Source: **TSG SA WG2**
Title: **CRs on 23.195 (Early UE handling)**
Agenda Item: **7.2.3**

The following Change Requests (CRs) have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #23.
Note: the source of all these CRs is now S2, even if the name of the originating company(ies) is still reflected on the cover page of all the attached CRs.

S2 doc #	Title	Spec	CR #	cat	Version in	REL	WI	S2 meeting	Clauses affected
S2-041008	Removal of text passages with unclear status	23.195	**008r2**	F	5.2.0	5	LATE_UE	S2 #38	1, 4.4, 5.2.1.2, 5.2.7, 5.2.9, 5.2.10, 5.2.11, 5.2.12, 5.2.13, 5.2.14, A.6, A.8
S2-040843	Alignment of text with figure	23.195	**010**	F	5.2.0	5	LATE_UE	S2 #38	5.2.5

3GPP TSG-SA2 Meeting #38
Atlanta, USA, 16th – 20th February 2004

Tdoc ⌘S2-041008

CR-Form-v7

CHANGE REQUEST

⌘ **23.195** **CR** 008 ⌘ **rev** **2** ⌘ Current version: **5.2.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☒

Title:	⌘	Removal of text passages with unclear status
Source:	⌘	SA2 (Siemens)
Work item code:	⌘	Late UE
Date:	⌘	20/2/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The TS still contains text that is marked (yellow) as dependent on future GERAN decisions. TSG GERAN has studied the A interface functionality for Early UE handling and a technically complete solution has been derived. TSG GERAN therefore would like to ask TSG SA2 to update the paragraphs in TS 23.195 that are marked pending on TSG GERAN's decision.
Summary of change:	⌘	Removal of text passages of unclear status
Consequences if not approved:	⌘	Ambiguities for stage 3 and implementations.

Clauses affected:	⌘	1, 4.4, 5.2.1.2, 5.2.7, 5.2.9, 5.2.10, 5.2.11, 5.2.12, 5.2.13, 5.2.14, A.6, A.8

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	TS 29.002
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

1 Scope

The present document defines the stage-2 description of the mechanism to provide the 3GPP network entities with UE Specific Behaviour Information (UESBI). UESBI may be used by correcting mechanisms to overcome some of the issues that have been recognized by 3GPP in TR 25.994 (Measures employed by the UMTS Radio Access Network (UTRAN) to overcome early User Equipment (UE) implementation faults) [13], and other such documents. The description of these correcting mechanisms is out of the scope of this TS.

ITU-T Recommendation I.130 [1] describes a three-stage method for characterisation of telecommunication services, and ITU-T Recommendation Q.65 [2] defines stage 2 of the method.

~~Editor's note: some text within this TS is dependent on future GERAN decisions, as described below:~~

~~Text with this colour background (yellow?) in this TS is dependent upon a GERAN decision on whether the transfer of UESBI-Iu is applicable on the A interface.~~

4.4 UESBI-Iu on A interface

With GERAN, usage of UESBI is ~~currently~~ aimed to only solve issues related to CS domain GERAN to UTRAN handover. To smooth rollout of features, a Handover Reject cause is defined to provide minimal functionality (see clause 5.1.4.2).

~~[Whether transfer of the UESBI-Iu to the BSS is needed to permit more sophisticated functionality is not certain. Signalling flows in this TS do however show how UESBI-Iu can be delivered to the GERAN BSS across the A interface.~~

~~It is anticipated that the need for the BSS to use UESBI-Iu is less than that for the RNC. Hence, the standards shall ensure that it is an implementation choice as to whether or not to transfer UESBI-Iu across the A interface.]~~

Note: Currently no study has been performed on any need to influence the GPRS Cell Change Order to UTRAN procedure.

5.2.1.2 Transfer of UESBI-Iu to RAN

~~Editor's note: A message flow diagram should be added here.~~

Because of potential UE problems with the Security procedures, the MSC/VLR shall send the UESBI-Iu information to the RNC before sending the RANAP Security Mode Command message to the RNC.

~~[If the UESBI-Iu transfer is supported on the A interface, then the MSC/VLR should send UESBI-Iu as soon as possible (eg to permit the BSS to modify its interpretation of the Measurement Reports sent by the UE).]~~

5.2.7 CS domain, transfer of UESBI-Iu to RAN

5.2.7.1 MS Initiated Iu-cs ~~[and A Interface]~~Connection Establishment Procedure

~~[This clause describes how this functionality can be made to operate on both the Iu-cs and A interfaces.]~~

~~[Note: it is an implementation choice as to whether or not to transfer UESBI-Iu across the A interface.]~~

