3GPP TSG-CN Meeting #22 **NP-030569**
10th - 12th December. Maui, Hawaii.

Source: TSG CN WG3

Title: CRs on Rel-6 Work Item IMS-CCR-IWCS.

Agenda item: 9.13

Document for: APPROVAL

Introduction:

This document contains **13** CRs on **Rel-6 Work Item IMS-CCR-IWCS,** including the corresponding mirror CRs (as required).

These CRs have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary meeting for approval.

WG_tdoc	Title	Spec	CR	Rev	Cat	Rel
N3-030778	Use of response code 500 instead of 503	29.163	001	1	F	Rel-6
N3-030788	Autonomous Release at I-MGCF on T7 expiry	29.163	002	1	F	Rel-6
N3-030779	Clarification of 487 mapping to 127	29.163	003	1	F	Rel-6
N3-030812	Table 12 modifications	29.163	004	2	F	Rel-6
N3-030692	Correction of clause titles	29.163	008		F	Rel-6
N3-030782	Interworking of user plane	29.163	010	1	F	Rel-6
N3-030823	Alignment between subclause 7.2.3 and 7.3.3 in TS 29.163	29.163	011	2	F	Rel-6
N3-030781	Criterion to start Timer Tiw2	29.163	013	1	F	Rel-6
N3-030787	Alignment of TS 29.163 with the ITU-T recommendation Q.1912.5	29.163	015	1	F	Rel-6
N3-030784	Mapping of unknown cause code values	29.163	018	1	F	Rel-6
N3-030813	Addition of References	29.163	021	2	F	Rel-6
N3-030814	Handling of closed used group supplementary service	29.163	022	3	F	Rel-6
N3-030815	Interworking of Hold/Resume from the CS Network	29.163	025	1	B	Rel-6

3GPP TSG-CN WG3 Meeting #30 **N3-030692**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **008** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction of clause titles
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	27/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Some clause titles are incorrect.
Summary of change:	⌘	Correct the titles
Consequences if not approved:	⌘	Misleading and incorrect titles.

Clauses affected:	⌘	7.2.3.2, 7.3.3.1, 7.3.3.2

Other specs affected:	Y	N		
⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:
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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

******* FIRST MODIFIED SECTION ******

7.2.3.2 Outgoing Call Interworking from ~~BICC/~~ISUP to SIP at O-MGCF

7.2.3.2.1 Sending of INVITE

****** END OF MODIFIED SECTION ******

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

7.3.3 SIP-BICC protocol interworking

7.3.3.1 Incoming call interworking from SIP to BICC~~/ISUP~~ at I-MGCF

7.3.3.1.1 Sending of IAM

****** END OF MODIFIED SECTION ******

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

7.3.3.2 Outgoing Call Interworking from BICC~~/ISUP~~ to SIP at O-MGCF

7.3.3.2.1 Sending of INVITE

****** END OF MODIFIED SECTION ******

3GPP TSG-CN WG3 Meeting #30 **N3-030778**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **001** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Use of response code 500 instead of 503
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	27/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
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C *(functional modification of feature)*
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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Alignment with ITU Q.1912.5
Summary of change:	⌘	Replace occurrences of status code 503 Service Unavailable by status code 500 Internal server error.
Consequences if not approved:	⌘	Not the best Status Code is used to map REL messages, it can even be incorrect in some cases and generate unnecessary load of signalling. Unnecessary misalignment with ITU.

Clauses affected:	⌘	7.2.3.1.1, 7.2.3.1.8, 7.2.3.1.10

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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********** FIRST MODIFIED SECTION **********

7.2.3.1.1 Sending of IAM

On reception of the INVITE requesting an audio session, the I-MGCF shall send the IAM.

If a Continuity Check procedure is supported in the ISUP network, the I-MGCF shall send the IAM immediately after the reception of the INVITE, as shown in figure 3. This procedure applies when the value of the continuity indicator is either set to "continuity check required" or "continuity check performed on a previous circuit". If the continuity indicator is set to "continuity check required" the corresponding procedures at the Mn interface described in clause 9.2.2.3 also apply.

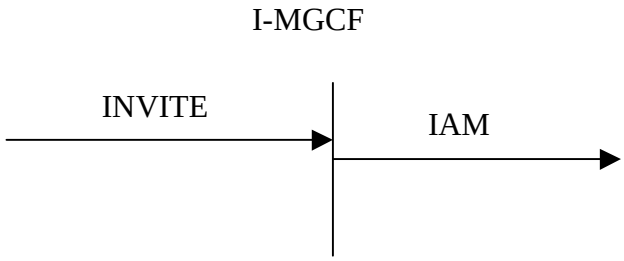

Figure 3: Receipt of an Invite request (continuity procedure supported in the ISUP network)

If no Continuity Check procedure is supported in the ISUP network, the I-MGCF shall delay sending the IAM until the SIP preconditions are met.

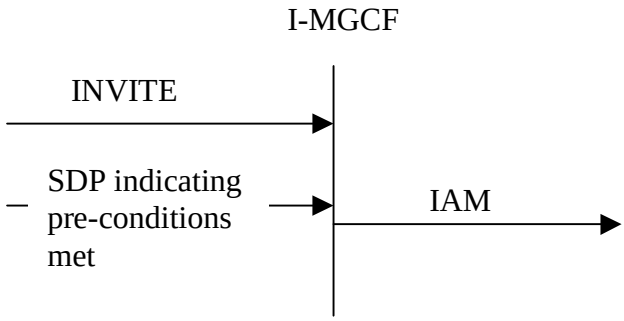

Figure 4: Receipt of an Invite request (continuity procedure not supported in the ISUP network)

The I-MGCF shall reject an INVITE request for a non-audio session by sending a status code 500 "Server Internal error"~~503 "Service not available"~~. If audio media streams and non-audio media streams are contained in a single INVITE request, the non-audio media streams shall be rejected in the SDP answer, as detailed in RFC 3264 [36].

The I-MGCF shall include a To tag in the first backward non-100 provisional response, in order to establish an early dialog as described in RFC 3261 [19].

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

7.2.3.1.8 Receipt of the Release Message

If the REL message is received and a final response (i.e. 200 OK (INVITE)) has already been sent, the I-MGCF shall send a BYE message.

NOTE: According to SIP procedures, in the case that the REL message is received and a final response (e.g. 200 OK (INVITE)) has already been sent (but no ACK has been received) on the incoming side of the I-MGCF then the I- MGCF does not send a 487 Request terminated and instead waits until the ACK is received before sending a BYE message.

If the REL message is received and the final response (i.e. 200 OK (INVITE)) has not already been sent, the I- MGCF shall send Status-Code 4xx (Client Error) or 5xx (Server Error). The Status code to be sent is determined by examining the Cause code value received in the REL message. table 9 specifies the mapping of the cause code values, as defined in ITU-T Recommendation Q.850 [38], to SIP response status codes.

