# 3GPP TSG CN Plenary Meeting #16 $5^{th}$ - $7^{th}$ June 2002 Marco Island, USA.

Source: TSG CN WG4

Title: CRs on Rel-4 & earlier Location Service Enhancement

Agenda item: 7.4

**Document for:** APPROVAL

#### Introduction:

This document contains 19 CRs on Rel-4 & earlier Work Item "LCS" & "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
29.010	050	1	N4-020503	R99	LCS: clarification of mapping for Location Acquisition	F	3.7.0
29.010	051	1	N4-020504	Rel-4	LCS: clarification of mapping for Location Acquisition	F	4.2.0
29.002	426	1	N4-020505	R99	LCS : on error handling if shape not supported by GMLC	F	3.12.0
24.080	021		N4-020633	R99	LCS: error handling if shape not supported by MS	F	3.6.0
24.080	022		N4-020634	Rel-4	LCS: error handling if shape not supported by MS	F	4.2.0
24.080	023		N4-020635	Rel-5	LCS: error handling if shape not supported by MS	Α	5.0.0
23.016	024		N4-020375 Rel-4 Clarfication of introducing Session related and unrelated class		F	4.1.0	
23.016	025		N4-020376	Rel-5	Clarfication of introducing Session related and unrelated class	Α	5.0.0
29.002	424		N4-020409	N4-020409 Rel-4 Clarify conditions to trigger restart of MTLR-Deferred procedure		F	4.7.0
29.002	425		N4-020410	Rel-5	Clarify conditions to trigger restart of MTLR-Deferred procedure	Α	5.1.0
29.002	419	1	N4-020498	Rel-4	Clarfication of introducing Session related and unrelated class	F	4.7.0
29.002	420	1	N4-020499	Rel-5	Clarification of introducing Session related and unrelated class	Α	5.1.0
29.010	048	1	N4-020502	Rel-4	LCS: Mapping BSSMAP-RANAP for request of assistance data on E interface	F	4.2.0
24.080	017	1	N4-020508	Rel-4	LCS: Error handling if wrong method requested in LCS- MOLR	F	4.2.0
24.080	018	1	N4-020509	Rel-5	LCS: Error handling if wrong method requested in LCS- MOLR	Α	5.0.0
29.002	429	1	N4-020510	Rel-4	Corrections on the introduction of LCS for PS domain	F	4.7.0
29.002	430	1	N4-020511	Rel-5	Corrections on the introduction of LCS for PS domain	Α	5.1.0
29.002	427	2	N4-020529	Rel-4	LCS: error handling if shape not supported by GMLC	F	4.7.0
29.002	428	2	N4-020530	Rel-5	LCS: error handling if shape not supported by GMLC	Α	5.1.0

			С	HAN	GE R	EQ	UES	ST				CR-Form-v5.1
*	23.	.016	CR 0	24	жr	ev	_ 8	¥	Current ver	sion:	4.1.0	#
For <b>HELP</b> on us	sing t	his for	m, see b	oottom c	of this pag	ge or i	look at	t the	e pop-up tex	t over	the # sy	mbols.
Proposed change a	affect	ts: #	(U)SI	M	ME/UE		Radio	Ac	cess Netwo	rk	Core N	etwork X
Title: 第	Cla	rficatio	on of intro	oducing	Session	relate	ed and	l un	related class	3		
Source: #	CN	4										
Work item code: ₩	LCS	S1-PS							Date: ♯	29	.03.2002	
	Detai	F (cord A (cord B (add C (fund D (edided exp	lition of fe ctional mo torial mod	to a correction to a correction acture), odification, of the a	rection in a on of featu ) above cate	re)		ease	Release: # Use <u>one</u> of 2 e) R96 R97 R98 R99 REL-4 REL-5	the for (GSI) (Rela (Rela (Rela (Rela		) ) )
Reason for change	: X	priva unre	cy class lated" cla	ses are asses re	expande espective	d to " ly. It is	Call/se s clear	essi Iy d	all related" a on related" a lescribed in a reflect it in c	and "C 23.27	Call/session	
Summary of change	r <b>e:</b> ₩	Rena		ı "call uı					related class -call related		" as "call/	session
Consequences if not approved:	¥	Inco	nsistency	y betwe	en stage2	2 and	stage	3 m	ay remain.			
Clauses affected:	ж	4.5.4										
Other specs affected:	¥	Te	ther core est speci &M Spec	fications	S	ж	29.0	02 (	CR419			
Other comments:	ж											

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

\*\*\* START OF MODIFICATION\*\*\*

## **Next Change**

## 4.5.4 Consistency of Supplementary Service data

\*\*\* SKIPPED \*\*\*

```
LLCS Information
      -GMLC List
         GMLC Address (1)
GMLC Address (n)
     -LCS Privacy Exception List
-Universal Privacy Class
-Provisioning State
              —Activation Štate
            L-Registration State
         -Call/Session Related Privacy Class
              -Provisioning State
              —Activation Štate
              -Registration State
              -Notification to MS User
-External Client List
                  -Exțernal Client (1)
                       --Address
                        -Notification to MS User
                        -GMLC restriction
                   -....
                    External Client (n)
                       -Address
-Notification to MS User
-GMLC restriction | |
         Call/Session Unrelated Privacy Class
              -Provisioning State
              -Activation State
              -Registration State
-External Client List
                   -External Client (1)
                        -Address
                      -Notification to MS User
-GMLC restriction
                    ·. . . . .
                   -External Client (n)
                        <del>-</del>Address
                        -Notification to MS User
                        -GMLC restriction
             L-Notification to MS User
         -PLMN Operator Privacy Class
              -Provisioning State
              -Activation State
              -Registration State
-PLMN Client List
                  --PLMN client ID (1)
                  L-PLMN client ID (n)
     -MO-LR List
        —Bașic Self Location Class
             -Provisioning State
              -Activation Štate
            L-Registration State
         -Autonomous Self Location Class
             ---Provisioning State
              -Activation Štate
             L-Registration State
         -Transfer to Third Party Class
              -Provisioning State
-Activation State
             	t L—Registration State
```

NOTE: For detailed information see 3GPP TS 23.271 and 3GPP TS 29.002.

Figure 16: LCS Information

\*\*\* SKIPPED \*\*\*

			СН	ANGE	REQ	UEST	•		(	CR-Form-v5.1
*	23.	016	CR 02	5	<b>≋rev</b>	<b>-</b> #	Current vers	sion:	5.0.0	¥
For <b>HELP</b> on us	sing t	his for	m, see bot	tom of this	page or	look at th	e pop-up text	over	the ¥ syi	mbols.
Proposed change a	affect	s: #	(U)SIM	ME/	UE	Radio A	ccess Networ	k	Core No	etwork X
Title: ₩	Clai	ficatio	n of introd	ucing Sess	sion relat	ed and u	related class			
Source: #	CN <sub>2</sub>	1								
Work item code: ₩	LCS	S1-PS					Date: #	29.0	3.2002	
Category: 第	Detai	(corr (corr (add (fund (edit (edit	rection) responds to lition of feat ctional modificational	ification of fe cation) f the above	n in an ea		Release: #8 Use <u>one</u> of 2 re) R96 R97 R98 R99 REL-4 REL-5	the foll (GSM) (Relea (Relea (Relea	lowing rela I Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4)	
Reason for change	e: #	priva unrel	cy classse ated" class	s are expa ses respec	nded to ' tively. It i	'Call/sess s clearly	call related" ar sion related" a described in 2 treflect it in cl	nd "Ca 23.271	all/sessio	
Summary of chang	je: ૠ	Rena		call unrelat			related class		as "call/s	ession
Consequences if not approved:	ж	Incor	nsistency b	etween sta	age2 and	stage3 r	nay remain.			
Clauses affected:	¥	4.5.4								
Other specs affected:	æ	Te	her core s est specific &M Specifi		ns #	29.002	CR420			
Other comments:	ж									

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \( \mathbb{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

\*\*\* START OF MODIFICATION\*\*\*

## **Next Change**

## 4.5.4 Consistency of Supplementary Service data

\*\*\* SKIPPED \*\*\*

```
LLCS Information
      -GMLC List
         GMLC Address (1)
GMLC Address (n)
     -LCS Privacy Exception List
-Universal Privacy Class
-Provisioning State
              —Activation Štate
            L-Registration State
         -Call/Session Related Privacy Class
              -Provisioning State
              —Activation Štate
              -Registration State
              -Notification to MS User
-External Client List
                  --External Client (1)
                       --Address
                        -Notification to MS User
                        -GMLC restriction
                   -....
                    External Client (n)
                       -Address
-Notification to MS User
-GMLC restriction | |
         Call/Session Unrelated Privacy Class
              -Provisioning State
              -Activation State
              -Registration State
-External Client List
                   -External Client (1)
                        -Address
                      -Notification to MS User
-GMLC restriction
                    ·. . . . .
                   -External Client (n)
                        <del>-</del>Address
                        -Notification to MS User
                         -GMLC restriction
             L-Notification to MS User
         -PLMN Operator Privacy Class
              -Provisioning State
              -Activation State
              -Registration State
-PLMN Client List
                  --PLMN client ID (1)
                  L-PLMN client ID (n)
     -MO-LR List
        —Bașic Self Location Class
             -Provisioning State
              -Activation Štate
            L-Registration State
         -Autonomous Self Location Class
             ---Provisioning State
              -Activation Štate
             L-Registration State
         -Transfer to Third Party Class
              -Provisioning State
-Activation State
             	t L—Registration State
```

NOTE: For detailed information see 3GPP TS 23.271 and 3GPP TS 29.002.

Figure 16: LCS Information

\*\*\* SKIPPED \*\*\*

	CHANGE REQUEST	m-v5.1
*	24 080 CR 017 # rev 1 # Current version: 1 2 0 #	
00	24.080 CR 017	
For <u><b>HELP</b></u> on us	ng this form, see bottom of this page or look at the pop-up text over the 策 symbols	s.
Proposed change a	fects: 第 (U)SIM ME/UE X Radio Access Network Core Networ	rk X
Title: 第	LCS: Error handling if wrong method requested in LCS-MOLR	
Source: #	CN4	
Work item code: ₩	LCS1 Date: # 25/03/2002	
Category: 第	F (Agreed by consensus)  Release:   Release:   REL-4  Use one of the following categories:  F (correction)  A (corresponds to a correction in an earlier release)  B (addition of feature),  C (functional modification of feature)  P (editorial modification)  Release:   REL-4  Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  Retailed explanations of the above categories can see found in 3GPP TR 21.900.	5.°
Reason for change	When sending LCS-MOLR to request assistance data, the MS must provide a location method for which it requests the assistance data. Some of the methods are UMTS only, others are GSM only. Currently there's no description of the error handling when rthe MSC receives Location Method inconsistent with the type of radio access.	
Summary of chang	Specify the error handling when Location Method and type of radio access are incompatible	re
Consequences if not approved:	It would not be clear how to handle this error case leading to possibly different implementations	nt
Clauses affected:	第 4.4.2	
Other specs affected:	# Other core specifications # Test specifications O&M Specifications	
Other comments:	¥	

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

## 4.4.2 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
```

## Unchanged text removed for clarity

```
-- an unrecognized value shall be treated the same as value 0 (permissionDenied)
LCS-MOLRArg ::= SEQUENCE {
                        [0] MOLR-Type,
    molr-Type
    locationMethod
                        [1] LocationMethod
                                                     OPTIONAL,
                                                     OPTIONAL,
                        [2] LCS-QoS
    lcs-OoS
    lcsClientExternalID [3] LCSClientExternalID
                                                    OPTIONAL,
                        [4] ISDN-AddressString
    mlc-Number
                                                     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
-- deCipheringKeys 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 {
                                (0),
    locationEstimate
    assistanceData
                                 (1),
                                 (2),
    deCipheringKeys
    ... }
-- 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:
-- When this parameter is received with value msBasedEOTD or msAssistedEOTD and the MS
 - is <del>camping in</del>camped on an UMTS Service Area then the receiver shall reject it
  with a return error cause of unexpected data value.
-- When this parameter is received with value msBasedOTDOA or msAssistedOTDOA and the MS
-- is <del>camping in</del>camped on a GSM Cell then the receiver shall reject it with a return error cause of
-- unexpected data value.
-- 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 {
                            [0] Ext-GeographicalInformation
                                                                 OPTIONAL,
    locationEstimate
                            [1] DecipheringKeys
                                                                 OPTIONAL,
    decipheringKeys
                            [2] Add-GeographicalInformation
                                                                     OPTIONAL)
    add-LocationEstimate
-- 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** \*\*\*\*

			С	HAN	GE	REQ	UE	ST			(	CR-Form-v5.1
ж	24.	080	CR (	)18	Ġ	⊭ rev	1	Ж	Current ver	sion:	5.0.0	¥
For <u><b>HELP</b></u> on u	sing t	his for	m, see l	bottom o	of this <sub>l</sub>	page or	look	at the	e pop-up tex	t over	the # sy	mbols.
Proposed change	affect	ts: #	(U)S	IM	ME/U	JE X	Rad	io Ac	cess Netwo	rk 🔃	Core No	etwork X
Title: 第	LCS	S: Erro	r handli	ng if wro	ong me	ethod re	quest	ted ir	LCS-MOLF	?		
Source: #	CN	4										
Work item code: ₩	LCS	S1							Date: 3	g 25,	/03/2002	
Category:	Detai	F (corr A (corr B (add C (fund D (edid led exp	the follow rection) responds dition of fo ctional mo- torial mo- blanation 3GPP <u>TF</u>	s to a cor eature), odification dification s of the a	rection on of fea above c	ature)		elease	2	f the fo (GSI (Rele (Rele (Rele (Rele (Rele	EL-5 ollowing rel M Phase 2) ease 1996) ease 1997) ease 1999) ease 4) ease 5)	
Reason for change	e: X	locat Som Curre	ion metle of the ently the	nod for v method ere's no	which i s are l descrij	t reques JMTS o ption of	sts the nly, o the e	e ass thers rror h	ance data, the sistance data are GSM on andling who fradio acce	a. nly. en rthe		
Summary of chang	уе: Ж		cify the empatible		ndling	when Lo	ocatio	n Me	ethod and typ	oe of ı	radio acce	ess are
Consequences if not approved:	ж		uld not l ementati		how to	o handle	this	error	case leadin	g to p	ossibly di	fferent
Clauses affected:	ж	4.4.2	)									
Other specs affected:	¥	Te	ther core est spec &M Spe	ification	S	s ¥						
Other comments:	$\mathfrak{H}$											

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \( \mathbb{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

## 4.4.2 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
```

## Unchanged text removed for clarity

```
-- an unrecognized value shall be treated the same as value 0 (permissionDenied)
LCS-MOLRArg ::= SEQUENCE {
                        [0] MOLR-Type,
    molr-Type
    locationMethod
                        [1] LocationMethod
                                                     OPTIONAL,
                                                     OPTIONAL,
                        [2] LCS-QoS
    lcs-OoS
    lcsClientExternalID [3] LCSClientExternalID
                                                    OPTIONAL,
                        [4] ISDN-AddressString
    mlc-Number
                                                     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
-- deCipheringKeys 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 {
                                (0),
    locationEstimate
    assistanceData
                                 (1),
                                 (2),
    deCipheringKeys
    ... }
-- 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:
-- When this parameter is received with value msBasedEOTD or msAssistedEOTD and the MS
 - is <del>camping in</del>camped on an UMTS Service Area then the receiver shall reject it
  with a return error cause of unexpected data value.
-- When this parameter is received with value msBasedOTDOA or msAssistedOTDOA and the MS
-- is <del>camping in</del>camped on a GSM Cell then the receiver shall reject it with a return error cause of
-- unexpected data value.
-- 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 {
                            [0] Ext-GeographicalInformation
                                                                 OPTIONAL,
    locationEstimate
                            [1] DecipheringKeys
                                                                 OPTIONAL,
    decipheringKeys
                            [2] Add-GeographicalInformation
                                                                     OPTIONAL)
    add-LocationEstimate
-- 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** \*\*\*\*

## 3GPP TSG CN WG4 Meeting #14 Budapest, Hungary, 13<sup>th</sup> – 17<sup>th</sup> May 2002

	CHANGE REQUEST	CR-Form-v5.1
*	24.080 CR 021	<b>0</b> #
For <u><b>HELP</b></u> on us	ng this form, see bottom of this page or look at the pop-up text over the #	symbols.
Proposed change a	ects:   (U)SIM ME/UE X Radio Access Network Core	Network X
Title: #	CS: error handling if shape not supported by MS	
Source: #	CN4	
Work item code: ₩	_CS Date: 第 29/04/200	2
Reason for change	(Agreed by consensus)  Release:  R99  See one of the following categories:  F (correction)  A (corresponds to a correction in an earlier release)  B (addition of feature),  C (functional modification of feature)  P (editorial modification)  R99  Release 199  Release 5)  The MS can indicate in the supported GAD Shape parameter in LCS-  which of the shapes defined in 23.032 it supports. If the location estimate available to the MSC/SGSN after the positioning request has been co-  coded in a shape not supported by the MS, then the MSC/SGSN candito the MS.	MOLR mpleted is
Summary of chang	The error handling in such a case is not specified  Specify what is the error handling if the shape to be sent as location of the MS is not supported by MS itself	estimate to
Consequences if not approved:	# The same traffic case could be implemented in different ways by diffe vendors leading to interoperability problems	rent
Clauses affected:	<b>¥ 4.4.2</b>	
Other specs affected:	# Other core specifications # Test specifications O&M Specifications	
Other comments:	*	

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### \*\*\*\* NEXT MODIFIED SECTION \*\*\*\*

## 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) version6 (6)}
```

## Unchanged text removed for clarity

```
LCS-MOLRRes::= SEOUENCE {
    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.
-- The locationEstimate and the add-locationEstimate parameters shall not be sent if
-- the supportedGADShapes parameter has been received in LCS-MOLRArg
-- and the shape encoded in locationEstimate or add-LocationEstimate is not marked
-- as supported in supportedGADShapes. In such a case LCS-MOLRArg
-- shall be rejected with error FacilityNotSupported.
  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** 

## 3GPP TSG CN WG4 Meeting #14 Budapest, Hungary, 13<sup>th</sup> – 17<sup>th</sup> May 2002

	CR-Form-v5.1  CHANGE REQUEST
*	24.080 CR 022
For <u><b>HELP</b></u> on us	ing this form, see bottom of this page or look at the pop-up text over the # symbols.
Proposed change at	ffects: 第 (U)SIM ME/UE X Radio Access Network Core Network X
Title:	LCS: error handling if shape not supported by MS
Source: #	CN4
Work item code: ₩	LCS1 Date:   29/04/2002
	F (Agreed by consensus)  Release:   R4  Use one 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)  C (functional modification)  R98  R96  R97  R98  Release 1996)  R97  R98  Release 1997)  R98  R98  Release 1998)  R99  Release 1999)  R99  Release 1999)  Retailed explanations of the above categories can perfound in 3GPP TR 21.900.
Reason for change: Summary of change	which of the shapes defined in 23.032 it supports. If the location estimate available to the MSC/SGSN after the positioning request has been completed is coded in a shape not supported by the MS, then the MSC/SGSN cannot send it to the MS.  The error handling in such a case is not specified  Specify what is the error handling if the shape to be sent as location estimate to
Consequences if not approved:	the MS is not supported by MS itself  The same traffic case could be implemented in different ways by different vendors leading to interoperability problems
Clauses affected:	₩ 4.4.2
Other specs affected:	# Other core specifications # Test specifications O&M Specifications
Other comments:	*

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{K}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### \*\*\*\* NEXT MODIFIED SECTION \*\*\*\*

