3GPP TSG CN Plenary Meeting #12 **Tdoc NP-010359**
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
29.002	225	4	N4-010727	R99	Addition of selected UMTS algorithm indication to the handover procedures	F	3.8.0
29.002	239	4	N4-010728	Rel-4	Addition of selected UMTS algorithm indication to the handover procedures	A	4.3.0
29.002	243	4	N4-010734	R99	Addition of selected GSM algorithm indication to the handover procedures	F	3.8.0
29.002	245	4	N4-010735	Rel-4	Addition of selected GSM algorithm indication to the handover procedures	A	4.3.0

3GPP TSG-CN4 Meeting #08 **Tdoc N4-010727**
14th May – 18th May 2001
Puerto Rico, USA

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CHANGE REQUEST

⌘ **29.002** **CR** **225** ⌘ rev **4** ⌘ Current version: **3.8.0** ⌘

*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:	⌘	17.5.2001
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 interMSC 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:	⌘	7.6.6, 8.4, 17.7		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 034, 29.010 CR 019
Other comments:	⌘			

7.6.6.12 Selected UMTS Algorithms

This parameters identifies the UMTS integrity and optionally encryption algorithms selected by MSC-B. Coding of this parameter is defined in 3G TS 25.413.

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

8.4 Handover services

It should be noted that the handover services used on the B-interface have not been updated for Release 99. The B-interface is not fully operational specified. It is strongly recommended not to implement the B-interface as an external interface.

8.4.1 MAP_PREPARE_HANDOVER service

8.4.1.1 Definition

This service is used between MSC-A and MSC-B (E-interface) when a call is to be handed over or relocated from MSC-A to MSC-B.

The MAP_PREPARE_HANDOVER service is a confirmed service using the primitives from table 8.4/1.

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANDOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see subclause 7.6.1.

Target Cell Id

For definition of this parameter see subclause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

Target RNC Id

For definition of this parameter see subclause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure described in 3G TS 23.009.

HO-Number Not Required

For definition of this parameter see subclause 7.6.6.

IMSI

For definition of this parameter see subclause 7.6.2. This UMTS parameter shall be included if:

- it is available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see subclause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM.

AN-APDU

For definition of this parameter see subclause 7.6.9.

Handover Number

For definition of this parameter see subclause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see subclause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see subclause 7.6.2.

Multiple Bearer Requested

For a definition of this parameter see subclause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see subclause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see subclause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

User error

For definition of this parameter see subclause 7.6.1. The following errors defined in subclause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.
- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in subclause 7.6.1.

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

8.4.3 MAP_PROCESS_ACCESS_SIGNALLING service

8.4.3.1 Definition

This service is used between MSC-B and MSC-A (E-interface) to pass information received on the A-interface or Iu-interface in MSC-B to MSC-A.

The MAP_PROCESS_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/3.

8.4.3.2 Service primitives

Table 8.4/3: MAP_PROCESS_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
AN-APDU	M	M(=)
Selected UMTS Algorithms	C	C(=)

8.4.3.3 Parameter use

Invoke Id

For definition of this parameter see subclause 7.6.1.

AN-APDU

For definition of this parameter see subclause 7.6.9.

Selected UMTS Algorithms

For definition of this parameter see subclause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the encapsulated PDU is BSSMAP Cipher Mode Complete and the MS is in UMTS, or an interystem handover to UMTS is performed in MSC-B, or in the case of intra MSC-B intra UMTS relocation.

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

17.7 MAP constants and data types

17.7.1 Mobile Service data types

....

```
PrepareHO-Res ::= [3] SEQUENCE {
    handoverNumber                  [0] ISDN-AddressString          OPTIONAL,
    relocationNumberList            [1]  RelocationNumberList       OPTIONAL,
    an-APDU                         [2]  AccessNetworkSignalInfo    OPTIONAL,
    multicallBearerInfo             [3]  MulticallBearerInfo        OPTIONAL,
    multipleBearerNotSupported      NULL                            OPTIONAL,
    selectedUMTS-Algorithms         [5]  SelectedUMTS-Algorithms    OPTIONAL,
    extensionContainer              [4]  ExtensionContainer         OPTIONAL,
    ...}
```

```
SelectedUMTS-Algorithms ::= SEQUENCE {
    integrityProtectionAlgorithm    [0]  ChosenIntegrityProtectionAlgorithm   OPTIONAL,
    encryptionAlgorithm             [1]  ChosenEncryptionAlgorithm    OPTIONAL,
    extensionContainer              [2]  ExtensionContainer           OPTIONAL,
    ...}
```

```
ChosenIntegrityProtectionAlgorithm ::= OCTET STRING (SIZE (1))
    -- Octet is coded according to 3G TS 25.413
```

```
ChosenEncryptionAlgorithm ::= OCTET STRING (SIZE (1))
    -- Octet is coded according to 3G TS 25.413
```

```
ProcessAccessSignalling-Arg ::= [3] SEQUENCE {
    an-APDU                         AccessNetworkSignalInfo,
    selectedUMTS-Algorithms         [1]  SelectedUMTS-Algorithms    OPTIONAL,
    extensionContainer              [0]  ExtensionContainer         OPTIONAL,
    ...}
```

