**3GPP TSG-CN Meeting #26** **NP-040582**
**8th ñ 10th December 2004. Athens, Greece.**

**Source:** **TSG CN WG3**

**Title:** **CRs to Rel-6 on Work Item ì IMSî (Pack1)**

**Agenda item:** **9.12**

**Document for:** **APPROVAL**

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**Introduction:**

This document contains 4 CRs to Rel-6 on Work Item ìIMSî(Pack1) that have been agreed by TSG CN WG3, and are forwarded to TSG CN Plenary for approval.

| WG_tdoc | Spec | CR | R | Cat | Title | Rel | C_Ver | Work Item |
|---|---|---|---|---|---|---|---|---|
| N3-040873 | 29.163 | 054 | 3 | F | Mapping of continuity signal | Rel-6 | 6.4.0 | IMS-CCR-IWCS |
| N3-040834 | 29.163 | 056 | 1 | F | Corrections to EFR codec parameters | Rel-6 | 6.4.0 | IMS-CCR-IWCS |
| N3-040859 | 29.163 | 057 | 2 | C | DTMF towards IM CN subsystem | Rel-6 | 6.4.0 | IMS-CCR-IWCS |
| N3-040792 | 29.163 | 059 | | D | Editorial mistake in Table 12 | Rel-6 | 6.4.0 | IMS-CCR-IWCS |

**3GPP TSG-CN3 Meeting #34** **Tdoc N3-040873**
**Seoul, Korea, 15-19 November 2004**

CR-Form-v7.1

# CHANGE REQUEST

⌘ **TS 29.163** **CR** 054 ⌘ **rev** **3** ⌘ Current version: **6.4.0** ⌘

*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 Continuity signal |
| ***Source:*** | ⌘ | LM Ericsson |
| ***Work item code:*** | ⌘ | [IMS-CCR-IWCS] |
| ***Date:*** | ⌘ | 2004-11-19 |
| ***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:*
*Ph2* *(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)*
*Rel-7* *(Release 7)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | The specification is too strigent regarding the mapping of Continuity signal. The pre-condition is met information could also be sent in a PRACK depending on when the continuty signal is received. |
| ***Summary of change:*** | ⌘ | It is possible to send the Precondition met in any SDP offer. |
| ***Consequences if not approved:*** | ⌘ | TS 29.163 is aligned with the behavoir for the I-MGCF and also with basic thinking behind SDP using SIP to be transported. |

| | | | | | |
|---|---|---|---|---|---|
| ***Clauses affected:*** | ⌘ | 7.2.3.2.3 | | | |
| ***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.

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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.

7.2.3.2.3 ~~Sending of UPDATE~~Receipt of CONTINUITY

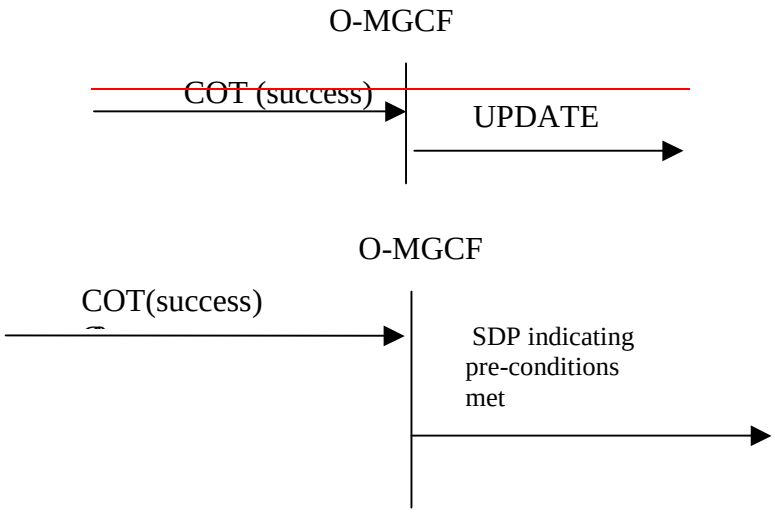


**Figure 14: Receipt of COT (success).**

When the requested preconditions in the IMS (if any) have been met and if possible outstanding continuity procedures have successfully been completed (COT with the Continuity Indicators parameter set to ì continuity check successfulî is received), a SDP offer (e.g. a SIP UPDATE request) shall be sent for each early SIP dialogue confirming that all the required preconditions have been met.

