3GPP TSG CN Plenary Meeting #21 **NP-030390**
17th – 19th September 2003 Frankfurt, GERMANY.

Source: TSG CN WG4

Title: Corrections on early UE

Agenda item: 8.9

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.012	013	1	N4-031005	Rel-5	Corrections to "Early UE" handling	F	5.1.0
23.018	128		N4-030845	Rel-5	Corrections to "Early UE" handling	F	5.7.0
29.002	646	1	N4-030921	Rel-5	UESBI -IU format	F	5.6.2
29.002	647	1	N4-030922	Rel-6	UESBI -IU format	A	6.2.0
29.010	091		N4-030866	Rel-5	Addition of Early UE specific cause code mapping	F	5.3.1
29.060	454		N4-031003	Rel-5	Change of Early UE feature to PUESBINE	F	5.6.0
29.060	455		N4-031004	Rel-6	Change of Early UE feature to PUESBINE	A	6.1.0

3GPP TSG CN WG4 Meeting #20 ***N4-031005***
Sophia Antipolis, FRANCE, 25th – 29th August 2003 **(Revision of N4-030844)**

CR-Form-v7

CHANGE REQUEST

⌘ **23.012** **CR** **013** ⌘**rev** **1** ⌘ Current version: **5.1.0** ⌘

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

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

Title:	⌘	Corrections to "Early UE" handling
Source:	⌘	CN4
Work item code:	⌘	Late UE
Date:	⌘	29/08/2003
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: ⌘ **This is an essential correction**
1. The translation of the IMEISV to the UESBI-Iu is done in the MSC, not in the VLR as shown in the current version of 23.012;
2. The output of the UESBI-Iu to the access network is omitted;
3. Even though the VLR will probably have the IMEISV stored at a Periodic Location Update, the translation of the IMEISV to the UESBI-Iu should be carried out, because the database of UE behaviour could have been updated.
4. There are several minor misalignments of terminology with other specifications for the "Early UE" handling changes.

Summary of change: ⌘
1. Update the processes Update_Location_Area_MSC and Update_Location_Area_VLR to show that the translation of the IMEISV to the UESBI-Iu is done in the MSC;
2. Show the output of UESBI-Iu to the access network;
3. Systematically replace "Early UE" handling with PUESBINE, and UESBI with UESBI-Iu.

Consequences if not approved: ⌘ "Early UE" handling will not operate correctly; unnecessary denial of service, and/or erratic operation.

Clauses affected: ⌘ 1.1; 1.2; 4.1.1.1; Figure 4.1.1.1 (sheet 1); 4.1.2.1; Figure 4.1.2.1 (sheet 1); 4.1.2.1A; Figure 4.1.2.1A; 4.1.2.2; 4.1.2.3; 4.1.2.4; 4.1.2.5; 4.1.2.6; 4.1.2.7; 4.1.3.1; 4.1.3.3; Figure 4.1.3.3; 4.2.1.1; 4.3.2.1; 4.4.2.1

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

Other comments:	⌘	1. 23.018 has been added to the references; notes have been added to the text to point to 23.018 for the definitions of several procedures. 2. Editorial errors in subclause headings have been corrected.

***** First modified section *****

1.1 References

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

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

[1] 3GPP TR 21.905: "3G Vocabulary".

[2] 3GPP TS 23.002: "Network architecture".

[3] 3GPP TS 23.003: "Numbering, addressing and identification".

[4] 3GPP TS 23.007: "Restoration procedures".

[5] 3GPP TS 23.008: "Organization of subscriber data".

[5a] 3GPP TS 23.018: "Basic call handling; Technical realization".

[6] 3GPP TS 23.022: "Functions related to Mobile Station (MS) in idle mode".

[7] 3GPP TS 23.116: "Super-Charger Technical Realisation; Stage 2".

[8] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[9] 3GPP TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[10] 3GPP TS 43.020: "Security related network functions".

[11] 3GPP TS 23.078: " Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 4 – stage2 "

[11a] 3GPP TS 23.195: "Provision of UE Specific Behaviour Information to Network Entities".

[12] 3GPP TS 23.236: "Intra Domain Connection of RAN Nodes to Multiple CN Nodes"

1.2 Abbreviations

Abbreviations are listed in 3GPP TR 21.905 [1].

In addition, for the purposes of the present document, the following abbreviations apply:

PUESBINE Provision of User Equipment Specific Behaviour Information to Network Entities
UESBI-Iu User Equipment Specific Behaviour Information over the Iu interface

***** Next modified section *****

4.1 Location Updating

4.1.1 Detailed procedure in the MSC

4.1.1.1 Process Update_Location_Area_MSC

Sheet 1: Location Update corresponds to a Location_Registration_Request indicating any of the following:

- Normal location update;
- Periodic location update;
- IMSI attach.

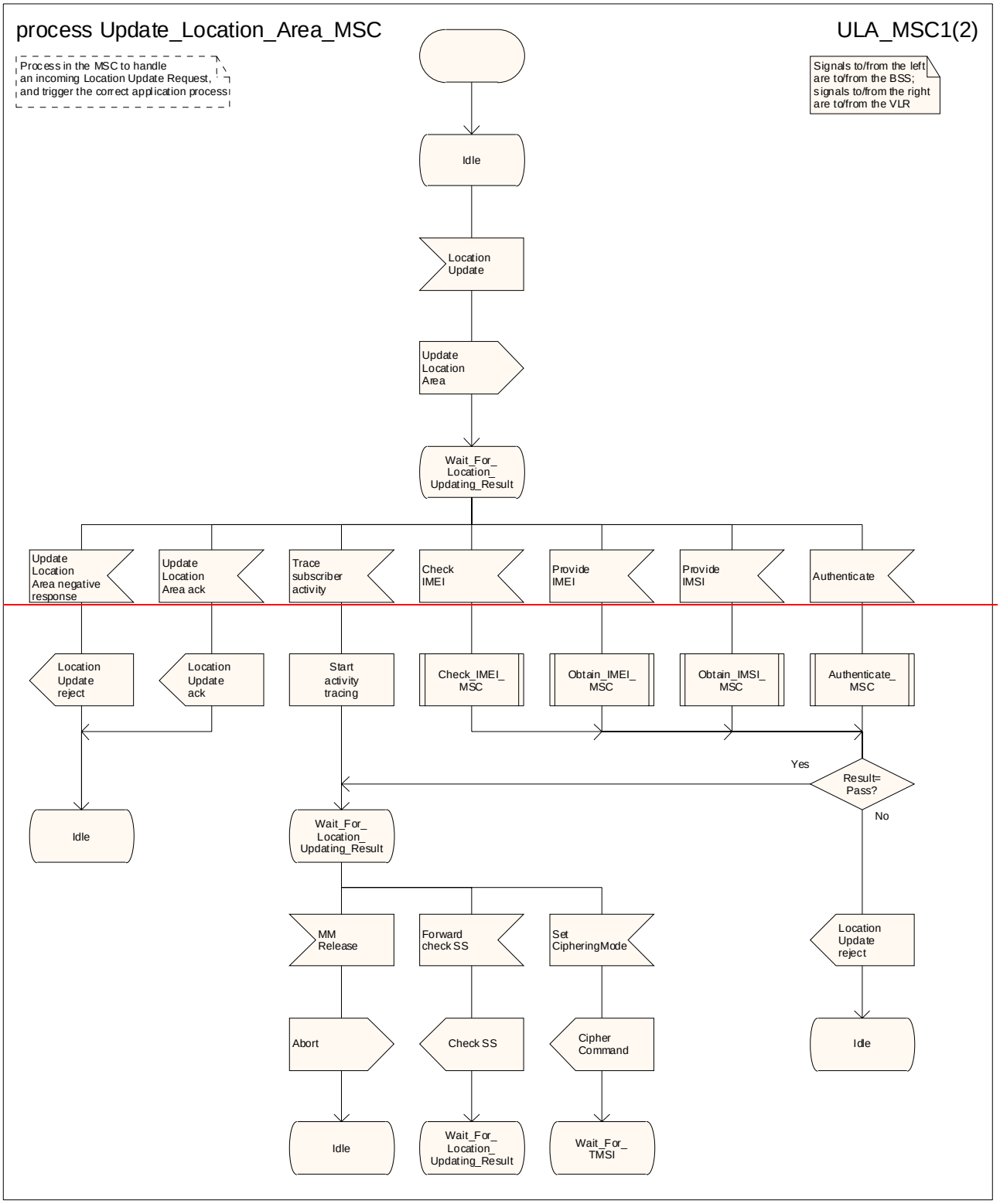
Sheet 1: The procedures Check_IMEI_MSC, Obtain_IMEI_MSC and Obtain_IMSI_MSC are specified in 3GPP TS 23.018 [5a].

Sheet 1: The input signal "Send UESBI-Iu to Access Network" carries the IMEISV.

Sheet 1: The task "Convert IMEISV to UESBI" is defined in 3GPP TS 23.195 [11a].

Sheet 2: The procedure Check_IMEI_MSC is specified in 3GPP TS 23.018 [5a].

Sheet 2: When the MSC receives a Set Ciphering Mode request from the VLR, it sends a Start ciphering request towards the MS. After that, the Forward new TMSI and Update Location Area ack may be received in any order.


process Update_Location_Area_MSC
ULA_MSC1(2)
Process in the MSC to handle an incoming Location Update Request, and trigger the correct application process
Signals to/from the left are to/from the BSS; signals to/from the right are to/from the VLR
Idle
Location Update
Update Location Area
Wait_For_ Location_ Updating_Result
Update Location Area negative response
Update Location Area ack
Trace subscriber activity
Check IMEI
Provide IMEI
Provide IMSI
Authenticate
Location Update reject
Location Update ack
Start activity tracing
Check_IMEI_ MSC
Obtain_IMEI_ MSC
Obtain_IMSI_ MSC
Authenticate_ MSC
Yes
Result= Pass?
No
Idle
Wait_For_ Location_ Updating_Result
MM Release
Forward check SS
Set CipheringMode
Location Update reject
Abort
Check SS
Cipher Command
Idle
Idle
Wait_For_ Location_ Updating_Result
Wait_For_ TMSI

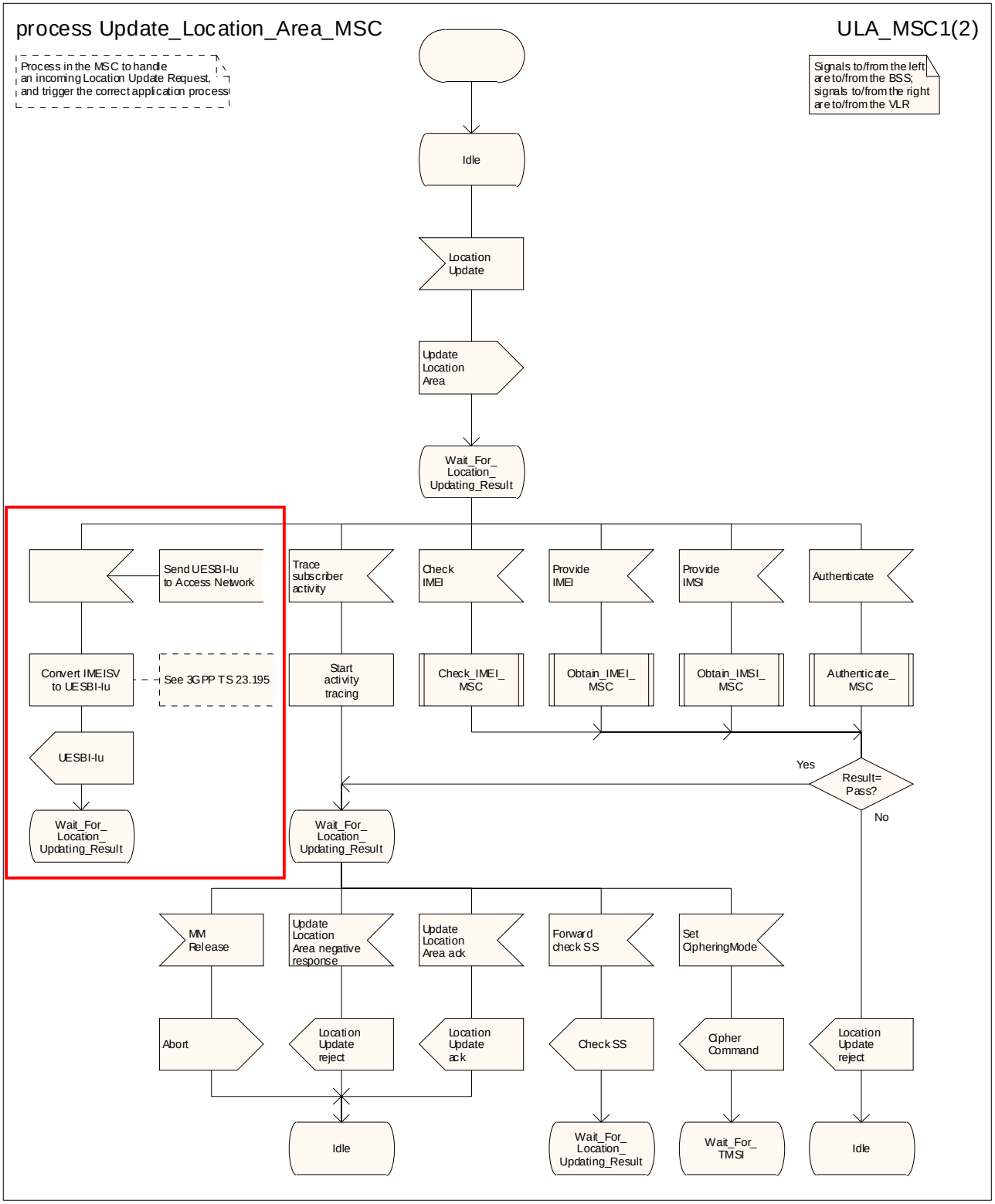


Figure 4.1.1.1 (sheet 1 of 2): Process Update_Location_Area_MSC

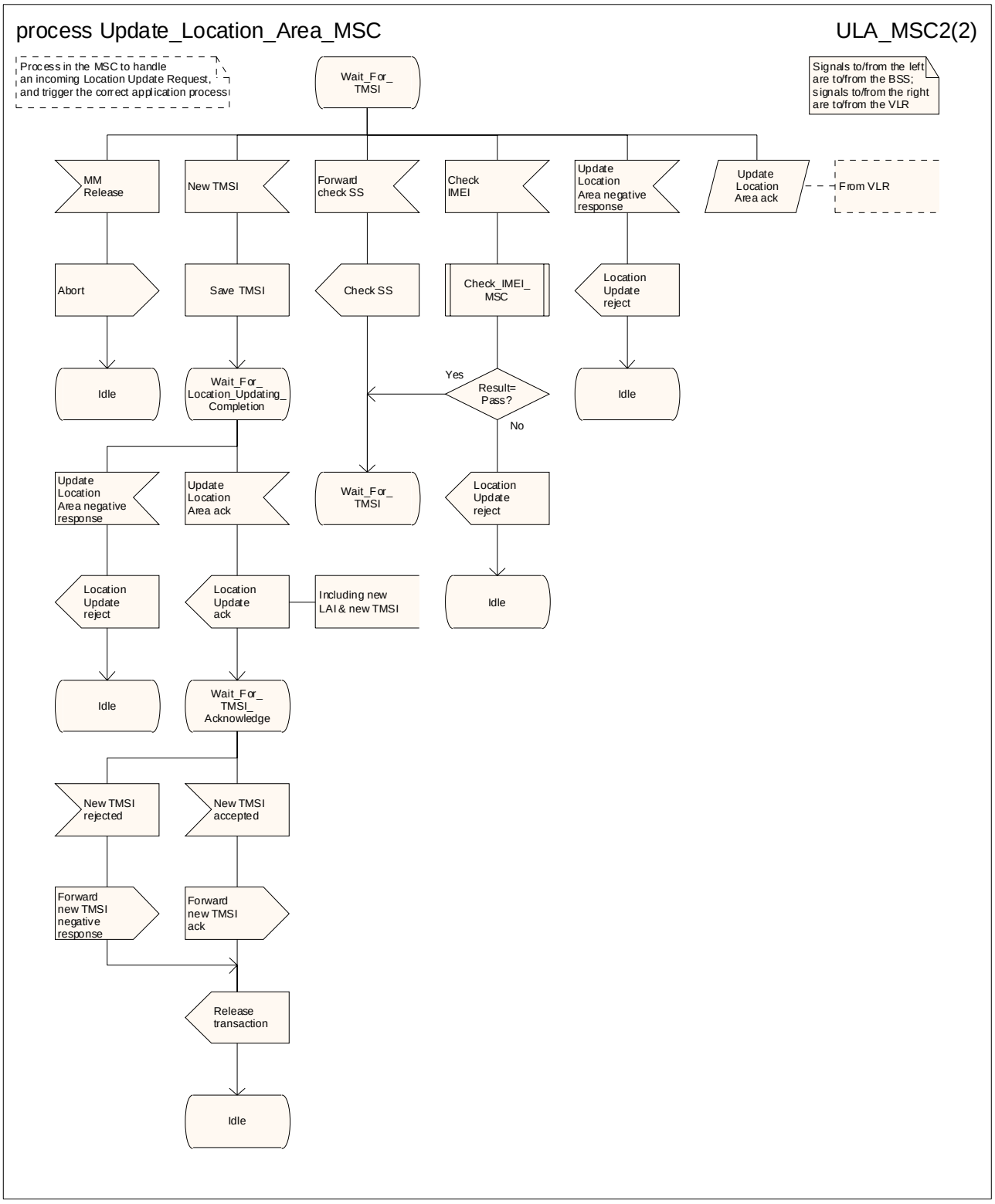


Figure 4.1.1.1 (sheet 2 of 2): Process Update_Location_Area_MSC

***** Next modified section *****

4.1.2 Detailed procedure in the VLR

4.1.2.1 Process Update_Location_Area_VLR

General comment: at any stage in the location updating process the MSC may receive an indication from the BSS that the MM transaction has been released. The MSC then sends an Abort signal to the VLR. Upon receipt of this message, the VLR shall follow one of two possible courses of action.

The two possible courses of action and the conditions determining which course shall be taken are as follows:

1. If a successfully authenticated radio connection is already established before the Abort message is received, the VLR shall ignore the message.

2. If a successfully authenticated radio connection has not been established before the Abort message is received, the VLR shall abort the Update Location Area process and return to the idle state.

Sheet 1: the location area updating process will be activated by receiving an Update Location Area indication from the MSC. If there are parameter errors in the indication, the process is terminated with the appropriate error sent in the Update Location Area response to the MSC. Else, the behaviour will depend on the subscriber identity received, either an IMSI or a TMSI.

~~Sheet 1: the procedure "Retrieve_UESBI_If_required" is specific to "Early UE" handling. If the VLR does not support "Early UE" handling, processing continues from the "Yes" exit of the test "Result=Pass?".~~

Sheet 1: the handling starting with the procedure call "Retrieve_IMEISV_If_required" and finishing with the output signal "Send UESBI-Iu to Access Network" is specific to PUESBINE. If the VLR does not support PUESBINE, processing continues with the test "Identity used?".

