data missing, i.e. an optional parameter required by the context is missing;
- unexpected data value, i.e. the data type is formally correct but its value or presence is unexpected in the current context;
- resource limitation;
- initiating release, i.e. the receiving entity has started the release procedure;
- facility not supported, i.e. the requested facility is not supported by the PLMN with detailed reasons as follows:
 - Needed LCS capability not supported in serving node;
- incompatible terminal, i.e. the requested facility is not supported by the terminal.

Unchanged text removed for clarity

i) Location services problem:

- Unauthorised Requesting Network with detailed reasons as follows:

Codeword Check Failure

NOTE: Unauthorised Request with no detailed reason is equal to Unauthorised Requesting Network in the release 4 and earlier versions of this TS.

- Unauthorised LCS Client with detailed reasons as follows:
 - Unauthorised Privacy Class
 - Unauthorised Call Unrelated External Client
 - Unauthorised Call Related External Client
- Privacy override not applicable
- Position method failure with detailed reasons as follows:
 - Congestion
 - Insufficient resources
 - Insufficient Measurement Data
 - Inconsistent Measurement Data
 - Location procedure not completed
 - QoS not attainable
 - Position Method Not Available in Network
 - Position Method Not Available in Location Area
 - Unknown or unreachable LCS Client.

j) Problem detected by an application using secure transport:

- Secure transport error. This error indicates that the application using secure transport returned an error. The parameter of the error indicates:

- The protected payload, which carries the result of applying the protection function specified in 3G TS 33.200 to the encoding of the parameter of the original error.

**** NEXT MODIFIED SECTION ****

7.6.3.60 LCS Information

This parameter defines the LCS related information for an MS subscriber and contains the following components:

- GMLC List (see clause 7.6.3.61).
- LCS Privacy Exception List (see clause 7.6.3.62).
- MO-LR List (see clause 7.6.3.65A).
- Additional LCS Privacy Exception List (see clause 7.6.3.62A).

**** NEXT MODIFIED SECTION ****

7.6.3.62A Additional LCS Privacy Exception List

This parameter defines the classes of LCS Client that are allowed to locate any target MS. For each class, the following information is provided:

- SS-Code (see clause 7.6.4.1);
- a list of LCS privacy exception parameters (see clause 7.6.3.63).

The Additional LCS Privacy Exception List shall be present only if the LCS Privacy Exception List is present and contains LCS privacy exception parameters for 4 privacy exception classes.

**** NEXT MODIFIED SECTION ****

7.6.3.63 LCS Privacy Exception Parameters

This parameter gives the status of each LCS privacy exception class and any additional parameters relevant to this class. The parameter contains the following information:

- provisioned SS-Status (see clause 7.6.3.17);
- privacy notification to MS user (see clause 7.6.3.65B);
- external client List (see clause 7.6.3.64);
- internal client List (see clause 7.6.3.65).
- service type List (see clause 7.6.3.65D);

**** NEXT MODIFIED SECTION ****

7.6.3.65D Service Type List

This parameter is only applicable to the Service type privacy class and gives the identities of the service type of the clients that are allowed to locate a target MS for an MT-LR. Usage of this parameter is defined in 3G TS 23.271.

**** NEXT MODIFIED SECTION ****

7.6.4.44 LCS Privacy Exceptions

Distinct SS codes are assigned to the following classes of LCS client in a target MS subscriber's privacy exception list.

- Universal Class;
- Call related value added class;
- Non-Call related value added class;
- PLMN operator class.
- Service type class.

**** NEXT MODIFIED SECTION ****

7.6.11.15 VoidLCS Service Type Id

This parameter defines the LCS Service Type of the current positioning request. The possible values are defined in 3G TS 22.071 [123]

**** NEXT MODIFIED SECTION ****

7.6.11.18 VoidLCS Codeword

This parameter contains the codeword associated to current positioning request as described in 3G TS 23.271 [26a].

**** NEXT MODIFIED SECTION ****

7.6.11.19 VoidLCS Codeword Applicability

This parameter indicates if codeword checks are applicable as described in 3G TS 23.271 [26a].

**** NEXT MODIFIED SECTION ****

7.6.11.22 LCS Codeword Notification

This parameter indicates if -codeword shall be sent to the subscriber as described in 3G TS23.271 [26a]

**** NEXT MODIFIED SECTION ****

13A.1 MAP-SEND-ROUTING-INFO-FOR-LCS Service

13A.1.1 Definition

This service is used between the GMLC and the HLR to retrieve the routing information needed for routing a location service request to the servicing VMSC or SGSN. The MAP-SEND-ROUTING-INFO-FOR-LCS is a confirmed service using the primitives from table 13A.1/1.

13A.1.2 Service Primitives

Table 13A.1/1: MAP-SEND-ROUTING-INFO-FOR-LCS

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
MLC Number	M	M(=)		
MSISDN	C	C(=)	C	C(=)
IMSI	C	C(=)	C	C(=)
LCS Codeword Applicability	C	C(=)		
LCS Codeword	C	C(=)		
LMSI			C	C(=)
Network Node Number			C	C(=)
GPRS Node Indicator			C	C(=)
Additional Number			C	C(=)
No LCS Codeword Stored			C	C(=)
LCS Codeword Notification			C	C(=)
User error			C	C(=)
Provider error				O

13A.1.3 Parameter Use

Invoke id

See definition in clause 7.6.1.

MLC Number

See definition in clause 7.6.2.

MSISDN

See definition in clause 7.6.2. The request shall carry either the IMSI or MSISDN. The response shall carry whichever of these was not included in the request (see 3G TS 23.271 for details).

IMSI

See definition in clause 7.6.2.

LCS Codeword Applicability

See definition in clause 7.6.11.19.

LCS Codeword

See definition in clause 7.6.11.18. This parameter shall be present if and only if the parameter LCS Codeword Applicability indicates that codeword checks are applicable.

LMSI

See definition in clause 7.6.2. It is an operator option to provide this parameter from the VLR; it is mandatory for the HLR to include the LMSI in a successful response, if the VLR has used the LMSI.

Network Node Number

See definition in clause 7.6.2. This parameter is provided in a successful response. If the "Network Node Number" and "Additional Number" are received in the GMLC, the "Network Node Number" is used in preference to the "Additional Number".

GPRS Node Indicator

See definition in clause 7.6.8. The presence of this parameter is mandatory only if the SGSN number is sent in the Network Node Number.

Additional Number

See definition in clause 7.6.2. This parameter is provided in a successful response. If the "Network Node Number" and "Additional Number" are received in the GMLC, the "Network Node Number" is used in preference to the "Additional Number".

LCS Codeword Notification~~No LCS Codeword Stored~~

See definition in clause 7.6.11.22. The presence of this parameter indicates that codeword shall be sent to the subscriber. ~~the HLR has no LCS codeword stored in the subscriber profile.~~ HLR may include this parameter in the response only if codeword checks had been indicated as applicable in the request.

User error

The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- Unknown subscriber;
- Absent Subscriber;
- Facility Not Supported;
- System failure;
- Unexpected Data Value;
- Data missing;
- Unauthorised requesting network.

