

Source: Nokia
Title: CR to 29.002 on Addition of GSM channel type and GSM chosen channel indications to handover procedures
Agenda item: 7.14
Document for: APPROVAL

Introduction:

Attached CR's contain new revisions of 2 CRs on R99 Work Item "Handover", that are to replace revisions that were agreed by TSG CN WG4, and were forwarded to TSG CN Plenary meeting #12 for approval. In those approved revisions there were however an error in ASN.1 definition for ChosenSpeechVersion (chapter 17.7.1), where the length of octet string were erroneous, it should be 2 instead of 1. The definition refers to GSM 08.08 (3G TS 48.008), where the length of Speech Version is defined as 2.

Proposal:

Nokia proposes that TSG CN Plenary meeting #12 approves these new revisions of the CR's instead of the revisions agreed by TSG CN WG4.

CHANGE REQUEST

⌘ **29.002 CR** **255** ⌘ rev **r3** ⌘ 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 GSM channel type and GSM chosen channel indications to handover procedures			
Source:	⌘	Nokia			
Work item code:	⌘	Handover	Date:	⌘ 6.6.2001	
Category:	⌘	F (Essential Correction)	Release:	⌘ R99	
		<p><i>Use <u>one</u> of the following categories:</i></p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>		

Reason for change:	⌘	<p>The GSM channel type and GSM chosen channel and/or speech version indications are needed for correct handling of Support for Dual Services and enquiry calls in the context of Call Hold after UMTS to GSM intersystem handover. The parameters are needed in following cases:</p> <ol style="list-style-type: none"> (1) GSM Channel Type (Radio Resource Information) to MAP Forward Access Signalling Request in the case that the encapsulated PDU is RANAP RAB Assignment Request (2) GSM Chosen Channel and/or speech version (Chosen Radio Resource Information) to MAP Process Access Signalling Request in the case that the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access (3) GSM Chosen Channel and/or speech version (Chosen Radio Resource Information) to MAP Prepare Handover Response in the case that the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access 	
Summary of change:	⌘		
Consequences if not approved:	⌘	Support for Dual Services feature and enquiry calls in the context of Call Hold supplementary service will not be available after UMTS to GSM intersystem handover	

Clauses affected:	⌘	7.6, 8.4, 17.7	
Other specs	⌘ <input checked="" type="checkbox"/>	Other core specifications	⌘ 29.010 CR 027

affected:

Test specifications
O&M Specifications

Other comments:

⌘

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in subclause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Absent Subscriber Diagnostic SM	7.6.8.9	Invoke Id	7.6.1.1
Access connection status	7.6.9.3	ISDN Bearer Capability	7.6.3.41
		IST Alert Timer	7.6.3.66
		IST Information Withdrawn	7.6.3.68
		IST Support Indicator	7.6.3.69
Access signalling information	7.6.9.5	Kc	7.6.7.4
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Linked Id	7.6.1.2
Additional number	7.6.2.46	LMSI	7.6.2.16
Additional signal info	7.6.9.10	Location Information	7.6.2.30
Additional SM Delivery Outcome	7.6.8.11		
Age Indicator	7.6.3.72	Location update type	7.6.9.6
		Long Forwarded-to Number	7.6.2.22A
		Long FTN Supported	7.6.2.22B
Alert Reason	7.6.8.8	Lower Layer Compatibility	7.6.3.42
		LSA Information	7.6.3.56
		LSA Information Withdraw	7.6.3.58
		MC Information	7.6.4.48
		MC Subscription Data	7.6.4.47
Alert Reason Indicator	7.6.8.10	Mobile Not Reachable Reason	7.6.3.51
Alerting Pattern	7.6.3.44	Modification request for CSI	7.6.3.81
All GPRS Data	7.6.3.53	Modification request for SS Information	7.6.3.82
All Information Sent	7.6.1.5	More Messages To Send	7.6.8.7
AN-apdu	7.6.9.1		
APN	7.6.2.42	MS ISDN	7.6.2.17
Authentication set list	7.6.7.1	MSC number	7.6.2.11
B-subscriber Address	7.6.2.36	MSIsdn-Alert	7.6.2.29
		Multicall Bearer Information	7.6.2.52
		Multiple Bearer Requested	7.6.2.53
		Multiple Bearer Not Supported	7.6.2.54
B subscriber Number	7.6.2.48	MWD status	7.6.8.3
		NbrUser	7.6.4.45
B subscriber subaddress	7.6.2.49	Network Access Mode	7.6.3.50
Basic Service Group	7.6.4.40	Network node number	7.6.2.43
Bearer service	7.6.4.38	Network resources	7.6.10.1
		Network signal information	7.6.9.8
Call Barring Data	7.6.3.83	New password	7.6.4.20
Call barring feature	7.6.4.19	No reply condition timer	7.6.4.7
Call barring information	7.6.4.18	North American Equal Access preferred Carrier Id	7.6.2.34
		Number Portability Status	7.6.5.14
Call Direction	7.6.5.8	ODB Data	7.6.3.85
Call Forwarding Data	7.6.3.84	ODB General Data	7.6.3.9
Call Info	7.6.9.9	ODB HPLMN Specific Data	7.6.3.10
Call reference	7.6.5.1		
Call Termination Indicator	7.6.3.67	OMC Id	7.6.2.18
Called number	7.6.2.24	Originally dialled number	7.6.2.26
Calling number	7.6.2.25	Originating entity number	7.6.2.10
CAMEL Subscription Info	7.6.3.78	Override Category	7.6.4.4
CAMEL Subscription Info Withdraw	7.6.3.38	P-TMSI	7.6.2.47
Cancellation Type	7.6.3.52	PDP-Address	7.6.2.45
Category	7.6.3.1	PDP-Context identifier	7.6.3.55
CCBS Feature	7.6.5.8		
CCBS Request State	7.6.4.49	PDP-Type	7.6.2.44
Channel Type	7.6.5.9	Pre-paging supported	7.6.5.15
Chosen Channel	7.6.5.10		
<u>Chosen Radio Resource Information</u>	<u>7.6.6.10B</u>	Previous location area Id	7.6.2.4
Ciphering mode	7.6.7.7	Protocol Id	7.6.9.7
Cksn	7.6.7.5	Provider error	7.6.1.3
CLI Restriction	7.6.4.5	QoS-Subscribed	7.6.3.47
CM service type	7.6.9.2	Radio Resource Information	7.6.6.10
		Rand	7.6.7.2
Complete Data List Included	7.6.3.54		
CS Allocation Retention priority	7.6.3.87	Regional Subscription Data	7.6.3.11
CUG feature	7.6.3.26	Regional Subscription Response	7.6.3.12
CUG index	7.6.3.25	Relocation Number List	7.6.2.19A
		Requested Info	7.6.3.31
CUG info	7.6.3.22	Requested Subscription Info	7.6.3.86
CUG interlock	7.6.3.24	Roaming number	7.6.2.19
CUG Outgoing Access indicator	7.6.3.8		