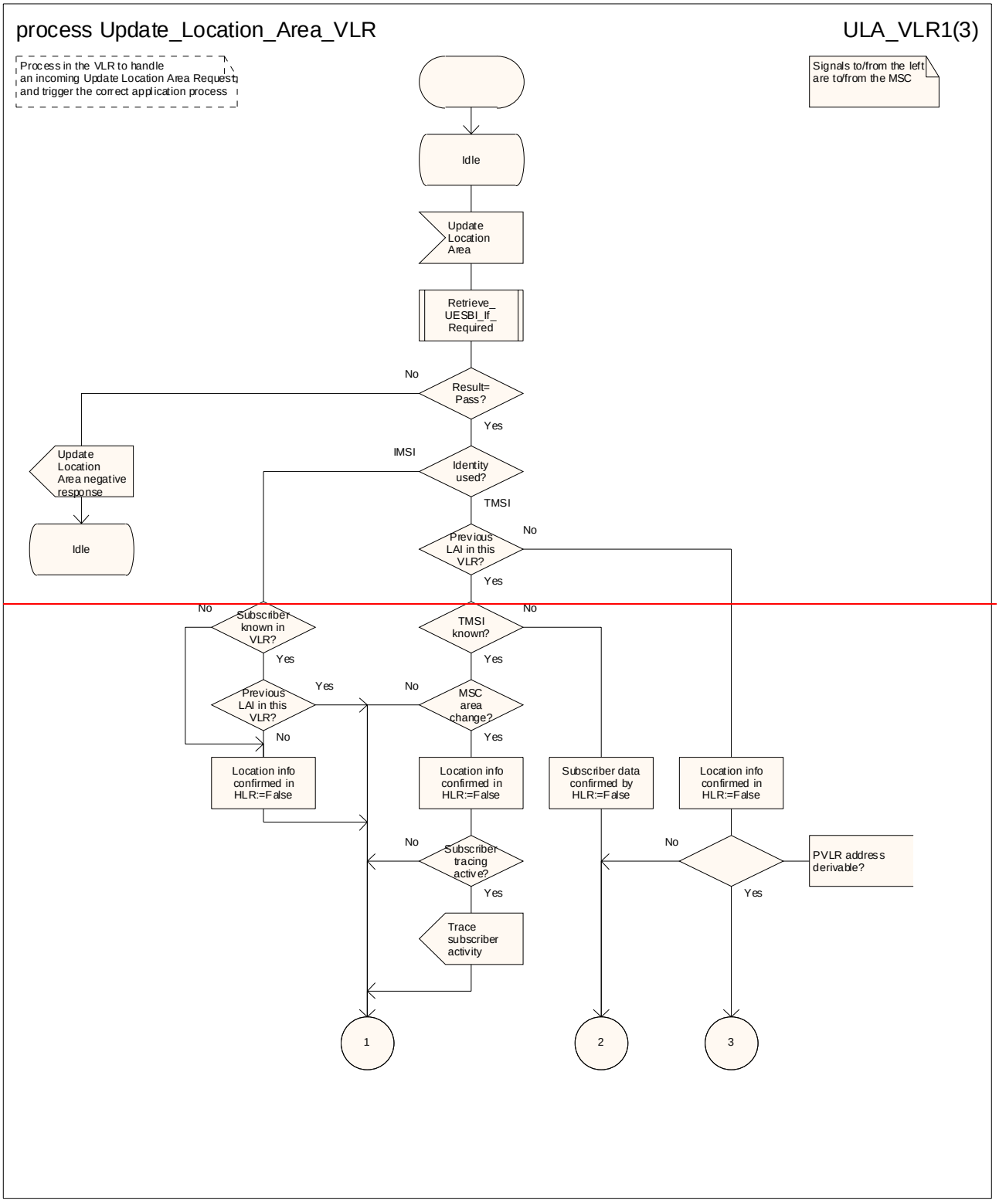
Sheet 2: at the decision "HLR updating required?" the "True" branch shall be taken if and only if one or more of the following conditions is true:

(1) Location Info Confirmed in HLR is false.

(2) Data Confirmed by HLR is false.

Sheet 3: the procedure Obtain_IMSI_VLR is specified in 3GPP TS 23.018 [5a].

The type of Location Update is retrieved in 3G TS 23.078 procedure ‘Set_Notification_Type’ and is returned into the ‘Notify’ variable; this information is necessary for the CAMEL Mobility Management event notification procedure 3G TS 23.078 ‘Notify_gsmSCF’.


process Update_Location_Area_VLR
ULA_VLR1(3)
Process in the VLR to handle an incoming Update Location Area Request and trigger the correct application process
Signals to/from the left are to/from the MSC
Idle
Update Location Area
Retrieve_ UESBI_If_ Required
No
Result= Pass?
Yes
Update Location Area negative response
Idle
IMSI
Identity used?
TMSI
No
Previous LAI in this VLR?
Yes
No
Subscriber known in VLR?
Yes
No
TMSI known?
Yes
Yes
Previous LAI in this VLR?
No
No
MSC area change?
Yes
No
Location info confirmed in HLR:=False
Location info confirmed in HLR:=False
Subscriber data confirmed by HLR:=False
Location info confirmed in HLR:=False
No
Subscriber tracing active?
Yes
No
PVLR address derivable?
Yes
Trace subscriber activity
1
2
3

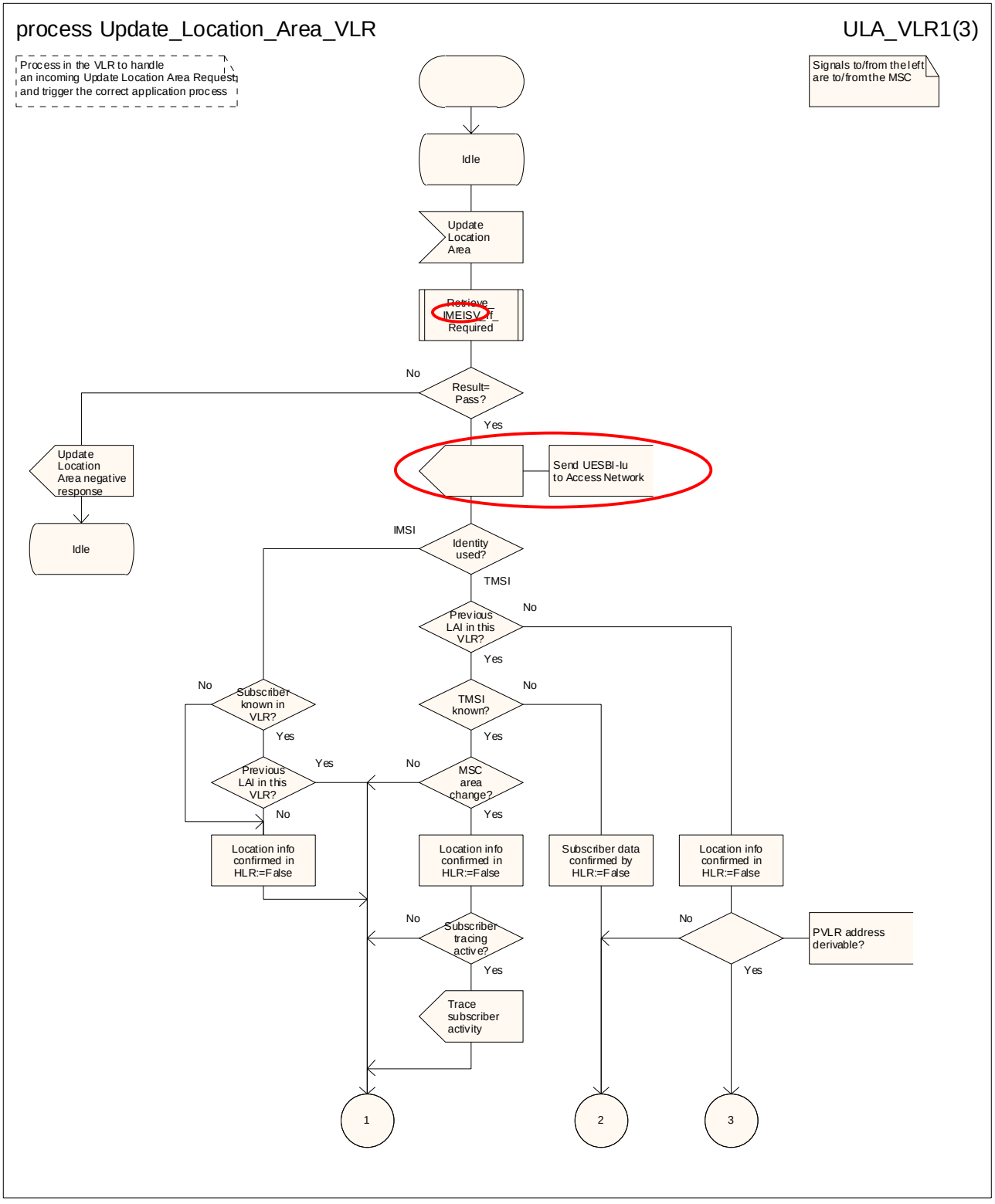


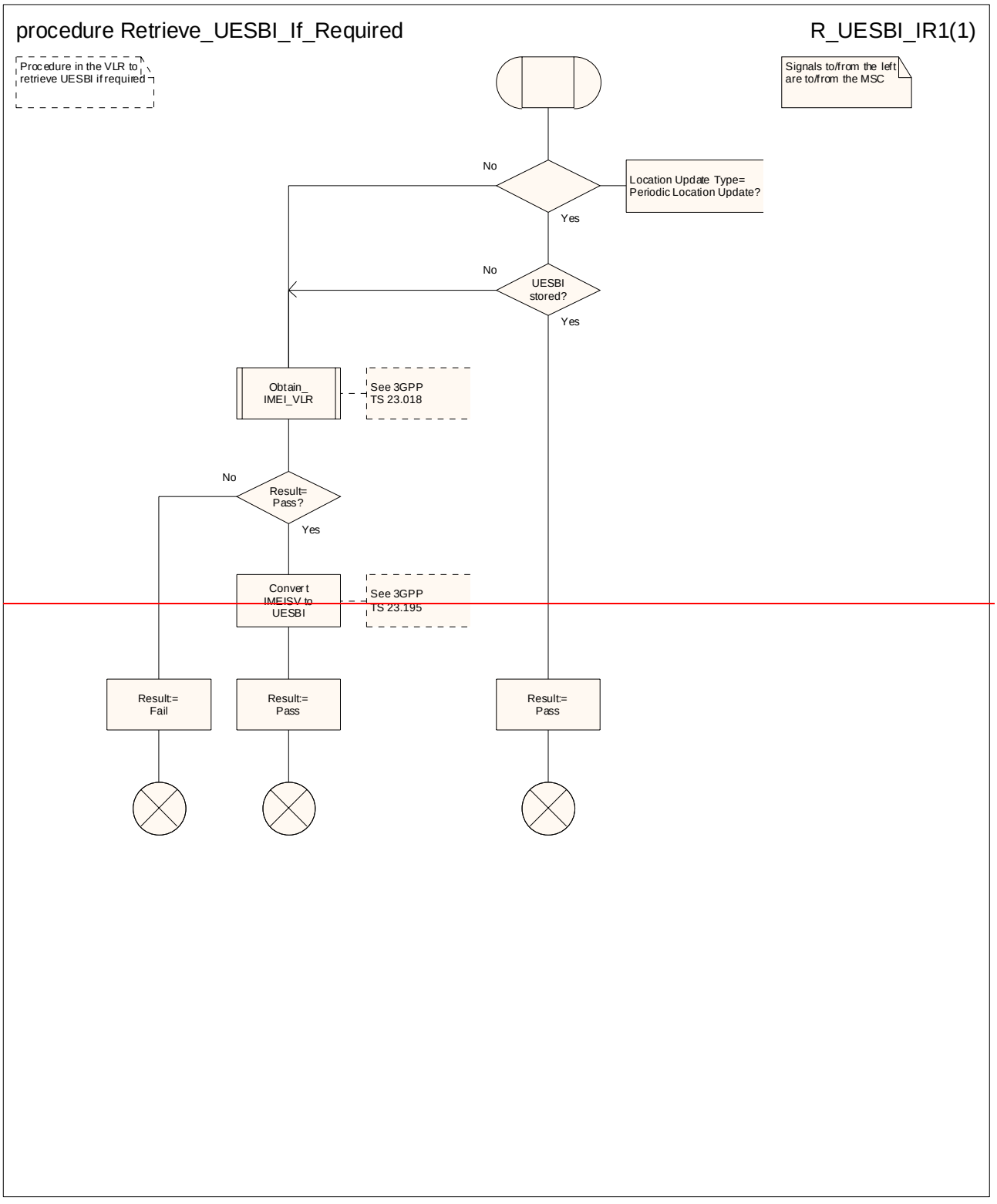
Figure 4.1.2.1 (sheet 1 of 3): Process Update_Location_Area_VLR

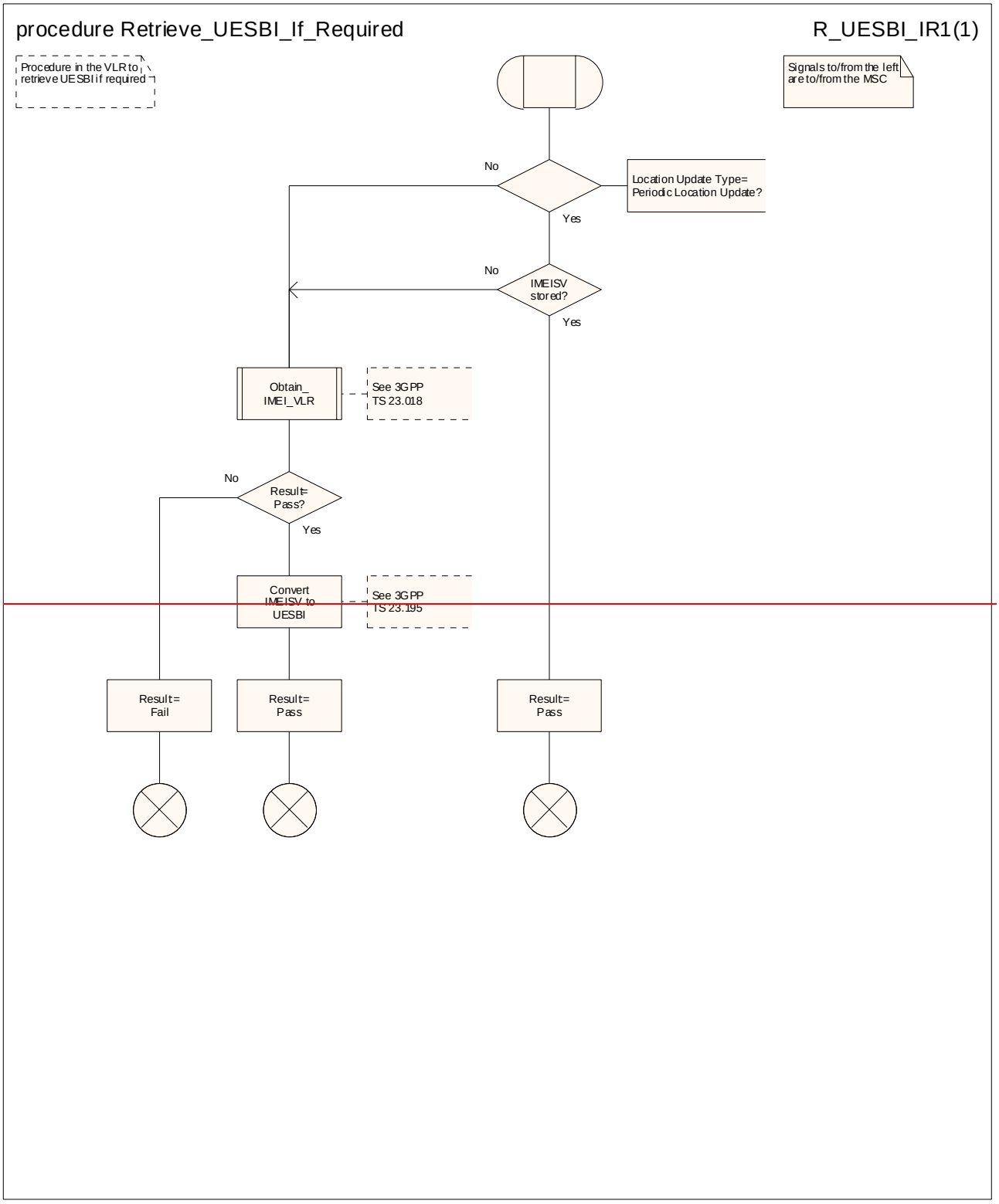
***** Next modified section *****

4.1.2.1Aa Procedure Retrieve_~~UESB~~IMEISV_If_Required

The procedure Obtain_IMEI_VLR is specified in 3GPP TS 23.018 [5a].

~~The task "Convert IMEISV to UESBI" is defined in detail in 3GPP TS 23.195 [25a].~~




procedure Retrieve_UESBI_If_Required
R_UESBI_IR1(1)
Procedure in the VLR to retrieve UESBI if required
Signals to/from the left are to/from the MSC
No
Location Update Type= Periodic Location Update?
Yes
No
IMEISV stored?
Yes
Obtain_ IMEI_VLR
See 3GPP TS 23.018
No
Result= Pass?
Yes
Convert IMEISV to UESBI
See 3GPP TS 23.195
Result= Fail
Result= Pass
Result= Pass

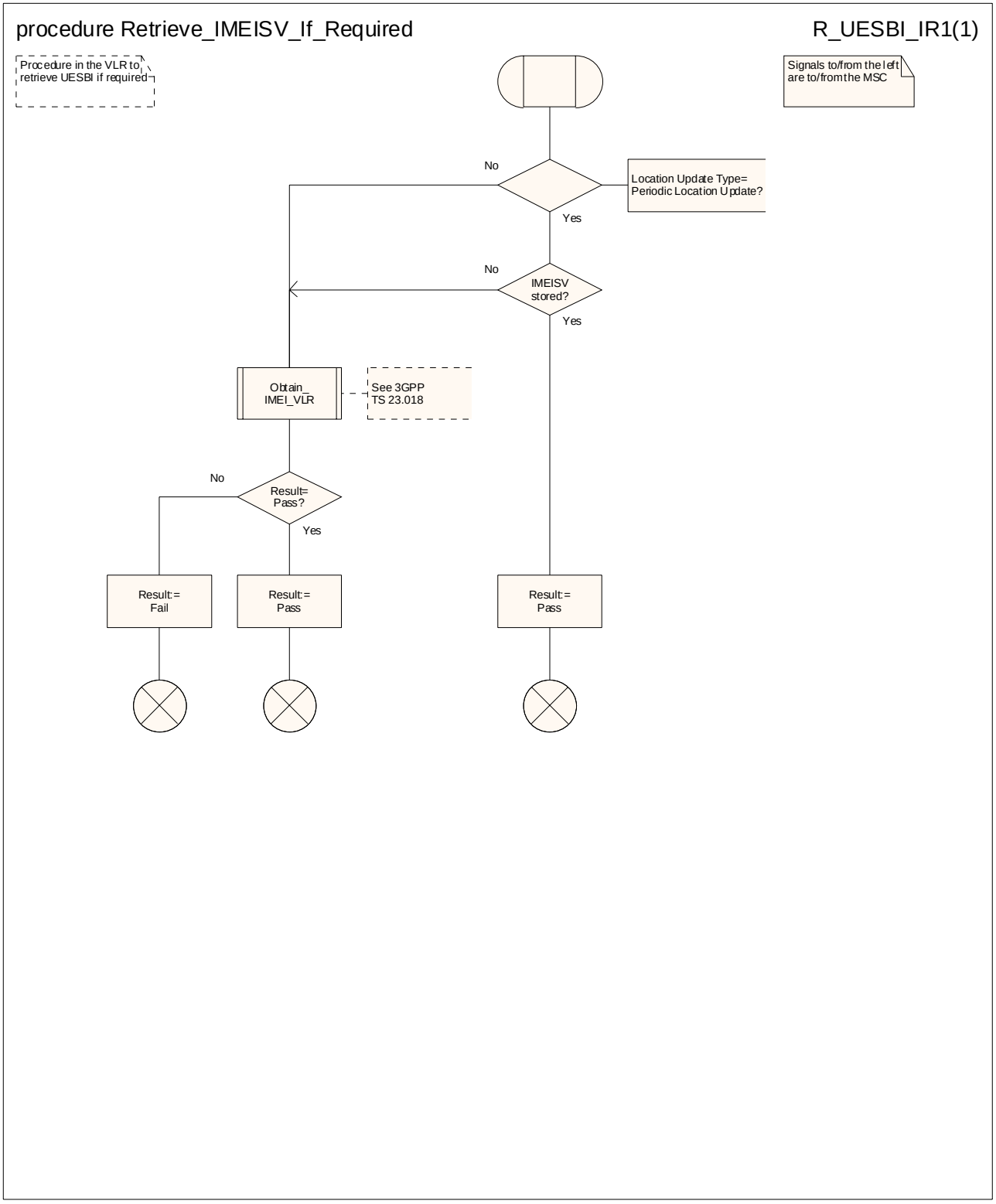


Figure 4.1.2.1Aa: Procedure Retrieve_~~UESB~~IMEISV_If_Required

4.1.2.2 Procedure Authenticate_VLR

Sheet 2: The procedure Obtain_IMSI_VLR is specified in 3GPP TS 23.018 [5a].