Provider error

For definition of provider errors see clause 7.6.1.

13A.2 MAP-PROVIDE-SUBSCRIBER-LOCATION Service

13A.2.1 Definition

This service is used by a GMLC to request the location of a target MS from the visited MSC or SGSN at any time. This is a confirmed service using the primitives from table 13A.2/1.

13A.2.2 Service Primitives

Table 13A.2/1: Provide_Subscriber_Location

Parameter name	Request	Indication	Response	Confirm
Invoke id	M	M(=)	M(=)	M(=)
Location Type	M	M(=)		
MLC Number	M	M(=)		
LCS Client ID	M	M(=)		
Privacy Override	U	C(=)		
IMSI	C	C(=)		
MSISDN	C	C(=)		
LMSI	C	C(=)		
LCS Priority	C	C(=)		
LCS QoS	C	C(=)		
IMEI	U	C(=)		
Supported GAD Shapes	C	C(=)		
LCS Codeword	<u>C</u>	<u>C(=)</u>		
LCS Service Type Id	<u>C</u>	<u>C(=)</u>		
Location Estimate			M	M(=)
Age of Location Estimate			C	C(=)
Additional Location Estimate			C	C(=)
Deferred MT-LR Response Indicator			C	C(=)
User error			C	C(=)
Provider error				O

13A.2.3 Parameter Definition and Use

All parameters are defined in clause 7.6. The use of these parameters and the requirements for their presence are specified in 3G TS 23.271

Location Type

This parameter identifies the type of location information requested.

MLC Number

This is the E.164 number of the requesting GMLC.

LCS Client ID

This parameter provides information related to the identity of an LCS client.

Privacy Override

This parameter indicates if MS privacy is overridden by the LCS client when the GMLC and VMSC or SGSN for an MT-LR are in the same country.

IMSI

The IMSI is provided to identify the target MS. At least one of the IMSI or MSISDN is mandatory.

MSISDN

The MSISDN is provided to identify the target MS. At least one of the IMSI or MSISDN is mandatory.

LMSI

The LMSI shall be provided if previously supplied by the HLR. This parameter is only used in the case of the MT-LR for CS domain.

LCS Priority

This parameter indicates the priority of the location request.

LCS QoS

This parameter indicates the required quality of service in terms of response time and accuracy.

IMEI

Inclusion of the IMEI is optional.

Supported GAD Shapes

This parameter indicates which of the shapes defined in 3G TS 23.032 are supported.

LCS Codeword

See definition in clause 7.6.11.18. The requirements for its presence are specified in 3G TS 23.271.

LCS Service Type Id

See definition in clause 7.6.11.15. The requirements for its presence are specified in 3G TS 23.271.

Location Estimate

This parameter provides the location estimate if this is encoded in one of the supported geographical shapes. Otherwise this parameter shall consist of one octet, which shall be discarded by the receiving node.

Age of Location Estimate

This parameter indicates how long ago the location estimate was obtained.

Additional Location Estimate

This parameter provides the location estimate when not provided by the Location Estimate parameter. It may be sent only if the parameter Supported GAD Shapes has been received in the Provide Subscriber Location indication and the shape to be included is supported by the GMLC.

Deferred MT-LR Response Indicator

See definition in clause 7.6.11.2.

User error

This parameter is sent by the responder when the location request has failed or cannot proceed and if present, takes one of the following values defined in clause 7.6.1.

- System Failure;
- Data Missing;
- Unexpected Data Value;
- Facility Not Supported;
- Unidentified Subscriber;
- Illegal Subscriber;
- Illegal Equipment;
- Absent Subscriber (diagnostic information may also be provided);
- Unauthorised requesting network;
- Unauthorised LCS Client with detailed reason;
- Position method failure with detailed reason.

Provider error

These are defined in clause 7.6.1.

**** NEXT MODIFIED SECTION ****

17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-MS-DataTypes (11) version7 (7)}
```

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

```
    -- location registration types
    UpdateLocationArg,
    UpdateLocationRes,
    CancelLocationArg,
    CancelLocationRes,
    PurgeMS-Arg,
    PurgeMS-Res,
    SendIdentificationArg,
    SendIdentificationRes,
    UpdateGprsLocationArg,
    UpdateGprsLocationRes,
    IST-SupportIndicator,
    SupportedLCS-CapabilitySets,

    -- gprs location registration types
    GSN-Address,

    -- handover types
    ForwardAccessSignalling-Arg,
    PrepareHO-Arg,
    PrepareHO-Res,
    PrepareSubsequentHO-Arg,
    PrepareSubsequentHO-Res,
    ProcessAccessSignalling-Arg,
    SendEndSignal-Arg,
    SendEndSignal-Res,

    -- authentication management types
    SendAuthenticationInfoArg,
    SendAuthenticationInfoRes,
    AuthenticationFailureReportArg,
    AuthenticationFailureReportRes,

    -- security management types
    EquipmentStatus,
    Kc,

    -- subscriber management types
    InsertSubscriberDataArg,
    InsertSubscriberDataRes,
    LSAIdentity,
    DeleteSubscriberDataArg,
    DeleteSubscriberDataRes,
    Ext-QoS-Subscribed,
    SubscriberData,
    ODB-Data,
    SubscriberStatus,
    ZoneCodeList,
    maxNumOfZoneCodes,
    O-CSI,
    D-CSI,
```

```

O-BcsmCamelTDPCriteriaList,
T-BCSM-CAMEL-TDP-CriteriaList,
SS-CSI,
ServiceKey,
DefaultCallHandling,
CamelCapabilityHandling,
BasicServiceCriteria,
SupportedCamelPhases,
maxNumOfCamelTDPData,
CUG-Index,
CUG-Info,
CUG-Interlock,
InterCUG-Restrictions,
IntraCUG-Options,
NotificationToMSUser,
QoS-Subscribed,
IST-AlertTimerValue,
T-CSI,
T-BcsmTriggerDetectionPoint,
APN,

-- fault recovery types
ResetArg,
RestoreDataArg,
RestoreDataRes,

-- provide subscriber info types
GeographicalInformation,

-- subscriber information enquiry types
ProvideSubscriberInfoArg,
ProvideSubscriberInfoRes,
SubscriberInfo,
LocationInformation,
SubscriberState,

-- any time information enquiry types
AnyTimeInterrogationArg,
AnyTimeInterrogationRes,

-- any time information handling types
AnyTimeSubscriptionInterrogationArg,
AnyTimeSubscriptionInterrogationRes,
AnyTimeModificationArg,
AnyTimeModificationRes,

-- subscriber data modification notification types
NoteSubscriberDataModifiedArg,
NoteSubscriberDataModifiedRes,

-- gprs location information retrieval types
SendRoutingInfoForGprsArg,
SendRoutingInfoForGprsRes,

-- failure reporting types
FailureReportArg,
FailureReportRes,

-- gprs notification types
NoteMsPresentForGprsArg,
NoteMsPresentForGprsRes,

-- Mobility Management types
NoteMM-EventArg,
NoteMM-EventRes

;