CUG subscription	7.6.3.23	Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
CUG Subscription Flag	7.6.3.37	Roaming Restriction Due To Unsupported Feature	7.6.3.13
Current location area Id	7.6.2.6	Current Security Context	7.6.7.8
Current password	7.6.4.21	Selected RAB ID	7.6.2.56
eMLPP Information	7.6.4.41	Service centre address	7.6.2.27
Encryption Information	7.6.6.9	Serving Cell Id	7.6.2.37
Equipment status	7.6.3.2	SGSN address	7.6.2.39
Extensible Basic Service Group	7.6.3.5	SGSN CAMEL Subscription Info	7.6.3.75
Extensible Bearer service	7.6.3.3	SGSN number	7.6.2.38
Extensible Call barring feature	7.6.3.21	SIWF Number	7.6.2.35
Extensible Call barring information	7.6.3.20	SoLSA Support Indicator	7.6.3.57
Extensible Call barring information for CSE	7.6.3.79	SM Delivery Outcome	7.6.8.6
Extensible Forwarding feature	7.6.3.16	SM-RP-DA	7.6.8.1
Extensible Forwarding info	7.6.3.15	SM-RP-MTI	7.6.8.16
Extensible Forwarding information for CSE	7.6.3.80	SM-RP-OA	7.6.8.2
Extensible Forwarding Options	7.6.3.18	SM-RP-PRI	7.6.8.5
Extensible No reply condition timer	7.6.3.19	SM-RP-SMEA	7.6.8.17
Extensible QoS-Subscribed	7.6.3.74	SM-RP-UI	7.6.8.4
Extensible SS-Data	7.6.3.29	Sres	7.6.7.3
Extensible SS-Info	7.6.3.14	SS-Code	7.6.4.1
Extensible SS-Status	7.6.3.17	SS-Data	7.6.4.3
Extensible Teleservice	7.6.3.4	SS-Event	7.6.4.42
External Signal Information	7.6.9.4	SS-Event-Data	7.6.4.43
Failure Cause	7.6.7.9	SS-Info	7.6.4.24
Forwarded-to number	7.6.2.22	SS-Status	7.6.4.2
Forwarded-to subaddress	7.6.2.23	Stored location area Id	7.6.2.5
Forwarding feature	7.6.4.16	Subscriber State	7.6.3.30
Forwarding information	7.6.4.15	Subscriber Status	7.6.3.7
Forwarding Options	7.6.4.6	Super-Charger Supported in HLR	7.6.3.70
GGSN address	7.6.2.40	Super-Charger Supported in Serving Network Entity	7.6.3.71
GGSN number	7.6.2.41	Supported CAMEL Phases in VLR	7.6.3.36
GMSC CAMEL Subscription Info	7.6.3.34	Supported CAMEL Phases in SGSN	7.6.3.36A
GPRS enhancements support indicator	7.6.3.73	Suppress T-CSI	7.6.3.33
GPRS Node Indicator	7.6.8.14	Suppression of Announcement	7.6.3.32
GPRS Subscription Data	7.6.3.46	Target cell Id	7.6.2.8
GPRS Subscription Data Withdraw	7.6.3.45	Target location area Id	7.6.2.7
GPRS Support Indicator	7.6.8.15	Target RNC Id	7.6.2.8A
Group Id	7.6.2.33	Target MSC number	7.6.2.12
GSM bearer capability	7.6.3.6	Teleservice	7.6.4.39
Guidance information	7.6.4.22	TMSI	7.6.2.2
Handover number	7.6.2.21	Trace reference	7.6.10.2
High Layer Compatibility	7.6.3.43	Trace type	7.6.10.3
HLR Id	7.6.2.15	User error	7.6.1.4
HLR number	7.6.2.13	USSD Data Coding Scheme	7.6.4.36
HO-Number Not Required	7.6.6.7	USSD String	7.6.4.37
IMEI	7.6.2.3	UU Data	7.6.5.12
IMSI	7.6.2.1	UUS CF Interaction	7.6.5.13
Integrity Protection Information	7.6.6.8	VBS Data	7.6.3.40
Inter CUG options	7.6.3.27	VGCS Data	7.6.3.39
Intra CUG restrictions	7.6.3.28	VLR CAMEL Subscription Info	7.6.3.35
		VLR number	7.6.2.14
		VPLMN address allowed	7.6.3.48
		Zone Code	7.6.2.28

**** NEXT MODIFIED SECTION ****

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 Radio Resource Information

This parameter refers to the Channel Type information element defined in GSM 08.08.

7.6.6.10B Chosen Radio Resource Information

This parameter refers to the Chosen Channel and Speech Version information elements defined in GSM 08.08.

7.6.6.11 Key Status

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

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

8.4.1 MAP_PREPARE_HANOVER 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_HANOVER 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_HANOVER

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(=)
<u>Chosen Radio Resource Information</u>			<u>C</u>	<u>C(=)</u>
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.

Chosen Radio Resource Information

For definition of this parameter see subclause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

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(=)
<u>Chosen Radio Resource Information</u>	<u>C</u>	<u>C(=)</u>

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.

Chosen Radio Resource Information

For definition of this parameter see subclause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

**** 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(=)
Radio Resource Information	C	C(=)

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.

Radio Resource Information

For definition of this parameter see subclause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Request.