***** Next modified section *****

4.1.2.3 Procedure Location_Update_Completion_VLR

Sheet 1: Decision "National Roaming Restrictions Exist?" distinguishes whether or not the subscriber is allowed service in the target LA, based on the current location of the MS and the VLR's knowledge of other networks. The "Yes" branch results in the sending of "Update Location Area Negative Response" toward the MSC (and the MS), with cause "National Roaming Not Allowed." However, subscriber data shall not be deleted from the VLR. This is to avoid unnecessary HLR updating should the subscriber be allowed subsequently to roam in other LAs of the same MSC.

Sheet 1: Decision "Roaming restriction due to Unsupported Feature received in subscriber data?" distinguishes whether or not the subscriber data received from the HLR indicates "roaming restriction due to unsupported feature." The "Yes" branch results in the sending of "Update Location Area Negative Response" toward the MSC (and the MS), with cause "National Roaming Not Allowed." However, subscriber data shall not be deleted from the VLR. This is to avoid unnecessary HLR updating should the subscriber be allowed subsequently to roam in other LAs of the same MSC.

Sheet 1: Decision "Regional subscription restriction" distinguishes whether or not the subscriber is allowed service in the target LA, which the VLR deduces based on regional subscription information received from the HLR. The "Yes" branch results in the sending of "Update Location Area Negative Response" toward the MSC (and the MS), with cause "location area not allowed." However, subscriber data shall not be deleted from the VLR. This is to avoid unnecessary HLR updating should the subscriber be allowed subsequently to roam in other LAs of the same MSC.

Sheet 2: The procedure Check_IMEI_VLR is specified in 3GPP TS 23.018 [5a].

***** Next modified section *****

4.1.2.4 Procedure~~ss~~ Update_HLR_VLR

Sheet 1: The procedure Check_User_Error_In_Serving_Network_Entity is specific to Super-Charger; it is specified in 3G TS 23.116 [7].

***** Next modified section *****

4.1.2.5 Procedure~~ss~~ Insert_Subs_Data_VLR

The procedure Check_Parameters is specified in 3GPP TS 23.018 [5a].

***** Next modified section *****

4.1.2.6 Process Activate_Tracing_VLR

The procedure Check_Parameters is specified in 3GPP TS 23.018 [5a].

***** Next modified section *****

4.1.2.7 Process Send_Identification_PVLR

Sheet 1: The procedure Check_Parameters is specified in 3GPP TS 23.018 [5a].

Sheet 1: Decision "IuFlex applied?" distinguishes whether or not the PVLR applies "Intra Domain Connection of RAN Nodes to Multiple CN Nodes" as described in 3GPP TS 23.236. If this feature is applied, the VLR shall extract the NRI

from the TMSI and attempt to derive the VLR address of the VLR where the subscriber was previously registered, denoted in the following as the "real PVLR".

Sheet 1: Decision "Result = success?" distinguishes whether the NRI could be successfully converted into the "real PVLR" address. In case of successful conversion, the PVLR shall relay the received Send_Identification message to the "real PVLR" as specified in 3GPP TS 23.236. The new VLR and the "real PVLR" shall not perceive that relaying is being performed, i.e. they shall not notice the presence of the relaying node. The actual mechanism used to perform the relay is an implementation choice. A possible mechanism is described in section 4.1.2.9.

***** Next modified section *****

4.1.3 Detailed procedure in the HLR

4.1.3.1 Process Update_Location_HLR

Sheet 1: The procedure Check_Parameters is specified in 3GPP TS 23.018 [5a].

Sheet 1: The procedure Super_Charged_Cancel_Location_HLR is specific to Super-Charger; it is specified in TS 23.116 [7]. If the previous VLR and the originating HLR support the Super-Charger functionality, processing continues from the "Yes" exit of the test "Result=Pass?".

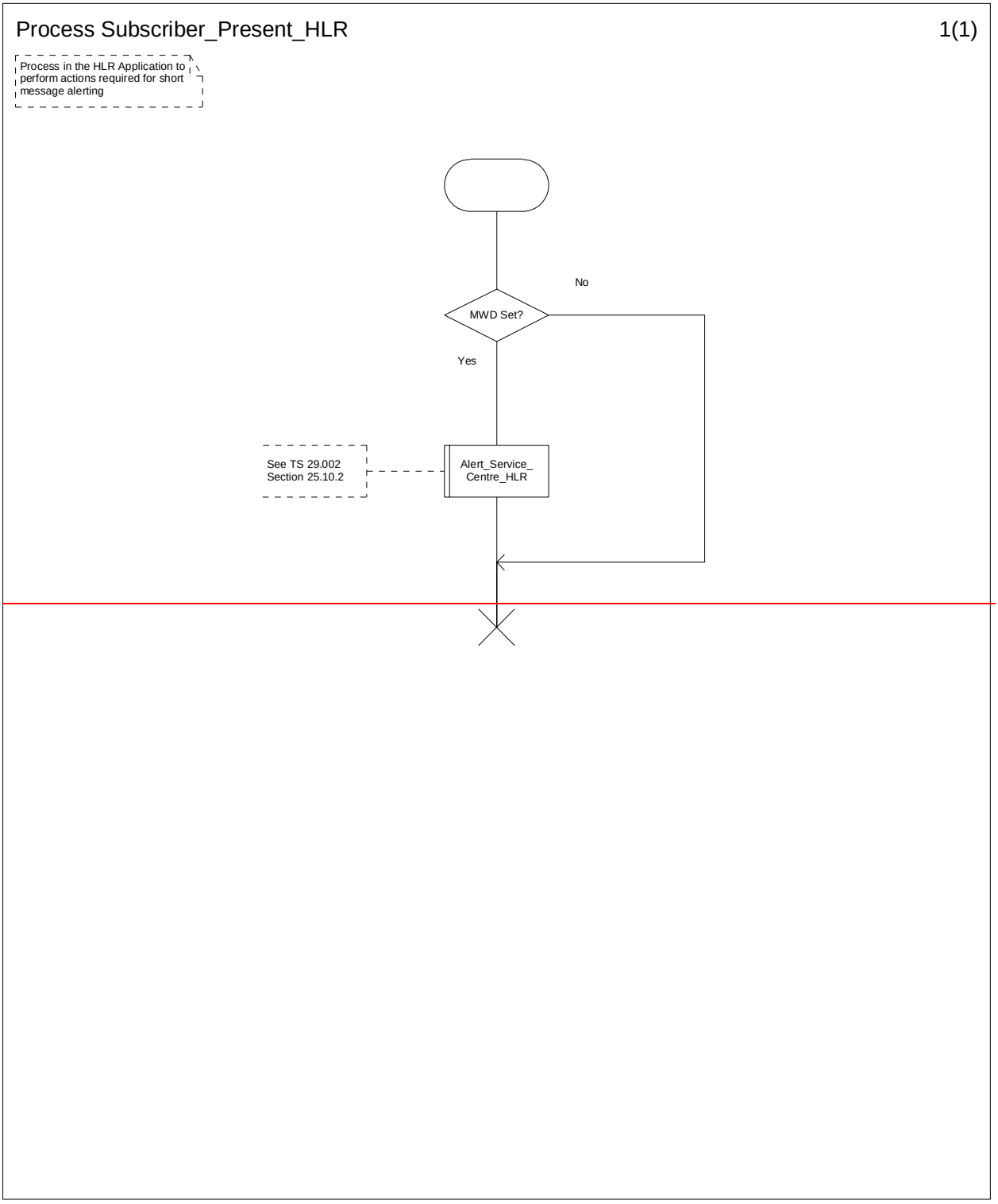
Sheet 2: The procedure Super_Charged_Location_Updating_HLR is specific to Super-Charger; it is specified in TS 23.116 [7]. If subscription data needs to be sent to the VLR, processing continues from the "No" exit of the test "Result=Pass?".

***** Next modified section *****

4.1.3.3 Process Subscriber_Present_HLR

The macro Alert_Service_Centre_HLR is specified in 3GPP TS 29.002 [8].

Process Subscriber_Present_HLR 1(1)



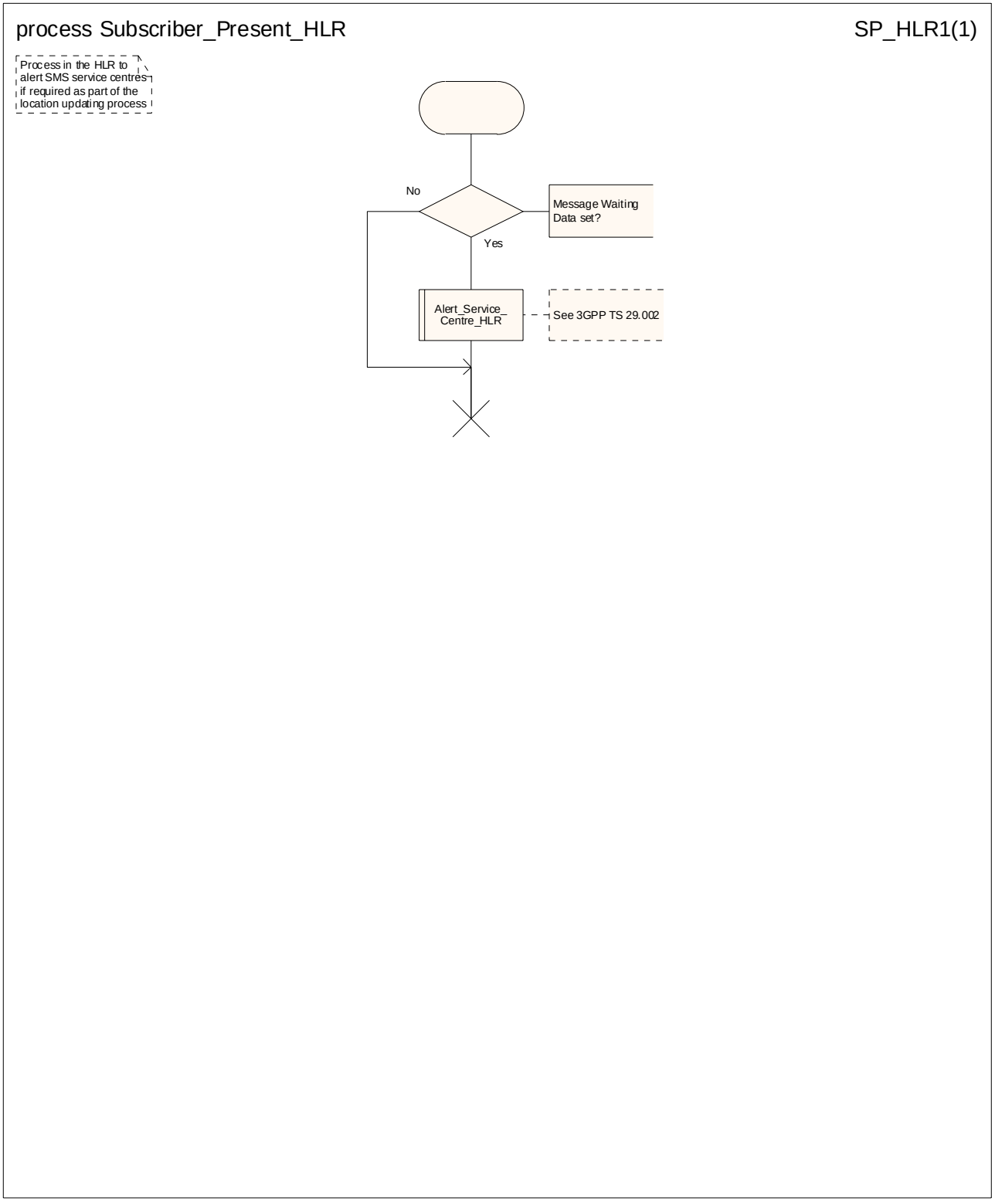


Figure 4.1.3.3: Process Subscriber_Present_HLR

***** Next modified section *****

4.2 Location Cancellation

4.2.1 Detailed procedure in the VLR

4.2.1.1 Process Cancel_Location_VLR

The procedure Check_Parameters is specified in 3GPP TS 23.018 [5a].

***** Next modified section *****

4.3.2.1 Process Detach_IMSI_VLR

~~Sheet 1:~~ The signal "Authenticated Radio Contact Terminated" is sent to Process Detach_IMSI_VLR from RR handling in the MSC whenever authenticated radio contact is terminated, e.g. at the release of a call.

The procedure "Notify_gsmSCF" is specified in 3GPP TS 23.078 [11]. The "Notify" parameter indicates whether the IMSI detach was explicit or implicit.

~~The 3G TS 23.078 procedure 'Notify_gsmSCF' with 'Notify' variable set either to 'explicit' or to 'implicit detach' allows the handling of CAMEL Mobility Management events notification.~~

***** Next modified section *****

4.4.2 Detailed procedure in the HLR

4.4.2.1 Proces~~sdure~~ Purge_MS_HLR

The procedure Check_Parameters is specified in 3GPP TS 23.018 [5a].

~~Sheet 1:~~ If the received VLR number and the stored VLR number do not match, the HLR sends Purge MS ack containing an empty result to indicate successful outcome. Since the MS is known by the HLR to be in a different VLR area, it is not appropriate to block mobile terminated calls or short messages to the MS, but the VLR which initiated the purging procedure can safely purge its record for the MS without freezing the TMSI.

~~Sheet 1:~~ If the received SGSN number and the stored SGSN number do not match, the HLR sends a Purge MS ack containing an empty result to indicate successful outcome. Since the MS is known by the HLR to be in a different SGSN area, it is not appropriate to block short messages to the MS, but the SGSN which initiated the purging procedure can safely purge its record for the MS without freezing the P-TMSI.

***** End of document *****

3GPP TSG CN WG4 Meeting #20 **N4-030845**
Sophia Antipolis, FRANCE, 25th – 29th August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **23.018** **CR** **128** ⌘ **rev** **-** ⌘ Current version: **5.7.0** ⌘

*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:	⌘	Corrections to "Early UE" handling
Source:	⌘	CN4
Work item code:	⌘	Late UE
Date:	⌘	15/08/2003
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:	⌘	**This is an essential correction** 1. The translation of the IMEISV to the UESBI-Iu is done in the MSC, not in the VLR as shown in the current version of 23.018; 2. The procedure Obtain_IMEI_MSC should make it clear that the IMEISV is retrieved from the MS; 3. The procedure Obtain_IMEI_VLR cannot return a Fail result. 4. There are several minor misalignments of terminology with other specifications for the "Early UE" handling changes
Summary of change:	⌘	1. Revise the procedures Process_Access_Request_MSC and Process_Access_Request_VLR to show the task "Convert IMEISV to UESBI" being executed in the MSC; 2. Revise the procedure Obtain_IMEI_MSC to clarify that the IMEISV is retrieved from the MS; 3. Show explicitly that the VLR stores the IMEISV after it has retrieved it. 4. Systematically replace "Early UE" handling with PUESBINE, and UESBI with UESBI-Iu
Consequences if not approved:	⌘	"Early UE" handling will not operate correctly; unnecessary denial of service, and/or erratic operation.

Clauses affected:	⌘	3.2; 7.1.1.2; 7.1.1.6; Figure 7a; 7.1.2.2; 7.1.2.10; Figure 7.1.2.2a; Figure 7.1.2.10; 8.1.28; 8.1.40A (new)

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

Other comments: ⌘

***** First modified section *****

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

A&O	Active & Operative
ACM	Address Complete Message
ANM	ANswer Message
AoC	Advice of Charge
BC	Bearer Capability
BOIC-exHC&BOIZC	Barring of Outgoing International Calls except those directed to the HPLMN Country & Barring of Outgoing InterZonal Calls
BOIZC	Barring of Outgoing InterZonal Calls
BOIZC-exHC	Barring of Outgoing InterZonal Calls except those directed to the HPLMN Country
CCBS	Completion of Calls to Busy Subscriber
CFB	Call Forwarding on Busy
CFNRc	Call Forwarding on mobile subscriber Not Reachable
CFNRy	Call Forwarding on No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identity Presentation
CLIR	Calling Line Identity Restriction
COLP	COnnected Line identity Presentation
COLR	COnnected Line identity Restriction
CUG	Closed User Group
CW	Call Waiting
FTN	Forwarded-To Number
FTNW	Forwarded-To NetWork
GMSCB	Gateway MSC of the B subscriber
GPRS	General Packet Radio Service
HLC	Higher Layer Compatibility
HLRB	The HLR of the B subscriber
HPLMNB	The HPLMN of the B subscriber
IAM	Initial Address Message
IPLMN	Interrogating PLMN - the PLMN containing GMSCB
IWU	Inter Working Unit
LLC	Lower Layer Compatibility
MO	Mobile Originated
MPTY	MultiParTY
MT	Mobile Terminated
NDUB	Network Determined User Busy
NRCT	No Reply Call Timer
PLMN BC	(GSM or UMTS) PLMN Bearer Capability
PRN	Provide Roaming Number
PUESBINE	Provision of User Equipment Specific Behaviour Information to Network Entities
SGSN	Serving GPRS support node
SIFIC	Send Information For Incoming Call
SIFOC	Send Information For Outgoing Call
SIWF	Shared Inter Working Function
SIWFS	SIWF Server. SIWFS is the entity where the used IWU is located.
SRI	Send Routeing Information
UDUB	User Determined User Busy
UESBI-Iu	User Equipment Specific Behaviour Information over the Iu interface
VLRA	The VLR of the A subscriber
VLRB	The VLR of the B subscriber
VMSCA	The Visited MSC of the A subscriber
VMSCB	The Visited MSC of the B subscriber
VPLMNA	The Visited PLMN of the A subscriber
VPLMNB	The Visited PLMN of the B subscriber

***** Next modified section *****

7.1.1.2 Procedure Process_Access_Request_MSC

Sheet 1: the processing starting with the input signal "Send UESBI-Iu to Access Network" is specific to PUESBINE. If the MSC does not support PUESBINE, this signal will not be received.

Sheet 1: the task "Convert IMEISV to UESBI" is defined in 3GPP TS 23.195 [25a].

Sheet 2: instead of using the explicit procedure Obtain_IMEI_MSC, the VMSC may encapsulate the request for the IMEI in the Start security procedures message; the BSS relays the response in the Security procedures complete message to the MSC.

Sheet 2: the VMSC maps the negative response received on the B interface to the appropriate reject cause according to the rules defined in 3GPP TS 29.010 [31].

Sheet 2: The Start security procedures message may indicate one of several ciphering algorithms, or (for GSM only) no ciphering.

Sheet 2, sheet 3: At any stage, the MS may terminate the transaction with the network by sending a CM service abort message.

Sheet 2, sheet 3: if the VMSC receives a Set-up message from the MS while the access request is being handled, the message is saved for processing after the access request has been handled.

