3GPP TSG CN Plenary Meeting #16 **NP-020243**
5th - 7th June 2002. Marco Island, USA.

Source: **TSG CN WG 1**

Title: **CRs to Rel-5 on Work Item TEI5 towards 23.009 and 23.122**

Agenda item: **8.8**

Document for: **APPROVAL**

Introduction:

This document contains **3** CRs on **Rel-5** Work Item **"TEI5"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #16 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version Current	Version-New	Meeting-2nd-Level	Doc-2nd-Level
23.009	066	2	Rel-5	Sending of RANAP Location Reporting Control on the E Interface	C	5.0.0	5.1.0	N1-23	N1-020879
23.009	074	1	Rel-5	Clarification that Multicall is not supported in GERAN Iu-mode	F	5.0.0	5.1.0	N1-24	N1-021426
23.122	048		Rel-5	Role of the equivalent PLMNs list in the PLMN user reselection	F	4.1.0	5.0.0	N1-24	N1-021408

3GPP TSG-CN1 Meeting #23
Fort Lauderdale, Florida, USA 08. - 12. April 2002

Tdoc N1-020879
(revision of Tdoc-N1-020702)

CR-Form-v3

CHANGE REQUEST

⌘ **23.009** **CR** **066** ⌘ rev **2** ⌘ Current version: **5.0.0** ⌘

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

Title:	⌘	Sending of RANAP Location Reporting Control on the E Interface
Source:	⌘	Alcatel
Work item code:	⌘	TEI5
Date:	⌘	9-04-2002
Category:	⌘	**C**
Release:	⌘	**Rel-5**

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:	⌘	During an inter-MSC SRNS relocation, it should be allowed to send RANAP Location Reporting Control message on the E interface after the relocation resource allocation and before the completion of the SRNS relocation in order not to miss the first location information that can be reported by the target RNC (i.e. the SA in which the UE arrived) when the type of report requested is "report upon change of Service area"
Summary of change:	⌘	
Consequences if not approved:	⌘	If not approved, the controlling MSC being only able to send the Location Reporting Control on the E interface after the successful completion of the inter 3G-MSC SRNS relocation, the SA in which the UE arrived will not be reported to the CN if a change of SA occurs before the CN can send the Location Reporting Control to the target RNC.

Clauses affected:	⌘	8.3
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

8.3 SRNS Relocation

The following subclauses describe two options for the Basic and Subsequent Relocation procedures. The first, as described in subclauses 8.3.1 and 8.3.3 respectively, provides for a circuit connection between 3G_MSC-A and 3G_MSC-B. The second, as described in subclauses 8.3.2 and 8.3.4 respectively, provides for a Basic and Subsequent Relocation without the provision of a circuit connection between 3G_MSC-A and 3G_MSC-B.

In all the above mentioned subclauses, the following principles apply:

- during the relocation resource allocation, only the handover related messages that are part of the applicable RANAP subset - as defined in 3GPP TS 29.108 [15] - shall be transferred on the E-interface;

- the trace related messages that are part of the applicable RANAP subset - as defined in 3GPP TS 29.108 [15] - can be sent by the 3G_MSC-A on the E-interface after successful relocation resource allocation. In the subclauses 8.3.1 and 8.3.2, it is however allowed at basic relocation initiation on the E-Interface to transfer one trace related message that is part of the applicable RANAP subset - as defined in 3GPP TS 29.108 [15] - together with the applicable relocation related message. The applicable relocation related message shall always appear as the first message;

- the Location Reporting Control message which belongs to the applicable RANAP subset - as defined in 3GPP TS 29.108 [15] - can be sent by the 3G_MSC-A on the E-interface after successful relocation resource allocation;

- during the relocation execution, i.e. while the UE is not in communication with the network, the 3G_MSC-A shall queue all outgoing RANAP messages until the communication with the UE is resumed;

- finally, during supervision, i.e. while the UE is not in the area of 3G_MSC-A after a successful Inter-3G_MSC relocation, the subset of RANAP procedures and their related messages - as defined in 3GPP TS 29.108 [15] - shall apply on the E-Interface;

- during the intra-3G_MSC-B relocation execution, if any, the 3G_MSC-B shall queue all outgoing RANAP messages until the communication with the UE is resumed.