IMPORTS
maxNumOfSS,
SS-SubscriptionOption,
SS-List,
SS-ForBS-Code,
Password
FROM MAP-SS-DataTypes {
ccitt identified-organization (4) etsi (0) mobileDomain (0)

```

```

gsm-Network (1) modules (3) map-SS-DataTypes (14) version7 (7)}

SS-Code
FROM MAP-SS-Code {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-SS-Code (15) version7 (7)}

Ext-BearerServiceCode
FROM MAP-BS-Code {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-BS-Code (20) version7 (7)}

Ext-TeleserviceCode
FROM MAP-TS-Code {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-TS-Code (19) version7 (7)}

AddressString,
ISDN-AddressString,
ISDN-SubaddressString,
FTN-AddressString,
AccessNetworkSignalInfo,
IMSI,
TMSI,
HLR-List,
LMSI,
Identity,
GlobalCellId,
CellGlobalIdOrServiceAreaIdOrLAI,
Ext-BasicServiceCode,
NAEA-PreferredCI,
EMLPP-Info,
MC-SS-Info,
SubscriberIdentity,
AgeOfLocationInformation,
LCSClientExternalID,
LCSClientInternalID,
Ext-SS-Status,
LCSServiceTypeId
FROM MAP-CommonDataTypes {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-CommonDataTypes (18) version7 (7)}

ExtensionContainer
FROM MAP-ExtensionDataTypes {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version7 (7)}

AbsentSubscriberDiagnosticSM
FROM MAP-ER-DataTypes {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-ER-DataTypes (17) version7 (7)}

;

```

Unchanged text removed for clarity

```

SupportedLCS-CapabilitySets ::= BIT STRING {
    lcsCapabilitySet1 (0),
    lcsCapabilitySet2 (1),
    lcsCapabilitySet3 (2) } (SIZE (2..16))
-- Core network signalling capability set1 indicates LCS Release98 or Release99 version.
-- Core network signalling capability set2 indicates LCS Release4 or later version.
-- Core network signalling capability set3 indicates LCS Release5 or later version.
-- A node shall mark in the BIT STRING all LCS capability sets it supports.
-- If no bit is set then the sending node does not support LCS.
-- If the parameter is not sent by an VLR then the VLR may support at most capability set1.
-- If the parameter is not sent by an SGSN then no support for LCS is assumed.
-- An SGSN is not allowed to indicate support of capability set1.
-- Other bits than listed above shall be discarded.

```

Unchanged text removed for clarity

-- subscriber management types

```
InsertSubscriberDataArg ::= SEQUENCE {
    imsi                               [0] IMSI                               OPTIONAL,
    COMPONENTS OF                      SubscriberData,
    extensionContainer                  [14] ExtensionContainer           OPTIONAL,
    ... ,
    naea-PreferredCI                   [15] NAEA-PreferredCI           OPTIONAL,
    -- naea-PreferredCI is included at the discretion of the HLR operator.
    gprsSubscriptionData                [16] GPRSSubscriptionData       OPTIONAL,
    roamingRestrictedInSgsnDueToUnsupportedFeature [23]                NULL
                                     OPTIONAL,
    networkAccessMode                  [24] NetworkAccessMode         OPTIONAL,
    lsaInformation                      [25] LSAInformation           OPTIONAL,
    lmu-Indicator                       [21] NULL                       OPTIONAL,
    lcsInformation                      [22] LCSInformation           OPTIONAL,
    istAlertTimer                      [26] IST-AlertTimerValue       OPTIONAL,
    superChargerSupportedInHLR         [27] AgeIndicator             OPTIONAL,
    mc-SS-Info                          [28] MC-SS-Info             OPTIONAL,
    cs-AllocationRetentionPriority      [29] CS-AllocationRetentionPriority OPTIONAL,
    sgsn-CAMEL-SubscriptionInfo        [17] SGSN-CAMEL-SubscriptionInfo OPTIONAL,
    chargingCharacteristics             [18] ChargingCharacteristics  OPTIONAL
}
-- If the Network Access Mode parameter is sent, it shall be present only in
-- the first sequence if segmentation is used
```

```
CS-AllocationRetentionPriority ::= OCTET STRING (SIZE (1))
-- This data type encodes each priority level defined in TS 23.107 as the binary value
-- of the priority level.
```

```
IST-AlertTimerValue ::= INTEGER (15..255)
```

```
LCSInformation ::= SEQUENCE {
    gmlc-List [0]                GMLC-List OPTIONAL,
    lcs-PrivacyExceptionList     [1] LCS-PrivacyExceptionList  OPTIONAL,
    molr-List                    [2] MOLR-List                 OPTIONAL,
    ... ,
    add-lcs-PrivacyExceptionList [3] LCS-PrivacyExceptionList  OPTIONAL
}
-- add-lcs-PrivacyExceptionList may be sent only if lcs-PrivacyExceptionList is
-- present and contains four instances of LCS-PrivacyClass. If the mentioned condition
-- is not satisfied the receiving node shall discard add-lcs-PrivacyExceptionList.
-- If an LCS-PrivacyClass is received both in lcs-PrivacyExceptionList and in
-- add-lcs-PrivacyExceptionList with the same SS-Code, then the error unexpected
-- data value shall be returned.
```

Unchanged text removed for clarity

```
LCS-PrivacyExceptionList ::= SEQUENCE SIZE (1..maxNumOfPrivacyClass) OF
    LCS-PrivacyClass
```

```
maxNumOfPrivacyClass INTEGER ::= 4
```

```

LCS-PrivacyClass ::= SEQUENCE {
    ss-Code                SS-Code,
    ss-Status              Ext-SS-Status,
    notificationToMSUser  [0] NotificationToMSUser      OPTIONAL,
    -- notificationToMSUser may be sent only for SS-codes callrelated,
    -- and callunrelated and serviceType.
    -- If not received for SS-codes callrelated, and and callunrelated and serviceType,
    -- the default values according to 3G TS 23.271 shall be assumed.
    externalClientList    [1] ExternalClientList        OPTIONAL,
    -- externalClientList may be sent only for SS-code callunrelated to a
    -- visited node that does not support LCS Release 4 or later versions.
    -- externalClientList may be sent only for SS-codes callunrelated and
    -- callrelated to a visited node that supports LCS Release 4 or later versions.
    plmnClientList        [2] PLMNClientList            OPTIONAL,
    -- plmnClientList may be sent only for SS-code plmnoperator.
    extensionContainer    [3] ExtensionContainer        OPTIONAL,
    ...,
    ext-externalClientList [4] Ext-ExternalClientList   OPTIONAL,
    -- Ext-externalClientList may be sent only if the visited node supports LCS Release 4 or
    -- later versions, the user did specify more than 5 clients, and White Book SCCP is used.
    serviceTypeList       [5] ServiceTypeList          OPTIONAL
    -- serviceTypeList may be sent only for SS-code serviceType and if the visited node
    -- supports LCS Release 5 or later versions.
    --
    -- if segmentation is used, the complete LCS-PrivacyClass shall be sent in one segment
}

```

