3GPP TSG_CN **Tdoc NP-000490**
Plenary Meeting #9, Oahu, Hawaii
20th – 22nd September 2000.

Source: **TSG_N WG 4**

Title: **CRs to R99 Work Item Handover**

Agenda item:

Document for: **APPROVAL**

Introduction:

This document contains 3 CRs on R99 Work Item Handover, that has been agreed by TSG_N WG4, and is forwarded to TSG_N Plenary meeting #9 for approval.

SM	TDoc	SPEC	CR	REV	PHAS	VERS	SUBJECT	CAT
CN9	N4-000481	29.002	156		R99	3.5.1	Aligning 29.002 with 25.413 (UTRAN Iu Interface RANAP	F
CN9	N4-000745	29.010	006	1	R99	3.2.0	Clarification of use of Radio Resource Information	F
CN9	N4-000746	29.002	177	1	R99	3.5.1	Clarification of use of Radio Resource Information	F

3GPP TSG CN WG4
17-21 July 2000
Helsinki, Finland

Document N4-000481
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.

29.002	**CR**	**156**	Current Version:	3.5.0

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

For submission to: CN#09	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: N4 **Date:** 14.07.2000

Subject: Aligning 29.002 with 25.413 (UTRAN Iu Interface RANAP Signalling)

Work item: Handover

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: CN passes cipher and integrity mode information and key status to the UTRAN with RANAP message Security mode Command (see 3G TS 25.413 v. 3.2.0 chapters 8.1.18 and 9.1.26). After inter system inter MSC handover, when BSSMAP is used in E-interface the information is transferred from MSC-A to MSC-B with MAP_FORWARD_ACCESS_SIGNALLING message, at the MAP level .The Information includes Integrity Protection Information, Encryption Information. The Key Status is missing from 29.002 and this CR corrects this error.

Clauses affected: 7.6.6, 8.4.4, 17.7.1

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:

7.6.6 Radio parameters

7.6.6.1 - 7.6.6.6 Void

7.6.6.7 HO-Number Not Required

This parameter indicates that no handover or relocation number allocation is necessary.

7.6.6.8 Integrity Protection Information

This parameter refers to the Integrity Protection Information element defined in 3G TS 25.413.

7.6.6.9 Encryption Information

This parameter refers to the Encryption Information element defined in 3G TS 25.413.

7.6.6.10 Key Status

This parameter refers to the Key Status element defined in 3G TS 25.413.

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

8.4.4 MAP_FORWARD_ACCESS_SIGNALLING service

8.4.4.1 Definition

This service is used between MSC-A and MSC-B (E-interface) to pass information to be forwarded to the A-interface or Iu-interface of MSC-B.

The MAP_FORWARD_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/4.

8.4.4.2 Service primitives

Table 8.4/4: MAP_FORWARD_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
Integrity Protection Information	C	C(=)
Encryption Information	C	C(=)
Key Status	C	C(=)
AN-APDU	M	M(=)

8.4.4.3 Parameter use

For the definition and use of all parameters and errors, see subclause 7.6.1.

Invoke Id

For definition of this parameter see subclause 7.6.1.

Integrity Protection Information

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Encryption Information

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Key Status

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

AN-APDU

For definition of this parameter see subclause 7.6.9.

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

17.7 MAP constants and data types

17.7.1 Mobile Service data types

……

-- handover types

```
ForwardAccessSignalling-Arg ::= [3] SEQUENCE {
    an-APDU                          AccessNetworkSignalInfo,
    integrityProtectionInfo          [0] IntegrityProtectionInformation  OPTIONAL,
    encryptionInfo                   [1] EncryptionInformation           OPTIONAL,
    keyStatus                        [2]  KeyStatus                      OPTIONAL,
    extensionContainer               [32] ExtensionContainer             OPTIONAL,
    ...}
```

```
KeyStatus ::= ENUMERATED {
    old  (0),
    new  (1),
    ...}
    -- exception handling:
    -- received values in range 2-31 shall be treated as "old"
    -- received values greater than 31 shall be treated as "new"
```

3GPP TSG CN WG4 #4
Seattle, USA, 28 Aug - 01 Sep 2000

***Document* N4-000746**
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.

29.002	CR	177r1	Current Version:	3.5.2

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

For submission to:	CN#09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	X	

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

Source: N4 **Date:** 2000-08-31

Subject: Clarification of use of Radio Resource Information

Work item: Handover

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: CR 29.002-105r1 introduced support for inter-system handover and inter-MSC relocation. However, the description when and why to user the Radio Resource Information (08.08 Channel Type) is somewhat obscure and should be clarified. This CR tries to clarify RRI.

