3GPP TSG CN Plenary **Tdoc NP-010076**
Meeting #11, Palm Springs, U.S.A
14th - 16th March 2001

Source: **TSG CN WG4**

Title: **CRs to R99 on Work Item LCS**

Agenda item: **7.17**

Document for: **APPROVAL**

Introduction:

This document contains **3** CRs on **R99** Work Item **"LCS"**, that have been agreed by **TSG CN WG4**, and are forwarded to TSG CN Plenary meeting #11 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.003	025		N4-010158	R99	Clarification to Definition of Service Area Identifier	F	3.6.0
23.018	068		N4-010413	R99	Paging not via the SGSN correction	F	3.6.0
23.018	069		N4-010414	Rel-4	Paging not via the SGSN correction	A	4.1.0

3GPP TSG-??? Meeting #nn
Location, Country, Date

Tdoc N4-010158

CR-Form-v3

CHANGE REQUEST

⌘ **23.003** **CR** **025** ⌘ rev **-** ⌘ Current version: **3.6.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Clarification to Definition of Service Area Identifier
Source:	⌘	CN4
Work item code:	⌘	LCS
Date:	⌘	14 Nov 00
Category:	⌘	**F** (Agreed by consensus)
Release:	⌘	R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use 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)

Reason for change:	⌘	Currently SAI is defined twice in 23.003, the use of the word "uniquely" in the second definition is misleading, one of the references to 25.413 should be to 25.401 and the reference to "Release 99" is not future-proof. Furthermore, the usage of multiple service areas per cell is not well defined or supported in the UTRAN protocols, so the flexibility implied by the definition is limited. There are also a few editorial corrections required to align with the 3GPP drafting conventions.
Summary of change:	⌘	Removal of 1st definition; removal of word "uniquely" from SAI definition, and addition of clarifying text. Correction of other issues mentioned above.
Consequences if not approved:	⌘	The specification will be misleading, possibly leading to non-compatible implementations.

Clauses affected:	⌘	4.6, 12 (top-level and sub-clauses)		
Other specs affected:	⌘	**X** Other core specifications	⌘	25.413 CR234, 25.423 CR274, 25.419 CR029
		☐ Test specifications		
		☐ O&M Specifications		
Other comments:	⌘			

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

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

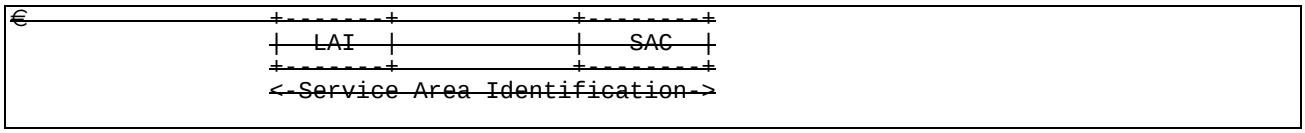
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

4.6 Composition of the Service Area Identification (SAI)

~~The Service Area Identification shall be composed as shown in figure 9:~~



~~Figure 9: Structure of Service Area Identification~~

~~The SAI is composed of the following elements:~~

- ~~A valid Location Area Identity (LAI) as defined in subclause 4.1. Invalid LAI values are used in some special cases when no valid RAI exists in the mobile station (see GSM 04.08 and GSM 11.11).~~
- ~~Service Area Code (SAC) which is a fixed length code (of 2 octets) identifying a service area within a location area and it can be coded using a full hexadecimal representation. Service area consists of one or more cells.~~

Void (see section 12.4).

12 Identification of PLMN, RNC, Service Area, CN domain

The following subclauses describe identifiers that are used by both CN and UTRAN across the Iu interface. For identifiers that are solely used within UTRAN, see 3GPP TS 25.~~413~~401.

12.1 PLMN Identifier

A Public Land Mobile Network is uniquely identified by its PLMN identifier. PLMN-Id is made of Mobile Country Code (MCC) and Mobile Network Code (MNC).

- **PLMN-Id = MCC + MNC**

The MCC and MNC are predefined within a UTRAN, and set in the RNC via O&M.

12.2 CN Domain Identifier

A CN Domain Edge Node is identified within UTRAN by its CN Domain Identifier. The CN Domain identifier is used over UTRAN interfaces to identify a particular CN Domain Edge Node for relocation purposes. The CN Domain identifier for Circuit Switching (CS) is made of the PLMN-Id and the LAC, whereas for Packet Switching (PS) it is made of the PLMN-Id, the LAC, and the RAC of the first accessed cell in the target RNS.

