

**3GPP TSG CN Plenary Meeting #17**  
**4<sup>th</sup> – 6<sup>th</sup> September 2002 Biarritz, FRANCE.**

**NP-020446**

**Source:** TSG CN WG4  
**Title:** TEI R99  
**Agenda item:** 7.11  
**Document for:** APPROVAL

---

<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>Doc-2nd-Level</b>	<b>Phase</b>	<b>Subject</b>	<b>Cat</b>	<b>Ver_C</b>
23.081	004		N4-020918	R99	Correction of 'Cause of no CLI' handling in SDLs	F	3.1.0
23.081	005		N4-020919	Rel4	Correction of 'Cause of no CLI' handling in SDLs	A	4.0.0
23.081	006		N4-020920	Rel5	Correction of 'Cause of no CLI' handling in SDLs	A	5.0.0
29.002	477		N4-021041	R99	Clarifications on Send Identification	F	3.13.0
29.002	478		N4-021042	Rel4	Clarifications on Send Identification	A	4.8.0
29.002	471	1	N4-021043	Rel5	Clarifications on Send Identification	A	5.2.0

## CHANGE REQUEST

⌘ **23.081 CR 004** ⌘ rev **-** ⌘ Current version: **3.1.0** ⌘

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

<b>Title:</b>	⌘ Correction of 'Cause of no CLI' handling in SDLs		
<b>Source:</b>	⌘ CN4		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 03/07/2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>2</b> (GSM Phase 2)	
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R96</b> (Release 1996)	
	<b>B</b> (addition of feature),	<b>R97</b> (Release 1997)	
	<b>C</b> (functional modification of feature)	<b>R98</b> (Release 1998)	
	<b>D</b> (editorial modification)	<b>R99</b> (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<b>Rel-4</b> (Release 4)
			<b>Rel-5</b> (Release 5)
			<b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ CR 23.081-002 ( <a href="#">N4-000390</a> ) at CN4#2 (Rotenburg, Germany) and CN#8 (Düsseldorf, Germany) was not implemented properly. The SDL modelling in CLIR_MAF004 does not set a reason for the restriction of Calling Line ID and does not call the procedure to set this value (CoNC). This CR repeats the addition of a call to procedure Cause_of_no_CLI_CLIR from CLIR_MAF004, which is currently missing from the specification. There is also a correction where an information element name was missed when implementing the CR. An editorial correction is necessary to process CLIP_MAF002
	<b>Remedy of incorrect implementation of a previously approved CR</b>
<b>Summary of change:</b>	⌘ 1) Add Links to CLIP_MAF002 2) Name added to unlabelled information element in 1.2.4 3) Add call to procedure Cause of no CLI CLIR whenever the Calling Line ID is restricted in process CLIR_MAF004.
<b>Consequences if not approved:</b>	⌘ CR 23.081-002 will not be implemented despite being agreed in May 2000 by CN4#2 and at CN#8. No reason for restriction of CLI will be sent.

<b>Clauses affected:</b>	⌘ 1.2, 1.2.4, 2.2										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘ <i>Mirror CRs for Rel-4 CR 005 (N4-020919), CR 006 Rel-5 (N4-020920)</i>										

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

## 1.2 Functions and information flows

...



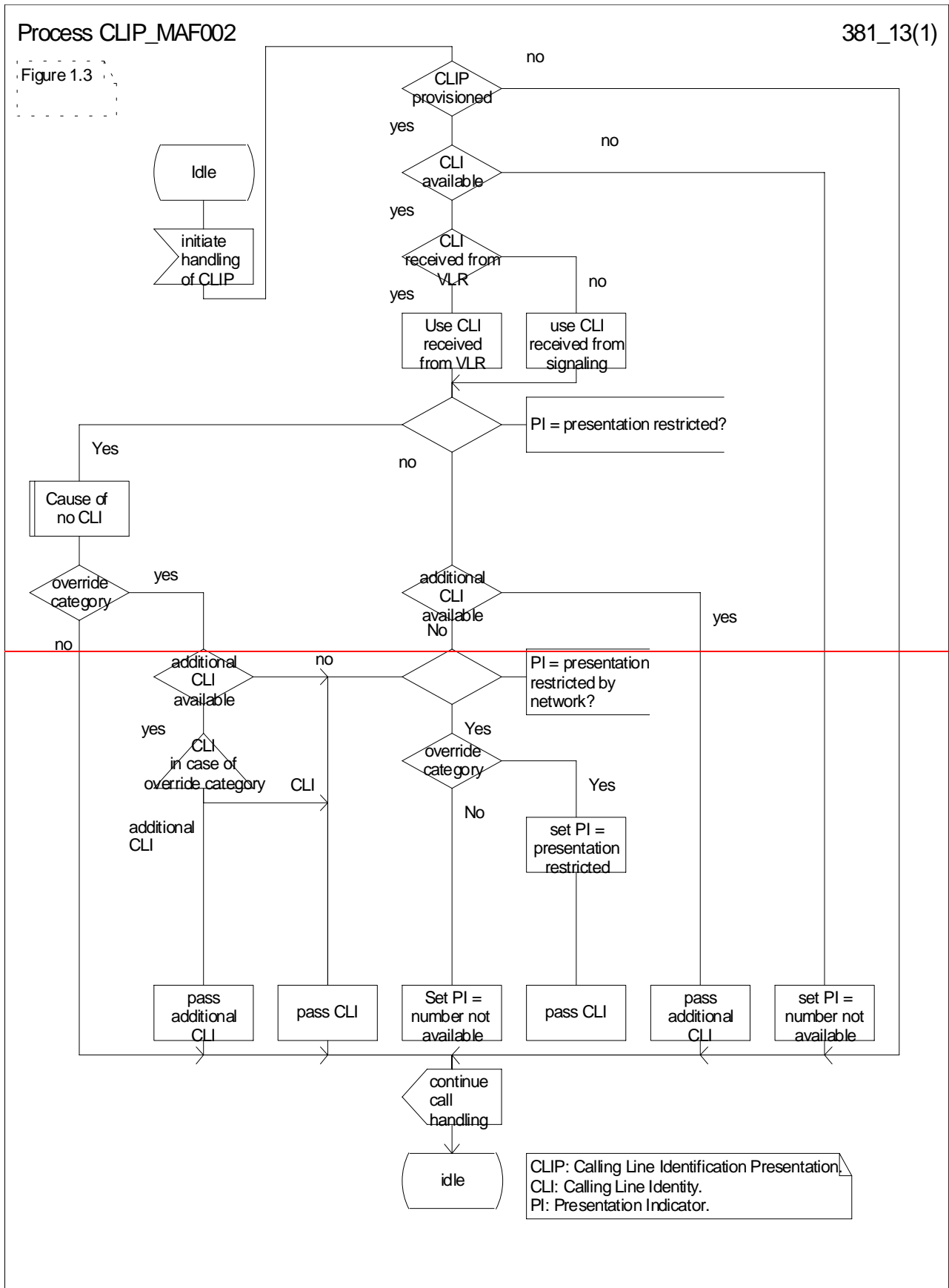


Figure 1.3: MAF002 Determination of the information for offering to the called party (destination MSC)

...

<b>**** Next Modified Section ****</b>
--

## 1.2.4 Messages between MSC and VLR in destination network

**Table 1.2.4.1: Messages between MSC and VLR**

Message	Message sender	Information element name	Information element Required	Information element description
Complete Call	VLR	-	-	Refer to 3G TS 23.018.
		Calling Party Number	C	In addition: The information element is present if it is stored in VLR; otherwise it shall be absent.
		Generic Number	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
		<a href="#">Cause of no CLI</a>	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
Process Call Waiting	VLR	-	-	Refer to 3G TS 23.018.
		Calling Party Number	C	In addition: The information element is present if it is stored in VLR; otherwise it shall be absent.
		Generic Number	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
		Cause of no CLI	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
Send Info for Incoming Call	MSC	-	-	Refer to 3G TS 23.018.
		Cause of no CLI	C	In addition: The information element is present if MSC received Cause of no CLI; otherwise it shall be absent.

...

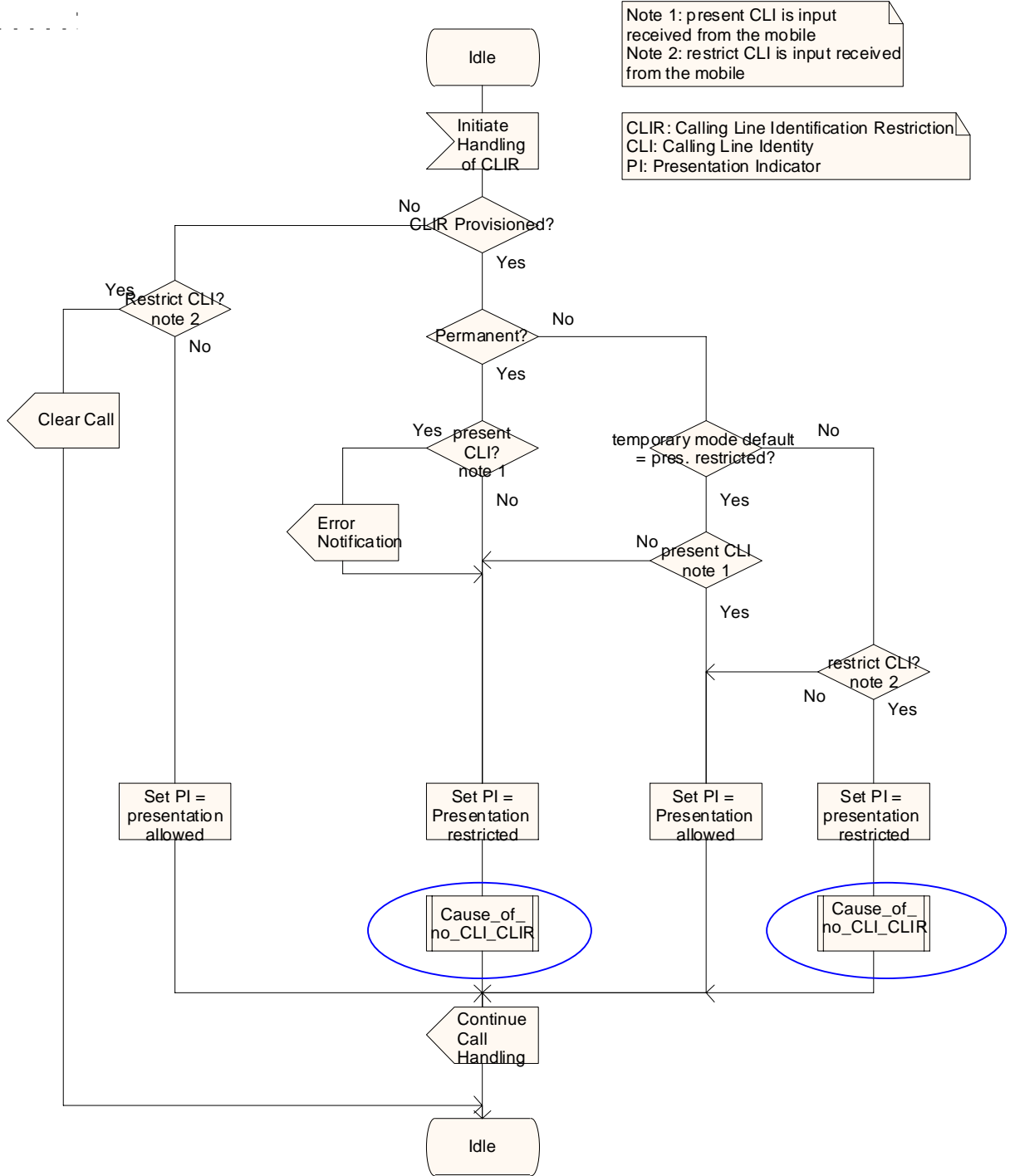
**\*\*\* Next Modified Section \*\*\***

## 2.2 Functions and information flows

process CLIR\_MAF004

381\_25(1)

Figure 2.5





Process CLIR\_MAF004

381\_25(1)

Figure 2.5

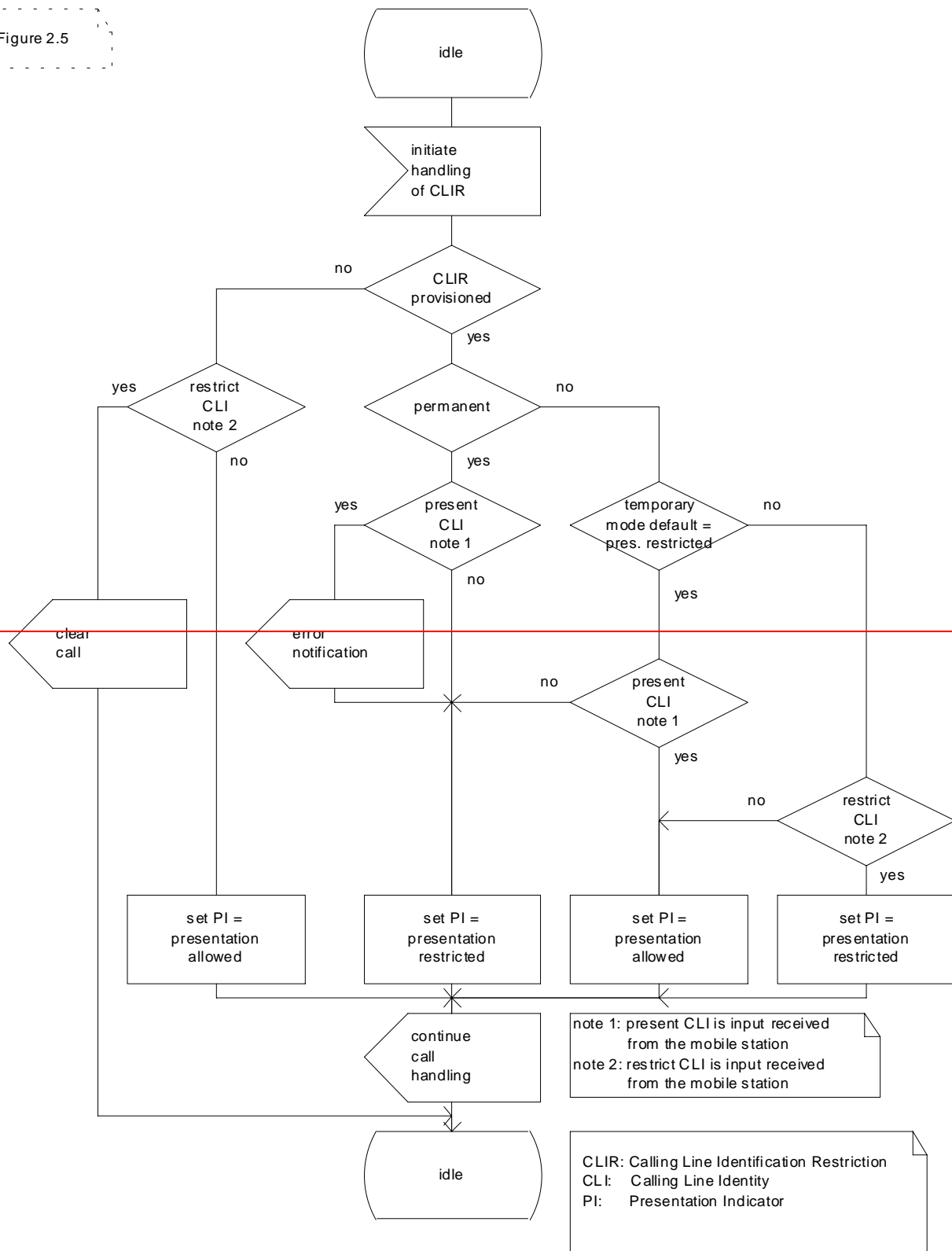


Figure 2.5: MAF004 Determination of the presentation indicator (originating MSC)

...