Clauses affected:

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	29.010
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.

19.2.2.1 Basic handover

When MSC-A has decided that a call has to be handed over or relocated to MSC-B, the Handover Control Application in MSC-A requests the MAP application to initiate the MAP_PREPARE_HANDOVER request to MSC-B.

MSC-A opens the dialogue to MSC-B with a MAP_OPEN request containing no user specific parameters and sends a MAP_PREPARE_HANDOVER request. This request may optionally contain an indication that a handover number allocation is not required, targetCellId, for compatibility reasons if handover, and all information required by MSC-B to

allocate the necessary radio resources. The request may also contain IMSI, UMTS encryption information and UMTS integrity protection information that are necessary parameters for inter-system handover from GSM to UMTS. GSM radio resource information (channel type) shall be included at inter-MSC relocation to prepare for a possible subsequent intra-MSC handover from UMTS to GSM in MSC-B. The conditions when these parameters shall be included and the processing of them in MSC-B (3G_MSC-B) are described in detail in 3G TS 29.010 and 3G TS 23.009.~~GSM radio resource information (channel type) may be included for inter-system handover from UMTS to GSM. The conditions when these parameters shall be included are described in detail in 3G TS 23.009.~~

If MSC-B accepts the dialogue, it returns a MAP_PREPARE_HANDOVER confirmation containing a handover number or one or several relocation numbers, unless the request has included the HO-NumberNotRequired parameter, and BSSAP or RANAP information which is forwarded to and handled by the Handover Control Application in MSC-A.

Optionally MSC-A can receive, after a MAP_PREPARE_HANDOVER confirmation, a MAP_PROCESS_ACCESS_SIGNALLING indication containing BSSAP or RANAP information.

When the connection has been established between the MS and MSC-B, MSC-A will be informed by a MAP_SEND_END_SIGNAL indication.

When MSC-A wants to clear the connection with BSS-B, an indication from the Handover Control Application is received in the Map Application to send the MAP_SEND_END-SIGNAL response to MSC-B to close the MAP dialogue.

MSC-A may abort the handover or relocation procedure at any time (e.g. if the call is cleared).

3GPP TSG CN WG4 #4
Seattle, USA, 28 Aug - 01 Sep 2000

***Document* N4-000745**
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.

29.010	CR	006r1	Current Version:	3.2.0

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

For submission to: CN#09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic	X	

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

Source: N4 **Date:** 2000-08-31

Subject: Clarification of use of Radio Resource Information

Work item: Handover

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: CR 29.002-105r1 introduced support for inter-system handover and inter-MSC relocation. However, the description in 29.002 when and why to user the Radio Resource Information (08.08 Channel Type) is somewhat obscure and should be clarified. This CR to 29.010 in combination with a CR to 29.002 tries to clarify RRI.

Clauses affected: 1.1, 4.8.5.4

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	29.002-177
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.

1.1 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] 3G TS 21.905: "3G Vocabulary".

[2] 3G TS 23.009: "Handover procedures".

[3] 3G TS 23.040: "Technical realization of the Short Message Service (SMS) Point to Point (PP)".

[4] 3G TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols-Stage 3".

[5] 3G TS 24.010: "Mobile radio interface layer 3 Supplementary services specification - General aspects".

[6] 3G TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

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

[8] 3G TS 27.001: " General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[9~~8~~] 3G TS 29.002: "Mobile Application Part (MAP) specification".

[10~~9~~] 3G TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[11~~0~~] 3G TS 29.011: "Digital cellular telecommunications system (Phase 2+); Signalling interworking for supplementary services".

