3GPP TSG CN Plenary Meeting #12 **Tdoc NP-010357**
Stockholm, Sweden, 13th - 15th June 2001

Source: TSG CN WG4

Title: CRs on R99 Work Item Handover

Agenda item: 7.14

Document for: APPROVAL

Introduction:

This document contains 4 CRs on R99 Work Item "Handover", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.010	019	1	N4-010592	R99	Addition of selected UMTS algorithm indication to the handover procedures	F	3.5.0
29.010	020	1	N4-010593	Rel-4	Addition of selected UMTS algorithm indication to the handover procedures	A	4.0.0
29.010	021	1	N4-010594	R99	Addition of selected GSM algorithm indication to the handover procedures	F	3.5.0
29.010	022	1	N4-010595	Rel-4	Addition of selected GSM algorithm indication to the handover procedures	A	4.0.0

3GPP TSG-CN4 Meeting #08 **Tdoc N4-010592**
14th May – 18th May 2001
Puerto Rico, USA

CR-Form-v3

CHANGE REQUEST

⌘ **29.010** **CR** **019** ⌘ rev **1** ⌘ Current version: **3.5.0** ⌘

*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 ☒

Title:	⌘	Addition of selected UMTS algorithm indication to the handover procedures
Source:	⌘	CN4
Work item code:	⌘	Handover
Date:	⌘	2.5.2001
Category:	⌘	**F** (Agreed by consensus)
Release:	⌘	R99

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:	⌘	The principle of the inter-MSC handover is that MSC-A is aware what security algorithm are used in MSC-B. Currently the MSC-B indicates the selected UMTS algorithm to MSC-A in case of UMTS-UMTS inter MSC SRNC relocation. However, the selected algorithm shall be indicated also in case of GSM-UMTS inter MSC handover, BSSMAP Ciphering Mode Setting procedure and always whenever intersystem handover to UMTS is performed and also in the case of intra MSC-B intra UMTS relocation.
Summary of change:	⌘	
Consequences if not approved:	⌘	MSC-A does not know what UMTS integrity and encryption algorithms MSC-B has chosen.

Clauses affected:	⌘	4.5.5, 4.6, 4.7.5		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 034, 29.002 CR 225
Other comments:	⌘			

4.5.5 Processing in 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 MSC-B. The relevant BSSMAP procedures are mentioned to ease the comprehension, their detailed description is the scope of GSM 08.08. Each BSSMAP message listed in GSM 09.08 being transferred on E-interface shall use the mechanisms given in subclause 4.5.4 and is described in GSM 08.08.

In case of intra-MSC-B handover/relocation and security interworking , after inter-MSC handover from GSM to GSM, the 3G_MSC-B needs additional information to be able to perform security mode and integrity protection procedures. These RANAP informations are transferred between MSC-A and 3G-MSC-B in MAP messages, defined in 3GPP TS 29.002.

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

4.5.5.8 Selected UMTS Algorithm

After inter-MSC handover, the 3G_MSC-B can perform intra-MSC GSM to UMTS handover. A sequence of possible encryption and integrity protection algorithms, received from the 3G_MSC-A, can be sent to an RNS in Relocation Request or in Security Mode Command in case of cipher mode setting after intra.MSC-B handover from GSM to UMTS. The RNS chooses one of the listed algorithms and reports this back to the 3G_MSC in Relocation Request Acknowledge or Security Mode Complete respectively. The MSC-B provides the Selected UMTS algorithm information to the MSC-A. The Selected UMTS algorithms IE in the MAP Process Access Signalling Request message refers to the Chosen Integrity Protection Algorithm and Chosen Encryption Algorithm, defined in RANAP specification 3GPP TS 25.413

The selected algorithm shall be stored by 3G_MSC-B, and sent to 3G_MSC-A.

Transfer of Information:

If ciphering has not been performed before Inter-MSC Handover, this will be controlled by 3G_MSC-A after the completion of Inter-MSC Handover and possibly after intra-MSC-B handover from GSM to UMTS. In both cases Selected UMTS algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Process Access Signalling Request MAP message.

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

4.6.5 Processing in MSC-B, and information transfer on E-interface

The handling is described in chapter 4.5.5.

4.6.6~~5~~ Cause Code Mapping

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

4.7.5.6 Selected UMTS Algorithm

A sequence of possible encryption and integrity protection algorithms, received from the 3G_MSC-A, can be sent to an RNS in Relocation Request or in Security Mode Command in case of cipher mode setting after inter-MSC handover from GSM to UMTS. The RNS chooses one of the listed algorithms and reports this back to the 3G_MSC in Relocation Request Acknowledge or Security Mode Complete respectively. The MSC-B provides the Selected UMTS algorithm information to the MSC-A. The Selected UMTS algorithms IE in the MAP Process Access Signalling Request and MAP Prepare Handover Response messages refers to the Chosen Integrity Protection Algorithm and Chosen Encryption Algorithm, defined in RANAP specification 3GPP TS 25.413

The selected algorithm shall be stored by 3G_MSC-B, and sent to 3G_MSC-A.