**\*\*\*\* End of Document \*\*\*\***

## CHANGE REQUEST

⌘ **23.081 CR 005** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction of 'Cause of no CLI' handling in SDLs		
<b>Source:</b>	⌘ CN4		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 03/07/2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	2	(GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	R96	(Release 1996)
	<b>B</b> (addition of feature),	R97	(Release 1997)
	<b>C</b> (functional modification of feature)	R98	(Release 1998)
	<b>D</b> (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	Rel-4	(Release 4)
		Rel-5	(Release 5)
		Rel-6	(Release 6)

<b>Reason for change:</b>	⌘ CR 23.081-002 ( <a href="#">N4-000390</a> ) at CN4#2 (Rotenburg, Germany) and CN#8 (Düsseldorf, Germany) was not implemented properly. The SDL modelling in CLIR_MAF004 does not set a reason for the restriction of Calling Line ID and does not call the procedure to set this value (CoNC). This CR repeats the addition of a call to procedure Cause_of_no_CLI_CLIR from CLIR_MAF004, which is currently missing from the specification. There is also a correction where an information element name was missed when implementing the CR. An editorial correction is necessary to process CLIP_MAF002
	<b>Remedy of incorrect implementation of a previously approved CR</b>
<b>Summary of change:</b>	⌘ 1) Add Links to CLIP_MAF002 2) Name added to unlabelled information element in 1.2.4 3) Add call to procedure Cause of no CLI CLIR whenever the Calling Line ID is restricted in process CLIR_MAF004.
<b>Consequences if not approved:</b>	⌘ CR 23.081-002 will not be implemented despite being agreed in May 2000 by CN4#2 and at CN#8. No reason for restriction of CLI will be sent.

<b>Clauses affected:</b>	⌘ 1.2, 1.2.4, 2.2						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<input checked="" type="checkbox"/>	Test specifications					
	<input checked="" type="checkbox"/>	O&M Specifications					
<b>Other comments:</b>	⌘ <i>Mirror CRs for Rel-99 CR 004 (N4-020918), CR 006 Rel-5 (N4-020920)</i>						

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

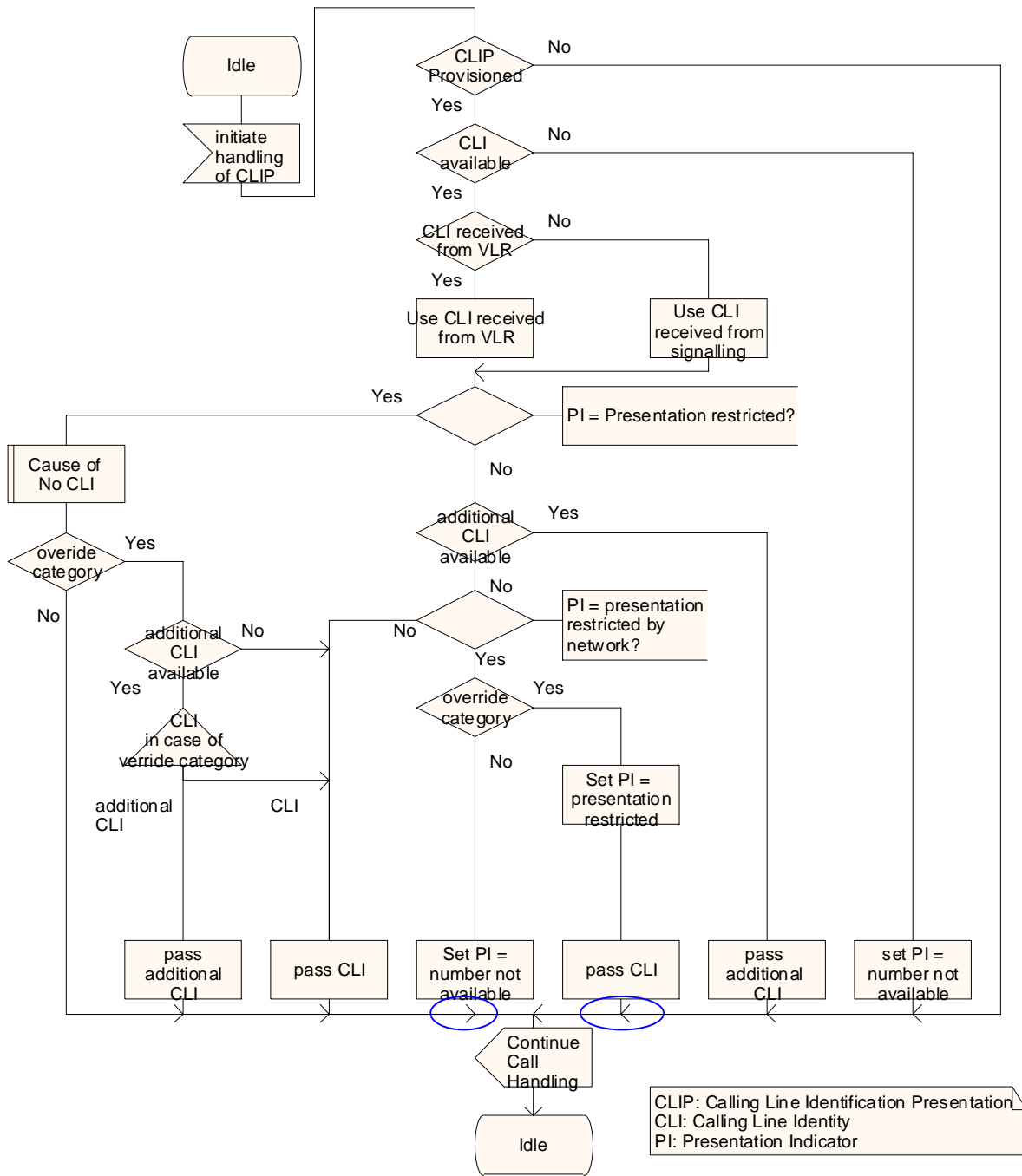
## 1.2 Functions and information flows

...

process CLIP\_MAF002

381\_13(1)

Figure 1.3



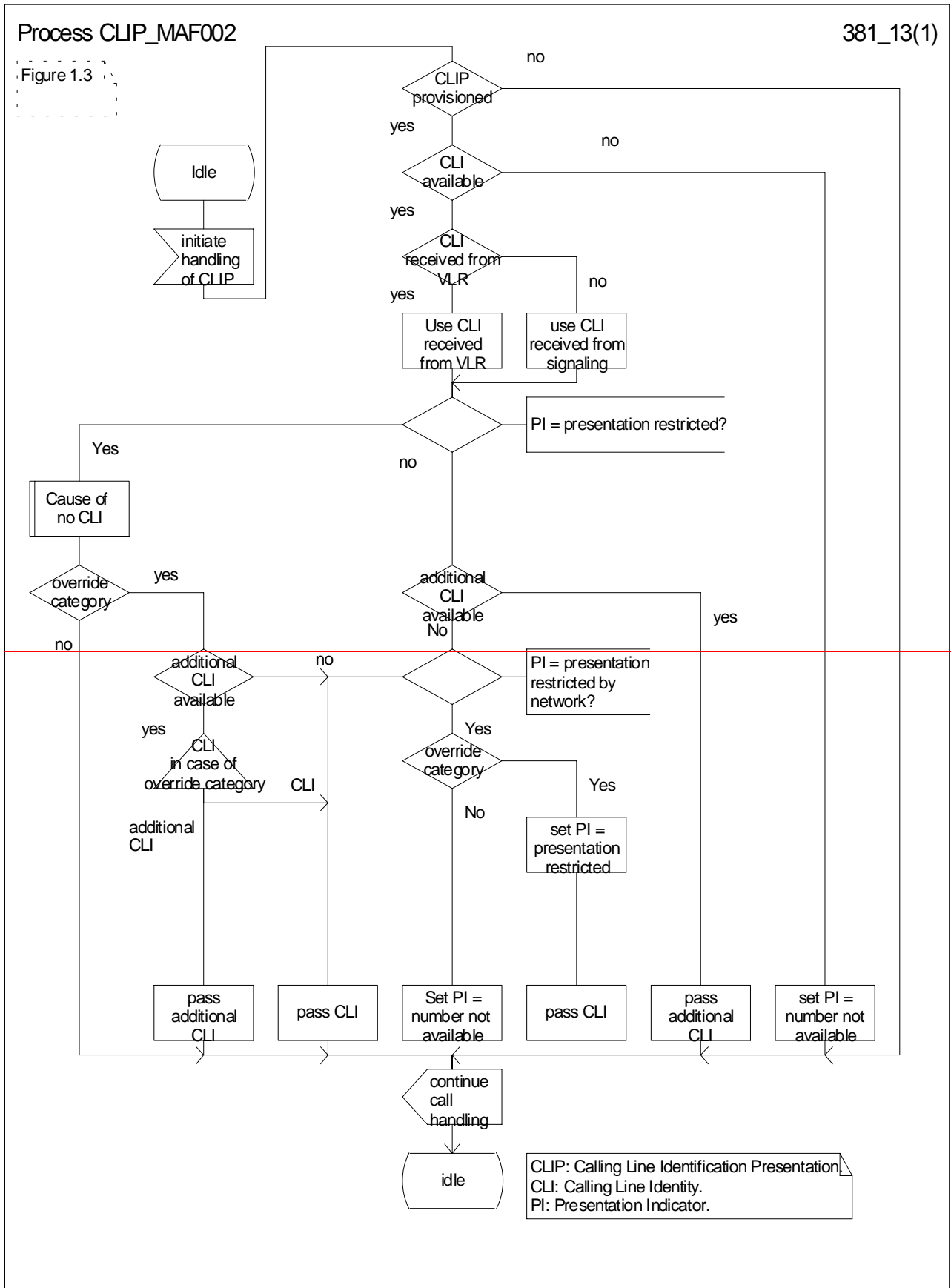


Figure 1.3: MAF002 Determination of the information for offering to the called party (destination MSC)

...

<b>**** Next Modified Section ****</b>
--

## 1.2.4 Messages between MSC and VLR in destination network

**Table 1.2.4.1: Messages between MSC and VLR**

Message	Message sender	Information element name	Information element Required	Information element description
Complete Call	VLR	-	-	Refer to 3G TS 23.018.
		Calling Party Number	C	In addition: The information element is present if it is stored in VLR; otherwise it shall be absent.
		Generic Number	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
		<a href="#">Cause of no CLI</a>	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
Process Call Waiting	VLR	-	-	Refer to 3G TS 23.018.
		Calling Party Number	C	In addition: The information element is present if it is stored in VLR; otherwise it shall be absent.
		Generic Number	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
		Cause of no CLI	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
Send Info for Incoming Call	MSC	-	-	Refer to 3G TS 23.018.
		Cause of no CLI	C	In addition: The information element is present if MSC received Cause of no CLI; otherwise it shall be absent.

...

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

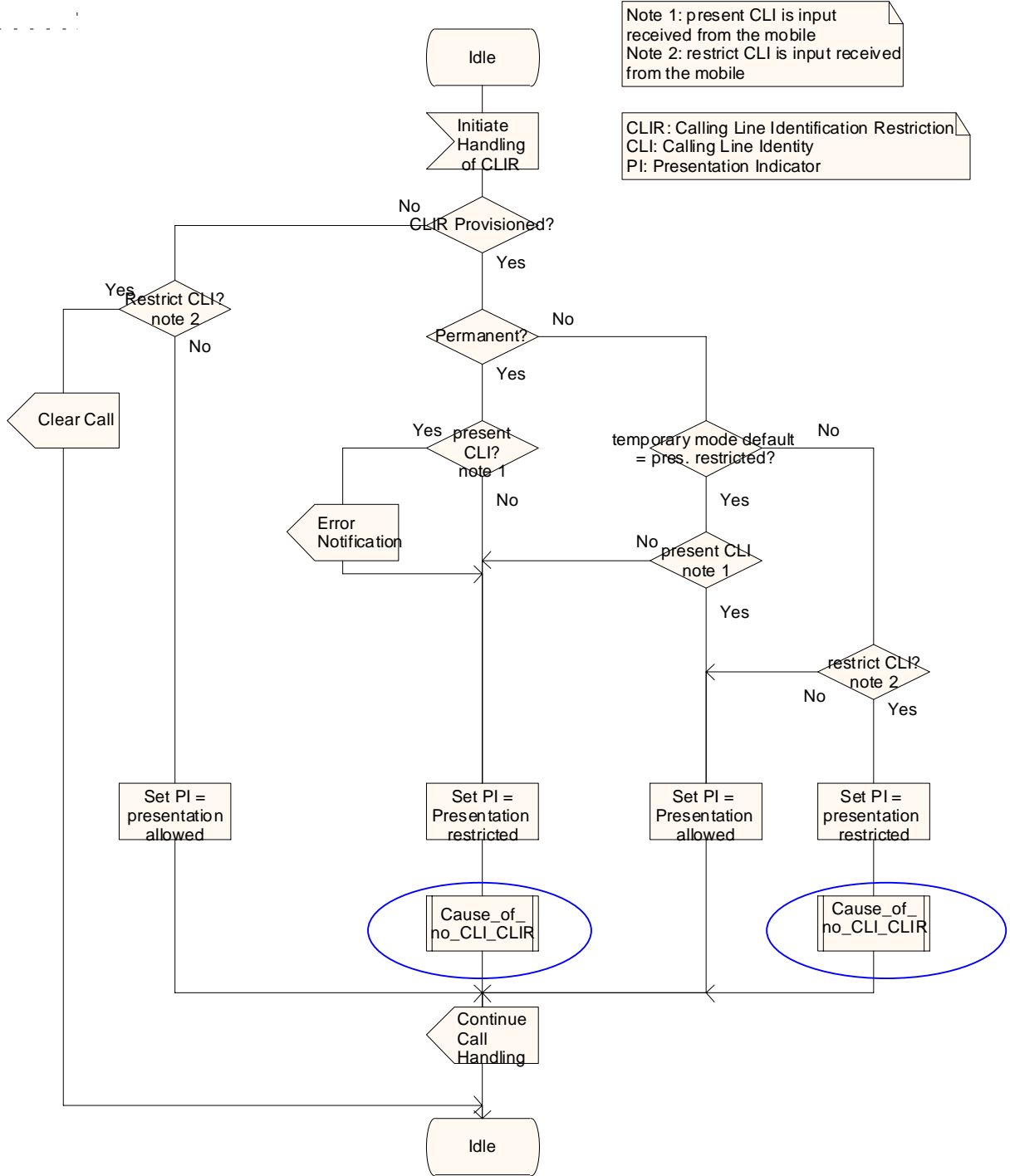
## 2.2 Functions and information flows



process CLIR\_MAF004

381\_25(1)

Figure 2.5



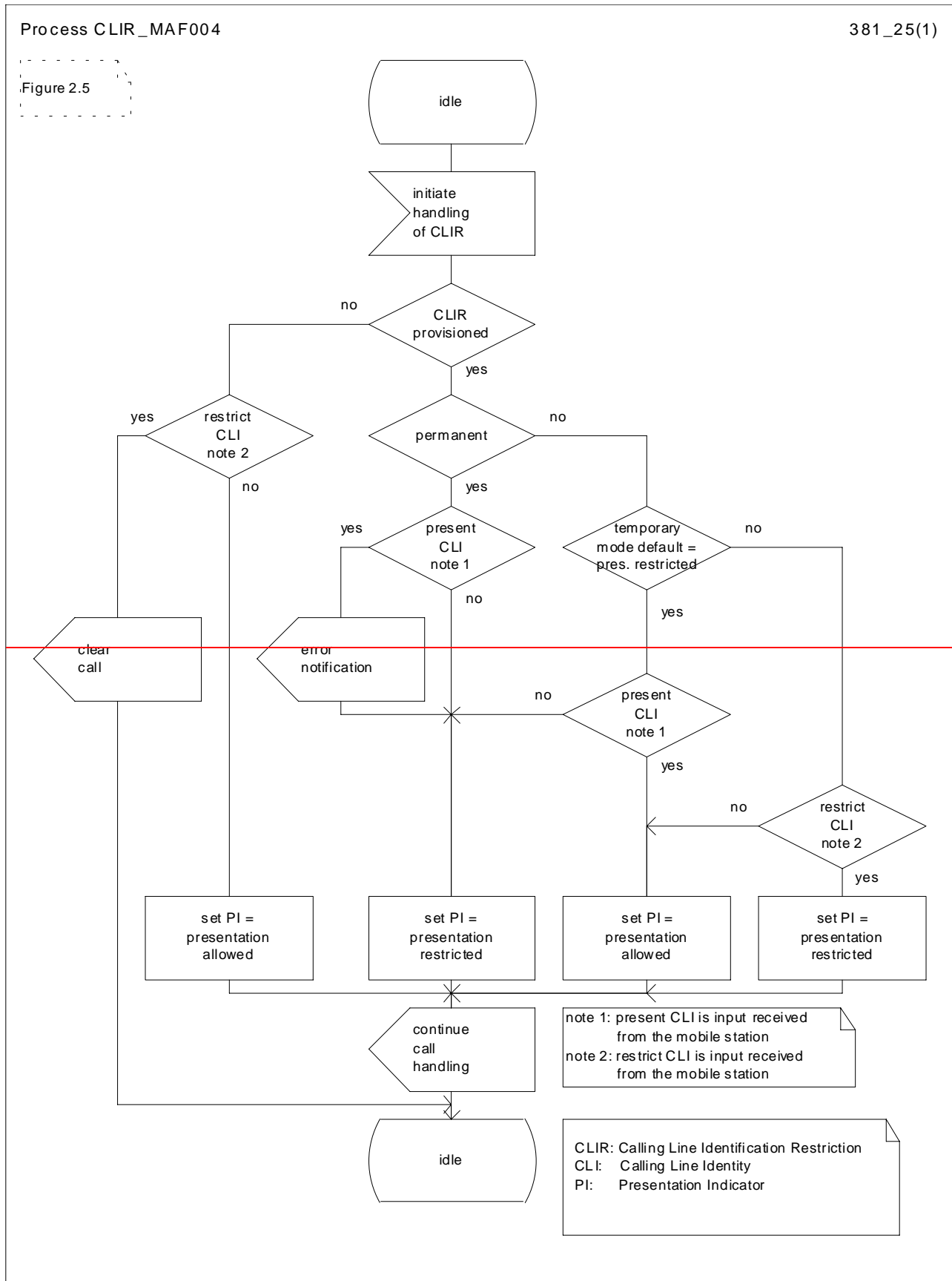


Figure 2.5: MAF004 Determination of the presentation indicator (originating MSC)

...