Table 9: Receipt of the Release message (REL)

←SIP Message	← REL
Status code	**Cause parameter**
404 Not Found	Cause value No. 1 (unallocated (unassigned) number)
500 Server Internal error~~503 Service unavailable~~	Cause value No 2 (no route to network)
500 Server Internal error~~503 Service unavailable~~	Cause value No 3 (no route to destination)
500 Server Internal error~~503 Service unavailable~~	Cause value No. 4 (Send special information tone)
404 Not Found	Cause value No. 5 (Misdialled trunk prefix)
486 Busy Here	Cause value No. 17 (user busy)
480 Temporarily unavailable	Cause value No 18 (no user responding)
480 Temporarily unavailable	Cause value No 19 (no answer from the user)
480 Temporarily unavailable	Cause value No. 20 (subscriber absent)
480Temporarily unavailable	Cause value No 21 (call rejected)
410 Gone	Cause value No 22 (number changed)
480 Temporarily unavailable	Cause value No 25 (Exchange routing error)
502 Bad Gateway	Cause value No 27 (destination out of order)
484 Address Incomplete	Cause value No. 28 invalid number format (address incomplete)
500 Server Internal error~~503 Service unavailable~~	Cause value No 29 (facility rejected)
484 Address Incomplete	Cause value No. 28 invalid number format (address incomplete)
480 Temporarily unavailable	Cause value No 31 (normal unspecified) (class default)
486 Busy here if Diagnostics indicator includes the (CCBS indicator = CCBS possible) else 480 Temporarily unavailable	Cause value in the Class 010 (resource unavailable, Cause value No 34)
500 Server Internal error~~503 Service unavailable~~	Cause value in the Class 010 (resource unavailable, Cause value No's. 38, 41, 42, 43, 44, & 47) (47 is class default)
500 Server Internal error~~503 Service unavailable~~	Cause value No 50 (requested facility no subscribed)
500 Server Internal error~~503 Service unavailable~~	Cause value No 57 (bearer capability not authorised)
500 Server Internal error~~503 Service unavailable~~	Cause value No 58 (bearer capability not presently)
500 Server Internal error~~503 Service unavailable~~	Cause value No 63 (service option not available, unspecified)
500 Server Internal error~~503 Service unavailable~~	Cause value in the Class 100 (service or option not implemented, Cause value No's. 65, 70 & 79) 79 is class default
500 Server Internal error~~503 Service unavailable~~	Cause value No 88 (incompatible destination)
404 Not Found	Cause value No 91 (invalid transit network selection)

←SIP Message	← REL
Status code	**Cause parameter**
500 Server Internal error~~503 Service unavailable~~	Cause value No 95 (invalid message)
500 Server Internal error~~503 Service unavailable~~	Cause value No 97 (Message type non-existent or not implemented)
500 Server Internal error~~503 Service unavailable~~	Cause value No 99 (information element/parameter non-existent or not implemented))
480 Temporarily unavailable	Cause value No. 102 (recovery on timer expiry)
500 Server Internal error~~503 Service unavailable~~	Cause value No 110 (Message with unrecognised Parameter, discarded)
500 Server Internal error~~503 Service unavailable~~	Cause value No. 111 (protocol error, unspecified)
480 Temporarily unavailable	Cause value No. 127 (interworking unspecified)

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

7.2.3.1.10 Autonomous Release at I-MGCF

Table 10 shows the trigger events at the MGCF and the release initiated by the MGCF when the call is traversing from SIP to ISUP/BICC.

Table 10: Autonomous Release at I-MGCF

← SIP Response	Trigger event	REL → cause parameter
484 Address Incomplete	Determination that insufficient digits received.	Not sent.
480 Temporarily Unavailable	Congestion at the MGCF/Call is not routable.	Not sent.
BYE	ISUP/BICC procedures result in release after answer	According to ISUP/BICC procedures.
BYE	SIP procedures result in release after answer.	127 (Interworking unspecified)
500 Server Internal error~~503 Service Unavailable~~	Call release due to the ISUP/BICC compatibility procedure (note)	According to ISUP/BICC procedures.
FFS	Call release due to expiry of T7 within the ISUP/BICC procedures	According to ISUP/BICC procedures.
Note: MGCF receives unrecognized ISUP or BICC signalling information and determines that the call needs to be released based on the coding of the compatibility indicators, refer to ITU-T Recommendation Q.764 [4] and ITU-T Q.1902.4 [30].		

******* END OF MODIFIED SECTION *******

3GPP TSG-CN WG3 Meeting #30 **N3-030779**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **003** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of 487 mapping to 127
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IW-CCR-IWCS
Date:	⌘	27/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
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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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Clarifications to table 18. 487 can be mapped to 127 or no mapping depending on the previous actions (CANCEL sent or not) Other no mapped entries are removed from he table.
Summary of change:	⌘	Mapping of 487 is clarified with a note. No mapped entries are removed.
Consequences if not approved:	⌘	Incomplete behaviour in table 18.

Clauses affected:	⌘	7.2.3.2.12

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

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7.2.3.2.12 Receipt of Status Codes 4xx, 5xx or 6xx

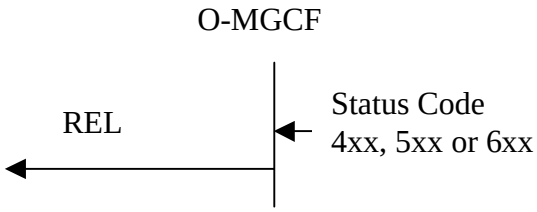

Figure 21: Receipt of Status codes 4xx, 5xx or 6xx

When receiving SIP response with status codes 4xx, 5xx or 6xx, the O-MGCF shall send a REL message. The coding of the Cause parameter value in the REL message is derived from the SIP Status code received according to table 18. The Cause Parameter Values are defined in ITU-T Recommendation Q.850 [38].

In all cases where SIP itself specify additional SIP side behaviour related to the receipt of a particular INVITE response these procedures should be followed in preference to the immediate sending of a REL message to BICC/ISUP.

If there are no SIP side procedures associated with this response, the REL shall be sent immediately.

NOTE Depending upon the SIP side procedures applied at the O-MGCF it is possible that receipt of certain 4xx/5xx/6xx responses to an INVITE may in some cases not result in any REL message being sent to the BICC/ISUP network. For example, if a 401 Unauthorized response is received and the O-MGCF successfully initiates a new INVITE containing the correct credentials, the call will proceed.

Table 18: 4xx/5xx/6xx Received on SIP side of O-MGCF

←REL (cause code)	←4xx/5xx/6xx SIP Message
127 (interworking unspecified)	400 Bad Request
127 (interworking unspecified)	401 Unauthorized
127 (interworking unspecified)	402 Payment Required
127 (interworking unspecified)	403 Forbidden
1 (Unallocated number)	404 Not Found
127 (interworking unspecified)	405 Method Not Allowed
127 (interworking unspecified)	406 Not Acceptable
127 (interworking unspecified)	407 Proxy authentication required
127 (interworking unspecified)	408 Request Timeout
22 (Number changed)	410 Gone
127 (interworking unspecified)	413 Request Entity too long
127 (interworking unspecified)	414 Request-URI too long
127 (interworking unspecified)	415 Unsupported Media type
127 (interworking unspecified)	416 Unsupported URI scheme
127 (interworking unspecified)	420 Bad Extension
127 (interworking unspecified)	421 Extension required
127 (interworking unspecified)	423 Interval Too Brief
20 Subscriber absent	480 Temporarily Unavailable

←REL (cause code)	←4xx/5xx/6xx SIP Message
127 (interworking unspecified)	481 Call/Transaction does not exist
127 (interworking unspecified)	482 Loop detected
127 (interworking unspecified)	483 Too many hops
28 (Invalid Number format)	484 Address Incomplete
127 (interworking unspecified)	485 Ambiguous
17 (User busy)	486 Busy Here
127 (Interworking unspecified) or not interworked. (Note 1)~~No mapping~~	487 Request terminated
127 (interworking unspecified)	488 Not acceptable here
~~No mapping~~	~~490 Request Updated~~
~~No mapping~~	~~491 Request Pending~~
127 (interworking unspecified)	493 Undecipherable
127 (interworking unspecified)	500 Server Internal error
127 (interworking unspecified)	501 Not implemented
127 (interworking unspecified)	502 Bad Gateway
127 (interworking unspecified)	503 Service Unavailable
127 (interworking unspecified)	504 Server timeout
127 (interworking unspecified)	505 Version not supported
127 (interworking unspecified)	513 Message too large
127 (interworking unspecified)	580 Precondition failure
17 (User busy)	600 Busy Everywhere
21 (Call rejected)	603 Decline
1 (unallocated number)	604 Does not exist anywhere
127 (interworking unspecified)	606 Not acceptable
Note 1 – No interworking if the O-MGCF previously issued a CANCEL request for the INVITE. Note 2 – The 4xx/5xx/6xx SIP Messages that are not covered in this table are not interworked.	