**3GPP TSG-CN WG3 Meeting #34** **Tdoc ⌘ N3-040834**
**Seoul, Korea. 15th to 19th November 2004.**

CR-Form-v7.1

# CHANGE REQUEST

⌘ **29.163** **CR** **056** ⌘ **rev** **1** ⌘ Current version: **6.4.0** ⌘

*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 **X**

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Corrections to EFR codec parameters |
| ***Source:*** | ⌘ | Lucent Technologies |
| ***Work item code:*** | ⌘ | IMS-CCR-IWCS |
| ***Date:*** | ⌘ | 08/11/2004 |
| ***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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*R97 (Release 1997)*
*R98 (Release 1998)*
*R99 (Release 1999)*
*Rel-4 (Release 4)*
*Rel-5 (Release 5)*
*Rel-6 (Release 6)*
*Rel-7 (Release 7)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | There is a typographical error in the encoding name for EFR and there is an incorrect note regarding DTX support for EFR in RTP. |
| ***Summary of change:*** | ⌘ | The typographical error is fixed and the incorrect note stricken. |
| ***Consequences if not approved:*** | ⌘ | Use of EFR in RTP will not be possible if the typographical error remains. With this error corrected, the incorrect note would still cause unnecessary procedure development at gateways to EFR over RTP. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | B.2.5.3 |

| ***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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### B.2.5.3 Codec parameters for 3GPP non-AMR codecs

Table B.3 shows the correspondence between the codec format parameters in the Single Codec information element (TS 26.103 [57]) and the SDP for the 3GPP non-AMR codecs (RFC 3267 [23], RFC 3551 [52], and RFC 3555 [53]).

**Table B.3: Mapping between Single Codec subfields and SDP parameters for 3GPP non-AMR codecs**

| Single Codec information element | SDP payload format parameters | | |
|---|---|---|---|
| **Codec IDentification** | **Payload Type number** | **Encoding name** | **Other Parameters** |
| GSM FR | 3 | GSM | |
| GSM HR | N/A | N/A | |
| GSM EFR (NOTE 1) | dynamic | GSM-EFR | |
| GSM EFR (NOTE 2) | dynamic | AMR | mode-set=7 |
| TDMA EFR (NOTE 2) | dynamic | AMR | mode-set=4 |
| PDC EFR (NOTE 2) | dynamic | AMR | mode-set=3 |

**NOTE 1**: ~~GSM-FR framing according to RFC 3551 [52] does not support DTX. The IM-MGW may support this configuration by providing interworking between DTX procedures in the BICC CS network and non-DTX operation in the IM CN subsystem.~~This translation for GSM EFR (GSM-EFR) is preferred to the alternative (AMR mode-set=7) if it is supported by the IM-MGW.

**NOTE 2**: AMR DTX is not compatible with the DTX schemes for any of the codecs in this list. The IM-MGW may support these configurations without transcoding by providing interworking between the DTX procedures and frame encodings on the bearer interfaces to the BICC CS network and the IM CN subsystem.