~~[~~

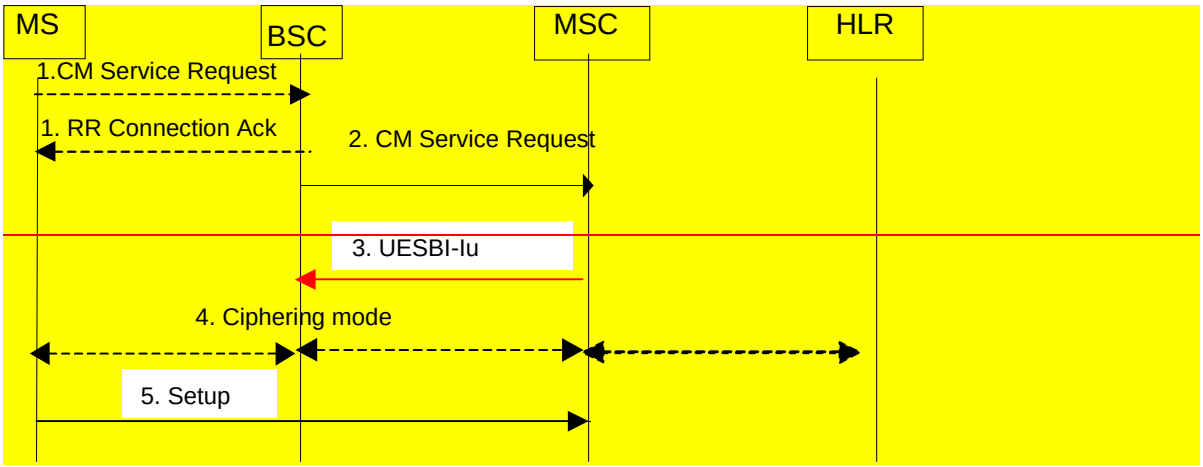

Figure 5.2.7.1-1: MS initiated call in GSM

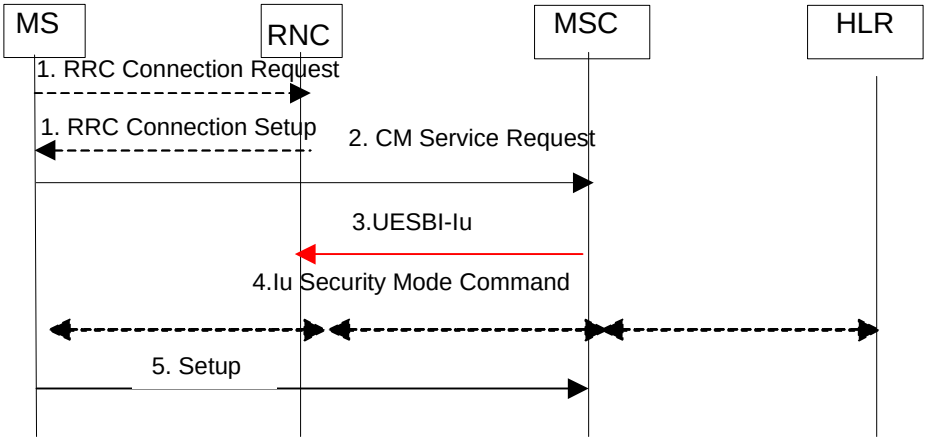

Figure 5.2.7.1-2: MS initiated call in UMTS

1) [In GSM, the UE establishes an RR connection by sending the first MM message (eg CM Service Request) to the BSS.]

   In UMTS, tThe UE establishes an RRC connection (assuming that one does not already exist for PS services).

2) [In GSM the BSS sends the first MM message to the MSC.]

   In UMTS, tThe UE sends the first MM message (eg CM Service Request) to the MSC.

3) In UMTS, tThe MSC shall send the UESBI-Iu to the RNC.

   [In GSM, if the MSC supports the transmission of the UESBI-Iu on the A interface, then the UESBI-Iu is sent to the BSS.]

   The authentication procedure (if it is to be performed) can be done before or after sending the UESBI-Iu to the [BSS/]RNC.

4) In UMTS, tThe Iu Security Mode command is performed.

   [In GSM, either the ciphering mode command is performed or a CM Service Accept message is sent to the mobile.]

   If the RNC[/BSS] does not receive the UESBI-Iu information before the RANAP Security Mode Command[/BSSMAP Cipher Mode Command],, then the RNC[/BSS] should assume that no UESBI-Iu information is available for this UE (for example, because the MSC does not support the PUESBINE Feature) (and unless the RNC has already received UESBI-Iu on an existing PS domain Iu connection).

5) The first CM layer message (eg Setup or Register) is sent by the UE to the MSC.

5.2.7.2 Network Initiated Iu-cs[and A interface] Connection Establishment

[This clause describes how this functionality can be made to operate on both the Iu-cs and A interfaces.]

[

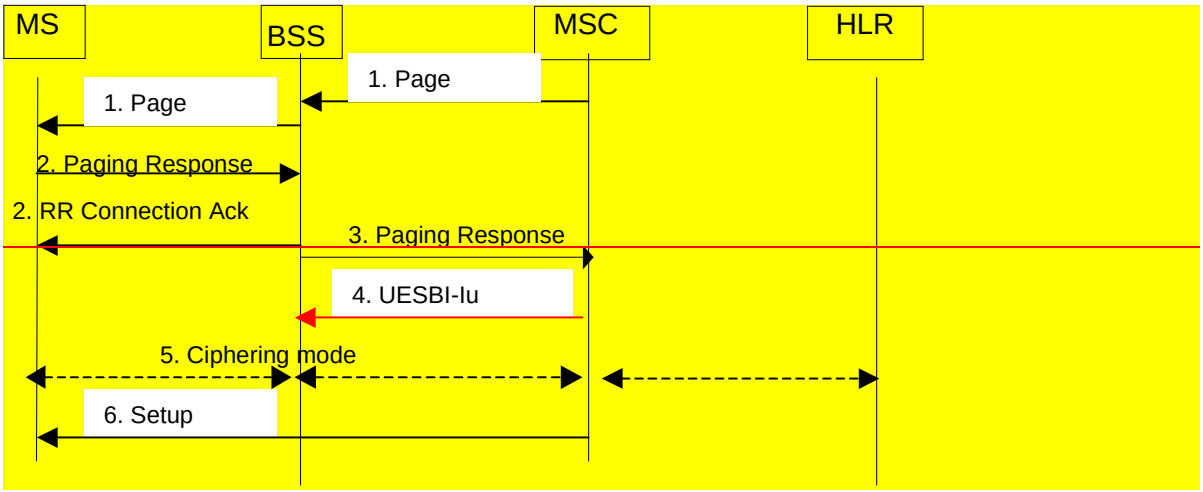

Figure 5.2.7.2-1: Network initiated A Interface connection establishment (GSM)]

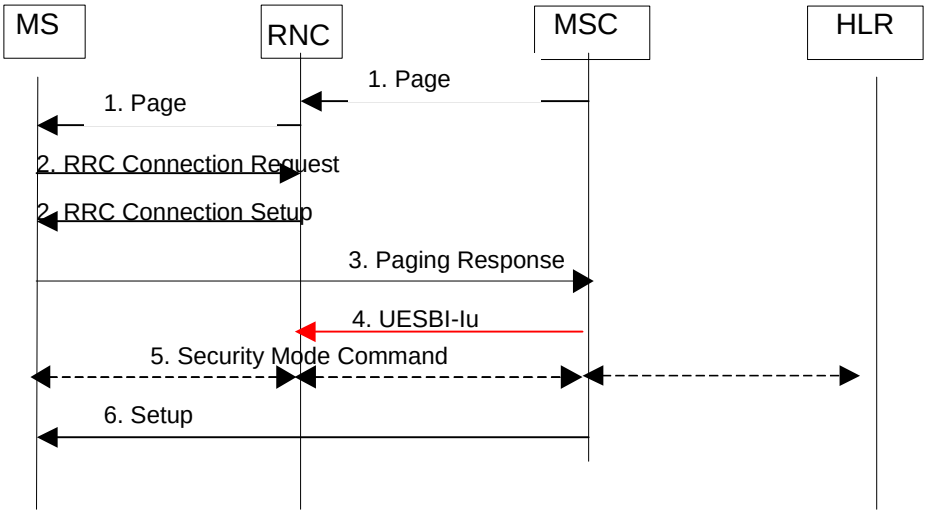

Figure 5.2.7.2-2: Network initiated Iu-cs Interface connection establishment

1) The MSC receives some stimulus that causes it to page the [BSS/]RNC. The [BSS/]RNC then pages the mobile.