The two following CN Domains Identifiers are defined:

- **CN CS Domain-Id = PLMN-Id + LAC**

- **CN PS Domain-Id = PLMN-Id + LAC+ RAC**

The LAC and RAC are defined by the operator, and set in the RNC via O&M.

For syntax description and the usage of this identifier in RANAP signalling, see 3GPP TS 25.413.

12.3 RNC Identifier

An RNC node is uniquely identified within UTRAN by its RNC Identifier (RNC-Id). RNC-Id together with the PLMN identifier is used to globally identify the RNC. RNC-Id or the RNC-Id together with the PLMN-Id is used as RNC identifier in UTRAN Iub, Iur and Iu interfaces. SRNC-Id is the RNC-Id of the SRNC. C-RNC-Id is the RNC-Id of the controlling RNC. D-RNC-Id is the RNC Id of the drift RNC.

- **Global RNC-Id = PLMN-Id + RNC-Id**

The RNC-Id is defined by the operator, and set in the RNC via O&M

For syntax description and the usage of this identifier in RANAP signalling, see 3GPP TS 25.413.

12.4 Service Area Identifier

The Service Area Identifier (SAI) is used to ~~uniquely~~ identify an area consisting of one or more cells belonging to the same Location Area. Such an area is called a Service Area and can be used for indicating the location of a UE to the CN.

The Service Area Code (SAC) together with the PLMN-Id and the LAC will constitute the Service Area Identifier.

- **SAI = PLMN-Id + LAC + SAC**

The SAC is defined by the operator, and set in the RNC via O&M.

For syntax description and the usage of this identifier in RANAP signalling, see 3GPP TS 25.413. 3GPP TS 25.423 and 3GPP TS 25.419 define the usage of this identifier in RNSAP and SABP signalling.

A cell may belong to one or two Service Areas. In the case that it belongs to two Service Areas, one is applicable in the BC domain and the other is applicable in both the CS and PS domains.

~~For Release 99 t~~The broadcast (BC) domain requires that Service Area consist of one cell. This does not limit the usage of Service Area for other domains. Refer to 3GPP TS 25.410 for a definition of the BC domain.

3GPP TSG-CN4 Meeting #07
Sophia Antipolis, France, 26/2-2/3/01

Tdoc N4-010413

CR-Form-v3

CHANGE REQUEST

⌘ **23.018** **CR** **068** ⌘ rev **-** ⌘ Current version: **3.6.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Paging not via the SGSN correction
Source:	⌘	CN4
Work item code:	⌘	LCS
Date:	⌘	23/2/01
Category:	⌘	**F** (Agreed by consensus)
Release:	⌘	R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use 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)*

Reason for change:	⌘	In the first decision box labelled "Paging via SGSN possible?" in procedure Retrieve_Current_Location_VLR, the "No" decision line is missing therefore making paging not via the SGSN undefined.
Summary of change:	⌘	"No" decision line added.
Consequences if not approved:	⌘	Paging not via the SGSN will be undefined.

Clauses affected:	⌘	7.2.3.5		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR 23.018-069
Other comments:	⌘			