**3GPP TSG-CN WG3 Meeting #34**
**Seoul, Korea. 15th - 19th November 2004.**

***Tdoc*** ⌘ **N3-040859**

*CR-Form-v7.1*

# CHANGE REQUEST

⌘ **29.163** **CR** **057** ⌘ **rev** **2** ⌘ Current version: **6.4.0** ⌘

*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:*** | ⌘ | DTMF towards IM CN subsystem |
| ***Source:*** | ⌘ | Lucent Technologies |
| ***Work item code:*** | ⌘ | IMS-CCR-IWCS |
| ***Date:*** | ⌘ | 08/11/2004 |
| ***Category:*** | ⌘ | **C** |
| ***Release:*** | ⌘ | Rel-6 |

*Use one of the following categories:*
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*Use one of the following releases:*
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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)*
*Rel-7 (Release 7)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | The current specification does not include procedures for signaling out-of-band DTMF from the CS CN towards the IM CN subsystem. SA2 has recently confirmed and documented in TS 23.228 that this is a requirement. |
| ***Summary of change:*** | ⌘ | The missing procedures are included in the affected clauses. |
| ***Consequences if not approved:*** | ⌘ | Out-of-band DTMF from the CS CN will not be transmitted in any format towards SIP endpoints in the IM CN subsystem. Applications requiring interactive DTMF input residing at UEs, application servers, or other PSTN endpoints accessed through the IM CN subsystem via an MGCF will not function correctly. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 7.3.3.1.11, 7.3.3.2.16, 9.2.8, 9.3.1.8, 9.3.1.9 |

| ***Other specs affected:*** ⌘ | Y | N | | ⌘ |
|---|---|---|---|---|
| | | 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**********

### 7.3.3.1.11 Out of Band DTMF

If a SIP UA sends DTMF tones to the IM-MGW, the IM-MGW may send this ~~receives this information. This~~ information ~~may be transported~~ via the Mn interface to the MGCF. ~~In this case the~~The MGCF shall ~~use~~ send to the BICC network the APM message with the following values ~~on~~ for the different parameters:

- Action indicator in accordance with the requested DTMF transport function
- Signal in accordance with which DTMF digit to send
- Duration in accordance with the required duration of the DTMF digit.

If the BICC network sends an APM message with DTMF signal, duration and action indicator to the MGCF, the MGCF may send this information to the IM-MGW via the Mn interface. The IM-MGW shall send the corresponding DTMF signal and duration information on the user plane of the IM CN subsystem according to RFC 2833 [34].

The interactions with the IM-MGW ~~is~~ are shown in clause 9.2.~~7~~8.

**********SECOND MODIFIED SECTION**********

### 7.3.3.2.16 Out of Band DTMF

If a SIP UA sends DTMF tones to the IM-MGW, the IM-MGW may send this ~~receives this information. This~~ information ~~may be transported~~ via the Mn interface to the MGCF. ~~In this case the~~The MGCF shall ~~use~~ send to the BICC network the APM message with the following values ~~on~~ for the different parameters:

- Action indicator in accordance with the requested DTMF transport function
- Signal in accordance with which DTMF digit to send
- Duration in accordance with the required duration of the DTMF digit.

If the BICC network sends an APM message with DTMF signal, duration and action indicator to the MGCF, the MGCF may send this information to the IM-MGW via the Mn interface. The IM-MGW shall send the corresponding DTMF signal and duration information on the user plane of the IM CN subsystem according to RFC 2833 [34].

The interaction with the IM-MGW is shown in clause 9.2.~~7~~8.

**********THIRD MODIFIED SECTION**********

## 9.2.8 Handling of RTP telephone events

DTMF digits, telephony tones and signals (telephone events) can be transferred using different mechanisms. For the IM CN Subsystem, 3GPP TS 24.229 [9] defines the usage of the RTP payload format defined for DTMF Digits, Telephony Tones and Telephony Signals in RFC 2833 [34]. When BICC signalling is used in the CS network, telephony signals may be sent either inband or out-of-band as defined in ITU-T Recommendation Q.1902.4 [30] and in ITU-T Recommendation Q.765.5 [35]. If ISUP signalling is used the DTMF tones are sent inband. The following paragraphs describe the Mn interface procedures to transfer DTMF ~~from~~ between RTP format defined in RFC 2833 [34] ~~to~~ and the CS CN.