2) [In GSM, the UE sends the Paging Response to the BSS and the RR connection is established.]

In UMTS, tThe UE establishes the RRC Connection (assuming that one does not already exist for PS services)

3) [In GSM, the BSS sends the Paging Response message to the MSC.]

In UMTS, tThe UE sends the Paging Response message to the MSC.

4) In UMTS, tThe MSC shall send the UESBI-Iu to the RNC.

[In GSM, if the MSC supports the PUESBINE Feature on the A interface, then the UESBI-Iu is sent to the BSS.]

The authentication procedure (if it is to be performed) can be done before or after sending the UESBI-Iu information to the ~~[BSS/]~~RNC.

5) The Iu Security mode ~~[or A interface Ciphering Mode]~~ command is performed.

If the RNC~~[/BSS]~~ does not receive the UESBI-Iu information before the RANAP Security Mode Command~~[/BSSMAP Cipher Mode Command],~~ then the RNC~~[/BSS]~~ should assume that no UESBI-Iu information is available for this UE (for example, because the MSC does not support the PUESBINE Feature) (and unless the RNC has already received UESBI-Iu on an existing PS domain Iu connection).

6) Typically the first CM layer message (eg Setup or Register) is sent by the MSC to the UE.

5.2.9 Intra- and inter-MSC handover from A/Gb mode to Iu mode

For the intra-3G_MSC A/Gb mode to Iu mode handover procedure described in 3GPP TS 23.009 [5], the UESBI-Iu shall be sent from the 3G_MSC to the target RNS in the Iu Relocation Request message.

The Basic Inter-MSC Handover A/Gb mode to Iu mode is illustrated in Figure 5.2.9-1 (copied from 3GPP TS 23.009 [5]).

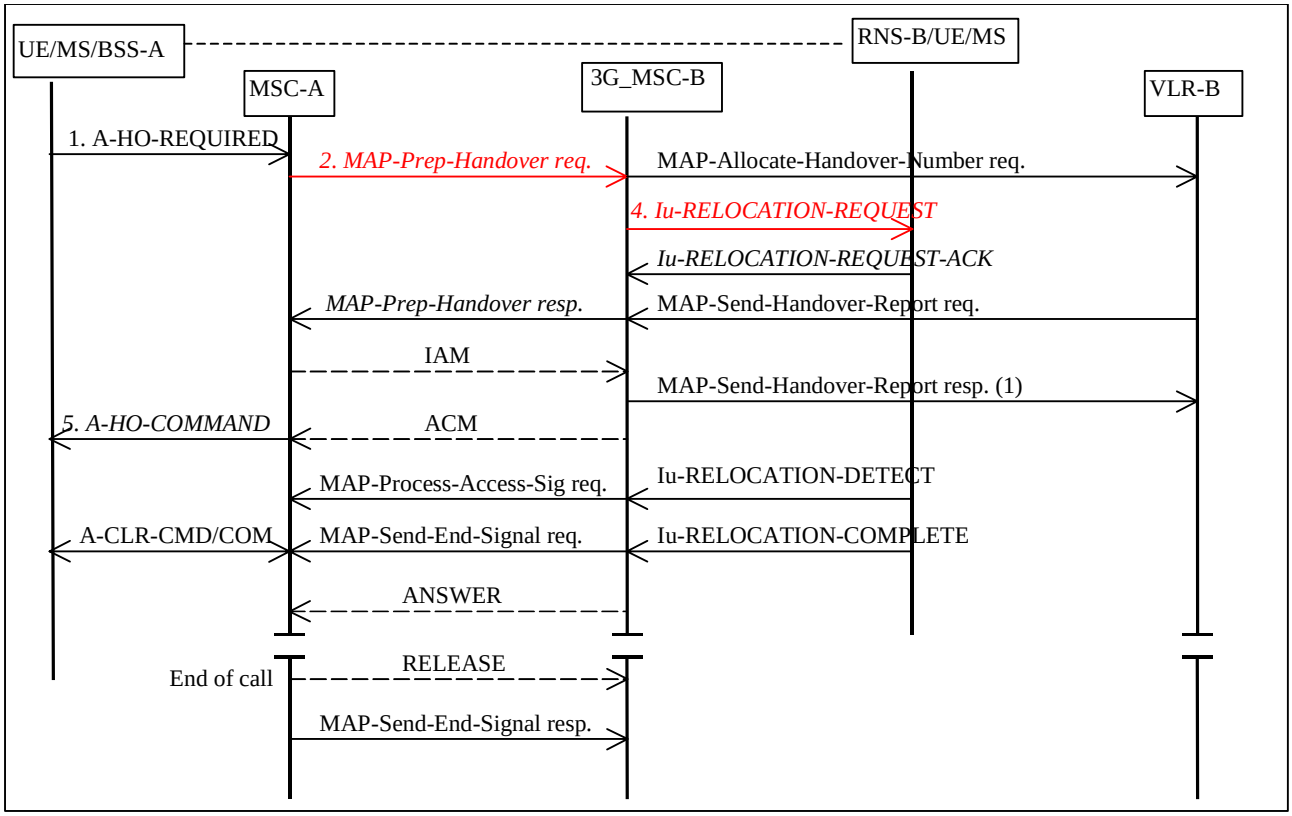

Figure 5.2.9-1 A/Gb mode to Iu mode inter-MSC handover

A/Gb mode to Iu mode handover is initiated as described in 3GPP TS 23.009 [5].