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CHANGE REQUEST

⌘ **29.002** **CR** **239** ⌘ rev **4** ⌘ Current version: **4.3.0** ⌘

*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:	⌘	17.5.2001
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 interMSC 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:	⌘	7.6.6, 8.4, 17.7		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 035, 29.010 CR 020
Other comments:	⌘			

7.6.6.12 Selected UMTS Algorithms

This parameters identifies the UMTS integrity and optionally encryption algorithms selected by MSC-B. Coding of this parameter is defined in 3G TS 25.413.

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

8.4 Handover services

It should be noted that the handover services used on the B-interface have not been updated for Release 99. The B-interface is not fully operational specified. It is strongly recommended not to implement the B-interface as an external interface.

8.4.1 MAP_PREPARE_HANDOVER service

8.4.1.1 Definition

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The MAP_PREPARE_HANDOVER service is a confirmed service using the primitives from table 8.4/1.

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANDOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see subclause 7.6.1.

Target Cell Id

For definition of this parameter see subclause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

Target RNC Id

For definition of this parameter see subclause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure described in 3G TS 23.009.

HO-Number Not Required

For definition of this parameter see subclause 7.6.6.

IMSI

For definition of this parameter see subclause 7.6.2. This UMTS parameter shall be included if:

- it is available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see subclause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see subclause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM.

AN-APDU

For definition of this parameter see subclause 7.6.9.

Handover Number

For definition of this parameter see subclause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see subclause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see subclause 7.6.2.

Multiple Bearer Requested

For a definition of this parameter see subclause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see subclause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see subclause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

User error

For definition of this parameter see subclause 7.6.1. The following errors defined in subclause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.
- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in subclause 7.6.1.

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

8.4.3 MAP_PROCESS_ACCESS_SIGNALLING service

8.4.3.1 Definition

This service is used between MSC-B and MSC-A (E-interface) to pass information received on the A-interface or Iu-interface in MSC-B to MSC-A.

The MAP_PROCESS_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/3.

8.4.3.2 Service primitives

Table 8.4/3: MAP_PROCESS_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
AN-APDU	M	M(=)
Selected UMTS Algorithms	C	C(=)

8.4.3.3 Parameter use

Invoke Id

For definition of this parameter see subclause 7.6.1.

AN-APDU

For definition of this parameter see subclause 7.6.9.

Selected UMTS Algorithms

For definition of this parameter see subclause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the encapsulated PDU is BSSMAP Cipher Mode Complete and the MS is in UMTS, or an interystem handover to UMTS is performed in MSC-B, or in the case of intra MSC-B intra UMTS relocation.

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

17.7 MAP constants and data types

17.7.1 Mobile Service data types

....

```
PrepareHO-Res ::= [3] SEQUENCE {
    handoverNumber                  [0] ISDN-AddressString          OPTIONAL,
    relocationNumberList            [1]  RelocationNumberList       OPTIONAL,
    an-APDU                         [2]  AccessNetworkSignalInfo    OPTIONAL,
    multicallBearerInfo             [3]  MulticallBearerInfo        OPTIONAL,
    multipleBearerNotSupported      NULL                            OPTIONAL,
    selectedUMTS-Algorithms         [5]  SelectedUMTS-Algorithms    OPTIONAL,
    extensionContainer              [4]  ExtensionContainer         OPTIONAL,
    ...}
```

```
SelectedUMTS-Algorithms ::= SEQUENCE {
    integrityProtectionAlgorithm    [0]  ChosenIntegrityProtectionAlgorithm   OPTIONAL,
    encryptionAlgorithm             [1]  ChosenEncryptionAlgorithm    OPTIONAL,
    extensionContainer              [2]  ExtensionContainer           OPTIONAL,
    ...}
```

```
ChosenIntegrityProtectionAlgorithm ::= OCTET STRING (SIZE (1))
    -- Octet is coded according to 3G TS 25.413
```

```
ChosenEncryptionAlgorithm ::= OCTET STRING (SIZE (1))
    -- Octet is coded according to 3G TS 25.413
```

```
ProcessAccessSignalling-Arg ::= [3] SEQUENCE {
    an-APDU                         AccessNetworkSignalInfo,
    selectedUMTS-Algorithms         [0]  SelectedUMTS-Algorithms    OPTIONAL,
    extensionContainer              [0]  ExtensionContainer         OPTIONAL,
    ...}
```