Before the actual usage of the telephony signals can occur the sending/receiving of telephone events need to be agreed with the SDP offer-answer mechanism defined in RFC 3264 [36]. The outcome of the negotiation can be e.g. that no telephone events are sent in RTP payload, telephone events are sent only in one direction or in both directions. If the outcome of the negotiation is that RTP payload telephone-events are sent in both directions, the IM-MGW may nevertheless be configured to interwork only mobile originated telephone-events.

When the offer-answer mechanism based session parameters negotiation results in an agreement that telephone events are sent in the RTP payload and the needed preconditions are fulfilled, telephone events can be sent in RTP payload. This negotiation can be done at call control signalling phase or during an ongoing call.

If the MGCF and IM-MGW support the reception and/or transmission of the RTP ~~transport of~~ MIME type "telephone event" (as defined in RFC 2833 [34]) ~~from~~ with the IMS, the following applies:

- For CS Network Originating Sessions, the MGCF shall include the MIME type "telephone events" with default events in the first SDP offer. After the usage of telephone events is agreed in the subsequent offer-answer parameter exchanges and the needed preconditions defined in RFC 3312 [37] are fulfilled, telephone events can be sent as RTP payload.
- In case of IM CN Subsystem Originating Sessions, the MGCF shall accept the MIME type "telephone events" with default events in any SDP answer when it received such an offer.

#### 9.2.8.1 Sending DTMF digits out-of-band to CS CN (BICC)

For the IM CN subsystem terminated session , the MGCF shall use the "Configure IMS Resources" procedure as described in Clause 9.2.~~-~~3. For the IM CN subsystem originating session , the MGCF shall use the "Reserve IMS Connection Point and Configure Remote Resources" procedure as described in Clause 9.2.~~-~~2. If DTMF is supported, the MGCF shall include "telephone event" along with the selected speech codecs within the "local IMS resources" Parameter of these procedures. The same termination shall be used to receive and transmit DTMF and speech of the same call.

Furthermore, the MGCF shall use the "Detect IMS RTP Tel Signal" procedure to request the MGW to detect incoming telephone events from the IMS and notify the MGCF about the detected events. The MGW shall use the "Notify IMS RTP Tel Event" procedure for this notification. The termination used to receive DTMF shall be placed in the same context used for the speech of the same call. If the IM-MGW received a "Detect IMS RTP Tel Event" procedure for a termination, the IM-MGW shall not forward inband to the CS network any DTMF received at this termination.

Figure 48 shows the message sequence chart when DTMF digits are received from the IM CN subsystem in the RTP payload. For the first digit, the received RTP message contains all information including the duration and only a single notification is received. For the second digit, the start and the end of the DTMF digit are notified separately.