1 The UESBI-Iu is NOT sent by BSS-A to MSC-A.

2 MSC-A derives the UESBI-Iu from the IMEISV The UESBI-Iu shall be sent by MSC-A to 3G_MSC-B in the MAP_Prepare_Handover request message.

If 3G_MSC-B did not receive the UESBI-Iu (for example because MSC-A does not support the PUESBINE Feature) then 3G_MSC-B shall ignore this fact.

3 3G_MSC-B shall store the UESBI-Iu in case it is needed for a later inter RNC~~[/BSS]~~ intra MSC-B handover-.

4 3G_MSC-B shall include the UESBI-Iu in the Iu-RELOCATION-REQUEST message sent to the target RNC.

If the RNC does not receive the UESBI-Iu in the Iu-RELOCATION REQUEST message (eg because either MSC-A or MSC-B does not support the PUESBINE Feature) then the RNC shall not reject the Iu-RELOCATION REQUEST because the UESBI-Iu is missing.

The rest of the steps are as described in 3GPP TS 23.009 [5].

For subsequent Inter-MSC handover, MSC-A shall transfer the UESBI-Iu to MSC-B'.

5.2.10 Inter-MSC handover GSM to GSM in A/Gb-mode

In the Basic inter-MSC handover procedure (GSM to GSM) described in 3GPP TS 23.009 [5], UESBI-Iu shall be transferred from MSC-A to MSC-B. One reason for this is because UESBI-Iu may be needed in the case that there is a later handover from A/Gb mode to Iu mode under MSC-B.

The Inter-MSC Handover GSM to GSM is illustrated in Figure 5.2.10-1 (copied from 3GPP TS 23.009 [5]).

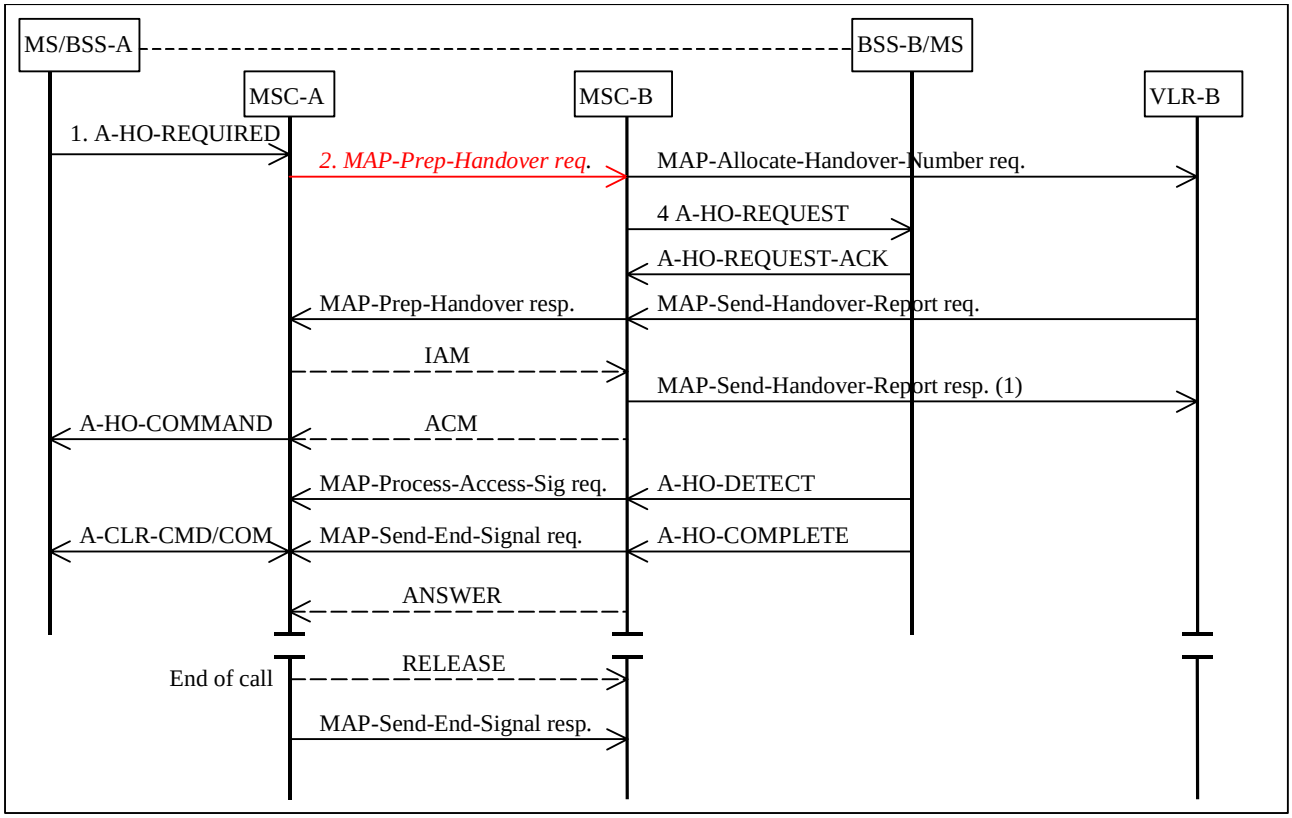

Figure 5.2.10-1. GSM to GSM inter-MSC handover

Inter-MSC GSM to GSM handover is initiated as described in 3GPP TS 23.009 [5].

1 The UESBI-Iu is NOT sent by BSS-A to MSC-A.

2 MSC-A derives the UESBI-Iu from the IMEISV. The UESBI-Iu shall be sent by MSC-A to MSC-B in the MAP_Prepare_Handover request message.

If MSC-B did not receive the UESBI-Iu (for example because MSC-A does not support the PUESBINE Feature) then MSC-B shall ignore this fact.

3 MSC-B shall store the UESBI-Iu in case it is needed for a later A/Gb mode to Iu mode intra MSC-B handover.

~~[4 If MSC-A supports the transfer of UESBI-Iu on the A interface, then the UESBI-Iu shall be sent to the BSS in the Handover Request message.]~~

The rest of the steps are as described in 3GPP TS 23.009 [5].

For Subsequent Inter-MSC handover, MSC-A shall transfer the UESBI-Iu to MSC-B'.