******* END OF MODIFIED SECTIONS *******

3GPP TSG-CN WG3 Meeting #30 **N3-030781**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **013** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Interworking (overlap to en-bloc conversion) timer corrections
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	28/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
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Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The description of timers for interworking is ambiguos, some of the timer values are too low
Summary of change:	⌘	1. Cause for initiation of Ti/w1 is changed to contain also the condition that the minimum number of digits required for routing the call is received. This change makes the description consistent with 7.2.3.2.1. 2. The upper limit of Ti/w2 has been changed to 14s to be consistent with the similar ITU-T T_{OIW2} timer defined in Q.1912.5 3. Notes are added that clarify the cases when Ti/w1 and Ti/w2 timer is used and the special case when continuity indication and overlap dialling is used together
Consequences if not approved:	⌘	Ambigous and inconsistent timer description

Clauses affected:	⌘	7

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First Modified Section

7.2.3.2.1 Sending of INVITE

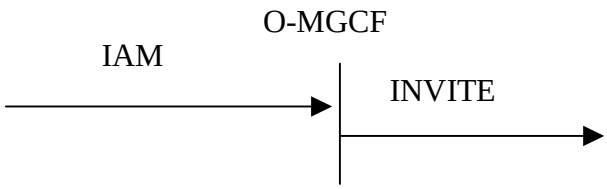

Figure 12: Receipt of an IAM (En bloc signalling in CS network)

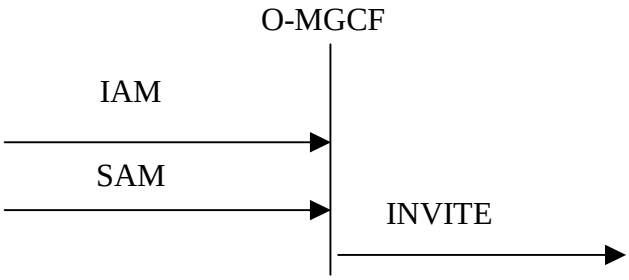

Figure 13: Receipt of an IAM (Overlap signalling in CS network)

After initiating the normal incoming BICC/ISUP call establishment procedures, determining the end of address signalling and selecting to route the call to the IMS domain, the O-MGCF shall send the initial INVITE with pre-conditions. Only calls with Transmission Requirements of speech or 3.1 kHz audio will be routed to the IMS domain, all other types of call attempts will be rejected.

The end of address signalling shall be determined by the earlier of the following criteria:

a) by receipt of an end-of-pulsing (ST) signal; or
b) by receipt of the maximum number of digits used in the national numbering plan; or
c) by analysis of the called party number to indicate that a sufficient number of digits has been received to route the call to the called party; or
d) by observing that timer Ti/w1 has expired after the receipt of the latest address message and the minimum number of digits required for routing the call have been received.

If the end of the address signalling is determined in accordance with criteria a) b) or c), the timer Ti/w2 is started when INVITE is sent.

Second Modified Section

7.2.3.2.4 Sending of ACM and awaiting answer indication

If the Address Complete Message (ACM) has not yet been sent, the following cases are possible trigger conditions that shall lead to the sending the address complete message (ACM).

The sending of an awaiting answer indication is described in clause 9.2.3.3

- the detection of end of address signalling by the expiry of Timer T i/w_1 or,

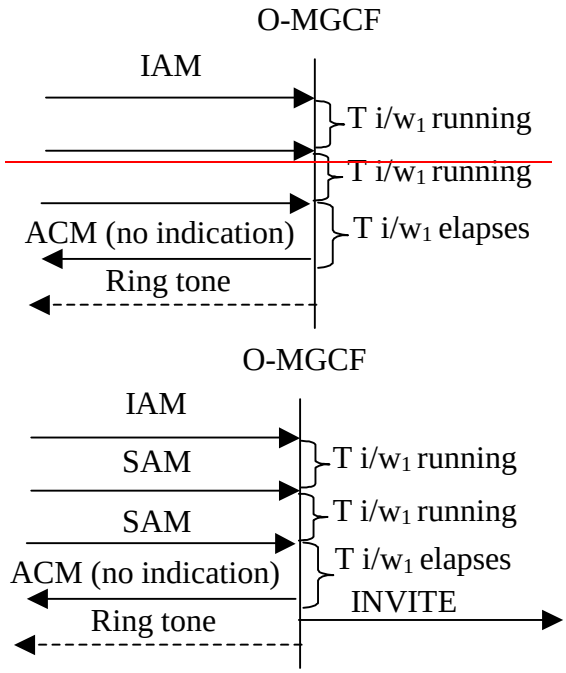

Figure 15: Sending of ACM T i/w_1 elapses

- the reception of 180 Ringing or,

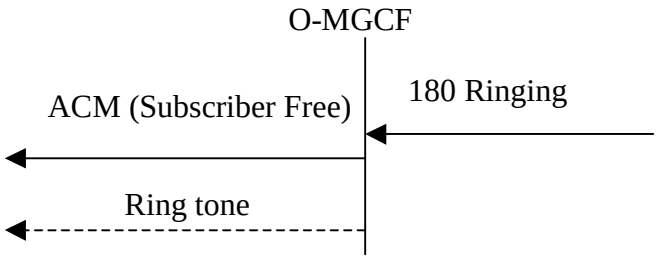

Figure 16: Sending of ACM (Receipt of 180 ringing)

- ~~4s to 6 s (~~Ti/w 2~~)~~ expires after the initial INVITE is sent.

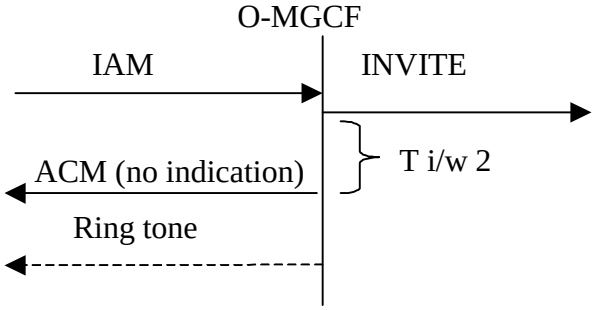

Figure 17: Sending of ACM (Ti/w_2 elapses)

Second Modified Section

7.2.3.3 Timers

Table 19: Timers for interworking

Symbol	Time-out value	Cause for initiation	Normal termination	At expiry	Reference
Ti/w1	4 s to 6 s (default of 4 s)	When last address message is received and the minimum number of digits required for routing the call have been received~~in interworking situations~~.	At the receipt of fresh address information.	Send INVITE, send the address complete message and insert ring tone	7.2.3.2.1 7.2.3.2.4 (Note1)
Ti/w2	4 s to ~~6~~ 14 s (default of 4 s)	When INVITE is sent.	On reception of 180 Ringing ,or 200 OK INVITE.	Send ACM (no indication) and send the awaiting answer indication (e.g. ring tone) or appropriate progress announcement to the calling party.	7.2.3.2.4 7.2.3.2.1
Note 1: This timer is used when overlap signalling is received from BICC/ISUP network.					

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CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **010** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Interworking of user plane
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	08/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	TS 29.163 description only covers when trancoding is applied in the MGCF-IM-MGW complex. However, if the same codec may be used in the IMS and CS-network there is no need for transcoding
Summary of change:	⌘	A paragrah is added to describe that transcoding is not required if AMRcodecs are used on both sides.
Consequences if not approved:	⌘	The description will be incomplete

Clauses affected:	⌘	Clause			
Other specs Affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Only modified section

8.1 Interworking between IM CN subsystem and bearer independent CS network

When the IM CN subsystem interworks with the bearer independent CS networks (e.g. CS domain of a PLMN, 3GPP TS 29.414 [25], 3GPP TS 29.415 [26], 3GPP TS 23.205 [27]), the Transport Network Layer (TNL) of the bearer independent CS network can be based e.g. on IP/UDP/RTP, or IP/UDP/RTP/IuFP, or ATM/AAL2/ framing protocol (e.g. Iu framing) transport techniques. F~~f~~igure 31 shows the user plane protocol stacks for the IM CS subsystem and bearer independent CS network interworking. If the same AMR mode is used as codec on the CS network side as on the IMS side, transcoding is not required. However, there is still a need to interwork between RTP/UDP/IP/L2/LI to TNL/LI.