[12~~1~~] GSM 08.08: "Digital cellular telecommunications system (Phase 2+); Mobile Switching Centre - Base Station System (MSC - BSS) interface Layer 3 specification".

[13~~2~~] GSM 09.03: "Digital cellular telecommunications system (Phase 2+); Signalling requirements on interworking between the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN)".

[14~~3~~] GSM 09.08: "Digital cellular telecommunications system (Phase 2+); Application of the Base Station System Application Part (BSSAP) on the E-interface".

4.8.5 Processing in 3G_MSC-B, and information transfer on E-interface

The following parameters require processing (e.g. to store the parameter, to internally generate the parameter) in 3G_MSC-B. The relevant RANAP procedures are mentioned to ease the comprehension, their detailed description is the scope of the TS 25.413. Each RANAP message being transferred on E-interface shall use the mechanisms given in subclause 4.8.4 and is described in TS 25.413.

4.8.5.1 Integrity Protection Information

A sequence of possible integrity protection algorithms can be sent to an RNS in Security Mode Command or Relocation Request. The RNS chooses one of the listed algorithms and reports this back to the 3G_MSC in Security Mode Complete or Relocation Request Acknowledge respectively.

The list of algorithms, the integrity protection key and the chosen algorithm shall be stored by 3G_MSC-B.

Transfer of Information:

If integrity protection has not been performed before Inter-MSC Relocation, this will be controlled by 3G_MSC-A after the completion of Inter-MSC Relocation.

Integrity protection control towards 3G_MSC-B:

If Integrity protection has been performed before Inter-MSC Relocation:

- in the Relocation Request RANAP message (information included).

  The Relocation Request Acknowledge should in this case contain the indication of the chosen algorithm.

If Integrity protection has NOT been performed before Inter-MSC Relocation:

- in the Security Mode Command procedure between 3G_MSC-A and 3G_MSC-B.

4.8.5.2 Encryption Information

A sequence of possible encryption algorithms can be sent to an RNS in Security Mode Command or Relocation Request. The RNS chooses one of the listed algorithms and reports this back to the 3G_MSC in Security Mode Complete or Relocation Request Acknowledge respectively.

The list of algorithms, the ciphering key and the chosen algorithm shall be stored by 3G_MSC-B, and the chosen value sent to 3G_MSC-A.

Transfer of Information:

If ciphering has not been performed before Inter-MSC Relocation, this will be controlled by 3G_MSC-A after the completion of Inter-MSC Relocation.

Ciphering control towards 3G_MSC-B:

If Ciphering has been performed before Inter-MSC Relocation:

- in the Relocation Request RANAP message (information included).

  The Relocation Request Acknowledge should in this case contain the indication of the chosen algorithm.

If Ciphering has NOT been performed before Inter-MSC Relocation:

- in the Security Mode Command procedure between 3G_MSC-A and 3G_MSC-B.

4.8.5.3 RAB Parameters

The parameters shall be stored by 3G_MSC-B to be used at internal Relocation in 3G_MSC-B.

Transfer of information:

Received by 3G_MSC-B from 3G_MSC-A in:

- The Relocation Request RANAP message.

If a new type of resource is to be assigned after Inter-MSC Relocation, this can be made with:

- The RAB Assignment Request RANAP message.

4.8.5.4 Channel Type

Channel Type is GSM information that is required in BSSMAP Handover Request and shall be provided by 3G_MSC-A. 3G_MSC-B ~~must have~~needs this information in case of an intra-MSC UMTS to GSM handover after an inter-MSC relocation. ~~The Channel Type information cannot be derived from the RANAP RAB Parameters. On the other hand,~~ ~~t~~The Channel Type ~~can~~ is~~be~~ derived from the Bearer Capability that is available in 3G_MSC-A. This mapping is described in 3G TS 27.001. Therefore 3G_MSC-A must provide this information in case of an inter-MSC relocation. The Radio Resource Information IE in the MAP Prepare Handover message refers to the Channel Type GSM information.

~~The parameter~~Channel Type shall be stored by 3G_MSC-B ~~and used for intra-MSC UMTS to GSM handover~~.

Transfer of information:

Received by 3G_MSC-B from 3G_MSC-A in:

- The Prepare Handover Request MAP message.