**\*\*\*\* End of Document \*\*\*\***

## CHANGE REQUEST

⌘ **23.081 CR 006** ⌘ rev **-** ⌘ Current version: **5.0.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction of 'Cause of no CLI' handling in SDLs		
<b>Source:</b>	⌘ CN4		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 03/07/2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		<b>2</b> (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		<b>R96</b> (Release 1996)
	<b>B</b> (addition of feature),		<b>R97</b> (Release 1997)
	<b>C</b> (functional modification of feature)		<b>R98</b> (Release 1998)
	<b>D</b> (editorial modification)		<b>R99</b> (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<b>Rel-4</b> (Release 4)
			<b>Rel-5</b> (Release 5)
			<b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ CR 23.081-002 ( <a href="#">N4-000390</a> ) at CN4#2 (Rotenburg, Germany) and CN#8 (Düsseldorf, Germany) was not implemented properly. The SDL modelling in CLIR_MAF004 does not set a reason for the restriction of Calling Line ID and does not call the procedure to set this value (CoNC). This CR repeats the addition of a call to procedure Cause_of_no_CLI_CLIR from CLIR_MAF004, which is currently missing from the specification. There is also a correction where an information element name was missed when implementing the CR. An editorial correction is necessary to process CLIP_MAF002
<b>Summary of change:</b>	⌘ 1) Add Links to CLIP_MAF002 2) Name added to unlabelled information element in 1.2.4 3) Add call to procedure Cause of no CLI CLIR whenever the Calling Line ID is restricted in process CLIR_MAF004.
<b>Consequences if not approved:</b>	⌘ CR 23.081-002 will not be implemented despite being agreed in May 2000 by CN4#2 and at CN#8. No reason for restriction of CLI will be sent.

<b>Clauses affected:</b>	⌘ 1.2, 1.2.4, 2.2						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	<input checked="" type="checkbox"/>	Test specifications				
<input checked="" type="checkbox"/>							
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	<input checked="" type="checkbox"/>	O&M Specifications				
<input checked="" type="checkbox"/>							
<b>Other comments:</b>	⌘ <i>Mirror CRs for Rel-99 CR 004 (N4-020918), CR 005 Rel-4 (N4-020919)</i>						

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

## 1.2 Functions and information flows

...





...

<b>**** Next Modified Section ****</b>
--

## 1.2.4 Messages between MSC and VLR in destination network

**Table 1.2.4.1: Messages between MSC and VLR**

Message	Message sender	Information element name	Information element Required	Information element description
Complete Call	VLR	-	-	Refer to 3G TS 23.018.
		Calling Party Number	C	In addition: The information element is present if it is stored in VLR; otherwise it shall be absent.
		Generic Number	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
		<a href="#">Cause of no CLI</a>	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
Process Call Waiting	VLR	-	-	Refer to 3G TS 23.018.
		Calling Party Number	C	In addition: The information element is present if it is stored in VLR; otherwise it shall be absent.
		Generic Number	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
		Cause of no CLI	C	The information element is present if it is stored in VLR; otherwise it shall be absent.
Send Info for Incoming Call	MSC	-	-	Refer to 3G TS 23.018.
		Cause of no CLI	C	In addition: The information element is present if MSC received Cause of no CLI; otherwise it shall be absent.

...



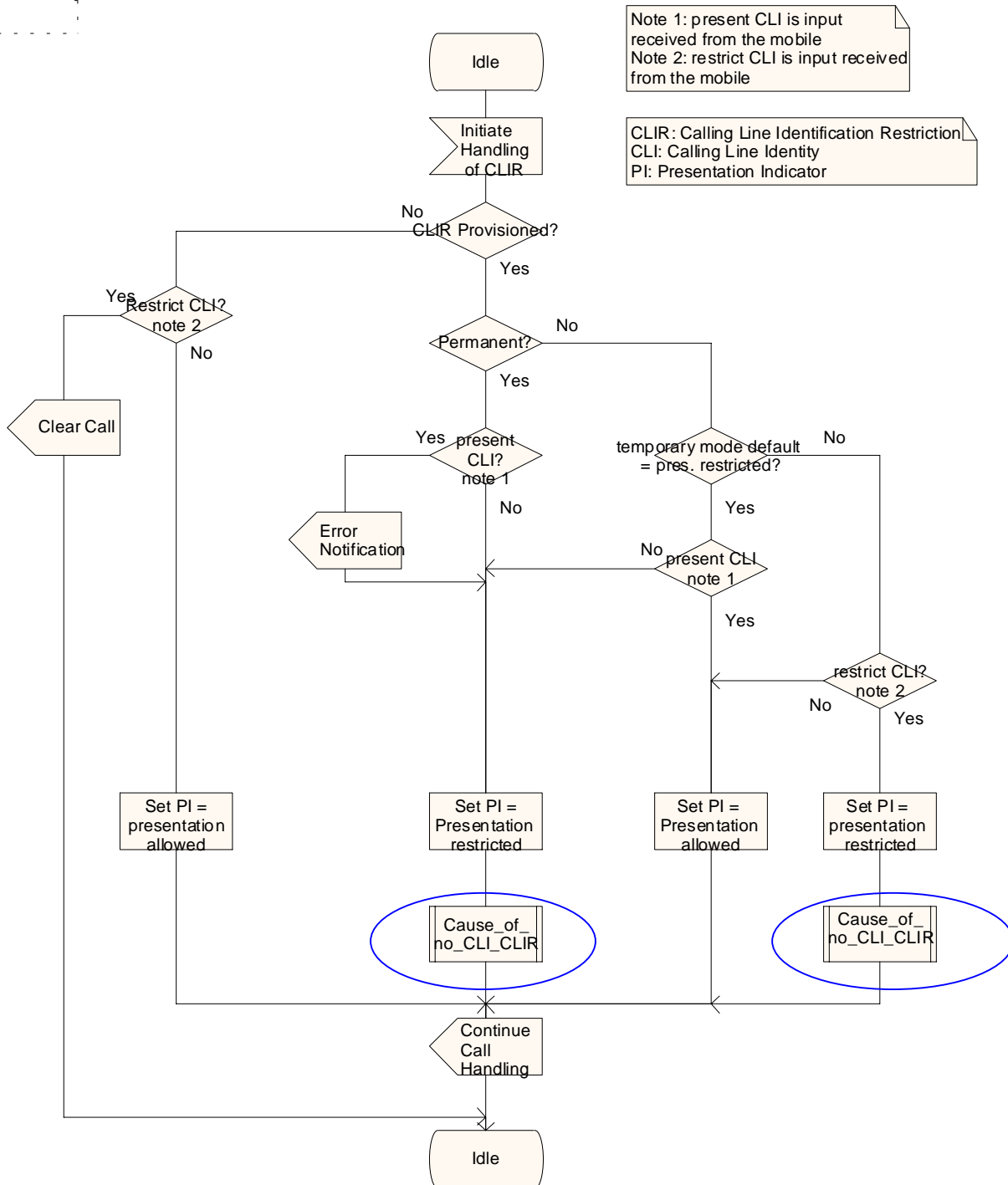
**\*\*\* Next Modified Section \*\*\***

## 2.2 Functions and information flows

process CLIR\_MAF004

381\_25(1)

Figure 2.5



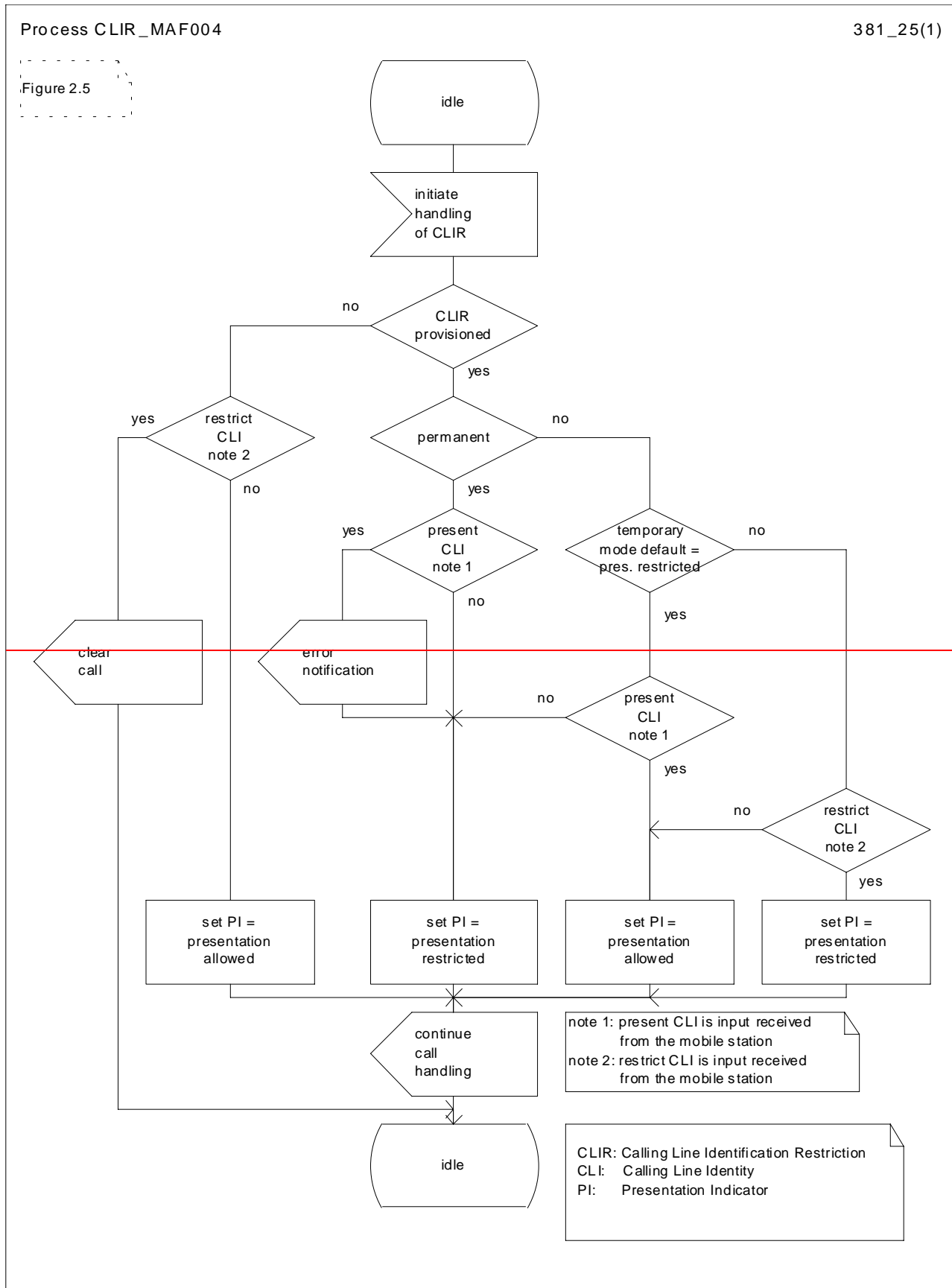


Figure 2.5: MAF004 Determination of the presentation indicator (originating MSC)

...

**\*\*\*\* End of Document \*\*\*\***

## CHANGE REQUEST

⌘ **29.002 CR 471** ⌘ rev **1** ⌘ Current version: **5.2.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Clarifications on Send Identification		
<b>Source:</b>	⌘ CN4		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 15/07/2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ Some descriptive text about Send Identification is unclear and can lead to misunderstanding.  Clarifications are made along the line of the changes that were agreed for Send Authentication at the CN4#14 meeting in Budapest (see for example CR 440r2 in N4-020746)  The CR is an <b>"essential correction"</b>
<b>Summary of change:</b>	⌘ Modified text concerning the condition for presence of some parameters in the Service Description.  Modified comments in the ASN.1 definition of SendIdentification-Arg and –Res  Removed comments in ASN.1 definition of SendIdentification-Arg and SendAuthenticationInfo-Arg that describe functional behaviour of the receiving node.  Alignment of the textual description of section 19.1.1.5.3 with the SDL diagrams.  The text in the service description of Send Authentication Info concerning the parameter SegmentationProhibitedIndicator is aligned with the corresponding text for the same parameter in Send Identification.
<b>Consequences if not approved:</b>	⌘ Different interpretations of the specification will cause the MAP dialogue to fail. In this case the VLR will ask the UE to send the IMSI in clear over the air interface, compromising user security and privacy.

Such a failure would happen every time an MS moves from one MSC Service Area to another if the new and old VLR's are implemented according to different interpretations of the specifications.

**Clauses affected:** ⌘ 8.1.4.3, 8.5.2.3, 17.7.1, 19.1.1.5.3

<b>Other specs affected:</b>	⌘	Y	N	Other core specifications	⌘	
			N			Test specifications
			N			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.

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

## 8.1.4 MAP\_SEND\_IDENTIFICATION service

### 8.1.4.1 Definition

The MAP\_SEND\_IDENTIFICATION service is used between a VLR and a previous VLR to retrieve IMSI and authentication data for a subscriber registering afresh in that VLR.

The MAP\_SEND\_IDENTIFICATION service is a confirmed service using the service primitives defined in table 8.1/4.

### 8.1.4.2 Service primitives

**Table 8.1/4: MAP\_SEND\_IDENTIFICATION**

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
TMSI	M	M(=)		
Number of requested vectors	M	M(=)		
Segmentation prohibited indicator	C	C(=)		
IMSI			C	C(=)
Authentication set			U	C(=)
Current Security Context			U	C(=)
User error			C	C(=)
Provider error				O

### 8.1.4.3 Parameter definitions and use

#### Invoke Id

See definition in clause 7.6.1.

## TMSI

See definition in clause 7.6.2.

If multiple service requests are present in a dialogue then this parameter shall be present in every service request.

## Number of requested vectors

A number indicating how many authentication vectors the new VLR is prepared to receive. The previous VLR shall not return more vectors than indicated by this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one

## Segmentation prohibited indicator

This parameter indicates if the new VLR or SGSN allows ~~message~~ segmentation of the response at applicationMAP user level.

This parameter may be present only in the first request of the dialogue.

## IMSI

See definition in clause 7.6.2. The IMSI is to be returned if the service succeeds.

If multiple service requests are present in a dialogue and the service succeeds then this parameter shall not be present in any service response other than the first one

## Authentication set

See definition in clause 7.6.7. If the service succeeds a list of up to five authentication sets is returned, if there are any available.

## Current Security Context

See definition in clause 7.6.7. If the service succeeds, a list of either GSM or UMTS Security Context parameters can be returned.

## User error

This parameter is mandatory if the service fails. The following error cause defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unidentified subscriber.

## Provider error

For definition of provider errors see clause 7.6.1.