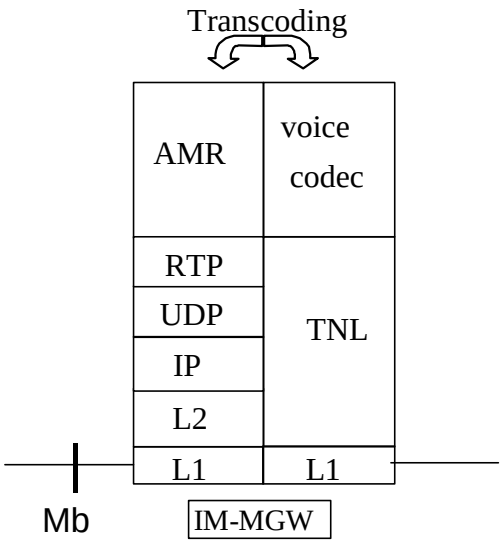

Figure 31: IM CN subsystem to bearer independent CS network user plane protocol stack

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CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **018** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Mapping of unknown cause code values
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	28/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The mapping of unknown cause code values are not described in the specification even though it's described in ITU-T Q.1912.5 document.
Summary of change:	⌘	1. A sentence describing the mapping of unknown cause code values is added and missing cause defaults values are added to the table 2. Small editorial corrections are added
Consequences if not approved:	⌘	Incomplete and ambigous description.

Clauses affected:	⌘	7			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First Modified Section

7.2.3.1.8 Receipt of the Release Message

If the REL message is received and a final response (i.e. 200 OK (INVITE)) has already been sent, the I-MGCF shall send a BYE message.

NOTE: According to SIP procedures, in the case that the REL message is received and a final response (e.g. 200 OK (INVITE)) has already been sent (but no ACK has been received) on the incoming side of the I-MGCF then the I- MGCF does not send a 487 Request terminated and instead waits until the ACK is received before sending a BYE message.

If the REL message is received and the final response (i.e. 200 OK (INVITE)) has not already been sent, the I- MGCF shall send Status-Code 4xx (Client Error) or 5xx (Server Error). The Status code to be sent is determined by examining the Cause code value received in the REL message. T~~t~~able 9 specifies the mapping of the cause code values, as defined in ITU-T Recommendation Q.850 [38], to SIP response status codes. Cause code values not appearing in the table shall have the same mapping as the appropriate class defaults according to ITU-T Recommendation Q.850 [38].

Table 9: Receipt of the Release message (REL)

←SIP Message	**← REL**
Status code	**Cause parameter**
404 Not Found	Cause value No. 1 (unallocated (unassigned) number)
503 Service unavailable	Cause value No 2 (no route to network)
503 Service unavailable	Cause value No 3 (no route to destination)
503 Service unavailable	Cause value No. 4 (Send special information tone)
404 Not Found	Cause value No. 5 (Misdialled trunk prefix)
486 Busy Here	Cause value No. 17 (user busy)
480 Temporarily unavailable	Cause value No 18 (no user responding)
480 Temporarily unavailable	Cause value No 19 (no answer from the user)
480 Temporarily unavailable	Cause value No. 20 (subscriber absent)
480Temporarily unavailable	Cause value No 21 (call rejected)
410 Gone	Cause value No 22 (number changed)
480 Temporarily unavailable	Cause value No 25 (Exchange routing error)
502 Bad Gateway	Cause value No 27 (destination out of order)
484 Address Incomplete	Cause value No. 28 invalid number format (address incomplete)
503 Service unavailable	Cause value No 29 (facility rejected)
~~484 Address Incomplete~~	~~Cause value No. 28 invalid number format (address incomplete)~~
480 Temporarily unavailable	Cause value No 31 (normal unspecified) (class default) (Note 1)
486 Busy here if Diagnostics indicator includes the (CCBS indicator = CCBS possible) else 480 Temporarily unavailable	Cause value in the Class 010 (resource unavailable, Cause value No 34)
503 Service unavailable	Cause value in the Class 010 (resource unavailable, Cause value No's. 38, 41, 42, 43, 44, & 47) (47 is class default)
503 Service unavailable	Cause value No 50 (requested facility no subscribed)
503 Service unavailable	Cause value No 57 (bearer capability not authorised)
503 Service unavailable	Cause value No 58 (bearer capability not presently)

←SIP Message	← REL
Status code	**Cause parameter**
503 Service unavailable	Cause value No 63 (service option not available, unspecified) (class default)
503 Service unavailable	Cause value in the Class 100 (service or option not implemented, Cause value No's. 65, 70 & 79) 79 is class default
503 Service unavailable	Cause value No 88 (incompatible destination)
404 Not Found	Cause value No 91 (invalid transit network selection)
503 Service unavailable	Cause value No 95 (invalid message) (class default)
503 Service unavailable	Cause value No 97 (Message type non-existent or not implemented)
503 Service unavailable	Cause value No 99 (information element/parameter non-existent or not implemented))
480 Temporarily unavailable	Cause value No. 102 (recovery on timer expiry)
503 Service unavailable	Cause value No 110 (Message with unrecognised Parameter, discarded)
503 Service unavailable	Cause value No. 111 (protocol error, unspecified) (class default)
480 Temporarily unavailable	Cause value No. 127 (interworking unspecified) (class default)
Note 1: Class 1 and class 2 have the same default value.	

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CHANGE REQUEST

⌘ **29.163** **CR** **015** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Alignment of TS 29.163 with the ITU-T Q.1912.5 recommendation
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	29/10/2003
Category:	⌘	**F**
Release:	⌘	REL-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	TS 29.163 shall be aligned with the table 37 of the ITU-T Q.1912.5 recommendation describing the autonomous release at O-IWU.
Summary of change:	⌘	In the clause 7.2.3.2.16 – Autonomous Release at O-MGCF For the autonomous release at O-MGCF, the table describing the messages at the SIP side and at the CS side is added.
Consequences if not approved:	⌘	Misalignment between TS 29.163 and ITU-T Q.1912.5

Clauses affected:	⌘	7.2.3.2.16

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘

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Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

/********** Beginning of the Change **********/

7.2.3.2.16 Autonomous Release at O-MGCF

If the O-MGCF determines due to internal procedures that the call shall be released then the MGCF shall send

- A BYE method if the ACK has been sent.
- A CANCEL method before 200 OK (INVITE) has been received.

NOTE: The MGCF shall send the ACK method before it sends the BYE, if 200 OK (INVITE) is received.

Table XX: Autonomous Release at O-MGCF

REL ← Cause parameter	Trigger event	→ SIP
As determined by BICC/ISUP procedure.	COT received with the Continuity Indicators parameter set to "*continuity check failed*" (ISUP only) or the BICC/ISUP timer T8 expires.	CANCEL or BYE according to the rules described in this subclause.
REL with cause value 47 (resource unavailable, unspecified).	Internal resource reservation unsuccessful	As determined by SIP procedure
As determined by BICC/ISUP procedure.	BICC/ISUP procedures result in generation of autonomous REL on BICC/ISUP side.	CANCEL or BYE according to the rules described in this subclause.
Depending on the SIP release reason.	SIP procedures result in a decision to release the call.	As determined by SIP procedure.

/********** End of the Change **********/

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CHANGE REQUEST

⌘ **29.163** **CR** **002** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Autonomous Release at I-MGCF on T7 expiry
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IW-CCR-IWCS
Date:	⌘	27/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)
Rel-6 (Release 6)

Reason for change:	⌘	Table 10 showing the trigger events of an autonomous release at I-MGCF has entry FFS. Some investigation was needed in order to identify the true meaning of T7 timer in ISUP/BICC procedures and how to map its expiry into a SIP message. This issue was also discussed at the latest SG11. After some discussions (see D-527 for Q.1912.5), ITU finally went for setting the response in the SIP direction to "484 Address Incomplete". Also, for complete alignement with ITU, 2 missing rows are added to table 10.
Summary of change:	⌘	The SIP response to a T7 expiry condition is set to 484 Address Incomplete, as there's not any 3GPP particularity that prevents from aligning with ITU.
Consequences if not approved:	⌘	Incomplete Table 10.