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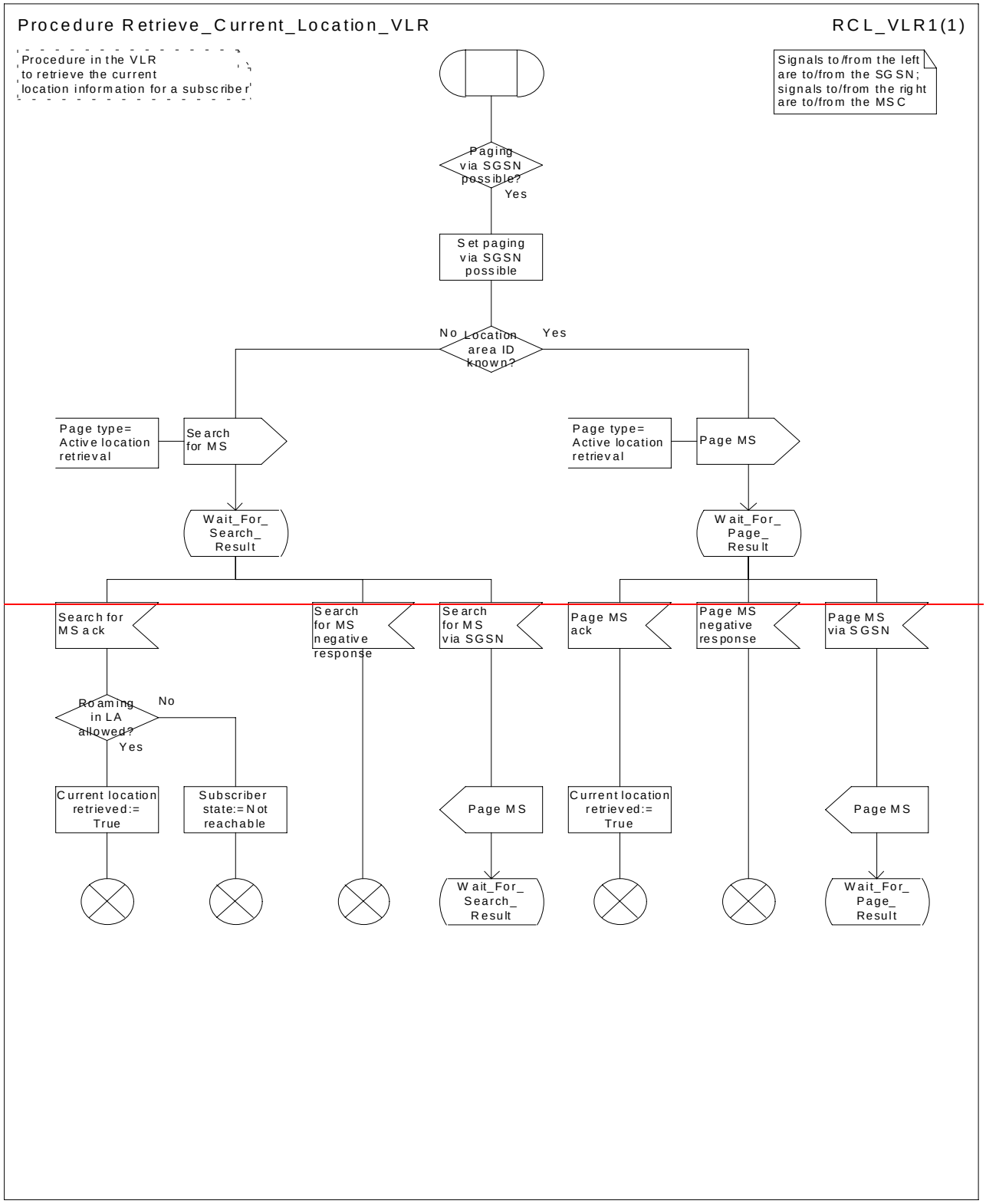
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.2.3.5 Procedure Retrieve_Current_Location_VLR

The test "Paging via SGSN possible" takes the "yes" exit if:

- the Gs interface is implemented; and
- the VLR configuration requires paging via the SGSN during VLR restoration.

The output signal Page MS towards the SGSN includes or omits the Location area identity parameter depending on the availability of this information. If it is omitted, the signal Page MS is sent to every SGSN to which the VLR is connected.


Procedure Retrieve_Current_Location_VLR
RCL_VLR1(1)
Procedure in the VLR to retrieve the current location information for a subscriber
Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the MSC
Paging via SGSN possible?
Yes
Set paging via SGSN possible
No Location area ID known? Yes
Page type= Active location retrieval
Search for MS
Page type= Active location retrieval
Page MS
Wait_For_ Search_ Result
Wait_For_ Page_ Result
Search for MS ack
Search for MS negative response
Search for MS via SGSN
Page MS ack
Page MS negative response
Page MS via SGSN
Roaming in LA allowed?
No
Yes
Current location retrieved:= True
Subscriber state:= Not reachable
Page MS
Current location retrieved:= True
Page MS
Wait_For_ Search_ Result
Wait_For_ Page_ Result

