

**3GPP TSG CN Plenary Meeting #14
Kyoto, JAPAN, 12th-14th December 2001**

NP-010631

Source: TSG CN WG4
Title: CRs on Rel-5 Technical Enhancements and Improvements
Agenda item: 9.13
Document for: APPROVAL

Introduction:

This document contains 7 CRs on Rel-5 Work Item "TEI5", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.205	013	1	N4-011388	Rel-5	Maintenance locking of MG	B	4.2.0
29.232	019	2	N4-011447	Rel-5	Maintenance locking of MG	B	4.2.0
23.205	011		N4-011080	Rel-5	Introduction of MGW Congestion Handling	B	4.2.0
29.232	013	1	N4-011214	Rel-5	Introduction of MGW Congestion Handling	B	4.2.0
29.060	272		N4-011072	Rel-5	Support for Radio Priority LCS	B	4.2.0
29.002	355		N4-011381	Rel-5	LCS Capability Handling for UE's	B	4.5.0
29.060	282		N4-011429	Rel-5	Clarification on IMSI format (Unused fields)	D	4.2.0

CHANGE REQUEST

⌘ **23.205 CR 011** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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:	⌘ Introduction of MGW Congestion Handling		
Source:	⌘ L.M. Ericsson		
Work item code:	⌘ CSSPLIT	Date:	⌘ 5 th October 2001
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:	⌘ To introduce a general load control mechanism between (G)MSC server and MGW. This would utilise the ITU-T SG-16 approved H.248 Annex M2, "Media Gateway Resource Congestion Handling" Package. A change request will be presented to ITU-T SG-11 for approval.
Summary of change:	⌘ Introduce two call independent procedures, one is used by the (G)MSC server to order notification of load reduction from the MGW. The other is used by the MGW to advise the (G)MSC server when to apply load reduction.
Consequences if not approved:	⌘

Clauses affected:	⌘ 10, 16.2	
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ CR 29.232-013r1 (N4-011214)
Other comments:	⌘	

How to create CRs using this form:

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- 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://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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

10 General (G)MSC server-MGW Procedures

:
:

10.x13 MGW Resource Congestion Handling - Activate

When the (G)MSC server requires that a MGW congestion notification mechanism be applied in the MGW, the (G)MSC server shall use the MGW Resource Congestion Handling - Activate procedure towards the MGW.

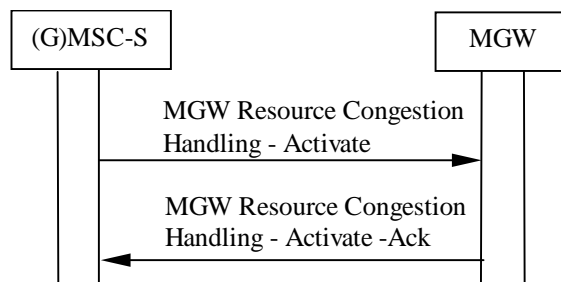


Figure 10-x16 MGW Resource Congestion Handling - Activate

10.y14 MGW Resource Congestion Handling - Indication

When the (G)MSC server receives a load reduction notification from the MGW via the MGW Resource Congestion Handling - Indication procedure, the (G)MSC server tries to reduce the processing load that the (G)MSC server creates on the MGW. The MGW shall decide the actual level of traffic reduction.

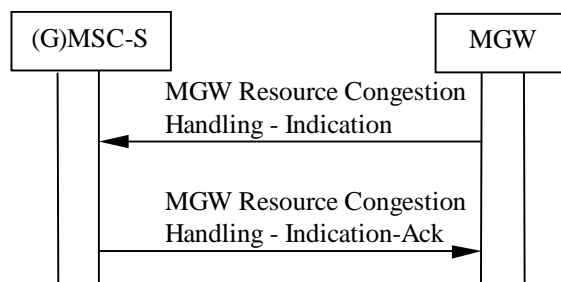


Figure 10-y17 MGW Resource Congestion Handling - Indication

Next modified section

16.2 Procedures between (G)MSC server and MGW

The subclauses below indicate the procedures used between (G)MSC server and MGW in Mc interface. The procedures are logical, i.e. message identifiers are not part of the protocol. Several logical procedures can be combined into one H.248 command in order to perform required transactions. If several logical procedures are combined, only one context/context request and only one bearer termination/bearer termination request is sent in the H.248 command. Exemption is the Change Flow Direction procedure, where the two bearer terminations are related to a change of the context and not to a command of the bearer termination. All the procedures below describe a successful operation. If the procedure is rejected, a Command Reject is sent back to the entity that sent the command request.

:
:

16.2.x43 MGW Resource Congestion Handling - Activate

This procedure is used to activate the congestion handling mechanism.

Table 16.x44: Procedures between (G)MSC server and MGW: MGW Resource Congestion Handling - Activate

<u>Procedure</u>	<u>Initiated</u>	<u>Information element name</u>	<u>Information element required</u>	<u>Information element description</u>
MGW Resource Congestion Handling - Activate	(G)MSC-S	Context	M	This information element indicates that all context are applicable for the root termination.
		Root Termination	M	This information element indicates that root termination is where the congestion mechanism is activated.
		Congestion Activate	M	This information element requests to activate the congestion mechanism.
MGW Resource Congestion Handling - Activate Ack	MGW	Context	M	This information element indicates that all context are where the command was executed.
		Root Termination	M	This information element indicates that root termination is where the command was executed.

16.2.y44 MGW Resource Congestion Handling - Indication

This procedure is used to inform the (G)MSC server that traffic restriction is advised.

Table 16.y45: Procedures between (G)MSC server and MGW: MGW Resource Congestion Handling - Indication

<u>Procedure</u>	<u>Initiated</u>	<u>Information element name</u>	<u>Information element required</u>	<u>Information element description</u>
MGW Resource Congestion Handling - Indication	MGW	Context	M	This information element indicates all context are applicable for the root termination.
		Root Termination	M	This information element indicates that root termination is where the congestion mechanism was activated.