## 4.4.2 ASN.1 data types

END

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)}
```

## Unchanged text removed for clarity

```
LCS-MOLRRes::= SEQUENCE {
                            [0] Ext-GeographicalInformation
    locationEstimate
                                                               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.
-- The locationEstimate and the add-locationEstimate parameters shall not be sent if
-- the supportedGADShapes parameter has been received in LCS-MOLRArg
-- and the shape encoded in locationEstimate or add-LocationEstimate is not marked
-- as supported in supportedGADShapes. In such a case LCS-MOLRArg
-- shall be rejected with error FacilityNotSupported with additional indication
-- shapeOfLocationEstimateNotSupported.
-- 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.
```

## 3GPP TSG CN WG4 Meeting #14 Budapest, Hungary, 13<sup>th</sup> – 17<sup>th</sup> May 2002

			С	HANG	E REC	UE	ST	•		(	CR-Form-v5.1
						•					
<b></b>	24.	080	CR	023	<b>≋rev</b>	-	Ж	Current vers	ion:	5.0.0	H
For <u><b>HELP</b></u> on u	sing t	his for	m, see k	oottom of th	nis page or	r look a	at the	e pop-up text	over	the ₩ syı	mbols.
Proposed change a	affect	's: ₩	(U)SI	M M	E/UE X	Radi	io Ac	cess Network	k	Core Ne	etwork X
Title: %	LCS	S: erro	r handlir	g if shape	not suppo	rted b	y MS	3			
Source: #	CN4	4									
Work item code: ∺	LCS	3						Date: ♯	29/	04/2002	
Category: Ж	Α							Release: ₩	REL	5	
Reason for change	Detai be for	F (corn A (corn B (add C (fun D (edi led exp und in The whice avail code to the	rection) responds dition of fectional motorial m	indicate in the shapes defined most support to the shapes defined most support to the shapes defined most support to the shape support to the shapes defined most support to the shape support to the	the suppoined in 23. SSN after apported by	rted G .032 it the po y the N	AD S sup sitio MS, t	R97 R98 R99 REL-4 REL-5 Shape param ports. If the loning request then the MSC cified	(GSM (Rele (Rele (Rele (Rele (Rele eter in ocatio has b	A Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 5)  n LCS-MC n estimate een comp	DLR e bleted is send it
Summary of chang	je:₩	the N	/IS is not	supported	by MS its	elf		e to be sent			
Consequences if not approved:	Ж			Iffic case co ing to inter				l in different w	vays b	by differer	nt
Clauses affected:	H	4.4.2	)								
Other specs affected:	<b></b> #[	Ot Te	ther core	specificati fications cifications	ons }	В					
Other comments:	$\mathfrak{H}$										

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### \*\*\*\* NEXT MODIFIED SECTION \*\*\*\*

## 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)}
```

## Unchanged text removed for clarity

```
LCS-MOLRRes::= SEQUENCE {
                            [0] Ext-GeographicalInformation
    locationEstimate
                                                               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.
-- The locationEstimate and the add-locationEstimate parameters shall not be sent if
-- the supportedGADShapes parameter has been received in LCS-MOLRArg
-- and the shape encoded in locationEstimate or add-LocationEstimate is not marked
-- as supported in supportedGADShapes. In such a case LCS-MOLRArg
-- shall be rejected with error FacilityNotSupported with additional indication
-- shapeOfLocationEstimateNotSupported.
-- 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.
```

	CHANCE DECLIEST
	CHANGE REQUEST
*	29.002 CR 419
For <b>HELP</b> on us	sing this form, see bottom of this page or look at the pop-up text over the % symbols.
Proposed change a	#####################################
Title: #	Clarfication of introducing Session related and unrelated class
Source: #	CN4
Work item code: ₩	LCS1-PS Date: # 11.04.2002
	F (Agreed by consensus)  Release:   REL-4  Use one 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)  Petailed explanations of the above categories can be found in 3GPP TR 21.900.  REL-4  REL-4  REL-4  REL-4  REL-4  REL-5  (Release 1999)  REL-5  (Release 5)
Reason for change	privacy classes are expanded to "Call/session related" and "Call/session unrelated" classes respectively. It is clearly described in 23.271.  However the current text in 29.002 does not reflect it in clear.
Summary of chang	e: # Rename "call related class" as "call/session related class".  Rename both "call unrelated class" and "non-call related class" as "call/session unrelated class".
Consequences if not approved:	# Inconsistency between stage2 and stage3 may remain.
Clauses affected:	# 7.6.1.4(i), 7.6.3.61, 7.6.3.64, 7.6.3.65B, 7.6.4.44, 17.7.1, 17.7.5
Other specs affected:	X Other core specifications
Other comments:	¥

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \( \mathbb{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### \*\*\* START OF MODIFICATION\*\*\*

#### 7.6.1.4 User error

#### \*\*\* SKIPPED \*\*\*

- i) Location services problem:
  - Unauthorised Requesting Network
  - Unauthorised LCS Client with detailed reasons as follows:
- Unauthorised Privacy Class
- Unauthorised Call/Session Unrelated External Client
- Unauthorised Call/Session 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 Change**

#### 7.6.3.61 GMLC List

This parameter contains the addresses of all GMLCs that are permitted to issue a non-call/session unrelated or call/session related MT-LR location request for this MS. Usage of this parameter is defined in 3G TS 23.271.

#### **Next Change**

#### 7.6.3.64 External Client List

This parameter is only applicable to the non-call/session unrelated privacy class and call/session related privacy class, and gives the identities of the external clients that are allowed to locate a target MS for a MT-LR. Each identity is an international (e.g.E.164) address. For each identified external client, GMLC restrictions may be defined. It may also be indicated if the MS shall be notified of a non-restricted MT-LR from each identified LCS client and, if so, whether

notification only or notification with privacy verification shall apply. Usage of this parameter is defined in 3G TS 23.271.

#### **Next Change**

#### 7.6.3.65B Privacy Notification to MS User

This parameter is applicable to the non-call/session unrelated privacy class and call/session related privacy class. For non-call/call relatedeach privacy class it indicates whether the MS user shall be notified for a non-call/call related that class MT-LR from any value added LCS client when the MT-LR is restricted and be enabled to accept or override the restriction. Usage of this parameter is defined in 3G TS 23.271.

#### **Next Change**

#### 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/session related value added class;
- Non-Call/session unrelated value added class;
- PLMN operator class.

#### **Next Change**

## 17.7.1 Mobile Service data types

#### \*\*\* SKIPPED \*\*\*

```
LCS-PrivacyClass ::= SEQUENCE {
                                            SS-Code,
     ss-Code
     ss-Status
                                            Ext-SS-Status,
     notificationToMSUser
                                            [0] NotificationToMSUser
                                                                                 OPTIONAL.
     -- notificationToMSUser may be sent only for SS-codes call<del>s</del>Session<del>r</del>Related
     -- and callsSession+Unrelated. If not received for SS-codes callsSession+Related
     -- and call<del>sSessionuU</del>nrelated,
     -- the default values according to 3G TS 23.271 shall be assumed.
     externalClientList
                                            [1] ExternalClientList
                                                                                 OPTIONAL,
     -- externalClientList may be sent only for SS-code call<del>s</del>Session<del>u</del>Unrelated to a
     -- visited node that does not support LCS Release 4 or later versions.
     -- externalClientList may be sent only for SS-codes callsSessionaUnrelated and
     -- call \underline{sSession} \underline{*Related} 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.
     -- if segmentation is used, the complete LCS-PrivacyClass shall be sent in one segment
```

#### \*\*\* SKIPPED \*\*\*

#### **Next Change**

## 17.7.5 Supplementary service codes

#### \*\*\* SKIPPED \*\*\*

\*\*\* SKIPPED \*\*\*

		CHANGE	REQ	UEST	•	CR-Form-				
¥ 2	2 <mark>9.002</mark> CR	420	жrev	<u>1</u> - *	Current vers	5.1.0 <sup>#</sup>				
For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>x</b> symbols.										
Proposed change affects: \$\(\mathbb{K}\) (U)SIM ME/UE Radio Access Network Core Network										
Title: # (	Clarfication of ir	ntroducing Sess	ion relate	ed and ur	related class					
Source: # 1	NTT DoCoMo, I	NTT Comware								
Work item code:	LCS1-PS				Date: ₩	<u>11.04.</u> 29.03.2002				
Do	se one of the foll  F (correction)  A (correspon  B (addition o  C (functional  D (editorial n	ds to a correction f feature), modification of fe nodification) ons of the above o	in an ear		2	REL-5 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)				
Reason for change:	privacy cla unrelated"		nded to " ively. It is	Call/sess s clearly	ion related" a described in 2					
Summary of change:						". class" as "call/session				
Consequences if not approved:	₩ Inconsister	ncy between sta	ge2 and	stage3 n	nay remain.					
Clauses affected:	策 7.6.1.4(i), 7	7.6.3.61, 7.6.3.6	64, 7.6.3.	65B, 7.6.	4.44, 17.7.1,	17.7.5				
Other specs affected:	Test spe	ore specification ecifications pecifications	s ¥	23.016	CR025					
Other comments:	*									

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### \*\*\* START OF MODIFICATION\*\*\*

#### 7.6.1.4 User error

#### \*\*\* SKIPPED \*\*\*

- i) Location services problem:
  - Unauthorised Requesting Network
  - Unauthorised LCS Client with detailed reasons as follows:
- Unauthorised Privacy Class
- Unauthorised Call/Session Unrelated External Client
- Unauthorised Call/Session 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 Change**

#### 7.6.3.61 GMLC List

This parameter contains the addresses of all GMLCs that are permitted to issue a non-call/session unrelated or call/session related MT-LR location request for this MS. Usage of this parameter is defined in 3G TS 23.271.

#### **Next Change**

#### 7.6.3.64 External Client List

This parameter is only applicable to the non-call/session unrelated privacy class and call/session related privacy class, and gives the identities of the external clients that are allowed to locate a target MS for a MT-LR. Each identity is an international (e.g.E.164) address. For each identified external client, GMLC restrictions may be defined. It may also be indicated if the MS shall be notified of a non-restricted MT-LR from each identified LCS client and, if so, whether

notification only or notification with privacy verification shall apply. Usage of this parameter is defined in 3G TS 23.271.

#### **Next Change**

#### 7.6.3.65B Privacy Notification to MS User

This parameter is applicable to the non-call/session unrelated privacy class and call/session related privacy class. For non-call/call relatedeach privacy class it indicates whether the MS user shall be notified for a non-call/call related that class MT-LR from any value added LCS client when the MT-LR is restricted and be enabled to accept or override the restriction. Usage of this parameter is defined in 3G TS 23.271.

#### **Next Change**

#### 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/session related value added class;
- Non-Call/session unrelated value added class;
- PLMN operator class.

#### **Next Change**

## 17.7.1 Mobile Service data types

#### \*\*\* SKIPPED \*\*\*

```
LCS-PrivacyClass ::= SEQUENCE {
                                             SS-Code,
     ss-Code
     ss-Status
                                             Ext-SS-Status,
     notificationToMSUser
                                             [0] NotificationToMSUser
                                                                                  OPTIONAL.
     -- notificationToMSUser may be sent only for SS-codes call<del>s</del>Session<del>r</del>Related
     -- and callsSession+Unrelated. If not received for SS-codes callsSession+Related
     -- and call<del>s</del>Session<sub>uU</sub>nrelated,
     -- the default values according to 3G TS 23.271 shall be assumed.
     externalClientList
                                             [1] ExternalClientList
                                                                                  OPTIONAL,
     -- externalClientList may be sent only for SS-code call<del>s</del>Session<del>u</del>Unrelated to a
     -- visited node that does not support LCS Release 4 or later versions.
     -- externalClientList may be sent only for SS-codes callsSessionaUnrelated and
     -- call \underline{sSession} \underline{*Related} 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.
     -- if segmentation is used, the complete LCS-PrivacyClass shall be sent in one segment
```

#### \*\*\* SKIPPED \*\*\*

#### **Next Change**

## 17.7.5 Supplementary service codes

#### \*\*\* SKIPPED \*\*\*

```
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
```

\*\*\* SKIPPED \*\*\*

CHANGE REQUEST											
*	29.	002	CR 424	S	⊭ rev	-	ж	Current ver	sion:	4.7.0	*
For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.											
Proposed change affects: # (U)SIM ME/UE Radio Access Network Core Network X											
Title: #	Cla	rify co	<mark>nditions to tr</mark>	igger resta	art of M	ΓLR-Γ	Defe	<mark>rred procedu</mark>	re		
Source: #	CN	4									
Work item code: ₩	LCS	S1						Date: អ	8 27/	03/2002	
Category: ₩	Use of the Detail	one of force	ed by conse the following of rection) responds to a dition of featur ctional modifica torial modifica blanations of t 3GPP TR 21.	categories: correction e), cation of feation) he above c	ature)		eleas	Release: % Use one of 2 e) R96 R97 R98 R99 REL-4 REL-5	f the fo (GSN (Rele (Rele (Rele (Rele (Rele	L-4 Illowing relation of the latest tensor of the l	
Reason for change		locat confu of the impli proce GML MSC locat MSC has u	cion procedurusion. Indeed e procedure cit detach it edure in this c.C., MSC/SG e/SGSN addition request. E/SGSN show received Carw VLR. Only	re is trigged now it's but this is does not recase shall SN and History, and trigger neel Locat in this case.	ered by to mention in correct the MSC again a sees rest	the vised the ect sire the sue aste see the C/SGS	sited at ar nce, ubsc signa HLR SN w art of	the restart of MSC/SGSN n Implicit Det when the MS riber record. alling and protocold would give to would only question the procedure many many many many many many many many	I can I cach cach cach cach cach cach cach ca	ead to so an lead to SN perfor arting the ng power GMLC the gain the country if the VL Identificate and to such an lead to such an lead to such an lead to such and lead to such an lead to su	me a restart rms an in e same deferred LR/SGSN ion from
Summary of chang								ne MTLR-Def			NI due to
Consequences if not approved:	#		te of signalli ess triggering					GMLC, HLR procedure	k and I	ivi3U/3G3	on due to
Clauses affected:	ж	7.6.1	1.3, 17.7.13								
Other specs affected:	*	Te	ther core spe est specificat &M Specificat	ions	s #						
Other comments:	ж	Warı	_	ont for this	CP ic t	ho d	roft v	version of 20	002 14	470	

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

#### 7.6.11.3 Deferred MT-LR Data

This parameter is used to report the deferred location event type, the location information and reason why the serving node aborted monitoring the event to the GMLC. The termination cause mt-lrRestart shall be used to trigger the GMLC to restart the location procedure in all the cases where the sending node detects that the location procedure cannot be successfully performed anymore by the sending node and that it could be successfully performed by another node (as for example when. Cancel Location or Send Identification has been received, Implicit Detach has been performed, ...). The location information shall be included only if the termination cause is mt-lrRestart. The network node number contained in the location information refers to the node where the MS/UE has moved to and shall be included if available, like in case Send Identification has been received.

#### \*\*\*\* 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
```

## Unchanged text removed for clarity

```
SubscriberLocationReport-Arg ::= SEQUENCE {
    lcs-Event
                                         LCS-Event,
    lcs-ClientID
                                         LCS-ClientID,
    lcsLocationInfo
                                         LCSLocationInfo,
    msisdn
                                         [0] ISDN-AddressString
                                                                           OPTIONAL,
                                         [1] IMSI
                                                                           OPTIONAL,
    imsi
    imei
                                         [2] IMEI
                                                                           OPTIONAL,
                                         [3] ISDN-AddressString
    na-ESRD
    na-ESRK
                                         [4] ISDN-AddressString
                                                                           OPTIONAL,
    locationEstimate
                                         [5] Ext-GeographicalInformation OPTIONAL,
                                         [6] AgeOfLocationInformation
    ageOfLocationEstimate
                                                                           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.
```

```
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 due to a Cancel Location received from HLRby the serving node (e.g implicit detach).
--
-- exception handling
-- an unrecognized value shall be treated the same as value 1 (errorundefined)
```

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

CHANGE REQUEST											
*	29.	.002	CR 425	э	rev	-	ж	Current ver	sion:	5.1.0	¥
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the \$\mathbb{K}\$ symbols.											
Proposed change affects: % (U)SIM ME/UE Radio Access Network Core Network											
Title:	Cla	rify co	nditions to tri	gger resta	rt of M	TLR-[	Defe	rred procedu	ıre		
Source: #	CN	4									
Work item code: ₩	LCS	S1						Date: 3	€ 27/	03/2002	
Reason for change	Use of Deta	F (corn A (corn B (add C (funn D (edii illed exp und in  The c locat confu	the following of rection) responds to a dition of feature ctional modificatorial	correction in all in a correction in all in a correction in a	the cas	es which evided the	here sited at ar	R97 R98 R99 REL-4 REL-5 the restart of MSC/SGSM Implicit Dewhen the MS	of the for (GSN) (Relea (Relea (Relea (Relea (Relea M can I	ollowing real Phase 2 Pease 1996 Pease 1997 Pease 1999 Pease 4) Pease 5)  R-Deferread to so an lead to SN perfo	ed ome o a restart
		proce GML MSC locat MSC has r	cit detach it dedure in this edure in this .C, MSC/SGS. eds. eds. eds. eds. eds. eds. eds. eds	case shall SN and HL ess, and the Id trigger a cel Location in this cas	only w R since he MSC again a on from ses rest	aste se the C/SGS resta HLR arting	signa HLR SN w art of R, or g the	alling and procedure records and procedure r	ocessi to the leue a lire onl Send night le	ng power GMLC th gain the y if the V Identifica ead to su	e same deferred LR/SGSN tion from
Summary of chang	ge:♯		fy the conditi	_							
Consequences if not approved:	Ж		te of signalliness triggering						Rand	MSC/SG	SN due to
Clauses affected:	ж	7.6.1	1.3, 17.7.13								
Other specs affected:	*	Te	ther core spe est specificat &M Specifica	ions	; <b>Ж</b>						
Other comments:	ж	Warı	ning:	ant for this	CP ic	tha di	roft v	vargion of 20	002 1/	510	

#### How to create CRs using this form:

<sup>1)</sup> 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

#### 7.6.11.3 Deferred MT-LR Data

This parameter is used to report the deferred location event type, the location information and reason why the serving node aborted monitoring the event to the GMLC. The termination cause mt-lrRestart shall be used to trigger the GMLC to restart the location procedure in all the cases where the sending node detects that the location procedure cannot be successfully performed anymore by the sending node and that it could be successfully performed by another node (as for example when. Cancel Location or Send Identification has been received, Implicit Detach has been performed, ...). The location information shall be included only if the termination cause is mt-lrRestart. The network node number contained in the location information refers to the node where the MS/UE has moved to and shall be included if available, like in case Send Identification has been received.

#### \*\*\*\* 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)}
```

# Unchanged text removed for clarity

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

```
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 due to a Cancel Location received from HLR.by the
serving node (e.g implicit detach).
--
-- exception handling
-- an unrecognized value shall be treated the same as value 1 (errorundefined)
```