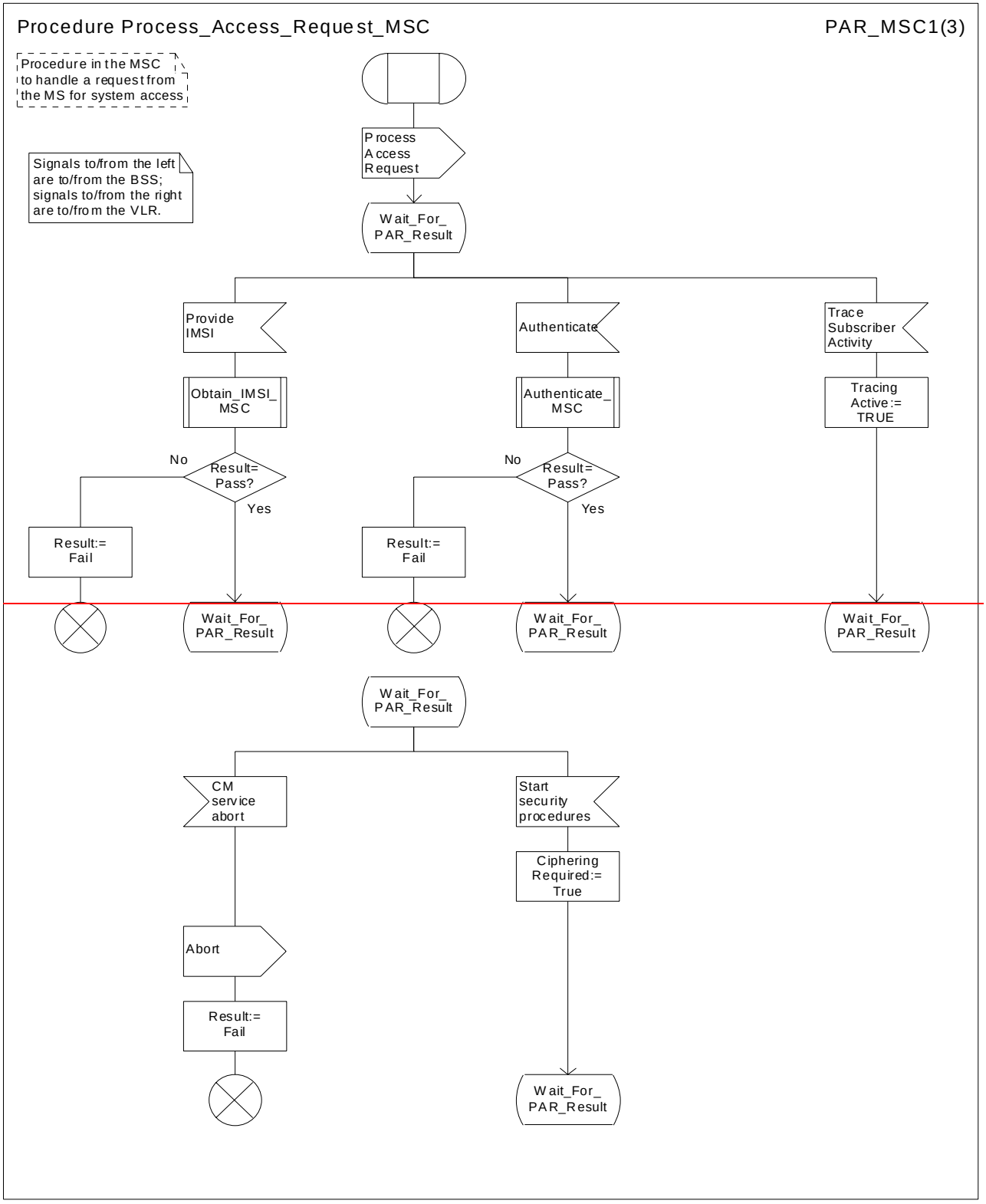
***** Next modified section *****

7.1.1.6 Procedure Obtain_IMEI_MSC

The Send IMEI request to the MS specifies the IMEISV as the requested identity.

The MS may terminate the transaction with the network while the VMSC is waiting for the MS to return its IMEI. If a CC connection has not been established, the MS uses CM Service Abort; otherwise it uses a Release, Release Complete or Disconnect. The VMSC aborts the transaction with the VLR and returns an aborted result to the parent process.

***** Next modified section *****


Procedure Process_Access_Request_MSC
PAR_MSC1(3)
Procedure in the MSC to handle a request from the MS for system access
Signals to/from the left are to/from the BSS; signals to/from the right are to/from the VLR.
Process Access Request
Wait_For_ PAR_Result
Provide IMSI
Authenticate
Trace Subscriber Activity
Obtain_IMSI_ MSC
Authenticate_ MSC
Tracing Active:= TRUE
No
Result= Pass?
Yes
Result:= Fail
Wait_For_ PAR_Result
CM service abort
Start security procedures
Ciphering Required:= True
Abort

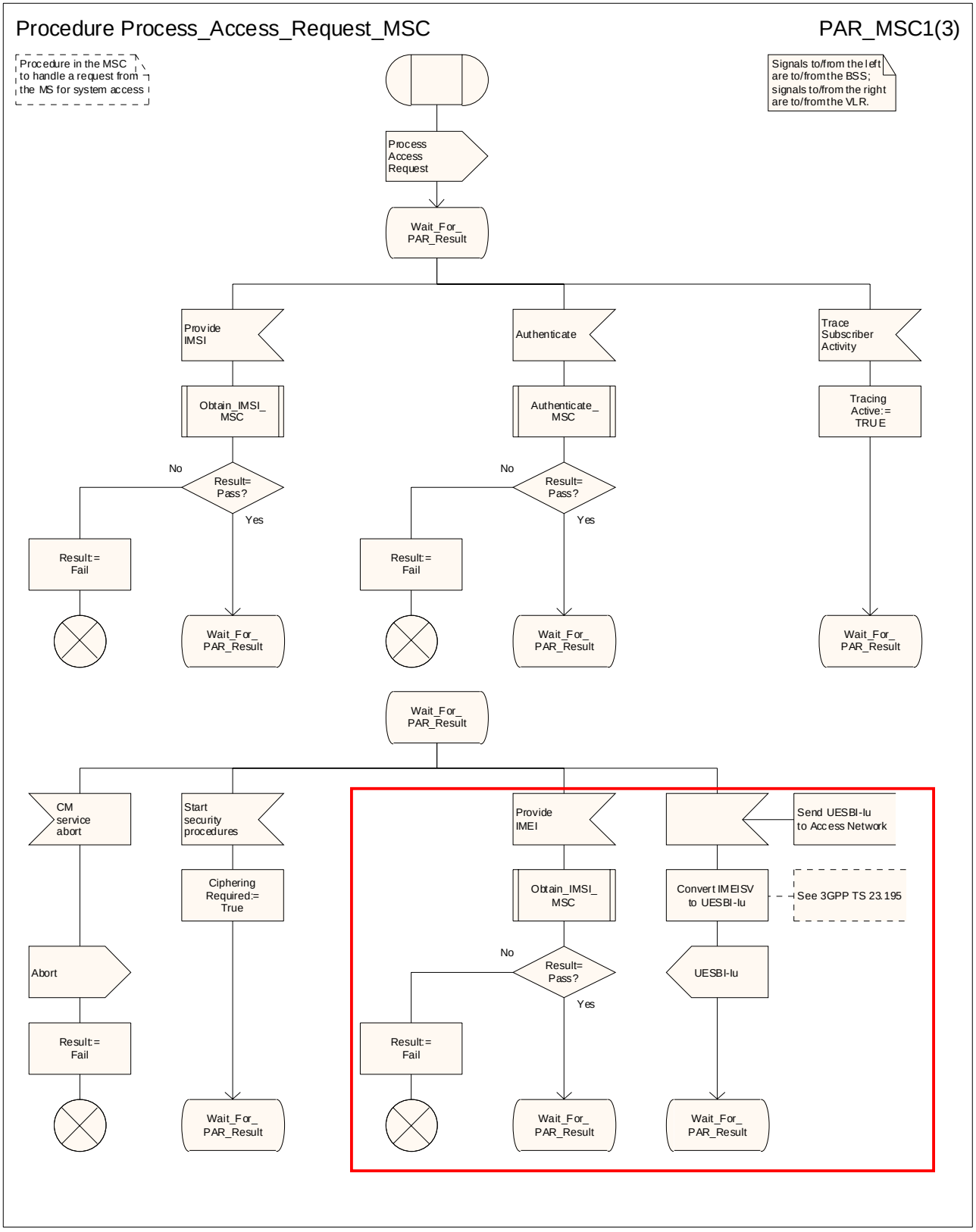


Figure 7a: Procedure Process_Access_Request_MSC (sheet 1)

***** For information *****

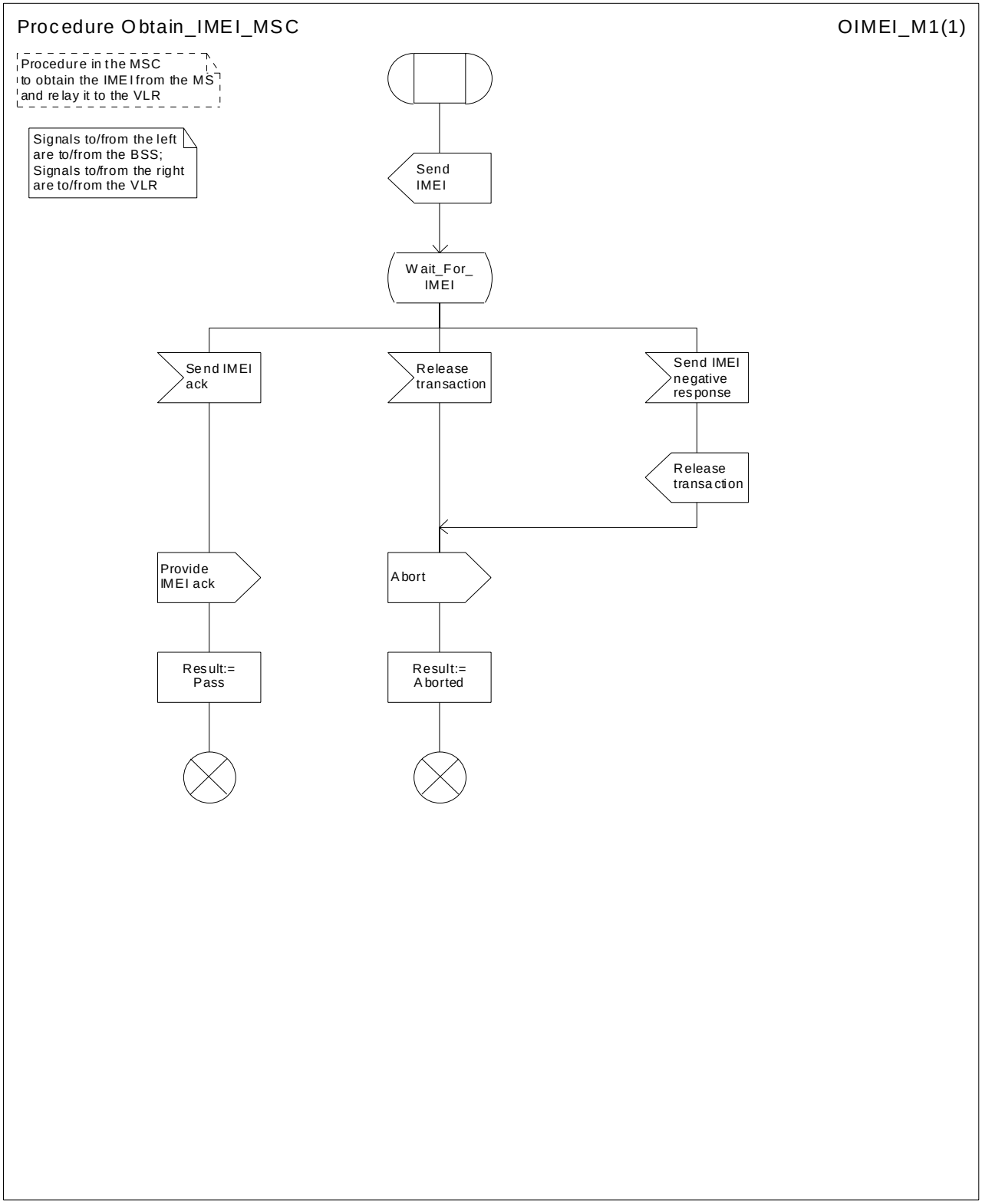


Figure 11: Procedure Obtain_IMEI_MSC

***** Next modified section *****

7.1.2 Functional requirements of VLR

7.1.2.1 Process OCH_VLR

7.1.2.2 Procedure Process_Access_Request_VLR

Sheet 1: the processing starting with the test "IMEISV stored" and finishing with the ~~task "Convert IMEISV to UESBI"~~ output signal "Send UESBI-Iu to RNC" is specific to PUESBINE~~"Early UE" handling~~. If the VLR does not support ~~"Early UE" handling~~PUESBINE, the processing starts with the test "Identity known?"

~~Sheet 1: the task "Convert IMEISV to UESBI" is defined in detail in 3GPP TS 23.195 [25a].~~

Sheet 1: it is a network operator decision (subject to MoU requirements) how often an MS should be authenticated.

Sheet 2: the process Subscriber_Present_VLR is described in 3GPP TS 29.002 [29].

Sheet 2: it is a network operator decision (subject to MoU requirements) whether a GSM connection should be ciphered. A UMTS connection shall always be ciphered.

Sheet 3: it is a network operator decision (subject to MoU requirements) how often an IMEI should be checked.

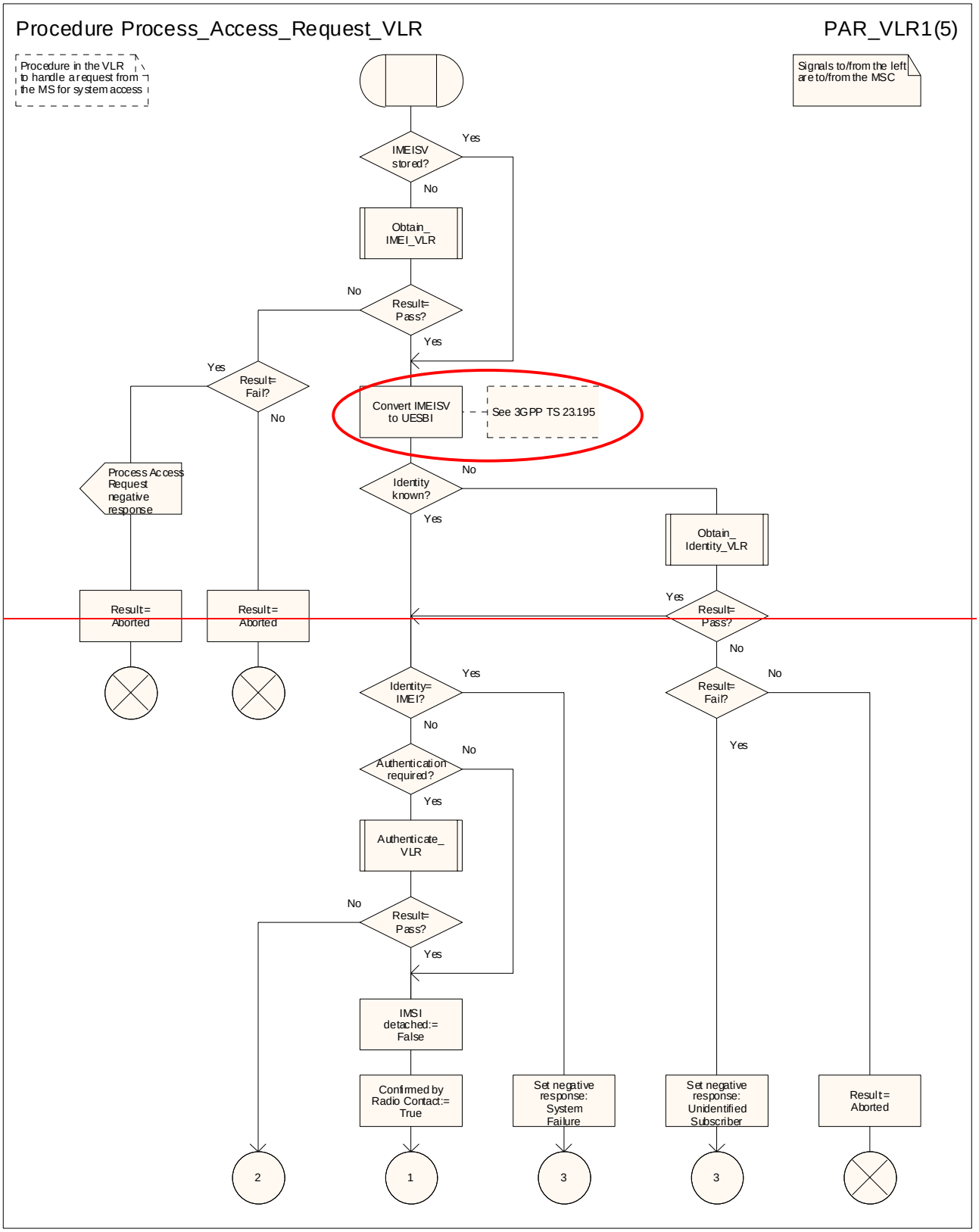
Sheet 3, sheet 4, sheet 5: the procedure CCBS_Report_MS_Activity is specific to CCBS; it is specified in 3GPP TS 23.093 [23].

Sheet 5: it is a network operator decision whether emergency calls are allowed from an ME with no SIM.

***** Next modified section *****

7.1.2.10 Procedure Obtain_IMEI-_VLR

***** Next modified section *****


Procedure Process_Access_Request_VLR
PAR_VLR1(5)
Procedure in the VLR to handle a request from the MS for system access
Signals to/from the left are to/from the MSC
IMEISV stored?
Yes
No
Obtain_ IMEI_VLR
Result= Pass?
No
Yes
Result= Fail?
Yes
No
Convert IMEISV to UESBI
See 3GPP TS 23.195
Process Access Request negative response
Identity known?
No
Yes
Obtain_ Identity_VLR
Result= Aborted
Result= Aborted
Result= Pass?
Yes
No
Identity= IMEI?
Yes
No
Result= Fail?
No
Yes
Authentication required?
No
Yes
Authenticate_ VLR
Result= Pass?
No
Yes
IMSI detached:= False
Confirmed by Radio Contact:= True
Set negative response: System Failure
Set negative response: Unidentified Subscriber
Result= Aborted
2
1
3
3