		<u>Reduction</u>	<u>M</u>	<u>This information element indicates the load percentage to be reduced.</u>
<u>MGW Resource Congestion Handling - Indication Ack</u>	<u>(G)MSC</u>	<u>Context</u>	<u>M</u>	<u>This information element indicates all context are where the command was executed.</u>
		<u>Root Termination</u>	<u>M</u>	<u>This information element indicates that root termination is where the command was executed.</u>

End modified section

CHANGE REQUEST

⌘ **TS 23.205** **CR 013** ⌘ rev **1** ⌘ Current version: **4.2.0** ⌘

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:	⌘ Maintenance locking of MG		
Source:	⌘ CN4		
Work item code:	⌘ Bearer Independent Architecture	Date:	⌘
Category:	⌘ B	Release:	⌘ Release 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:	⌘ The addition of this feature allows the operator to be informed that the reason for the unavailability of a MG is maintenance action.
Summary of change:	⌘ A new unavailability reason is added to the MG unavailability/availability section.
Consequences if not approved:	⌘ There will not be any way for an operator to lock a MG in a controlled way against new calls.

Clauses affected:	⌘ 10.1, 10.2, 10.3 and 16.2.26		
Other specs Affected:	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ TS 29.232-019r2 (N4-011447)	
Other comments:	⌘ This feature is already allowed in H.248		

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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.

10.1 MGW Unavailable

The (G)MSC server recognises that the MGW is unavailable in the following 3 cases:

1. The signalling connection is unavailable

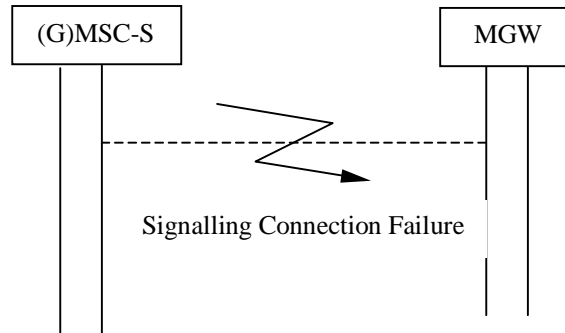


Figure 10.1 Signalling connection failure

2. The MGW indicates the failure condition to all connected (G)MSC servers

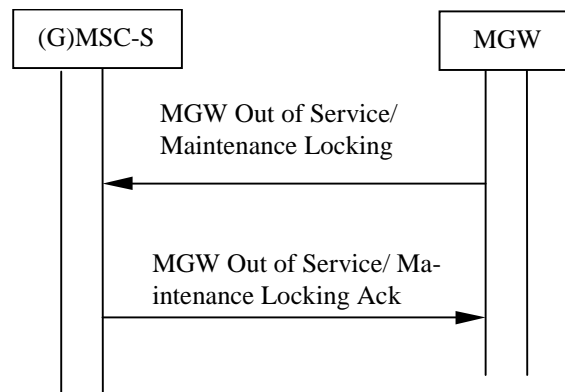


Figure 10.2 MGW indicates the Failure/Maintenance locking

The failure indication indicates that the MGW will soon go out of service and that no new connections should be established using this MGW. The MGW can choose between the 'graceful' and the 'forced' method. In the graceful method the connections are cleared when the corresponding calls are disconnected. In the forced method all connection are cleared immediately.

3. The (G)MSC server recognises that the MGW is not functioning correctly, e.g. because there is no reply on periodic sending of Audits.

4. The MGW indicates the maintenance locking condition to all concerned (G)MSC servers.

The maintenance locking indication indicates that the MGW is locked for new calls and that no new connections shall be established using this MGW. The MGW can choose between the 'graceful' and the 'forced' method. In the graceful method the connections are cleared when the corresponding calls are disconnected. In the forced method all connection are cleared immediately

The (G)MSC server discovers that the MGW is available when it receives an MGW Communication Up message or an MGW Restoration message. When the (G)MSC server discovers that the MGW is available the following shall occur:

10.2 MGW Available

1. Signalling recovery

The MGW indicates to all connected (G)MSC servers that the signalling connection is restored.

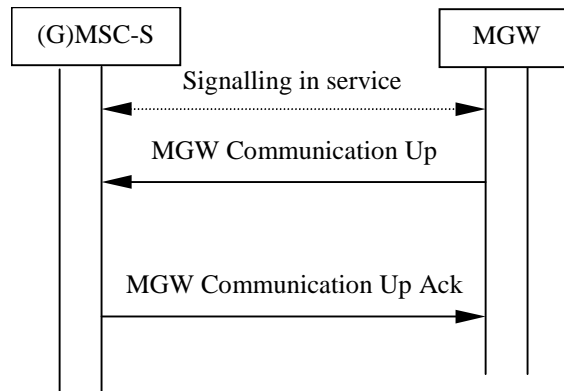
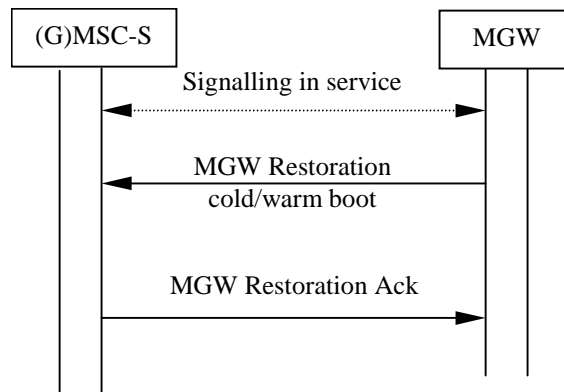


Figure 10.3 Communication goes up

- 2. MGW restoration/maintenance unlocking indication.

The MGW indicates to all connected (G)MSC servers that normal operation has resumed.



NOTE: This procedure may be used after recovery from a signalling failure.

Figure 10.4 MGW indicates recovery from a failure/or maintenance unlocking

- 3. The (G)MSC server recognises that the MGW is now functioning correctly, e.g. because there is a reply on periodic sending of Audits.