END

****	END OF MODIFICATIONS	****
	End of Mobility	

	CR-Form-v5.1 CHANGE REQUEST											
*	29.002 CR 426											
For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>ℜ</b> symbols.												
Proposed change affects: # (U)SIM ME/UE Radio Access Network Core Network X												
Title: Ж	LCS : on error handling if shape not supported by GMLC											
Source: #	Ericsson											
Work item code: 第	LCS Date: 第 29/03/2002											
	F (Agreed by consensus)  Release:  REL-99  Use one 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)  Petailed explanations of the above categories can e found in 3GPP TR 21.900.  REL-99  Use one of the following releases:  REL-99  Use one of the following releases:  R96 (Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  REL-4 (Release 4)  REL-5 (Release 5)											
Reason for change:  Summary of change	Subscriber Location which of the shapes defined in 23.032 it supports. If the location estimate available to the MSC/SGSN after the positioning request has been completed is coded in a shape not supported by the GMLC, then the MSC/SGSN cannot send it to the GMCL.  The error handling is such a case is not specified											
ounmary or change.	the GMLC is not supported by GMLC itself											
Consequences if not approved:	The same traffic case could be implemented in different ways by different vendors leading to interoperability problems											
Clauses affected:	<b>#</b> 17.7.13											
Other specs affected:	# Other core specifications # Test specifications O&M Specifications											
Other comments:	<b>Warning:</b> The base document for this CR is the draft version of 29 002 v3 12 0											

### How to create CRs using this form:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

# 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) version6 (6)}
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
IMPORTS
   AddressString,
   ISDN-AddressString,
   IMEI,
   IMSI,
   LMSI,
   SubscriberIdentity,
   AgeOfLocationInformation,
   LCSClientExternalID,
   LCSClientInternalID
FROM MAP-CommonDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-CommonDataTypes (18) version6 (6)}
   ExtensionContainer
FROM MAP-ExtensionDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version6 (6)}
   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) version6 (6)}
RoutingInfoForLCS-Arg ::= SEQUENCE {
                                          [0] ISDN-AddressString,
    mlcNumber
     targetMS
                                          [1] SubscriberIdentity,
     extensionContainer
                                          [2] ExtensionContainer
                                                                             OPTIONAL,
RoutingInfoForLCS-Res ::= SEQUENCE {
     targetMS
                                          [0] SubscriberIdentity,
     lcsLocationInfo
                                          [1] LCSLocationInfo,
     extensionContainer
                                          [2] ExtensionContainer
                                                                             OPTIONAL,
LCSLocationInfo ::= SEQUENCE {
                                          ISDN-AddressString,
    msc-Number
                                          [0] LMSI
                                                                             OPTIONAL,
     lmsi
     extensionContainer
                                          [1] ExtensionContainer
                                                                             OPTIONAL,
```

```
ProvideSubscriberLocation-Arg ::= SEQUENCE {
                                                                                                                               LocationType,
                locationType
               mlc-Number
                                                                                                                               ISDN-AddressString,
                lcs-ClientID
                                                                                                                               [0] LCS-ClientID
                                                                                                                                                                                                                                       OPTIONAL,
               privacyOverride
                                                                                                                               [1] NULL
                                                                                                                                                                                                                                       OPTIONAL,
                                                                                                                              [2] IMSI
               imsi
                                                                                                                                                                                                                                       OPTIONAL,
                                                                                                                              [3] ISDN-AddressString
               msisdn
                                                                                                                                                                                                                                       OPTIONAL.
                lmsi
                                                                                                                               [4] LMSI
                                                                                                                                                                                                                                      OPTIONAL,
                imei
                                                                                                                              [5] IMEI
                                                                                                                                                                                                                                     OPTIONAL,
                lcs-Priority
                                                                                                                              [6] LCS-Priority
                                                                                                                                                                                                                                      OPTIONAL,
                lcs-OoS
                                                                                                                              [7] LCS-OoS
                                                                                                                                                                                                                                      OPTIONAL,
                extensionContainer
                                                                                                                             [8] ExtensionContainer
                                                                                                                                                                                                                                     OPTIONAL,
                supportedGADShapes
                                                                                                                              [9] SupportedGADShapes
                                                                                                                                                                                                                                     OPTIONAL }
                -- one of imsi or msisdn is mandatory
 LocationType ::= SEQUENCE {
                locationEstimateType
                                                                                                                               [0] LocationEstimateType,
LocationEstimateType ::= ENUMERATED {
               currentLocation
                                                                                                                               (0),
                currentOrLastKnownLocation
                                                                                                                              (1),
               initialLocation
                                                                                                                               (2),
                ...}
                exception handling:
               a ProvideSubscriberLocation-Arg containing an unrecognized LocationEstimateType
               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,
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 % \left( 1\right) =\left( 1\right) \left( 1\right) +\left( 1\right) \left( 1\right) \left( 1\right) +\left( 1\right) \left( 1\right)
LCSClientName ::= SEQUENCE {
                dataCodingScheme
                                                                                                                               [0] USSD-DataCodingScheme.
                                                                                                                               [2] NameString,
               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.
                                                                                                                                                                                                                                       OPTIONAL,
                verticalCoordinateRequest
                                                                                                                            [1] NULL
                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 3GPP 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 3GPP 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),
    ellipsoidPointWithAltitudeAndUncertaintyElipsoid (5),
    ellipsoidArc (6) } (SIZE (7..16))
-- A node shall mark in the BIT STRING all Shapes defined in 3GPP TS 23.032 it supports.
-- exception handling: bits 7 to 15 shall be ignored if received.
```

```
ProvideSubscriberLocation-Res ::= SEQUENCE {
     locationEstimate
                                          Ext-GeographicalInformation,
     ageOfLocationEstimate
                                          [0] AgeOfLocationInformation
                                                                           OPTIONAL.
     extensionContainer
                                          [1] ExtensionContainer
                                                                            OPTIONAL,
     add-LocationEstimate
                                          [2] Add-GeographicalInformation OPTIONAL }
  - the add-LocationEstimate parameter shall not be sent to a node that did not indicate the
-- geographic shapes supported in the ProvideSubscriberLocation-Arg.
-- The locationEstimate and the add-locationEstimate parameters {	t shall} not be {	t sent} if
-- the supportedGADShapes parameter has been received in ProvideSubscriberLocation-Arg
   and the shape encoded in locationEstimate or add-LocationEstimate is not marked
   as supported in supportedGADShapes. In such a case ProvideSubscriberLocation
  shall be rejected with error FacilityNotSupportedSystemFailure.
```

```
Ext-GeographicalInformation ::= OCTET STRING (SIZE (1..maxExt-GeographicalInformation))
     -- Refers to geographical Information defined in 3GPP TS 23.032.
     -- This is composed of 1 or more octets with an internal structure according
     -- to 3GPP TS 23.032
     -- Octet 1: Type of shape, only the following shapes in 3GPP 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
             Uncertainty code
     -- 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
             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
             Degrees of Longitude
                                                                            3 octets
                                                                            2 octets
             Altitude
            Uncertainty semi-major axis
                                                                            1 octet
                                                                            1 octet
             Uncertainty semi-minor axis
            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 3GPP 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 3GPP TS 23.032 to be included in later
    -- versions of 3GPP TS 29.002
```

```
Add-GeographicalInformation ::= OCTET STRING (SIZE (1..maxAdd-GeographicalInformation))
    -- Refers to geographical Information defined in 3GPP TS 23.032.
    -- This is composed of 1 or more octets with an internal structure according to
    -- 3GPP TS 23.032
    -- Octet 1: Type of shape, all the shapes defined in 3GPP TS 23.032 are allowed:
    -- Octets 2 to n (where n is the total number of octets necessary to encode the shape
    -- according to 3GPP TS 23.032) are used to encode the shape itself in accordance with
the
     -- encoding defined in 3GPP 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
    -- 3GPP TS 23.032 or an incorrect number of octets or coding according to
    -- 3GPP 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
```

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

```
LCS-Event ::= ENUMERATED {
    emergencyCallOrigination (0),
    emergencyCallRelease (1),
    mo-lr (2),
    ... }
    -- 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
```

END

#### \*\*\*\* END OF MODIFICATIONS \*\*\*\*

N4-020529

	CHA	ANGE REQ	UEST		CR-Form-v5.1
ж 2	29.002 CR 427	жrev	2 *	Current vers	**************************************
For <u><b>HELP</b></u> on usir	ng this form, see botto	om of this page or	look at the	e pop-up text	over the # symbols.
Proposed change aff	fects: 郑 (U)SIM	ME/UE	Radio Ac	cess Networl	k Core Network X
Title: 第 1	LCS: error handling if	shape not suppor	ted by GM	1LC	
Source: # 0	CN4				
Work item code: Ж	LCS1			Date: ૠ	29/03/2002
D	F (Agreed by conset see one of the following of five following of the following of four following of the four following of the found in 3GPP TR 21.5	categories: correction in an eare), cation of feature) tion) he above categories		2	REL-4 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)
Reason for change:	Subscriber Locat location estimate been completed MSC/SGSN cann	ion which of the sl	hapes def ISC/SGSN e not supp GMLC.	ined in 23.03 Nafter the poported by the	ameter in Provide 2 it supports. If the esitioning request has eGMLC, then the
Summary of change:		ne error handling i supported by GMI		e to be sent a	as location estimate to
Consequences if not approved:		case could be imp to interoperability		in different w	vays by different
Clauses affected:	<b>第</b> 7.6.1.4, 17.7.7, 1	7.7.13			
Other specs affected:	# Other core spe Test specificat O&M Specificat	tions			
Other comments:	<b>Warning:</b> The base document	ent for this CR is t	he draft v	ersion of 29.0	002 v3.C.0

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

#### 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 <u>follows</u>:
    - Shape of location estimate not supported by GMLC;
  - incompatible terminal, i.e. the requested facility is not supported by the terminal.

### Unchanged text removed for clarity

#### \*\*\*\* FIRST 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
```

Unchanged text removed for clarity

### 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
IMPORTS
  AddressString,
   ISDN-AddressString,
   IMEI,
  LMSI,
  SubscriberIdentity,
  AgeOfLocationInformation,
  LCSClientExternalID,
     LCSClientInternalID
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,
RoutingInfoForLCS-Res ::= SEQUENCE {
     targetMS
                                          [0] SubscriberIdentity,
     lcsLocationInfo
                                          [1] LCSLocationInfo,
     extensionContainer
                                          [2] ExtensionContainer
                                                                             OPTIONAL,
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] NIII.I.
                                                                             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,
                                          [1] NULL
                                                                             OPTIONAL,
    privacyOverride
    imsi
                                          [2] IMSI
                                                                             OPTIONAL,
                                          [3] ISDN-AddressString
                                                                             OPTIONAL.
    msisdn
                                          [4] LMSI
     lmsi
                                                                             OPTIONAL.
     imei
                                          [5] IMEI
                                                                             OPTIONAL,
     lcs-Priority
                                          [6] LCS-Priority
                                                                             OPTIONAL,
     lcs-OoS
                                          [7] LCS-QoS
                                                                             OPTIONAL,
     extensionContainer
                                          [8] ExtensionContainer
                                                                             OPTIONAL,
     supportedGADShapes
                                          [9] SupportedGADShapes
                                                                             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))
-- 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,
                                          [4] LCSClientName
     lcsClientName
                                                                             OPTIONAL,
     lcsAPN
                                          [5] APN
                                                                             OPTIONAL }
```

```
LCSClientType ::= ENUMERATED {
                                          (0),
     emergencyServices
                                          (1),
     valueAddedServices
     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
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 {
                                                                            OPTIONAL,
     horizontal-accuracy
                                          [0] Horizontal-Accuracy
     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.
```

```
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.
  The locationEstimate and the add-locationEstimate parameters shall not be sent if
 -- the supportedGADShapes parameter has been received in ProvideSubscriberLocation-Arg
 - and the shape encoded in locationEstimate or add-LocationEstimate is not marked
  as supported in supportedGADShapes. In such a case ProvideSubscriberLocation
-- shall be rejected with error systemFailureFacilityNotSupported with additional indication

    shapeOfLocationEstimateNotSupportedByGMLC.
```

```
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
              Degrees of Longitude
              Uncertainty semi-major axis
                                                                             1 octet
    __
              Uncertainty semi-minor axis
                                                                             1 octet
              Angle of major axis
              Confidence
    -- Octets 2 to 14 for case (c) - Ellipsoid point with altitude and uncertainty ellipsoid
             Degrees of Latitude
    __
              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
    {\operatorname{\mathsf{--}}} 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,
                                         [0] ISDN-AddressString
    msisdn
                                                                            OPTIONAL.
    imsi
                                         [1] TMST
                                                                            OPTIONAL,
    imei
                                         [2] IMEI
                                                                            OPTIONAL,
    na-ESRD
                                         [3] ISDN-AddressString
                                                                            OPTIONAL,
    na-ESRK
                                         [4] ISDN-AddressString
                                                                            OPTIONAL.
                                                                            OPTIONAL,
    locationEstimate
                                         [5] Ext-GeographicalInformation
    ageOfLocationEstimate
                                         [6] AgeOfLocationInformation
                                                                            OPTIONAL.
    extensionContainer
                                         [7] ExtensionContainer
    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.
     -- if the lcs-Event indicates a deferredmt-lrResponse then the locationEstimate
     -- and the add-locationEstimate parameters shall not be sent if the
     -- supportedGADShapes parameter had been received in ProvideSubscriberLocation-Arg
     -- and the shape encoded in locationEstimate or add-LocationEstimate was not marked
       as supported in supportedGADShapes. In such a case terminationCause
     -- in deferredmt-lrData shall be present with value
     -- shapeOfLocationEstimateNotSupportedByGMLCerrorundefined.
```

```
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),
    ShapeOfLocationEstimateNotSupportedByCMLC (6),
    ...,
    shapeOfLocationEstimateNotSupported (6)}
-- 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)
```

END

#### \*\*\*\* END OF MODIFICATIONS \*\*\*\*

N4-020530

		CHAN	IGE REC	UES	Γ	(	CR-Form-v5.1					
*	29.002	CR <mark>428</mark>	жrev	<b>2</b> *	Current vers	5.1.0	æ					
For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>%</b> symbols.												
Proposed change affects: 第 (U)SIM ME/UE Radio Access Network Core Network X												
Title: 第	LCS: error	handling if sha	ape not suppo	rted by G	MLC							
Source: #	CN4											
Work item code:	LCS1				Date: ૠ	29/03/2002						
D	se one of the F (correct A (correct B (adding C (funct D (edito etailed expl	ne following cate ection) esponds to a co- tion of feature), tional modification anations of the GPP TR 21.900	rrection in an ea on of feature) n) above categorie		2	REL-5 the following rel (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)						
Reason for change:  Summary of change:	Subso location been MSC/ The e	criber Location on estimate av completed is c SGSN cannot rror handling is	which of the sailable to the coded in a sha send it to the such a case	shapes de MSC/SGS pe not su GMLC. is not spe	efined in 23.03 SN after the po pported by the ecified	ameter in Province it supports. It is sitioning request GMLC, then the state is location estimated.	f the est has he					
Consequences if	the G	MLC is not sur	pported by GM	ILC itself		vays by differe						
not approved:		ors leading to i				vays by unleter	ı					
Clauses affected:	₩ 7.6.1.	4, 17.7.7, 17.7	7.13									
Other specs affected:	Tes	ner core specif st specification .M Specificatio	IS	g								
Other comments:	署 Warn The b		for this CR is	the draft	version of 29.0	002 v5.1.0						

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{x}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

#### 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 <u>follows</u>:
    - Shape of location estimate not supported by GMLC;
  - incompatible terminal, i.e. the requested facility is not supported by the terminal.

### Unchanged text removed for clarity

#### \*\*\*\* 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
```

Unchanged text removed for clarity

### 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,
  LCSRequestorID
IMPORTS
  AddressString,
   ISDN-AddressString,
  IMEI,
  IMSI,
   LMSI,
  SubscriberIdentity,
  AgeOfLocationInformation,
  LCSClientExternalID.
     LCSClientInternalID
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)
   qsm-Network (1) modules (3) map-MS-DataTypes (11) version7 (7)}
   Additional-Number
FROM MAP-SM-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   qsm-Network (1) modules (3) map-SM-DataTypes (16) version7 (7)}
RoutingInfoForLCS-Arg ::= SEQUENCE {
     mlcNumber
                                           [0] ISDN-AddressString,
     targetMS
                                          [1] SubscriberIdentity,
     extensionContainer
                                          [2] ExtensionContainer
                                                                             OPTIONAL,
     . . . }
RoutingInfoForLCS-Res ::= SEQUENCE {
                                           [0] SubscriberIdentity,
     targetMS
     lcsLocationInfo
                                           [1] LCSLocationInfo,
     extensionContainer
                                          [2] ExtensionContainer
                                                                             OPTIONAL.
     . . . }
LCSLocationInfo ::= SEQUENCE {
    networkNode-Number
                                          ISDN-AddressString,
     -- NetworkNode-number can be either msc-number or sgsn-number
                                          [0] LMSI
     lmsi
                                                                             OPTIONAL.
     extensionContainer
                                          [1] ExtensionContainer
                                                                             OPTIONAL,
     qprsNodeIndicator
                                          [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,
                                          [0] LCS-ClientID
     lcs-ClientID
                                                                             OPTIONAL.
     privacyOverride
                                          [1] NULL
                                                                             OPTIONAL.
     imsi
                                          [2] IMSI
                                                                             OPTIONAL,
     msisdn
                                           [3] ISDN-AddressString
                                                                             OPTIONAL,
     lmsi
                                          [4] LMSI
                                                                             OPTIONAL,
                                          [5] IMEI
                                                                             OPTIONAL.
     imei
                                                                             OPTIONAL,
     lcs-Priority
                                          [6] LCS-Priority
     lcs-QoS
                                          [7] LCS-QoS
                                                                             OPTIONAL,
     extensionContainer
                                          [8] ExtensionContainer
                                                                             OPTIONAL,
     . . . ,
     supportedGADShapes
                                          [9] SupportedGADShapes
                                                                             OPTIONAL }
     -- one of imsi or msisdn is mandatory
LocationType ::= SEQUENCE {
    locationEstimateType
                                          [0] LocationEstimateType,
                                          [1] DeferredLocationEventType
                                                                             OPTIONAL }
     deferredLocationEventType
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
                                           (0) } (SIZE (1..16))
    msAvailable
-- 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,
                                                                             OPTIONAL,
     lcsClientDialedByMS
                                           [2] AddressString
     lcsClientInternalID
                                          [3] LCSClientInternalID
                                                                             OPTIONAL
```

```
lcsClientName
                                          [4] LCSClientName
                                                                            OPTIONAL,
     lcsAPN
                                         [5] APN
                                                                            OPTIONAL,
     lcsRequestorID
                                          [6] LCSRequestorID
                                                                            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
NameString ::= USSD-String (SIZE (1..maxNameStringLength))
maxNameStringLength INTEGER ::= 63
LCSRequestorID ::= SEQUENCE {
     dataCodingScheme
                                          [0] USSD-DataCodingScheme,
     requestorIDString
                                          [1] RequestorIDString,
RequestorIDString ::= USSD-String (SIZE (0..maxRequestorIDStringLength))
maxRequestorIDStringLength INTEGER ::= 127
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.
```