- after successful completion of the Intra-3G_MSC-B relocation, if 3G_MSC-B or 3G-MSC-B’ has previously received an order to perform location reporting at change of Service Area from 3G_MSC-A, it shall act as specified in subclause 6.2.3.

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Budapest, Hungary, 13. – 17. May 2002

Tdoc N1-021426

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CHANGE REQUEST

⌘ **23.009** **CR** **074** ⌘ **rev** **1** ⌘ Current version: **5.0.0** ⌘

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

Title:	⌘	Clarification that Multicall is not supported in GERAN Iu-mode
Source:	⌘	Nokia
Work item code:	⌘	TEI5
Date:	⌘	15.05.02
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)

Reason for change:	⌘	During CN1#23 it was agreed that Multicall is not applicable in GERAN Iu-mode (see response to incoming LS from SA1 in Tdoc N1-020874). This CR implements this decision into Multicall handover procedures.
Summary of change:	⌘	Scope updated to indicate that Multicall is not applicable in GERAN Iu mode
Consequences if not approved:	⌘	23.009 would not be in line with SA1 requirements.

Clauses affected:	⌘	Chapter 1, Scope
Other specs Affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: 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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

1 Scope

The present document contains a detailed description of the handover procedures to be used in PLMNs. The purpose of the handover procedures, as described in the present document, are to ensure that the connection to the Mobile Station (MS) or User Equipment (UE) is maintained as it moves from one cell or radio network to another. The document defines the circuit switched handover functionality based on the service requirements in 3GPP TS 22.129 [9].

The present document considers the following four cases:

i) handover between Base Stations connected to the same MSC, this is termed an Intra-MSC handover;

ii) handover between Radio Network Subsystems connected to the same 3G_MSC, this is termed an Intra-3G_MSC handover/relocation. This case also includes inter-system handover between RNS and BSS if the 3G_MSC supports the A-interface. In the context of this specification the term RNS refers also to a BSS when serving a mobile station in Iu mode;

iii) handover between Base Stations connected to different MSCs, this is termed an Inter-MSC handover. This category can be sub-divided into three further procedures:

   a) the Basic Inter-MSC Handover procedure, where the MS is handed over from a controlling MSC (MSC-A) to another MSC (MSC-B);

   b) the Subsequent Inter-MSC Handover procedure, where the MS is handed over from MSC-B to a third MSC (MSC-B');

   c) the Subsequent Inter-MSC handback, where the MS is handed back from MSC-B to MSC-A.

iv) handover between Radio Network Subsystems connected to different 3G_MSCs, this is termed an Inter-3G_MSC handover/relocation. In the context of this specification the term RNS also refers to a BSS when serving a mobile station in Iu mode. This category can be divided into three further sub-procedures:

   a) the Inter-3G_MSC Handover procedure from UMTS to GSM, where the UE/MS is handed over from a controlling 3G_MSC (3G_MSC-A) to an MSC (MSC-B);

   b) the Inter-3G_MSC Handover procedure from GSM to UMTS, where the UE/MS is handed over from a controlling MSC (MSC-A) to a 3G_MSC (3G_MSC-B);

   c) the Inter-3G_MSC Relocation procedure, where the UE is relocated from 3G_MSC-A to 3G_MSC-B. This procedure can also be combined with a hard change of radio resources (Hard Handover with switch in the core network).

The MSC in this category can optionally be a 3G_MSC supporting the A-interface. The three sub-procedures do also cover subsequent handover/relocation to a third MSC-B' or 3G_MSC-B' and subsequent handover/relocation back to MSC-A or 3G_MSC-A.