5.2.11 Inter-MSC handover Iu mode to A/Gb-mode

In the Basic inter-MSC handover procedure (Iu mode to A/Gb mode) described in 3GPP TS 23.009 [5], UESBI-Iu shall be transferred from MSC-A to MSC-B. This is because UESBI-Iu may be needed in the case that there is a later handover from A/Gb mode to Iu mode under MSC-B.

The Inter-MSC Handover Iu mode to A/Gb mode is illustrated in Figure 5.2.11-1 (copied from 3GPP TS 23.009 [5]).

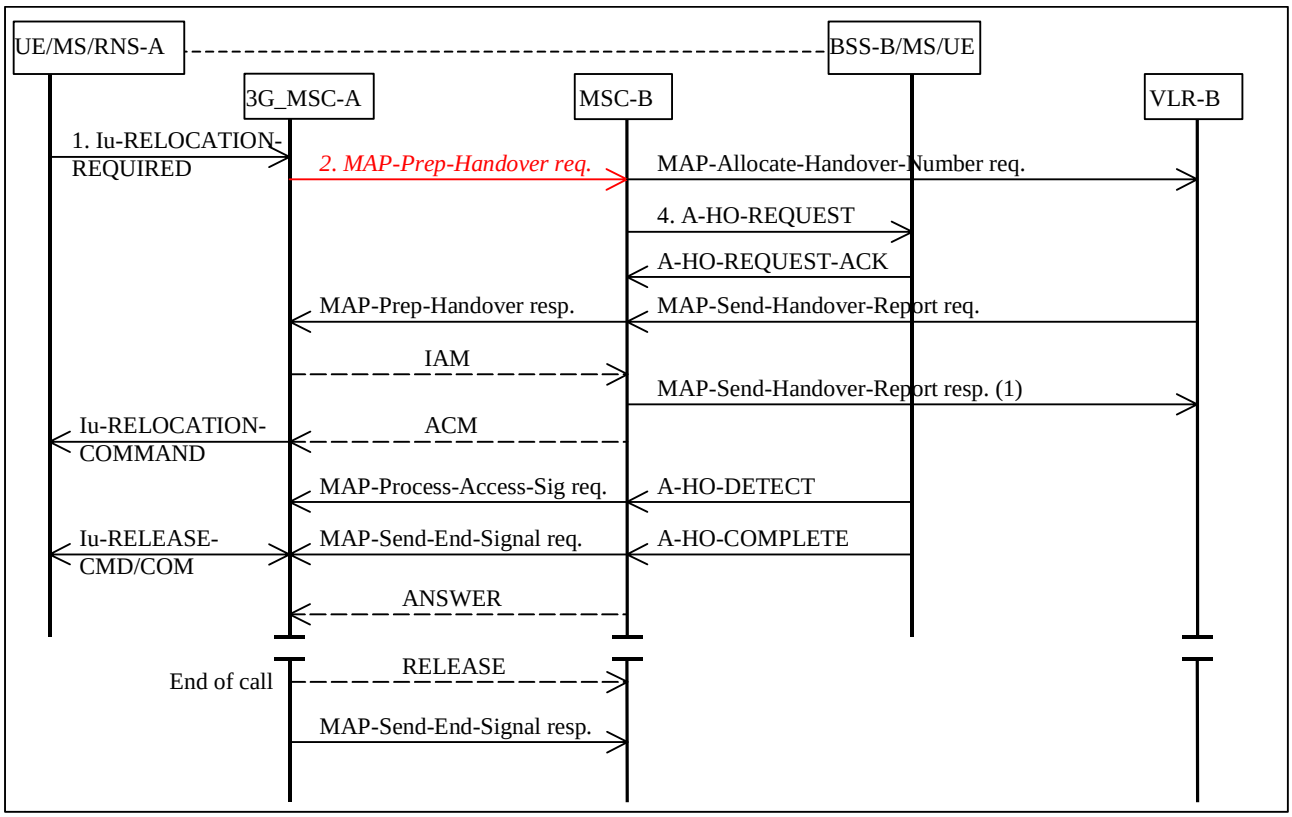

Figure 5.2.11-1 Iu mode to A/Gb mode inter-MSC handover

Iu mode to A/Gb mode handover is initiated as described in 3GPP TS 23.009 [5].

1 The UESBI-Iu is NOT sent by RNS-A to 3G_MSC-A.

2 3G_MSC-A derives the UESBI-Iu from the IMEISV. The UESBI-Iu shall be sent by 3G_MSC-A to MSC-B in the MAP_Prepare_Handover request message.

If MSC-B did not receive the UESBI-Iu (for example because 3G_MSC-A does not support the PUESBINE Feature) then MSC-B shall ignore this fact.

3 MSC-B shall store the UESBI-Iu in case it is needed for a later A/Gb mode to Iu mode intra MSC-B handover.

~~[4 If 3G_MSC-A supports the transfer of UESBI-Iu on the A interface, then the UESBI-Iu shall be sent to the BSS in the Handover Request message.]~~

The rest of the steps are as described in 3GPP TS 23.009 [5].

For Subsequent Inter-MSC handover, MSC-A shall transfer the UESBI-Iu to MSC-B'.

5.2.12 Intra- and inter-MSC SRNS relocation

For the intra-3G_MSC SRNS relocation procedure described in 3GPP TS 23.009 [5], the 3G_MSC-B shall send the UESBI-Iu to the target RNS in the Iu Relocation Request message.

The Inter-MSC SRNS relocation procedure is illustrated in Figure 5.2.12-1 (copied from 3GPP TS 23.009) [5].