```
ProvideSubscriberLocation-Res ::= SEQUENCE {
                                               \begin{tabular}{ll} \bf Ext-Geographical Information, \\ \end{tabular}
     locationEstimate
     ageOfLocationEstimate
                                               [0] AgeOfLocationInformation
                                                                                      OPTIONAL.
     extensionContainer
                                               [1] ExtensionContainer
                                                                                      OPTIONAL,
     add-LocationEstimate
                                               [2] Add-GeographicalInformation
                                                                                      OPTIONAL,
                                                                                      OPTIONAL }
     deferredmt-lrResponseIndicator
                                               [3] NULL
-- 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.
   The locationEstimate and the add-locationEstimate parameters shall not be sent if
 - the supportedGADShapes parameter has been received in ProvideSubscriberLocation-Arg
   and the shape encoded in locationEstimate or add-LocationEstimate is not marked
  as supported in supportedGADShapes. In such a case ProvideSubscriberLocation shall be rejected with error FacilityNotSupported with additional indication

    shapeOfLocationEstimateNotSupportedByGMLCsystemFailure.
```

```
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
              Uncertainty code
     -- 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
              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
              Degrees of Longitude
                                                                            3 octets
             Altitude
                                                                            2 octets
     --
             Uncertainty semi-major axis
                                                                            1 octet
                                                                            1 octet
             Uncertainty semi-minor axis
            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
                                         [0] ISDN-AddressString
    msisdn
                                                                            OPTIONAL.
                                         [1] IMSI
    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.
     -- if the lcs-Event indicates a deferredmt-lrResponse then the locationEstimate
      - and the add-locationEstimate parameters shall not be sent if the
    -- supportedGADShapes parameter had been received in ProvideSubscriberLocation-Arg
    -- and the shape encoded in locationEstimate or add-LocationEstimate was not marked
    -- as supported in supportedGADShapes. In such a case terminationCause
     -- in deferredmt-lrData shall be present with value
       shapeOfLocationEstimateNotSupportedByGMLCerrorundefined
```

```
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),
    shapeOfLocationEstimateNotSupportedByCMLC (6),
    ...,
    shapeOfLocationEstimateNotSupported (6)}
-- 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)
```

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

			CHAN	IGE RE	QUI	EST	•		С	R-Form-v5.1		
ж	29.00	2 CR	429	жre	ev <mark>1</mark>	æ	Current vers	sion: 4	.7.0	#		
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.												
Proposed change	affects:	₩ (U)	SIM	ME/UE	Ra	dio Ad	ccess Networ	k C	Core Ne	twork X		
Title: 第	Correct	ions on	the introd	luction of LO	CS for F	S dor	main					
Source: #	Siemer	IS										
Work item code: ₩	LCS1						Date: ♯	11.04	.02			
Category: ₩	Use one F (c) A (c) B (a) C (f) D (e) Detailed	orrection, correspon addition of unctional editorial m explanation	ds to a co f feature), modificati nodification	rrection in ar on of feature n) above categ	)		Release: ₩ Use <u>one</u> of 2 e) R96 R97 R98 R99 REL-4 REL-5		hase 2) e 1996) e 1997) e 1998) e 1999) e 4)	eases:		
Reason for change			hat the LO SSN and		res bet	ween	MSC and GN	/ILC are	also ap	plicable		
Summary of chang							riority table of $5.1/1$ and to					
Consequences if not approved:	# Ind	complete	LCS des	scription.								
Clauses affected:	ж Та	ble 5.1/3	3, 6.1.3.1	0B, 6.1.3.1	1, 17.2.	2.45, ´	17.2.2.45A, 1	7.3.2.40	)			
Other specs affected:	<b>#</b>	Test spe	ore specification	ns	*							
Other comments:	ж											

#### How to create CRs using this form:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

Table 5.1/3: Priorities of Application Contexts for SGSN as Responder

Responder = SGS	N	Initiating Entity
Priority high		
	Mobility and Location Register Management	
locationCa		HLR
	(cancelLocation v3)	
reset		HLR
	(reset)	
subscriberI		HLR
	(insertSubscriberData v3),	
	(deleteSubscriberData v3)	
tracing		HLR
	(activateTraceMode),	
	(deactivateTraceMode)	
	Short Message Service	
shortMsgM		MSC
	(MT-ForwardSM v3)	
	(forwardSM v1/v2)	
	Location Services	
locationSvo	cEnquiry	GMLC
	(provideSubscriberLocation v3)	
gprsNotify	Network-Requested PDP context activation HLR (noteMsPresentForGprs v3),	
Priority low		

NOTE: The application context name is the last component but one of the object identifier. Operation names are given in brackets for information with "/vn" appended to vn.

### 6.1.3.10B The Gateway Mobile Location Centre (GMLC)

The GMLC initiates location requests on behalf of external clients. The E.164 address of the GMLC is provided to an HLR when the GMLC requests a serving MSC address or SGSN address from the HLR for a target MS. The E.164 address of the GMLC is also provided to a serving MSC or SGSN when the GMLC requests the location of a target MS served by this MSC or SGSN.

#### 6.1.3.11 Summary table

The following tables summarise the SCCP address used for invoke operations. As a principle, within a PLMN either an SPC or a GT may be used (network operation option), whereas when addressing an entity outside the PLMN the GT must be used. The address type mentioned in the table (e.g. MSISDN) is used as GT or to derive the SPC.

For a response, the originating address passed in the invoke is used as SCCP Called Party Address. For extra-PLMN addressing the own E.164 entity address is used as SCCP Calling Party Address; for intra-PLMN addressing an SPC derived from the entity number may be used instead. When using an SPC, the SPC may be taken directly from MTP.

**Table 6.1/1** 

to from	fixed	HLR	VLR	MSC	EIR	gsmSCF	SIWF	SGSN	GGSN
fixed	work 	E:GT T:MSISDN							
network Home Location Register			I:SPC/GT E:GT T:VLR NUMBER			I:SPC/GT E:GT T:gsmSCF NUMBER		I:SPC/GT E:GT T:SGSN NUMBER	I:SPC/GT E:GT T:GGSN NUMBER
Visitor Location Register		I:SPC/GT E:GT T:MGT (outside World Zone 1)/MSISDN (World Zone 1/)HLR NUMBER (note)	I:SPC/GT E:GT T:VLR NUMBER			I:SPC/GT E:GT T:gsmSCF NUMBER			
mobile- services switching centre		I:SPC/GT E:GT T:MSISDN	I:SPC/GT E:GT T:VLR NUMBER	I:SPC/GT E:GT T:MSC NUMBER	I:SPC/GT E:GT T:EIR NUMBER	I:SPC/GT E:GT T:gsmSCF NUMBER	I:SPC/GT E:GT T:SIWF NUMBER	I:SPC/GT E:GT T:SGSN NUMBER	
gsm Service Control Function		I:SPC/GT E:GT T:MSISDN							
Shared Inter Working Function				I:SPC/GT E:GT T:MSC NUMBER					
Serving GPRS Support Node		I:SPC/GT E:GT T:MGT/ MSISDN/HL R NUMBER		I:SPC/GT E:GT T:MSC NUMBER	I:SPC/GT E:GT T:EIR NUMBER				
Gateway GPRS Support Node		I:SPC/GT E:GT T:MGT							
Gateway Mobile Location Centre		I:SPC/GT E:GT T:MSISDN, MGT (outside World Zone 1) or IMSI (World Zone 1) (note)		I:SPC/GT E:GT T:MSC NUMBER				I:SPC/GT E:GT T:SGSN NUMBER	

Intra-PLMN. 1: E: Extra (Inter)-PLMN. T: Address Type. GT: Global Title.

MGT: E.214 Mobile Global Title. SPC: Signalling Point Code.

NOTE:

For initiating the location updating procedure and an authentication information retrieval from the HLR preceding it, the VLR has to derive the HLR address from the IMSI of the MS. The result can be an SPC or an E.214 Mobile Global Title if CCITT or ITU-T SCCP is used, or IMSI itself if ANSI SCCP is used (ANSI SCCP is used in World Zone 1). When continuing the established update location dialogue (as with any other dialogue) the VLR must derive the routeing information towards the HLR from the Calling Party Address received with the first responding CONTINUE message until the dialogue terminating message is received.

For transactions invoked by the VLR after update location completion, the VLR may derive the information for addressing the HLR from addresses received in the course of the update location procedure (MSISDN or HLR number) or from the IMSI.

When invoking the Restore Data procedure and an authentication information retrieval from the HLR preceding it, the VLR must derive the information for addressing the HLR from the address information received in association with the roaming number request. This may be either the IMSI received as a parameter of the MAP message requesting the Roaming Number or the Calling Party Address associated with the MAP message requesting the Roaming Number.

The gsmSCF shall be addressed using more than one Global Title number. The first Global Title number is used to address a gsmSCF for MAP. The second Global Title number is used to address a gsmSCF for CAP. For querying the HLR to obtain the VMSC address to support location services, the GMLC has to derive the HLR address from either the MSISDN or IMSI of the target MS. When using the IMSI, the result can be an SPC or an E.214 Mobile Global Title if CCITT or ITU-T SCCP is used, or IMSI itself if ANSI SCCP is used (ANSI SCCP is used in World Zone 1).

**Table 6.1/2** 

to		GMLC
from		
fixed network		
Home Location		
Register		
Visitor Location		
Register		
Mobile-services		I:SPC/GT
Switching Centre		E:GT
_		T:MLC Number-
gam Carvias		I:SPC/GT
gsm Service Control Function		E:GT
Control Function		T:MSISDN
Shared Inter		
Working		
Function		
Serving		I:SPC/GT
GPRS		<u>E:GT</u>
Support		T:MLC Number
Node		•
Gateway		
GPRS		
Support		
Node		
Gateway Mobile		
Location Centre		
I: Intra-PLN		
	er)-PLMN.	
T: Address		
GT: Global Ti		
MGT: E.214 Mc	obile Global Title.	

SPC: Signalling Point Code. 

### 17.2.2.45 Location service enquiry

This operation package includes the operations required for the location service enquiry procedures between GMLC and MSC and between GMLC and SGSN.

```
LocationSvcEnquiryPackage-v3 ::= OPERATION-PACKAGE

-- Supplier is MSC or SGSN if Consumer is GMLC

CONSUMER INVOKES {

provideSubscriberLocation}
```

This package is v3 only.

### 17.2.2.45A Location service reporting

This operation package includes the operations required for the location service enquiry procedures between MSC and GMLC and between SGSN and GMLC.

```
LocationSvcReportingPackage-v3 ::= OPERATION-PACKAGE

-- Supplier is GMLC if Consumer is MSC

-- Supplier is GMLC if Consumer is SGSN

CONSUMER INVOKES {
    subscriberLocationReport}
```

\*\*\*\*\*\*\*\*\*\*\*Next Modification\*

### 17.3.2.40 Location Service Enquiry

This application context is used for location service enquiry procedures.

```
locationSvcEnquiryContext-v3 APPLICATION-CONTEXT
    -- Responder is MSC_or SGSN if Initiator is GMLC
    -- Responder is GMLC if Initiator is MSC
    -- Responder is GMLC if Initiator is SGSN

INITIATOR CONSUMER OF {
    locationSvcEnquiryPackage-v3,
    locationSvcReportingPackage-v3}

::= {map-ac locationSvcEnquiry(38) version3 (3)}
```

			С	HAN	IGE	RE	QUE	ST	•				CR-	Form-v5.1
*	29.	002	CR 4	130		≆ rev	1	ж	Current	vers	sion:	5.1.	<b>0</b> 8	ĸ
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.														
Proposed change a	affect	s: #	(U)SI	IM	ME/	UE	Rad	dio Ad	ccess Ne	twor	k	Core	Netv	vork X
Title:	Cor	rection	ns on the	e introd	uction	of LCS	for P	S do	main					
Source: #	CN	1												
Work item code: ₩	LCS	31							Dat	e: #	11.0	04.02		
Category: ₩	Detai	F (corr A (corr B (add C (fund D (edit led exp	the follow rection) responds lition of fo ctional motorial motol blanation	s to a coneature), odification of the a	rrectior on of fe a) above	n in an e eature)			2	<u>ne</u> of 7 3 9 L-4	the fo. (GSM (Rele (Rele (Rele (Rele (Rele	-5 llowing I I Phase ase 199 ase 199 ase 199 ase 4) ase 5)	2) 16) 17) 18)	ses:
Reason for change	e: #	To cl betw	arify tha	t the LON and O	CS pro GMLC	cedure	s betv	veen	MSC and	d GM	1LC a	re also	appl	licable
Summary of chang									riority tab 6.1/1 and					
Consequences if not approved:	ж	Incor	mplete L	.CS des	scriptic	n.								
Clauses affected:	ж	Table	e 5.1/3,	6.1.3.10	OB, 6.1	1.3.11,	17.2.2	2.45,	17.2.2.45	A, 1	7.3.2.	40		
Other specs affected:	¥	Te	ther core est spec &M Spe	ification	S	ıs	#							
Other comments:	æ													

### How to create CRs using this form:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

Table 5.1/3: Priorities of Application Contexts for SGSN as Responder

Responder = SGS	SN	Initiating Entity
Priority high		
	Mobility and Location Register Management	
locationCa	uncel	HLR
	(cancelLocation v3)	
reset		HLR
	(reset)	
subscriber		HLR
	(insertSubscriberData v3),	
	(deleteSubscriberData v3)	
tracing		HLR
	(activateTraceMode),	
	(deactivateTraceMode)	
	Short Message Service	
shortMsgN		MSC
	(MT-ForwardSM v3)	
	(forwardSM v1/v2)	
	Location Services	
locationSv	cEnquiry	GMLC
	(provideSubscriberLocation v3)	
	Network-Requested PDP context activation	
gprsNotify	-	
<i>5</i> 1 · · · · <i>J</i>	(noteMsPresentForGprs v3),	
Priority low		

NOTE: The application context name is the last component but one of the object identifier. Operation names are given in brackets for information with "/vn" appended to vn.

### 6.1.3.10B The Gateway Mobile Location Centre (GMLC)

The GMLC initiates location requests on behalf of external clients. The E.164 address of the GMLC is provided to an HLR when the GMLC requests a serving MSC address or SGSN address from the HLR for a target MS. The E.164 address of the GMLC is also provided to a serving MSC or SGSN when the GMLC requests the location of a target MS served by this MSC or SGSN.

#### 6.1.3.11 Summary table

The following tables summarise the SCCP address used for invoke operations. As a principle, within a PLMN either an SPC or a GT may be used (network operation option), whereas when addressing an entity outside the PLMN the GT must be used. The address type mentioned in the table (e.g. MSISDN) is used as GT or to derive the SPC.

For a response, the originating address passed in the invoke is used as SCCP Called Party Address. For extra-PLMN addressing the own E.164 entity address is used as SCCP Calling Party Address; for intra-PLMN addressing an SPC derived from the entity number may be used instead. When using an SPC, the SPC may be taken directly from MTP.

**Table 6.1/1** 

to from	fixed	HLR	VLR	MSC	EIR	gsmSCF	SIWF	SGSN	GGSN
fixed	work 	E:GT T:MSISDN							
network Home Location Register			I:SPC/GT E:GT T:VLR NUMBER			I:SPC/GT E:GT T:gsmSCF NUMBER		I:SPC/GT E:GT T:SGSN NUMBER	I:SPC/GT E:GT T:GGSN NUMBER
Visitor Location Register		I:SPC/GT E:GT T:MGT (outside World Zone 1)/MSISDN (World Zone 1/)HLR NUMBER (note)	I:SPC/GT E:GT T:VLR NUMBER			I:SPC/GT E:GT T:gsmSCF NUMBER			
mobile- services switching centre		I:SPC/GT E:GT T:MSISDN	I:SPC/GT E:GT T:VLR NUMBER	I:SPC/GT E:GT T:MSC NUMBER	I:SPC/GT E:GT T:EIR NUMBER	I:SPC/GT E:GT T:gsmSCF NUMBER	I:SPC/GT E:GT T:SIWF NUMBER	I:SPC/GT E:GT T:SGSN NUMBER	
gsm Service Control Function		I:SPC/GT E:GT T:MSISDN							
Shared Inter Working Function				I:SPC/GT E:GT T:MSC NUMBER					
Serving GPRS Support Node		I:SPC/GT E:GT T:MGT/ MSISDN/HL R NUMBER		I:SPC/GT E:GT T:MSC NUMBER	I:SPC/GT E:GT T:EIR NUMBER				
Gateway GPRS Support Node		I:SPC/GT E:GT T:MGT							
Gateway Mobile Location Centre		I:SPC/GT E:GT T:MSISDN, MGT (outside World Zone 1) or IMSI (World Zone 1) (note)		I:SPC/GT E:GT T:MSC NUMBER				I:SPC/GT E:GT T:SGSN NUMBER	

I: Intra-PLMN.
E: Extra (Inter)-PLMN.
T: Address Type.
GT: Global Title.

MGT: E.214 Mobile Global Title. SPC: Signalling Point Code.

NOTE: For initiating the location updating procedure and an authentication information retrieval from the HLR preceding it,

the VLR has to derive the HLR address from the IMSI of the MS. The result can be an SPC or an E.214 Mobile Global Title if CCITT or ITU-T SCCP is used, or IMSI itself if ANSI SCCP is used (ANSI SCCP is used in World Zone 1). When continuing the established update location dialogue (as with any other dialogue) the VLR must derive the routeing information towards the HLR from the Calling Party Address received with the first responding CONTINUE message until the dialogue terminating message is received.

For transactions invoked by the VLR after update location completion, the VLR may derive the information for addressing the HLR from addresses received in the course of the update location procedure (MSISDN or HLR number) or from the IMSI.

When invoking the Restore Data procedure and an authentication information retrieval from the HLR preceding it, the VLR must derive the information for addressing the HLR from the address information received in association with the roaming number request. This may be either the IMSI received as a parameter of the MAP message requesting the Roaming Number or the Calling Party Address associated with the MAP message requesting the Roaming Number.

The gsmSCF shall be addressed using more than one Global Title number. The first Global Title number is used to address a gsmSCF for MAP. The second Global Title number is used to address a gsmSCF for CAP. For querying the HLR to obtain the VMSC address to support location services, the GMLC has to derive the HLR address from either the MSISDN or IMSI of the target MS. When using the IMSI, the result can be an SPC or an E.214 Mobile Global Title if CCITT or ITU-T SCCP is used, or IMSI itself if ANSI SCCP is used (ANSI SCCP is used in World Zone 1).

**Table 6.1/2** 

to	)		GMLC
fro	m		
fixed net	work		
Home Lo	cation		
Register			
Visitor Lo	ocation		
Register			
Mobile-se	ervices		I:SPC/GT
Switching	g Centre		<u>E:GT</u>
			T:MLC Number—
gsm Serv	vice		I:SPC/GT
Control F			E:GT
Control	unction		T:MSISDN
Shared In	nter		
Working			
Function			
Serving			I:SPC/GT
GPRS			E:GT
Support			T:MLC Number
Node			-
Gateway			
GPRS			
Support			
Node			
Gateway			
Location			
<u>    :</u>	Intra-PLN		
E:		er)-PLMN.	
T:	Address	71	
GT:	Global Ti		
MGT:		bile Global Title.	
SPC:	Signalling	g Point Code.	

\*\*\*\*\*\*\*\*\*\*\*\*\*Next Modification\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 17.2.2.45 Location service enquiry

This operation package includes the operations required for the location service enquiry procedures between GMLC and MSC and between GMLC and SGSN.

```
LocationSvcEnquiryPackage-v3 ::= OPERATION-PACKAGE

-- Supplier is MSC or SGSN if Consumer is GMLC

CONSUMER INVOKES {

provideSubscriberLocation}
```

This package is v3 only.

### 17.2.2.45A Location service reporting

This operation package includes the operations required for the location service enquiry procedures between MSC and GMLC and between SGSN and GMLC.

```
LocationSvcReportingPackage-v3 ::= OPERATION-PACKAGE

-- Supplier is GMLC if Consumer is MSC

-- Supplier is GMLC if Consumer is SGSN

CONSUMER INVOKES {

subscriberLocationReport}
```

\*\*\*\*\*\*\*\*\*\*\*\*Next Modification\*

### 17.3.2.40 Location Service Enquiry

This application context is used for location service enquiry procedures.