*** 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,
  radioResourceInformation               [4] RadioResourceInformation    OPTIONAL,
  extensionContainer                     [3] 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"
```

```
PrepareHO-Arg ::= [3] SEQUENCE {
  targetCellId                          [0] GlobalCellId                OPTIONAL,
  ho-NumberNotRequired                   NULL                          OPTIONAL,
  targetRNCId                            [1] RNCId                      OPTIONAL,
  an-APDU                               [2] AccessNetworkSignalInfo    OPTIONAL,
  multipleBearerRequested                 [3] NULL                        OPTIONAL,
  imsi                                   [4] IMSI                       OPTIONAL,
  integrityProtectionInfo                [5] IntegrityProtectionInformation OPTIONAL,
  encryptionInfo                        [6] EncryptionInformation      OPTIONAL,
  radioResourceInformation               [7] RadioResourceInformation    OPTIONAL,
  extensionContainer                     [8] ExtensionContainer          OPTIONAL,
  ...}
```

```
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,
  chosenRadioResourceInformation         [5] ChosenRadioResourceInformation OPTIONAL,
  extensionContainer                     [4] ExtensionContainer          OPTIONAL,
  ...}
```

```
ChosenRadioResourceInformation ::= SEQUENCE {
  ChosenChannelInfo                    [0] ChosenChannelInfo          OPTIONAL,
  ChosenSpeechVersion                   [1] ChosenSpeechVersion        OPTIONAL,
  ...}
```

```
ChosenChannelInfo ::= OCTET STRING (SIZE (2))
-- Octets are coded according the Chosen Channel information element in GSM 08.08
```

```
ChosenSpeechVersion ::= OCTET STRING (SIZE (2))
-- Octets are coded according the Speech Version (chosen) information element in GSM
-- 08.08
```

```
PrepareSubsequentHO-Arg ::= [3] SEQUENCE {
    targetCellId           [0] GlobalCellId,           OPTIONAL,
    targetMSC-Number       [1] ISDN-AddressString,
    targetRNCId            [2] RNCId,                 OPTIONAL,
    an-APDU                 [3] AccessNetworkSignalInfo, OPTIONAL,
    selectedRab-Id         [4] RAB-Id,                 OPTIONAL,
    extensionContainer      [5] ExtensionContainer      OPTIONAL,
    ...}
```