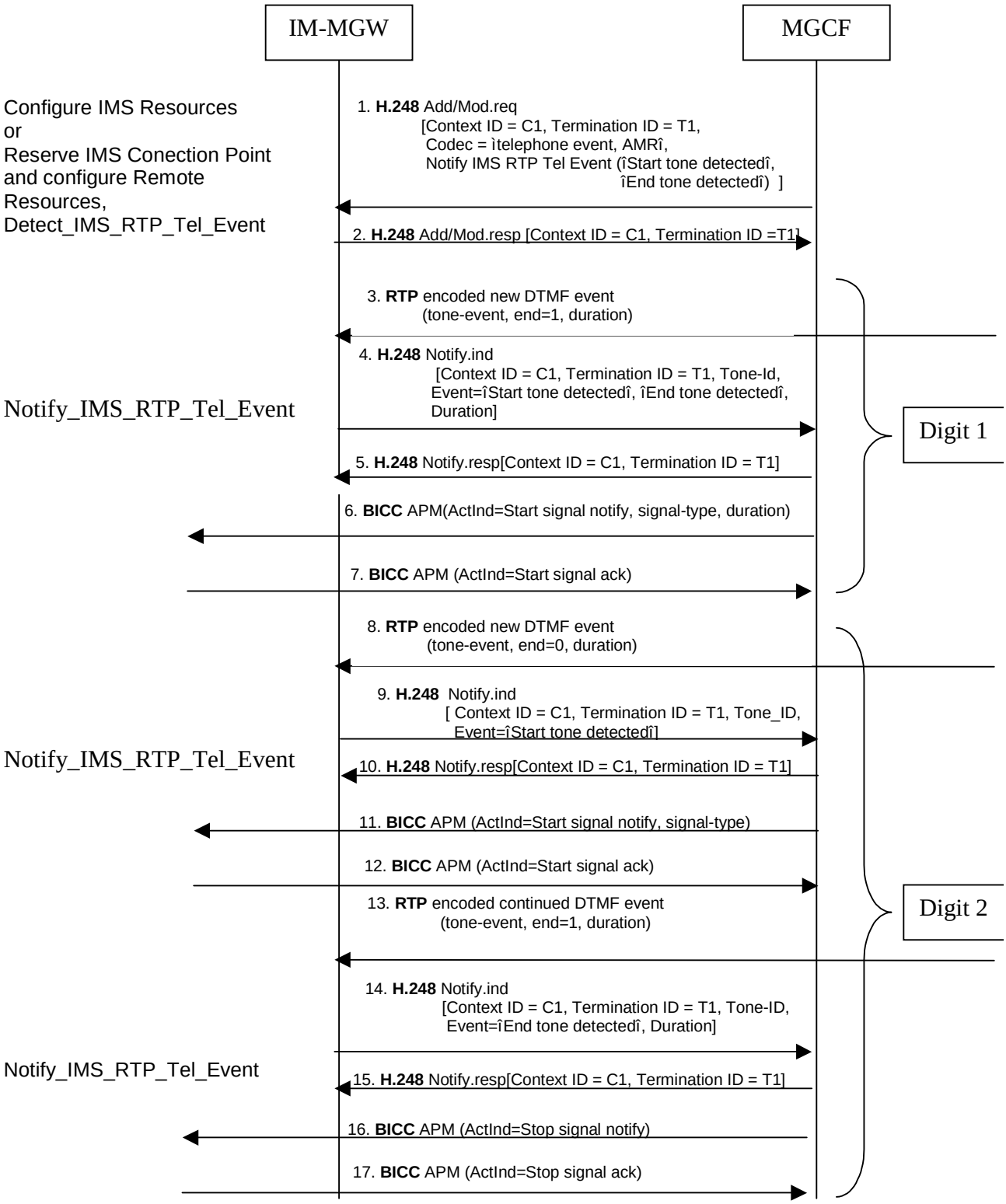


**Figure 48: Activation of notification of DTMF digits received in RTP and examples of sending the digits out-of-band to CS CN (message sequence chart)**

### 9.2.8.2 Sending and receiving DTMF digits inband to/from CS CN (ISUP or BICC)

For the IM CN subsystem terminated session, the MGCF shall use the "Configure IMS Resources" procedure as described in Clause 9.2.-3. For the IM CN subsystem originating session , the MGCF shall use the "Reserve IMS Connection Point and Configure Remote Resources" procedure as described in Clause 9.2.-2. If DTMF is supported, the MGCF shall include "telephone event" along with the selected speech codecs within the "local IMS resources"

~~Parameter~~ parameter of these procedures to request the MGW to detect incoming telephone events and transform them into speech signals on the CS side. When receiving this configuration, the MGW may in addition optionally detect incoming telephone events received inband from the CS CN network and transform them into telephone events on the IMS side. The same termination shall be used to receive and transmit DTMF and speech of the same call.

Figure 49 shows the message sequence chart to configure the IM-MGW to receive DTMF detection on the IMS side and transfer the DTMF inband on the CS side. When receiving this configuration, the IM-MGW may in addition optionally detect DTMF inband on the CS side and transmit DTMF on the IMS side.