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

## 8.5.2 MAP\_SEND\_AUTHENTICATION\_INFO service

### 8.5.2.1 Definition

This service is used between the VLR and the HLR for the VLR to retrieve authentication information from the HLR. The VLR requests up to five authentication vectors.

Also this service is used between the SGSN and the HLR for the SGSN to retrieve authentication information from the HLR. The SGSN requests up to five authentication vectors.

If the user is a UMTS subscriber, the HLR shall return authentication quintuplets. If the user is a GSM subscriber, the HLR shall return authentication triplets.

If the HLR cannot provide the VLR or the SGSN with triplets, an empty response is returned. The VLR or the SGSN may then re-use old authentication triplets, except where this is forbidden under the conditions specified in 3GPP TS 43.020 [24].

If the HLR cannot provide the VLR or the SGSN with quintuplets, an empty response is returned. The VLR or the SGSN shall not re-use old authentication quintuplets.

If the VLR or SGSN receives a MAP\_SEND\_AUTHENTICATION\_INFO response containing a User Error parameter as part of the handling of an authentication procedure, the authentication procedure in the VLR or SGSN shall fail.

Security related network functions are further described in 3GPP TS 43.020 [24] and 3G TS 33.200.

The service is a confirmed service and consists of four service primitives.

### 8.5.2.2 Service primitives

The service primitives are shown in table 8.5/2.

**Table 8.5/2: MAP\_SEND\_AUTHENTICATION\_INFO parameters**

Parameter name	Request	Indication	Response	Confirm
Invoke id	M	M(=)	M(=)	M(=)
IMSI	C	C(=)		
Number of requested vectors	C	C(=)		
Requesting node type	C	C(=)		
Re-synchronisation Info	C	C(=)		
Segmentation prohibited indicator	C	C(=)		
Immediate response preferred indicator	U	C(=)		
AuthenticationSetList			C	C(=)
User error			C	C(=)
Provider error				O

### 8.5.2.3 Parameter use

#### Invoke id

See clause 7.6.1 for the use of this parameter.

#### IMSI

See clause 7.6.2 for the use of this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Number of requested vectors

A number indicating how many authentication vectors the VLR or SGSN is prepared to receive. The HLR shall not return more vectors than indicated by this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Requesting node type

The type of the requesting node (SGSN or VLR).



This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Re-synchronisation Info

For definition and use of this parameter see 3G TS 33.200.

If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one..

#### Segmentation prohibited indicator

This parameter indicates if the VLR or SGSN allows segmentation of the response at ~~application~~ MAP user level.

This parameter may be present only in the first request of the dialogue.

#### Immediate response preferred indicator

This parameter indicates that one of the requested authentication vectors is requested for immediate use in the VLR or SGSN. It may be used by the HLR together with the number of requested vectors and the number of vectors stored in the HLR to determine the number of vectors to be obtained from the AuC. It shall be ignored if the number of available vectors is greater than the number of requested vectors.

If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### AuthenticationSetList

A set of one to five authentication vectors are transferred from the HLR to the VLR or from the HLR to the SGSN, if the outcome of the service was successful.

#### User error

One of the following error causes defined in clause 7.6.1 shall be sent by the user in case of unsuccessful outcome of the service, depending on the respective failure reason:

- unknown subscriber;
- unexpected data value;
- system failure;
- data missing.

#### Provider error

See clause 7.6.1 for the use of this parameter.

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

## 17.7 MAP constants and data types

### 17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-MS-DataTypes (11) version8 (8)}
```

DEFINITIONS

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

```
SendIdentificationArg ::= SEQUENCE {
  tmsi                               TMSI,
  numberOfRequestedVectors           NumberOfRequestedVectors OPTIONAL,
  -- if segmentation is used, within a dialogue numberOfRequestedVectors shall be present
  in
  -- the first segmentsservice request and shall not be present in subsequent
  segmentsservice requests.
  -- If received
  -- in a subsequent segmentservice request it shall be discarded.
  segmentationProhibited           NULL OPTIONAL,
  -- if segmentation is prohibited the previous VLR shall not send the result
  -- within a TC RESULT L carried by a TC ENDCONTINUE message.
  extensionContainer                ExtensionContainer OPTIONAL,
  ...}
```

```
SendIdentificationRes ::= [3] SEQUENCE {
  imsi                               IMSI OPTIONAL,
  -- IMSI mustshall be present in the first (or only) service response of a dialogueif
  SendIdentificationRes is not segmented.
  -- If multiple service requests are present in a dialogue then IMSI
  -- shall not be present in any service response other than the first one. --- If the TC-
  Continue segmentation option is taken the IMSI must be
  -- present in one segmented transmission of SendIdentificationRes.
  authenticationSetList             AuthenticationSetList OPTIONAL,
  currentSecurityContext             [2]CurrentSecurityContext OPTIONAL,
  extensionContainer                 [3] ExtensionContainer OPTIONAL,
  ...}
```

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