In both cases i) and iii) the same procedures as defined in the 3GPP TS 48.008 [5] and the 3GPP TS 24.008 [10] shall be used on the A-interface and on the Radio Interface, respectively.

In case ii) the same procedures as defined in the 3GPP TS 25.413 [11] and the 3GPP TS 24.008 [10] shall be used on the Iu-interface. If the 3G_MSC in case ii) also supports the A-interface, the 3GPP TS 48.008 [5] and the 3GPP TS 24.008 [10] shall be used on the A-interface.

In case iii) the handover procedures shall transport the A-interface messages between MSC-A and MSC-B described in the Mobile Application Part (MAP), 3GPP TS 29.002 [12].

In case iv) the handover procedures shall transport the A-interface messages between 3G_MSC and MSC described in the Mobile Application Part (MAP), 3GPP TS 29.002 [12].

In case iv) the relocation procedure shall transport the Iu-interface messages between 3G_MSC-A and 3G_MSC-B described in the Mobile Application Part (MAP), 3GPP TS 29.002 [12].

The interworking between the 3GPP TS 29.002 [12] protocol and the 3GPP TS 48.008 [5] protocol is described in the 3GPP TS 29.010 [8].

Multicall supplementary service is not applicable in GERAN Iu mode and relocation of Multicalls is therefore only possible within UTRAN.

Handovers, which take place on the same MSC are termed Intra-MSC handovers; this includes both Inter-BSS and Intra-BSS handovers.

Handovers, which take place on the same 3G_MSC are termed Intra-3G_MSC handovers; this includes Inter-RNS handovers and optionally RNS to BSS and BSS to RNS handovers.

In the context of this specification the term InterSystem handover can also refer to a handover which takes place between a Base Station serving a mobile station in Iu mode and a Base Station serving a mobile in A/Gb mode.

"Flexible Iu interface for handover/relocation" Option (see 3GPP TS 23.221 [19], subclause 4.2.1): Up to release 99 an RNS can be connected only to one 3G_MSC. From release 4 onwards, as a network option, an RNS can have Iu interfaces to more than one MSC. Such an additional Iu interface may be selected by an MSC during an intra-PLMN relocation or intra-PLMN BSS to RNS handover procedure. This allows the MSC to use an Intra-3G_MSC handover procedure according to case ii) instead of an Inter-3G_MSC handover procedure according to case iv). The decision whether to use the Intra-3G_MSC handover procedure is implementation and configuration dependent. In a network implementing this option, a global title based on the Global RNC-Id may optionally be used for the addressing of the Iu interface messages.

"Intra Domain Connection of RAN Nodes to Multiple CN Nodes" Option (see 3GPP TS 23.236 [18]): when applied, a BSS or an RNS can be connected to more than one MSC.

The present document also covers the requirements for handover in ongoing GSM voice group calls, directed retry and handover without a circuit connection between (U)MSCs. The present document does not consider the case of handovers between radio channels on the same BSS (Intra-BSS handover) or the handover of packet radio services. The Inter-RNS handover case that results in a relocation is covered by the present document but not other Inter-RNS or Intra-RNS handover cases.

For voice broadcast calls in GSM, the speaker uses normal point-to-point handover procedures, whilst the listeners use idle mode cell reselection procedures, as for the voice group call listeners.

Voice group calls is only applicable to GSM and handover of voice group calls is therefore only possible in GSM.

Inter-MSC hand-over imposes a few limitations on the system. After inter-MSC hand-over:

- call re-establishment is not supported.

The list of 3GPP TS 48.008 [5] features supported during and after Inter-MSC handover is given in 3GPP TS 09.08 [7].

In the Inter-MSC handover case, the interworking between a Phase 1 BSSMAP protocol possibly used by one MSC and the Phase 2 BSSMAP protocol used in the Phase 2 MAP protocol on the E-interface is performed by this MSC.

NOTE: The message primitive names used in the SDL diagrams and message flows in the present document do not represent the actual messages specified in the GSM or 3GPP stage 3 technical specifications. The primitive names are only intended to be indicative of their use in the present document.