```

ExternalClientList ::= SEQUENCE SIZE (0..maxNumOfExternalClient) OF
    ExternalClient

```

```

maxNumOfExternalClient INTEGER ::= 5

```

```

PLMNClientList ::= SEQUENCE SIZE (1..maxNumOfPLMNClient) OF
    LCSCClientInternalID

```

```

maxNumOfPLMNClient INTEGER ::= 5

```

```

Ext-ExternalClientList ::= SEQUENCE SIZE (1..maxNumOfExt-ExternalClient) OF
    ExternalClient

```

```

maxNumOfExt-ExternalClient INTEGER ::= 35

```

```

ExternalClient ::= SEQUENCE {
    clientIdentity        LCSCClientExternalID,
    gmlc-Restriction     [0] GMLC-Restriction          OPTIONAL,
    notificationToMSUser [1] NotificationToMSUser      OPTIONAL,
    -- If notificationToMSUser is not received, the default value according to
    -- 3G TS 23.271 shall be assumed.
    extensionContainer    [2] ExtensionContainer        OPTIONAL,
    ... }

```

```

GMLC-Restriction ::= ENUMERATED {
    gmlc-List              (0),
    home-Country          (1),
    ... }
-- exception handling:
-- At reception of any other value than the ones listed the receiver shall ignore
-- GMLC-Restriction.

```

```

NotificationToMSUser ::= ENUMERATED {
    notifyLocationAllowed          (0),
    notifyAndVerify-LocationAllowedIfNoResponse (1),
    notifyAndVerify-LocationNotAllowedIfNoResponse(2),
    ...,
    locationNotAllowed (3) }
-- exception handling:
-- At reception of any other value than the ones listed the receiver shall ignore
-- NotificationToMSUser.

```

```

ServiceTypeList ::= SEQUENCE SIZE (1..maxNumOfServiceType) OF
    ServiceType

```

```

maxNumOfServiceType INTEGER ::= 32

```

```

ServiceType ::= SEQUENCE {
    serviceTypeIdentity          LCSServiceTypeID,
    gmlc-Restriction             [0] GMLC-Restriction          OPTIONAL,
    notificationToMSUser        [1] NotificationToMSUser      OPTIONAL,
    -- If notificationToMSUser is not received, the default value according to
    -- 3G TS 23.271 shall be assumed.
    extensionContainer           [2] ExtensionContainer        OPTIONAL,
    ... }

```

```

MOLR-List ::= SEQUENCE SIZE (1..maxNumOfMOLR-Class) OF
    MOLR-Class

```

```

maxNumOfMOLR-Class INTEGER ::= 3

```

```

MOLR-Class ::= SEQUENCE {
    ss-Code                      SS-Code,
    ss-Status                    Ext-SS-Status,
    extensionContainer            [0] ExtensionContainer        OPTIONAL,
    ... }

```

Unchanged text removed for clarity

**** NEXT MODIFIED SECTION ****

17.7.5 Supplementary service codes

```

MAP-SS-Code {
    ccitt-identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-SS-Code (15) version7 (7)}

```

DEFINITIONS

::=

BEGIN

Unchanged text removed for clarity

```

allLCSPrivacyException          SS-Code ::= '10110000'B
    -- all LCS Privacy Exception Classes
universal                        SS-Code ::= '10110001'B
    -- allow location by any LCS client
callrelated                      SS-Code ::= '10110010'B
    -- allow location by any value added LCS client to which a call
    -- is established from the target MS
callunrelated                   SS-Code ::= '10110011'B
    -- allow location by designated external value added LCS clients
plmoperator                     SS-Code ::= '10110100'B
    -- allow location by designated PLMN operator LCS clients
serviceType                     SS-Code ::= '10110101'B
    -- allow location by LCS clients of a designated LCS service type

```



```

allMOLR-SS                SS-Code ::= '11000000'B
    -- all Mobile Originating Location Request Classes
basicSelfLocation        SS-Code ::= '11000001'B
    -- allow an MS to request its own location
autonomousSelfLocation   SS-Code ::= '11000010'B
    -- allow an MS to perform self location without interaction
    -- with the PLMN for a predetermined period of time
transferToThirdParty     SS-Code ::= '11000011'B
    -- allow an MS to request transfer of its location to another LCS client

```

END

****** NEXT MODIFIED SECTION ******

17.7.7 Error data types

```

MAP-ER-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-ER-DataTypes (17) version7 (7)}

```

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

```

    RoamingNotAllowedParam,
    CallBarredParam,
    CUG-RejectParam,
    SS-IncompatibilityCause,
    PW-RegistrationFailureCause,
    SM-DeliveryFailureCause,
    SystemFailureParam,
    DataMissingParam,
    UnexpectedDataParam,
    FacilityNotSupParam,
    OR-NotAllowedParam,
    UnknownSubscriberParam,
    NumberChangedParam,
    UnidentifiedSubParam,
    IllegalSubscriberParam,
    IllegalEquipmentParam,
    BearerServNotProvParam,
    TeleservNotProvParam,
    TracingBufferFullParam,
    NoRoamingNbParam,
    AbsentSubscriberParam,
    BusySubscriberParam,
    NoSubscriberReplyParam,
    ForwardingViolationParam,
    ForwardingFailedParam,
    ATI-NotAllowedParam,
    SubBusyForMT-SMS-Param,
    MessageWaitListFullParam,
    AbsentSubscriberSM-Param,
    AbsentSubscriberDiagnosticSM,
    ResourceLimitationParam,
    NoGroupCallNbParam,
    IncompatibleTerminalParam,
    ShortTermDenialParam,
    LongTermDenialParam,
    UnauthorizedRequestingNetwork-Param,
    UnauthorizedLCSClient-Param,
    PositionMethodFailure-Param,

```

```

UnknownOrUnreachableLCSCClient-Param,
MM-EventNotSupported-Param,
SecureTransportErrorParam,
ATSI-NotAllowedParam,
ATM-NotAllowedParam,
IllegalSS-OperationParam,
SS-NotAvailableParam,
SS-SubscriptionViolationParam,
InformationNotAvailableParam,
TargetCellOutsideGCA-Param

;

IMPORTS
  SS-Status
FROM MAP-SS-DataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-SS-DataTypes (14) version7 (7)}

  SignalInfo,
  BasicServiceCode,
  NetworkResource
FROM MAP-CommonDataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-CommonDataTypes (18) version7 (7)}

  SecurityHeader,
  ProtectedPayload
FROM MAP-ST-DataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-ST-DataTypes (27) version7 (7)}

  SS-Code
FROM MAP-SS-Code {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-SS-Code (15) version7 (7)}