```
PrepareSubsequentHO-Res ::= [3] SEQUENCE {
    an-APDU                 AccessNetworkSignalInfo,
    extensionContainer      [0] ExtensionContainer      OPTIONAL,
    ...}
```

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

CHANGE REQUEST

⌘ **29.002 CR** **256** ⌘ rev **r3** ⌘ 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.

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Source:	⌘	Nokia		
Work item code:	⌘	Handover	Date:	⌘ 6.6.2001
Category:	⌘	A	Release:	⌘ REL-4

<p><i>Use <u>one</u> of the following categories:</i></p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>
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Summary of change:	⌘			
Consequences if not approved:	⌘	Support for Dual Services feature and enquiry calls in the context of Call Hold supplementary service will not be available after UMTS to GSM intersystem handover in MSC-B		

Clauses affected: ⌘ 2, 7.6, 8.4, 17.7

**Other specs
affected:**

- | | | | | |
|---|-------------------------------------|---------------------------|---|---------------|
| ⌘ | <input checked="" type="checkbox"/> | Other core specifications | ⌘ | 29.010 CR 028 |
| | <input type="checkbox"/> | Test specifications | | |
| | <input type="checkbox"/> | O&M Specifications | | |

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.

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- [6] GSM 02.09: "Digital cellular telecommunications system (Phase 2+); Security aspects".
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- [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".
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- [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".
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- [18] GSM 03.04: "Digital cellular telecommunications system (Phase 2+); Signalling requirements relating to routing of calls to mobile subscribers".
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- [25] 3G TS 23.038: "Alphabets and language".
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- [33] 3G TS 23.088: "Call Barring (CB) Supplementary Services - Stage 2".
- [34] 3G TS 23.090: "Unstructured Supplementary Services Data (USSD) - Stage 2".
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- [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".
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- [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".
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- [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)".
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****** NEXT MODIFIED SECTION ******

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in subclause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Absent Subscriber Diagnostic SM	7.6.8.9	Invoke Id	7.6.1.1
Access connection status	7.6.9.3	ISDN Bearer Capability	7.6.3.41
		IST Alert Timer	7.6.3.66
		IST Information Withdrawn	7.6.3.68
		IST Support Indicator	7.6.3.69
Access signalling information	7.6.9.5	Kc	7.6.7.4
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Linked Id	7.6.1.2
Additional number	7.6.2.46	LMSI	7.6.2.16
Additional signal info	7.6.9.10	Location Information	7.6.2.30
Additional SM Delivery Outcome	7.6.8.11		
Age Indicator	7.6.3.72	Location update type	7.6.9.6
		Long Forwarded-to Number	7.6.2.22A
		Long FTN Supported	7.6.2.22B
Alert Reason	7.6.8.8	Lower Layer Compatibility	7.6.3.42
		LSA Information	7.6.3.56
		LSA Information Withdraw	7.6.3.58
		MC Information	7.6.4.48
		MC Subscription Data	7.6.4.47
Alert Reason Indicator	7.6.8.10	Mobile Not Reachable Reason	7.6.3.51
Alerting Pattern	7.6.3.44	Modification request for CSI	7.6.3.81
All GPRS Data	7.6.3.53	Modification request for SS Information	7.6.3.82
All Information Sent	7.6.1.5	More Messages To Send	7.6.8.7
AN-apdu	7.6.9.1		
APN	7.6.2.42	MS ISDN	7.6.2.17
Authentication set list	7.6.7.1	MSC number	7.6.2.11
B-subscriber Address	7.6.2.36	MSISdn-Alert	7.6.2.29
		Multicall Bearer Information	7.6.2.52
		Multiple Bearer Requested	7.6.2.53
		Multiple Bearer Not Supported	7.6.2.54
B subscriber Number	7.6.2.48	MWD status	7.6.8.3
		NbrUser	7.6.4.45
B subscriber subaddress	7.6.2.49	Network Access Mode	7.6.3.50
Basic Service Group	7.6.4.40	Network node number	7.6.2.43
Bearer service	7.6.4.38	Network resources	7.6.10.1
		Network signal information	7.6.9.8
Call Barring Data	7.6.3.83	New password	7.6.4.20
Call barring feature	7.6.4.19	No reply condition timer	7.6.4.7
Call barring information	7.6.4.18	North American Equal Access preferred Carrier Id	7.6.2.34
		Number Portability Status	7.6.5.14
Call Direction	7.6.5.8	ODB Data	7.6.3.85
Call Forwarding Data	7.6.3.84	ODB General Data	7.6.3.9
Call Info	7.6.9.9	ODB HPLMN Specific Data	7.6.3.10
Call reference	7.6.5.1		
Call Termination Indicator	7.6.3.67	OMC Id	7.6.2.18
Called number	7.6.2.24	Originally dialled number	7.6.2.26
Calling number	7.6.2.25	Originating entity number	7.6.2.10
CAMEL Subscription Info	7.6.3.78	Override Category	7.6.4.4
CAMEL Subscription Info Withdraw	7.6.3.38	P-TMSI	7.6.2.47
Cancellation Type	7.6.3.52	PDP-Address	7.6.2.45
Category	7.6.3.1	PDP-Context identifier	7.6.3.55
CCBS Feature	7.6.5.8		
CCBS Request State	7.6.4.49	PDP-Type	7.6.2.44
Channel Type	7.6.5.9	Pre-paging supported	7.6.5.15
Chosen Channel	7.6.5.10		

<u>Chosen Radio Resource Information</u>	<u>7.6.6.10B</u>		
Ciphering mode	7.6.7.7	Previous location area Id	7.6.2.4
Cksn	7.6.7.5	Protocol Id	7.6.9.7
CLI Restriction	7.6.4.5	Provider error	7.6.1.3
CM service type	7.6.9.2	QoS-Subscribed	7.6.3.47
		Radio Resource Information	7.6.6.10
Complete Data List Included	7.6.3.54	Rand	7.6.7.2
CS Allocation Retention priority	7.6.3.87		
CUG feature	7.6.3.26	Regional Subscription Data	7.6.3.11
CUG index	7.6.3.25	Regional Subscription Response	7.6.3.12
		Relocation Number List	7.6.2.19A
CUG info	7.6.3.22	Requested Info	7.6.3.31