Clauses affected:	⌘	7.2.3.1.10

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.2.3.1.10 Autonomous Release at I-MGCF

Table 10 shows the trigger events at the MGCF and the release initiated by the MGCF when the call is traversing from SIP to ISUP/BICC.

Table 10: Autonomous Release at I-MGCF

← SIP Response	Trigger event	REL → cause parameter
484 Address Incomplete	Determination that insufficient digits received.	Not sent.
480 Temporarily Unavailable	Congestion at the MGCF/Call is not routable.	Not sent.
BYE	ISUP/BICC procedures result in release after answer	According to ISUP/BICC procedures.
BYE	SIP procedures result in release after answer.	127 (Interworking unspecified)
503 Service Unavailable	Call release due to the ISUP/BICC compatibility procedure (note)	According to ISUP/BICC procedures.
484 Address Incomplete~~FFS~~	Call release due to expiry of T7 within the ISUP/BICC procedures	According to ISUP/BICC procedures.
480 Temporarily Unavailable	Call release due to expiry of T9 within the BICC/ISUP procedures	According to BICC/ISUP procedures.
480 Temporarily Unavailable.	Other BICC/ISUP procedures result in release before answer.	According to BICC/ISUP procedures.
Note: MGCF receives unrecognized ISUP or BICC signalling information and determines that the call needs to be released based on the coding of the compatibility indicators, refer to ITU-T Recommendation Q.764 [4] and ITU-T Q.1902.4 [30].		

****** END OF MODIFIED SECTIONS *******

3GPP TSG-CN WG3 Meeting #30 **N3-030812**
Bangkok, Thailand. 27th - 31st October 2003.

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CHANGE REQUEST

⌘ **29.163** **CR** **004** ⌘ **rev** **2** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Table 12 modifications
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IW-CCR-IWCS
Date:	⌘	27/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Alignment with ITU-T Q.1912.5
Summary of change:	⌘	Insert back the line in Table 12 that was removed in the past. Add an additional note to indicate that this is an error case and these are the default actions for this case.
Consequences if not approved:	⌘	Error case actions open to different interpreations that can lead to interworking problems

Clauses affected:	⌘	7.2.3.2.2.3

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
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Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

****** FIRST MODIFIED SECTION *******

7.2.3.2.2.3 P-Asserted-Identity, From and Privacy header fields

Table 12: Mapping BICC/ISUP CLI parameters to SIP header fields

Has a Calling Party Number parameter with complete E.164 number, with Screening Indicator = UPVP or NP (See note 1), and with APRI = "presentation allowed" or "presentation restricted" been received?	Has a Generic Number (additional calling party number) with a complete E.164 number, with Screening Indicator = UPNV, and with APRI = "presentation allowed" been received?	P-Asserted-Identity header field	From header field:	Privacy header field
N	N	Header field not included	SIP or SIPS URI with addr spec "unavailable@anonymous.invalid" (note 2)	Header field not included
N (Note 3)	Y	Header field not included	addr-spec derived from Generic Number (ACgPN) address signals if available or network provided value	Header field not included
Y (note 1)	N	Derived from Calling Party Number parameter address signals (See table 14)	if APRI = "allowed", Tel URL derived from Calling Party Number parameter address signals (See table 14) if APRI = "restricted", SIP or SIPS URI with addr spec "anonymous@anonymous.invalid" (note 2)	If Calling Party Number parameter APRI = "restricted" then priv-value =: "id". For other APRI settings Privacy header is not included or if included, "id" is not included (See table 16)
Y	Y	Derived from Calling Party Number parameter address signals (See table 14)	Derived from Generic Number (ACgPN) address signals (See table 13) Derived from Generic Number (ACgPN) address signals (See table 13)	If Calling Party Number parameter APRI = "restricted" then priv-value =: "id". For other APRI settings Privacy header is not included or if included, "id" is not included (See table 16)

Note 1: A Network Provided CLI in the CgPN parameter may occur on a call to IMS. Therefore in order to allow the "display" of this Network Provided CLI at a SIP UAS it shall be mapped into the SIP From header. It is also considered suitable to map into the P-Asserted-Identity header since in this context it is a fully authenticated CLI related exclusively to the calling line, and therefore as valid as a User Provided Verified and Passed CLI for this purpose.

Note 2: The "From" header may contain an "Anonymous URI". An "Anonymous URI" includes information that does not point to the calling party. RFC 3261 [19] recommends that the display-name component contains "Anonymous". The Anonymous URI itself should have the value "anonymous@anonymous.invalid".

Note 3 – This combination of CgPN and ACgPN is an error case and this is shown here to ensure consistent mapping across different implementations.

****** END OF MODIFIED SECTIONS *******

3GPP TSG-CN WG3 Meeting #30 **N3-030813**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **021** ⌘ **rev** **2** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Addition of References
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	10/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)
Rel-6 (Release 6)

Reason for change:	⌘	Ambiguous which IP version should be used. Reference [8] was never mentioned in text. Clause 7.2.2.2 incorrect, as Tel URI may also be used. More detailed correct description available in other clauses, and TS 24.229.
Summary of change:	⌘	Some references have been added in the text, in particular to clarify when IPv4 and IPv6 is applicable. Reference to IPv6 added again. Removed incorrect sentence in Clause 7.2.2.2
Consequences if not approved:	⌘	Specification ambiguous.

Clauses affected:	⌘	2, 5.2, 7.2.1, 7.2.2, 7.3.1

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] ITU-T Recommendation G.711: "Pulse Code Modulation (PCM) of voice frequencies".

[2] ITU-T Recommendation H.248.1 (2002): "Gateway control protocol: Version 2".

[3] ITU-T Recommendation Q.701 to Q.709: " Functional description of the message transfer part (MTP) of Signalling System No. 7".

[4] ITU-T Recommendations Q.761 to Q.764 (2000): "Specifications of Signalling System No.7 ISDN User Part (ISUP)".

[5] Void.

[6] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[7] Void.

[8] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on SIP and SDP".

[9] 3GPP TS 24.229: " IP Multimedia Call Control Protocol based on SIP and SDP".

[10] 3GPP TS 23.002: "Network Architecture".

[11] 3GPP TS 22.228: "Service requirements for the IP Multimedia Core Network Subsystem".

[12] 3GPP TS 23.228: "IP Multimedia subsystem (IMS)".

[13] Void.

[14] 3GPP TS 29.205: "Application of Q.1900 series to Bearer Independent CS Network architecture; Stage 3".

[15] 3GPP TS 29.332: "Media Gateway Control Function (MGCF) – IM-Media Gateway (IM-MGW) interface, Stage 3".

[16] IETF RFC 791: "Internet Protocol".

[17] IETF RFC 768: "User Datagram Protocol".

[18] IETF RFC 2960: "Stream Control Transmission Protocol".

[19] IETF RFC 3261: "SIP: Session Initiation Protocol".

[20] 3GPP TS 29.202: "Signalling System No. 7 (SS7) signalling transport in core network; Stage 3".

[21] IETF RFC 2474: "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".

[22] IETF RFC 2475: "An Architecture for Differentiated Services".

[23] IETF RFC 3267: " Real-Time Transport Protocol (RTP) payload format and file storage format for the Adaptive Multi-Rate (AMR) Adaptive Multi-Rate Wideband (AMR-WB) audio codecs".

[24] IETF RFC 793: "Transmission Control Protocol".

[25] 3GPP TS 29.414: "Core network Nb data transport and transport signalling".

[26] 3GPP TS 29.415: "Core network Nb interface user plane protocols".

[27] 3GPP TS 23.205: "Bearer-independent circuit-switched core network; Stage 2".

[28] Void.

[29] ITU-T Recommendation Q.2150.1: "Signalling transport converter on MTP3 and MTP3b".

[30] ITU-T Recommendations Q.1902.1 to Q.1902.6 (07/2001): "Bearer Independent Call Control".

[31] ITU-T Recommendation Q.1950 (2002): "Bearer independent call bearer control protocol".