After this the (G)MSC server can use the MGW. If the corresponding devices of the surrounding network are blocked, unblocked messages are sent to the nodes concerned.

If none of 1,2, and 3 happens the (G)MSC server can initiate the (G)MSC Server Ordered Re-register procedure.

10.3 MGW Recovery

If the MGW recovers from a failure, is maintenance unlocked, or it has been restarted, it registers to its known (G)MSC servers using the MGW Restoration procedure. The MGW can indicate whether it has restarted with a cold or warm boot. The response sent to the MGW indicates a signalling address to be used by the MGW.

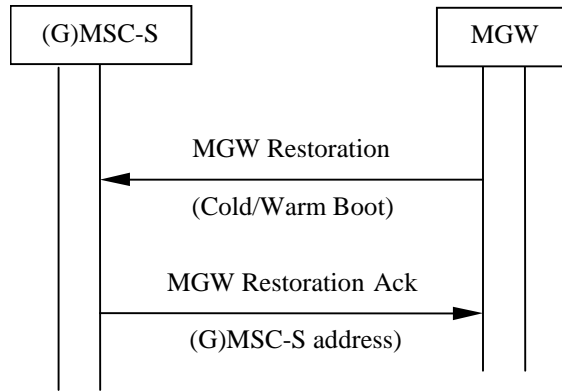


Figure 10.5 MGW Restoration

After the recovery the (G)MSC server can use the MGW. If the corresponding devices of the surrounding network are blocked, unblocked messages are sent to the nodes concerned.

16.2.26 MGW Out-of-Service/ Maintenance locking

This procedure is used to indicate that the MGW will go out of service or is maintenance locked.

Table 16.27: Procedures between (G)MSC server and MGW: MGW Out-of-Service or Maintenance Locked

Procedure	Initiated	Information element name	Information element required	Information element description
MGW Out-of-Service/ <u>Ma-</u> <u>intenance locked</u>	MGW	Context	M	This information element indicates the context for the command.
		Bearer Termination	M	This information element indicates the bearer termination(s) for the command.
		Reason	M	This information element indicates the reason for service change.
		Method	M	This information element indicates the method for service change.
MGW Out-of-Service/ <u>Maintenance</u> <u>locked Ack</u>	(G)MSC-S	Context	M	This information element indicates the context where the command was executed.
		Bearer Termination	M	This information element indicates the bearer termination where the command was executed.

CHANGE REQUEST

⌘ **29.002 CR 355** ⌘ rev **1** ⌘ Current version: **4.5.0** ⌘

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 Capability Handling for UE's		
Source:	⌘ CN4		
Work item code:	⌘ TEI5		
	Date: ⌘ 15/11/2001		
Category:	⌘ B		
	<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </td> <td style="width: 50%; vertical-align: top;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p> </td> </tr> </table>	<p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>
<p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>		

Reason for change:	<p>⌘ This contribution is related to the CR 038r1 (approved by SA2 in Kobe) on 23.271 LCS Stage 2 which solves the problem as raised by GERAN related to UE's that supports GPRS but not support LCS for GPRS, and the possible implications for the GMLC and other nodes in the core network as described in LS S2-012019 (G2-010199).</p> <p>Due to that LCS for GPRS is standardised in a later release of the standard than LCS for GSM and even later than GPRS itself, it is entirely possible (even likely) to have UE's that supports both LCS for CS and PS, but does not support LCS for PS.</p> <p>In this case, if the request for positioning is initially sent to the SGSN node, the positioning may fail in SGSN if the UE does not support LCS for PS, whereas if the request had been sent to MSC, it would have been successful.</p> <p>Generalizing, the same reasoning might hold true also for UE that might not support LCS for CS while supporting LCS for PS.</p> <p>When GMLC during an MT-LR asks HLR for routing information (i.e. SGSN and/or MSC address) the HLR can return both the SGSN and the MSC address, but as HLR have no information related to whether UE supports LCS or not it will not be able to tell GMLC whether it should use SGSN or MSC by preference.</p> <p>If the information whether UE supports LCS or not could be made available for HLR then HLR would be able to provide GMLC with an answer that would increase the chance to succeed with the positioning attempt.</p> <p>For a time critical location request this might be the difference between an acceptable and a not acceptable response seen from the LCS Client point of view.</p>
Summary of change:	<p>⌘ Add an indication to Update Location and Update GPRS Location that the UE does not support the UE Based and Assisted positioning methods in the respective domains, CS or PS.</p>

Consequences if not approved:	⌘	The positioning attempt may unnecessarily fail.
Clauses affected:	⌘	7.6, 7.6.11.9, 7.6.11.10, 8.1.2.2, 8.1.2.3, 8.1.7.2, 8.1.7.3, 17.7.1
Other specs affected:	⌘	<input checked="" type="checkbox"/> Other core specifications ⌘ 23.271 CR 038r1 (S2-013013) <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘	

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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 *****

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
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
<u>CS LCS Not Supported by UE</u>	<u>7.6.11.9</u>	Provider error	7.6.1.3
CUG feature	7.6.3.26	<u>PS LCS Not Supported by UE</u>	<u>7.6.11.10</u>
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 ****

7.6.11.9 CS LCS Not Supported by UE~~Void~~

This parameter is used by the VLR to indicate to the HLR that the UE does not support neither UE Based nor UE Assisted positioning methods for Circuit Switched Location Services. VLR defines the presence of this parameter on the basis of the Classmark 3 information.

**** NEXT MODIFIED SECTION ****

7.6.11.10 PS LCS Not Supported by UE~~Void~~

This parameter is used by the SGSN to indicate to the HLR that the UE does not support neither UE Based nor UE Assisted positioning methods for Packet Switched Location Services. SGSN defines the presence of this parameter on the basis of the UE capability information.

**** NEXT MODIFIED SECTION ****

8.1.2 MAP_UPDATE_LOCATION service

8.1.2.1 Definition

This service is used by the VLR to update the location information stored in the HLR.

The MAP_UPDATE_LOCATION service is a confirmed service using the service primitives given in table 8.1/2.