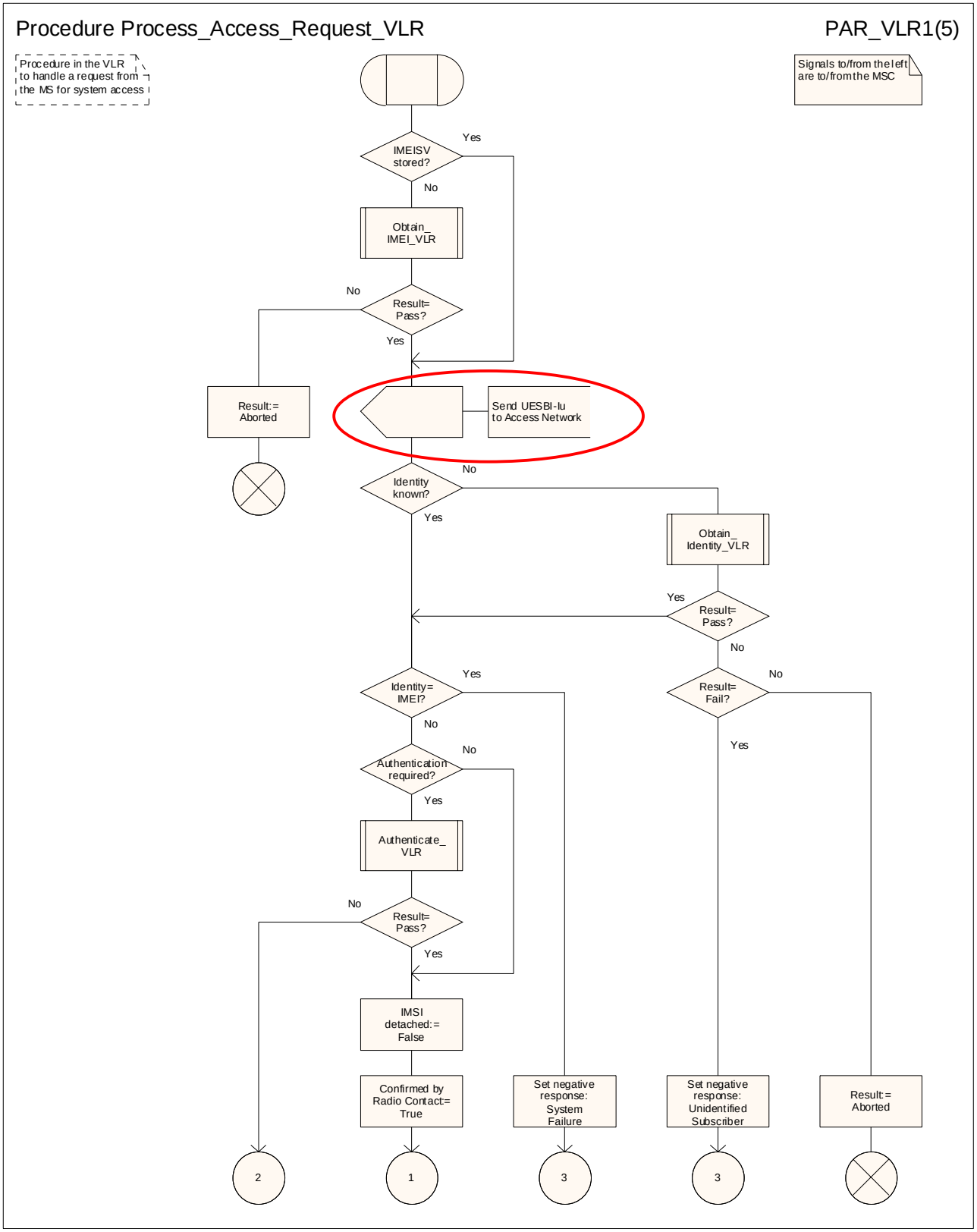
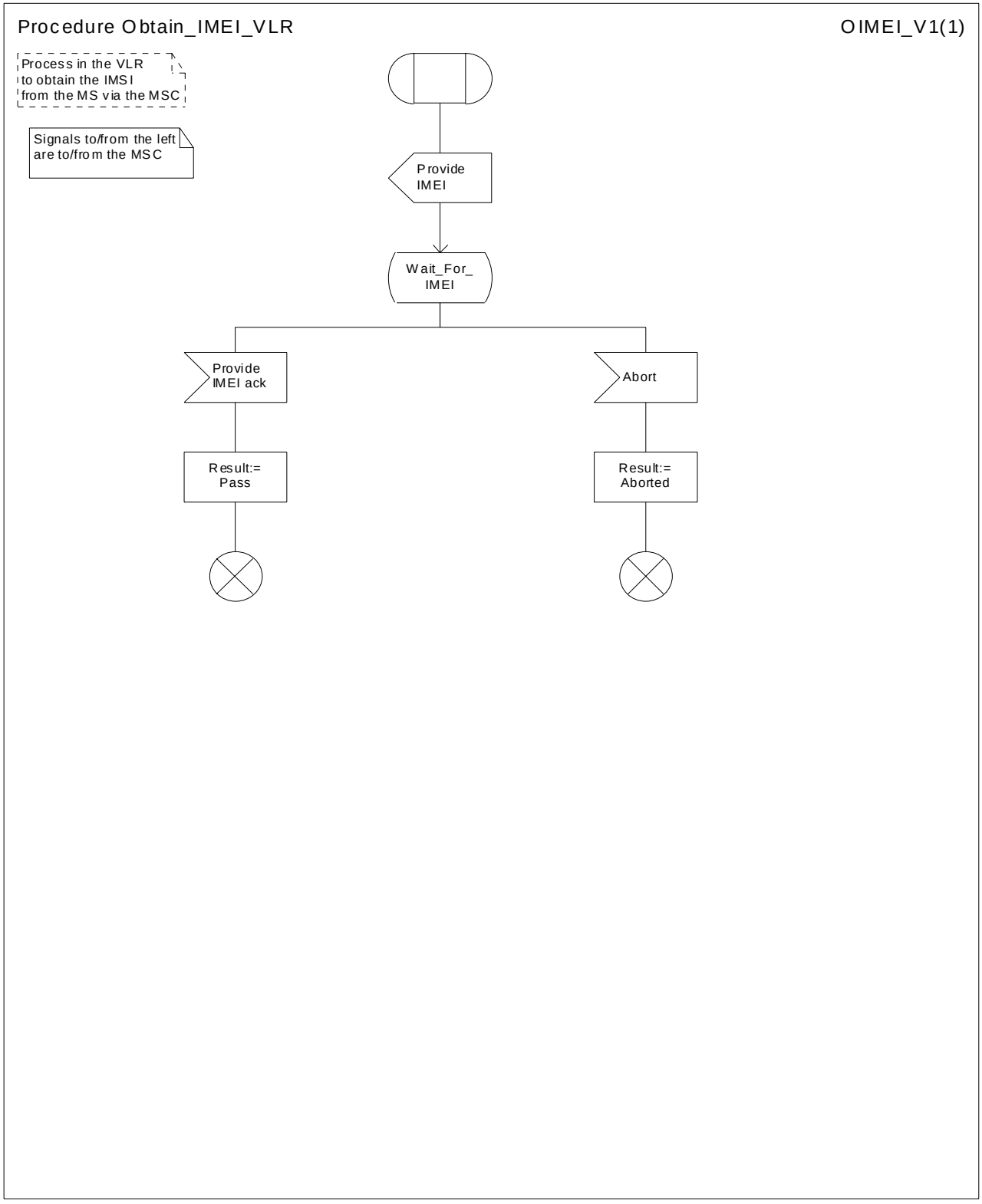


Figure 7.1.2.2a: Procedure Process_Access_Request_VLR (sheet 1)

***** Next modified section *****


Procedure Obtain_IMEI_VLR
OIMEI_V1(1)
Process in the VLR to obtain the IMSI from the MS via the MSC
Signals to/from the left are to/from the MSC
Provide IMEI
Wait_For_ IMEI
Provide IMEI ack
Abort
Result:= Pass
Result:= Aborted

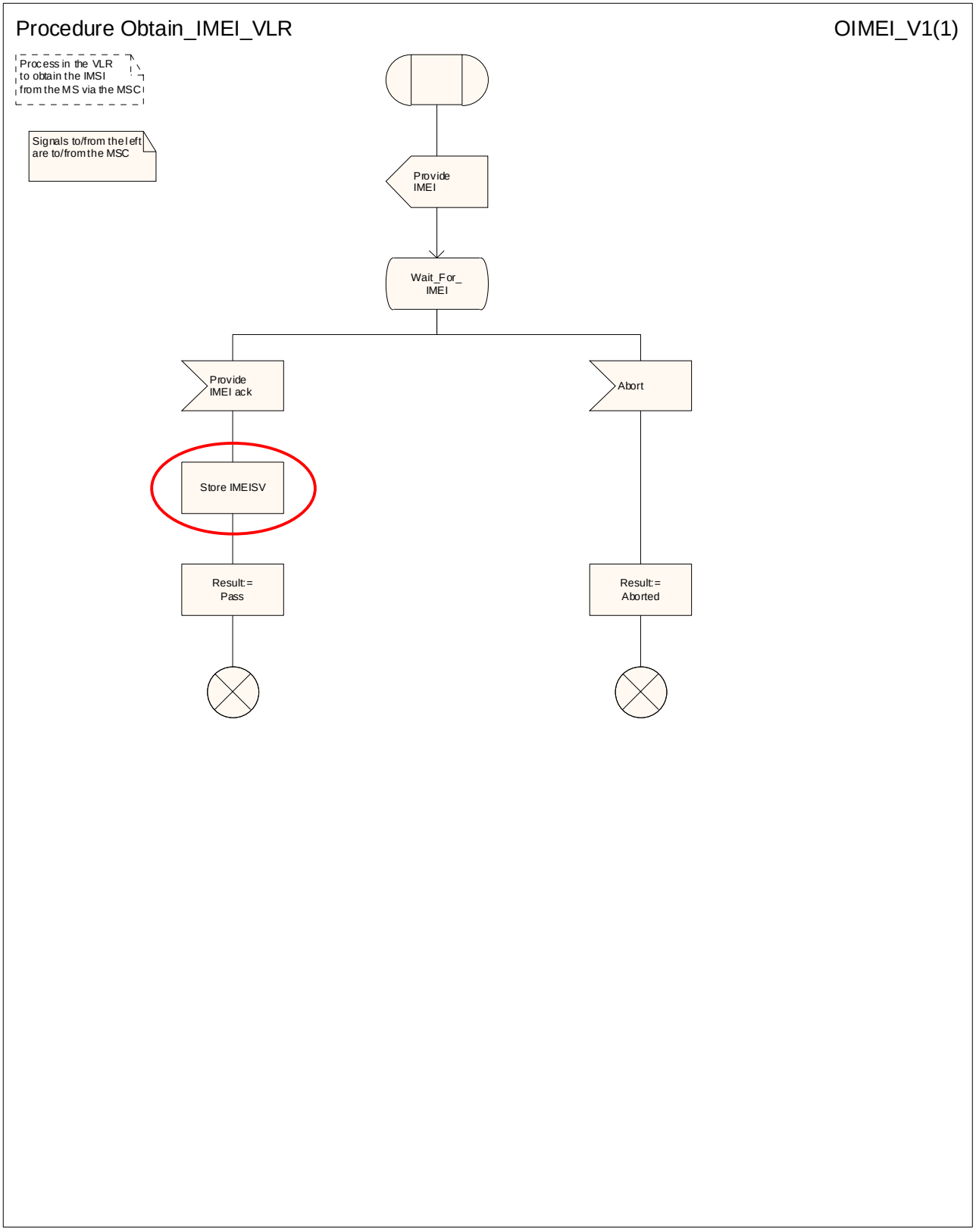


Figure 7.1.2.10: Procedure Obtain_IMEI-_VLR

***** Next modified section *****

8.1.27 Provide IMEI

This message contains no information elements.

8.1.28 Provide IMEI ack

The following information element is required:

Information element name	Required	Description
IMEI	M	IMEISV (as defined in 3GPP TS 23.003 [5]) of the ME involved in the access request.

8.1.29 Provide IMSI

This message contains no information elements.

***** Next modified section *****

8.1.40 Send Info For Outgoing Call negative response

The negative response information element can take the following values:

- Bearer service not provisioned;
- Call barred (Operator determined barring);
- Call barred (Supplementary service barring);
- CUG reject (Inconsistent access information - index incompatible with basic service);
- CUG reject (Inconsistent access information - no CUG selected);
- CUG reject (Outgoing calls barred within the CUG);
- CUG reject (Unknown CUG index);
- Teleservice not provisioned.

8.1.40A Send UESBI-Iu to Access Network

The following information element is required:

Information element name	Required	Description
IMEI (with software version)	C	IMEISV as defined in 3GPP TS 23.003 [5].

8.1.41 Start security procedures

The following information elements are required for a UMTS connection:

Information element name	Required	Description
CK	M	Ciphering key to be used to cipher communication over the radio link (see 3GPP TS 33.102 [32]).
IK	M	Integrity key to be used to verify the integrity of messages transferred over the radio link (see 3GPP TS 33.102 [32]).

The following information elements are required for a GSM connection:

Information element name	Required	Description
Ciphering mode	M	Indicates whether ciphering of the radio connection is required, and if so which ciphering algorithm is to be used.
Kc	C	Ciphering key to be used if ciphering of the radio connection is required. Shall be present if the ciphering mode indicates that ciphering of the radio connection is required, otherwise shall be absent.

***** End of document *****

3GPP TSG CN WG4 Meeting #20 **N4-030921**
Sophia Antipolis, FRANCE, 25th – 29th August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** 646 ⌘**rev** **1** ⌘ Current version: **5.6.2** ⌘

*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:	⌘	UESBI-Iu format
Source:	⌘	CN4
Work item code:	⌘	Late UE
Date:	⌘	15/08/2003
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:	⌘	to align the UESBI-Iu format with 25.413 **This is an essential correction**
Summary of change:	⌘	correct the UESBI parameter; align terminology with 25.413
Consequences if not approved:	⌘	misalignment will result in interoperability problems.

Clauses affected:	⌘	7.6, 7.6.3.2a, 7.6.6.20, 8.4.1.2, 8.4.1.3, 17.7.1			
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.

7.6 Definition of parameters

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

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

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

Absent Subscriber Diagnostic SM	7.6.8.9	Location Information	7.6.2.30
Access connection status	7.6.9.3	Location Information for GPRS	7.6.2.30a
Access signalling information	7.6.9.5	Location update type	7.6.9.6
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Long Forwarded-to Number	7.6.2.22A
Additional Location Estimate	7.6.11.21	Long FTN Supported	7.6.2.22B
Additional number	7.6.2.46	Lower Layer Compatibility	7.6.3.42
Additional signal info	7.6.9.10	LSA Information	7.6.3.56
Additional SM Delivery Outcome	7.6.8.11	LSA Information Withdraw	7.6.3.58
Age Indicator	7.6.3.72	MC Information	7.6.4.48
Alert Reason	7.6.8.8	MC Subscription Data	7.6.4.47
Alert Reason Indicator	7.6.8.10	Mobile Not Reachable Reason	7.6.3.51
Alerting Pattern	7.6.3.44	Modification request for CSI	7.6.3.81
All GPRS Data	7.6.3.53	Modification request for SS Information	7.6.3.82
All Information Sent	7.6.1.5	More Messages To Send	7.6.8.7
AN-apdu	7.6.9.1	MS ISDN	7.6.2.17
APN	7.6.2.42	MSC number	7.6.2.11
Authentication set list	7.6.7.1	MSIsdn-Alert	7.6.2.29
B-subscriber Address	7.6.2.36	Multicall Bearer Information	7.6.2.52
B subscriber Number	7.6.2.48	Multiple Bearer Requested	7.6.2.53
B subscriber subaddress	7.6.2.49	Multiple Bearer Not Supported	7.6.2.54
Basic Service Group	7.6.4.40	MWD status	7.6.8.3
Bearer service	7.6.4.38	NbrUser	7.6.4.45
BSSMAP Service Handover	7.6.6.5	Network Access Mode	7.6.3.50
BSSMAP Service Handover List	7.6.6.5A	Network node number	7.6.2.43
Call Barring Data	7.6.3.83	Network resources	7.6.10.1
Call barring feature	7.6.4.19	Network signal information	7.6.9.8
Call barring information	7.6.4.18	New password	7.6.4.20
Call Direction	7.6.5.8	No reply condition timer	7.6.4.7
Call Forwarding Data	7.6.3.84	North American Equal Access preferred Carrier Id	7.6.2.34
Call Info	7.6.9.9	Number Portability Status	7.6.5.14
Call reference	7.6.5.1	ODB Data	7.6.3.85
Call Termination Indicator	7.6.3.67	ODB General Data	7.6.3.9
Called number	7.6.2.24	ODB HPLMN Specific Data	7.6.3.10
Calling number	7.6.2.25	OMC Id	7.6.2.18
CAMEL Subscription Info	7.6.3.78	Originally dialled number	7.6.2.26
CAMEL Subscription Info Withdraw	7.6.3.38	Originating entity number	7.6.2.10
Cancellation Type	7.6.3.52	Override Category	7.6.4.4
Category	7.6.3.1	P-TMSI	7.6.2.47
CCBS Feature	7.6.5.8	PDP-Address	7.6.2.45
CCBS Request State	7.6.4.49	PDP-Context identifier	7.6.3.55
Channel Type	7.6.5.9	PDP-Type	7.6.2.44
Chosen Channel	7.6.5.10	Positioning Data	7.6.11.11A
Chosen Radio Resource Information	7.6.6.10B	Pre-paging supported	7.6.5.15
Ciphering mode	7.6.7.7	Previous location area Id	7.6.2.4
Cksn	7.6.7.5	Protocol Id	7.6.9.7
CLI Restriction	7.6.4.5	Provider error	7.6.1.3

CM service type	7.6.9.2
Complete Data List Included	7.6.3.54
CS Allocation Retention priority	7.6.3.87
CS LCS Not Supported by UE	7.6.11.9
CUG feature	7.6.3.26
CUG index	7.6.3.25
CUG info	7.6.3.22
CUG interlock	7.6.3.24
CUG Outgoing Access indicator	7.6.3.8
CUG subscription	7.6.3.23
CUG Subscription Flag	7.6.3.37
Current location area Id	7.6.2.6
Current password	7.6.4.21
Deferred MT-LR Data	7.6.11.3
Deferred MT-LR Response Indicator	7.6.11.2
eMLPP Information	7.6.4.41
Encryption Information	7.6.6.9
Equipment status	7.6.3.2
Extensible Basic Service Group	7.6.3.5
Extensible Bearer service	7.6.3.3
Extensible Call barring feature	7.6.3.21
Extensible Call barring information	7.6.3.20
Extensible Call barring information for CSE	7.6.3.79
Extensible Forwarding feature	7.6.3.16
Extensible Forwarding info	7.6.3.15
Extensible Forwarding information for CSE	7.6.3.80
Extensible Forwarding Options	7.6.3.18
Extensible No reply condition timer	7.6.3.19
Extensible QoS-Subscribed	7.6.3.74
Extensible SS-Data	7.6.3.29
Extensible SS-Info	7.6.3.14
Extensible SS-Status	7.6.3.17
Extensible Teleservice	7.6.3.4
External Signal Information	7.6.9.4
Failure Cause	7.6.7.9
Forwarded-to number	7.6.2.22
Forwarded-to subaddress	7.6.2.23
Forwarding feature	7.6.4.16
Forwarding information	7.6.4.15
Forwarding Options	7.6.4.6
GERAN Classmark	7.6.6.4
GGSN address	7.6.2.40
GGSN number	7.6.2.41
GMSC CAMEL Subscription Info	7.6.3.34
GPRS enhancements support indicator	7.6.3.73
GPRS Node Indicator	7.6.8.14
GPRS Subscription Data	7.6.3.46
GPRS Subscription Data Withdraw	7.6.3.45
GPRS Support Indicator	7.6.8.15
Group Id	7.6.2.33
GSM bearer capability	7.6.3.6
gsmSCF Address	7.6.2.58
gsmSCF Initiated Call	7.6.3.c
Guidance information	7.6.4.22
Handover number	7.6.2.21
High Layer Compatibility	7.6.3.43
HLR Id	7.6.2.15
HLR number	7.6.2.13
HO-Number Not Required	7.6.6.7
IMEI	7.6.2.3

PS LCS Not Supported by UE	7.6.11.10
QoS-Subscribed	7.6.3.47
Radio Resource Information	7.6.6.10
Radio Resource List	7.6.6.10A
RANAP Service Handover	7.6.6.6
Rand	7.6.7.2
LCS-Reference Number	7.6.11.23
Regional Subscription Data	7.6.3.11
Regional Subscription Response	7.6.3.12
Relocation Number List	7.6.2.19A
Requested Info	7.6.3.31
Requested Subscription Info	7.6.3.86
Roaming number	7.6.2.19
Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
Roaming Restriction Due To Unsupported Feature	7.6.3.13
Current Security Context	7.6.7.8
Selected RAB ID	7.6.2.56
Service centre address	7.6.2.27
Serving Cell Id	7.6.2.37
SGSN address	7.6.2.39
SGSN CAMEL Subscription Info	7.6.3.75
SGSN number	7.6.2.38
SIWF Number	7.6.2.35
SoLSA Support Indicator	7.6.3.57
SM Delivery Outcome	7.6.8.6
SM-RP-DA	7.6.8.1
SM-RP-MTI	7.6.8.16
SM-RP-OA	7.6.8.2
SM-RP-PRI	7.6.8.5
SM-RP-SMEA	7.6.8.17
SM-RP-UI	7.6.8.4
Sres	7.6.7.3
SS-Code	7.6.4.1
SS-Data	7.6.4.3
SS-Event	7.6.4.42
SS-Event-Data	7.6.4.43
SS-Info	7.6.4.24
SS-Status	7.6.4.2
Stored location area Id	7.6.2.5
Subscriber State	7.6.3.30
Subscriber Status	7.6.3.7
Super-Charger Supported in HLR	7.6.3.70
Super-Charger Supported in Serving Network Entity	7.6.3.71
Offered Camel4 CSIs	7.6.3.36D
Offered Camel4 CSIs in interrogating node	7.6.3.36E
Offered Camel4 CSIs in VMSC	7.6.3.36F
Offered Camel4 CSIs in VLR	7.6.3.36B
Offered Camel4 CSIs in SGSN	7.6.3.36C
Offered Camel4 Functionalities	7.6.3.36G
Supported CAMEL Phases	7.6.3.36H
Supported CAMEL Phases in VLR	7.6.3.36
Supported CAMEL Phases in SGSN	7.6.3.36A
Supported CAMEL Phases in interrogating node	7.6.3.36I
Supported GAD Shapes	7.6.11.20
Supported LCS Capability Sets	7.6.11.17
Suppress Incoming Call Barring	7.6.3.b
Suppress T-CSI	7.6.3.33
Suppress VT-CSI	7.6.3.a
Suppression of Announcement	7.6.3.32
Target cell Id	7.6.2.8
Target location area Id	7.6.2.7
Target RNC Id	7.6.2.8A

IMSI	7.6.2.1	Target MSC number	7.6.2.12
Integrity Protection Information	7.6.6.8	Teleservice	7.6.4.39
Inter CUG options	7.6.3.27	TMSI	7.6.2.2
Intra CUG restrictions	7.6.3.28	Trace reference	7.6.10.2
Invoke Id	7.6.1.1	Trace type	7.6.10.3
		UESBI-Iu	7.6.6.20
ISDN Bearer Capability	7.6.3.41	User error	7.6.1.4
IST Alert Timer	7.6.3.66	USSD Data Coding Scheme	7.6.4.36
IST Information Withdrawn	7.6.3.68	USSD String	7.6.4.37
IST Support Indicator	7.6.3.69	UU Data	7.6.5.12
LCS Codeword	7.6.11.18	UUS CF Interaction	7.6.5.13
LCS Information	7.6.3.60	VBS Data	7.6.3.40
LCS Service Type Id	7.6.11.15	VGCS Data	7.6.3.39
Kc	7.6.7.4	VLR CAMEL Subscription Info	7.6.3.35
Linked Id	7.6.1.2	VLR number	7.6.2.14
LMSI	7.6.2.16	VPLMN address allowed	7.6.3.48
		Zone Code	7.6.2.28

****

7.6.3.2a BMUEF

This parameter refers to the Bit Map of UE Faults and corresponds to the UESBI-Iu parameter defined in 3GPP TS 25.413 [120].