  ExtensionContainer
FROM MAP-ExtensionDataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version7 (7)}
;

```

Unchanged text removed for clarity

<pre> FacilityNotSupParam ::= SEQUENCE { extensionContainer ExtensionContainer OPTIONAL, ... neededLcsCapabilityNotSupportedInServingNode [0] NULL OPTIONAL} </pre>

Unchanged text removed for clarity

<pre> UnauthorizedRequestingNetwork-Param ::= SEQUENCE { extensionContainer ExtensionContainer OPTIONAL, ... } </pre>
--

<pre> UnauthorizedLCSCClient-Param ::= SEQUENCE { unauthorizedLCSCClient-Diagnostic [0] UnauthorizedLCSCClient-Diagnostic OPTIONAL, extensionContainer [1] ExtensionContainer OPTIONAL, ... } </pre>
--

```
UnauthorizedLCSCClient-Diagnostic ::= ENUMERATED {
    noAdditionalInformation (0),
    clientNotInMSPrivacyExceptionList (1),
    callToClientNotSetup (2),
    privacyOverrideNotApplicable (3),
    disallowedByLocalRegulatoryRequirements (4),
    ... }
-- exception handling:
-- any unrecognized value shall be ignored
```

```
PositionMethodFailure-Param ::= SEQUENCE {
    positionMethodFailure-Diagnostic [0] PositionMethodFailure-Diagnostic OPTIONAL,
    extensionContainer [1] ExtensionContainer OPTIONAL,
    ... }
```

```
PositionMethodFailure-Diagnostic ::= ENUMERATED {
    congestion (0),
    insufficientResources (1),
    insufficientMeasurementData (2),
    inconsistentMeasurementData (3),
    locationProcedureNotCompleted (4),
    locationProcedureNotSupportedByTargetMS (5),
    qosNotAttainable (6),
    positionMethodNotAvailableInNetwork (7),
    positionMethodNotAvailableInLocationArea (8),
    ... }
-- exception handling:
-- any unrecognized value shall be ignored
```

```
UnknownOrUnreachableLCSCClient-Param ::= SEQUENCE {
    extensionContainer ExtensionContainer OPTIONAL,
    ... }
```

```
MM-EventNotSupported-Param ::= SEQUENCE {
    extensionContainer ExtensionContainer OPTIONAL,
    ... }
```

```
TargetCellOutsideGCA-Param ::= SEQUENCE {
    extensionContainer ExtensionContainer OPTIONAL,
    ... }
```

```
SecureTransportErrorParam ::= SEQUENCE {
    securityHeader SecurityHeader,
    protectedPayload ProtectedPayload OPTIONAL
}
-- The protectedPayload carries the result of applying the security function
-- defined in 3G TS 33.200 to the encoding of the securely transported error
-- parameter
```

END

**** NEXT MODIFIED SECTION ****

17.7.8 Common data types

```
MAP-CommonDataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-CommonDataTypes (18) version7 (7)}
```

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

```
-- general data types and values
AddressString,
ISDN-AddressString,
maxISDN-AddressLength,
FTN-AddressString,
ISDN-SubaddressString,
ExternalSignalInfo,
Ext-ExternalSignalInfo,
AccessNetworkSignalInfo,
SignalInfo,
maxSignalInfoLength,
AlertingPattern,

-- data types for numbering and identification
IMSI,
TMSI,
Identity,
SubscriberId,
IMEI,
HLR-List,
LMSI,
GlobalCellId,
NetworkResource,
NAEA-PreferredCI,
NAEA-CIC,
ASCI-CallReference,
SubscriberIdentity,

-- data types for CAMEL
CellGlobalIdOrServiceAreaIdOrLAI,

-- data types for subscriber management
BasicServiceCode,
Ext-BasicServiceCode,
EMLPP-Info,
EMLPP-Priority,
MC-SS-Info,
MaxMC-Bearers,
MC-Bearers,
Ext-SS-Status,

-- data types for geographic location
AgeOfLocationInformation,
LCSCClientExternalID,
LCSCClientInternalID,
LCSServiceTypeId
```

;

IMPORTS

```
TeleserviceCode,
Ext-TeleserviceCode
FROM MAP-TS-Code {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-TS-Code (19) version7 (7)}

BearerServiceCode,
Ext-BearerServiceCode
FROM MAP-BS-Code {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-BS-Code (20) version7 (7)}

SS-Code
FROM MAP-SS-Code {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-SS-Code (15) version7 (7)}

ExtensionContainer
FROM MAP-ExtensionDataTypes {
ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version7 (7)}
;
```

Unchanged text removed for clarity

```

LCSClientExternalID ::= SEQUENCE {
    externalAddress          [0] AddressString          OPTIONAL,
    extensionContainer       [1] ExtensionContainer      OPTIONAL,
    ... }

```

```

LCSClientInternalID ::= ENUMERATED {
    broadcastService        (0),
    o-andM-HPLMN           (1),
    o-andM-VPLMN           (2),
    anonymousLocation       (3),
    targetMSsubscribedService (4),
    ... }
-- for a CAMEL phase 3 PLMN operator client, the value targetMSsubscribedService shall be used

```

```

LCSServiceTypeId ::= INTEGER (0..127)
-- the integer values 0-63 are reserved for Standard LCS service types
-- the integer values 64-127 are reserved for Non Standard LCS service types

```

emergencyServices	LCSServiceTypeId ::= 0
emergencyAlertServices	LCSServiceTypeId ::= 1
personTracking	LCSServiceTypeId ::= 2
fleetManagement	LCSServiceTypeId ::= 3
assetManagement	LCSServiceTypeId ::= 4
trafficCongestionReporting	LCSServiceTypeId ::= 5
roadsideAssistance	LCSServiceTypeId ::= 6
routingToNearestCommercialEnterprise	LCSServiceTypeId ::= 7
navigation	LCSServiceTypeId ::= 8
citySightseeing	LCSServiceTypeId ::= 9
localizedAdvertising	LCSServiceTypeId ::= 10
mobileYellowPages	LCSServiceTypeId ::= 11

-- The values of LCSServiceTypeId are defined according to 3G TS 22.071.

Unchanged text removed for clarity

****** NEXT MODIFIED SECTION ******

17.7.13 Location service data types

```

MAP-LCS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-LCS-DataTypes (25) version7 (7)}

DEFINITIONS
IMPLICIT TAGS
::=
BEGIN

EXPORTS
    RoutingInfoForLCS-Arg,
    RoutingInfoForLCS-Res,
    ProvideSubscriberLocation-Arg,
    ProvideSubscriberLocation-Res,
    SubscriberLocationReport-Arg,
    SubscriberLocationReport-Res,
    LocationType,
    LCSClientName,
    LCS-QoS,
    Horizontal-Accuracy,
    ResponseTime,
    Ext-GeographicalInformation,
    SupportedGADShapes,
    Add-GeographicalInformation,
    LCSCodeword
;

IMPORTS
    AddressString,
    ISDN-AddressString,
    IMEI,
    IMSI,
    LMSI,
    SubscriberIdentity,
    AgeOfLocationInformation,
    LCSClientExternalID,
    ---LCSClientInternalID,
    LCSServiceTypeId
FROM MAP-CommonDataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-CommonDataTypes (18) version7 (7)}

    ExtensionContainer
FROM MAP-ExtensionDataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version7 (7)}

    USSD-DataCodingScheme,
    USSD-String
FROM MAP-SS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
    map-SS-DataTypes (14) version7 (7)}

    APN
FROM MAP-MS-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-MS-DataTypes (11) version7 (7)}

    Additional-Number
FROM MAP-SM-DataTypes {
    ccitt identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Network (1) modules (3) map-SM-DataTypes (16) version7 (7)}
;

```

RoutingInfoForLCS-Arg	::= SEQUENCE {		
mlcNumber		[0] ISDN-AddressString,	
targetMS		[1] SubscriberIdentity,	
extensionContainer		[2] ExtensionContainer	OPTIONAL,
...			
lcsCodewordApplicability		[3] LCSCodewordApplicability	OPTIONAL,
lcsCodeword		[4] LCSCodeword	OPTIONAL}
-- lcsCodeword shall be present if and only if lcsCodewordApplicability is			
-- present and has the value codewordCheckApplicable. If lcsCodeword is received			
-- when the mentioned conditions are not satisfied then it shall be ignored.			