```
locationSvcEnquiryContext-v3 APPLICATION-CONTEXT
    -- Responder is MSC or SGSN if Initiator is GMLC
    -- Responder is GMLC if Initiator is MSC
    -- Responder is GMLC if Initiator is SGSN
    INITIATOR CONSUMER OF {
        locationSvcEnquiryPackage-v3,
        locationSvcReportingPackage-v3}
::= {map-ac locationSvcEnquiry(38) version3 (3)}
```

# 3GPP TSG CN WG4 Meeting #13 Fort Lauderdale, US, 8<sup>th</sup> April – 12<sup>th</sup> April 2002

	CR-Form-v5.
*	29.010 CR 048
For <u><b>HELP</b></u> on usi	ng this form, see bottom of this page or look at the pop-up text over the ¥ symbols.
Proposed change af	rects:
Title: 第	CS: Mapping BSSMAP-RANAP for request of assistance data on E interface
Source: #	CN4
Work item code: %	_CS1 Date:   # 21/03/2002
	Release: # Rel-4  se one 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)  et alled explanations of the above categories can  frequence one of the following releases:  2 (GSM Phase 2)  R96 (Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  Relailed explanations of the above categories can  REL-4 (Release 4)  REL-5 (Release 5)
Reason for change:	In case of completed Inter MSC Handover, the UE might perform a MO-LocationRequest that requires the delivery of Assistance Data or Deciphering Keys. The request received via DTAP by the anchor-MSC needs to be relayed to the BSS/RNC. The Anchor MSC will forward this request by encapsulating the related BSSMAP/RANAP message on the E interface, while the non-anchor will have to send again the related BSSMAP/RANAP message to the BSS/RNC. If the Access Signalling protocol is different from the protocol encapsulated on the E-Interface then the non-anchor MSC has to map the one protocol into the other. The mapping between RANAP and BSSMAP and vice versa is missing in the TS 29.010.
Summary of change.	# Add mapping tables between RANAP and BSSMAP messages and corresponding parameters in case of request of Assistance Data and Deciphering Keys for MO-LR requests.
Consequences if not approved:	Mapping might be performed in different ways by different vendors, causing problems in case of BSS's/RNC's and MSC's not provided by the same vendor.
Clauses affected:	# 4.9.4 (and subclauses), 4.9.5 (and subclauses), 4.9.6 (and subclauses)
Other specs affected:	# Other core specifications # Test specifications 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 <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. Below is a brief summary:

<sup>1)</sup> Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

## 4.9.4 Request of Assistance Data or De-ciphering Keys: Successful Case

### 4.9.4.1 Inter-MSC Handover (GSM to GSM)

After a successful Inter-MSC handover, any request of Assistance Data or De-ciphering keys received by the non anchor MSC via the DTAP message LCS-MOLR is forwarded to the anchor MSC by encapsulating the DTAP message into the MAP messages Process Access Signalling. The anchor MSC triggers the BSSMAP procedure Location Acquisition described in 3G TS 48.008. For handover this procedure is executed according to 3G TS 49.008 with the anchor MSC playing the role of the MSC and the non anchor MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor MSC the BSSMAP messages received from the anchor MSC are forwarded to the BSS, and the BSSMAP messages received from the BSS are sent over the E-interface to the anchor MSC.

Once the BSSMAP procedure has been completed, the anchor MSC sends the DTAP message LCS-MOLR Response encapsulated in the MAP message Forward Access Signalling to the non anchor MSC, which relays it to the MS.

The signalling for a completed request of Assistance Data or De-ciphering Keys is shown in figures 67a.

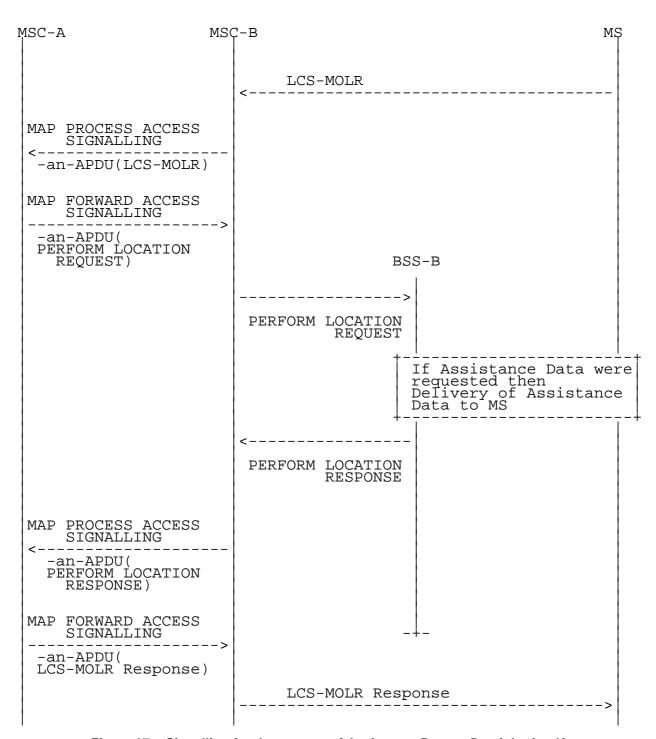


Figure 67a: Signalling for the request of Assistance Data or De-ciphering Keys

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC GSM to UMTS handover is handled as for Inter-MSC Handover GSM to UMTS (see section 4.9.4.2).

#### 4.9.4.2 Inter-MSC Handover (GSM to UMTS)

After a successful Inter-MSC GSM to UMTS inter system handover, any request of Assistance Data or De-ciphering keys received by the non-anchor 3G MSC via the DTAP message LCS-MOLR is forwarded to the anchor MSC by encapsulating the DTAP message into the MAP messages Process Access Signalling. The anchor MSC triggers the BSSMAP procedure Location Acquisition described in 3G TS 48.008. For handover this procedure is executed according to 3G TS 49.008 with the anchor MSC playing the role of the MSC and the non anchor 3G MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non-anchor 3G MSC the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent to the RNS, and the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent over the E-interface to the anchor MSC.

Once the BSSMAP procedure has been completed, the anchor MSC sends the DTAP message LCS-MOLR Response encapsulated in the MAP message Forward Access Signalling to the non anchor 3G MSC, which relays it to the UE.

The signalling for a completed request of Assistance Data or De-ciphering Keys is shown in figures 67b.

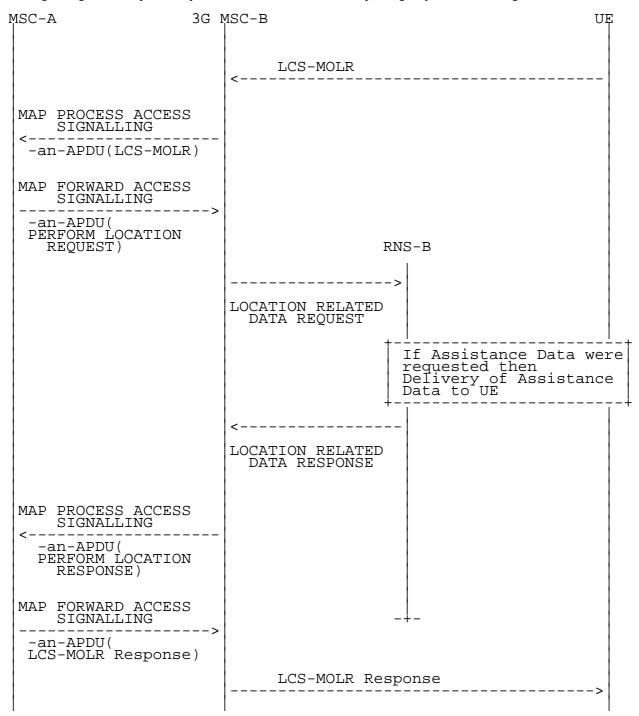


Figure 67b: Signalling for the request of Assistance Data or De-ciphering Keys

When the UE requires the delivery of Assistance Data for the GPS Assisted positioning method, the interworking between the BSSMAP messages encapsulated in MAP and the RANAP messages is as follows:

	29.002	25.413	Notes
Forward message	MAP FORWARD ACCESS SIG. request	LOCATION RELATED DATA REQUEST	
	-an-APDU( PERFORM LOCATION REQUES	T)	
	BSSMAP information elements:	RANAP information elements:	
	Location Type. Location.Information location assistance info for target MS Location Type. Positioning Method Assisted GPS	Requested Location n Related Data Type e >Dedicated Assistance Data for Assisted GPS	1
	GPS Assistance Data	Requested GPS Assistance Data	
Result	MAP PROCESS ACCESS SIG. request -an-APDU( PERFORM LOCATION RESPON	DATA RESPONSE	
	BSSMAP information elements:	RANAP information elements:	2
NOTE 1		The second secon	١

NOTE 1: All other Positioning Method possibilities are not supported by UMTS when Location Information is "location assistance information for the target MS".

NOTE 2: The absence of the Cause IE in the RANAP message Location Related Data Response is an indication that the requested assistance data has been successfully delivered to the UE..

If the UE requires the delivery of Assistance Data for an UMTS specific method, then the anchor MSC cannot forward the request to the non anchor 3G MSC, and replies with the error "User Failure" to the LCS-MOLR message.

If the anchor MSC sends a request for assistance data for a GSM specific method in BSSMAP Perform Location Request encapsulated in MAP Forward Access Signalling, then the non anchor 3G MSC replies immediately by generating and encapsulating BSSMAP Perform Location Response with Cause "System Failure" in MAP Process Access Signalling. This traffic case can happen if an LCS-MOLR had been received in the anchor MSC before the initiation of the handover procedure.

When the UE requires the delivery of De-ciphering Keys for the GPS Assisted positioning method, the interworking between the BSSMAP messages encapsulated in MAP and the RANAP messages is as follows:

	29.002	25.413 	Notes
Forward message	MAP FORWARD ACCESS SIG. request	LOCATION RELATED DATA REQUEST	
	-an-APDU( PERFORM LOCATION REQUES'	T)	
	BSSMAP information elements:	RANAP information elements:	
	assistance data for the target MS	Requested Location n Related Data Type > Deciphering Keys for Assisted GPS	-
	Location Type. Positioning Method > Assisted GPS		1
Result	MAP PROCESS ACCESS SIG. request -an-APDU( PERFORM LOCATION RESPON	DATA RESPONSE	
	BSSMAP information elements:	RANAP information elements:	
	Deciphering Keys	Broadcast Assistance Data Deciphering Keys	

NOTE 1: All other Positioning Method possibilities are not supported by UMTS when Location Information is "deciphering keys for broadcast assistance data for the target MS".

If the UE requires the delivery of De-ciphering Keys for an UMTS specific method, then the anchor MSC cannot forward the request to the non anchor 3G MSC, and replies with the error "User Failure" to the LCS-MOLR message.

If the anchor MSC sends a request for De-ciphering Keys for a GSM specific method in BSSMAP Perform Location Request encapsulated in MAP Forward Access Signalling, then the non anchor 3G MSC replies immediately by generating and encapsulating BSSMAP Perform Location Response with Cause "System Failure" in MAP Process Access Signalling. This traffic case can happen if an LCS-MOLR had been received in the anchor MSC before the initiation of the handover procedure.

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC UMTS to GSM handover is handled as for Inter-MSC Handover GSM to GSM (see section 4.9.4.1).

### 4.9.4.3 Inter-MSC Handover (UMTS to GSM)

After a successful Inter-MSC UMTS to GSM inter system handover, any request of Assistance Data or De-ciphering keys received by the non-anchor MSC via the DTAP message LCS-MOLR is forwarded to the anchor 3G MSC by encapsulating the DTAP message into the MAP messages Process Access Signalling. The anchor 3G MSC triggers the BSSMAP procedure Location Acquisition described in 3G TS 48.008. For handover this procedure is executed according to 3G TS 49.008 with the anchor 3G MSC playing the role of the MSC and the non-anchor MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non-anchor MSC the BSSMAP messages received from the anchor 3G MSC are forwarded to the BSS, and the BSSMAP messages received from the BSS are sent over the E-interface to the anchor 3G MSC.

Once the BSSMAP procedure has been completed, the anchor 3G MSC sends the DTAP message LCS-MOLR Response encapsulated in the MAP message Forward Access Signalling to the non-anchor MSC, which relays it to the UE.

The signalling for a completed request of Assistance Data or De-ciphering Keys is shown in figures 67c.

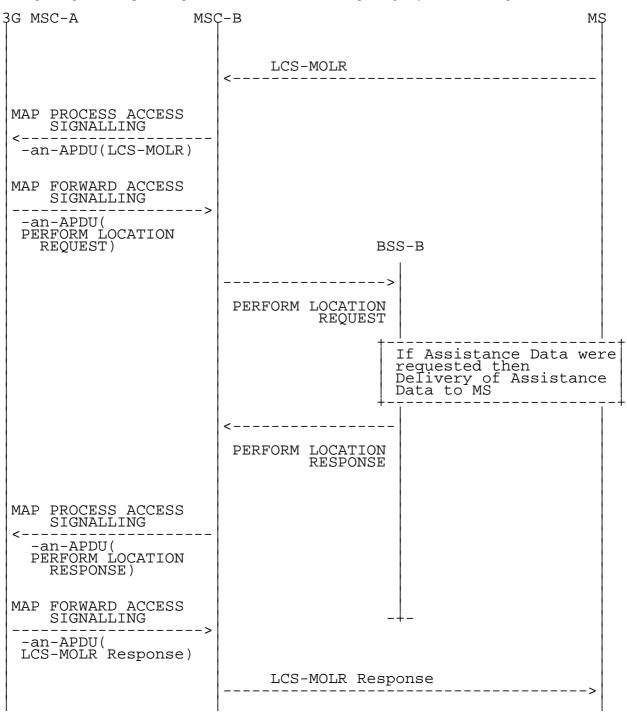


Figure 67c: Signalling for the request of Assistance Data or De-ciphering Keys

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC GSM to UMTS handover is handled as for Inter-MSC Handover GSM to UMTS (see section 4.9.4.2)..

#### 4.9.4.4 Inter-MSC SRNS Relocation

After a successful Inter-MSC SRNS Relocation , any request of Assistance Data or De-ciphering keys received by the non anchor 3G MSC via the DTAP message LCS-MOLR is forwarded to the anchor 3G MSC by encapsulating the DTAP message into the MAP messages Process Access Signalling. The anchor 3G MSC triggers the RANAP procedure Location Related Data described in TS 25.413. For handover this procedure is executed according to 23.009 with the anchor 3G-MSC playing the role of the 3G-MSC and the non anchor 3G-MSC playing the role of the RNS.

The needed RANAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor 3G MSC the RANAP messages received from the anchor 3G MSC are forwarded to the RNS, and the RANAP messages received from the RNS are sent over the E-interface to the anchor 3G MSC.

Once the RANAP procedure has been completed, the anchor 3G MSC sends the DTAP message LCS-MOLR Response encapsulated in the MAP message Forward Access Signalling to the non anchor 3G MSC, which relays it to the UE.

The signalling for a completed request of Assistance Data or De-ciphering Keys is shown in figures 67d.

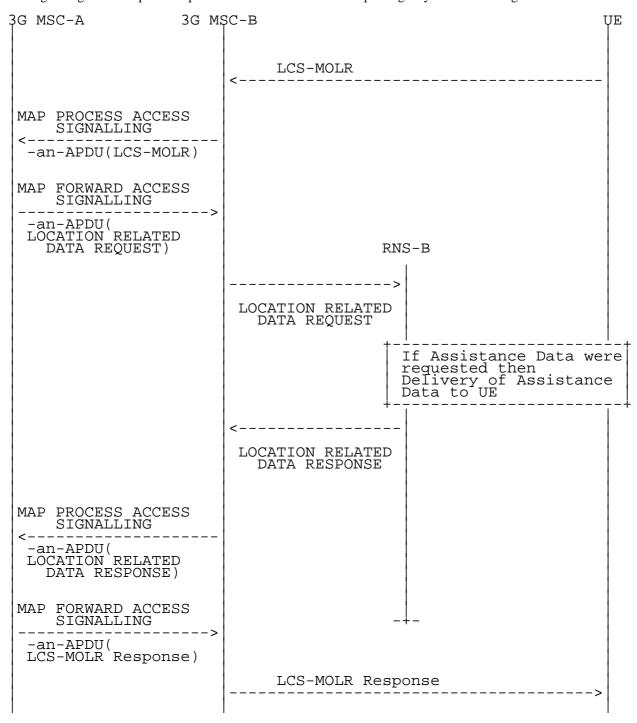


Figure 67d: Signalling for the request of Assistance Data or De-ciphering Keys

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC UMTS to GSM requires that at the non anchor 3G MSC the received RANAP messages are mapped into the corresponding BSSMAP messages to be

sent to the BSS, and the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent over the E-interface to the anchor 3G-MSC. The signalling for a completed request of Assistance Data or De-ciphering Keys in this traffic case is shown in figures 67e.

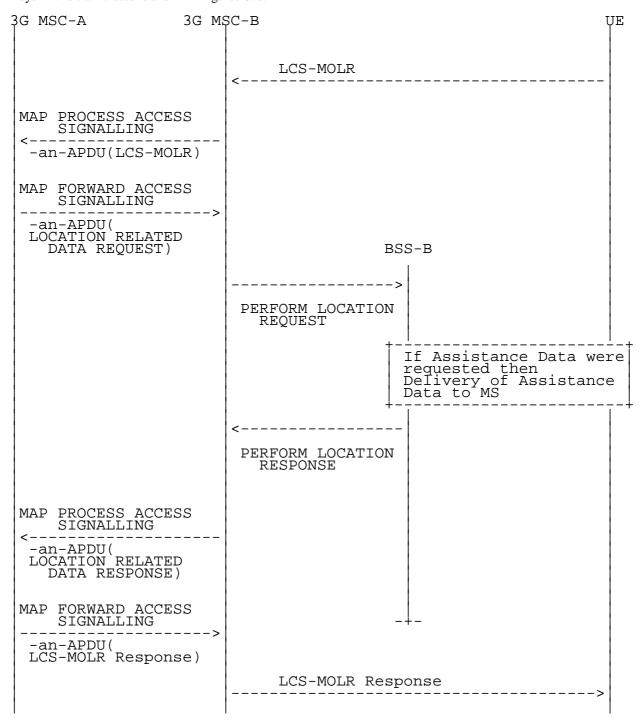


Figure 67e: Signalling for the request of Assistance Data or De-ciphering Keys

When the UE requires the delivery of Assistance Data for the GPS Assisted positioning method, the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

	29.002	48.008	Notes
Forward message	MAP FORWARD ACCESS SIG. request	PERFORM LOCATION REQUEST	
	-an-APDU( LOCATION RELATED DATA REQUEST)		
	RANAP information elements:	BSSMAP information elements:	
	Requested Location Related Data Type > Dedicated Assistan Data for Assisted GPS	Location Type. Location Information ce > location assistance info for target MS Location Type. Positioning Method > Assisted GPS	1
Result	MAP PROCESS ACCESS SIG. request -an-APDU( LOCATION RELATED DATA RESPONSE)	PERFORM LOCATION RESPONSE	
	RANAP information elements:	BSSMAP information elements:	2
			I

NOTE 1: All other Positioning Method possibilities are not supported by GSM when Location Information is "deciphering keys for broadcast assistance data for the target MS".

NOTE 2: The absence of the Cause IE in the BSSMAP message Perform Location Response is an indication that the requested assistance data has been successfully delivered to the UE..

If the UE requires the delivery of Assistance Data for a GSM specific method, then the anchor 3G-MSC cannot forward the request to the non anchor 3G MSC, and replies with the error "User Failure" to the LCS-MOLR message.

If the anchor 3G MSC sends a request for Assistance Data for an UMTS specific method in RANAP Location Related Data Request encapsulated in MAP Forward Access Signalling, then the non anchor 3G MSC replies immediately by generating and encapsulating RANAP Location Related Data Failure with Cause "Unspecified Failure" in MAP Process Access Signalling. This traffic case can happen if an LCS-MOLR had been received in the anchor MSC before the initiation of the intra-MSC handover procedure.