CUG interlock	7.6.3.24	Requested Subscription Info	7.6.3.86
CUG Outgoing Access indicator	7.6.3.8	Roaming number	7.6.2.19
CUG subscription	7.6.3.23	Roaming Restricted In SGSN Due To	7.6.3.49
		Unsupported Feature	
CUG Subscription Flag	7.6.3.37	Roaming Restriction Due To	7.6.3.13
		Unsupported Feature	
		Current Security Context	7.6.7.8
Current location area Id	7.6.2.6	Selected RAB ID	7.6.2.56
Current password	7.6.4.21	Service centre address	7.6.2.27
eMLPP Information	7.6.4.41	Serving Cell Id	7.6.2.37
Encryption Information	7.6.6.9	SGSN address	7.6.2.39
Equipment status	7.6.3.2		
Extensible Basic Service Group	7.6.3.5	SGSN CAMEL Subscription Info	7.6.3.75
Extensible Bearer service	7.6.3.3	SGSN number	7.6.2.38
		SIWF Number	7.6.2.35
Extensible Call barring feature	7.6.3.21	SoLSA Support Indicator	7.6.3.57
Extensible Call barring information	7.6.3.20	SM Delivery Outcome	7.6.8.6
Extensible Call barring information for	7.6.3.79	SM-RP-DA	7.6.8.1
CSE		SM-RP-MTI	7.6.8.16
Extensible Forwarding feature	7.6.3.16		
Extensible Forwarding info	7.6.3.15	SM-RP-OA	7.6.8.2
Extensible Forwarding information for	7.6.3.80	SM-RP-PRI	7.6.8.5
CSE		SM-RP-SMEA	7.6.8.17
Extensible Forwarding Options	7.6.3.18		
Extensible No reply condition timer	7.6.3.19	SM-RP-UI	7.6.8.4
Extensible QoS-Subscribed	7.6.3.74	Sres	7.6.7.3
Extensible SS-Data	7.6.3.29	SS-Code	7.6.4.1
Extensible SS-Info	7.6.3.14	SS-Data	7.6.4.3
Extensible SS-Status	7.6.3.17	SS-Event	7.6.4.42
Extensible Teleservice	7.6.3.4	SS-Event-Data	7.6.4.43
External Signal Information	7.6.9.4	SS-Info	7.6.4.24
Failure Cause	7.6.7.9	SS-Status	7.6.4.2
Forwarded-to number	7.6.2.22		
Forwarded-to subaddress	7.6.2.23	Stored location area Id	7.6.2.5
Forwarding feature	7.6.4.16	Subscriber State	7.6.3.30
Forwarding information	7.6.4.15	Subscriber Status	7.6.3.7
Forwarding Options	7.6.4.6	Super-Charger Supported in HLR	7.6.3.70
		Super-Charger Supported in Serving	7.6.3.71
		Network Entity	
GGSN address	7.6.2.40	Supported CAMEL Phases in VLR	7.6.3.36
GGSN number	7.6.2.41	Supported CAMEL Phases in SGSN	7.6.3.36A
GMSC CAMEL Subscription Info	7.6.3.34	Suppress T-CSI	7.6.3.33
GPRS enhancements support indicator	7.6.3.73	Suppression of Announcement	7.6.3.32
GPRS Node Indicator	7.6.8.14	Target cell Id	7.6.2.8
GPRS Subscription Data	7.6.3.46	Target location area Id	7.6.2.7
		Target RNC Id	7.6.2.8A
GPRS Subscription Data Withdraw	7.6.3.45	Target MSC number	7.6.2.12
GPRS Support Indicator	7.6.8.15	Teleservice	7.6.4.39
Group Id	7.6.2.33	TMSI	7.6.2.2
GSM bearer capability	7.6.3.6	Trace reference	7.6.10.2
Guidance information	7.6.4.22	Trace type	7.6.10.3
Handover number	7.6.2.21	User error	7.6.1.4
High Layer Compatibility	7.6.3.43	USSD Data Coding Scheme	7.6.4.36
HLR Id	7.6.2.15	USSD String	7.6.4.37
HLR number	7.6.2.13	UU Data	7.6.5.12
HO-Number Not Required	7.6.6.7	UUS CF Interaction	7.6.5.13
IMEI	7.6.2.3	VBS Data	7.6.3.40
IMSI	7.6.2.1	VGCS Data	7.6.3.39
Integrity Protection Information	7.6.6.8		
Inter CUG options	7.6.3.27	VLR CAMEL Subscription Info	7.6.3.35

Intra CUG restrictions

7.6.3.28

VLR number
VPLMN address allowed
Zone Code

7.6.2.14

7.6.3.48

7.6.2.28

*** NEXT MODIFIED SECTION ***

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 Radio Resource Information

This parameter refers to the Channel Type information element defined in GSM 08.08.

7.6.6.10B Chosen Radio Resource Information

This parameter refers to the Chosen Channel and Speech Version information elements defined in 3G TS 48.008.

7.6.6.11 Key Status

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

*** NEXT MODIFIED SECTION ***

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
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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(=)
<u>Chosen Radio Resource Information</u>			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.

Chosen Radio Resource Information

For definition of this parameter see subclause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

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(=)
<u>Chosen Radio Resource Information</u>	<u>C</u>	<u>C(=)</u>

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.

Chosen Radio Resource Information

For definition of this parameter see subclause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

**** 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(=)
<u>Radio Resource Information</u>	<u>C</u>	<u>C(=)</u>

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.

Radio Resource Information

For definition of this parameter see subclause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Request.

**** 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,
    radioResourceInformation [4] RadioResourceInformation     OPTIONAL,
    extensionContainer     [3] 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"
```

```
PrepareHO-Arg ::= [3] SEQUENCE {
    targetCellId           [0] GlobalCellId                   OPTIONAL,
    ho-NumberNotRequired   NULL                               OPTIONAL,
    targetRNCId            [1] RNCId                         OPTIONAL,
    an-APDU                [2] AccessNetworkSignalInfo      OPTIONAL,
    multipleBearerRequested [3] NULL                          OPTIONAL,
    imsi                   [4] IMSI                          OPTIONAL,
    integrityProtectionInfo [5] IntegrityProtectionInformation OPTIONAL,
    encryptionInfo         [6] EncryptionInformation         OPTIONAL,
    radioResourceInformation [7] RadioResourceInformation     OPTIONAL,
    extensionContainer     [8] ExtensionContainer             OPTIONAL,
    ...}
```

```

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,
    chosenRadioResourceInformation [5] ChosenRadioResourceInformation OPTIONAL,
    extensionContainer       [4] ExtensionContainer          OPTIONAL,
    ...}