```

LCSCodewordApplicability ::= ENUMERATED {
  codewordCheckApplicable (0),
  codewordCheckNotApplicable (1),
  ...
}
-- exception handling:
-- unrecognized values shall be ignored by the receiver.

```

```

LCSCodeword ::= SEQUENCE {
  dataCodingScheme [0] USSD-DataCodingScheme,
  lcsCodewordString [1] LCSCodewordString,
  ...
}

```

```

LCSCodewordString ::= USSD-String (SIZE (1..maxLCSCodewordStringLength))

```

```

maxLCSCodewordStringLength INTEGER ::= 127

```

```

RoutingInfoForLCS-Res ::= SEQUENCE {
  targetMS [0] SubscriberIdentity,
  lcsLocationInfo [1] LCSLocationInfo,
  extensionContainer [2] ExtensionContainer OPTIONAL,
  ...
  lcsCodewordNotification [3] NULL OPTIONAL
}
-- lcsCodewordNotificationnoLcsCodewordStored may be present only if
-- lcsCodewordApplicability was present in RoutingInfoForLCS-Arg.
-- If received when lcsCodewordApplicability was not present in
-- RoutingInfoForLCS-Arg then lcsCodewordNotification shall be ignored.
noLcsCodewordStored [3] NULL OPTIONAL
-- noLcsCodewordStored may be present only if lcsCodewordApplicability
-- and lcsCodeword were present in RoutingInfoForLCS Arg. If received when
-- lcsCodewordApplicability and lcsCodeword were not present in
-- RoutingInfoForLCS Arg then noLcsCodewordStored shall be ignored.

```

```

LCSLocationInfo ::= SEQUENCE {
  networkNode-Number ISDN-AddressString,
  -- NetworkNode-number can be either msc-number or sgsn-number
  lmsi [0] LMSI OPTIONAL,
  extensionContainer [1] ExtensionContainer OPTIONAL,
  ...
  gprsNodeIndicator [2] NULL OPTIONAL,
  -- gprsNodeIndicator is set only if the SGSN number is sent as the Network Node Number
  additional-Number [3] Additional-Number OPTIONAL
}

```

```

ProvideSubscriberLocation-Arg ::= SEQUENCE {
  locationType LocationType,
  mlc-Number ISDN-AddressString,
  lcs-ClientID [0] LCS-ClientID OPTIONAL,
  privacyOverride [1] NULL OPTIONAL,
  imsi [2] IMSI OPTIONAL,
  msisdn [3] ISDN-AddressString OPTIONAL,
  lmsi [4] LMSI OPTIONAL,
  imei [5] IMEI OPTIONAL,
  lcs-Priority [6] LCS-Priority OPTIONAL,
  lcs-QoS [7] LCS-QoS OPTIONAL,
  extensionContainer [8] ExtensionContainer OPTIONAL,
  ...
  supportedGADShapes [9] SupportedGADShapes OPTIONAL,
  lcsServiceTypeId [10] LCSServiceTypeId OPTIONAL,
  lcsCodeword [11] LCSCodeword OPTIONAL
}
-- one of imsi or msisdn is mandatory

```

```

LocationType ::= SEQUENCE {
  locationEstimateType [0] LocationEstimateType,
  ...
  deferredLocationEventType [1] DeferredLocationEventType OPTIONAL
}

```

```

LocationEstimateType ::= ENUMERATED {
    currentLocation                (0),
    currentOrLastKnownLocation    (1),
    initialLocation                (2),
    ...,
    activateDeferredLocation      (3),
    cancelDeferredLocation        (4) }
-- exception handling:
-- a ProvideSubscriberLocation-Arg containing an unrecognized LocationEstimateType
-- shall be rejected by the receiver with a return error cause of unexpected data value

```

```

DeferredLocationEventType ::= BIT STRING {
    msAvailable                    (0) } (SIZE (1..16))
-- exception handling
-- a ProvideSubscriberLocation-Arg containing other values than listed above in
-- DeferredLocationEventType shall be rejected by the receiver with a return error cause of
-- unexpected data value.

```

```

LCS-ClientID ::= SEQUENCE {
    lcsClientType                  [0] LCSClientType,
    lcsClientExternalID            [1] LCSClientExternalID          OPTIONAL,
    lcsClientDialedByMS            [2] AddressString                OPTIONAL,
    lcsClientInternalID            [3] LCSClientInternalID          OPTIONAL,
    lcsClientName                  [4] LCSClientName                OPTIONAL,
    ...,
    lcsAPN                          [5] APN                          OPTIONAL }

```

```

LCSClientType ::= ENUMERATED {
    emergencyServices              (0),
    valueAddedServices             (1),
    plmnOperatorServices           (2),
    lawfulInterceptServices        (3),
    ... }
-- exception handling:
-- unrecognized values may be ignored if the LCS client uses the privacy override
-- otherwise, an unrecognized value shall be treated as unexpected data by a receiver
-- a return error shall then be returned if received in a MAP invoke

```

```

LCSClientName ::= SEQUENCE {
    dataCodingScheme               [0] USSD-DataCodingScheme,
    nameString                     [2] NameString,
    ...}
-- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
-- following encoding
-- bit 7 6 5 4 3 2 1 0
--    0 0 0 0 1 1 1 1

```

```

NameString ::= USSD-String (SIZE (1..maxNameStringLength))

```

```

maxNameStringLength INTEGER ::= 63

```

```

LCS-Priority ::= OCTET STRING (SIZE (1))
-- 0 = highest priority
-- 1 = normal priority
-- all other values treated as 1

```

```

LCS-QoS ::= SEQUENCE {
    horizontal-accuracy            [0] Horizontal-Accuracy          OPTIONAL,
    verticalCoordinateRequest       [1] NULL                          OPTIONAL,
    vertical-accuracy               [2] Vertical-Accuracy            OPTIONAL,
    responseTime                    [3] ResponseTime                OPTIONAL,
    extensionContainer              [4] ExtensionContainer            OPTIONAL,
    ...}

```