8.1.2.2 Service primitives

Table 8.1/2: MAP_UPDATE_LOCATION

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
IMSI	M	M(=)		
MSC Address	M	M(=)		
VLR number	M	M(=)		
LMSI	U	C(=)		
Supported CAMEL Phases	C	C(=)		
SoLSA Support Indicator	C	C(=)		
IST Support Indicator	C	C(=)		
Super-Charger Supported in Serving Network Entity	C	C(=)		
Long FTN Supported	C	C(=)		
Supported LCS Capability Sets	C	C(=)		
Inform Previous Network Entity	C	C(=)		
<u>CS LCS Not Supported by UE</u>	<u>C</u>	<u>C(=)</u>		
HLR number			C	C(=)
User error			C	C(=)
Provider error				O

8.1.2.3 Parameter definitions and use

Invoke Id

See definition in clause 7.6.1.

IMSI

See definition in clause 7.6.2.

MSC Address

See definition for MSC number in clause 7.6.2. The MSC address is used for short message delivery only and for each incoming call set-up attempt the MSRN will be requested from the VLR.

VLR number

See definition in clause 7.6.2.

LMSI

See definition in clause 7.6.2. It is an operator option to provide the LMSI from the VLR; it is mandatory for the HLR to support the LMSI handling procedures.

Supported CAMEL Phases

This parameter indicates which phases of CAMEL are supported. Must be present if a CAMEL phase different from phase 1 is supported. Otherwise may be absent.

HLR number

See definition in clause 7.6.2. The presence of this parameter is mandatory in case of successful HLR updating.

SoLSA Support Indicator

This parameter is used by the VLR to indicate to the HLR in the Update Location indication that SoLSA is supported. If this parameter is not included in the Update Location indication and the Subscriber is marked as only allowed to roam in Subscribed LSAs, then the HLR shall reject the roaming and indicate to the VLR that roaming is not allowed to that Subscriber in the VLR.

This SoLSA Support Indicator shall be stored by the HLR per VLR where there are Subscribers roaming. If a Subscriber is marked as only allowed to roam in Subscribed LSAs while roaming in a VLR and no SoLSA Support indicator is stored for that VLR, the location status of that Subscriber shall be set to Restricted.

IST Support Indicator

This parameter is used to indicate to the HLR that the VMSC supports basic IST functionality, that is, the VMSC is able to terminate the Subscriber Call Activity that originated the IST Alert when it receives the IST alert response indicating that the call(s) shall be terminated. If this parameter is not included in the Update Location indication and the Subscriber is marked as an IST Subscriber, then the HLR may limit the service for the subscriber (by inducing an Operator Determined barring of Roaming, Incoming or Outgoing calls), or allow service assuming the associated risk of not having the basic IST mechanism available.

This parameter can also indicate that the VMSC supports the IST Command service, including the ability to terminate all calls being carried for the identified subscriber by using the IMSI as a key. If this additional capability is not included in the Update Location indication and the HLR supports the IST Command capability, then the HLR may limit the service for the subscriber (by inducing an Operator Determined barring of Roaming, Incoming or Outgoing calls), or allow service assuming the associated risk of not having the IST Command mechanism available.

Long FTN Supported

This parameter indicates that the VLR supports Long Forwarded-to Numbers.

Super-Charger Supported in Serving Network Entity

This parameter is used by the VLR to indicate to the HLR that the VLR supports the Super-Charger functionality and whether subscription data has been retained by the VLR. If subscription data has been retained by the VLR the age indicator shall be included. Otherwise the VLR shall indicate that subscriber data is required.

If this parameter is absent then the VLR does not support the Super-Charger functionality.

Supported LCS Capability Sets

This parameter indicates, if present, the capability sets of LCS which are supported. If the parameter is sent but no capability set is marked as supported then the VLR does not support LCS at all.

If this parameter is absent then the VLR may support at most LCS capability set 1, that is LCS Release98 or Release99 version.

Inform Previous Network Entity

This parameter is used by the VLR to ask the HLR to inform the previous network entity about the update. It is used in case Super-Charger is supported in the network and the serving network entity has not been able to inform itself the previous network entity that MS has moved, that is if it has not sent Send Identification to the previous serving entity.

CS LCS Not Supported by UE

See definition in clause 7.6.11.

User error

In case of unsuccessful updating, an error cause shall be returned by the HLR. The following error causes defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unknown subscriber;
- roaming not allowed;

This cause will be sent if the MS is not allowed to roam into the PLMN indicated by the VLR number. The cause is qualified by the roaming restriction reason "PLMN Not Allowed" or "Operator Determined Barring". If no qualification is received (HLR with MAP Version 1), "PLMN Not Allowed" is taken as default.

- system failure;
- unexpected data value.

Provider error

For definition of provider errors see clause 7.6.1.

**** NEXT MODIFIED SECTION ****

8.1.7 MAP_UPDATE_GPRS_LOCATION service

8.1.7.1 Definition

This service is used by the SGSN to update the location information stored in the HLR.

The MAP_UPDATE_GPRS_LOCATION service is a confirmed service using the service primitives given in table 8.1/7.

8.1.7.2 Service primitives

Table 8.1/7: MAP_UPDATE_GPRS_LOCATION

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
IMSI	M	M(=)		
SGSN number	M	M(=)		
SGSN address	M	M(=)		
Supported CAMEL Phases	C	C(=)		
SoLSA Support Indicator	C	C(=)		
Super-Charger Supported in Serving Network Entity	C	C(=)		
GPRS enhancements support indicator	C	C(=)		
Supported LCS Capability Sets	C	C(=)		
Inform Previous Network Entity	C	C(=)		
PS LCS Not Supported by UE	<u>C</u>	<u>C(=)</u>		
HLR number			C	C(=)
User error			C	C(=)
Provider error				O

8.1.7.3 Parameter definitions and use

Invoke Id

See definition in clause 7.6.1.

IMSI

See definition in clause 7.6.2.

SGSN number

See definition in clause 7.6.2.

SGSN address

See definition in clause 7.6.2.