```
SendAuthenticationInfoArg ::= SEQUENCE {
  imsi                               [0] IMSI,
  numberOfRequestedVectors           NumberOfRequestedVectors,
  segmentationProhibited           NULL OPTIONAL,
  -- if segmentation is prohibited the HLR shall not send the result within
  -- a TC CONTINUE message.
  immediateResponsePreferred        [1] NULL OPTIONAL,
  -- if present, the HLR may send an immediate response with the available authentication
  -- vectors (see § 8.5.2 for more information).
  re-synchronisationInfo           Re-synchronisationInfo OPTIONAL,
  extensionContainer                [2] ExtensionContainer OPTIONAL,
  ...,
  requestingNodeType                [3] RequestingNodeType OPTIONAL}
```

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

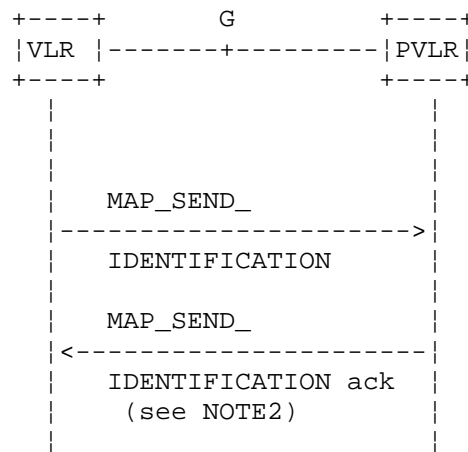
**\*\*\*\* NEXT MODIFIED SECTION \*\*\*\***

### 19.1.1.5 Send Identification

#### 19.1.1.5.1 General

This service is invoked by the VLR when it receives Update location from the MSC indicating that the subscriber was registered in a different VLR (henceforth called the Previous VLR, PVLR). If the identity of the PVLR is derivable for the VLR (usually if both are within the same network), the IMSI and authentication sets are requested from the PVLR (see clause 19.1.1.3), using the service described in clause 8.1.4.

If the version negotiation between R99 VLR and pre-R99 PVLR leads to the MAP version 1 or 2, the VLR shall request authentication sets from the HLR.



- NOTE1: The service shown in dotted lines indicates the trigger provided by other MAP signalling.
- NOTE2: Several MAP\_SEND\_IDENTIFICATION request/response may be used if message segmentation is required.

**Figure 19.1.1/10: Interface and services for Send Identification**

#### 19.1.1.5.2 Detailed procedure in the VLR

The VLR procedure is part of the location area updating process described in clause 19.1.1.X.

#### 19.1.1.5.3 Detailed procedure in the PVLR

On receipt of a dialogue request for the Send Identification procedure, (see Receive\_Open\_Ind macro in clause 25.1), the PVLR will:

- terminate the procedure in case of parameter problems;
- revert to the MAP version Vr procedure in case the VLR indicated version Vr protocol; or
- continue as below, if the dialogue is accepted.

If the PVLR process receives a MAP\_NOTICE indication, it terminates the dialogue by sending a MAP\_CLOSE request.

If the PVLR process receives a MAP\_SEND\_IDENTIFICATION indication from the VLR (see figure 19.1.1/11), it checks whether the subscriber identity provided is known:

- if so, the IMSI and - if available - authentication parameters for the subscriber are returned in the MAP\_SEND\_IDENTIFICATION response;
- if not, the error Unidentified Subscriber is returned in the MAP\_SEND\_IDENTIFICATION response.

~~In all cases where~~If the VLR has indicated that segmentation is prohibited then the PVLR sends a MAP\_SEND\_IDENTIFICATION response to the VLR by means of the TC-RESULT-L service, and terminates the dialogue towards the VLR is terminated by a MAP\_CLOSE request with parameter Release Method indicating Normal Release.

If the VLR has not indicated that segmentation is prohibited then the PVLR sends a MAP\_SEND\_IDENTIFICATION response to the VLR by means of the TC-RESULT-L service, followed either by a MAP\_DELIMITER if more authentication sets are to be returned, or by a MAP\_CLOSE request with parameter Release Method indicating Normal Release.

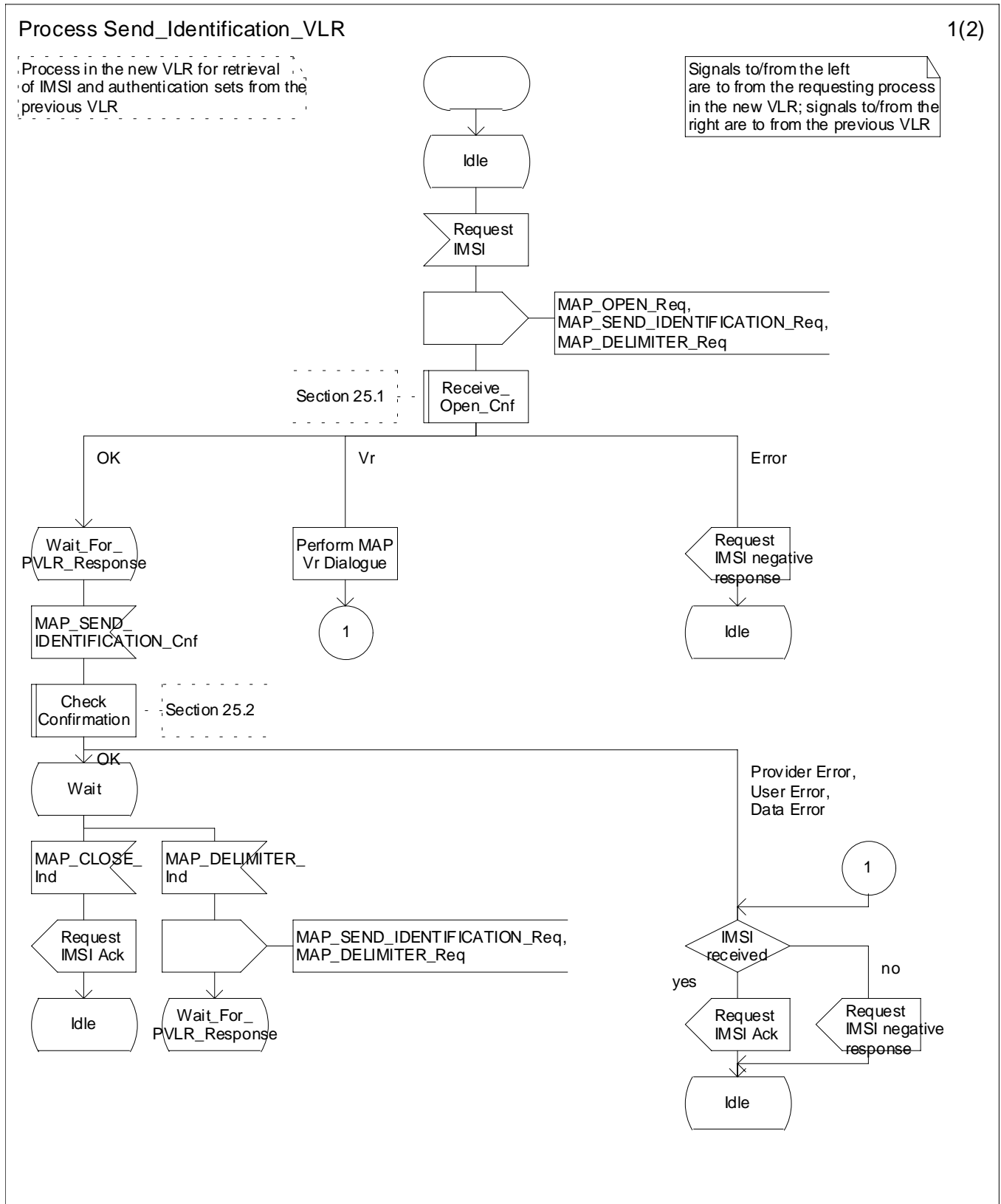


Figure 19.1.1/XX (sheet 1 of 2): Process Send\_Identification\_VLR

### Process Send\_Identification\_VLR

2(2)

Process in the new VLR for retrieval of IMSI and authentication sets from the previous VLR

Signals to/from the left are to from the requesting process in the new VLR; signals to/from the right are to from the previous VLR

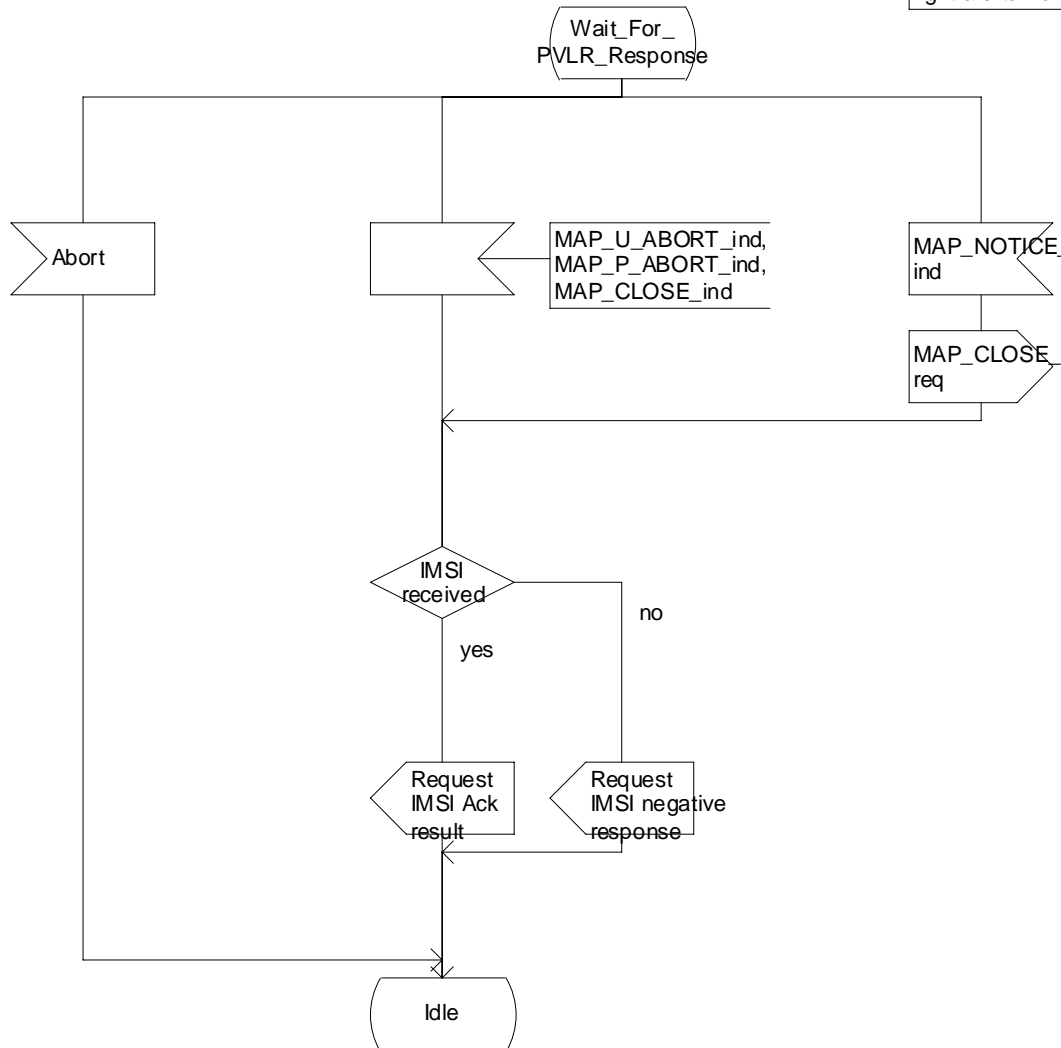


Figure 19.1.1/XX (sheet 2 of 2): Process Send\_Identification\_VLR

Process Send\_Identification\_PVLR

1(2)

Figure 19.1/11: Process in the Previous VLR to handle an identification request

Signals to/from the left are to from the new VLR. Signals to/from the right are to/from the PVLR Location Management application

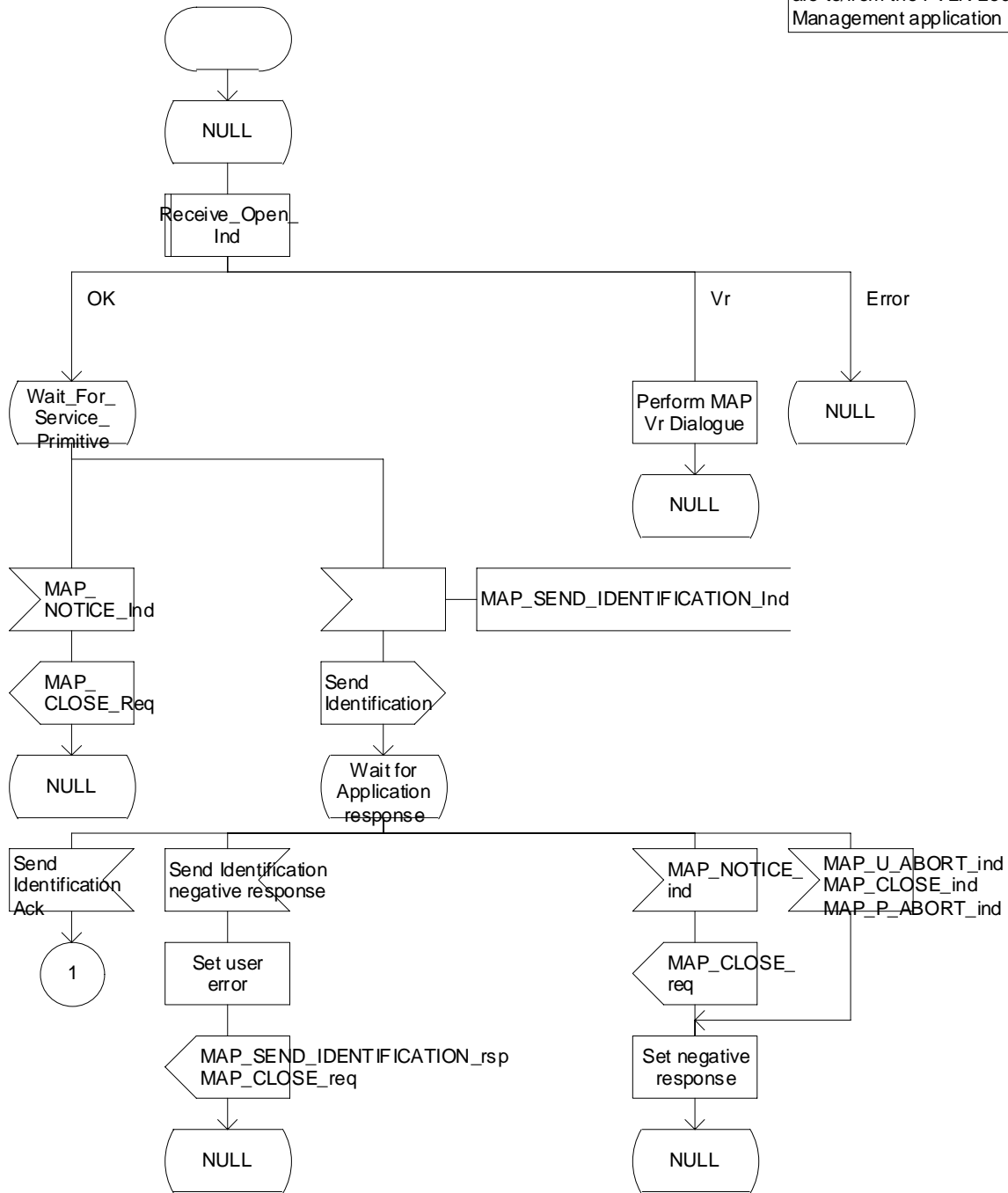


Figure 19.1.1/XX (sheet 1 of 2): Process Send\_Identification\_PVLR

Process Send\_Identification\_PVLR

2(2)

Figure 19.1/11: Process in the Previous VLR to handle an identification request

Signals to/from the left are to/from the new VLR

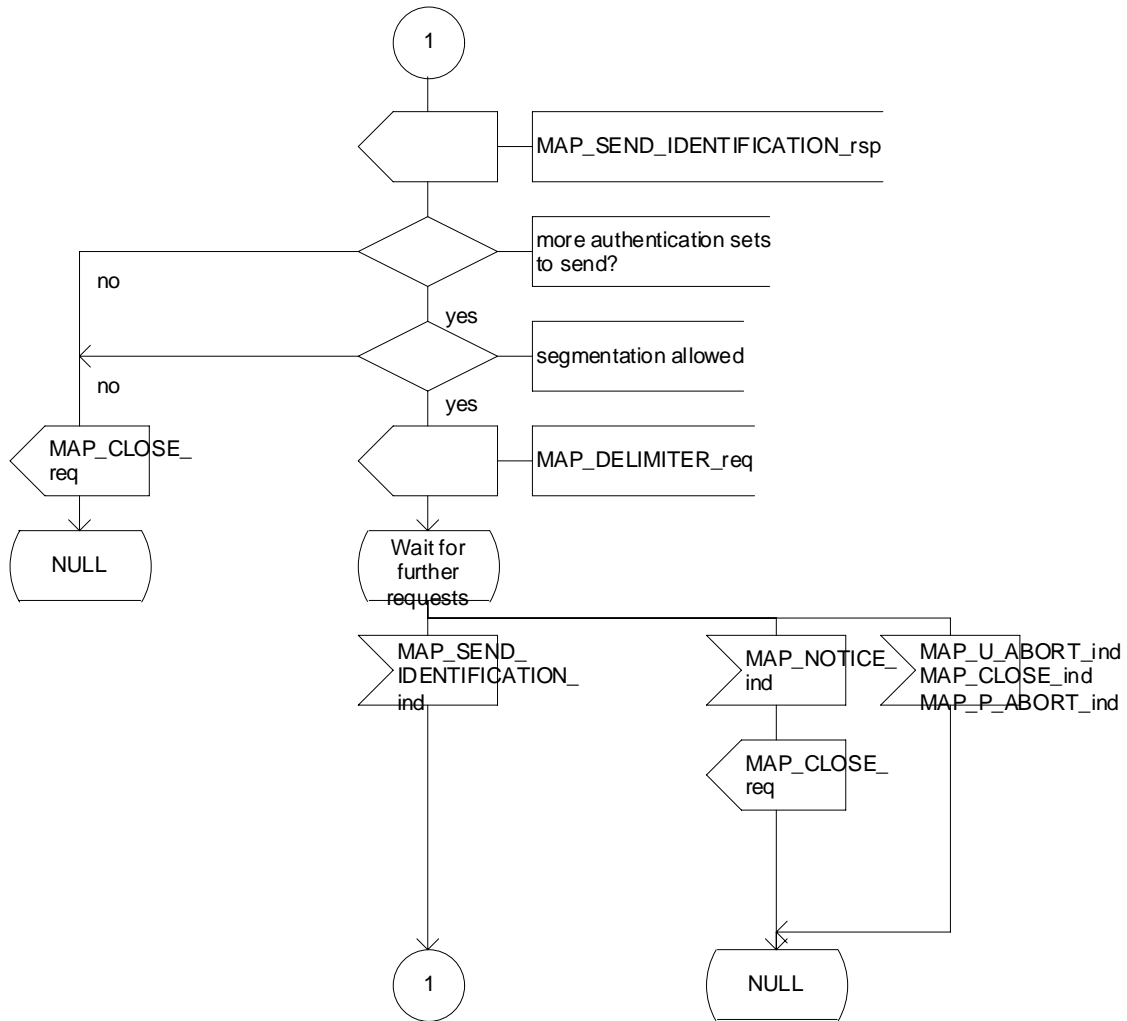


Figure 19.1.1/XX (sheet 2 of 2): Process Send\_Identification\_PVLR

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





## CHANGE REQUEST

⌘ **29.002 CR 477** ⌘ rev **-** ⌘ Current version: **3.13.0** ⌘

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

<b>Title:</b>	⌘	Clarifications on Send Identification	
<b>Source:</b>	⌘	CN4	
<b>Work item code:</b>	⌘	TEI	<b>Date:</b> ⌘ 15/07/2002
<b>Category:</b>	⌘	<b>F</b>	<b>Release:</b> ⌘ R99
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		<b>F</b> (correction)	2 (GSM Phase 2)
		<b>A</b> (corresponds to a correction in an earlier release)	R96 (Release 1996)
		<b>B</b> (addition of feature),	R97 (Release 1997)
		<b>C</b> (functional modification of feature)	R98 (Release 1998)
		<b>D</b> (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘	<p>Some descriptive text about Send Identification is unclear and can lead to misunderstanding.</p> <p>Clarifications are made along the line of the changes that were agreed for Send Authentication at the CN4#14 meeting in Budapest (see for example CR 440r2 in N4-020746)</p> <p>The CR is an <b>"essential correction"</b></p>
<b>Summary of change:</b>	⌘	<p>Modified text concerning the condition for presence of some parameters in the Service Description.</p> <p>Modified comments in the ASN.1 definition of SendIdentification-Arg and –Res</p> <p>Removed comments in ASN.1 definition of SendIdentification-Arg and SendAuthenticationInfo-Arg that describe functional behaviour of the receiving node.</p> <p>Alignment of the textual description of section 19.1.1.5.3 with the SDL diagrams.</p> <p>The text in the service description of Send Authentication Info concerning the parameter SegmentationProhibitedIndicator is aligned with the corresponding text for the same parameter in Send Identification.</p>
<b>Consequences if not approved:</b>	⌘	<p>Different interpretations of the specification will cause the MAP dialogue to fail. In this case the VLR will ask the UE to send the IMSI in clear over the air interface, compromising user security and privacy.</p>

Such a failure would happen every time an MS moves from one MSC Service Area to another if the new and old VLR's are implemented according to different interpretations of the specifications.

**Clauses affected:** ⌘ 8.1.4.3, 8.5.2.3, 17.7.1, 19.1.1.5.3

	Y	N		⌘
<b>Other specs affected:</b>		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.

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

## 8.1.4 MAP\_SEND\_IDENTIFICATION service

### 8.1.4.1 Definition

The MAP\_SEND\_IDENTIFICATION service is used between a VLR and a previous VLR to retrieve IMSI and authentication data for a subscriber registering afresh in that VLR.

The MAP\_SEND\_IDENTIFICATION service is a confirmed service using the service primitives defined in table 8.1/4.

### 8.1.4.2 Service primitives

**Table 8.1/4: MAP\_SEND\_IDENTIFICATION**

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
TMSI	M	M(=)		
Number of requested vectors	M	M(=)		
Segmentation prohibited indicator	C	C(=)		
IMSI			C	C(=)
Authentication set			U	C(=)
Current Security Context			U	C(=)
User error			C	C(=)
Provider error				O

### 8.1.4.3 Parameter definitions and use

#### Invoke Id

See definition in clause 7.6.1.

## TMSI

See definition in clause 7.6.2.

If multiple service requests are present in a dialogue then this parameter shall be present in every service request.

## Number of requested vectors

A number indicating how many authentication vectors the new VLR is prepared to receive. The previous VLR shall not return more vectors than indicated by this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one

## Segmentation prohibited indicator

This parameter indicates if the new VLR or SGSN allows ~~message~~ segmentation of the response at applicationMAP user level.

This parameter may be present only in the first request of the dialogue.

## IMSI

See definition in clause 7.6.2. The IMSI is to be returned if the service succeeds.

If multiple service requests are present in a dialogue and the service succeeds then this parameter shall not be present in any service response other than the first one

## Authentication set

See definition in clause 7.6.7. If the service succeeds a list of up to five authentication sets is returned, if there are any available.

## Current Security Context

See definition in clause 7.6.7. If the service succeeds, a list of either GSM or UMTS Security Context parameters can be returned.

## User error

This parameter is mandatory if the service fails. The following error cause defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unidentified subscriber.

## Provider error

For definition of provider errors see clause 7.6.1.

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

## 8.5.2 MAP\_SEND\_AUTHENTICATION\_INFO service

### 8.5.2.1 Definition

This service is used between the VLR and the HLR for the VLR to retrieve authentication information from the HLR. The VLR requests up to five authentication vectors.

Also this service is used between the SGSN and the HLR for the SGSN to retrieve authentication information from the HLR. The SGSN requests up to five authentication vectors.

If the user is a UMTS subscriber, the HLR shall return authentication quintuplets. If the user is a GSM subscriber, the HLR shall return authentication triplets.

If the HLR cannot provide the VLR or the SGSN with triplets, an empty response is returned. The VLR or the SGSN may then re-use old authentication triplets, except where this is forbidden under the conditions specified in 3GPP TS 43.020 [24].

If the HLR cannot provide the VLR or the SGSN with quintuplets, an empty response is returned. The VLR or the SGSN shall not re-use old authentication quintuplets.

If the VLR or SGSN receives a MAP\_SEND\_AUTHENTICATION\_INFO response containing a User Error parameter as part of the handling of an authentication procedure, the authentication procedure in the VLR or SGSN shall fail.

Security related network functions are further described in 3GPP TS 43.020 [24] and 3G TS 33.200.

The service is a confirmed service and consists of four service primitives.

### 8.5.2.2 Service primitives

The service primitives are shown in table 8.5/2.

**Table 8.5/2: MAP\_SEND\_AUTHENTICATION\_INFO parameters**

Parameter name	Request	Indication	Response	Confirm
Invoke id	M	M(=)	M(=)	M(=)
IMSI	C	C(=)		
Number of requested vectors	C	C(=)		
Requesting node type	C	C(=)		
Re-synchronisation Info	C	C(=)		
Segmentation prohibited indicator	C	C(=)		
Immediate response preferred indicator	U	C(=)		
AuthenticationSetList			C	C(=)
User error			C	C(=)
Provider error				O

### 8.5.2.3 Parameter use

#### Invoke id

See clause 7.6.1 for the use of this parameter.

#### IMSI

See clause 7.6.2 for the use of this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Number of requested vectors

A number indicating how many authentication vectors the VLR or SGSN is prepared to receive. The HLR shall not return more vectors than indicated by this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Requesting node type

The type of the requesting node (SGSN or VLR).

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Re-synchronisation Info

For definition and use of this parameter see 3G TS 33.200.

If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one..

#### Segmentation prohibited indicator

This parameter indicates if the VLR or SGSN allows segmentation of the response at ~~application~~ MAP user level.

This parameter may be present only in the first request of the dialogue.

#### Immediate response preferred indicator

This parameter indicates that one of the requested authentication vectors is requested for immediate use in the VLR or SGSN. It may be used by the HLR together with the number of requested vectors and the number of vectors stored in the HLR to determine the number of vectors to be obtained from the AuC. It shall be ignored if the number of available vectors is greater than the number of requested vectors.

If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### AuthenticationSetList

A set of one to five authentication vectors are transferred from the HLR to the VLR or from the HLR to the SGSN, if the outcome of the service was successful.

#### User error

One of the following error causes defined in clause 7.6.1 shall be sent by the user in case of unsuccessful outcome of the service, depending on the respective failure reason:

- unknown subscriber;
- unexpected data value;
- system failure;
- data missing.

#### Provider error

See clause 7.6.1 for the use of this parameter.

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

## 17.7 MAP constants and data types

### 17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-MS-DataTypes (11) version6 (6)}
```