```

Horizontal-Accuracy ::= OCTET STRING (SIZE (1))
-- bit 8 = 0
-- bits 7-1 = 7 bit Uncertainty Code defined in 3G TS 23.032. The horizontal location
-- error should be less than the error indicated by the uncertainty code with 67%
-- confidence.

```

```

Vertical-Accuracy ::= OCTET STRING (SIZE (1))
-- bit 8 = 0
-- bits 7-1 = 7 bit Vertical Uncertainty Code defined in 3G TS 23.032.
-- The vertical location error should be less than the error indicated
-- by the uncertainty code with 67% confidence.

```



```

ResponseTime ::= SEQUENCE {
    responseTimeCategory          ResponseTimeCategory,
    ... }
-- note: an expandable SEQUENCE simplifies later addition of a numeric response time.

```

```

ResponseTimeCategory ::= ENUMERATED {
    lowdelay (0),
    delaytolerant (1),
    ... }
-- exception handling:
-- an unrecognized value shall be treated the same as value 1 (delaytolerant)

```

```

SupportedGADShapes ::= BIT STRING {
    ellipsoidPoint (0),
    ellipsoidPointWithUncertaintyCircle (1),
    ellipsoidPointWithUncertaintyEllipse (2),
    polygon (3),
    ellipsoidPointWithAltitude (4),
    ellipsoidPointWithAltitudeAndUncertaintyElipsoid (5),
    ellipsoidArc (6) } (SIZE (7..16))
-- A node shall mark in the BIT STRING all Shapes defined in 3G TS 23.032 it supports.
-- exception handling: bits 7 to 15 shall be ignored if received.

```

```

LCSCodeword ::= SEQUENCE {
    dataCodingScheme              [0] USSD-DataCodingScheme,
    lcsCodewordString             [1] LCSCodewordString,
    ... }

```

```

LCSCodewordString ::= USSD-String (SIZE (1..maxLCSCodewordStringLength))

```

```

maxLCSCodewordStringLength INTEGER ::= 127

```

```

ProvideSubscriberLocation-Res ::= SEQUENCE {
    locationEstimate              Ext-GeographicalInformation,
    ageOfLocationEstimate         [0] AgeOfLocationInformation    OPTIONAL,
    extensionContainer             [1] ExtensionContainer          OPTIONAL,
    ... ,
    add-LocationEstimate          [2] Add-GeographicalInformation  OPTIONAL,
    deferredmt-lrResponseIndicator [3] NULL                      OPTIONAL }
-- if deferredmt-lrResponseIndicator is set, locationEstimate is ignored.
-- the add-LocationEstimate parameter shall not be sent to a node that did not indicate the
-- geographic shapes supported in the ProvideSubscriberLocation-Arg

```

```

Ext-GeographicalInformation ::= OCTET STRING (SIZE (1..maxExt-GeographicalInformation))
-- Refers to geographical Information defined in 3G TS 23.032.
-- This is composed of 1 or more octets with an internal structure according to
-- 3G TS 23.032
-- Octet 1: Type of shape, only the following shapes in 3G TS 23.032 are allowed:
--   (a) Ellipsoid point with uncertainty circle
--   (b) Ellipsoid point with uncertainty ellipse
--   (c) Ellipsoid point with altitude and uncertainty ellipsoid
--   (d) Ellipsoid Arc
--   (e) Ellipsoid Point
-- Any other value in octet 1 shall be treated as invalid
-- Octets 2 to 8 for case (a) - Ellipsoid point with uncertainty circle
--   Degrees of Latitude           3 octets
--   Degrees of Longitude         3 octets
--   Uncertainty code             1 octet
-- Octets 2 to 11 for case (b) - Ellipsoid point with uncertainty ellipse:
--   Degrees of Latitude           3 octets
--   Degrees of Longitude         3 octets
--   Uncertainty semi-major axis  1 octet
--   Uncertainty semi-minor axis  1 octet
--   Angle of major axis          1 octet
--   Confidence                    1 octet
-- Octets 2 to 14 for case (c) - Ellipsoid point with altitude and uncertainty ellipsoid
--   Degrees of Latitude           3 octets
--   Degrees of Longitude         3 octets
--   Altitude                      2 octets
--   Uncertainty semi-major axis  1 octet
--   Uncertainty semi-minor axis  1 octet
--   Angle of major axis          1 octet
--   Uncertainty altitude         1 octet
--   Confidence                    1 octet
-- Octets 2 to 13 for case (d) - Ellipsoid Arc
--   Degrees of Latitude           3 octets
--   Degrees of Longitude         3 octets
--   Inner radius                  2 octets
--   Uncertainty radius            1 octet
--   Offset angle                  1 octet
--   Included angle                1 octet
--   Confidence                    1 octet
-- Octets 2 to 7 for case (e) - Ellipsoid Point
--   Degrees of Latitude           3 octets
--   Degrees of Longitude         3 octets
--
-- An Ext-GeographicalInformation parameter comprising more than one octet and
-- containing any other shape or an incorrect number of octets or coding according
-- to 3G TS 23.032 shall be treated as invalid data by a receiver.
--
-- An Ext-GeographicalInformation parameter comprising one octet shall be discarded
-- by the receiver if an Add-GeographicalInformation parameter is received
-- in the same message.
--
-- An Ext-GeographicalInformation parameter comprising one octet shall be treated as
-- invalid data by the receiver if an Add-GeographicalInformation parameter is not
-- received in the same message.

```

```

maxExt-GeographicalInformation INTEGER ::= 20
-- the maximum length allows for further shapes in 3G TS 23.032 to be included in later
-- versions of 3G TS 29.002

```

```

Add-GeographicalInformation ::= OCTET STRING (SIZE (1..maxAdd-GeographicalInformation))
-- Refers to geographical Information defined in 3G TS 23.032.
-- This is composed of 1 or more octets with an internal structure according to
-- 3G TS 23.032
-- Octet 1: Type of shape, all the shapes defined in 3G TS 23.032 are allowed:
-- Octets 2 to n (where n is the total number of octets necessary to encode the shape
-- according to 3G TS 23.032) are used to encode the shape itself in accordance with the
-- encoding defined in 3G TS 23.032
--
-- An Add-GeographicalInformation parameter, whether valid or invalid, received
-- together with a valid Ext-GeographicalInformation parameter in the same message
-- shall be discarded.
--
-- An Add-GeographicalInformation parameter containing any shape not defined in
-- 3G TS 23.032 or an incorrect number of octets or coding according to
-- 3G TS 23.032 shall be treated as invalid data by a receiver if not received
-- together with a valid Ext-GeographicalInformation parameter in the same message.

```

```

maxAdd-GeographicalInformation INTEGER ::= 91
-- the maximum length allows support for all the shapes currently defined in 3G TS 23.032

```