****

7.6.6.20 UESBI-Iu

This parameter refers to the UESBI-Iu (UE Specific Behaviour Information over the Iu interface) information element defined in 3GPP TS 25.413.

****

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANDOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Allowed GSM Algorithms	C	C(=)		
Allowed UMTS Algorithms	C	C(=)		
Radio Resource List	C	C(=)		
RAB ID	C	C(=)		
GERAN Classmark	C	C(=)		
BSSMAP Service Handover	C	C(=)		
BSSMAP Service Handover List	C	C(=)		
RANAP Service Handover	C	C(=)		
Currently Used Codec	C	C(=)		
Available Codecs List	C	C(=)		
RAB Configuration Indicator	C	C(=)		
ASCI Call Reference	C	C(=)		
UESBI-Iu	C	C(=)		

Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
Chosen Radio Resource Information			C	C(=)
Selected Codec			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see clause 7.6.1.

Target Cell Id

For definition of this parameter see clause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3GPP TS 23.009.

Target RNC Id

For definition of this parameter see clause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3GPP TS 23.009.

HO-Number Not Required

For definition of this parameter see clause 7.6.6.

IMSI

For definition of this parameter see clause 7.6.2. This UMTS parameter shall be included if:

- available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. If the parameter Radio Resource List is sent , the parameter Radio Resource Information shall not be sent.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes allowed GSM algorithms. This GSM parameter shall be included if:

- the service is a part of the Inter-MSC SRNS Relocation procedure and
- Ciphering or Security Mode Setting procedure has been performed.and
- there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if all of the following conditions apply:

- access network protocol is BSSAP and
- Integrity Protection Information and Encryption Information are not available and

Ciphering or Security Mode Setting procedure has been performed.

Radio Resource List

For definition of this parameter see clause 7.6.6. This parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter Radio Resource Information is sent , the parameter Radio Resource List shall not be sent.

RAB ID

For definition of this parameter see subclause 7.6.2. This parameter shall be included when MSC-A supports multiple bearers and access network protocol is BSSAP and the RAB ID has a value other than 1.

GERAN Classmark

For definition of this parameter see subclause 7.6.6 This parameter shall be included if available.

BSSMAP Service Handover

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is RANAP. If the parameter BSSMAP Service Handover List is sent, the parameter BSSMAP Service Handover shall not be sent.

BSSMAP Service Handover List

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is RANAP. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter BSSMAP Service Handover is sent, the parameter BSSMAP Service Handover List shall not be sent.

RANAP Service Handover

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is BSSAP.

Currently Used Codec

For definition of this parameter see subclause 7.6.6. This parameter shall be included if the call is a speech call. This parameter shall not be included if Available Codecs List is not included.

Available Codecs List

For definition of this parameter see subclause 7.6.6. This parameter shall be included if the call is a speech call.

RAB Configuration Indicator

For definition of this parameter see subclause 7.6.6. This parameter may be included if the call is a speech call and MSC-A knows by means of configuration information that MSC-B supports the use of Available Codecs List parameter. This parameter shall not be included if Available Codecs List is not included.

ASCI Call Reference

This parameter contains either the broadcast call reference or group call reference. It shall be included if a subscriber is undergoing Signalling Only handover during a VGCS or VBS call, where MSC-B already has a Bearer established, so that MSC-B can determine the Group or Broadcast Call to which it shall attach the subscriber, see 3GPP TS 48.008 [49].

UESBI-Iu

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is BSSAP.

Handover Number

For definition of this parameter see clause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation in the case that MSC-B supports multiple bearers.

Multiple Bearer Requested

For a definition of this parameter see clause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

Chosen Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

Selected Codec

For definition of this parameter see subclause 7.6.6. This parameter shall be included always if MSC-B supports the selection of codec based on Available Codecs List, even if Selected Codec is equal to the Currently Used Codec received in the service request. This parameter shall not be included if Available Codecs List was not received in the service request.

User error

For definition of this parameter see clause 7.6.1. The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.

- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in clause 7.6.1.

****

17.7.1 Mobile Service data types

.....

```
PrepareHO-Arg ::= [3] SEQUENCE {
     targetCellId                        [0] GlobalCellId                    OPTIONAL,
     ho-NumberNotRequired                NULL                                OPTIONAL,
     targetRNCId                         [1] RNCId                           OPTIONAL,
     an-APDU                             [2] AccessNetworkSignalInfo         OPTIONAL,
     multipleBearerRequested             [3] NULL                            OPTIONAL,
     imsi                                [4] IMSI                            OPTIONAL,
     integrityProtectionInfo             [5] IntegrityProtectionInformation
     OPTIONAL,
     encryptionInfo                      [6] EncryptionInformation
     OPTIONAL,
     radioResourceInformation            [7] RadioResourceInformation        OPTIONAL,
     allowedGSM-Algorithms               [9]  AllowedGSM-Algorithms          OPTIONAL,
     allowedUMTS-Algorithms              [10] AllowedUMTS-Algorithms         OPTIONAL,
     radioResourceList                   [11] RadioResourceList              OPTIONAL,
     extensionContainer                  [8] ExtensionContainer              OPTIONAL,
     ... ,
     rab-Id                              [12] RAB-Id                         OPTIONAL,
     bssmap-ServiceHandover              [13] BSSMAP-ServiceHandover         OPTIONAL,
     ranap-ServiceHandover               [14] RANAP-ServiceHandover          OPTIONAL,
     bssmap-ServiceHandoverList          [15] BSSMAP-ServiceHandoverList     OPTIONAL,
     asciCallReference                   [20] ASCI-CallReference             OPTIONAL,
     geran-classmark                     [16] GERAN-Classmark                OPTIONAL,
     currentlyUsedCodec                  [17] Codec                          OPTIONAL,
     availableCodecsList                 [18] AvailableCodecsList            OPTIONAL,
     rab-ConfigurationIndicator          [19] NULL                           OPTIONAL,
     uesbi-Iu                            [21] UESBI-Iu                       OPTIONAL
}
```

.....

```
CheckIMEI-Res ::= SEQUENCE {
     equipmentStatus                     EquipmentStatus                     OPTIONAL,
     bmuef                               UESBI-Iu                            OPTIONAL,
     extensionContainer                  ExtensionContainer                  OPTIONAL,
     ...}
```

.....

```
UESBI-Iu ::= SEQUENCE {~~OCTET STRING (SIZE (10))~~
     uesbi-IuA           [0] UESBI-IuA                                       OPTIONAL,
     uesbi-IuB           [1] UESBI-IuB                                       OPTIONAL,
...}
     ~~-- Octets are coded according the UESBI information element in 3GPP TS 25.413.~~
```

```
UESBI-IuA                                ::= BIT STRING (SIZE(1..128))
-- See 3GPP TS 25.413
```

```
UESBI-IuB                                       ::= BIT STRING (SIZE(1..128))
-- See 3GPP TS 25.413
```

.....

3GPP TSG CN WG4 Meeting #20 **N4-030922**
Sophia Antipolis, FRANCE, 25th – 29th August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** 647 ⌘**rev** **1** ⌘ Current version: **6.2.0** ⌘

*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 **X**

Title:	⌘	UESBI -IU format
Source:	⌘	CN4
Work item code:	⌘	Late UE
Date:	⌘	15/08/2003
Category:	⌘	**A**
Release:	⌘	Rel-6

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:	⌘	to align the UESBI-Iu format with 25.413
Summary of change:	⌘	correct the UESBI parameter; align terminology with 25.413
Consequences if not approved:	⌘	misalignment will result in interoperability problems.

Clauses affected:	⌘	7.6, 7.6.3.2a, 7.6.6.20, 8.4.1.2, 8.4.1.3, 17.7.1

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.

7.6 Definition of parameters

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

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

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

Absent Subscriber Diagnostic SM	7.6.8.9	Location Information for GPRS	7.6.2.30a
Access connection status	7.6.9.3	Location update type	7.6.9.6
Access signalling information	7.6.9.5	Long Forwarded-to Number	7.6.2.22A
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Long FTN Supported	7.6.2.22B
Additional LCS Capability Sets	7.6.11.25		
Additional Location Estimate	7.6.11.21	Lower Layer Compatibility	7.6.3.42
Additional number	7.6.2.46	LSA Information	7.6.3.56
Additional signal info	7.6.9.10	LSA Information Withdraw	7.6.3.58
Additional SM Delivery Outcome	7.6.8.11	MC Information	7.6.4.48
Age Indicator	7.6.3.72	MC Subscription Data	7.6.4.47
Alert Reason	7.6.8.8	Mobile Not Reachable Reason	7.6.3.51
Alert Reason Indicator	7.6.8.10	Modification request for CSI	7.6.3.81
Alerting Pattern	7.6.3.44	Modification request for SS Information	7.6.3.82
All GPRS Data	7.6.3.53	More Messages To Send	7.6.8.7
All Information Sent	7.6.1.5	MS ISDN	7.6.2.17
AN-apdu	7.6.9.1	MSC number	7.6.2.11
APN	7.6.2.42	MSIsdn-Alert	7.6.2.29
Authentication set list	7.6.7.1	Multicall Bearer Information	7.6.2.52
B-subscriber Address	7.6.2.36	Multiple Bearer Requested	7.6.2.53
B subscriber Number	7.6.2.48	Multiple Bearer Not Supported	7.6.2.54
B subscriber subaddress	7.6.2.49	MWD status	7.6.8.3
Basic Service Group	7.6.4.40	NbrUser	7.6.4.45
Bearer service	7.6.4.38	Network Access Mode	7.6.3.50
BSSMAP Service Handover	7.6.6.5	Network node number	7.6.2.43
BSSMAP Service Handover List	7.6.6.5A	Network resources	7.6.10.1
Call Barring Data	7.6.3.83	Network signal information	7.6.9.8
Call barring feature	7.6.4.19	New password	7.6.4.20
Call barring information	7.6.4.18	No reply condition timer	7.6.4.7
Call barring support indicator	7.6.3.92	North American Equal Accesspreferred Carrier Id	7.6.2.34
Call Direction	7.6.5.8	Number Portability Status	7.6.5.14
Call Forwarding Data	7.6.3.84	ODB Data	7.6.3.85
Call Info	7.6.9.9	ODB General Data	7.6.3.9
Call reference	7.6.5.1	ODB HPLMN Specific Data	7.6.3.10
Call Termination Indicator	7.6.3.67	OMC Id	7.6.2.18
Called number	7.6.2.24	Originally dialled number	7.6.2.26
Calling number	7.6.2.25	Originating entity number	7.6.2.10
CAMEL Subscription Info	7.6.3.78	Override Category	7.6.4.4
CAMEL Subscription Info Withdraw	7.6.3.38	P-TMSI	7.6.2.47
Cancellation Type	7.6.3.52	PDP-Address	7.6.2.45
Category	7.6.3.1	PDP-Context identifier	7.6.3.55
CCBS Feature	7.6.5.8	PDP-Type	7.6.2.44
CCBS Request State	7.6.4.49	Positioning Data	7.6.11.11A
Channel Type	7.6.5.9	Pre-paging supported	7.6.5.15
Chosen Channel	7.6.5.10	Previous location area Id	7.6.2.4
Chosen Radio Resource Information	7.6.6.10B	Protocol Id	7.6.9.7
Ciphering mode	7.6.7.7	Provider error	7.6.1.3

Cksn	7.6.7.5
CLI Restriction	7.6.4.5
CM service type	7.6.9.2
Complete Data List Included	7.6.3.54
CS Allocation Retention priority	7.6.3.87
CS LCS Not Supported by UE	7.6.11.9
CUG feature	7.6.3.26
CUG index	7.6.3.25
CUG info	7.6.3.22
CUG interlock	7.6.3.24
CUG Outgoing Access indicator	7.6.3.8
CUG subscription	7.6.3.23
CUG Subscription Flag	7.6.3.37
Current location area Id	7.6.2.6
Current password	7.6.4.21
Deferred MT-LR Data	7.6.11.3
Deferred MT-LR Response Indicator	7.6.11.2
eMLPP Information	7.6.4.41
Encryption Information	7.6.6.9
Equipment status	7.6.3.2
Extensible Basic Service Group	7.6.3.5
Extensible Bearer service	7.6.3.3
Extensible Call barring feature	7.6.3.21
Extensible Call barring information	7.6.3.20
Extensible Call barring information for CSE	7.6.3.79
Extensible Forwarding feature	7.6.3.16
Extensible Forwarding info	7.6.3.15
Extensible Forwarding information for CSE	7.6.3.80
Extensible Forwarding Options	7.6.3.18
Extensible No reply condition timer	7.6.3.19
Extensible QoS-Subscribed	7.6.3.74
Extensible SS-Data	7.6.3.29
Extensible SS-Info	7.6.3.14
Extensible SS-Status	7.6.3.17
Extensible Teleservice	7.6.3.4
External Signal Information	7.6.9.4
Failure Cause	7.6.7.9
Forwarded-to number	7.6.2.22
Forwarded-to subaddress	7.6.2.23
Forwarding feature	7.6.4.16
Forwarding information	7.6.4.15
Forwarding Options	7.6.4.6
GERAN Classmark	7.6.6.4
GGSN address	7.6.2.40
GGSN number	7.6.2.41
GMSC CAMEL Subscription Info	7.6.3.34
GPRS enhancements support indicator	7.6.3.73
GPRS Node Indicator	7.6.8.14
GPRS Subscription Data	7.6.3.46
GPRS Subscription Data Withdraw	7.6.3.45
GPRS Support Indicator	7.6.8.15
Group Id	7.6.2.33
GSM bearer capability	7.6.3.6
gsmSCF Address	7.6.2.58
gsmSCF Initiated Call	7.6.3.c
Guidance information	7.6.4.22
Handover number	7.6.2.21
High Layer Compatibility	7.6.3.43
HLR Id	7.6.2.15
HLR number	7.6.2.13

PS LCS Not Supported by UE	7.6.11.10
QoS-Subscribed	7.6.3.47
Radio Resource Information	7.6.6.10
Radio Resource List	7.6.6.10A
RANAP Service Handover	7.6.6.6
Rand	7.6.7.2
LCS-Reference Number	7.6.11.23
Regional Subscription Data	7.6.3.11
Regional Subscription Response	7.6.3.12
Relocation Number List	7.6.2.19A
Requested Info	7.6.3.31
Requested Subscription Info	7.6.3.86
Roaming number	7.6.2.19
Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
Roaming Restriction Due To Unsupported Feature	7.6.3.13
Current Security Context	7.6.7.8
Selected RAB ID	7.6.2.56
Service centre address	7.6.2.27
Serving Cell Id	7.6.2.37
SGSN address	7.6.2.39
SGSN CAMEL Subscription Info	7.6.3.75
SGSN number	7.6.2.38
SIWF Number	7.6.2.35
SoLSA Support Indicator	7.6.3.57
SM Delivery Outcome	7.6.8.6
SM-RP-DA	7.6.8.1
SM-RP-MTI	7.6.8.16
SM-RP-OA	7.6.8.2
SM-RP-PRI	7.6.8.5
SM-RP-SMEA	7.6.8.17
SM-RP-UI	7.6.8.4
Sres	7.6.7.3
SS-Code	7.6.4.1
SS-Data	7.6.4.3
SS-Event	7.6.4.42
SS-Event-Data	7.6.4.43
SS-Info	7.6.4.24
SS-Status	7.6.4.2
Stored location area Id	7.6.2.5
Subscriber State	7.6.3.30
Subscriber Status	7.6.3.7
Super-Charger Supported in HLR	7.6.3.70
Super-Charger Supported in Serving Network Entity	7.6.3.71
Offered Camel4 CSIs	7.6.3.36D
Offered Camel4 CSIs in interrogating node	7.6.3.36E
Offered Camel4 CSIs in VMSC	7.6.3.36F
Offered Camel4 CSIs in VLR	7.6.3.36B
Offered Camel4 CSIs in SGSN	7.6.3.36C
Offered Camel4 Functionalities	7.6.3.36G
Supported CAMEL Phases	7.6.3.36H
Supported CAMEL Phases in VLR	7.6.3.36
Supported CAMEL Phases in SGSN	7.6.3.36A
Supported CAMEL Phases in interrogating node	7.6.3.36I
Supported GAD Shapes	7.6.11.20
Supported LCS Capability Sets	7.6.11.17
Suppress Incoming Call Barring	7.6.3.b
Suppress T-CSI	7.6.3.33
Suppress VT-CSI	7.6.3.a
Suppression of Announcement	7.6.3.32
Target cell Id	7.6.2.8
Target location area Id	7.6.2.7

HO-Number Not Required	7.6.6.7	Target RNC Id	7.6.2.8A
IMEI	7.6.2.3	Target MSC number	7.6.2.12
IMSI	7.6.2.1	Teleservice	7.6.4.39
Integrity Protection Information	7.6.6.8	TMSI	7.6.2.2
Inter CUG options	7.6.3.27	Trace reference	7.6.10.2
Intra CUG restrictions	7.6.3.28	Trace type	7.6.10.3
		UESBI-Iu	7.6.6.20
Invoke Id	7.6.1.1	User error	7.6.1.4
ISDN Bearer Capability	7.6.3.41	USSD Data Coding Scheme	7.6.4.36
IST Alert Timer	7.6.3.66	USSD String	7.6.4.37
IST Information Withdrawn	7.6.3.68	UU Data	7.6.5.12
IST Support Indicator	7.6.3.69	UUS CF Interaction	7.6.5.13
LCS Codeword	7.6.11.18	VBS Data	7.6.3.40
LCS Information	7.6.3.60	VGCS Data	7.6.3.39
LCS Service Type Id	7.6.11.15	VLR CAMEL Subscription Info	7.6.3.35
Kc	7.6.7.4	VLR number	7.6.2.14
Linked Id	7.6.1.2	VPLMN address allowed	7.6.3.48
LMSI	7.6.2.16	Zone Code	7.6.2.28
Location Information	7.6.2.30		

****

7.6.3.2a BMUEF

This parameter refers to the Bit Map of UE Faults and corresponds to the UESBI-Iu parameter defined in 3GPP TS 25.413 [120].