[32] 3GPP TS 26.236: "Packet switched conversational multimedia applications; Transport protocols".

[33] 3GPP TS 29.232: "Media Gateway Controller (MGC) – Media Gateway (MGW) interface; Stage 3".

[34] IETF RFC 2833: "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".

[35] ITU-T Recommendation Q.765.5: "Signalling system No. 7 – Application transport mechanism: Bearer Independent Call Control (BICC)".

[36] IETF RFC 3264: "An Offer/Answer Model with the Session Description Protocol (SDP)".

[37] IETF RFC 3312: "Integration of Resource Management and Session Initiation Protocol (SIP)".

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

[39] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification"~~Void.~~

[40] IETF RFC 3323: "A Privacy Mechanism for the Session Initiation Protocol (SIP)".

[41] IETF RFC 3325: "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".

[42] ITU-T Recommendation Q.730 to Q.737 (12/1999): "ISDN user part supplementary services".

[43] ITU-T Recommendation I.363.5 (1996): "B-ISDN ATM Adaptation Layer specification: Type 5 AAL".

[44] ITU-T Recommendation Q.2110 (1994): "B-ISDN ATM adaptation layer - Service Specific Connection Oriented Protocol (SSCOP)".

[45] ITU-T Recommendation Q.2140 (1995): "B-ISDN ATM adaptation layer - Service specific coordination function for signalling at the network node interface (SSCF AT NNI)".

[46] ITU-T Recommendation Q.2210 (1996): "Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140".

[47] 3GPP TS 23.221: "Architectural requirements".

[48] ITU-T Recommendation E.164 (05/1997): " The international public telecommunication numbering plan".

Next modified Section

5.2 Key characteristics of IM CN subsystem

The IM CN subsystem uses SIP to manage IP multimedia sessions in a 3GPP environment, it also uses IPv6, as defined in RFC 2460 [39], ~~-~~as the transport mechanism for both SIP session signalling and media transport. The 3GPP profile of

SIP defining the usage of SIP within the IM CN subsystem is specified in 3GPP TS 24.229 [9]. Example callflows are provided in 3GPP TS 24.228 [8].

Next modified Section

7.2 Interworking between CS networks supporting ISUP and the IM CN subsystem

The control plane between CS networks supporting ISUP and the IM CN subsystem supporting SIP, where the underlying network is SS7 and IP respectively is as shown in figure 2.

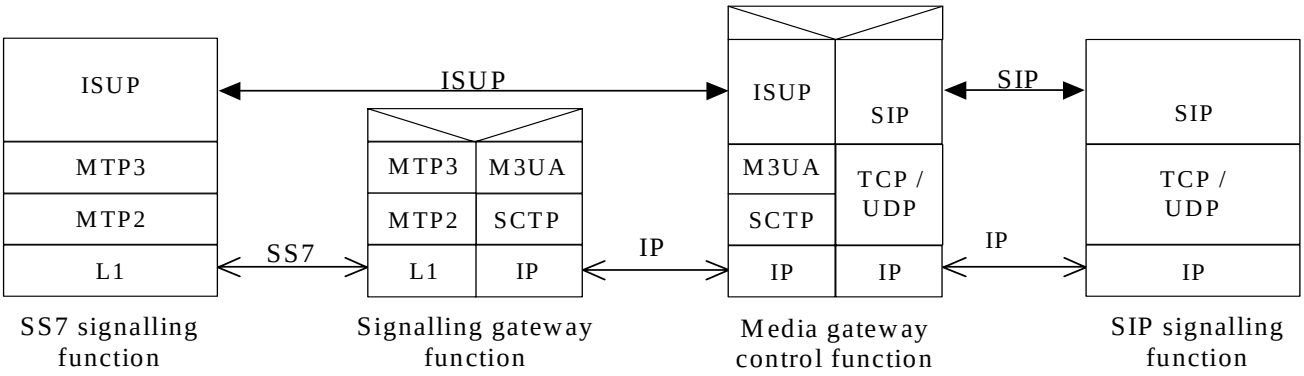

Figure 2: Control plane interworking between CS networks supporting ISUP and the IM CN subsystem

7.2.1 Services performed by network entities in the control plane

7.2.1.1 Services performed by the SS7 signalling function

The SS7 signalling function provides the capabilities to deliver or receive SS7 MTP3-User information (e.g. ISUP or BICC+STC_{mtp}) across the SS7 signalling network. The functional interface of the MTP, the MTP User parts and the signalling network are as detailed in ITU-T Recommendations Q.701 to Q.709 [3].

7.2.1.2 Services of the SGW

The SGW shall perform the functions as described in 3GPP TS 23.002 [10].

In order to support the seamless operation of the MTP3-User part information between networks incorporating SS7 and IP (either IPv4, see RFC 791 [16], or IPv6, see RFC 2460 [39]), the SGW shall support the services of MTP as well as the services of the M3UA (see 3GPP TS 29.202 [20]) and SCTP (see RFC 2960 [18]).

7.2.1.3 Services of the MGCF

The session handling and session control of the MGCF shall be as detailed in 3GPP TS 24.229 [9].

The MGCF shall provide the interaction, through the use of its interworking function, between the SS7 MTP3-User part information, e.g. ISUP, and SIP. It shall also provide the interaction between the mechanism used to transport the SS7 MTP3-User part information and SIP, i.e. the interaction between M3UA and SCTP and UDP/TCP (see RFC 768 [17] and RFC 793 [24]).

The MGCF interworking function shall also provide the translation between the SS7 MTP3-User part information and SIP, where the interworking of SIP to ISUP and BICC+STC_{mtp} are detailed below.

7.2.1.4 Services of the SIP signalling function

The SIP signalling function is a logical entity that provides the capabilities to deliver or receive multimedia session information across the IM CN subsystem signalling system. ~~It is a logical entity that may reside in the CSCF, MGCF and other IM CN subsystem entities.~~

7.2.2 Signalling interactions between network entities in the control plane

7.2.2.1 Signalling between the SS7 signalling function and MGCF

The SGW shall enable the signalling interaction between the SS7 signalling function and the MGCF.

7.2.2.1.1 Signalling from MGCF to SS7 signalling function

For signalling from the MGCF to the SS7 signalling function, the SGW shall terminate the SCTP and M3UA protocol layers and deliver the MTP3-User protocol messages, e.g. ISUP messages, towards the SS7 signalling function. The SGW transmits and receives SS7 Message Signalling Units (MSUs) to and from the SS7 signalling function over standard SS7 network interfaces, using MTP to provide reliable transport of the messages.

7.2.2.1.2 Signalling from SS7 signalling function to MGCF

For signalling from the SS7 signalling function to the MGCF, the SGW shall terminate SS7 MTP2 and MTP3 protocol layers and deliver MTP3-User part information messages, e.g. ISUP, towards the MGCF. In order to direct messages received from the SS7 MTP3 network to the appropriate IP destination, e.g. MGCF, the SGW shall perform a message distribution function using the information received from the MTP3-User message. Message distribution at the SGW shall be performed in accordance with 3GPP TS 29.202 [20].

7.2.2.1.3 Services offered by SCTP and M3UA

The SGW internal protocol mapping and transportation between BICC or ISUP messages and IP encapsulated BICC or ISUP messages respectively is supported by the services of the M3UA adaptation layer and the underlying SCTP layer. The SGW shall allow for the transfer of MTP3-User signalling messages, e.g. BICC or ISUP, to and from an MGCF, where the peer MTP3-User protocol exists.

7.2.2.1.3.1 Services offered by SCTP

SCTP offers the ability to reliably transfer the SCTP User applications, e.g. M3UA, between the SCTP User application peers. The initialization procedure used for an association between two SCTP end-to-end peers, and the initialization to the SCTP User applications shall be performed as detailed in ~~accordance with~~ RCF 2960 [18].

7.2.2.1.3.2 Services offered by M3UA

When an association between two SCTP peers has been established, the use of M3UA shall provide the transport service in accordance with MTP~~of MTP-TRANSFER primitives~~ (see ITU-T Recommendations Q.701 to Q.709 [3]) to ~~its upper layer to~~ the MTP3-User, e.g. ISUP.