Supported CAMEL Phases

This parameter indicates which phases of CAMEL are supported. The SGSN can only support CAMEL phase 3 or greater.

SoLSA Support Indicator

This parameter is used by the SGSN to indicate to the HLR in the Update GPRS Location indication that SoLSA is supported. If this parameter is not included in the Update GPRS Location indication and the Subscriber is marked as only allowed to roam in Subscribed LSAs, then the HLR shall reject the roaming and indicate to the SGSN that roaming is not allowed to that Subscriber in the SGSN.

This SoLSA Support Indicator shall be stored by the HLR per SGSN where there are Subscribers roaming. If a Subscriber is marked as only allowed to roam in Subscribed LSAs while roaming in a SGSN and no SoLSA Support indicator is stored for that SGSN, the location status of that Subscriber has to be set to Restricted.

Super-Charger Supported in Serving Network Entity

This parameter is used by the SGSN to indicate to the HLR that the SGSN supports the Super-Charger functionality and whether subscription data has been retained by the SGSN. If subscription data has been retained by the SGSN the age indicator shall be included. Otherwise the SGSN shall indicate that subscriber data is required.

If this parameter is absent then the SGSN does not support the Super-Charger functionality.

GPRS enhancements support indicator

This parameter is used by the SGSN to indicate to the HLR in the Update GPRS Location indication that GPRS enhancements are supported. If this parameter is included in the Update GPRS Location indication the HLR may send the extensible QoS in the PDP contexts to the SGSN.

HLR number

See definition in clause 7.6.2. The presence of this parameter is mandatory in case of successful HLR updating.

Supported LCS Capability Sets

This parameter indicates, if present, the capability sets of LCS which are supported. If the parameter is sent but no capability set is marked as supported then the SGSN does not support LCS at all.

The SGSN is not allowed to indicate support for LCS capability set 1.

If this parameter is absent then the SGSN does not support LCS at all.

Inform Previous Network Entity

This parameter is used by the SGSN to ask the HLR to inform the previous network entity about the update. It is used in case Super-Charger is supported in the network and the serving network entity has not been able to inform itself the previous network entity that MS has moved, that is if it has not sent SGSN Context Request to the previous serving entity.

PS LCS Not Supported by UE

See definition in clause 7.6.11.

User error

In case of unsuccessful updating, an error cause shall be returned by the HLR. The following error causes defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unknown subscriber;
- roaming not allowed.

This cause will be sent if the MS is not allowed to roam into the PLMN indicated by the SGSN number. The cause is qualified by the roaming restriction reason "PLMN Not Allowed" or "Operator Determined Barring".

- system failure;
- unexpected data value.

The diagnostic in the Unknown Subscriber may indicate "Imsi Unknown" or "Gprs Subscription Unknown".