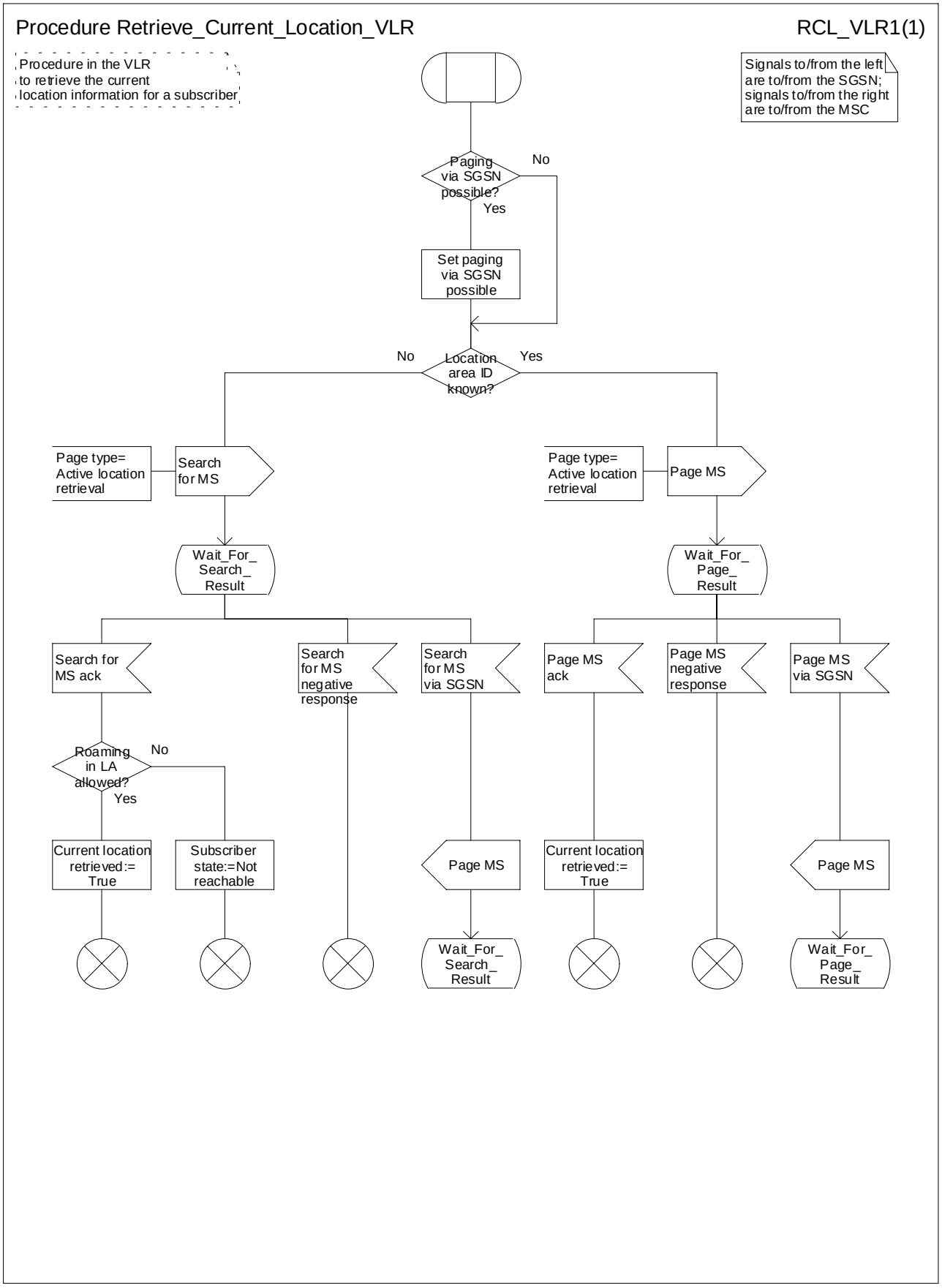


Figure 58: Procedure Retrieve_Current_Location_VLR

3GPP TSG-CN4 Meeting #07
Sophia Antipolis, France, 26/2-2/3/01

Tdoc N4-010414

CR-Form-v3

CHANGE REQUEST

⌘ **23.018** **CR** **069** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

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Source:	⌘	CN4
Work item code:	⌘	LCS
Date:	⌘	23/2/01
Category:	⌘	**A**
Release:	⌘	REL-4

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Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR 23.018-068
Other comments:	⌘			