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Puerto Rico, USA

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CHANGE REQUEST

⌘ **29.002** **CR** **243** ⌘ rev **4** ⌘ Current version: **3.8.0** ⌘

*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:	⌘	17.5.2001
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 interMSC handover is that MSC-A is aware what security algorithm are 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:	⌘	7.6.6, 8.4, 17.7		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 034, 29.010 CR 021
Other comments:	⌘			

7.6.6.13 Selected GSM Algorithm

This parameter identifies the GSM algorithm selected by GSM BSC controlled by MSC-B. Coding of this parameter is defined in GSM 08.08.

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

8.4.3 MAP_PROCESS_ACCESS_SIGNALLING service

8.4.3.1 Definition

This service is used between MSC-B and MSC-A (E-interface) to pass information received on the A-interface or Iu-interface in MSC-B to MSC-A.

The MAP_PROCESS_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/3.

8.4.3.2 Service primitives

Table 8.4/3: MAP_PROCESS_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
AN-APDU	M	M(=)
Selected GSM Algorithm	C	C(=)

8.4.3.3 Parameter use

Invoke Id

For definition of this parameter see subclause 7.6.1.

AN-APDU

For definition of this parameter see subclause 7.6.9.

Selected GSM algorithm

For definition of this parameter see subclause 7.6.6. This parameter shall be present if the encapsulated PDU is Security Mode Complete and MS is in GSM access.

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

17.7 MAP constants and data types

17.7.1 Mobile Service data types

....

```
ProcessAccessSignalling-Arg ::= [3] SEQUENCE {
    an-APDU                          AccessNetworkSignalInfo,
    selectedGSM-Algorithm            [1]  SelectedGSM-Algorithm        OPTIONAL,
    extensionContainer               [0]  ExtensionContainer           OPTIONAL,
    ...}
```

```
SelectedGSM-Algorithm ::= OCTET STRING (SIZE (1))
    -- internal structure is coded as Algorithm identifier octet from Chosen Encryption
    -- Algorithm defined in GSM 08.08
    -- A node shall mark only the selected GSM algorithm
```

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Puerto Rico, USA

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CHANGE REQUEST

⌘ **29.002** **CR** **245** ⌘ rev **4** ⌘ Current version: **4.3.0** ⌘

*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:	⌘	17.5.2001
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)*
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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 interMSC handover is that MSC-A is aware what security algorithm are 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:	⌘	2, 7.6.6, 8.4, 17.7		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.009 CR 035, 29.010 CR 022
Other comments:	⌘	All references to GSM 08.08 should be checked from the 3G TS 29.002 specification and changed to references to 3G TS 48.008.		

2 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] GSM 02.01: "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

[3] 3G TS 22.002: "Bearer Services Supported by a GSM Public Land Mobile Network (PLMN)".

[4] GSM 02.03: "Digital cellular telecommunications system (Phase 2+); Teleservices Supported by a GSM Public Land Mobile Network (PLMN)".

[5] 3G TS 22.004: "General on Supplementary Services".

[6] GSM 02.09: "Digital cellular telecommunications system (Phase 2+); Security aspects".

[7] 3G TS 22.016: "International Mobile station Equipment Identities (IMEI)".

[8] 3G TS 22.041: "Operator Determined Barring".

[9] 3G TS 22.081: "Line identification supplementary services - Stage 1".

[10] 3G TS 22.082: "Call Forwarding (CF) supplementary services - Stage 1".

[11] 3G TS 22.083: "Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 1".

[12] 3G TS 22.084: "Multi Party (MPTY) Supplementary Services - Stage 1".

[13] 3G TS 22.085: "Closed User Group (CUG) supplementary services - Stage 1".