Provider error

For definition of provider errors see 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)}
```

****** Text removed for clarity ******

-- location registration types

UpdateLocationArg ::= SEQUENCE {			
imsi	IMSI,		
msc-Number	[1] ISDN-AddressString,		
vlr-Number	ISDN-AddressString,		
lmsi	[10] LMSI OPTIONAL,		
extensionContainer	ExtensionContainer		OPTIONAL,
...			
vlr-Capability	[6] VLR-Capability		OPTIONAL,
informPreviousNetworkEntity	[11] NULL		OPTIONAL,
cs-LCS-NotSupportedByUE	[12] NULL		OPTIONAL }

****** Text removed for clarity ******

-- gprs location registration types

UpdateGprsLocationArg ::= SEQUENCE {			
imsi	IMSI,		
sgsn-Number	ISDN-AddressString,		
sgsn-Address	GSN-Address,		
extensionContainer	ExtensionContainer		OPTIONAL,
...			
sgsn-Capability	[0] SGSN-Capability		OPTIONAL,
informPreviousNetworkEntity	[1] NULL		OPTIONAL,
ps-LCS-NotSupportedByUE	[2] NULL		OPTIONAL }

****** Text removed for clarity ******

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

CHANGE REQUEST

⌘ **29.060 CR 272** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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:	⌘ Support for Radio Priority LCS		
Source:	⌘ CN4		
Work item code:	⌘ TEI5	Date:	⌘ 04/10/01
Category:	⌘ B	Release:	⌘ Rel-5
Use <u>one</u> of the following categories: F (essential 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:	⌘ Radio Priority LCS is the priority used by the radio network for uplink LCS messages. This priority must be transferred at Inter-SGSN Routing Area Update
Summary of change:	⌘ Added an new optional IE, Radio Priority LCS, to the SGSN Context Response message
Consequences if not approved:	⌘ The new SGSN may not use the same value for Radio Priority LCS.

Clauses affected:	⌘ 7.5.4, 7.7, 7.7.25B		
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications	⌘	23.271
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

7.5.4 SGSN Context Response

The old SGSN shall send an SGSN Context Response to the new SGSN as a response to a previous SGSN Context Request.

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

If the Cause contains the value 'Request accepted', all information elements are mandatory, except PDP Context and Private Extension.

If the Cause contains the value 'P-TMSI Signature mismatch' the IMSI information element shall be included in the response, otherwise only the Cause information element shall be included in the response.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SGSN context transfer procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN and related to the PDP context(s) requested.

The IMSI information element contains the IMSI matching the TLLI or P-TMSI (for GSM or UMTS respectively) and RAI in the SGSN Context Request.

The MM Context contains necessary mobility management and security parameters.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements.

If there is at least one active PDP context, the old SGSN shall start the T3-TUNNEL timer and store the address of the new SGSN in the "New SGSN Address" field of the MM context. The old SGSN shall wait for SGSN Context Acknowledge before sending T-PDUs to the new SGSN. If the old SGSN has one or more active PDP contexts for the subscriber and an SGSN Context Acknowledge message is not received within a time defined by T3-RESPONSE, the old SGSN shall retransmit the SGSN Context Response to the new SGSN as long as the total number of attempts is less than N3-REQUESTS. After N3-REQUESTS unsuccessfully attempts, the old SGSN shall proceed as described in section 'Reliable delivery of signalling messages' in case the transmission of a control plane message fails N3-REQUESTS times.

Radio Priority SMS contains the radio priority level for MO SMS transmission, and shall be included if a valid Radio Priority SMS value exists for the MS in the old SGSN.

Radio Priority LCS contains the radio priority level for MO LCS transmission, and shall be included if a valid Radio Priority LCS value exists for the MS in the old SGSN.

Radio Priority is the radio priority level that the MS uses when accessing the network for the transmission of uplink user data for a particular PDP context. One Radio Priority IE shall be included per PDP context that has a valid radio priority value assigned to it in the old SGSN.

Packet Flow Id is the packet flow identifier assigned to the PDP context. One Packet Flow Id IE shall be included per PDP context that has a valid packet flow identifier value assigned to it in the old SGSN.

The optional Private Extension contains vendor or operator specific information.

Table 27: Information Elements in a SGSN Context Response

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
Radio Priority LCS	Optional	7.7.25B
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
Private Extension	Optional	7.7.44

7.7 Information Elements

A GTP Signalling message may contain several information elements. The TLV (Type, Length, Value) or TV (Type, Value) encoding format shall be used for the GTP information elements. The information elements shall be sorted, with the Type fields in ascending order, in the signalling messages. The Length field contains the length of the information element excluding the Type and Length field.

For all the length fields, bit 8 of the lowest numbered octet is the most significant bit and bit 1 of the highest numbered octet is the least significant bit.

Within information elements, certain fields may be described as spare. These bits shall be transmitted with the value defined for them. To allow for future features, the receiver shall not evaluate these bits.

The most significant bit in the Type field is set to 0 when the TV format is used and set to 1 for the TLV format.

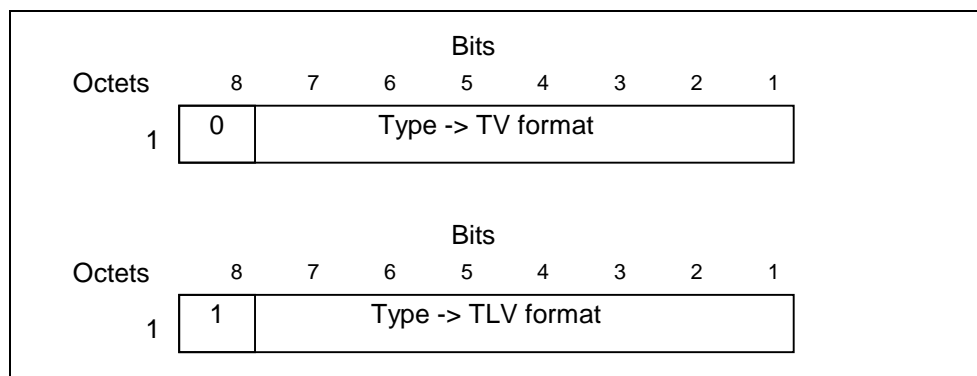


Figure 8: Type field for TV and TLV format

Table 37: Information Elements

IE Type Value	Format	Information Element	Reference
1	TV	Cause	7.7.1
2	"	International Mobile Subscriber Identity (IMSI)	7.7.2
3	"	Routeing Area Identity (RAI)	7.7.3
4	"	Temporary Logical Link Identity (TLLI)	7.7.4
5	"	Packet TMSI (P-TMSI)	7.7.5
6-7	Spare		
8	"	Reordering Required	7.7.6
9	"	Authentication Triplet	7.7.7
10	Spare		
11	"	MAP Cause	7.7.8
12	"	P-TMSI Signature	7.7.9
13	"	MS Validated	7.7.10
14	"	Recovery	7.7.11
15	"	Selection Mode	7.7.12
16	"	Tunnel Endpoint Identifier Data I	7.7.13
17	"	Tunnel Endpoint Identifier Control Plane	7.7.14
18	"	Tunnel Endpoint Identifier Data II	7.7.15
19	"	Teardown Ind	7.7.16
20	"	NSAPI	7.7.17
21	"	RANAP Cause	7.7.18
22	"	RAB Context	7.7.19
23	"	Radio Priority SMS	7.7.20
24	"	Radio Priority	7.7.21
25	"	Packet Flow Id	7.7.22
26	"	Charging Characteristics	7.7.23