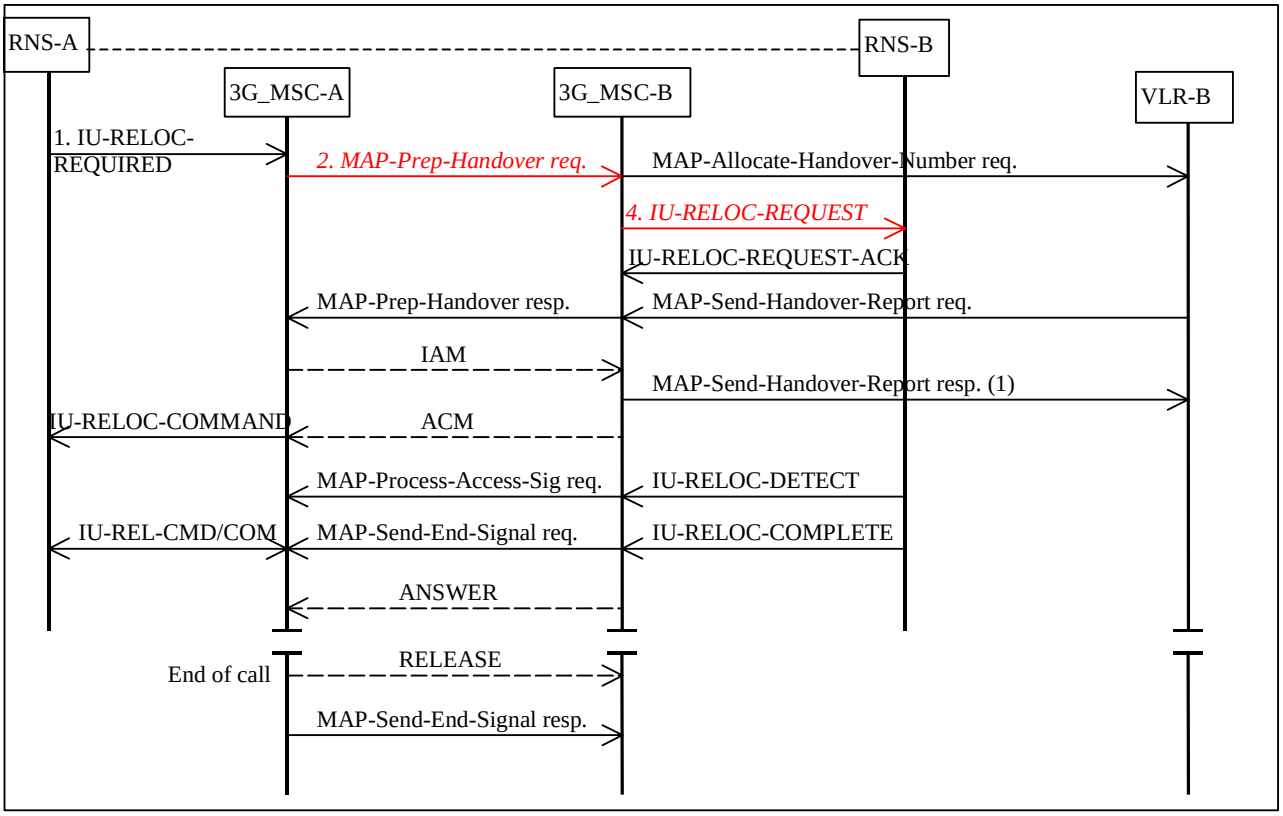

Figure 5.2.12-1. Inter-MSC SRNS relocation

Inter-MSC SRNS relocation is initiated as described in 3GPP TS 23.009 [5].

1 The UESBI-Iu is NOT sent by RNS-A to 3G_MSC-A.

2 3G_MSC-A derives the UESBI-Iu from the IMEISV. The UESBI-Iu shall be sent by 3G_MSC-A to 3G_MSC-B in the MAP_Prepare_Handover request message.

If 3G_MSC-B did not receive the UESBI-Iu (for example because 3G_MSC-A does not support the PUESBINE Feature) then the 3G_MSC-B shall ignore this fact.

3 3G_MSC-B shall store the UESBI-Iu in case it is needed for a later inter RNC~~[/BSS]~~ intra MSC-B handover.

4 3G_MSC-B shall send the UESBI-Iu to the target RNC in the Iu-RELOCATION-REQUEST message.

If the RNC does not receive the UESBI-Iu in the Iu-RELOCATION REQUEST message (eg because either 3G_MSC-A or 3G_MSC-B does not support the PUESBINE Feature) then the RNC shall not reject the Iu-RELOCATION REQUEST because the UESBI-Iu is missing.

The rest of the steps are as described in 3GPP TS 23.009 [5].

For Subsequent Inter-MSC handover, MSC-A shall transfer the UESBI-Iu to MSC-B'.

5.2.13 Intra- and inter-SGSN SRNS relocation

For the intra SGSN SRNS relocation procedure, the SGSN shall send the UESBI-Iu to the target RNS in the Iu Relocation Request message. The Inter-SGSN SRNS relocation is illustrated in Figure 5.2.13-1 (copied from 3GPP TS 23.060 [4]).