When the UE requires the delivery of De-ciphering Keys for the GPS Assisted positioning method, the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

1

NOTE 1: All other Positioning Method possibilities are not supported by GSM when Location Information is "deciphering keys for broadcast assistance data for the target MS".

If the UE requires the delivery of De-ciphering Keys for a GSM specific method, then the anchor 3G-MSC cannot forward the request to the non anchor 3G MSC, and replies with the error "User Failure" to the LCS-MOLR message.

If the anchor 3G MSC sends a request for De-ciphering Keys for an UMTS specific method in RANAP Location Related Data Request encapsulated in MAP Forward Access Signalling, then the non anchor 3G MSC replies immediately by generating and encapsulating RANAP Location Related Data Failure with Cause "Unspecified Failure" in MAP Process Access Signalling. This traffic case can happen if an LCS-MOLR had been received in the anchor MSC before the initiation of the intra-MSC handover procedure.

### \*\*\*\* NEXT MODIFIED SECTION \*\*\*\*

# 4.9.5 Request of Assistance Data or De-ciphering Keys: Failure Case

#### 4.9.5.1 Inter-MSC Handover (GSM to GSM)

After a successful Inter-MSC handover, any request of Assistance Data or De-ciphering keys received by the non anchor MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.1.

If the request fails, either because the BSS-B cannot return the requested De-ciphering Keys to the anchor MSC or cannot deliver the required Assistance Data to the MS, the signalling is the same as for the successful case and is shown in figure 67a.

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC GSM to UMTS handover is handled as for Inter-MSC Handover GSM to UMTS (see section 4.9.4.2).

If the request fails the signalling is the same as for the failure case for Inter-MSC Handover GSM to UMTS (see section 4.9.5.2)

### 4.9.5.2 Inter-MSC Handover (GSM to UMTS)

After a successful Inter-MSC GSM to UMTS handover, any request of Assistance Data or De-ciphering keys received by the non anchor 3G MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.2.

If the request fails, either because BSS-B cannot return the requested De-ciphering Keys to the anchor MSC or because BSS-B cannot deliver the required Assistance Data to the MS, the signalling is as shown in figure 68a.

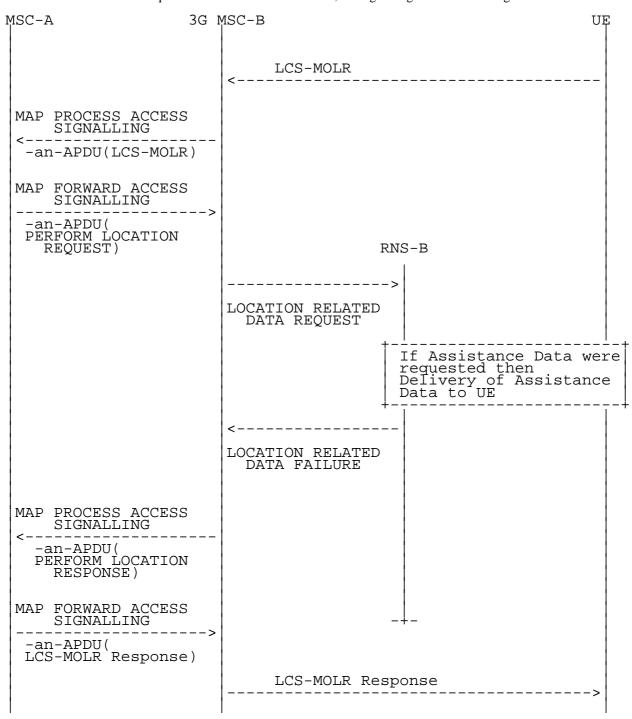


Figure 68a: Signalling for a failed request of Assistance Data or De-ciphering Keys

When the delivery to the UE of Assistance Data for the GPS Assisted positioning method fails, the interworking between the BSSMAP messages encapsulated in MAP and the RANAP messages is as follows:

29.002	25.413	Notes
"For the forward message corresponding table in	ges please refer to the section 4.9.4.2"	
request -an-APDU(	DATA FAILURE	
BSSMAP information elements:	RANAP information elements:	
LCS Cause > System Failure	Cause > Dedicated Assistance Data Not Available	
	"For the forward messac corresponding table in MAP PROCESS ACCESS SIG. request -an-APDU( PERFORM LOCATION RESPONBSSMAP information elements:  LCS Cause	"For the forward messages please refer to the corresponding table in section 4.9.4.2"  MAP PROCESS ACCESS SIG. LOCATION RELATED request DATA FAILURE -an-APDU(PERFORM LOCATION RESPONSE)  BSSMAP information RANAP information elements: elements:  LCS Cause Cause System Failure > Dedicated Assistance

When the RNS-B cannot satisfy the request for De-ciphering Keys, the interworking between the BSSMAP messages encapsulated in MAP and the RANAP messages is as follows:

	29.002	25.413	Notes				
Forward message	"For the forward messages please refer to the corresponding table in section 4.9.4.2"						
Result	MAP PROCESS ACCESS SIG request -an-APDU( PERFORM LOCATION RESPON	DATA FAILURE					
	BSSMAP information elements:	RANAP information elements:					
	LCS Cause > System Failure	Cause > Deciphering Keys Not Available					

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC UMTS to GSM handover is handled as for Inter-MSC Handover GSM to GSM (see section 4.9.4.1).

If the request fails the signalling is the same as for the failure case for Inter-MSC Handover GSM to GSM (see section 4.9.5.1)

#### 4.9.5.3 Inter-MSC Handover (UMTS to GSM)

After a successful Inter-MSC UMTS to GSM handover, any request of Assistance Data or De-ciphering keys received by the non anchor MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.3.

If the request fails, either because the BSS-B cannot return the requested De-ciphering Keys to the anchor 3G MSC or BSS-B cannot deliver the required Assistance Data to the MS, the signalling is the same as for the successful case and is shown in figure 67c.

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC GSM to UMTS handover is handled as for Inter-MSC Handover GSM to UMTS (see section 4.9.4.2)..

If the request fails the signalling is the same as for the failure case for Inter-MSC Handover GSM to UMTS (see section 4.9.5.2)

#### 4.9.5.4 Inter-MSC SRNS Relocation

After a successful Inter-MSC SRNS Relocation, any request of Assistance Data or De-ciphering keys received by the non anchor 3G MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.4.

If the request fails, either because the RNS-B cannot return the requested De-ciphering Keys to the anchor 3G MSC or RNS-B cannot deliver the required Assistance Data to the MS, the signalling is the same as for the successful case and is shown in figure 67d.

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC UMTS to GSM requires that at the non anchor 3G MSC the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent to the BSS, and the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent over the E-interface to the anchor 3G-MSC.

If the request fails, either because the BSS-B cannot return the requested De-ciphering Keys to the anchor 3G MSC or BSS-B cannot deliver the required Assistance Data to the MS, the signalling is as shown in figure 68b.

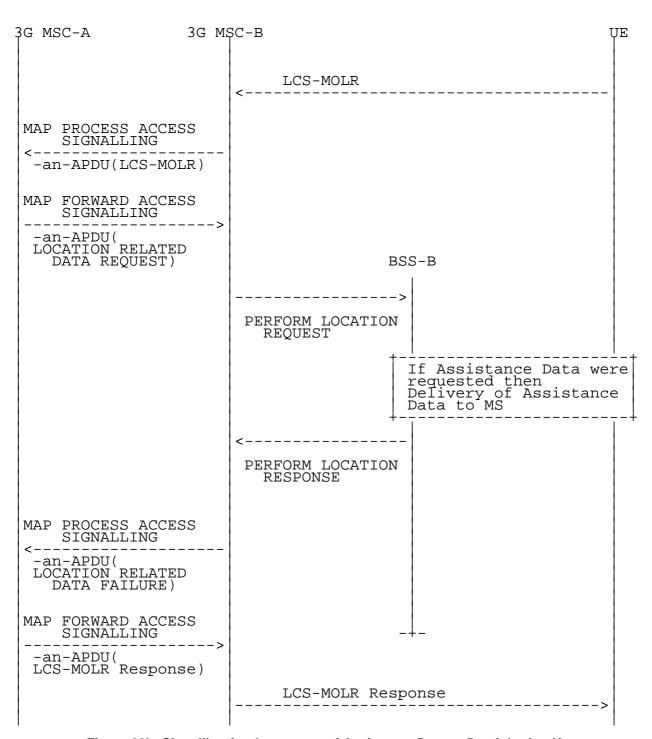


Figure 68b: Signalling for the request of Assistance Data or De-ciphering Keys

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC UMTS to GSM requires that at the non anchor 3G MSC the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent to the BSS, and the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent over the E-interface to the anchor 3G-MSC.

When the UE requires the delivery of Assistance Data for the GPS Assisted positioning method, the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

	29.002	48.008	Notes
Forward message	"For the forward message corresponding table in	es please refer to the section 4.9.4.4"	
Result	MAP PROCESS ACCESS SIG. request -an-APDU( LOCATION RELATED DATA FAILURE)	PERFORM LOCATION RESPONSE	
	RANAP information elements:	BSSMAP information elements:	
	Cause > Dedicated Assistance Data Not Available	LCS Cause e > <any value=""></any>	

When the UE requires the delivery of De-ciphering Keys for the GPS Assisted positioning method, the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

	29.002	48.008	Notes
Forward message	"For the forward messag corresponding table in	es please refer to the section 4.9.4.4"	
Result	MAP PROCESS ACCESS SIG. request -an-APDU( LOCATION RELATED DATA FAILURE)	PERFORM LOCATION RESPONSE	
	RANAP information elements:	BSSMAP information elements:	
	Cause > Deciphering Keys Not Available	LCS Cause > <any value=""></any>	

### \*\*\*\* NEXT MODIFIED SECTION \*\*\*\*

# 4.9.6 Abort of Request of Assistance Data or De-ciphering Keys:

### 4.9.6.1 Inter-MSC Handover (GSM to GSM)

After a successful Inter-MSC handover, any request of Assistance Data or De-ciphering keys received by the non anchor MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.1.

If the request is aborted by the anchor MSC the signalling is as shown in figure 69a.

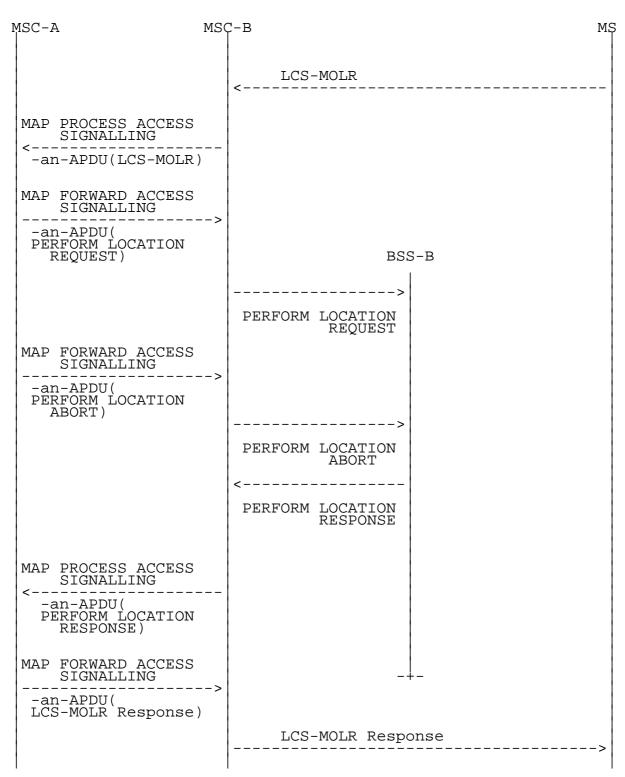


Figure 69a: Signalling for the abortion of a request for Assistance Data or De-ciphering Keys

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC GSM to UMTS handover is handled as for Inter-MSC Handover GSM to UMTS (see section 4.9.4.2).

If the request is aborted the signalling is the same as for the abortion case for Inter-MSC Handover GSM to UMTS (see section 4.9.6.2)

### 4.9.6.2 Inter-MSC Handover (GSM to UMTS)

After a successful Inter-MSC GSM to UMTS handover, any request of Assistance Data or De-ciphering keys received by the non anchor MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.1.

If the request is aborted by the anchor MSC the signalling is as shown in figure 69b.

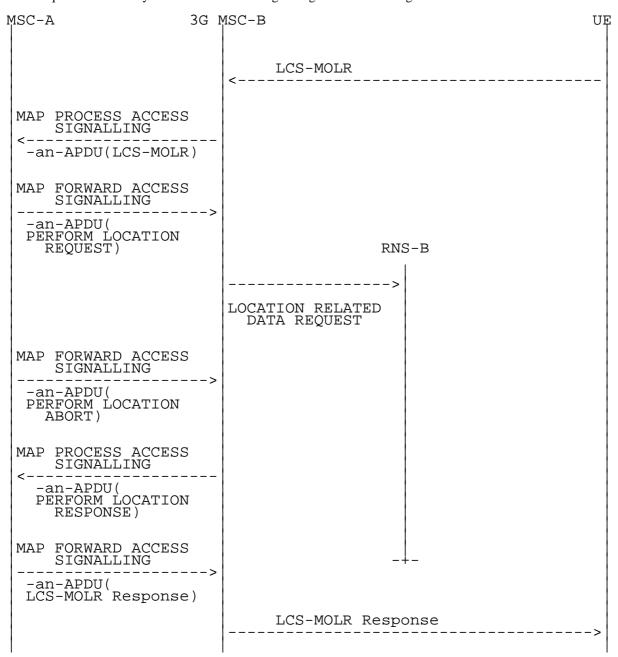


Figure 69b: Signalling for the abortion of the request for Assistance Data or De-ciphering Keys

There's no interworking between the BSSMAP Perform Location Abort and any RANAP message since it is not possible to abort a request for Assistance Data or De-ciphering Keys with RANAP. The BSSMAP message Perform Location Response is generated by the non-anchor 3G MSC.

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC UMTS to GSM handover is handled as for Inter-MSC Handover GSM to GSM (see section 4.9.4.1).

If the request is aborted the signalling is the same as for the abortion case for Inter-MSC Handover GSM to GSM (see section 4.9.6.1)

### 4.9.6.3 Inter-MSC Handover (UMTS to GSM)

After a successful Inter-MSC UMTS to GSM handover, any request of Assistance Data or De-ciphering keys received by the non anchor MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.3.

If the request is aborted by the anchor 3G MSC the signalling is the same as for the abortion for Inter-MSC GSM to GSM handover abd is shown in figure 69a.

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. Any request for Assistance Data or De-ciphering keys received after completion of the intra-MSC GSM to UMTS handover is handled as for Inter-MSC Handover GSM to UMTS (see section 4.9.4.2)..

If the request is aborted the signalling is the same as for the abortion case for Inter-MSC Handover GSM to UMTS (see section 4.9.6.2)

## 4.9.6.4 Inter-MSC SRNS Relocation

After a successful Inter-MSC SRNS Relocation, any request of Assistance Data or De-ciphering keys received by the non anchor 3G MSC via the DTAP message LCS-MOLR is handled as described in section 4.9.4.4.

The request cannot be aborted by the 3G anchor MSC since RANAP does not support abortion of a request for Assistance Data or De-Ciphering Keys.

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

## 3GPP TSG CN WG4 Meeting #13 Fort Lauderdale, US, 8<sup>th</sup> April – 12<sup>th</sup> April 2002

									_			CR-Form-v5.1
CHANGE REQUEST												
ж	29.	010	CR	050		жrev	1	¥	Current ver	sion:	3.7.0	Ж
For <u><b>HELP</b></u> on u	ısing t	his for	m, see	e bottom	of this	page o	r look	at th	e pop-up tex	t ove	r the ♯ sy	mbols.
Proposed change affects:												
Title: 第	LCS	S: clari	ficatio	n of map	ping fo	or Locat	ion A	cquis	ition			
Source: #	CN	4										
Work item code: ₩	LCS	3							Date: #	25	/03/2002	
Category: 業	Use of	one of force	the follorection) respon dition of ctional torial modernationation	consensus owing cate of the action of the action of the TR 21.900	egories prrection ion of fe n) above	n in an e eature)			2	f the for (GSI) (Relation) (Relation) (Relation) (Relation)	el-99 ollowing rei M Phase 2, ease 1996, ease 1998, ease 1999, ease 4) ease 5)	) ) )
Reason for change	e: #	proceand t	edures	after the	e differ scribe v	ent Har what ha	dove	r case	oing the Loca es still contai r an intra-ms	n a n	umber of	errors
Summary of chang	ge: ૠ								nentioned se over in non-a			cribe the
Consequences if not approved:	Ж			nplement pility prob		could a	rise fr	rom u	inspecified b	ehavi	our leadin	ig to
Clauses affected:	ж	4.9.1	.x, 4.9	.2.x, 4.9.	.3.x							
Other specs affected:	₩ [	Te	est spe	ore specification	าร	ns S	ĸ					
Other comments:	ж											

#### How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked \( \mathcal{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

### 4.9 Location Services

The general principles of the location services procedures are given in Technical Specification 3GPP TS 23.071 and 3GPP TS 23.171.

3GPP TS 29.010 gives the necessary information for interworking between the 3GPP TS 25.413 RANAP protocol and the 3GPP TS 48.008GSM 08.08 BSSMAP protocol. The interworking is necessary for positioning requests issued after a completed GSM to UMTS inter system handover. BSSMAP messages carried by MAP over the E-interface must be mapped by the non-anchor 3G-MSC into the corresponding RANAP messages to be sent over the Iu-interface and vice versa. In case of For Inter-MSC GSM to GSM Handover and Inter-MSC UMTS to UMTS SRNS Relocation no mapping between the 3GPP TS 25.413 RANAP protocol and the GSM 08.08 BSSMAP protocol is necessary, but only the interworking with the MAP protocol over the E-interface needs to be described.

## 4.9.1 Completed Location Acquisition

### 4.9.1.1 Inter-MSC Handover (GSM to GSM)

After a successful Inter-MSC handover, any positioning request received by the anchor MSC via the MAP message Provide Subscriber Location triggers the BSSMAP procedure Location Acquisition described in GSM 08.08. In case of For handover this procedure is executed according to GSM 09.08 with the anchor MSC playing the role of the MSC and the non anchor MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor MSC the received-BSSMAP messages received from the anchor MSC are forwarded to the BSS, and the received-BSSMAP messages received from the BSS are sent over the E-interface to the anchor MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65a.

