3GPP TSG_CN **Tdoc NP-000444**
Plenary Meeting #9, Oahu, Hawaii
20th – 22nd September 2000.

Source: **TSG_N WG 1**

Title: **CRs to R99 Work Item TrFO/ OoBTC**

Agenda item: **8.8.1**

Document for: **APPROVAL**

Introduction:

This document contains 1 CRs on R99 Work Item TrFO/ OoBTC, that has been agreed by TSG_N WG1, and is forwarded to TSG_N Plenary meeting #9 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C	Ver_N
23.009	012	1	N1-000922	R99	CR to 23.009 for Transcoder Location at Handover	F	3.3.0	3.4.0

3GPP TSG-N WG1 #13
Vancouver, Canada 14 Aug– 18 Aug 2000

Document ***N1-000922***
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

23.009	**CR**	**012R1**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-N#9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: TSGN1 **Date:** 04AUG2000

Subject: Correction to transcoder handling for R99

Work item: Out-of-Band Transcoder Control

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: The text pertaining to transcoder control in this TS assumes that there there could be TrFO connections and also that there is support in MAP procedures to indicate if a transcoder should be inserted or not by the MSC-B. As the TrFO/Out Of Band Codec Control WI was removed from R99 this text needs to be corrected. MSC-B shall always insert a transcoder, with default UMTS AMR codec type in R99.

Clauses affected: 4.3.1, 4.4.1, 8.1.1, 8.2.1,8.2.3,8.3.1,8.3.3,

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


help.doc

<--------- double-click here for help and instructions on how to create a CR.

First Paragraph Changed

4.3.1 Role of 3G_MSC-A

In the Intra-3G_MSC handover/relocation case, the 3G_MSC-A (simply termed 3G_MSC) controls the call, the mobility management and the radio resources before, during and after an Intra-3G_MSC handover/relocation. When RANAP or BSSMAP procedures have to be performed, they are initiated and driven by 3G_MSC-A.

In the case of ~~an inter-system,~~ intra-MSC handover of a speech call, 3G_MSC-A controls the transcoder in the core network. The 3G_MSC-A determines if a transcoder is required to be inserted or released in the CN.

In the case of Inter-3G_MSC relocation, 3G_MSC-A links out the transcoder.

~~In case of ATM network between 3G_MSC-A and 3G_MSC-B, 3G_MSC-A retains control of transcoder. In the case of TDM between 3G_MSC-A and 3G_MSC-B, 3G_MSC-A assumes G.711 [16] coding on the TDM E-interface. In case of UMTS-to-GSM handover, 3G_MSC-A assumes G.711 [16] coding on the ATM E-interface.~~

First Paragraph Changed

4.4.1 Role of 3G_MSC-B

In the Intra-3G_MSC handover/relocation case, the 3G_MSC-B keeps the control of the whole Intra-3G_MSC handover/relocation procedure.

~~In case of TDM networks,~~ T~~t~~he role of 3G_MSC-B is also to provide transcoder resources. ~~In the case of ATM, 3G_MSC-B has no transcoder handling.~~

First Paragraph Changed

8.1.1.1 With one circuit connection

The UMTS to GSM handover is initiated as described in subclause 6.2.1. (This is represented by Iu-RELOCATION-REQUIRED in figure 18). Upon receipt of the Iu-RELOCATION-REQUIRED from RNS-A, 3G_MSC-A shall send a MAP-PREPARE-HANDOVER request to MSC-B including a complete A-HO-REQUEST message.

NOTE: 3G_MSC-A shall not send further MAP-PREPARE-HANDOVER requests while a MAP-PREPARE-HANDOVER response is pending or before any timeouts.