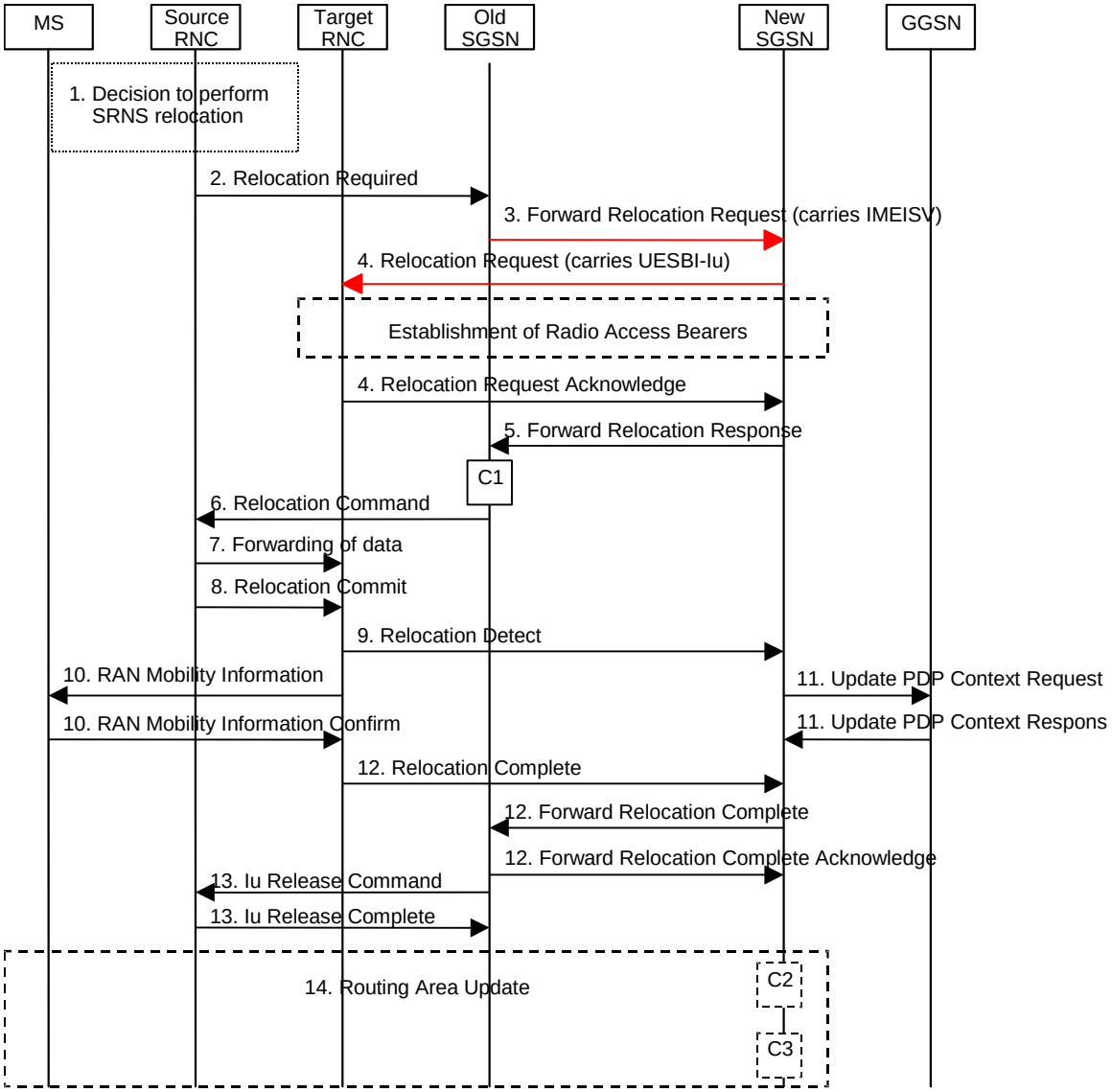

Figure 5.2.13-1. Inter-SGSN SRNS relocation

Inter-SGSN SRNS relocation is initiated as described in 3GPP TS 23.060 [4].

2 The UESBI-Iu is NOT sent by the Source RNC to the old SGSN.

3 In case of inter-SGSN SRNS relocation, the old SGSN initiates the relocation resource allocation procedure by sending a Forward Relocation Request message to the new SGSN. The old SGSN shall include the IMEISV in the Forward Relocation Request message.

If the new SGSN did not receive the IMEISV in the Forward Relocation Request message (for example because the old SGSN does not support the PUESBINE Feature), then the new SGSN shall get IMEISV from the MS during the Routing Area update procedure (step14). In this case the new SGSN shall send the UESBI-Iu to the RNC during step 14.

4 The new SGSN shall use the IMEISV to obtain the UESBI-Iu and then the new SGSN shall send the UESBI-Iu in the Relocation Request message to the target RNC.

If the target RNC did not receive the UESBI-Iu in the Relocation Request message (for example because either the old or the new SGSN does not support the PUESBINE Feature) then the RNC shall not reject the Iu-RELOCATION REQUEST because the UESBI-Iu is missing.

At point 14, Inter-SGSN Routing Area Update is performed as described in clause 5.2.4.

The rest of the steps are as described in 3GPP TS 23.060 [4].

5.2.14 Emergency call handling

5.2.14.1 Mobile with (U)SIM registered in MSC/VLR

This is handled as in clause~~clause~~ 5.2.7.1, above.

5.2.14.2 Mobile without (U)SIM, or, Mobile with (U)SIM that is not registered in MSC/VLR

The MSC/VLR shall request the IMEISV from the UE using the MM Identification procedure. Once the IMEISV has been obtained, the MSC/VLR shall send the UESBI-Iu to SRNC.~~[/BSS].~~ On the Iu interface, the UESBI-Iu shall be sent to the SRNC before the RAB Assignment Request message is sent. ~~[If the MSC/VLR supports the transfer of UESBI-Iu on the A interface, then the MSC/VLR should send UESBI-Iu as soon as possible (eg to permit the BSS to modify its interpretation of the Measurement Reports sent by the UE).]~~

A.6 Inter-MSC issues

If the anchor MSC does not pass the UESBI-Iu information to the relay MSC, then the target RNC~~[/BSS]~~ does not receive the UESBI-Iu information. This is handled as an "Iu interface issue" (see clause A.4).

MAP error handling should ensure that reception of the UESBI-Iu is ignored by a relay MSC that does not support the PUESBINE Feature.

A.8 A interface issues

With regard to the new Handover Reject Cause value, see clause ~~clause~~ A.7.

With regard to using the "old BSS to new BSS information" IE to transfer the "don't handover to UMTS flag" between BSSs, then existing A interface error handling procedures should ensure that this flag is ignored by a BSS that does not support the PUESBINE Feature.

~~[If a BSS supports the PUESBINE Feature and the UESBI-Iu is not received for, then the BSS assumes that the UE has some default capability. This default capability is BSS implementation dependent.]~~

~~[If UESBI-Iu is sent across the A interface, then existing A interface error handling procedures should ensure that the UESBI-Iu is ignored by a BSS that does not support the PUESBINE Feature.]~~

3GPP TSG SA2 #38 S2-040843

Atlanta, USA, 16-20 February 2004

CR-Form-v7

CHANGE REQUEST

⌘ 23.195 CR 010 ⌘rev ⌘ Current version: 5.2.0 ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Alignment of text with figure
Source:	⌘	SA2 (Vodafone)
Work item code:	⌘	LATE_UE
Date:	⌘	11/2/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Text in step 2 of section 5.2.5 is duplicated in step 3 (b).
Summary of change:	⌘	The duplicated text in step 2 is removed, because the figure shows that it relates to step 3b.
Consequences if not approved:	⌘	Misleading specification

Clauses affected:	⌘	5.2.5			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

5.2.5 Inter-SGSN routeing area update with Gs

The Combined RA / LA Update (inter-SGSN) procedure is illustrated in Figure 5.2.5-1 (copied from 3GPP TS 23.060 [4]).