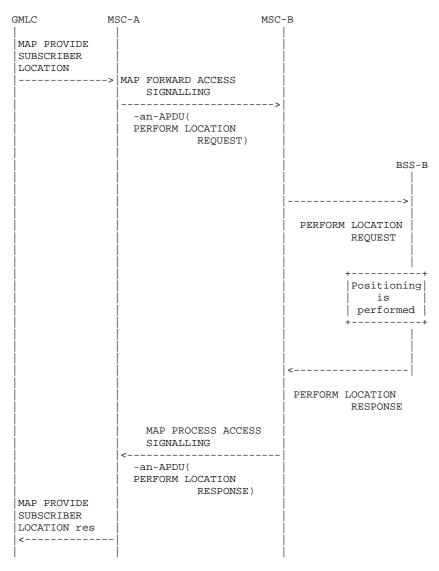


Figure 65a: Signalling for a completed Location Acquisition procedure

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. Any positioning request received by the anchor MSC after completion of the intra-MSC GSM to UMTS handover is handled as in case for Inter-MSC Handover GSM to UMTS (see section 4.9.1.2).

### 4.9.1.2 Inter-MSC Handover (GSM to UMTS)

After a successful Inter-MSC GSM to UMTS inter system handover, any positioning request received by the anchor MSC via the MAP message Provide Subscriber Location triggers the BSSMAP procedure Location Acquisition described in 3GPP TS 48.008GSM 08.08. In case of For handover this procedure is executed according to 3GPP TS 49.008GSM 09.08 with the anchor MSC playing the role of the MSC and the non anchor 3G MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor 3G MSC the received-BSSMAP messages received from the anchor MSC are mapped into the corresponding RANAP messages to be sent to the RNS, and the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent over the E-interface to the anchor MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65b.

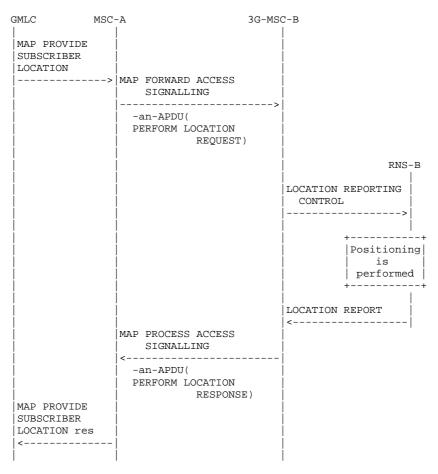


Figure 65<u>b</u>: Signalling for a completed Location Acquisition procedure

The interworking between the BSSMAP location aquisition messages in MAP and the RANAP location reporting messages is as follows:

	29.002	25.413	Notes
Forward message	MAP FORWARD ACCESS SIG. request -an-APDU( PERFORM LOCATION REQUEST	CONTROL	
	BSSMAP information elements:	RANAP information elements:	
	Location Type >Current Geographic Location	Request Type >Event = Direct >Report Area = Geo. Coord.	1
	Cell Identifier Classmark Inf. Type3 LCS Client Type Chosen Channel LCS Priority LCS QoS >Horizontal Accuracy	   Request Type >Accuracy Code	
	GPS Assistance Data APDU		
Result	MAP PROCESS ACCESS SIG. request -an-APDU( PERFORM LOCATION RESPONS		-+
	   BSSMAP information   elements:	RANAP information elements:	
	Location Estimate  Positioning Data  Deciphering Keys  LCS Cause	Area Identity >Geographical Area Cause Request Type	

NOTE 1: All other Location Type possibilities are not supported by UMTS positioning,

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any positioning request received by the anchor MSC after completion of the intra-MSC UMTS to GSM handover is handled as in case offor Inter-MSC Handover GSM to GSM (see section 4.9.1.1).

### 4.9.1.3 Inter-MSC Handover (UMTS to GSM)

After a successful Inter-MSC UMTS to GSM inter system handover, any positioning request received by the anchor 3G-MSC via the MAP message Provide Subscriber Location triggers the BSSMAP procedure Location Acquisition described in GSM 08.08. In case of For handover this procedure is executed according to GSM 09.08 with the anchor 3G-MSC playing the role of the 3G-MSC and the non anchor MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor MSC the received-BSSMAP messages received from the anchor 3G-MSC are forwarded to the BSS, and the received-BSSMAP messages received from the BSS are sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65bc.

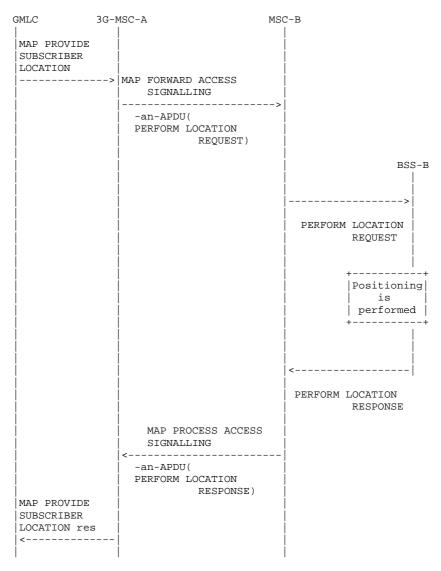


Figure 65bc: Signalling for a completed Location Acquisition procedure

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. Any positioning request received by the anchor 3G MSC after completion of the intra-MSC GSM to UMTS handover is handled as in case offor Inter-MSC Handover GSM to UMTS (see section 4.9.1.2).

#### 4.9.1.4 Inter-MSC SRNS Relocation

After a successful Inter-MSC SRNS Relocation, any positioning request received by the anchor 3G-MSC via the MAP message Provide Subscriber Location triggers the RANAP procedure Location Reporting Control described in TS 25.413. In case of For handover this procedure is executed according to 23.009 with the anchor 3G-MSC playing the role of the 3G-MSC and the non anchor 3G-MSC playing the role of the RNS.

The needed RANAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor 3G-MSC the received-RANAP messages received from the anchor 3G-MSC are forwarded to the RNS, and the received-RANAP messages received from the RNS are sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65ed.

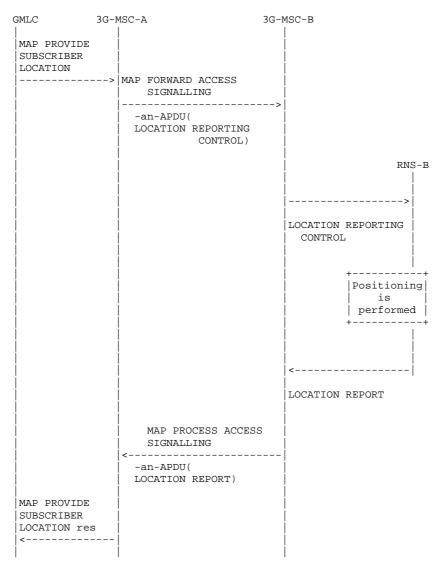


Figure 65ed: Signalling for a completed Location Acquisition procedure

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any positioning request received by the anchor 3G MSC after completion of the intra-MSC UMTS to GSM requires that at the non anchor 3G MSC the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent to the BSS, and the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65e.

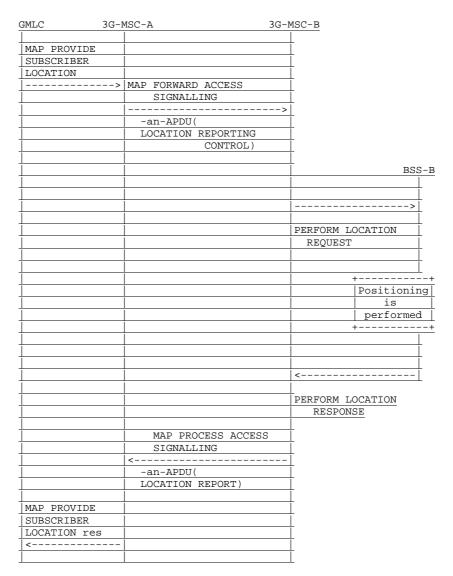


Figure 65e: Signalling for a completed Location Acquisition procedure

the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

	29.002	08.08	Notes
	<del> </del>		-+
Forward	MAP FORWARD ACCESS SIG		
message	request	REQUEST	
			<u> </u>
	-an-APDU(		<u> </u>
	LOCATION REPORTING CONTROL)		
	   RANAP information	BSSMAP information	<del> </del>
	elements:	elements:	+
	elements:	erements.	+
	Request Type	Location Type	+
	>Event = Direct	>Current Geographic	Ī
	>Report Area =	Location	
	Geo. Coord.		Ī
	Request Type	LCS QoS	
	>Accuracy Code	>Horizontal Accuracy	<u> </u>
			<del></del>
Result	MAP PROCESS ACCESS SIG	G. PERFORM LOCATION	
	request	RESPONSE	Ť
	-an-APDU(		Ī
	LOCATION REPORT)		<u> </u>
	   RANAP information	BSSMAP information	+
	elements:	elements:	$\pm$
	Area Identity	Location Estimate	
	>Geographical Area		
	Cause	LCS Cause	+
	Request Type		+
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		T

# 4.9.2 Cause Code Mapping

## 4.9.2.1 Inter-MSC Handover(GSM to GSM)

When a mobile station is handed over from GSM to GSM, no mapping of cause codes is required. The MSC shall use the cause codes specified in GSM 08.08.

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. A mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed after completion of the intra-MSC GSM to UMTS handover and is the same as in case offor Inter-MSC Handover GSM to UMTS (see section 4.9.2.2).

### 4.9.2.2 Inter-MSC Handover (GSM to UMTS)

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in RANAP Location Report and the LCS cause codes sent in BSSMAP Perform Location Response is as follows:

25.413	08.08	Notes
LOCATION REPORT	PERFORM LOCATION RESPONSE	
- Requested Report Type not Supported	- Position method failure	
- Requested Information not Available	- System Failure	
- all other cause codes	- System Failure	

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. No mapping of cause codes is required after completion of the intra-MSC UMTS to GSM handover as in case offor Inter-MSC Handover GSM to GSM (see section 4.9.2.1).

### 4.9.2.3 Inter-MSC Handover (UMTS to GSM)

When a mobile station is handed over from UMTS to GSM, no mapping of cause codes is required. The 3G-MSC shall use the cause codes specified in GSM 08.08.

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. A mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed after completion of the intra-MSC GSM to UMTS handover and is the same as in case of for Inter-MSC Handover GSM to UMTS (see section 4.9.2.2).

#### 4.9.2.4 Inter-MSC SRNS Relocation

When a mobile station is handed over from UMTS to UMTS, no mapping of cause codes is required. Both 3G-MSCs shall use the cause codes specified in TS 25.413.

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. A mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed after completion of the intra-MSC UMTS to GSM handover.

The mapping between the cause codes received in BSSMAP Perform Location Response and the LCS cause codes sent in RANAP Location Report is as follows:

08.08	25.413	Notes
PERFORM LOCATION RESPONSE	LOCATION REPORT	L
		L
- Position method failure	- Requested Report Type	Ţ
	not Supported	
- System Failure	- Unspecified Failure	Ī
- Protocol Error	- Unspecified Failure	L
- Data missing	- Unspecified Failure	1
in position request		Ĺ
- Unexpected data value	- Unspecified Failure	L
in position request		L
- Target MS Unreachable	- Unspecified Failure	L
- Location request aborted	- Unspecified Failure	L
- Facility not supported	- Requested Report Type	L
	not Supported	L
- Inter-BSC Handover Ongoing	- Unspecified Failure	
- Intra-BSC	- Unspecified Failure	Ī
Handover Complete		L
- Congestion	- Unspecified Failure	L
- Unspecified	- Unspecified Failure	
·	·	

# 4.9.3 Aborted Location Acquisition

### 4.9.3.1 Inter-MSC Handover (GSM to GSM)

When for any reason the on going location acquisition procedure needs to be aborted, the anchor MSC sends the BSSMAP message Perform Location Abort over the E-interface.

Figure 66a shows the signalling for an aborted Location Acquisition procedure.

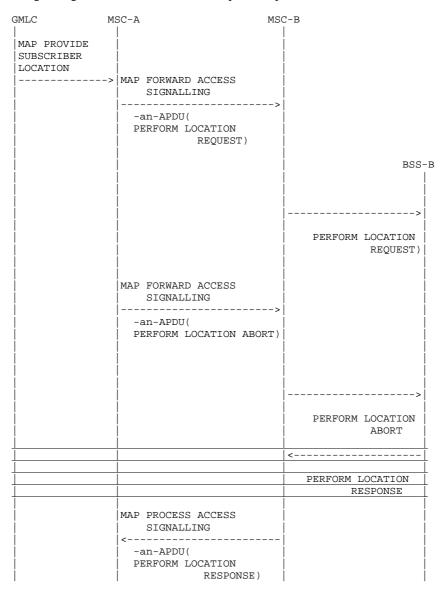


Figure 66a: Signalling for an aborted Location Acquisition procedure

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. A positioning request that needs to be aborted by the anchor MSC after completion of the intra-MSC GSM to UMTS handover is handled as in ease offor Inter-MSC Handover GSM to UMTS (see section 4.9.3.2).

### 4.9.3.2 Inter-MSC Handover (GSM to UMTS)

When for any reason the on going location acquisition procedure needs to be aborted, the anchor MSC sends the BSSMAP message Perform Location Abort over the E-interface.

Figure 66b shows the signalling for an aborted Location Acquisition procedure.

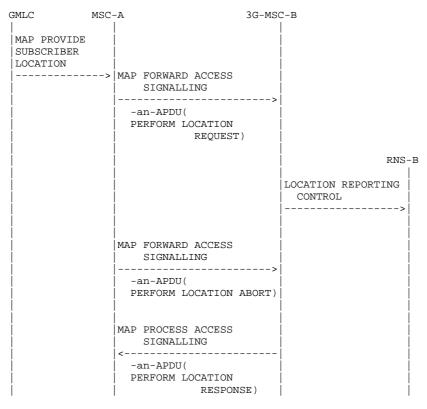


Figure 66b: Signalling for an aborted Location Acquisition procedure

Since RANAP does not support abortion of a positioning request, non-anchor 3G-MSC shall generate a BSSMAP Perform Location Response with LCS Cause "Location request aborted" to be sent over the E-interface to the anchor MSC, and then shall discard any message from the RNS related to the aborted positioning request.

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. A positioning request that needs to be aborted by the anchor MSC after completion of the intra-MSC UMTS to GSM handover is handled as in case offor Inter-MSC Handover GSM to GSM (see section 4.9.3.1).

### 4.9.3.3 Inter-MSC Handover (UMTS to GSM)

When for any reason the on going location acquisition procedure needs to be aborted, the anchor 3G-MSC sends the BSSMAP message Perform Location Abort over the E-interface.

Figure 66b-66c shows the signalling for an aborted Location Acquisition procedure.

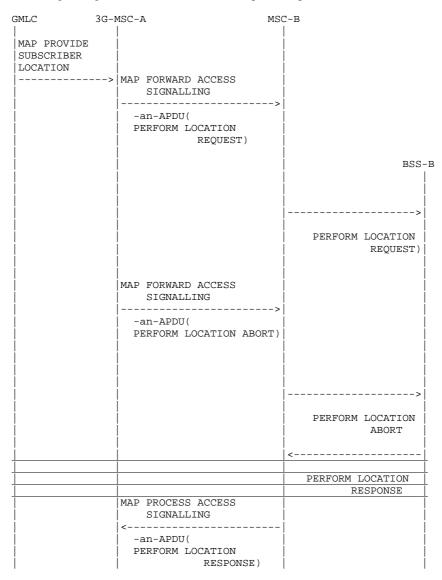


Figure 66cb: Signalling for an aborted Location Acquisition procedure

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. A positioning request that needs to be aborted by the anchor 3G MSC after completion of the intra-MSC GSM to UMTS handover is handled as in case of for Inter-MSC Handover GSM to UMTS (see section 4.9.3.2).

#### 4.9.6.4 Inter-MSC SRNS Relocation

After a successful Inter-MSC SRNS Relocation a positioning request cannot be aborted by the 3G anchor MSC since RANAP does not support abortion of a positioning request.

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

# 3GPP TSG CN WG4 Meeting #13 Fort Lauderdale, US, 8<sup>th</sup> April – 12<sup>th</sup> April 2002

												CR-Form-v5.1
				CHAN	<b>IGE</b>	REG	UE	ST	•			
ж	29.	010	CR	051		жrev	1	¥	Current ve	rsion:	4.2.0	*
For <u><b>HELP</b></u> on u	ısing t	his for	m, see	e bottom	of this	page o	r look	at th	e pop-up tex	ct over	the # sy	mbols.
Proposed change	affect	's: #	(U)	SIM	ME/	UE	Rac	lio Ad	ccess Netwo	rk	Core N	etwork X
Title:	LCS	S: clar	ificatio	n of map	ping fo	r Locat	ion Ad	quisi	ition			
Source: #	CN	4										
Work item code: ₩	LCS	6							Date:	£ 25,	/03/2002	
Category: 第	Use of the Detail	one of F (core A (core B (add C (fun D (edi led exp	the follo rection) respon- dition of ctional torial m planatio	consensus owing cate of the ca	egories. errection ion of fe n) above	n in an ea			2	of the fo (GSI (Rela (Rela (Rela (Rela (Rela	oll-4 bllowing rea M Phase 2 ease 1996, ease 1998, ease 1999, ease 4) ease 5)	) ) )
		<b>-</b> .										
Reason for change	e: #	proc	edures they do	after the	e differ scribe v	ent Han vhat ha	dove	case	oing the Loca es still conta r an intra-ma	in a nı	umber of	errors
Summary of chang	ge: ૠ								nentioned se over in non-a			cribe the
Consequences if not approved:	ж			nplement pility prob		could a	rise fr	om u	inspecified b	ehavi	our leadin	ng to
Clauses affected:	ж	4.9.1	.x, 4.9	.2.x, 4.9	.3.x							
Other specs affected:	æ	O Te	ther co	ore speci ecification ecification	fication	ıs 8	€					
Other comments:	ж											

#### How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked \( \mathcal{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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 \*\*\*\*

## 4.9 Location Services

The general principles of the location services procedures are given in Technical Specification 3GPP TS 23.271.

3GPP TS 29.010 gives the necessary information for interworking between the 3GPP TS 25.413 RANAP protocol and the 3GPP TS 48.008 BSSMAP protocol. The interworking is necessary for positioning requests issued after a completed GSM to UMTS inter system handover. BSSMAP messages carried by MAP over the E-interface must be mapped by the non-anchor 3G-MSC into the corresponding RANAP messages to be sent over the Iu-interface and vice versa. In case of For Inter-MSC GSM to GSM Handover and Inter-MSC UMTS to UMTS SRNS Relocation no mapping between the 3GPP TS 25.413 RANAP protocol and the 3GPP TS 48.008 GSM 08.08-BSSMAP protocol is necessary, but only the interworking with the MAP protocol over the E-interface needs to be described.