The MAP-PREPARE-HANDOVER request shall carry in the A-HO-REQUEST all information needed by MSC-B for allocating a radio channel, see Technical Specification GSM 08.08. For compatibility reasons, the MAP-PREPARE-HANDOVER request will also identify the cell to which the call is to be handed over. MSC-B will return the MAP-PREPARE-HANDOVER response after having retrieved a Handover Number from its associated VLR (exchange of the messages MAP-allocate-handover-number request and MAP-send-handover-report request). The Handover Number shall be used for routing the connection of the call from 3G_MSC-A to MSC-B. If a traffic channel is available in MSC-B the MAP-PREPARE-HANDOVER response, sent to 3G_MSC-A will contain the complete A-HO-REQUEST-ACKNOWLEDGE message received from BSS-B, containing the radio resources definition to be sent by RNS-A to the UE/MS and possible extra BSSMAP information, amended by MSC-B due to the possible interworking between the BSSMAP protocol carried on the E-interface and the BSSMAP protocol used on the A-interface. If the traffic channel allocation is queued by BSS-B, the A-QUEUING-INDICATION may optionally be sent back to 3G_MSC-A. The further traffic channel allocation result (A-HO-REQUEST-ACK or A-HO-FAILURE) will be transferred to 3G_MSC-A using the MAP-PROCESS-ACCESS-SIGNALLING request. If the traffic channel allocation is not possible, the MAP-PREPARE-HANDOVER response containing an A-HO-FAILURE will be sent to 3G_MSC-A. MSC-B will do the same if a fault is detected on the identity of the cell where the call has to be handed over. MSC-B simply reports the events related to the dialogue. It is up to 3G_MSC-A to decide the action to perform if it receives negative responses or the operation fails due to the expiry of the MAP-PREPARE-HANDOVER timer.

If an error related to the TCAP dialogue or to the MAP-PREPARE-HANDOVER request is returned from MSC-B, this will be indicated to 3G_MSC-A and 3G_MSC-A will terminate the handover attempt. 3G_MSC-A rejects the handover attempt towards RNS-A. The existing connection to the UE/MS shall not be cleared.

When the A-HO-REQUEST-ACKNOWLEDGE has been received, 3G_MSC-A shall establish a circuit between 3G_MSC-A and MSC-B by signalling procedures supported by the network. In figure 18 this is illustrated by the messages IAM (Initial Address Message) and ACM (Address Complete Message) of Signalling System no 7. MSC-B awaits the capturing of the UE/MS (subclause 6.2.1) on the radio path when the ACM is sent and 3G_MSC-A initiates the UMTS to GSM handover execution when ACM is received (illustrated by the Iu-RELOCATION-COMMAND and described in the subclause 6.2.1). 3G_MSC-A ~~inserts or~~ removes the~~a~~ transcoder from~~in~~ the path to the other party~~,~~ ~~depending on the type of connection~~. As handover to GSM means that a transcoder is inserted in the BSS-B then G.711 [16] is assumed on the E-interface. ~~If the original connection is transcoder free then 3G_MSC-A shall insert a transcoder. If 3G_MSC-A had a transcoder in the original path then it shall remove it.~~

First Paragraph Changed

8.2.3.1 Description of subsequent GSM to UMTS handover procedure i): MSC-B to 3G_MSC-A

The procedure for successful GSM to UMTS handover from MSC-B back to 3G_MSC-A is shown in figure 26.