```

SubscriberLocationReport-Arg ::= SEQUENCE {
  lcs-Event                LCS-Event,
  lcs-ClientID             LCS-ClientID,
  lcsLocationInfo          LCSLocationInfo,
  msisdn                   [0] ISDN-AddressString           OPTIONAL,
  imsi                     [1] IMSI                         OPTIONAL,
  imei                     [2] IMEI                         OPTIONAL,
  na-ESRD                  [3] ISDN-AddressString           OPTIONAL,
  na-ESRK                  [4] ISDN-AddressString           OPTIONAL,
  locationEstimate         [5] Ext-GeographicalInformation  OPTIONAL,
  ageOfLocationEstimate    [6] AgeOfLocationInformation    OPTIONAL,
  extensionContainer       [7] ExtensionContainer           OPTIONAL,
  ... ,
  add-LocationEstimate     [8] Add-GeographicalInformation  OPTIONAL,
  deferredmt-lrData        [9] Deferredmt-lrData           OPTIONAL }

-- one of msisdn or imsi is mandatory
-- a location estimate that is valid for the locationEstimate parameter should
-- be transferred in this parameter in preference to the add-LocationEstimate.
-- the deferredmt-lrData parameter shall be included if and only if the lcs-Event
-- indicates a deferredmt-lrResponse.

```

```

Deferredmt-lrData ::= SEQUENCE {
  deferredLocationEventType DeferredLocationEventType,
  terminationCause         [0] TerminationCause           OPTIONAL,
  lcsLocationInfo          [1] LCSLocationInfo            OPTIONAL,
  ... }
-- lcsLocationInfo may be included only if a terminationCause is present
-- indicating mt-lrRestart.

```

```

LCS-Event ::= ENUMERATED {
  emergencyCallOrigination (0),
  emergencyCallRelease (1),
  mo-lr (2),
  ... ,
  deferredmt-lrResponse (3) }
-- exception handling:
-- a SubscriberLocationReport-Arg containing an unrecognized LCS-Event
-- shall be rejected by a receiver with a return error cause of unexpected data value

```

```

TerminationCause ::= ENUMERATED {
  normal (0),
  errorundefined (1),
  internalTimeout (2),
  congestion (3),
  mt-lrRestart (4),
  privacyViolation (5),
  ... }
-- mt-lrRestart shall be used to trigger the GMLC to restart the location procedure,
-- either because the sending node knows that the terminal has moved under coverage
-- of another MSC or SGSN (e.g. Send Identification received), or because the subscriber
-- has been autonomously deregistered by the serving node (e.g implicit detach).
--
-- exception handling
-- an unrecognized value shall be treated the same as value 1 (errorundefined)

```

```

SubscriberLocationReport-Res ::= SEQUENCE {
  extensionContainer        ExtensionContainer             OPTIONAL,
  ... }

```

END

*** END OF MODIFICATIONS ***

8.8.1 MAP-INSERT-SUBSCRIBER-DATA service

8.8.1.1 Definition

This service is used by an HLR to update a VLR with certain subscriber data in the following occasions:

- the operator has changed the subscription of one or more supplementary services, basic services or data of a subscriber. Note that in case of withdrawal of a Basic or Supplementary service this primitive shall not be used;
- the operator has applied, changed or removed Operator Determined Barring;
- the subscriber has changed data concerning one or more supplementary services by using a subscriber procedure;
- the HLR provides the VLR with subscriber parameters at location updating of a subscriber or at restoration. In this case, this service is used to indicate explicitly that a supplementary service is not provisioned, if the supplementary service specification requires it. The only supplementary services which have this requirement are the CLIR and COLR services. Network access mode is provided only in restoration. If the Super-Charger functionality is supported the HLR may not need to provide the VLR with subscriber parameters at location updating of a subscriber. See TS 23.116.

Also this service is used by an HLR to update an SGSN with certain subscriber data in the following occasions:

- if the GPRS subscription has changed;
- if the network access mode is changed;
- the operator has applied, changed or removed Operator Determined Barring;
- the subscriber has changed data concerning one or more supplementary services by using a subscriber procedure;
- the HLR provides the SGSN with subscriber parameters at GPRS location updating of a subscriber. If the Super-Charger functionality is supported the HLR may not need to provide the SGSN with subscriber parameters. See 3G TS 23.116.

It is a confirmed service and consists of the primitives shown in table 8.8/1.

8.8.1.2 Service primitives

Table 8.8/1: MAP-INSERT-SUBSCRIBER-DATA

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
IMSI	C	C(=)		
MSISDN	C	C(=)		
Category	C	C(=)		
Subscriber Status	C	C(=)		
Bearer service List	C	C(=)	C	C(=)
Teleservice List	C	C(=)	C	C(=)
Forwarding information List	C	C(=)		
Call barring information List	C	C(=)		
CUG information List	C	C(=)		
SS-Data List	C	C(=)		
eMLPP Subscription Data	C	C(=)		
MC-Subscription Data	C	C(=)		
Operator Determined Barring General data	C	C(=)	C	C(=)
Operator Determined Barring HPLMN data	C	C(=)		
Roaming Restriction Due To Unsupported Feature	C	C(=)		
Regional Subscription Data	C	C(=)		

Parameter name	Request	Indication	Response	Confirm
VLR CAMEL Subscription Info	C	C(=)		
Voice Broadcast Data	C	C(=)		
Voice Group Call Data	C	C(=)		
Network access mode	C	C(=)		
GPRS Subscription Data	C	C(=)		
Roaming Restricted In SGSN Due To Unsupported Feature	C	C(=)		
North American Equal Access preferred Carrier Id List	U	C(=)		
SGSN Camel Subscription Info	C	C(=)		
LSA Information	C	C(=)		
IST Alert Timer	C	C(=)		
SS-Code List			C	C(=)
LMU Identifier	C	C(=)		
LCS Information	C	C(=)		
CS Allocation/Retention priority	C	C(=)		
Super-Charger Supported In HLR	C	C(=)		
Regional Subscription Response			C	C(=)
Supported CAMEL Phases			C	C(=)
User error			U	C(=)
Provider error				O

8.8.1.3 Parameter use

All parameters are described in clause 7.6. The following clarifications are applicable:

.....

SS-Data List

A list of Extensible SS-Data parameters (Extensible SS-Data is defined in clause 7.6). It is sent for any other supplementary service than Call Forwarding, Call Barring, CUG and eMLPP either at location updating or at restoration or when they are changed. Each SS-Data parameter shall be treated independently of all other parameters in the primitive.

The Extensible SS-Data shall include the SS-Code for an individual supplementary service. The Extensible SS-Data shall contain an Extensible SS-Status parameter and any subscription options that are applicable to the service defined by the SS-Code.

The SS-Data may include a Basic Service Group List. This shall be interpreted according to the rules in clause 8.8.1.4.

If the VLR receives an Indication containing any supplementary service codes which it does not support/allocate it returns them to the HLR in the parameter SS-Code List and therefore discards the unsupported service codes received (no error is sent back)

This parameter is used by the SGSN only for LCS. If the SGSN receives an Indication containing any LCS related supplementary service codes (~~either LCS related or not~~) which it does not support/allocate it returns them to the HLR in the parameter SS-Code List and therefore discards the unsupported service codes received (no error is sent back) ~~then it discards them.~~ SS-codes not related to the supported LCS capability set shall be discarded.