DEFINITIONS

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

```
SendIdentificationArg ::= SEQUENCE {
  tmsi                               TMSI,
  numberOfRequestedVectors           NumberOfRequestedVectors OPTIONAL,
  -- if segmentation is used, within a dialogue numberOfRequestedVectors shall be present
  in
  -- the first segmentsservice request and shall not be present in subsequent
  segmentsservice requests.
  -- If received
  -- in a subsequent segmentservice request it shall be discarded.
  segmentationProhibited           NULL OPTIONAL,
  -- if segmentation is prohibited the previous VLR shall not send the result
  -- within a TC RESULT L carried by a TC ENDCONTINUE message.
  extensionContainer                ExtensionContainer OPTIONAL,
  ...}
```

```
SendIdentificationRes ::= [3] SEQUENCE {
  imsi                               IMSI OPTIONAL,
  -- IMSI mustshall be present in the first (or only) service response of a dialogueif
  SendIdentificationRes is not segmented.
  -- If multiple service requests are present in a dialogue then IMSI
  -- shall not be present in any service response other than the first one. --- If the TC-
  Continue segmentation option is taken the IMSI must be
  -- present in one segmented transmission of SendIdentificationRes.
  authenticationSetList             AuthenticationSetList OPTIONAL,
  currentSecurityContext             [2]CurrentSecurityContext OPTIONAL,
  extensionContainer                 [3] ExtensionContainer OPTIONAL,
  ...}
```

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

```
SendAuthenticationInfoArg ::= SEQUENCE {
  imsi                               [0] IMSI,
  numberOfRequestedVectors           NumberOfRequestedVectors,
  segmentationProhibited           NULL OPTIONAL,
  -- if segmentation is prohibited the HLR shall not send the result within
  -- a TC CONTINUE message.
  immediateResponsePreferred         [1] NULL OPTIONAL,
  -- if present, the HLR may send an immediate response with the available authentication
  -- vectors (see § 8.5.2 for more information).
  re-synchronisationInfo           Re-synchronisationInfo OPTIONAL,
  extensionContainer                 [2] ExtensionContainer OPTIONAL,
  ...,
  requestingNodeType                 [3] RequestingNodeType OPTIONAL}
```

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

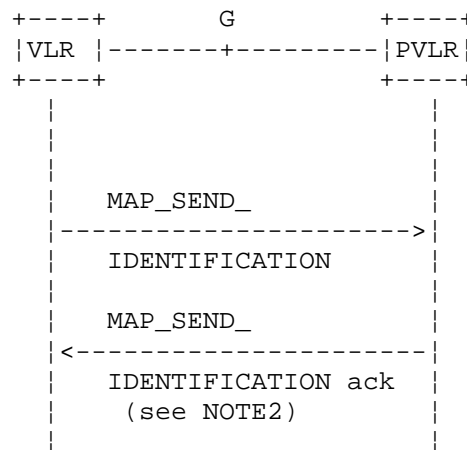
**\*\*\*\* NEXT MODIFIED SECTION \*\*\*\***

### 19.1.1.5 Send Identification

#### 19.1.1.5.1 General

This service is invoked by the VLR when it receives Update location from the MSC indicating that the subscriber was registered in a different VLR (henceforth called the Previous VLR, PVLR). If the identity of the PVLR is derivable for the VLR (usually if both are within the same network), the IMSI and authentication sets are requested from the PVLR (see clause 19.1.1.3), using the service described in clause 8.1.4.

If the version negotiation between R99 VLR and pre-R99 PVLR leads to the MAP version 1 or 2, the VLR shall request authentication sets from the HLR.



- NOTE1: The service shown in dotted lines indicates the trigger provided by other MAP signalling.
- NOTE2: Several MAP\_SEND\_IDENTIFICATION request/response may be used if message segmentation is required.

**Figure 19.1.1/10: Interface and services for Send Identification**

#### 19.1.1.5.2 Detailed procedure in the VLR

The VLR procedure is part of the location area updating process described in clause 19.1.1.X.

#### 19.1.1.5.3 Detailed procedure in the PVLR

On receipt of a dialogue request for the Send Identification procedure, (see Receive\_Open\_Ind macro in clause 25.1), the PVLR will:

- terminate the procedure in case of parameter problems;
- revert to the MAP version Vr procedure in case the VLR indicated version Vr protocol; or
- continue as below, if the dialogue is accepted.

If the PVLR process receives a MAP\_NOTICE indication, it terminates the dialogue by sending a MAP\_CLOSE request.

If the PVLR process receives a MAP\_SEND\_IDENTIFICATION indication from the VLR (see figure 19.1.1/11), it checks whether the subscriber identity provided is known:

- if so, the IMSI and - if available - authentication parameters for the subscriber are returned in the MAP\_SEND\_IDENTIFICATION response;
- if not, the error Unidentified Subscriber is returned in the MAP\_SEND\_IDENTIFICATION response.



~~In all cases where~~If the VLR has indicated that segmentation is prohibited then the PVLR sends a MAP\_SEND\_IDENTIFICATION response to the VLR by means of the TC-RESULT-L service, and terminates the dialogue towards the VLR is terminated by a MAP\_CLOSE request with parameter Release Method indicating Normal Release.

If the VLR has not indicated that segmentation is prohibited then the PVLR sends a MAP\_SEND\_IDENTIFICATION response to the VLR by means of the TC-RESULT-L service, followed either by a MAP\_DELIMITER if more authentication sets are to be returned, or by a MAP\_CLOSE request with parameter Release Method indicating Normal Release.

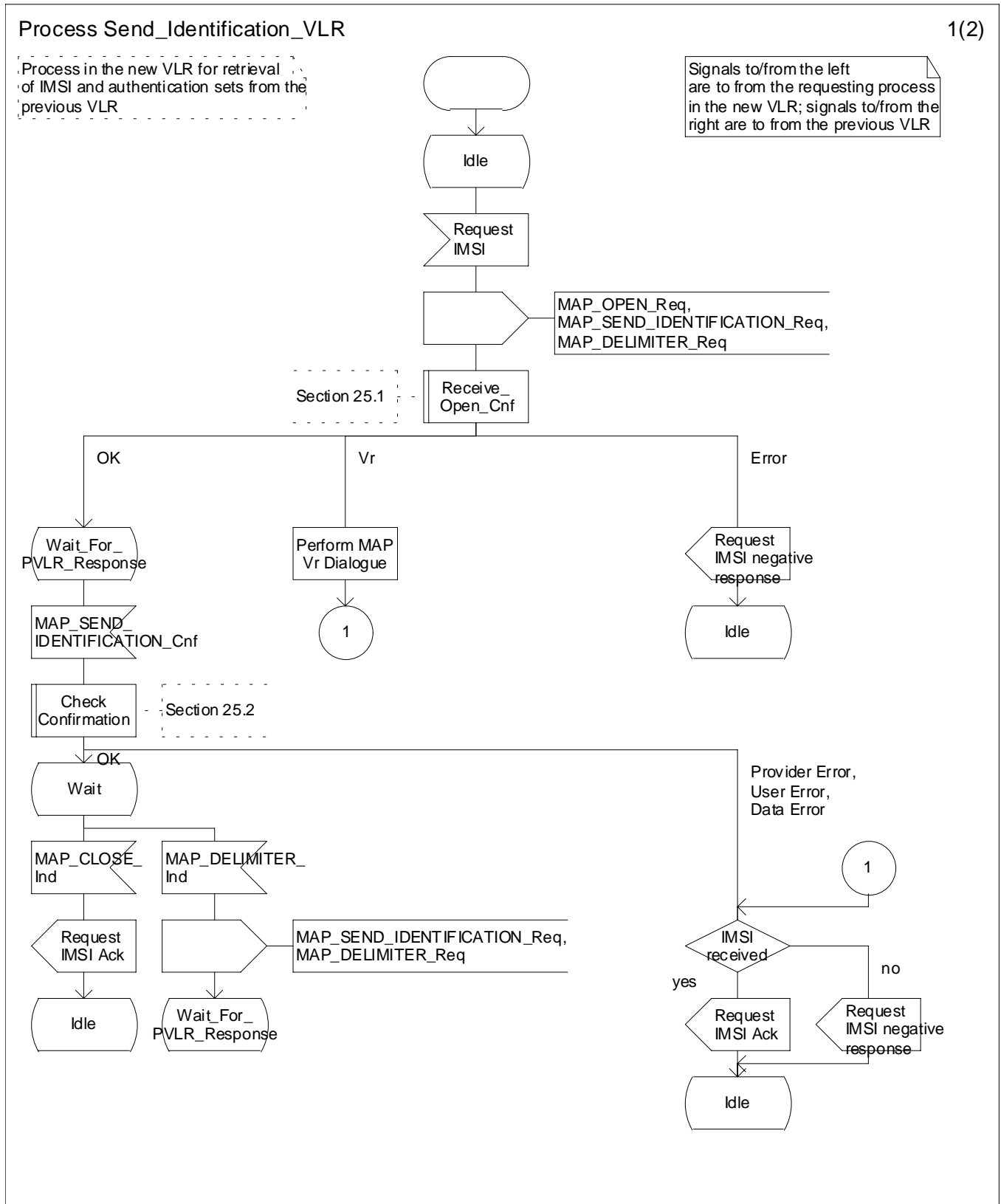


Figure 19.1.1/XX (sheet 1 of 2): Process Send\_Identification\_VLR

### Process Send\_Identification\_VLR

2(2)

Process in the new VLR for retrieval of IMSI and authentication sets from the previous VLR

Signals to/from the left are to from the requesting process in the new VLR; signals to/from the right are to from the previous VLR

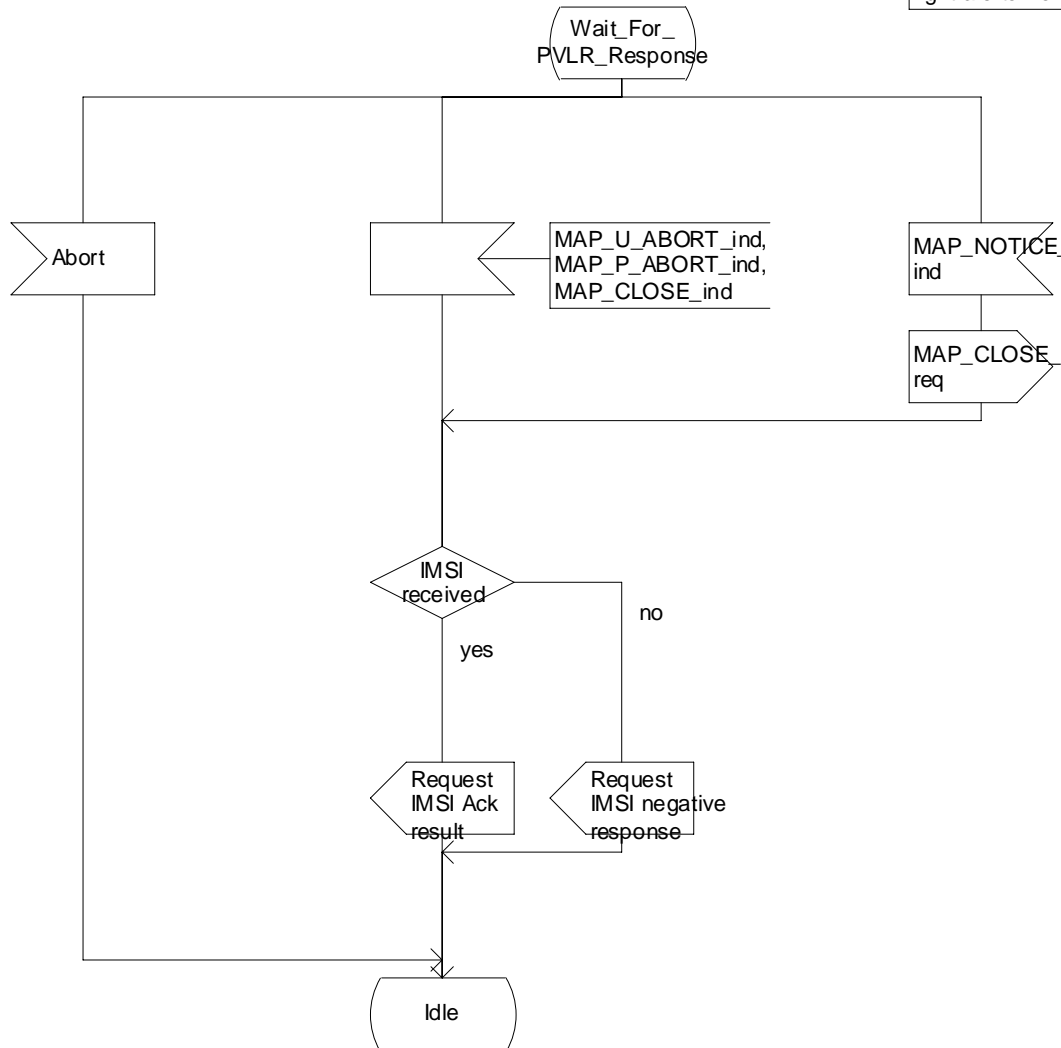


Figure 19.1.1/XX (sheet 2 of 2): Process Send\_Identification\_VLR

Process Send\_Identification\_PVLR

1(2)

Figure 19.1/11: Process in the Previous VLR to handle an identification request

Signals to/from the left are to/from the new VLR. Signals to/from the right are to/from the PVLR Location Management application

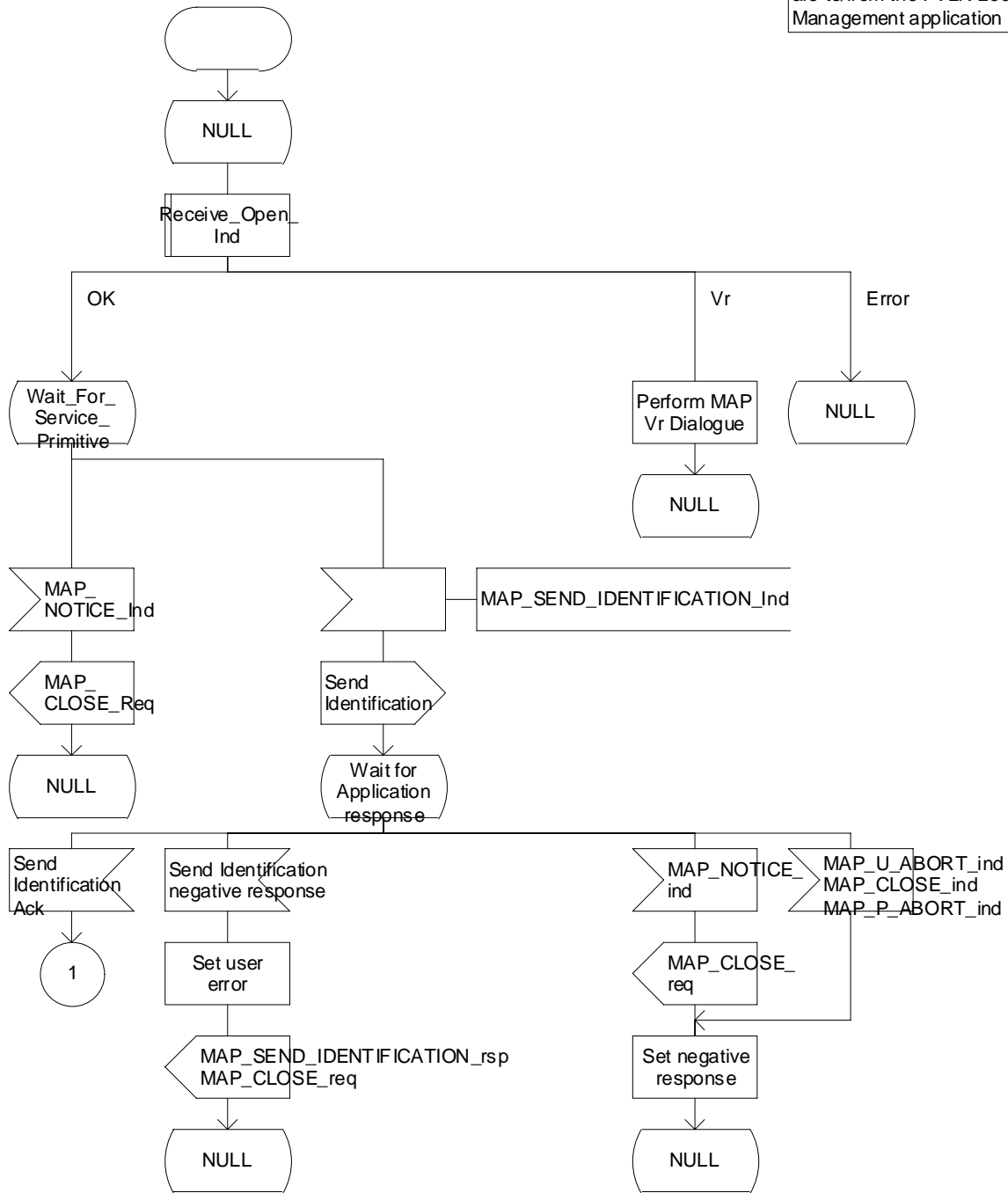


Figure 19.1.1/XX (sheet 1 of 2): Process Send\_Identification\_PVLR

Process Send\_Identification\_PVLR

2(2)