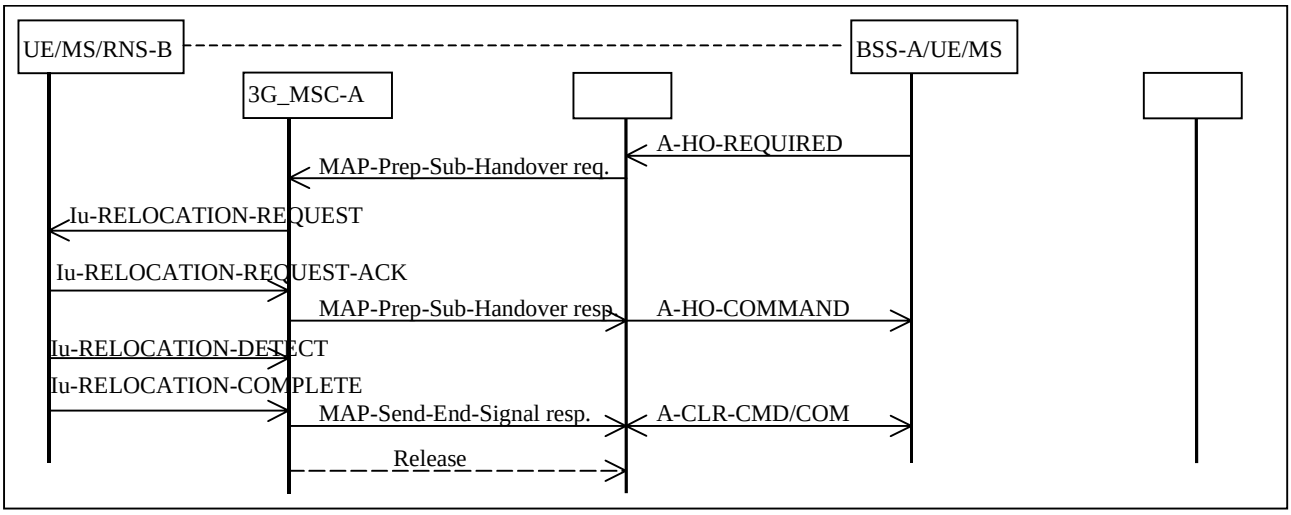

Figure 26: Subsequent GSM to UMTS handover procedure i): successful handover from MSC-B to 3G_MSC-A using a circuit connection

The procedure is as follows.

MSC-B sends the MAP-PREPARE-SUBSEQUENT-HANDOVER request to 3G_MSC-A indicating the new MSC number (3G_MSC-A number), indicating also the identity of the cell where the call has to be handed over and including a complete A-HO-REQUEST message. (NOTE: MSC-B shall not send further MAP-PREPARE-SUBSEQUENT-HANDOVER requests while a handover attempt is pending or before any timeouts). Since 3G_MSC-A is the call controlling MSC, this MSC needs no Handover Number for routing purposes; 3G_MSC-A can immediately initiate the search for free radio resources. 3G_MSC-A then inserts ~~or removes~~ a transcoder ~~depending on~~between it's RNS and the connection to the other party.

First Paragraph Changed

8.3.1.1 With one circuit connection

The relocation is initiated as described in subclause 6.2.3. (This is represented by IU-RELOC-REQUIRED in figure 30). Upon receipt of the IU-RELOC-REQUIRED from RNS-A, 3G_MSC-A shall send a MAP-PREPARE-HANDOVER request to 3G_MSC-B including a complete IU-RELOC-REQUEST message. (NOTE: 3G_MSC-A shall not send further MAP-PREPARE-HANDOVER requests while a MAP-PREPARE-HANDOVER response is pending or before any timeouts). The MAP-PREPARE-HANDOVER request shall carry in the IU-RELOC-REQUEST all information needed by 3G_MSC-B for allocating radio resources in the case of SRNS relocation without Iur interface, see TS 25.413 [11].

3G_MSC-A shall configure the RANAP RAB parameters according to the current selected codec. ~~and shall indicate in MAP-PREPARE-HANDOVER to 3G_MSC-B if a transcoder is required to be inserted.~~

MAP-PREPARE-HANDOVER request shall also carry the identity of the target RNS to which the call is to be relocated, see TS 29.002. 3G_MSC-B will return the MAP-PREPARE-HANDOVER response after having retrieved one or several Handover Numbers from its associated VLR (exchange of the messages MAP-allocate-handover-number request and MAP-send-handover-report request), ~~If requested to do so in the MAP procedure~~ 3G_MSC-B shall connect a transcoder. The Handover Numbers shall be used for routing the connections of the calls from 3G_MSC-A to 3G_MSC-B. If radio resources are available in 3G_MSC-B, the MAP-PREPARE-HANDOVER response sent to 3G_MSC-A will contain the complete IU-RELOC-REQUEST-ACKNOWLEDGE message received from RNS-B, containing the radio resources definition to be sent by RNS-A to the UE (in case of relocation without Iur interface) and possible extra RANAP information, amended by 3G_MSC-B due to the possible interworking between the RANAP protocol carried on the E-interface and the RANAP protocol used on the Iu-interface. If the radio resource allocation is not possible, the MAP-PREPARE-HANDOVER response containing an IU-RELOCATION-FAILURE will be sent to 3G_MSC-A. 3G_MSC-B will do the same if a fault is detected on the identity of the RNS where the call has to be relocated. 3G_MSC-B simply reports the events related to the dialogue. It is up to 3G_MSC-A to decide the action to perform if it receives negative responses or the operation fails due to the expiry of the MAP-PREPARE-HANDOVER timer.