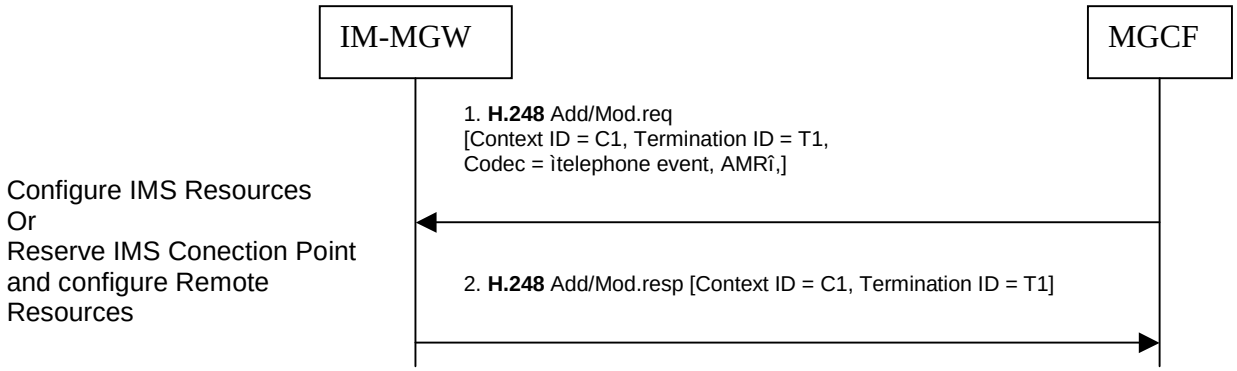


**Figure 49: Activation of processing of DTMF digits received in RTP for sending the digits inband to CS CN (message sequence chart)**

### 9.2.8.3 Receiving DTMF digits out-of-band from CS CN (BICC)

For the IM CN subsystem terminated session , the MGCF shall use the "Configure IMS Resources" procedure as described in Clause 9.2.3. For the IM CN subsystem originating session , the MGCF shall use the "Reserve IMS Connection Point and Configure Remote Resources" procedure as described in Clause 9.2.2. If DTMF is supported, the MGCF shall include "telephone event" along with the selected speech codecs within the "local IMS resources" Parameter of these procedures. The same termination shall be used to receive and transmit DTMF and speech of the same call.

Furthermore, the MGCF shall use the ì Send IMS RTP Tel Eventî and ì Stop IMS RTP Tel Eventî procedures to request the MGW to play out DTMF to the IM CN subsystem whenever it receives out-of-band DTMF indications from the BICC network.

Figure 49a shows the message sequence chart when DTMF digits are transmitted to the IM CN subsystem in the RTP payload. For the first digit, the received APM message contains all information including the duration and only a single notification is received. For the second digit, the start and the end of the DTMF digit are notified separately.