[14] 3G TS 22.086: "Advice of charge (AoC) Supplementary Services - Stage 1".

[15] 3G TS 22.088: "Call Barring (CB) supplementary services - Stage 1".

[16] 3G TS 22.090: "Unstructured Supplementary Service Data (USSD); - Stage 1".

[17] 3G TS 23.003: "Numbering, addressing and identification".

[18] GSM 03.04: "Digital cellular telecommunications system (Phase 2+); Signalling requirements relating to routeing of calls to mobile subscribers".

[19] 3G TS 23.007: "Restoration procedures".

[20] 3G TS 23.008: "Organisation of subscriber data".

[21] 3G TS 23.009: "Handover procedures".

[22] 3G TS 23.011: "Technical realization of Supplementary Services - General Aspects".

[23] 3G TS 23.012: "Location registration procedures".

[24] GSM 03.20: "Digital cellular telecommunications system (Phase 2+); Security related network functions".

[25] 3G TS 23.038: "Alphabets and language".

[26] 3G TS 23.040: "Technical realization of the Short Message Service (SMS) Point to Point (PP)".

[26a] GSM 03.71: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Functional Description; Stage 2".

[27] 3G TS 23.081: "Line Identification Supplementary Services - Stage 2".

[28] 3G TS 23.082: "Call Forwarding (CF) Supplementary Services - Stage 2".

[29] 3G TS 23.083: "Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 2".

[30] 3G TS 23.084: "Multi Party (MPTY) Supplementary Services - Stage 2".

[31] 3G TS 23.085: "Closed User Group (CUG) Supplementary Services - Stage 2".

[32] 3G TS 23.086: "Advice of Charge (AoC) Supplementary Services - Stage 2".

[33] 3G TS 23.088: "Call Barring (CB) Supplementary Services - Stage 2".

[34] 3G TS 23.090: "Unstructured Supplementary Services Data (USSD) - Stage 2".

[35] 3G TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols - Stage 3".

[36] 3G TS 24.010: "Mobile radio interface layer 3 Supplementary Services specification - General aspects".

[37] 3G TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[37a] GSM 04.71: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 location services specification".

[38] 3G TS 24.080: "Mobile radio interface layer 3 supplementary services specification - Formats and coding".

[39] 3G TS 24.081: "Line identification supplementary services - Stage 3".

[40] 3G TS 24.082: "Call Forwarding (CF) Supplementary Services - Stage 3".

[41] 3G TS 24.083: "Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 3".

[42] 3G TS 24.084: "Multi Party (MPTY) Supplementary Services - Stage 3".

[43] 3G TS 24.085: "Closed User Group (CUG) Supplementary Services - Stage 3".

[44] 3G TS 24.086: "Advice of Charge (AoC) Supplementary Services - Stage 3".

[45] 3G TS 24.088: "Call Barring (CB) Supplementary Services - Stage 3".

[46] 3G TS 24.090: "Unstructured Supplementary Services Data - Stage 3".

[47] GSM 08.02: "Digital cellular telecommunications system (Phase 2+); Base Station System - Mobile-services Switching Centre (BSS - MSC) interface principles".

[48] GSM 08.06: "Digital cellular telecommunications system (Phase 2+); Signalling transport mechanism specification for the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[49] 3G TS 48.008~~GSM 08.08~~: "~~Digital cellular telecommunications system (Phase 2+);~~ Mobile Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification".

~~[49a] GSM 08.08: "Digital cellular telecommunications system (Phase 2+); Mobile Switching Centre - Base Station System (MSC - BSS) interface Layer 3 specification".~~

[49a1] GSM 08.31: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Serving Mobile Location Centre (SMLC) – Serving Mobile Location Centre (SMLC); SMLC Peer Protocol (SMLCPP)".

[49b] GSM 08.71: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Serving Mobile Location Centre - Base Station System (SMLC - BSS) interface Layer 3 specification".

[50] GSM 09.01: "Digital cellular telecommunications system (Phase 2+); General network interworking scenarios".

[51] 3G TS 29.002: "Mobile Application Part (MAP) specification".

[52] 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)".

[53] GSM 09.04: "Digital cellular telecommunications system (Phase 2+); Interworking between the Public Land Mobile Network (PLMN) and the Circuit Switched Public Data Network (CSPDN)".

[54] GSM 09.05: "Digital cellular telecommunications system (Phase 2+); Interworking between the Public Land Mobile Network (PLMN) and the Packet Switched Public Data Network (PSPDN) for Packet Assembly/Disassembly facility (PAD) access".