7.2.2.2 Signalling between the MGCF and SIP signalling function

Signalling between the SIP signalling function and the MGCF ~~shall~~ uses the services of IP (RFC 2460 [39]), TCP (RFC 793 [24]) or UDP (RFC 768 [17]) and SIP. ~~The use of a SIP URL shall enable the identification of the IP address of the IM CN subsystem entity, e.g. the MGCF and SIP signalling function.~~

The naming and addressing concepts between the MGCF and SIP signalling function shall be detailed in accordance with 3GPP TS 23.228 [12]. The issues of general IP address management are discussed in 3GPP TS 23.221 [47].

Next modified Section

7.3 Interworking between CS networks supporting BICC and the IM CN subsystem

The control plane between CS networks supporting BICC and the IM CN subsystem supporting SIP, where the underlying network is SS7 and IP respectively is as shown in figures 25, 26 and 27.

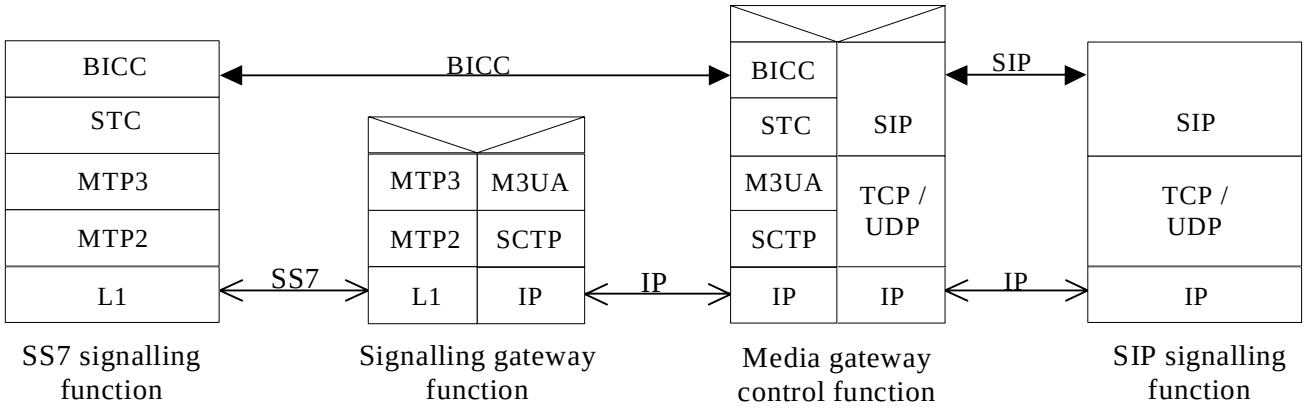

Figure 25: Control Plane interworking between CS networks supporting BICC over MTP3 and the IM CN subsystem

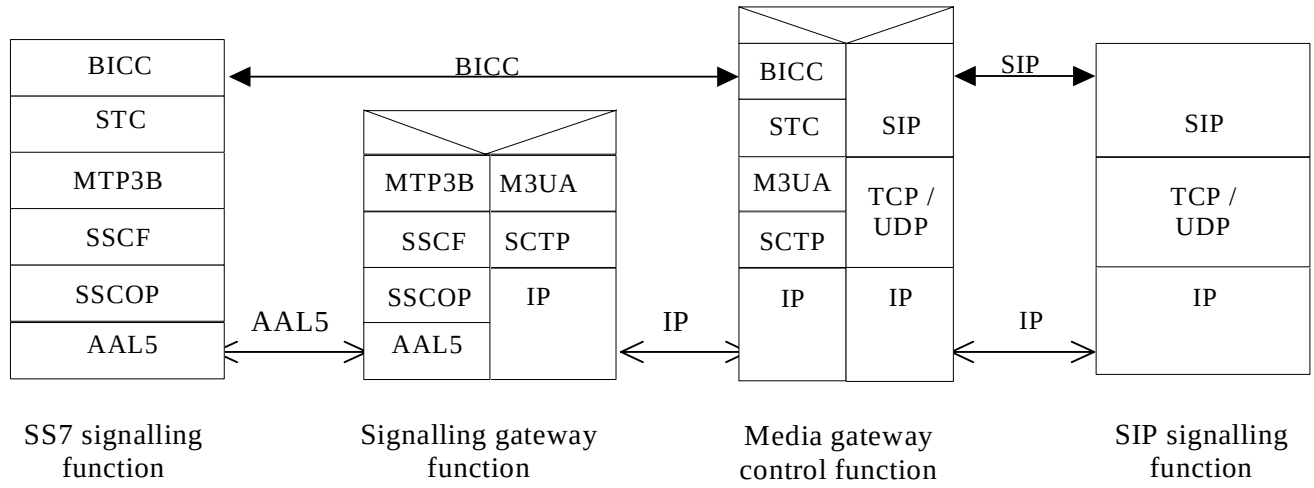

Figure 26: Control Plane interworking between CS networks supporting BICC over MTP3B over AAL5 and the IM CN subsystem

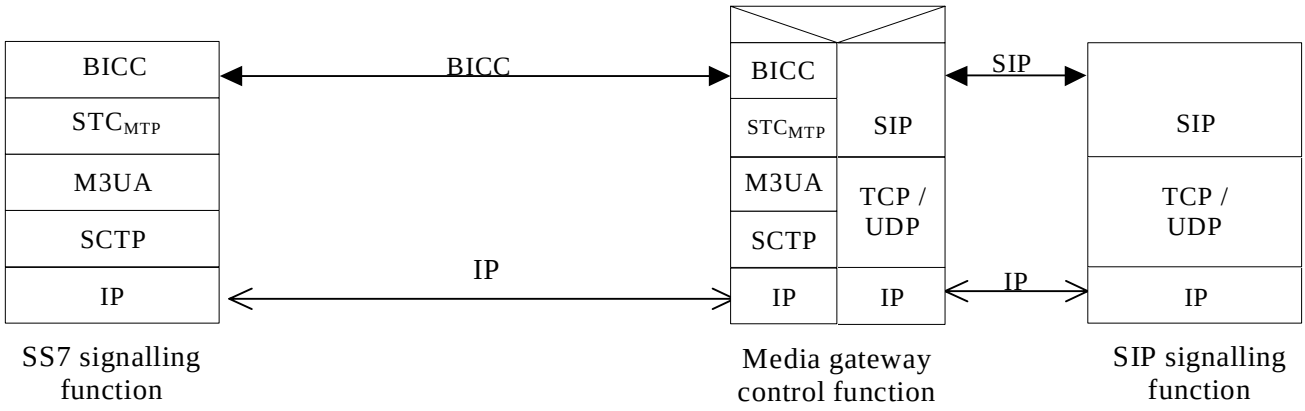

Figure 27: Control Plane interworking between CS networks supporting BICC over STC and M3UA and the IM CN subsystem

7.3.1 Services performed by network entities in the control plane

Services offered by the network entities in the control plane are as detailed in clause 7.2.1.

If ATM transport is applied between the SS7 Signalling function and the Signalling Gateway Function, they shall apply MTP3B (ITU-T Recommendation Q.2210 [46]) over SSCF (ITU-T Recommendation Q.2140 [45]) over SSCOP (ITU-T Recommendation Q.2110 [44]) over AAL5 (ITU-T Recommendation I.363.6 [43]) as depicted in figure 26.

If IP transport is applied between the SS7 Signalling function and the MGCF, ~~the SS7 Signalling function~~they shall support and apply M3UA, SCTP and IP (either IPv4, see RFC 791 [16], or IPv6, see RFC 2460 [39]), as depicted in figure 27.

3GPP TSG-CN WG3 Meeting #30 **N3-030814**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **022** ⌘ **rev** **3** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Handling of closed used group supplementary service
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	10/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Clause “Interactions with other networks" in Q.735 is not an appropriate description of the termination of this supplementary service.
Summary of change:	⌘	Clause 1.5.2.4.2 is referenced instead.
Consequences if not approved:	⌘	Specification incorrect

Clauses affected:	⌘	7.4.16

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

7.4.16 Closed User Group (CUG)

The actions of the MGCF at the ISUP/BICC side are described in ITU-T Recommendation Q.735.1[42] under the ~~clause~~ Clause 1.5.2.4.2 "~~Interactions with other networks~~Exceptional procedures".