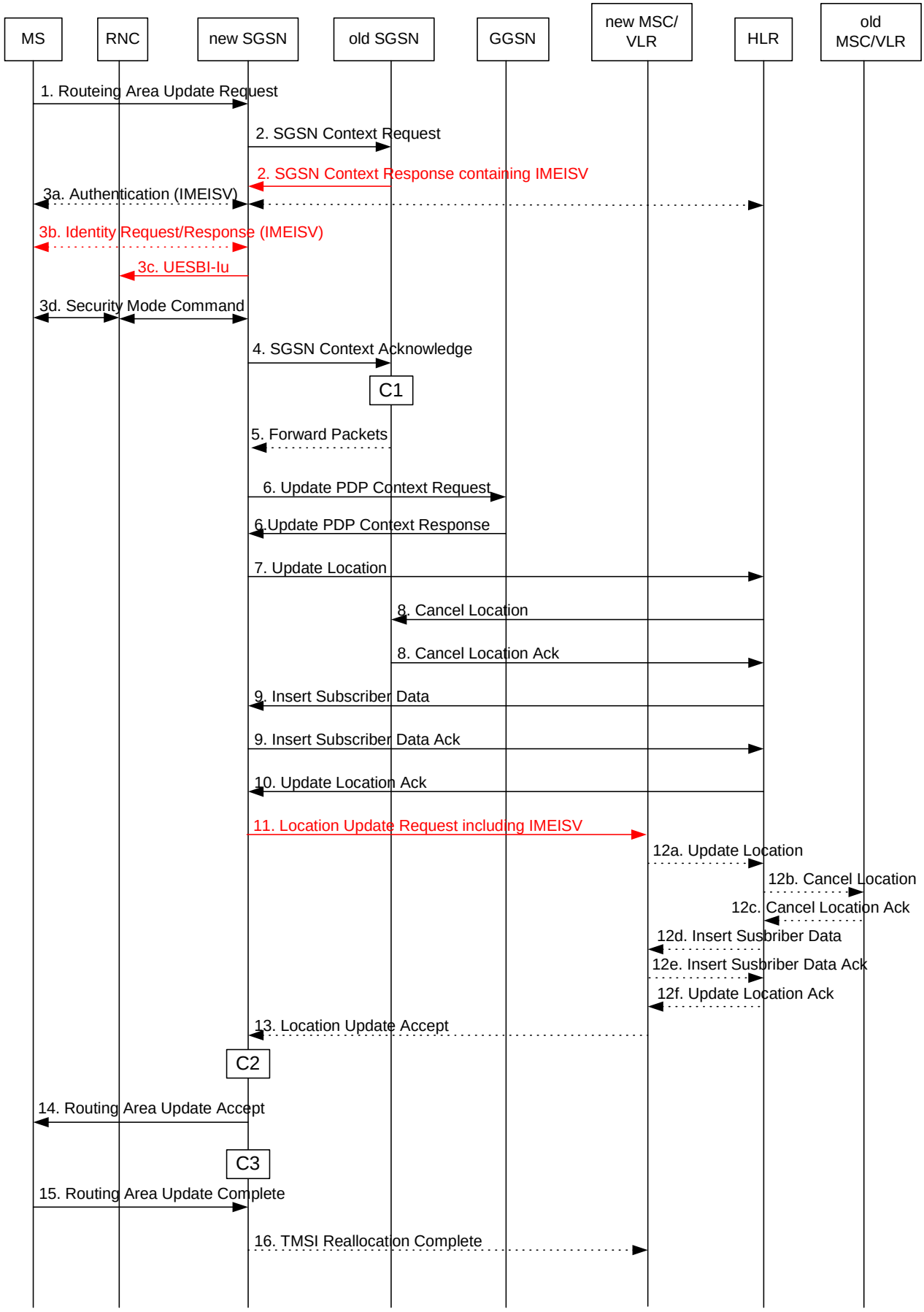

Figure 5.2.5-1: Combined RA / LA update in the case of inter-SGSN RA ppdate procedure

1) The MS sends a Routeing Area Update Request to the new SGSN (see TS 23.060 [4]).

2) The new SGSN sends SGSN Context Request to the old SGSN and the old SGSN returns the SGSN Context Response message (see TS 23.060 [4]).

   The IMEISV shall be sent by the old SGSN to the new SGSN at inter-SGSN Routeing Area Update in the SGSN Context Response message (see TS 29.060 [11]). GTPv1 is assumed to be available in both SGSNs.

   The new SGSN derives the UESBI-Iu from the IMEISV.

   ~~If the new SGSN does not receive the IMEISV from the old SGSN (eg because the old SGSN does not support the PUESBINE Feature) then the new SGSN shall use GMM signalling to obtain the IMEISV from the UE.~~

3a, b, c, d)If the new SGSN does not receive the IMEISV from the old SGSN (eg because the old SGSN does not support the PUESBINE Feature) then the new SGSN shall either use the GMM Identification procedure or the GMM Authentication and Ciphering procedure to obtain the IMEISV from the UE (see TS 24.008 [3]).

   The new SGSN shall transfer the UESBI-Iu to the RNC over the Iu interface. The order of 3a and 3c is dependent upon the implementation of the SGSN.

   The SGSN shall send the UESBI-Iu information to the RNC before sending the RANAP Security Mode Command message to the RNC.

   If the RNC does not receive the UESBI-Iu information before the RANAP Security Mode Command, then the RNC should assume that no UESBI-Iu information is available for this UE (for example, because the SGSN does not support the PUESBINE Feature) (unless, in the case of non-combined RA update, the RNC has already received UESBI-Iu from the Iu-cs interface).

4 -10) Steps 4 to 10 are as described in TS 23.060 [4].

11) The SGSN shall send the IMEISV to the MSC in the Gs interface Location Update Request message.

   If the MSC does not receive the IMEISV in Gs interface Location Update Request message (eg because the SGSN does not support the PUESBINE Feature) then the MSC shall obtain the IMEISV from the UE at the next Iu-cs or A interface connection establishment.

12-16) Steps 12 to 16 are as described in TS 23.060 [4].