Figure 19.1/11: Process in the Previous VLR to handle an identification request

Signals to/from the left are to/from the new VLR

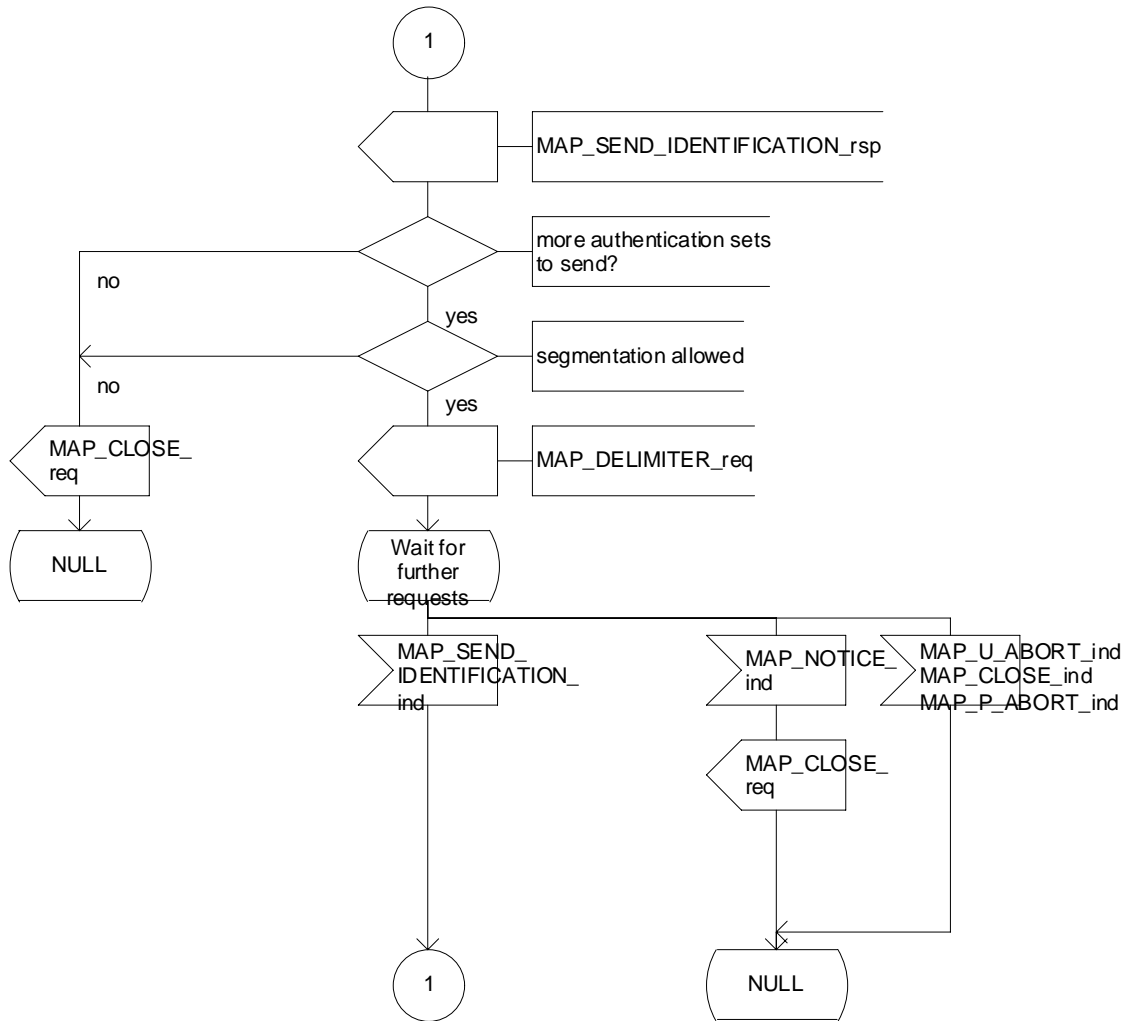


Figure 19.1.1/XX (sheet 2 of 2): Process Send\_Identification\_PVLR

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



## CHANGE REQUEST

⌘ **29.002 CR 478** ⌘ rev **-** ⌘ Current version: **4.8.0** ⌘

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

<b>Title:</b>	⌘ Clarifications on Send Identification		
<b>Source:</b>	⌘ CN4		
<b>Work item code:</b>	⌘ TEI4	<b>Date:</b>	⌘ 15/07/2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ Some descriptive text about Send Identification is unclear and can lead to misunderstanding.  Clarifications are made along the line of the changes that were agreed for Send Authentication at the CN4#14 meeting in Budapest (see for example CR 440r2 in N4-020746)  The CR is an <b>"essential correction"</b>
<b>Summary of change:</b>	⌘ Modified text concerning the condition for presence of some parameters in the Service Description.  Modified comments in the ASN.1 definition of SendIdentification-Arg and –Res  Removed comments in ASN.1 definition of SendIdentification-Arg and SendAuthenticationInfo-Arg that describe functional behaviour of the receiving node.  Alignment of the textual description of section 19.1.1.5.3 with the SDL diagrams.  The text in the service description of Send Authentication Info concerning the parameter SegmentationProhibitedIndicator is aligned with the corresponding text for the same parameter in Send Identification.
<b>Consequences if not approved:</b>	⌘ Different interpretations of the specification will cause the MAP dialogue to fail. In this case the VLR will ask the UE to send the IMSI in clear over the air interface, compromising user security and privacy.

Such a failure would happen every time an MS moves from one MSC Service Area to another if the new and old VLR's are implemented according to different interpretations of the specifications.

**Clauses affected:** ⌘ 8.1.4.3, 8.5.2.3, 17.7.1, 19.1.1.5.3

	Y	N		⌘
<b>Other specs affected:</b>		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.

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

## 8.1.4 MAP\_SEND\_IDENTIFICATION service

### 8.1.4.1 Definition

The MAP\_SEND\_IDENTIFICATION service is used between a VLR and a previous VLR to retrieve IMSI and authentication data for a subscriber registering afresh in that VLR.

The MAP\_SEND\_IDENTIFICATION service is a confirmed service using the service primitives defined in table 8.1/4.

### 8.1.4.2 Service primitives

**Table 8.1/4: MAP\_SEND\_IDENTIFICATION**

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
TMSI	M	M(=)		
Number of requested vectors	M	M(=)		
Segmentation prohibited indicator	C	C(=)		
IMSI			C	C(=)
Authentication set			U	C(=)
Current Security Context			U	C(=)
User error			C	C(=)
Provider error				O

### 8.1.4.3 Parameter definitions and use

#### Invoke Id

See definition in clause 7.6.1.



## TMSI

See definition in clause 7.6.2.

If multiple service requests are present in a dialogue then this parameter shall be present in every service request.

## Number of requested vectors

A number indicating how many authentication vectors the new VLR is prepared to receive. The previous VLR shall not return more vectors than indicated by this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one

## Segmentation prohibited indicator

This parameter indicates if the new VLR or SGSN allows ~~message~~ segmentation of the response at application ~~MAP~~ user level.

This parameter may be present only in the first request of the dialogue.

## IMSI

See definition in clause 7.6.2. The IMSI is to be returned if the service succeeds.

If multiple service requests are present in a dialogue and the service succeeds then this parameter shall not be present in any service response other than the first one

## Authentication set

See definition in clause 7.6.7. If the service succeeds a list of up to five authentication sets is returned, if there are any available.

## Current Security Context

See definition in clause 7.6.7. If the service succeeds, a list of either GSM or UMTS Security Context parameters can be returned.

## User error

This parameter is mandatory if the service fails. The following error cause defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unidentified subscriber.

## Provider error

For definition of provider errors see clause 7.6.1.

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

## 8.5.2 MAP\_SEND\_AUTHENTICATION\_INFO service

### 8.5.2.1 Definition

This service is used between the VLR and the HLR for the VLR to retrieve authentication information from the HLR. The VLR requests up to five authentication vectors.

Also this service is used between the SGSN and the HLR for the SGSN to retrieve authentication information from the HLR. The SGSN requests up to five authentication vectors.

If the user is a UMTS subscriber, the HLR shall return authentication quintuplets. If the user is a GSM subscriber, the HLR shall return authentication triplets.

If the HLR cannot provide the VLR or the SGSN with triplets, an empty response is returned. The VLR or the SGSN may then re-use old authentication triplets, except where this is forbidden under the conditions specified in 3GPP TS 43.020 [24].

If the HLR cannot provide the VLR or the SGSN with quintuplets, an empty response is returned. The VLR or the SGSN shall not re-use old authentication quintuplets.

If the VLR or SGSN receives a MAP\_SEND\_AUTHENTICATION\_INFO response containing a User Error parameter as part of the handling of an authentication procedure, the authentication procedure in the VLR or SGSN shall fail.

Security related network functions are further described in 3GPP TS 43.020 [24] and 3G TS 33.200.

The service is a confirmed service and consists of four service primitives.

### 8.5.2.2 Service primitives

The service primitives are shown in table 8.5/2.

**Table 8.5/2: MAP\_SEND\_AUTHENTICATION\_INFO parameters**

Parameter name	Request	Indication	Response	Confirm
Invoke id	M	M(=)	M(=)	M(=)
IMSI	C	C(=)		
Number of requested vectors	C	C(=)		
Requesting node type	C	C(=)		
Re-synchronisation Info	C	C(=)		
Segmentation prohibited indicator	C	C(=)		
Immediate response preferred indicator	U	C(=)		
AuthenticationSetList			C	C(=)
User error			C	C(=)
Provider error				O

### 8.5.2.3 Parameter use

#### Invoke id

See clause 7.6.1 for the use of this parameter.

#### IMSI

See clause 7.6.2 for the use of this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Number of requested vectors

A number indicating how many authentication vectors the VLR or SGSN is prepared to receive. The HLR shall not return more vectors than indicated by this parameter.

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Requesting node type

The type of the requesting node (SGSN or VLR).

This parameter shall be present in the first (or only) request of the dialogue. If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### Re-synchronisation Info

For definition and use of this parameter see 3G TS 33.200.

If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one..

#### Segmentation prohibited indicator

This parameter indicates if the VLR or SGSN allows segmentation of the response at ~~application~~ MAP user level.

This parameter may be present only in the first request of the dialogue.

#### Immediate response preferred indicator

This parameter indicates that one of the requested authentication vectors is requested for immediate use in the VLR or SGSN. It may be used by the HLR together with the number of requested vectors and the number of vectors stored in the HLR to determine the number of vectors to be obtained from the AuC. It shall be ignored if the number of available vectors is greater than the number of requested vectors.

If multiple service requests are present in a dialogue then this parameter shall not be present in any service request other than the first one.

#### AuthenticationSetList

A set of one to five authentication vectors are transferred from the HLR to the VLR or from the HLR to the SGSN, if the outcome of the service was successful.

#### User error

One of the following error causes defined in clause 7.6.1 shall be sent by the user in case of unsuccessful outcome of the service, depending on the respective failure reason:

- unknown subscriber;
- unexpected data value;
- system failure;
- data missing.

#### Provider error

See clause 7.6.1 for the use of this parameter.

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

## 17.7 MAP constants and data types

### 17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
  ccitt identified-organization (4) etsi (0) mobileDomain (0)
  gsm-Network (1) modules (3) map-MS-DataTypes (11) version8 (8)}
```

DEFINITIONS

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

```
SendIdentificationArg ::= SEQUENCE {
  tmsi                               TMSI,
  numberOfRequestedVectors           NumberOfRequestedVectors OPTIONAL,
  -- if segmentation is used, within a dialogue numberOfRequestedVectors shall be present
  in
  -- the first segmentservice request and shall not be present in subsequent
segmentservice requests.
  -- If received
  -- in a subsequent segmentservice request it shall be discarded.
  segmentationProhibited           NULL OPTIONAL,
  -- if segmentation is prohibited the previous VLR shall not send the result
  -- within a TC RESULT L carried by a TC ENDCONTINUE message.
  extensionContainer                ExtensionContainer OPTIONAL,
  ...}
```

```
SendIdentificationRes ::= [3] SEQUENCE {
  imsi                               IMSI OPTIONAL,
  -- IMSI mustshall be present in the first (or only) service response of a dialogueif
  SendIdentificationRes is not segmented.
  -- If multiple service requests are present in a dialogue then IMSI
  -- shall not be present in any service response other than the first one. --- If the TC-
  Continue segmentation option is taken the IMSI must be
  -- present in one segmented transmission of SendIdentificationRes.
  authenticationSetList             AuthenticationSetList OPTIONAL,
  currentSecurityContext             [2]CurrentSecurityContext OPTIONAL,
  extensionContainer                 [3] ExtensionContainer OPTIONAL,
  ...}
```

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