****

7.6.6.20 UESBI-Iu

This parameter refers to the UESBI-Iu (UE Specific Behaviour Information over the Iu interface) information element defined in 3GPP TS 25.413.

****

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANDOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Allowed GSM Algorithms	C	C(=)		
Allowed UMTS Algorithms	C	C(=)		
Radio Resource List	C	C(=)		
RAB ID	C	C(=)		
GERAN Classmark	C	C(=)		
BSSMAP Service Handover	C	C(=)		
BSSMAP Service Handover List	C	C(=)		
RANAP Service Handover	C	C(=)		
Currently Used Codec	C	C(=)		
Available Codecs List	C	C(=)		
RAB Configuration Indicator	C	C(=)		

ASCI Call Reference	C	C(=)		
UESBI-Iu	C	C(=)		
Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
Chosen Radio Resource Information			C	C(=)
Selected Codec			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see clause 7.6.1.

Target Cell Id

For definition of this parameter see clause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3GPP TS 23.009.

Target RNC Id

For definition of this parameter see clause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3GPP TS 23.009.

HO-Number Not Required

For definition of this parameter see clause 7.6.6.

IMSI

For definition of this parameter see clause 7.6.2. This UMTS parameter shall be included if:

- available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. If the parameter Radio Resource List is sent , the parameter Radio Resource Information shall not be sent.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes allowed GSM algorithms. This GSM parameter shall be included if:

- the service is a part of the Inter-MSC SRNS Relocation procedure and
- Ciphering or Security Mode Setting procedure has been performed.and
- there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if all of the following conditions apply:

- access network protocol is BSSAP and
- Integrity Protection Information and Encryption Information are not available and

Ciphering or Security Mode Setting procedure has been performed.

Radio Resource List

For definition of this parameter see clause 7.6.6. This parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter Radio Resource Information is sent , the parameter Radio Resource List shall not be sent.

RAB ID

For definition of this parameter see subclause 7.6.2. This parameter shall be included when MSC-A supports multiple bearers and access network protocol is BSSAP and the RAB ID has a value other than 1.

GERAN Classmark

For definition of this parameter see subclause 7.6.6 This parameter shall be included if available.

BSSMAP Service Handover

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is RANAP. If the parameter BSSMAP Service Handover List is sent, the parameter BSSMAP Service Handover shall not be sent.

BSSMAP Service Handover List

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is RANAP. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter BSSMAP Service Handover is sent, the parameter BSSMAP Service Handover List shall not be sent.

RANAP Service Handover

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is BSSAP.

Currently Used Codec

For definition of this parameter see subclause 7.6.6. This parameter shall be included if the call is a speech call. This parameter shall not be included if Available Codecs List is not included.

Available Codecs List

For definition of this parameter see subclause 7.6.6. This parameter shall be included if the call is a speech call.

RAB Configuration Indicator

For definition of this parameter see subclause 7.6.6. This parameter may be included if the call is a speech call and MSC-A knows by means of configuration information that MSC-B supports the use of Available Codecs List parameter. This parameter shall not be included if Available Codecs List is not included.

ASCI Call Reference

This parameter contains either the broadcast call reference or group call reference. It shall be included if a subscriber is undergoing handover during a VGCS or VBS call, where MSC-B already has a Bearer established, so that MSC-B can determine the Group or Broadcast Call to which it shall attach the subscriber, see 3GPP TS 48.008 [49].

UESBI-Iu

For definition of this parameter see clause 7.6.6. It shall be present if it is available and the access network protocol is BSSAP.

Handover Number

For definition of this parameter see clause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation in the case that MSC-B supports multiple bearers.

Multiple Bearer Requested

For a definition of this parameter see clause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

Chosen Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

Selected Codec

For definition of this parameter see subclause 7.6.6. This parameter shall be included always if MSC-B supports the selection of codec based on Available Codecs List, even if Selected Codec is equal to the Currently Used Codec received in the service request. This parameter shall not be included if Available Codecs List was not received in the service request.

User error

For definition of this parameter see clause 7.6.1. The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.
- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in clause 7.6.1.

****

17.7.1 Mobile Service data types

.....

```
PrepareHO-Arg ::= [3] SEQUENCE {
     targetCellId                    [0] GlobalCellId                  OPTIONAL,
     ho-NumberNotRequired            NULL                              OPTIONAL,
     targetRNCId                     [1] RNCId                         OPTIONAL,
     an-APDU                         [2] AccessNetworkSignalInfo       OPTIONAL,
     multipleBearerRequested         [3] NULL                          OPTIONAL,
     imsi                            [4] IMSI                          OPTIONAL,
     integrityProtectionInfo         [5] IntegrityProtectionInformation
     OPTIONAL,
     encryptionInfo                  [6] EncryptionInformation
     OPTIONAL,
     radioResourceInformation        [7] RadioResourceInformation      OPTIONAL,
     allowedGSM-Algorithms           [9]  AllowedGSM-Algorithms        OPTIONAL,
     allowedUMTS-Algorithms          [10] AllowedUMTS-Algorithms       OPTIONAL,
     radioResourceList               [11] RadioResourceList            OPTIONAL,
     extensionContainer              [8] ExtensionContainer            OPTIONAL,
     ... ,
     rab-Id                          [12] RAB-Id                       OPTIONAL,
     bssmap-ServiceHandover          [13] BSSMAP-ServiceHandover       OPTIONAL,
     ranap-ServiceHandover           [14] RANAP-ServiceHandover        OPTIONAL,
     bssmap-ServiceHandoverList      [15] BSSMAP-ServiceHandoverList   OPTIONAL,
     asciCallReference               [20] ASCI-CallReference           OPTIONAL,
     geran-classmark                 [16] GERAN-Classmark              OPTIONAL,
     currentlyUsedCodec              [17] Codec                        OPTIONAL,
     availableCodecsList             [18] AvailableCodecsList          OPTIONAL,
     rab-ConfigurationIndicator      [19] NULL                         OPTIONAL,
     uesbi-Iu                        [21] UESBI-Iu                     OPTIONAL
}
```

.....

```
CheckIMEI-Res ::= SEQUENCE {
     equipmentStatus                 EquipmentStatus                   OPTIONAL,
     bmuef                           UESBI-Iu                          OPTIONAL,
     extensionContainer              ExtensionContainer                OPTIONAL,
     ...}
```

.....

```
UESBI-Iu ::= SEQUENCE {~~OCTET STRING (SIZE (10))~~
    uesbi-IuA           [0] UESBI-IuA                                   OPTIONAL,
    uesbi-IuB           [1] UESBI-IuB                                   OPTIONAL,
...}
~~    -- Octets are coded according the UESBI information element in 3GPP TS 25.413.~~
```

```
UESBI-IuA                                   ::= BIT STRING (SIZE(1..128))
-- See 3GPP TS 25.413
```

```
UESBI-IuB                                   ::= BIT STRING (SIZE(1..128))
-- See 3GPP TS 25.413
```

.....

3GPP TSG CN WG4 Meeting #20 **N4-030866**
Sophia Antipolis, FRANCE, 25th – 29th August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.010** **CR** **091** ⌘ **rev** **-** ⌘ Current version: **5.3.1** ⌘

*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:	⌘	Addition of Early UE specific cause code mapping
Source:	⌘	CN4
Work item code:	⌘	LATE_UE
Date:	⌘	14/08/2003
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:	⌘	**This is an essential correction** The mapping from PUESBINE feature specific cause value in RANAP to corresponding cause value in BSSAP is missing.
Summary of change:	⌘	The missing mapping has been added.
Consequences if not approved:	⌘	The specification of PUESBINE feature would not be complete.

Clauses affected:	⌘	4.7.6			
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.

4.7.6 Cause Code Mapping

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the BSSMAP and the RANAP 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 BSSMAP Handover Required and the cause codes sent in RANAP Relocation Request is as follows:

48.008	25.413	Notes
HANDOVER REQUIRED	RELOCATION REQUEST	
-Better Cell	-Time critical reloc.	
-Directed retry	-Directed retry	
-Distance	-Time critical reloc.	
-Downlink quality	-Time critical reloc.	
-Downlink strength	-Time critical reloc.	
-O and M intervention	-O and M intervention	
-Preemption	-RAB pre-empted	
-Response to MSC invocation	-Time critical reloc.	
-Switch circuit pool		1
-Traffic	-Time critical reloc.	
-Uplink quality	-Time critical reloc.	
-Uplink strength	-Time critical reloc.	
-Any other value	-Time critical reloc.	

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Request and the cause codes sent in RANAP Relocation Request is as follows (the mapping is only used for the MAP-E interface):

48.008	25.413	Notes
HANDOVER REQUEST	RELOCATION REQUEST	
-Better Cell	-Time critical reloc.	
-Directed retry	- Directed retry	
-Distance	-Time critical reloc.	
-Downlink quality	-Time critical reloc.	
-Downlink strength	-Time critical reloc.	
-O and M intervention	-O and M intervention	
-Preemption	-RAB pre-empted	
-Response to MSC invocation	-Time critical reloc.	
-Switch circuit pool		1
-Traffic	-Time critical reloc.	
-Uplink quality	-Time critical reloc.	
-Uplink strength	-Time critical reloc.	
-Any other value	-Time critical reloc.	

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Iu Release Command is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	IU RELEASE COMMAND	
-Ciphering algorithm not supported		2
-Circuit pool mismatch		1
-Equipment failure	-Relocation cancelled	
-Invalid message contents	-Abstract Syntax Error	
-No radio resource available		2
-O and M intervention	-O and M intervention	
-Radio interface failure, reversion to old channel	-Relocation cancelled	
-Radio interface message failure	-Relocation cancelled	
-Requested speech version unavailable		2
-Requested terrestrial resource unavailable		2
-Requested transcoding/rate adaption unavailable		2
-Switch circuit pool		1
-Terrestrial circuit already allocated	-Relocation cancelled	
-Any other value	-Relocation cancelled	

NOTE 1: Cause code not used at inter-system handover.

NOTE 2: Cause code not applicable to this traffic case.

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER FAILURE	
-GERAN Iu-mode failure	-GERAN Iu-mode failure	
-Any other value	-No radio resource available	

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Required Reject is as follows:

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER REQUIRED REJECT	
-GERAN Iu-mode failure	-GERAN Iu-mode failure	
-Incoming Relocation Not Supported Due To PUESBINE Feature	-Incoming Relocation Not Supported Due To PUESBINE Feature	
-Any other value	-No radio resource available	

The mapping between the RANAP and the BSSMAP assignment messages is used in the MAP-E interface. RANAP RAB Assignment Response with successful result is mapped to BSSMAP Assignment Complete; RANAP RAB Assignment Response with unsuccessful result is mapped to BSSMAP Assignment Failure. The mapping between the cause codes received in RANAP RAB Assignment Response and the cause codes sent in BSSMAP Assignment Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RAB ASSIGNMENT RESPONSE	ASSIGNMENT FAILURE	
-Requested traffic class not available	–No radio resource available	
-Invalid RAB parameters value	–Invalid msg. contents	
-Requested max bit rate not available	–No radio resource available	
-Requested max bit rate for DL not available	–No radio resource available	
-Requested max bit rate for UL not available	–No radio resource available	
-Requested guaranteed bit rate not available	–No radio resource available	
-Requested guaranteed bit rate for DL not available	–No radio resource available	
-Requested guaranteed bit rate for UL not available	–No radio resource available	
-Requested transfer delay not achievable	–No radio resource available	
-Invalid RAB param. combination	–Invalid msg. contents	
-Condition violation for SDU parameters	–Invalid msg. contents	
-Condition violation for traffic handling priority	–Invalid msg. contents	
-Condition violation for guaranteed bit rate	–Invalid msg. contents	
-User plane not supported	–No radio resource available	
-Iu UP failure	–Equipment failure	
-Tqueuing expiry	–Radio interface message failure	
-Invalid RAB id	–Invalid msg. contents	
-Request superseeded	–No radio resource available	
-Relocation triggered	-Relocation triggered	
-GERAN Iu-mode failure	-GERAN Iu-mode failure	
-Any other value	–Radio interface message failure	

The mapping between the cause codes received in RANAP Security Mode Reject and the cause codes sent in BSSMAP Cipher Mode Reject is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
SECURITY MODE REJECT	CIPHER MODE REJECT	
-Requested ciphering and/or integrity protection algorithms not supported	–Ciphering algorithm not supported	
-Failure in the radio interface procedure	–Radio interface message failure	
-Change of ciphering and/or integrity protection is not supported	-Invalid msg. contents	
-Relocation triggered	-Relocation triggered	
-Any other value	–Radio interface message failure	

The mapping between the cause codes received in RANAP Location Report and the cause codes sent in BSSMAP Handover Performed is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
LOCATION REPORT	HANDOVER PERFORMED	
-User restriction start ind.	–O&M intervention	
-User restriction start ind.	–O&M intervention	
-Requested report type not supported		1
-Any other value	-Better cell	

NOTE 1: In this case, no Handover Performed is sent.

3GPP TSG CN WG4 Meeting #20 ***N4-031003***
Sophia Antipolis, FRANCE, 25th – 29th August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.060** **CR** **454** ⌘ **rev** **-** ⌘ Current version: **5.6.0** ⌘

*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:	⌘	Change of Early UE feature to PUESBINE
Source:	⌘	CN4
Work item code:	⌘	Late UE
Date:	⌘	26/08/2003
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:	⌘	**This is an essential correction** Currently 29.060 uses the undefined terminology “Early UE feature” and does not contain a reference to 3GPP TS 23.195 to . This may cause confusion to readers and implementers.
Summary of change:	⌘	1. Add a reference in the reference section to 3GPP TS 23.195. 2. Change the term "Early UE" to “PUESBINE”.
Consequences if not approved:	⌘	Confusion for readers and implementors as to what the undefined term "Early UE feature" relates to and where it is defined.

Clauses affected:	⌘	2, 3.2, 7.5.4, 7.5.6, 7.7.28

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

⌘

Other comments:	⌘	Warning to CR implementer: There are 23 references in 29.060 Rel-5, but 24 references in 29.060 Rel-6. Care should be taken when assigning a number to the new reference.

****** First Modified Section ******

2 References

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

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

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.003: "Numbering, addressing and identification".

[3] 3GPP TS 23.007: "Restoration procedures".

[4] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[5] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[6] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[7] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[8] 3GPP TS 33.102: "3G security; Security architecture".

[9] 3GPP TS 43.020: " Security related network functions".

[10] 3GPP TS 43.064: "Overall description of the GPRS radio interface; Stage 2".

[11] 3GPP TS 44.064: "Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) layer specification".

[12] IETF RFC 791 (STD 0005): "Internet Protocol", J. Postel.

[13] IETF RFC 768 (STD 0006): "User Datagram Protocol", J. Postel.

[14] IETF RFC 1700: "Assigned numbers", J. Reynolds and J. Postel.

[15] IETF RFC 2181: "Clarifications to the DNS specification", R. Elz and R. Bush.

[16] Void.

[17] 3GPP TS 23.121: "Architectural requirements for Release 1999".

[18] 3GPP TS 32.215: "Telecommunication management; Charging management; Charging data description for the Packet Switched (PS) domain".

[19] 3GPP TS 23.236: "Intra domain connection of Radio Access Network (RAN) nodes to multiple Core Network (CN) nodes".

[20] 3GPP TS 48.018: "General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS protocol".

[21] 3GPP TR 44.901 (Release 5): "External Network Assisted Cell Change (NACC)".

[22] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[23] 3GPP TS 25.414: "UTRAN Iu interface data transport and transport signalling".

[xx] 3GPP TS 23.195: "Provision of User Equipment Specific Behaviour Information (UESBI) to network entities".

****** Next Modified Section ******

3.2 Abbreviations

Abbreviations used in the present document are listed in 3GPP TS 21.905 [1]

For the purposes of the present document, the following additional abbreviations apply:

BB	Backbone Bearer
DF	Don't Fragment
FFS	For Further Study
Gn interface	Interface between GPRS Support Nodes (GSNs) within a PLMN
Gp interface	Interface between GPRS Support Nodes (GSNs) in different PLMNs
GTP	GPRS Tunnelling Protocol
GTP-C	GTP Control
GTP-U	GTP User
IANA	Internet Assigned Number Authority
ICMP	Internet Control Message Protocol
IE	Information Element
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
MTU	Maximum Transmission Unit
NACC	Network Assisted Cell Change
PUESBINE	Provision of User Equipment Specific Behaviour Information to Network Entities
QoS	Quality of Service
RAN	Radio Access Network
RANAP	Radio Access Network Application Part
RIM	RAN Information Management
RNC	Radio Network Controller
TEID	Tunnel Endpoint IDentifier
TFT	Traffic Flow Template
UDP	User Datagram Protocol
UTRAN	UMTS Terrestrial Radio Access Network

****** Next Modified Section ******

7.5.4 SGSN Context Response

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

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.

- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

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

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

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

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

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

The MM Context contains necessary mobility management and security parameters. An SGSN supporting the '~~Early UE~~PUESBINE' feature (see 3GPP TS 23.195 [xx] for more information) shall include the IMEISV in the MM Context when transferring the IMEISV from the old SGSN to the new SGSN.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP contexts are included in an implementation dependant prioritized order, and the most important PDP context is placed first. When the PDP Context Prioritization IE is included, it informs the new SGSN that the PDP contexts are sent prioritized. If the new SGSN is not able to maintain active all the PDP contexts received from the old SGSN when it is indicated that prioritization of the PDP contexts is applied, the new SGSN should use the prioritisation sent by old SGSN as input when deciding which PDP contexts to maintain active and which ones to delete.

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

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the SGSN Context Response, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

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

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

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

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

Charging Characteristics IE contains the charching characteristics which apply for a PDP context; see 3GPP TS 32.215 [18]. One Charging Characteristics IE shall be included per PDP context IE. If no PDP context is active, this IE shall not be included. The mapping of a Charging Characteristics IE to a PDP Context IE is done according to the sequence of their appearance, e.g. the first Charging Characteristics IE is mapped to the first PDP Context IE.

The optional Private Extension contains vendor or operator specific information.

Table 27: Information Elements in a SGSN Context Response

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
RAB Context	Conditional	7.7.19
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
CharingCharacteristics	Optional	7.7.23
Radio Priority LCS	Optional	7.7.25B
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
PDP Context Prioritization	Optional	7.7.45
Private Extension	Optional	7.7.46

****** Next Modified Section ******

7.5.6 Forward Relocation Request

The old SGSN shall send a Forward Relocation Request to the new SGSN to convey necessary information to perform the SRNS Relocation procedure between new SGSN and Target RNC.

All information elements are mandatory, except PDP Context, RAB Context and Private Extension.

The IMSI information element contains the IMSI of the target MS for SRNS Relocation procedure.

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

The Tunnel Endpoint Identifier Control Plane field specifies a tunnel endpoint identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier Control Plane in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN.

The MM Context contains necessary mobility management and security parameters. An SGSN supporting the '~~Early UE~~PUESBINE' feature (see 3GPP TS 23.195 [xx] for more information) shall include the IMEISV in the MM Context when transferring the IMEISV from the old to the new SGSN.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP contexts are included in an implementation dependant prioritized order, and the most important PDP context is placed first. When the PDP Context Prioritization IE is included, it informs the new SGSN that the PDP contexts are sent prioritized. If the new SGSN is not able to maintain active all the PDP contexts received from the old SGSN when it is indicated that prioritization of the PDP contexts is applied, the new SGSN should use the prioritisation sent by old SGSN as input when deciding which PDP contexts to maintain active and which ones to delete. In case no PDP context is active, neither of these IEs shall be included.