Transfer of Information:

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

If Ciphering has been performed before Inter-MSC Handover, Selected UMTS algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Prepare Handover Response MAP message.

If Ciphering has NOT been performed before Inter-MSC Handover, Selected UMTS algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Process Access Signalling Request MAP message.

3GPP TSG-CN4 Meeting #08 **Tdoc N4-010593**
14th May – 18th May 2001
Puerto Rico, USA

CR-Form-v3

CHANGE REQUEST

⌘ **29.010** **CR** **020** ⌘ rev **1** ⌘ 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: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Addition of selected UMTS algorithm indication to the handover procedures
Source:	⌘	CN4
Work item code:	⌘	Handover
Date:	⌘	2.5.2001
Category:	⌘	**A**
Release:	⌘	REL-4

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:	⌘	The principle of the inter-MSC handover is that MSC-A is aware what security algorithm are used in MSC-B. Currently the MSC-B indicates the selected UMTS algorithm to MSC-A in case of UMTS-UMTS inter MSC SRNC relocation. However, the selected algorithm shall be indicated also in case of GSM-UMTS inter MSC handover, BSSMAP Ciphering Mode Setting procedure and always whenever intersystem handover to UMTS is performed and also in the case of intra MSC-B intra UMTS relocation.
Summary of change:	⌘	
Consequences if not approved:	⌘	MSC-A does not know what UMTS integrity and encryption algorithms MSC-B has chosen.

Clauses affected:	⌘	4.5.5, 4.6, 4.7.5		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 035, 29.002 CR 239
Other comments:	⌘			

4.5.5 Processing in 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 MSC-B. The relevant BSSMAP procedures are mentioned to ease the comprehension, their detailed description is the scope of GSM 08.08. Each BSSMAP message listed in GSM 09.08 being transferred on E-interface shall use the mechanisms given in subclause 4.5.4 and is described in GSM 08.08.

In case of intra-MSC-B handover/relocation and security interworking , after inter-MSC handover from GSM to GSM, the 3G_MSC-B needs additional information to be able to perform security mode and integrity protection procedures. These RANAP informations are transferred between MSC-A and 3G-MSC-B in MAP messages, defined in 3GPP TS 29.002.

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

4.5.5.8 Selected UMTS Algorithm

After inter-MSC handover, the 3G_MSC-B can perform intra-MSC GSM to UMTS handover. A sequence of possible encryption and integrity protection algorithms, received from the 3G_MSC-A, can be sent to an RNS in Relocation Request or in Security Mode Command in case of cipher mode setting after intra.MSC-B handover from GSM to UMTS. The RNS chooses one of the listed algorithms and reports this back to the 3G_MSC in Relocation Request Acknowledge or Security Mode Complete respectively. The MSC-B provides the Selected UMTS algorithm information to the MSC-A. The Selected UMTS algorithms IE in the MAP Process Access Signalling Request message refers to the Chosen Integrity Protection Algorithm and Chosen Encryption Algorithm, defined in RANAP specification 3GPP TS 25.413

The selected algorithm shall be stored by 3G_MSC-B, and sent to 3G_MSC-A.

Transfer of Information:

If ciphering has not been performed before Inter-MSC Handover, this will be controlled by 3G_MSC-A after the completion of Inter-MSC Handover and possibly after intra-MSC-B handover from GSM to UMTS. In both cases Selected UMTS algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Process Access Signalling Request MAP message.

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

4.6.5 Processing in MSC-B, and information transfer on E-interface

The handling is described in chapter 4.5.5.

4.6.6~~5~~ Cause Code Mapping

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

4.7.5.6 Selected UMTS Algorithm

A sequence of possible encryption and integrity protection algorithms, received from the 3G_MSC-A, can be sent to an RNS in Relocation Request or in Security Mode Command in case of cipher mode setting after inter-MSC handover from GSM to UMTS. The RNS chooses one of the listed algorithms and reports this back to the 3G_MSC in Relocation Request Acknowledge or Security Mode Complete respectively. The MSC-B provides the Selected UMTS algorithm information to the MSC-A. The Selected UMTS algorithms IE in the MAP Process Access Signalling Request and MAP Prepare Handover Response messages refers to the Chosen Integrity Protection Algorithm and Chosen Encryption Algorithm, defined in RANAP specification 3GPP TS 25.413

The selected algorithm shall be stored by 3G_MSC-B, and sent to 3G_MSC-A.