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CHANGE REQUEST

⌘ **23.122** **CR** **048** ⌘ **rev** **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Role of the equivalent PLMNs list in the PLMN user reselection
Source:	⌘	Siemens AG
Work item code:	⌘	GPRS
Date:	⌘	14.05.02
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)

Reason for change:	⌘	Up to now it is not defined whether the ePLMN list shall be used for the PLMN user re-selection. As the aim of the PLMN user re-selection is to select a PLMN different to the current one, the PLMN in the ePLMN list shall not be considered as equivalent to the current PLMN, and the new alternative PLMN may be one of those listed in the ePLMN list.
Summary of change:	⌘	It is clarified, that the equivalent PLMNs list shall not be applied to the user reselection in Automatic Network Selection Mode.
Consequences if not approved:	⌘	Ambiguous specification with the risk of different MS implementations and thus different PLMN user re-selection behaviour.

Clauses affected:	⌘	4.4.3.2.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.4.3 PLMN selection

The registration on the selected PLMN and the location registration are only necessary if the MS is capable of services which require registration. Otherwise, the PLMN selection procedures are performed without registration.

The “HPLMN Selector with Access Technology”, “User Controlled PLMN Selector with Access Technology” and “Operator Controlled PLMN Selector with Access Technology” data fields in the SIM include associated access technologies for each PLMN entry, see GSM 11.11 [32]. The PLMN/access technology combinations are listed in priority order. If an entry includes more than one access technology, then no priority is defined for the preferred access technology and the priority is an implementation issue.

The Mobile Equipment stores a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. All PLMNs in the stored list are regarded as equivalent to each other for PLMN selection, cell selection/re-selection and handover.

The MS shall not use the PLMN codes contained in the “HPLMN Selector with Access Technology” data field.

NOTE: To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HLPMN codes and the “HPLMN Selector with Access Technology” data field is only used by the MS to get the HPLMN access technologies. The HPLMN code is the PLMN code included in the IMSI.

NOTE: Different GSM frequency bands (eg. 900, 1800, 1900, 400) are all considered GSM access technology. An MS supporting more than one band should scan all the bands it’s supports when scanning for GSM frequencies. However GSM COMPACT systems which use GSM frequency bands but with the CBPCCH broadcast channel are considered as a separate access technology from GSM.

****first modified section****

4.4.3.2 User reselection

At any time the user may request the MS to initiate reselection and registration onto an available PLMN, according to the following procedures, dependent upon the operating mode.

4.4.3.2.1 Automatic Network Selection Mode

The MS selects and attempts registration on PLMNs, if available and allowable, in all of its bands of operation in accordance with the following order:

i) HPLMN;

ii) PLMNs contained in the " User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order) excluding the previously selected PLMN;

iii) PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order) excluding the previously selected PLMN;

iv) other PLMN/access technology combinations with the received high quality signal in random order excluding the previously selected PLMN;

v) other PLMN/access technology combinations, excluding the previously selected PLMN in order of decreasing signal quality or, alternatively, the previously selected PLMN may be chosen ignoring its signal quality;

vi) The previously selected PLMN.

The previously selected PLMN is the PLMN which the MS has selected prior to the start of the user reselection procedure.

NOTE 1: If the previously selected PLMN is chosen, and registration has not been attempted on any other PLMNs, then the MS is already registered on the PLMN, and so registration is not necessary.

The equivalent PLMNs list shall not be applied to the user reselection in Automatic Network Selection Mode.

When following the above procedure the requirements a), b), c), e), f), g), h) in section 4.4.3.1.1 apply: Requirement d) shall apply as shown below:

d) In iv, v, and vi, the MS shall search for all access technologies it is capable of before deciding which PLMN to select.

NOTE 2: High quality signal is defined in the appropriate AS specification.

4.4.3.2.2 Manual Network Selection Mode

The Manual Network Selection Mode Procedure of subclause 4.4.3.1.2 is followed.