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the Forward Relocation Request, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

UTRAN transparent container, Target identification and RANAP Cause are information from the source RNC in the old SGSN.

Charging Characteristics IE contains the charching characteristics which apply for a PDP context; see 3GPP TS 32.215 [18]. One Charging Characteristics IE shall be included per PDP context IE. If no PDP context is active, this IE shall not be included. The mapping of a Charging Characteristics IE to a PDP Context IE is done according to the sequence of their appearance, e.g. the first Charging Characteristics IE is mapped to the first PDP Context IE.

The optional Private Extension contains vendor or operator specific information.

Table 29: Information Elements in a Forward Relocation Request

Information element	Presence requirement	Reference
IMSI	Mandatory	7.7.2
Tunnel Endpoint Identifier Control Plane	Mandatory	7.7.14
RANAP Cause	Mandatory	7.7.18
Charging Characteristics	Optional	7.7.23
MM Context	Mandatory	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control plane	Mandatory	7.7.32
Target Identification	Mandatory	7.7.37
UTRAN transparent container	Mandatory	7.7.38
PDP Context Prioritization	Optional	7.7.45
Private Extension	Optional	7.7.46

****** Last Modified Section ******

7.7.28 MM Context

The MM Context information element contains the Mobility Management, MS and security parameters that are necessary to transfer between SGSNs at the Inter SGSN Routeing Area Update procedure.

Security Mode indicates the type of security keys (GSM/UMTS) and Authentication Vectors (quintuplets/triplets) that are passed to the new SGSN.

Ciphering Key Sequence Number (CKSN) is described in 3GPP TS 24.008 [5]. Possible values are integers in the range [0; 6]. The value 7 is reserved. CKSN identifies Kc. During the Intersystem Change to 3G-SGSN, the KSI shall be assigned the value of CKSN.

Key Set Identifier (KSI) identifies CK and IK. During the Intersystem Change to 2G-SGSN, the CKSN shall be assigned the value of KSI.

Used Cipher indicates the GSM ciphering algorithm that is in use.

Kc is the GSM ciphering key currently used by the old SGSN. Kc shall be present if GSM key is indicated in the Security Mode.

CK is the UMTS ciphering key currently used by the old SGSN. CK shall be present if UMTS keys are indicated in the Security Mode.

IK is the UMTS integrity key currently used by the old SGSN. IK shall be present if UMTS keys are indicated in the Security Mode.

The Triplet array contains triplets encoded as the value in the Authentication Triplet information element The Triplet array shall be present if indicated in the Security Mode.

The Quintuplet array contains Quintuplets encoded as the value in the Authentication Quintuplet information element. The Quintuplet array shall be present if indicated in the Security Mode. If the quintuplet array is present, the Quintuplet length field indicates its length.

DRX parameter indicates whether the MS uses DRX mode or not.

MS Network Capability provides the network with information concerning aspects of the MS related to GPRS. MS Network Capability and MS Network Capability Length are coded as in the value part described in 3GPP TS 24.008 [5].

DRX parameter is coded as described in 3GPP TS 24.008 [5], the value part only.

The two octets Container Length holds the length of the Container, excluding the Container Length octets.

Container contains one or several optional information elements as described in the clause 'Overview', from the clause 'General message format and information elements coding' in 3GPP TS 24.008 [5]. An SGSN supporting the '~~Early UE~~PUESBINE' feature (see 3GPP TS 23.195 [xx] for more information) shall include the IMEISV in the Container.

Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					CKSN		
5	Security Mode		No of Vectors			Used Cipher		
6-13	Kc							
14-m	Triplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)	MS Network Capability Length							
(m+4)-n	MS Network Capability							
(n+1)-(n+2)	Container length							
(n+3)-o	Container							

Figure 40: MM Context Information Element with GSM Key and Triplets

Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					KSI		
5	Security Mode		No of Vectors			Spare 111		
6-21	CK							
22-37	IK							
38-39	Quintuplet Length							
40-m	Quintuplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)	MS Network Capability Length							
(m+4)-n	MS Network Capability							
(n+1)-(n+2)	Container length							
(n+3)-o	Container							

Figure 41: MM Context Information Element with UMTS Keys and Quintuplets

Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					CKSN		
5	Security Mode		No of Vectors			Used Cipher		
6-13	Kc							
14-15	Quintuplet Length							
16-m	Quintuplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)	MS Network Capability Length							
(m+4)-n	MS Network Capability							
n+1-n+2	Container length							
n+3-o	Container							

Figure 42: MM Context Information Element with GSM Keys and UMTS Quintuplets

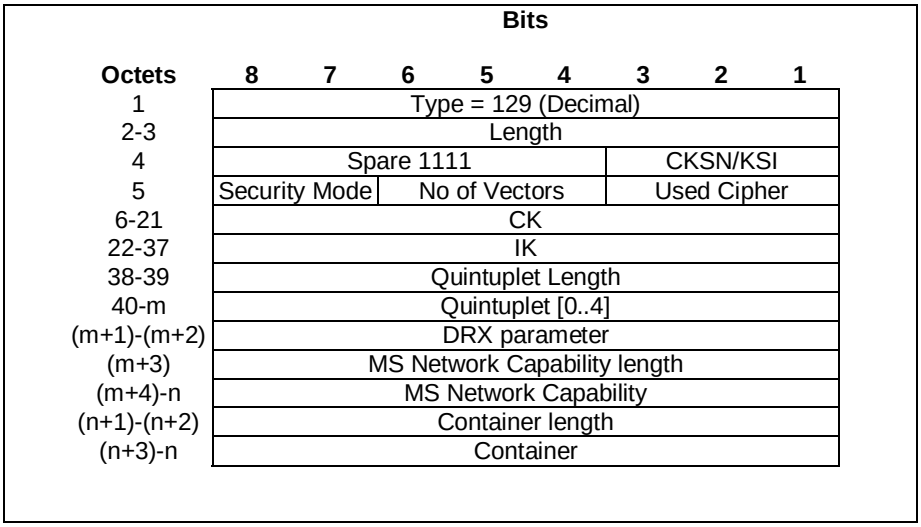


Figure 42A: MM Context Information Element with Used Cipher value, UMTS Keys and Quintuplets

Table 46: Used Cipher Values

Cipher Algorithm	Value (Decimal)
No ciphering	0
GEA/1	1
GEA/2	2
GEA/3	3
GEA/4	4
GEA/5	5
GEA/6	6
GEA/7	7

Table 47: Security Mode Values

Security Type	Value (Decimal)
GSM key and triplets	1
GSM key and quintuplets	3
UMTS key and quintuplets	2
Used cipher value, UMTS Keys and Quintuplets	0

3GPP TSG CN WG4 Meeting #20 ***N4-031004***
Sophia Antipolis, FRANCE, 25th – 29th August 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.060** **CR** **455** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

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

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

Title:	⌘	Change of Early UE feature to PUESBINE
Source:	⌘	CN4
Work item code:	⌘	Late UE
Date:	⌘	26/08/2003
Category:	⌘	**A**
Release:	⌘	Rel-6

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:	⌘	**This is an essential correction** Currently 29.060 uses the undefined terminology “Early UE feature” and does not contain a reference to 3GPP TS 23.195 to . This may cause confusion to readers and implementers.
Summary of change:	⌘	1. Add a reference in the reference section to 3GPP TS 23.195. 2. Change the term "Early UE" to “PUESBINE”.
Consequences if not approved:	⌘	Confusion for readers and implementors as to what the undefined term "Early UE feature" relates to and where it is defined.

Clauses affected:	⌘	2, 3.2, 7.5.4, 7.5.6, 7.7.28

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

⌘

Other comments:	⌘	Warning to CR implementer: There are 23 references in 29.060 Rel-5, but 24 references in 29.060 Rel-6. Care should be taken when assigning a number to the new reference.

****** First Modified Section ******

2 References

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

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

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.003: "Numbering, addressing and identification".

[3] 3GPP TS 23.007: "Restoration procedures".

[4] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[5] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[6] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[7] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[8] 3GPP TS 33.102: "3G security; Security architecture".

[9] 3GPP TS 43.020: " Security related network functions".

[10] 3GPP TS 43.064: "Overall description of the GPRS radio interface; Stage 2".

[11] 3GPP TS 44.064: "Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) layer specification".

[12] IETF RFC 791 (STD 0005): "Internet Protocol", J. Postel.

[13] IETF RFC 768 (STD 0006): "User Datagram Protocol", J. Postel.

[14] IETF RFC 1700: "Assigned numbers", J. Reynolds and J. Postel.

[15] IETF RFC 2181: "Clarifications to the DNS specification", R. Elz and R. Bush.

[16] Void.

[17] 3GPP TS 23.121: "Architectural requirements for Release 1999".

[18] 3GPP TS 32.215: "Telecommunication management; Charging management; Charging data description for the Packet Switched (PS) domain".

[19] 3GPP TS 23.236: "Intra domain connection of Radio Access Network (RAN) nodes to multiple Core Network (CN) nodes".

[20] 3GPP TS 48.018: "General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS protocol".

[21] 3GPP TR 44.901 (Release 5): "External Network Assisted Cell Change (NACC)".

[22] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[23] 3GPP TS 25.414: "UTRAN Iu interface data transport and transport signalling".

[24] 3GPP TS 23.271: " Technical Specification Group Services and System Aspects; Functional stage 2 description of LCS".

[xx] 3GPP TS 23.195: "Provision of User Equipment Specific Behaviour Information (UESBI) to network entities".

****** Next Modified Section ******

3.2 Abbreviations

Abbreviations used in the present document are listed in 3GPP TS 21.905 [1]

For the purposes of the present document, the following additional abbreviations apply:

BB	Backbone Bearer
DF	Don't Fragment
FFS	For Further Study
GMLC	Gateway Mobile Location Centre
Gn interface	Interface between GPRS Support Nodes (GSNs) within a PLMN
Gp interface	Interface between GPRS Support Nodes (GSNs) in different PLMNs
GTP	GPRS Tunnelling Protocol
GTP-C	GTP Control
GTP-U	GTP User
IANA	Internet Assigned Number Authority
ICMP	Internet Control Message Protocol
IE	Information Element
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
MTU	Maximum Transmission Unit
NACC	Network Assisted Cell Change
PUESBINE	Provision of User Equipment Specific Behaviour Information to Network Entities
QoS	Quality of Service
RAN	Radio Access Network
RANAP	Radio Access Network Application Part
RIM	RAN Information Management
RNC	Radio Network Controller
TEID	Tunnel Endpoint IDentifier
TFT	Traffic Flow Template
UDP	User Datagram Protocol
UTRAN	UMTS Terrestrial Radio Access Network

****** Next Modified Section ******

7.5.4 SGSN Context Response

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

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.

- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

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

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

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

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

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

The MM Context contains necessary mobility management and security parameters. An SGSN supporting the '~~Early UE~~PUESBINE' feature (see 3GPP TS 23.195 [xx] for more information) shall include the IMEISV in the MM Context when transferring the IMEISV from the old SGSN to the new SGSN.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP contexts are included in an implementation dependant prioritized order, and the most important PDP context is placed first. When the PDP Context Prioritization IE is included, it informs the new SGSN that the PDP contexts are sent prioritized. If the new SGSN is not able to maintain active all the PDP contexts received from the old SGSN when it is indicated that prioritization of the PDP contexts is applied, the new SGSN should use the prioritisation sent by old SGSN as input when deciding which PDP contexts to maintain active and which ones to delete.

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

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the SGSN Context Response, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

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

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

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

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

Charging Characteristics IE contains the charching characteristics which apply for a PDP context; see 3GPP TS 32.215 [18]. One Charging Characteristics IE shall be included per PDP context IE. If no PDP context is active, this IE shall not be included. The mapping of a Charging Characteristics IE to a PDP Context IE is done according to the sequence of their appearance, e.g. the first Charging Characteristics IE is mapped to the first PDP Context IE.

The optional Private Extension contains vendor or operator specific information.

Table 27: Information Elements in a SGSN Context Response

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
RAB Context	Conditional	7.7.19
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
CharingCharacteristics	Optional	7.7.23
Radio Priority LCS	Optional	7.7.25B
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
PDP Context Prioritization	Optional	7.7.45
Private Extension	Optional	7.7.46

****** Next Modified Section ******

7.5.6 Forward Relocation Request

The old SGSN shall send a Forward Relocation Request to the new SGSN to convey necessary information to perform the SRNS Relocation procedure between new SGSN and Target RNC.

All information elements are mandatory, except PDP Context, RAB Context and Private Extension.

The IMSI information element contains the IMSI of the target MS for SRNS Relocation procedure.

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

The Tunnel Endpoint Identifier Control Plane field specifies a tunnel endpoint identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier Control Plane in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN.

The MM Context contains necessary mobility management and security parameters. An SGSN supporting the '~~Early UE~~PUESBINE' feature (see 3GPP TS 23.195 [xx] for more information) shall include the IMEISV in the MM Context when transferring the IMEISV from the old to the new SGSN.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP contexts are included in an implementation dependant prioritized order, and the most important PDP context is placed first. When the PDP Context Prioritization IE is included, it informs the new SGSN that the PDP contexts are sent prioritized. If the new SGSN is not able to maintain active all the PDP contexts received from the old SGSN when it is indicated that prioritization of the PDP contexts is applied, the new SGSN should use the prioritisation sent by old SGSN as input when deciding which PDP contexts to maintain active and which ones to delete. In case no PDP context is active, neither of these IEs shall be included.

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the Forward Relocation Request, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

UTRAN transparent container, Target identification and RANAP Cause are information from the source RNC in the old SGSN.

Charging Characteristics IE contains the charching characteristics which apply for a PDP context; see 3GPP TS 32.215 [18]. One Charging Characteristics IE shall be included per PDP context IE. If no PDP context is active, this IE shall not be included. The mapping of a Charging Characteristics IE to a PDP Context IE is done according to the sequence of their appearance, e.g. the first Charging Characteristics IE is mapped to the first PDP Context IE.

The optional Private Extension contains vendor or operator specific information.

Table 29: Information Elements in a Forward Relocation Request

Information element	Presence requirement	Reference
IMSI	Mandatory	7.7.2
Tunnel Endpoint Identifier Control Plane	Mandatory	7.7.14
RANAP Cause	Mandatory	7.7.18
Charging Characteristics	Optional	7.7.23
MM Context	Mandatory	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control plane	Mandatory	7.7.32
Target Identification	Mandatory	7.7.37
UTRAN transparent container	Mandatory	7.7.38
PDP Context Prioritization	Optional	7.7.45
Private Extension	Optional	7.7.46

****** Last Modified Section ******

7.7.28 MM Context

The MM Context information element contains the Mobility Management, MS and security parameters that are necessary to transfer between SGSNs at the Inter SGSN Routeing Area Update procedure.

Security Mode indicates the type of security keys (GSM/UMTS) and Authentication Vectors (quintuplets/triplets) that are passed to the new SGSN.

Ciphering Key Sequence Number (CKSN) is described in 3GPP TS 24.008 [5]. Possible values are integers in the range [0; 6]. The value 7 is reserved. CKSN identifies Kc. During the Intersystem Change to 3G-SGSN, the KSI shall be assigned the value of CKSN.

Key Set Identifier (KSI) identifies CK and IK. During the Intersystem Change to 2G-SGSN, the CKSN shall be assigned the value of KSI.

Used Cipher indicates the GSM ciphering algorithm that is in use.

Kc is the GSM ciphering key currently used by the old SGSN. Kc shall be present if GSM key is indicated in the Security Mode.

CK is the UMTS ciphering key currently used by the old SGSN. CK shall be present if UMTS keys are indicated in the Security Mode.

IK is the UMTS integrity key currently used by the old SGSN. IK shall be present if UMTS keys are indicated in the Security Mode.

The Triplet array contains triplets encoded as the value in the Authentication Triplet information element The Triplet array shall be present if indicated in the Security Mode.

The Quintuplet array contains Quintuplets encoded as the value in the Authentication Quintuplet information element. The Quintuplet array shall be present if indicated in the Security Mode. If the quintuplet array is present, the Quintuplet length field indicates its length.

DRX parameter indicates whether the MS uses DRX mode or not.

MS Network Capability provides the network with information concerning aspects of the MS related to GPRS. MS Network Capability and MS Network Capability Length are coded as in the value part described in 3GPP TS 24.008 [5].

DRX parameter is coded as described in 3GPP TS 24.008 [5], the value part only.

The two octets Container Length holds the length of the Container, excluding the Container Length octets.

Container contains one or several optional information elements as described in the clause 'Overview', from the clause 'General message format and information elements coding' in 3GPP TS 24.008 [5]. An SGSN supporting the '~~Early UE~~PUESBINE' feature (see 3GPP TS 23.195 [xx] for more information) shall include the IMEISV in the Container.

Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					CKSN		
5	Security Mode		No of Vectors			Used Cipher		
6-13	Kc							
14-m	Triplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)	MS Network Capability Length							
(m+4)-n	MS Network Capability							
(n+1)-(n+2)	Container length							
(n+3)-o	Container							

Figure 40: MM Context Information Element with GSM Key and Triplets

Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					KSI		
5	Security Mode		No of Vectors			Spare 111		
6-21	CK							
22-37	IK							
38-39	Quintuplet Length							
40-m	Quintuplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)	MS Network Capability Length							
(m+4)-n	MS Network Capability							
(n+1)-(n+2)	Container length							
(n+3)-o	Container							

Figure 41: MM Context Information Element with UMTS Keys and Quintuplets

Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					CKSN		
5	Security Mode		No of Vectors			Used Cipher		
6-13	Kc							
14-15	Quintuplet Length							
16-m	Quintuplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)	MS Network Capability Length							
(m+4)-n	MS Network Capability							
n+1-n+2	Container length							
n+3-o	Container							

Figure 42: MM Context Information Element with GSM Keys and UMTS Quintuplets

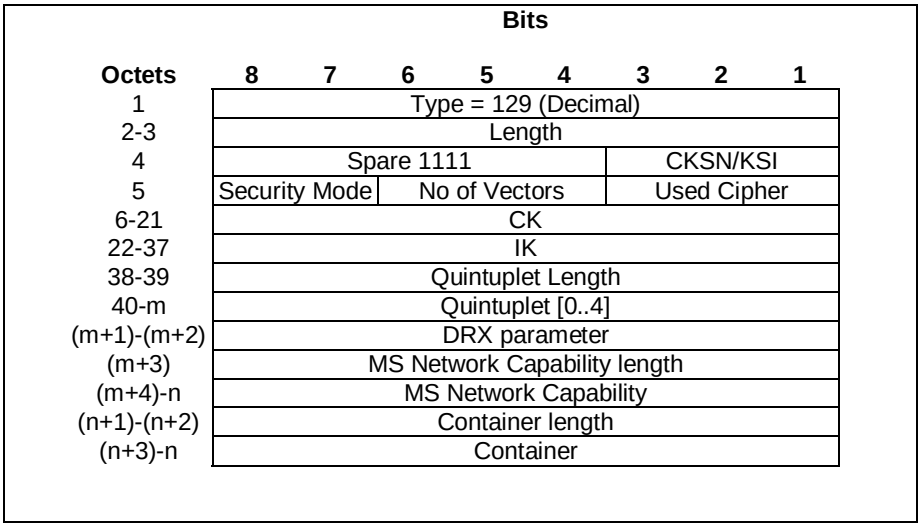


Figure 42A: MM Context Information Element with Used Cipher value, UMTS Keys and Quintuplets

Table 46: Used Cipher Values

Cipher Algorithm	Value (Decimal)
No ciphering	0
GEA/1	1
GEA/2	2
GEA/3	3
GEA/4	4
GEA/5	5
GEA/6	6
GEA/7	7

Table 47: Security Mode Values

Security Type	Value (Decimal)
GSM key and triplets	1
GSM key and quintuplets	3
UMTS key and quintuplets	2
Used cipher value, UMTS Keys and Quintuplets	0