Transfer of Information:

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

If Ciphering has been performed before Inter-MSC Handover, Selected UMTS algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Prepare Handover Response MAP message.

If Ciphering has NOT been performed before Inter-MSC Handover, Selected UMTS algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Process Access Signalling Request MAP message.

3GPP TSG-CN4 Meeting #08 **Tdoc N4-010594**
14th May – 18th May 2001
Puerto Rico, USA

CR-Form-v3

CHANGE REQUEST

⌘ **29.010** **CR** **021** ⌘ rev **1** ⌘ Current version: **3.5.0** ⌘

*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 ☒

Title:	⌘	Addition of selected GSM algorithm indication to the handover procedures
Source:	⌘	CN4
Work item code:	⌘	Handover
Date:	⌘	2.5.2001
Category:	⌘	**F** (Agreed by consensus)
Release:	⌘	R99

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:	⌘	The principle of the inter-MSC handover is that MSC-A is aware what security algorithm is used in MSC-B.
Summary of change:	⌘	
Consequences if not approved:	⌘	MSC-A does not know what algorithm MSC-B has chosen or in the worst case whether the connection is ciphered at all.

Clauses affected:	⌘	4.8.5		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 034, 29.002 CR 243
Other comments:	⌘			

4.8.5.5 Selected GSM Algorithm

After inter-MSC relocation, the 3G_MSC-B can perform intra-MSC UMTS to GSM handover. A sequence of possible encryption algorithms, received from the 3G_MSC-A, can be sent to an BSS in Handover Request or in Cipher Mode Command in case of cipher mode setting after intra.MSC-B handover from UMTS to GSM. The BSS chooses one of the listed algorithms and reports this back to the 3G_MSC in Handover Request Acknowledge or Cipher Mode Complete respectively. The MSC-B provides the Selected GSM algorithm information to the MSC-A. The Selected GSM algorithms IE in the MAP Process Access Signalling Request message refers to the Algorithm identifier octet in the Chosen Encryption Algorithm GSM information.

The chosen algorithm shall be stored by 3G_MSC-B, and 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.

If Ciphering has been performed before Inter-MSC Relocation, Selected GSM algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Handover Performed BSSMAP message.

If Ciphering has NOT been performed before Intra-MSC-B handover from UMTS to GSM after Inter-MSC Relocation, Selected GSM algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Process Access Signalling Request MAP message.

3GPP TSG-CN4 Meeting #08 **Tdoc N4-010595**
14th May – 18th May 2001
Puerto Rico, USA

CR-Form-v3

CHANGE REQUEST

⌘ **29.010** **CR** **022** ⌘ rev **1** ⌘ 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: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Addition of selected GSM algorithm indication to the handover procedures
Source:	⌘	CN4
Work item code:	⌘	Handover
Date:	⌘	2.5.2001
Category:	⌘	**A**
Release:	⌘	REL-4

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:	⌘	The principle of the inter-MSC handover is that MSC-A is aware what security algorithm is used in MSC-B.
Summary of change:	⌘	
Consequences if not approved:	⌘	MSC-A does not know what algorithm MSC-B has chosen or in the worst case whether the connection is ciphered at all.

Clauses affected:	⌘	4.8.5		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 035, 29.002 CR 245
Other comments:	⌘			

4.8.5.5 Selected GSM Algorithm

After inter-MSC relocation, the 3G_MSC-B can perform intra-MSC UMTS to GSM handover. A sequence of possible encryption algorithms, received from the 3G_MSC-A, can be sent to an BSS in Handover Request or in Cipher Mode Command in case of cipher mode setting after intra.MSC-B handover from UMTS to GSM. The BSS chooses one of the listed algorithms and reports this back to the 3G_MSC in Handover Request Acknowledge or Cipher Mode Complete respectively. The MSC-B provides the Selected GSM algorithm information to the MSC-A. The Selected GSM algorithms IE in the MAP Process Access Signalling Request message refers to the Algorithm identifier octet in the Chosen Encryption Algorithm GSM information.

The chosen algorithm shall be stored by 3G_MSC-B, and 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.

If Ciphering has been performed before Inter-MSC Relocation, Selected GSM algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Handover Performed BSSMAP message.

If Ciphering has NOT been performed before Intra-MSC-B handover from UMTS to GSM after Inter-MSC Relocation, Selected GSM algorithm information is received by 3G_MSC-A from 3G_MSC-B in:

– The Process Access Signalling Request MAP message.