## 4.9.1 Completed Location Acquisition

### 4.9.1.1 Inter-MSC Handover (GSM to GSM)

After a successful Inter-MSC handover, any positioning request received by the anchor MSC via the MAP message Provide Subscriber Location triggers the BSSMAP procedure Location Acquisition described in GSM 08.083GPP TS 48.008. In case of For handover this procedure is executed according to GSM 09.083GPP TS 49.008 with the anchor MSC playing the role of the MSC and the non anchor MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor MSC the received-BSSMAP messages received from the anchor MSC are forwarded to the BSS, and the received-BSSMAP messages received from the BSS are sent over the E-interface to the anchor MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65a.

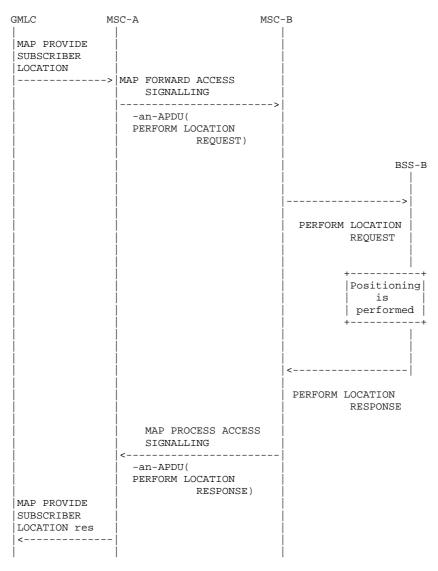


Figure 65a: Signalling for a completed Location Acquisition procedure

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. Any positioning request received by the anchor MSC after completion of the intra-MSC GSM to UMTS handover is handled as in case offor Inter-MSC Handover GSM to UMTS (see section 4.9.1.2).

## 4.9.1.2 Inter-MSC Handover (GSM to UMTS)

After a successful Inter-MSC GSM to UMTS inter system handover, any positioning request received by the anchor MSC via the MAP message Provide Subscriber Location triggers the BSSMAP procedure Location Acquisition described in 3GPP TS 48.008. In case of For handover this procedure is executed according to 3GPP TS 49.008 with the anchor MSC playing the role of the MSC and the non anchor 3G MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor 3G MSC the received-BSSMAP messages received from the anchor MSC are mapped into the corresponding RANAP messages to be sent to the RNS, and the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent over the E-interface to the anchor MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65b.

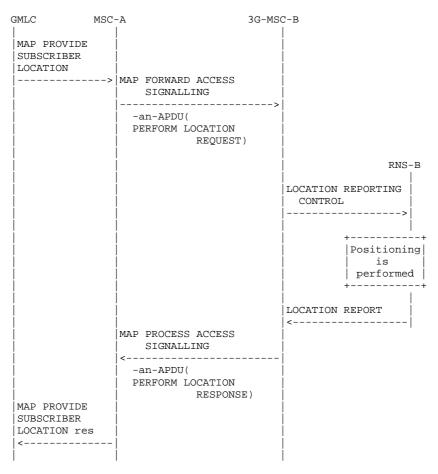


Figure 65<u>b</u>: Signalling for a completed Location Acquisition procedure

The interworking between the BSSMAP location aquisition messages in MAP and the RANAP location reporting messages is as follows:

	29.002	25.413	Notes
Forward message	MAP FORWARD ACCESS SIG. request -an-APDU( PERFORM LOCATION REQUES	CONTROL	- <del></del>       
	BSSMAP information elements:	RANAP information elements:	
	Location Type >Current Geographic Location	Request Type >Event = Direct >Report Area = Geo. Coord.	1
	Cell Identifier Classmark Inf. Type3 LCS Client Type Chosen Channel LCS Priority LCS QoS >Horizontal Accurac	   Request Type y >Accuracy Code	
	GPS Assistance Data APDU		     
Result	MAP PROCESS ACCESS SIG. request -an-APDU( PERFORM LOCATION RESPON		-+
	BSSMAP information elements:	RANAP information elements:	
	Location Estimate  Positioning Data  Deciphering Keys  LCS Cause	Area Identity >Geographical Area Cause Request Type	

NOTE 1: All other Location Type possibilities are not supported by UMTS positioning,

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any positioning request received by the anchor MSC after completion of the intra-MSC UMTS to GSM handover is handled as in case offor Inter-MSC Handover GSM to GSM (see section 4.9.1.1).

#### 4.9.1.3 Inter-MSC Handover (UMTS to GSM)

After a successful Inter-MSC UMTS to GSM inter system handover, any positioning request received by the anchor 3G-MSC via the MAP message Provide Subscriber Location triggers the BSSMAP procedure Location Acquisition described in GSM 08.083GPP TS 48.008. In case of For handover this procedure is executed according to GSM 09.083GPP TS 49.008 with the anchor 3G-MSC playing the role of the 3G-MSC and the non anchor MSC playing the role of the BSS.

The needed BSSMAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor MSC the received BSSMAP messages received from the anchor 3G-MSC are forwarded to the BSS, and the received BSSMAP messages received from the BSS are sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65bc.

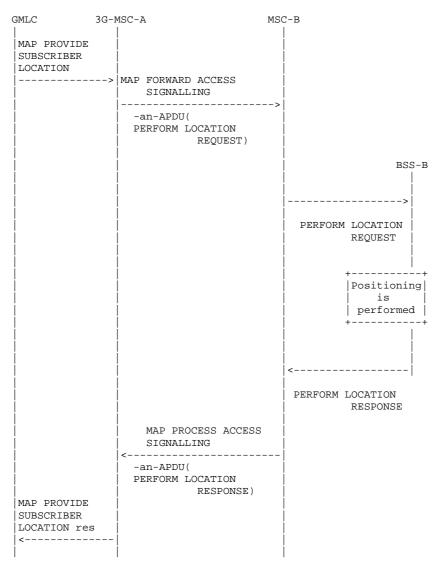


Figure 65bc: Signalling for a completed Location Acquisition procedure

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. Any positioning request received by the anchor 3G MSC after completion of the intra-MSC GSM to UMTS handover is handled as in case offor Inter-MSC Handover GSM to UMTS (see section 4.9.1.2).

#### 4.9.1.4 Inter-MSC SRNS Relocation

After a successful Inter-MSC SRNS Relocation, any positioning request received by the anchor 3G-MSC via the MAP message Provide Subscriber Location triggers the RANAP procedure Location Reporting Control described in TS 25.413. In case of For handover this procedure is executed according to 23.009 with the anchor 3G-MSC playing the role of the 3G-MSC and the non anchor 3G-MSC playing the role of the RNS.

The needed RANAP signalling is sent over the E-interface encapsulated in the MAP messages Process Access Signalling and Forward Access Signalling.

At the non anchor 3G-MSC the received-RANAP messages received from the anchor 3G-MSC are forwarded to the RNS, and the received-RANAP messages received from the RNS are sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65ed.

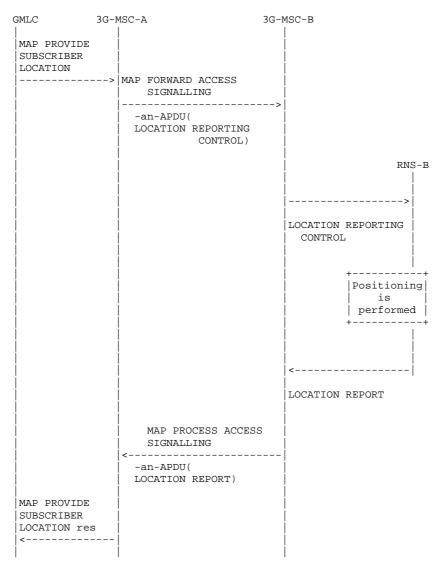


Figure 65ed: Signalling for a completed Location Acquisition procedure

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. Any positioning request received by the anchor 3G MSC after completion of the intra-MSC UMTS to GSM requires that at the non anchor 3G MSC the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent to the BSS, and the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65e.

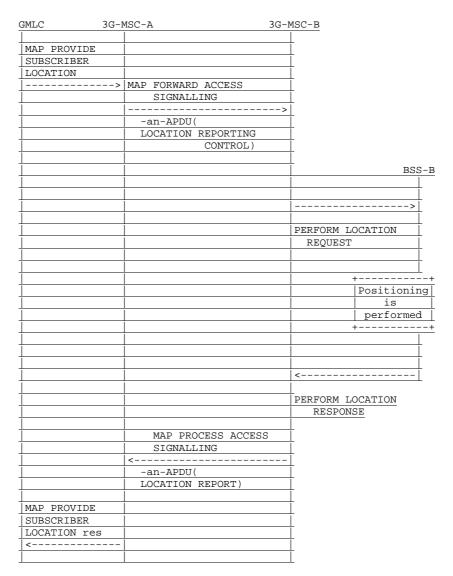


Figure 65e: Signalling for a completed Location Acquisition procedure

the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

	29.002	08.08	Note
			+
Forward	MAP FORWARD ACCESS SIG.		
message	request	REQUEST	+
	-an-APDU(		Ť
	LOCATION REPORTING CONT	ROL)	+
	RANAP information	BSSMAP information	+
	elements:	elements:	‡
	Request Type	Location Type	+
	>Event = Direct	>Current Geographic	Ť
	>Report Area =	Location	
	Geo. Coord.		Ŧ
	Request Type	LCS QoS	$\pm$
	>Accuracy Code	>Horizontal Accuracy	Ŧ
			<del></del>
Result	MAP PROCESS ACCESS SIG.	PERFORM LOCATION	
	request	RESPONSE	
	-an-APDU(		
	LOCATION REPORT)		‡
	RANAP information	BSSMAP information	+
	elements:	elements:	+
	Area Identity	Location Estimate	±
	>Geographical Area		<del>_</del>
	Cause	LCS Cause	+
	Cause	LCS Cause	

# 4.9.2 Cause Code Mapping

## 4.9.2.1 Inter-MSC Handover(GSM to GSM)

When a mobile station is handed over from GSM to GSM, no mapping of cause codes is required. The MSC shall use the cause codes specified in GSM 08.083GPP TS 48.008.

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. A mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed after completion of the intra-MSC GSM to UMTS handover and is the same as in case offor Inter-MSC Handover GSM to UMTS (see section 4.9.2.2).

### 4.9.2.2 Inter-MSC Handover (GSM to UMTS)

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in RANAP Location Report and the LCS cause codes sent in BSSMAP Perform Location Response is as follows:

25.413	08.08	Notes
LOCATION REPORT	PERFORM LOCATION RESPONSE	
- Requested Report Type not Supported	- Position method failure	
- Requested Information not Available	- System Failure	
- all other cause codes	- System Failure	

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. No mapping of cause codes is required after completion of the intra-MSC UMTS to GSM handover as in case offor Inter-MSC Handover GSM to GSM (see section 4.9.2.1).

### 4.9.2.3 Inter-MSC Handover (UMTS to GSM)

When a mobile station is handed over from UMTS to GSM, no mapping of cause codes is required. The 3G-MSC shall use the cause codes specified in GSM 08.083GPP TS 48.008.

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. A mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed after completion of the intra-MSC GSM to UMTS handover and is the same as in case of for Inter-MSC Handover GSM to UMTS (see section 4.9.2.2)..

#### 4.9.2.4 Inter-MSC SRNS Relocation

When a mobile station is handed over from UMTS to UMTS, no mapping of cause codes is required. Both 3G-MSCs shall use the cause codes specified in TS 25.413.

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. A mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed after completion of the intra-MSC UMTS to GSM handover.

The mapping between the cause codes received in BSSMAP Perform Location Response and the LCS cause codes sent in RANAP Location Report is as follows:

08.08	25.413	Notes
PERFORM LOCATION RESPONSE	LOCATION REPORT	L
		L
- Position method failure	- Requested Report Type	Ţ
	not Supported	
- System Failure	- Unspecified Failure	Ī
- Protocol Error	- Unspecified Failure	L
- Data missing	- Unspecified Failure	1
in position request		Ĺ
- Unexpected data value	- Unspecified Failure	L
in position request		L
- Target MS Unreachable	- Unspecified Failure	L
- Location request aborted	- Unspecified Failure	L
- Facility not supported	- Requested Report Type	L
	not Supported	L
- Inter-BSC Handover Ongoing	- Unspecified Failure	
- Intra-BSC	- Unspecified Failure	Ī
Handover Complete		L
- Congestion	- Unspecified Failure	L
- Unspecified	- Unspecified Failure	
·	·	

# 4.9.3 Aborted Location Acquisition

## 4.9.3.1 Inter-MSC Handover (GSM to GSM)

When for any reason the on going location acquisition procedure needs to be aborted, the anchor MSC sends the BSSMAP message Perform Location Abort over the E-interface.

Figure 66a shows the signalling for an aborted Location Acquisition procedure.

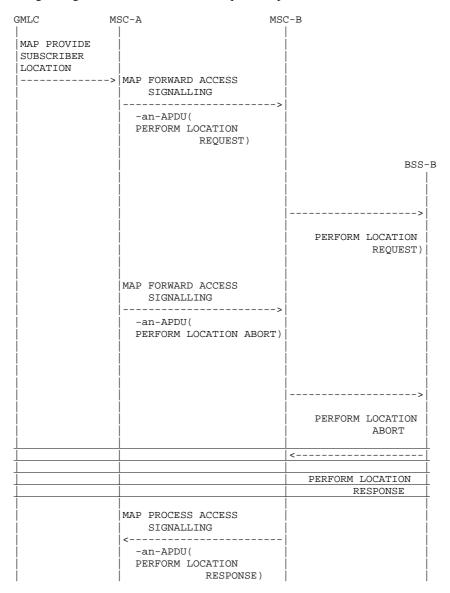


Figure 66a: Signalling for an aborted Location Acquisition procedure

After the inter-MSC handover, the MSC-B can perform intra-MSC GSM to UMTS handover. A positioning request that needs to be aborted by the anchor MSC after completion of the intra-MSC GSM to UMTS handover is handled as in ease offor Inter-MSC Handover GSM to UMTS (see section 4.9.3.2).

## 4.9.3.2 Inter-MSC Handover (GSM to UMTS)

When for any reason the on going location acquisition procedure needs to be aborted, the anchor MSC sends the BSSMAP message Perform Location Abort over the E-interface.

Figure 66b shows the signalling for an aborted Location Acquisition procedure.

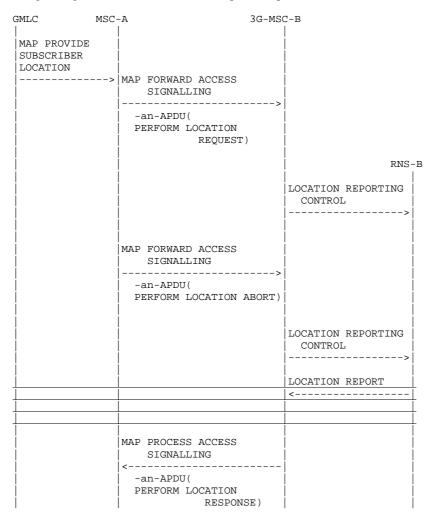


Figure 66b: Signalling for an aborted Location Acquisition procedure

The interworking between the BSSMAP location aquisition messages in MAP and the RANAP location reporting messages is as follows:

	29.002	25.413	Notes
Forward message	MAP FORWARD ACCESS SIG. request -an-APDU( PERFORM LOCATION ABORT)	LOCATION REPORTING CONTROL	†       
	BSSMAP information elements:	RANAP information elements:	
	LCS Cause	Request Type >Event = Stop <u>Direct</u> >Report Area = Geo. Coord.	
Result	MAP PROCESS ACCESS SIG. request -an-APDU( PERFORM LOCATION RESPON		+     1   1
	BSSMAP information	RANAP information	Ĺ
	elements:	elements:	Ļ
	LCS Cause	Cause	ļ
	LCS Cause		† † +
			İ

NOTE 1: PERFORM LOCATION RESPONSE with LCS cause shall be generated by 3G-MSC-B.

After the inter-MSC GSM to UMTS handover, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. A positioning request that needs to be aborted by the anchor MSC after completion of the intra-MSC UMTS to GSM handover is handled as in case offor Inter-MSC Handover GSM to GSM (see section 4.9.3.1).

## 4.9.3.3 Inter-MSC Handover (UMTS to GSM)

When for any reason the on going location acquisition procedure needs to be aborted, the anchor 3G-MSC sends the BSSMAP message Perform Location Abort over the E-interface.

Figure 66b-66c shows the signalling for an aborted Location Acquisition procedure.

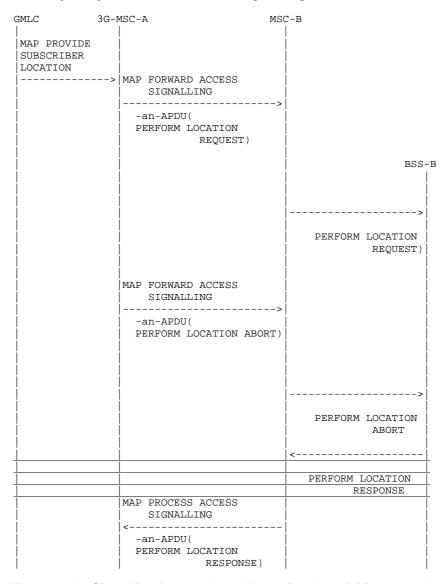


Figure 66cb: Signalling for an aborted Location Acquisition procedure

After the inter-MSC UMTS to GSM handover, the 3G MSC-B can perform intra-MSC GSM to UMTS handover. A positioning request that needs to be aborted by the anchor 3G MSC after completion of the intra-MSC GSM to UMTS handover is handled as in case offor Inter-MSC Handover GSM to UMTS (see section 4.9.3.2)..

#### 4.9.3.4 Inter-MSC SRNS Relocation

When for any reason the on going location acquisition procedure needs to be aborted, the anchor 3G-MSC sends the RANAP message Location Reporting Control over the E-interface.

Figure 66de shows the signalling for an aborted Location Acquisition procedure.

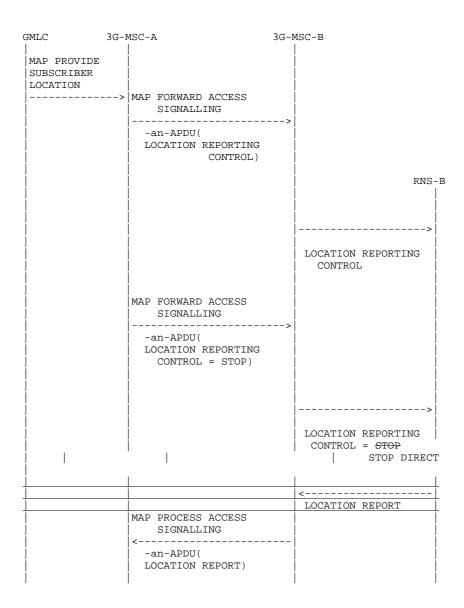


Figure 66ed: Signalling for an aborted Location Acquisition procedure

After the inter-MSC SRNS Relocation, the 3G MSC-B can perform intra-MSC UMTS to GSM handover. A positioning request that needs to be aborted by the anchor 3G MSC after completion of the intra-MSC UMTS to GSM requires that at the non anchor 3G MSC the received RANAP messages are mapped into the corresponding BSSMAP messages to be sent to the BSS, and the received BSSMAP messages are mapped into the corresponding RANAP messages to be sent over the E-interface to the anchor 3G-MSC.

The signalling for a completed Location Acquisition procedure is shown in figures 65e.

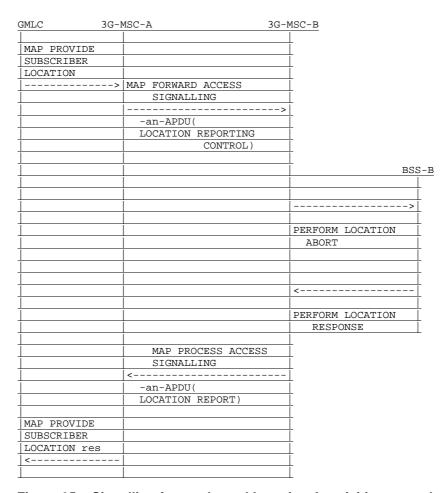


Figure 65e: Signalling for an aborted Location Acquisition procedure

the interworking between the RANAP messages encapsulated in MAP and the BSSMAP messages is as follows:

	29.002	08.08	Notes		
			-+		
Forward	MAP FORWARD ACCESS SI	G. PERFORM LOCATION			
message	request	ABORT			
	-an-APDU(		‡		
	LOCATION REPORTING CONTROL)				
	RANAP information	BSSMAP information			
	elements:	elements:	+		
	Request Type	LCS Cause	士		
	>Event = Stop Dire	ct > Location request			
	>Report Area =	aborted			
	Geo. Coord.		+		
Result	MAP PROCESS ACCESS SI		4		
	request -an-APDU(	RESPONSE	+		
	LOCATION REPORT)		<b>†</b>		
	RANAP information	BSSMAP information	+		
	elements:	elements:			
	Cause	LCS Cause	$\pm$		
	>Unspecified	> Location request			
	Failure	aborted			

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