```
SendAuthenticationInfoArg ::= SEQUENCE {
  imsi                               [0] IMSI,
  numberOfRequestedVectors           NumberOfRequestedVectors,
  segmentationProhibited             NULL OPTIONAL,
  -- if segmentation is prohibited the HLR shall not send the result within
  -- a TC CONTINUE message.
  immediateResponsePreferred         [1] NULL OPTIONAL,
  -- if present, the HLR may send an immediate response with the available authentication
  -- vectors (see § 8.5.2 for more information).
  re-synchronisationInfo             Re-synchronisationInfo OPTIONAL,
  extensionContainer                 [2] ExtensionContainer OPTIONAL,
  ...,
  requestingNodeType                 [3] RequestingNodeType OPTIONAL}
```

**\*\*\*\* Unchanged text removed for clarity \*\*\*\***

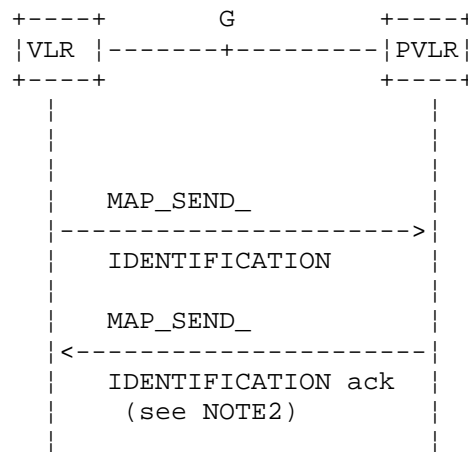
**\*\*\*\* NEXT MODIFIED SECTION \*\*\*\***

### 19.1.1.5 Send Identification

#### 19.1.1.5.1 General

This service is invoked by the VLR when it receives Update location from the MSC indicating that the subscriber was registered in a different VLR (henceforth called the Previous VLR, PVLR). If the identity of the PVLR is derivable for the VLR (usually if both are within the same network), the IMSI and authentication sets are requested from the PVLR (see clause 19.1.1.3), using the service described in clause 8.1.4.

If the version negotiation between R99 VLR and pre-R99 PVLR leads to the MAP version 1 or 2, the VLR shall request authentication sets from the HLR.



- NOTE1: The service shown in dotted lines indicates the trigger provided by other MAP signalling.
- NOTE2: Several MAP\_SEND\_IDENTIFICATION request/response may be used if message segmentation is required.

**Figure 19.1.1/10: Interface and services for Send Identification**

#### 19.1.1.5.2 Detailed procedure in the VLR

The VLR procedure is part of the location area updating process described in clause 19.1.1.X.

#### 19.1.1.5.3 Detailed procedure in the PVLR

On receipt of a dialogue request for the Send Identification procedure, (see Receive\_Open\_Ind macro in clause 25.1), the PVLR will:

- terminate the procedure in case of parameter problems;
- revert to the MAP version Vr procedure in case the VLR indicated version Vr protocol; or
- continue as below, if the dialogue is accepted.

If the PVLR process receives a MAP\_NOTICE indication, it terminates the dialogue by sending a MAP\_CLOSE request.

If the PVLR process receives a MAP\_SEND\_IDENTIFICATION indication from the VLR (see figure 19.1.1/11), it checks whether the subscriber identity provided is known:

- if so, the IMSI and - if available - authentication parameters for the subscriber are returned in the MAP\_SEND\_IDENTIFICATION response;
- if not, the error Unidentified Subscriber is returned in the MAP\_SEND\_IDENTIFICATION response.

~~In all cases where~~If the VLR has indicated that segmentation is prohibited then the PVLR sends a MAP\_SEND\_IDENTIFICATION response to the VLR by means of the TC-RESULT-L service, and terminates the dialogue towards the VLR is terminated by a MAP\_CLOSE request with parameter Release Method indicating Normal Release.

If the VLR has not indicated that segmentation is prohibited then the PVLR sends a MAP\_SEND\_IDENTIFICATION response to the VLR by means of the TC-RESULT-L service, followed either by a MAP\_DELIMITER if more authentication sets are to be returned, or by a MAP\_CLOSE request with parameter Release Method indicating Normal Release.

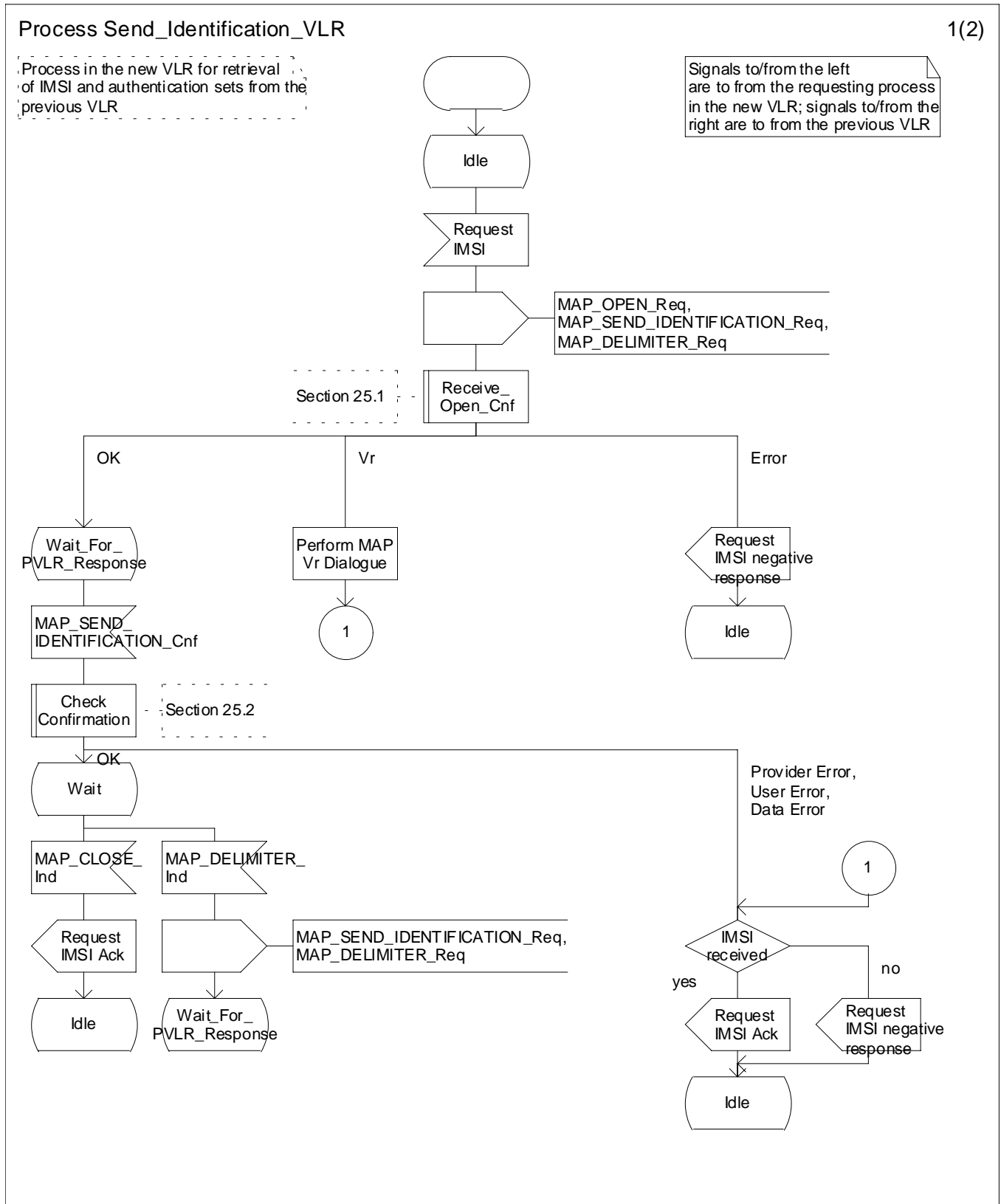


Figure 19.1.1/XX (sheet 1 of 2): Process Send\_Identification\_VLR

### Process Send\_Identification\_VLR

2(2)

Process in the new VLR for retrieval of IMSI and authentication sets from the previous VLR

Signals to/from the left are to from the requesting process in the new VLR; signals to/from the right are to from the previous VLR

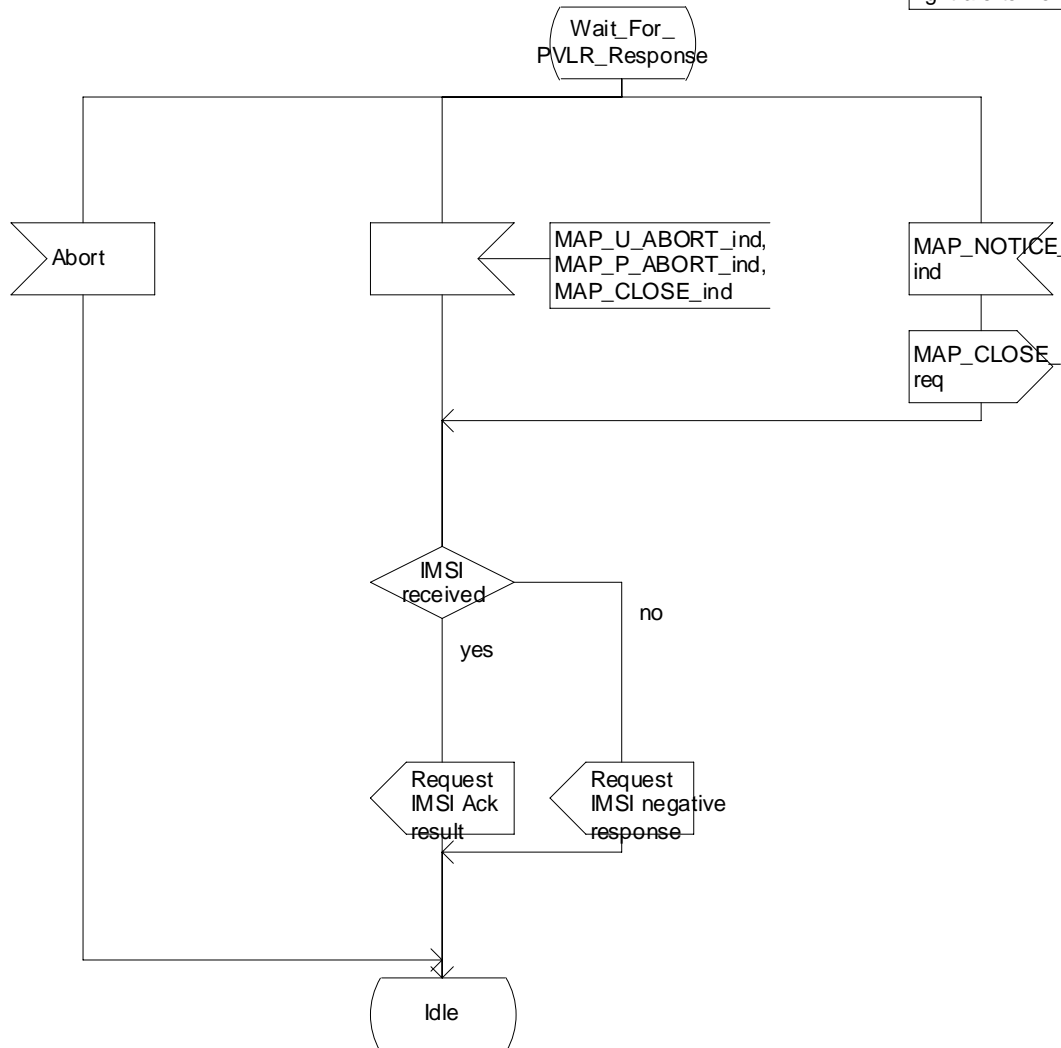


Figure 19.1.1/XX (sheet 2 of 2): Process Send\_Identification\_VLR



Process Send\_Identification\_PVLR

1(2)

Figure 19.1/11: Process in the Previous VLR to handle an identification request

Signals to/from the left are to from the new VLR. Signals to/from the right are to/from the PVLR Location Management application

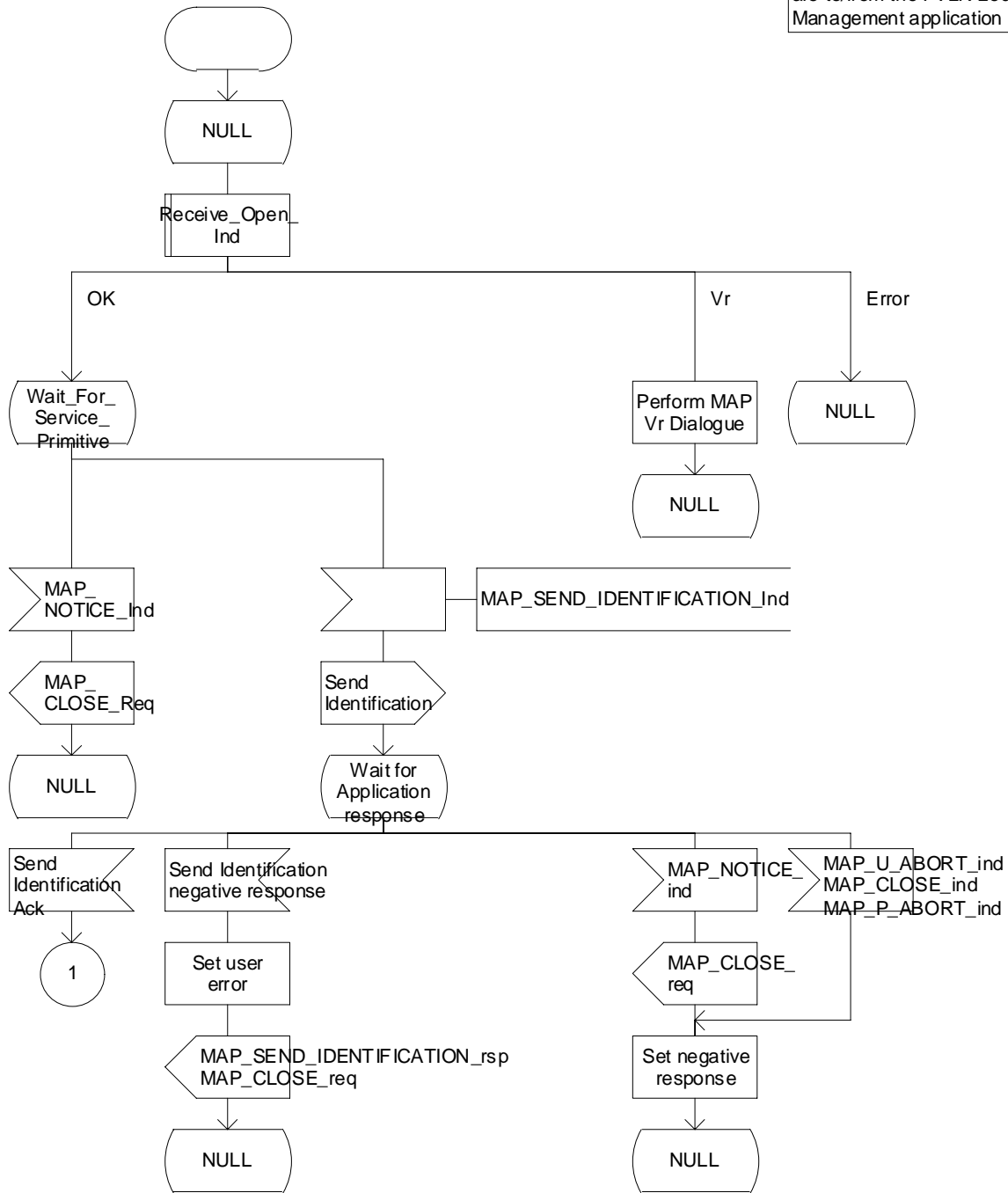


Figure 19.1.1/XX (sheet 1 of 2): Process Send\_Identification\_PVLR

Process Send\_Identification\_PVLR

2(2)

Figure 19.1/11: Process in the Previous VLR to handle an identification request

Signals to/from the left are to/from the new VLR

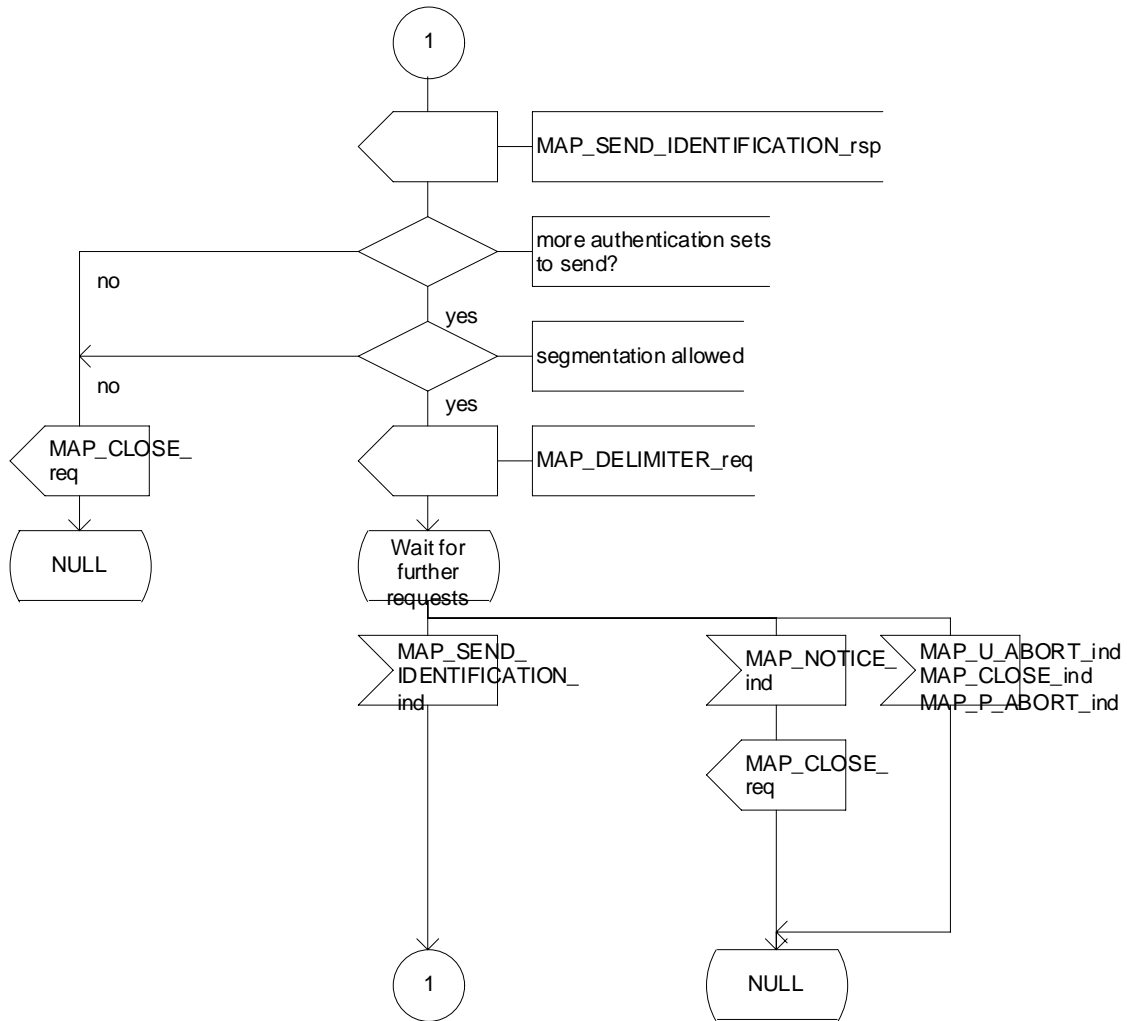


Figure 19.1.1/XX (sheet 2 of 2): Process Send\_Identification\_PVLR

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