[55] 3G TS 29.006: "Interworking between a Public Land Mobile Network (PLMN) and a Packet Switched Public Data Network/Integrated Services Digital Network (PSPDN/ISDN) for the support of Packet Switched data transmission services".

[56] 3G TS 29.007: "Digital cellular telecommunications system (Phase 2+); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

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

[58] 3G TS 29.010: "Information element mapping between Mobile Station - Base Station System and BSS - Mobile-services Switching Centre (MS - BSS - MSC) Signalling procedures and the Mobile Application Part (MAP)".

[59] 3G TS 29.011: "Signalling interworking for Supplementary Services".

[59a] GSM 09.31: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".

[60] GSM 09.90: "Digital cellular telecommunications system (Phase 2+); Interworking between Phase 1 infrastructure and Phase 2 Mobile Stations (MS)".

[61] GSM 12.08: "Digital cellular telecommunications system (Phase 2); Subscriber and Equipment Trace".

[62] ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3 specifications for basic call control".

[63] ETS 300 136 (1992): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service description".

[64] ETS 300 138 (1992): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service Digital Subscriber Signalling System No.one (DSS1) protocol".

[65] ETS 300 287: "Integrated Services Digital Network (ISDN); Signalling System No.7; Transaction Capabilities (TC) version 2".

[66] ETR 060: "Signalling Protocols and Switching (SPS); Guide-lines for using Abstract Syntax Notation One (ASN.1) in telecommunication application protocols".

[67] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".

[68] ITU-T Recommendation E.212: "Identification plan for land mobile stations".

[69] ITU-T Recommendation E.213: "Telephone and ISDN numbering plan for land mobile stations".

[70] ITU-T Recommendation E.214: "Structuring of the land mobile global title for the signalling connection control part".

[71] CCITT Recommendation Q.699: "Interworking between the Digital Subscriber Signalling System Layer 3 protocol and the Signalling System No.7 ISDN User part".

[72] ITU-T Recommendation Q.711: "Specifications of Signalling System No.7; Functional description of the Signalling Connection Control Part".

[73] ITU-T Recommendation Q.712: "Definition and function of SCCP messages".

[74] ITU-T Recommendation Q.713: "Specifications of Signalling System No.7; SCCP formats and codes".

[75] ITU-T Recommendation Q.714: "Specifications of Signalling System No.7; Signalling Connection Control Part procedures".

[76] ITU-T Recommendation Q.716: "Specifications of Signalling System No.7; Signalling connection control part (SCCP) performances".

[77] ITU-T Recommendation Q.721 (1988): "Specifications of Signalling System No.7; Functional description of the Signalling System No.7 Telephone user part".

[78] ITU-T Recommendation Q.722 (1988): "Specifications of Signalling System No.7; General function of Telephone messages and signals".

[79] ITU-T Recommendation Q.723 (1988): "Specifications of Signalling System No.7; Formats and codes".

[80] ITU-T Recommendation Q.724 (1988): "Specifications of Signalling System No.7; Signalling procedures".

[81] ITU-T Recommendation Q.725 (1988): "Specifications of Signalling System No.7; Signalling performance in the telephone application".

[82] ITU-T Recommendation Q.761 (1988): "Specifications of Signalling System No.7; Functional description of the ISDN user part of Signalling System No.7".

[83] ITU-T Recommendation Q.762 (1988): "Specifications of Signalling System No.7; General function of messages and signals".

[84] ITU-T Recommendation Q.763 (1988): "Specifications of Signalling System No.7; Formats and codes".

[85] ITU-T Recommendation Q.764 (1988): "Specifications of Signalling System No.7; Signalling procedures".

[86] ITU-T Recommendation Q.767: "Specifications of Signalling System No.7; Application of the ISDN user part of CCITT signalling System No.7 for international ISDN interconnections".

[87] ITU-T Recommendation Q.771: "Specifications of Signalling System No.7; Functional description of transaction capabilities".

[88] ITU-T Recommendation Q.772: "Specifications of Signalling System No.7; Transaction capabilities information element definitions".

[89] ITU-T Recommendation Q.773: "Specifications of Signalling System No.7; Transaction capabilities formats and encoding".

[90] ITU-T Recommendation Q.774: "Specifications of Signalling System No.7; Transaction capabilities procedures".