If an error related to the TCAP dialogue or to the MAP-PREPARE-HANDOVER request is returned from 3G_MSC-B, this will be indicated to 3G_MSC-A and 3G_MSC-A will terminate the relocation attempt. The existing connection to the UE shall not be cleared.

When the IU-RELOC-REQUEST-ACKNOWLEDGE has been received, 3G_MSC-A shall establish a circuit between 3G_MSC-A and 3G_MSC-B by signalling procedures supported by the network. In figure 30 this is illustrated by the messages IAM (Initial Address Message) and ACM (Address Complete Message) of Signalling System no 7. 3G_MSC-B awaits the capturing of the UE (subclause 6.2.3) on the radio path when the ACM is sent and 3G_MSC-A initiates the relocation execution when ACM is received (illustrated by the IU-RELOC-COMMAND and described in the subclause 6.2.3). ~~In case of TDM~~ 3G_MSC-A shall ~~insert or~~ remove thea ~~transcoder between the MSC and other party, depending on the original connection~~.

First Paragraph Changed

8.3.3.1.1 With one circuit connection

The procedure is as follows.

3G_MSC-B sends the MAP-PREPARE-SUBSEQUENT-HANDOVER request to 3G_MSC-A indicating the new 3G_MSC number (3G_MSC-A number), indicating also the identity of the target RNS where the call has to be relocated and including a complete IU-RELOC-REQUEST message.

NOTE: 3G_MSC-B shall not send further MAP-PREPARE-SUBSEQUENT-HANDOVER requests while a relocation attempt is pending or before any timeouts.

Since 3G_MSC-A is the call controlling 3G_MSC, this 3G_MSC needs no Handover Number for routing purposes; 3G_MSC-A can immediately initiate the relocation towards the target RNS.

When relocation can be initiated, 3G_MSC-A shall return in the MAP-PREPARE-SUBSEQUENT-HANDOVER response the complete IU-RELOC-REQUEST-ACKNOWLEDGE message received from the RNS-B and possible extra RANAP information, amended by 3G_MSC-A due to the possible interworking between the RANAP protocol carried on the E-interface and the RANAP protocol used on the Iu-interface. If a radio resource cannot be assigned or if a fault is detected on the target RNS identity, or the target RNS identity in the IU-RELOC-REQUEST is not consistent with the target 3G_MSC number, the MAP-PREPARE-SUBSEQUENT-HANDOVER response containing an IU-RELOC-FAILURE message shall be given to 3G_MSC-B, in addition 3G_MSC-B shall maintain the connection with the UE.

If the procedure in 3G_MSC-A is successful then 3G_MSC-B can request the UE to retune to the new RNS-B on 3G_MSC-A in the case of relocation without Iur interface, or request RNS-B to become serving RNS in the case of relocation with Iur interface. This is illustrated in figure 32 by the IU-RELOC-COMMAND message. The operation is successfully completed when 3G_MSC-A receives the IU-RELOC-COMPLETE message.

~~If~~ 3G_MSC-A i~~nserted a transcoder at basic relocation then it shall remove it on successful subsequent relocation back to 3G_MSC-A. If it removed a transcoder at basic relocation then it~~ shall insert a transcoder at successful subsequent relocation back to 3G_MSC-A.