3GPP TSG-CN WG3 Meeting #30 **N3-030815**
Bangkok, Thailand. 27th - 31st October 2003.

CR-Form-v7

CHANGE REQUEST

⌘ **29.163** **CR** **025** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Interworking of Hold/Resume from the CS Network
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	10/10/2003
Category:	⌘	**B**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The interworking of Hold and Resume originated from the CS Network is not described.
Summary of change:	⌘	Description of signaling interworking added. No interworking of the user plane is required
Consequences if not approved:	⌘	Specification incomplete

Clauses affected:	⌘	7.4.10			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

7.4.10 —Call Hold

The service is interworked as indicated in 3GPP TS 23.228 [12].

7.4.10.1 Session hold initiated from the IM CN subsystem side

A SIP UE makes a hold request by sending an UPDATE (or re-INVITE) message with an "inactive" or a "sendonly" SDP attribute (refer to RFC 3264 [36]). Upon receipt of the hold/resume request from the IMS side, the MGCF shall send a CPG message to the CS side with a '*remote hold*'/'*remote retrieval*' *Generic notification indicator*. The user plane interworking of the hold/resume request is described in the clause 9.2.~~*~~9~~.~~.

7.4.10.2 Session hold initiated from the CS network side

When an MGCF receives a CPG message with a '*remote hold*' Generic notification indicator, the MGCF shall forward the hold request by sending an UPDATE message containing SDP with "*sendonly*" media.

When an MGCF receives a CPG message with a '*remote retrieval*' Generic notification indicator, the MGCF shall forward the resume request by sending an UPDATE message containing SDP with "*sendrecv*" media.

The interworking does not impact the user plane.

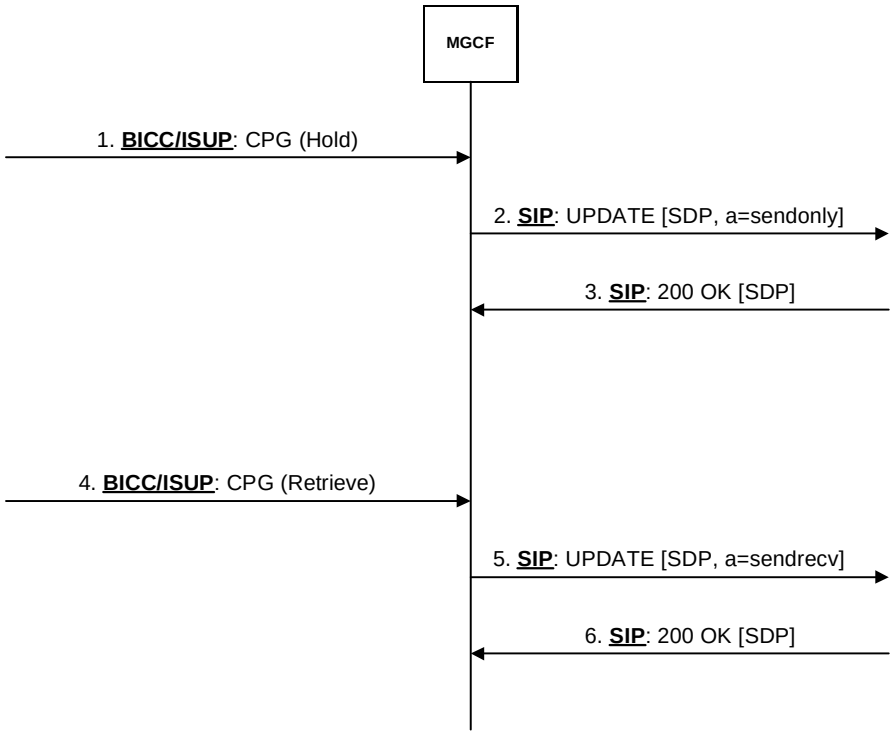

Figure 30a Session hold initiated from the CS network side

3GPP TSG-CN WG3 Meeting #30 **N3-030823**
Bangkok, Thailand. 27th - 31st October 2003.

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CHANGE REQUEST

⌘ **29.163** **CR** **011** ⌘ **rev** **2** ⌘ Current version: **6.0.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Alignment between subclause 7.2.3 and 7.3.3 in TS 29.163
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	07/10/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	TS 29.163 has under its production undergone a number of changes. Some of these changes shall be applicable for both subclause 7.2.3 (ISUP) and 7.3.3. (BICC). However, there are some cases where applicable changes are only introduced in subclause 7.2.3. This CR proposes alignment between these two subclauses. It also includes some editorial changes.
Summary of change:	⌘	1) In the header of clause ISUP is deleted 7.3.3.1, since the section only deals with BICC. 2) Two additional paragraphs is copied from clause 7.2.3.1.1 3) References to Mn section is replacing the present text in 7.3.3.1.10 4) A paragraph is copied from 7.3.3.2.2.2 5) The referenced clause is changed. 6) Three additional clauses are added.
Consequences if not approved:	⌘	The specification will be incomplete which may lead to faulty implementations.

Clauses affected:	⌘	Clauses 7.3.3.1, 7.3.3.1.1, 7.3.3.1.10, 7.3.3.2, 7.2.3.2.18. Two new paragraphs are added 7.2.3.2.19 and 7.2.3.2.20

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Next modified section

7.3.3.1.1 Sending of IAM

On reception of the INVITE requesting an audio session, the I-MGCF shall send the IAM.

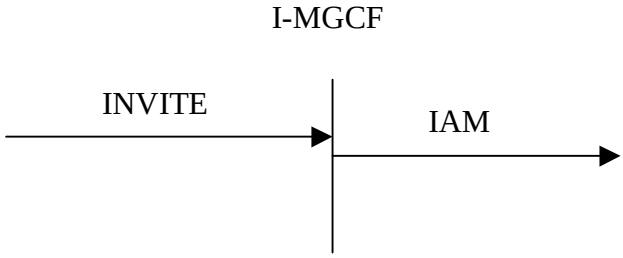

Figure 28: receipt of Invite

The I-MGCF shall reject an INVITE request for a non-audio session by sending a status code 500 “Internal Server Error ". If audio media streams and non-audio media streams are contained in a single INVITE request, the non-audio media streams shall be rejected in the SDP answer, as detailed in RFC 3264 [36].

The I-MGCF shall include a To tag in the first backward non-100 provisional response, in order to establish an early dialog as described in RFC 3261 [19].

Next modified section

7.3.3.1.10 ~~7.3.3.1.10~~ Internal through connection of the bearer path

The through connection procedure is described in subclauses 9.2.3.1.7 and 9.2.3.2.7.

~~The I-MGCF will through connect the internal switch path in both directions when:~~

~~- the requested preconditions in the IMS have been met, and~~

~~- the bearer set-up procedure is successfully completed.~~

Next modified section

7.3.3.2 Outgoing Call Interworking from BICC~~/ISUP~~ to SIP at O-MGCF

7.3.3.2.2.2 SDP Media Description

The O-MGCF shall indicate that precondition is not met.

The SDP media description will contain precondition information as per RFC 3312 [37].

The O-MGCF shall include the AMR codec transported according to RFC 3267 [23] with the options listed in clause 5.1.1 of 3GPP TS 26.236 [32] in the SDP offer.

Next modified section

7.3.3.2.17 Sending of CANCEL

See clause 7.2.3.2.187

Next modified section

.

7.3.3.2.18 Autonomous Release at O-MGCF

See clause 7.2.3.2.16.

Next modified section

7.3.3.2.19 Special handling of 580 precondition failure received in response to either an INVITE or UPDATE

See clause 7.2.3.2.17.

Last modified section

7.3.3.2.20 Receipt of SIP redirect (3xx) response

See clause 7.2.3.2.19