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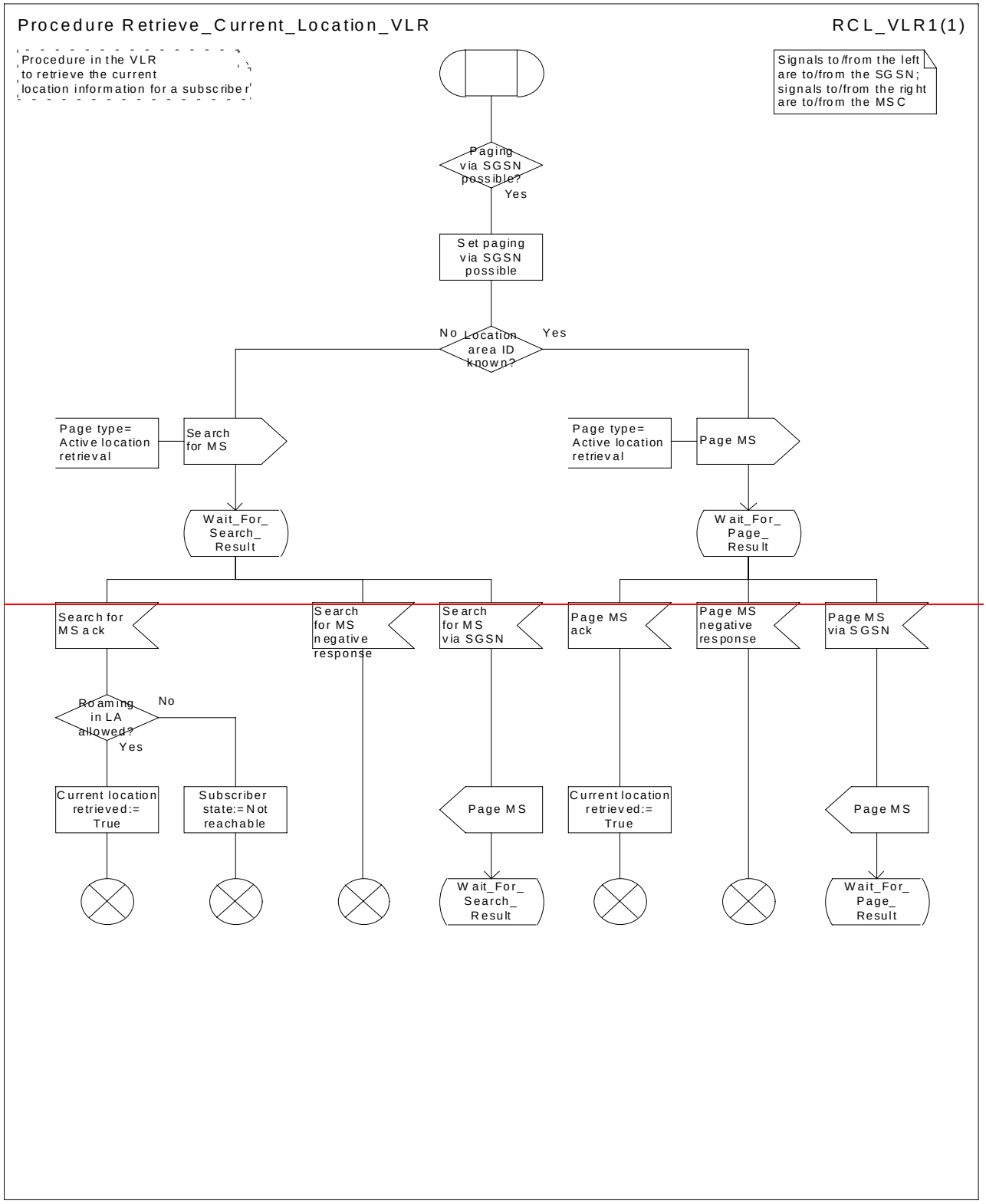
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Procedure in the VLR to retrieve the current location information for a subscriber
Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the MSC
Paging via SGSN possible?
Yes
Set paging via SGSN possible
No Location area ID known? Yes
Page type= Active location retrieval
Search for MS
Page type= Active location retrieval
Page MS
Wait_For_ Search_ Result
Wait_For_ Page_ Result
Search for MS ack
Search for MS negative response
Search for MS via SGSN
Page MS ack
Page MS negative response
Page MS via SGSN
Roaming in LA allowed?
No
Yes
Current location retrieved:= True
Subscriber state:= Not reachable
Page MS
Current location retrieved:= True
Page MS
Wait_For_ Search_ Result
Wait_For_ Page_ Result