27	"	Trace Reference	7.7.24
28	"	Trace Type	7.7.25
29	"	MS Not Reachable Reason	7.7.25A
30	"	Radio Priority LCS	7.7.25B
117-126	Reserved for the GPRS charging protocol (see GTP' in GSM 12.15)		
127	"	Charging ID	7.7.26
128	TLV	End User Address	7.7.27
129	"	MM Context	7.7.28
130	"	PDP Context	7.7.29
131	"	Access Point Name	7.7.30
132	"	Protocol Configuration Options	7.7.31
133	"	GSN Address	7.7.32
134	"	MS International PSTN/ISDN Number (MSISDN)	7.7.33
135	"	Quality of Service Profile	7.7.34
136	"	Authentication Quintuplet	7.7.35
137	"	Traffic Flow Template	7.7.36
138	"	Target Identification	7.7.37
139	"	UTRAN Transparent Container	7.7.38
140	"	RAB Setup Information	7.7.39
141	"	Extension Header Type List	7.7.40
142	"	Trigger Id	7.7.41
143	"	OMC Identity	7.7.42
239-250	Reserved for the GPRS charging protocol (see GTP' in GSM 12.15)		
251	"	Charging Gateway Address	7.7.43
252-254	Reserved for the GPRS charging protocol (see GTP' in GSM 12.15)		
255	"	Private Extension	7.7.44

7.7.25B Radio Priority LCS

The Radio Priority LCS information element contains the radio priority level for MO LCS transmission.

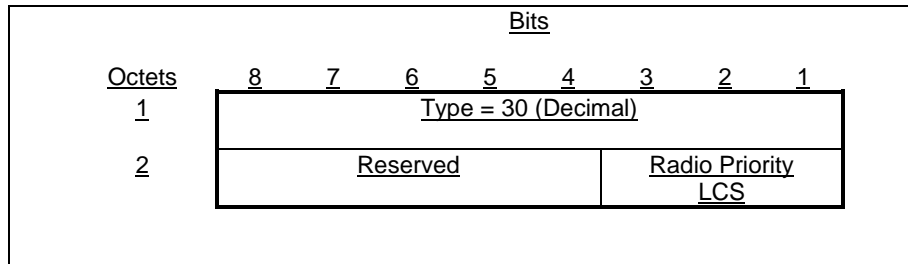


Figure 59a: Radio Priority LCS Information Element

CR-Form-v4

CHANGE REQUEST

⌘ **29.060 CR 282** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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:	⌘ Clarification on IMSI format (Unused fields)		
Source:	⌘ CN4		
Work item code:	⌘ TEI5	Date:	⌘ 29 th November 2001
Category:	⌘ D	Release:	⌘ REL5
	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:	⌘ The current explanatory text about the format of IMSI IE is unclear. The text 'Unused half octets shall be coded as binary "1111"' may lead misreading that the only first unused octet is filled with "1111" as the concept of filler. I think the original text is clear as English. But to avoid misreading especially for non-English speaker, the text should be modified.
Summary of change:	⌘ Reform the current text to clarify that the all unused octets would be filled out with '1111'.
Consequences if not approved:	⌘ The unused fields of IMSI might be filled with "1111" for the first octet and the following unused fields might be remained as 'DON'T CARE'. This misunderstanding of specification may cause malfunctioning of the proper transmission between GSNs.

Clauses affected:	⌘ 7.7.2
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.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://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

7.7.2 International Mobile Subscriber Identity (IMSI)

The IMSI shall be the subscriber identity of the MS. The IMSI is defined in 3GPP TS 23.003.

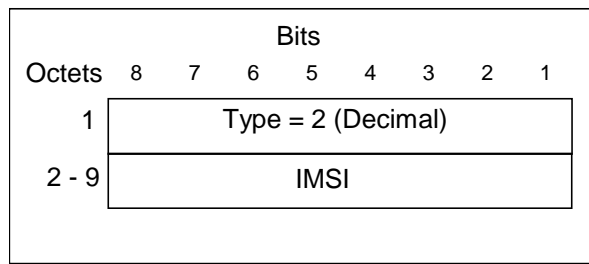


Figure 10: IMSI Information Element

The IMSI is TBCD-coded with a fixed length of 8 octets. Bits 8765 of octet n+1 encodes digit 2n, bits 4321 of octet n+1 encodes digit 2n-1. Each unused half octet shall be coded as binary "1 1 1 1". Digits are packed contiguously with no internal padding.

CR-Form-v4

CHANGE REQUEST

⌘ **29.232 CR 013** ⌘ rev **1** ⌘ Current version: **4.2.0** ⌘

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:	⌘ Introduction of MGW Congestion Handling		
Source:	⌘ CN4		
Work item code:	⌘ CSSPLIT	Date:	⌘ 5 th October 2001
Category:	⌘ B	Release:	⌘ REL-5
<p>Use <u>one</u> of the following categories:</p> <p>F (correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ To introduce a general load control mechanism between (G)MSC and MGW. This would utilise the ITU-T SG-16 approved H.248 Annex M2, "Media Gateway Resource Congestion Handling" Package. A change request will be presented to ITU-T SG-11 for approval.
Summary of change:	⌘ Introduce reference to H.248 Annex M2, "Reduction" parameter and two call independent procedures "MGW Resource Congestion Handling – Activate"/"MGW Resource Congestion Handling - Indication". The (G)MSC and MGW handle the notification of load reduction by using these two procedures.
Consequences if not approved:	⌘

Clauses affected:	⌘ 2, 10, 14		
Other specs affected:	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	CR 23.205-011 (N4-011080)
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.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://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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

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*.

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[*15] ITU-U Recommendation H.248 Annex M.2, "Media Gateway Resource Congestion Handling Package"

Next modified section

10 Formats and codes

Table 1 shows the parameters which are required, in addition to those defined in the subclause "Formats and Codes" of ITU—T Recommendation Q.1950 (see 3GPP TS 29.205 **Error! Reference source not found.**).

The coding rules applied in ITU-T Recommendation H.248 **Error! Reference source not found.** for the applicable coding technique shall be followed for the UMTS capability set.

Table 1: Additional parameters required

Actprot	Signal descriptor	As for the signal "Activate protocol" in subclause Error! Reference source not found.
Mode	Local control	As for the property "UP mode of operation" in subclause Error! Reference source not found.
Version	Local control	As for the property "Upversion" in subclause Error! Reference source not found.
Value	Local control	As for the property " Delivery of erroneous SDUs" in subclause Error! Reference source not found.
Interface	Local control	As for the property " Interface" in subclause Error! Reference source not found.
Initdirection	Local control	As for the property " Initialisation Direction" in subclause Error! Reference source not found.
PLMN bearer capability	Local control	As for the property "PLMN BC" in subclause Error! Reference source not found.
Coding	Local control	As for the property " GSM channel coding" in subclause Error! Reference source not found.
Tfoenable	Local control	As for the property " TFO activity control" in subclause Error! Reference source not found.
Codeclist	Local control	As for the property " TFO Codec List" in subclause Error! Reference source not found.
Result	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Protocol Negotiation Result" in subclause Error! Reference source not found.
Cause	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Protocol Negotiation Result" in subclause Error! Reference source not found.
Rate	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Rate Change" in subclause Error! Reference source not found.
Optimalcodec	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Optimal Codec Type" in subclause Error! Reference source not found.