```

```

ChosenRadioResourceInformation ::= SEQUENCE {
    ChosenChannelInfo       [0] ChosenChannelInfo           OPTIONAL,
    ChosenSpeechVersion     [1] ChosenSpeechVersion         OPTIONAL,
    ...}

```

```

ChosenChannelInfo ::= OCTET STRING (SIZE (2))
    -- Octets are coded according the Chosen Channel information element in 3G TS 48.008

```

```

ChosenSpeechVersion ::= OCTET STRING (SIZE (2))
    -- Octets are coded according the Speech Version (chosen) information element in 3G TS
    -- 48.008

```

```

PrepareSubsequentHO-Arg ::= [3] SEQUENCE {
    targetCellId            [0] GlobalCellId,                OPTIONAL,
    targetMSC-Number        [1] ISDN-AddressString,          OPTIONAL,
    targetRNCId            [2] RNCId                        OPTIONAL,
    an-APDU                 [3] AccessNetworkSignalInfo     OPTIONAL,
    selectedRab-Id         [4] RAB-Id                       OPTIONAL,
    extensionContainer       [5] ExtensionContainer          OPTIONAL,
    ...}

```

```

PrepareSubsequentHO-Res ::= [3] SEQUENCE {
    an-APDU                 AccessNetworkSignalInfo,
    extensionContainer       [0] ExtensionContainer          OPTIONAL,
    ...}

```

```

ProcessAccessSignalling-Arg ::= [3] SEQUENCE {
    an-APDU                 AccessNetworkSignalInfo,
    chosenRadioResourceInformation [1] ChosenRadioResourceInformation OPTIONAL,
    extensionContainer       [0] ExtensionContainer          OPTIONAL,
    ...}

```