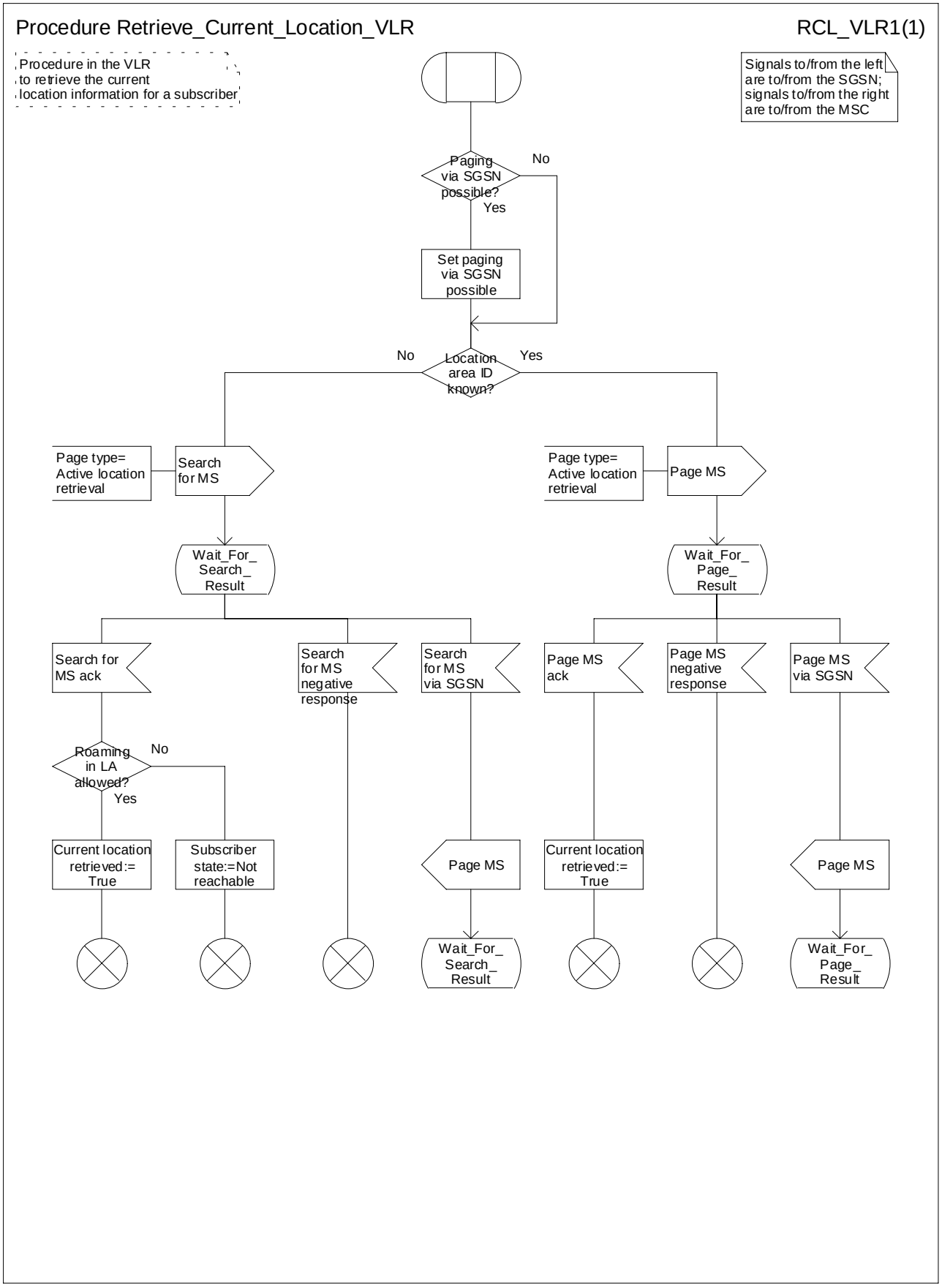

Figure 59: Procedure Retrieve_Current_Location_VLR