[91] ITU-T Recommendation Q.775: "Specifications of Signalling System No.7; Guide-lines for using transaction capabilities".

[92] ITU-T Recommendation X.200: "Reference Model of Open systems interconnection for CCITT Applications".

[93] ITU-T Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".

[94] ITU-T Recommendation X.209 (1988): "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".

[95] ITU-T Recommendation X.210: "Open systems interconnection layer service definition conventions".

[97] 3G TS 23.018: "Basic Call Handling".

[98] 3G TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 3 - Stage 2".

[99] 3G TS 23.079: "Support of Optimal Routeing (SOR) - Stage 2".

[100] GSM 03.68: "Digital cellular telecommunications system (Phase 2+); - Stage 2".

[101] GSM 03.69: "Digital cellular telecommunications system (Phase 2+); - Stage 2".

[102] ANSI T1.113: "Signaling System No. 7 (SS7) - ISDN User Part".

[103] 3G TS 23.054 "Shared Inter Working Function (SIWF) - Stage 2".

[104] 3G TS 23.060: "General Packet Radio Service (GPRS) Description; Stage 2".

[105] 3G TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface".

[106] 3G TS 29.018: "General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR); Gs interface layer 3 specification".

[107] 3G TS 23.093: "Technical Realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2".

[108] 3G TS 23.066: "Support of Mobile Number Portability (MNP); Technical Realisation Stage 2".

[109] ANSI T1.112 (1996): "Telecommunication – Signalling No. 7 - Signaling Connection Control Part (SCCP)".

[110] 3G TS 23.116: "Super-Charger Technical Realisation; Stage 2."

[111] ITU-T Recommendation Q.711: "Specifications of Signalling System No.7; Signalling System No. 7 – Functional Description of the Signalling Connection Control Part".

[112] ITU-T Recommendation Q.712: "Specifications of Signalling System No.7; Signalling System No. 7 – Definition and Function of SCCP Messages".

[113] ITU-T Recommendation Q.713: "Specifications of Signalling System No.7; Signalling System No. 7 – SCCP formats and codes".

[114] ITU-T Recommendation Q.714: "Specifications of Signalling System No.7; Signalling System No. 7 – Signalling Connection Control Part Procedures".

[115] ITU-T Recommendation Q.716: "Specifications of Signalling System No.7; Signalling System No. 7 – Signalling Connection Control Part (SCCP) Performance".

[116] ITU-T Q.850, May 1998: "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".

[117] 3G TS 22.135: "Multicall; Service description; Stage 1".

[118] 3G TS 23.135: "Multicall supplementary service; Stage 2".

[119] 3G TS 24.135: "Multicall supplementary service; Stage 3".

[120] 3G TS 25.413: "UTRAN Iu Interface RANAP Signalling".

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

7.6.6.13 Selected GSM Algorithm

This parameter identifies the GSM algorithm selected by GSM BSC controlled by MSC-B. Coding of this parameter is defined in 3G TS 48.008.

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

8.4.3 MAP_PROCESS_ACCESS_SIGNALLING service

8.4.3.1 Definition

This service is used between MSC-B and MSC-A (E-interface) to pass information received on the A-interface or Iu-interface in MSC-B to MSC-A.

The MAP_PROCESS_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/3.

8.4.3.2 Service primitives

Table 8.4/3: MAP_PROCESS_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
AN-APDU	M	M(=)
Selected GSM Algorithm	C	C(=)

8.4.3.3 Parameter use

Invoke Id

For definition of this parameter see subclause 7.6.1.

AN-APDU

For definition of this parameter see subclause 7.6.9.

Selected GSM algorithm

For definition of this parameter see subclause 7.6.6. This parameter shall be present if the encapsulated PDU is Security Mode Complete and MS is in GSM access.

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

17.7 MAP constants and data types

17.7.1 Mobile Service data types

....

```
ProcessAccessSignalling-Arg ::= [3] SEQUENCE {
    an-APDU                          AccessNetworkSignalInfo,
    selectedGSM-Algorithm            [1]  SelectedGSM-Algorithm        OPTIONAL,
    extensionContainer               [0]  ExtensionContainer           OPTIONAL,
    ...}
```

```
SelectedGSM-Algorithm ::= OCTET STRING (SIZE (1))
    -- internal structure is coded as Algorithm identifier octet from Chosen Encryption
    -- Algorithm defined in 3G TS 48.008
    -- A node shall mark only the selected GSM algorithm
```