Distlist	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Distant TFO List" in subclause Error! Reference source not found.
Off / value	Local control	As for the property "Echo cancelling" in subclause E.13.1 in ITU-T Recommendation H.248 Error! Reference source not found.
Error	Error descriptor	As defined in the subclause "Command error code" in ITU-T Recommendation H.248 Error! Reference source not found.
Reduction	ObservedEvent descriptor	As for the ObservedEventDescriptor in "MGW Resource Congestion Handling– Indication" in subclause 14.1.415.

Next modified section

14 H.248 standard packages

The following H.248 packages are used by this UMTS Capability Set:

- Generic v1 (see **Error! Reference source not found.** Annex E.1);
- Base Root Package v1 (see **Error! Reference source not found.** Annex E.2);
- Tone Generator Package v1 (see **Error! Reference source not found.** Annex E.3);
- Tone Detection Package v1 (see **Error! Reference source not found.** Annex E.4);
- Basic DTMF Generator Package v1 (see **Error! Reference source not found.** Annex E.5);
- DTMF Detection Package v1 (see **Error! Reference source not found.** Annex E.6);
- Call Progress Tones Generator Package v1 (see **Error! Reference source not found.** Annex E.7);
- Generic Announcement Package v1 (see **Error! Reference source not found.** Annex K);
- TDM Circuit Package v1 (see **Error! Reference source not found.** Annex E.13).

- Media Gateway Resource Congestion Handling Package v1 (see [x15] Annex M.2)

14.1 Call independent H.248 transactions

Table 2 shows the relationship between each non call-related procedure in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 **Error! Reference source not found.**) and the corresponding stage 2 procedure defined in 3GPP TS 23.205 **Error! Reference source not found.**.

Table 2: Correspondence between Q.1950 non call-related transactions and TS 23.205 procedures

Transaction used in Q.1950	Procedure defined in 3GPP TS 23.205 Error! Reference source not found.	Comments
BIWF_Service_Cancellation_Indication	MGW Out-of-Service	
BIWF_Lost_Communication	MGW Communication Up	
BIWF_Service_Restoration_Indication	MGW Restoration	
BIWF_Registration	MGW register	
BIWF_Re-Registration	MGW re-register	
CCU Ordered BIWF Re-Registration	(G)MSC ordered re-register	
CCU Initiated Service Restoration	(G)MSC restoration	
CCU Initiated Service Cancellation	(G)MSC out of service	
BIWF_Service_Cancellation_Indication	Termination Out-of-Service	
BIWF_Service_Restoration_Indication	Termination Restoration	
Audit_Values	Audit Value	
Audit_Capabilities	Audit Capability	
BIWF_Capability_Change	Capability Update	
	<u>MGW Resource Congestion Handling - Activate</u>	
	<u>MGW Resource Congestion Handling - Indication</u>	

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14.1.x14 MGW Resource Congestion Handling - Activate

If~~When~~ the procedure "MGW Resource Congestion Handling - Activate" is required the following procedure is initiated:

This event may be provisioned on the MGW or may be dynamically defined using H.248 commands.

The MGC sends a MOD.req command with the following information.

1 MOD.req(MGW Resource Congestion Handling - Activate) MGC to MGW

<u>Address Information</u>	<u>Control information</u>	<u>Bearer information</u>
	Transaction ID = z Context ID = Null Termination ID = Root NotificationRequested (Event ID = x, "MGW Resource Congestion Handling - Indication")	

When the processing of command (1) is complete, the MGW initiates the following procedure.

2 MOD.resp (MGW Resource Congestion Handling - Activate) MGW to MGC

<u>Address Information</u>	<u>Control information</u>	<u>Bearer information</u>
	<u>Transaction ID = z</u> <u>Context ID = Null</u> <u>TerminationID = Root</u>	

14.1.y15 MGW Resource Congestion Handling - Indication

If ~~When~~ the procedure "MGW Resource Congestion Handling - Indication" is required, the following procedure is initiated:

The MGW sends a NOT.req command with the following information.

1 NOT.req (MGW Resource Congestion Handling - Indication) MGW to MGC

<u>Address Information</u>	<u>Control information</u>	<u>Bearer information</u>
	<u>Transaction ID = z</u> <u>Context ID = Null</u> <u>Termination ID = Root</u> <u>Event_ID (Event ID = x, "MGW Resource Congestion Handling - Indication (Reduction)")</u>	

When the processing of command (1) is complete, the MGW initiates the following procedure.

2 NOT.resp (MGW Resource Congestion Handling - Indication) MGC to MGW

<u>Address Information</u>	<u>Control information</u>	<u>Bearer information</u>
	<u>Transaction ID = z</u> <u>Context ID = Null</u> <u>Termination ID = Root</u>	

End modified section

CHANGE REQUEST

⌘ **TS 29.232** **CR 019** ⌘ rev **2** ⌘ Current version: **4.2.0** ⌘

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:	⌘	Ma intenance management locking of MG	
Source:	⌘	LM Ericsson	
Work item code:	⌘	Bearer Independent Architecture	Date: ⌘
Category:	⌘	B	Release: ⌘ Release 5
		<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (Addition of feature),</p> <p>C (Functional modification of feature)</p> <p>D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>

Reason for change:	⌘	The addition of this feature allows the operator to lock the MGW from new calls due to a maintenance action. be informed that the reason for the unavailability of a MG is maintenance action.
Summary of change:	⌘	A new reason is added to the MGW Out of Service section
Consequences if not approved:	⌘	There will not be any way for an operator to in a controlled way to lock a MGW <u>in a controlled way</u> against for new calls.

Clauses affected:	⌘	
Other specs affected:	⌘	<input checked="" type="checkbox"/> Other core specifications ⌘ TS 29.232 <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘	<u>H.248 allows to use the Service change reason "Termination taken out of service" for a Media Gateway.</u>

How to create CRs using this form:

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|

~~Note: In H.248 is it allowed to send the Service Change reason for Termination taken out of service.~~

14.1.1 MGW Out of service ~~Maintainance~~ Maintenance Locking

This procedure is the same as described in the subclause "BIWF Service Cancellation Indication" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 **Error! Reference source not found.**), with the following clarification.

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = Null Termination ID = Root Service Change Reason = MGW impending failure/ Termination Taken out of service Service Change Method = Graceful / Forced	

Delay is not used.

~~Note: The termination that is taken out of service is a Media Gateway~~