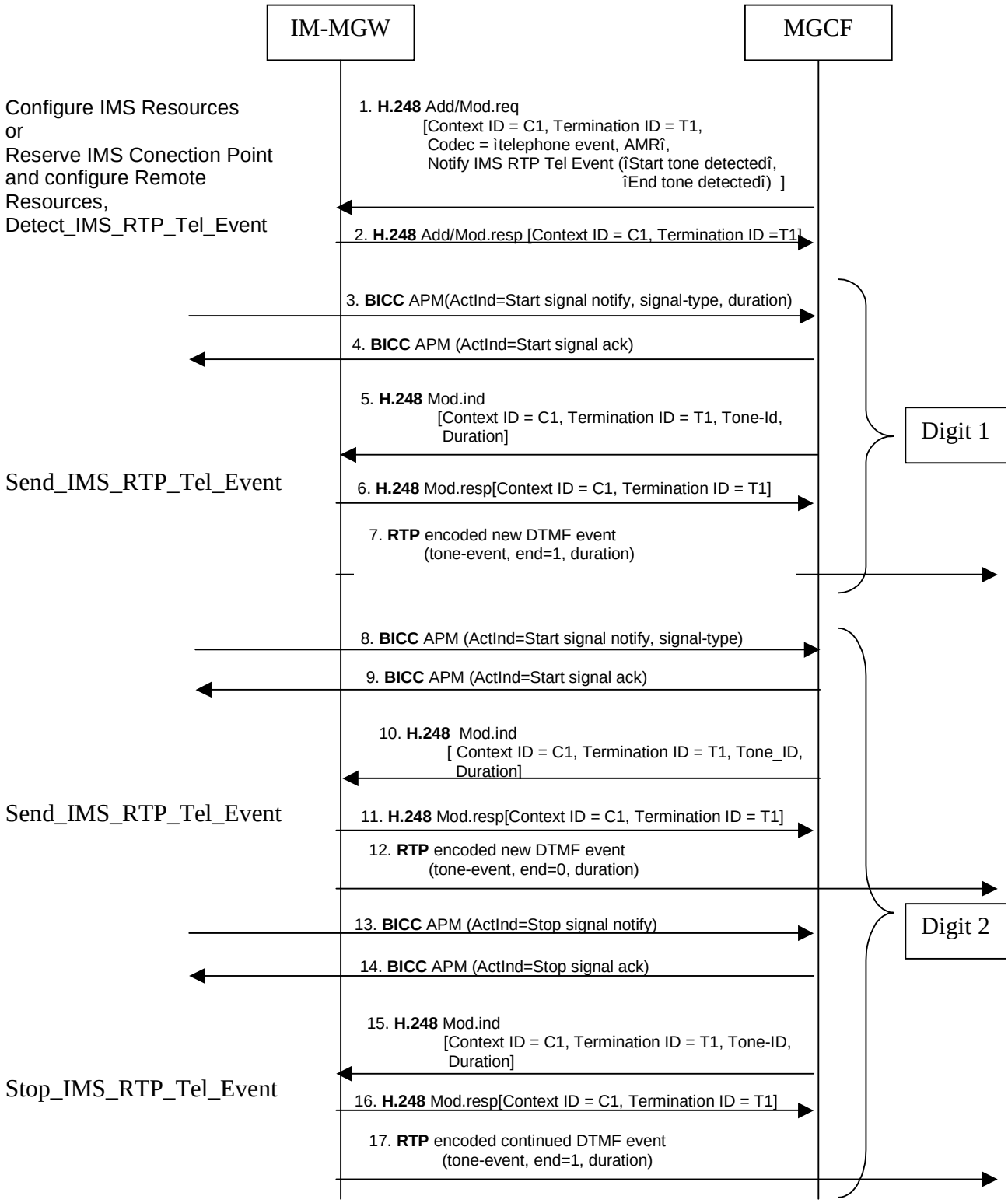


**Figure 49a: Examples of receiving DTMF digits out-of-band from the CS CN and transmitting them in RTP (message sequence chart)**

**********FOURTH MODIFIED SECTION**********

#### 9.3.1.8 Send IMS RTP Tel event

This procedure is used by the MGCF to request from the MGW to signal a telephone event within RTP according to RFC 2833 [34]. This procedure is the same as that defined in the subclause "Send DTMF" in 3GPP TS 23.205 [27].

#### 9.3.1.9 Stop IMS RTP Tel event

This procedure is used by the MGW to request from the MGW to stop signalling a telephone event within RTP according to RFC 2833 [34]. This procedure is the same as that defined in the subclause "Stop DTMFî in 3GPP TS 23.205 [27].

**3GPP TSG-CN WG3 Meeting #34** ***Tdoc ⌘N3-040792***

**Seoul, Korea. 15th - 19th November 2004.**

*CR-Form-v7.1*

# CHANGE REQUEST

⌘ **29.163** **CR** **059** ⌘**rev** **-** ⌘ Current version: **6.4.0** ⌘

*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:*** | ⌘ | Editorial mistake in Table 12 |
| ***Source:*** | ⌘ | Siemens |
| ***Work item code:*** | ⌘ | IMS-CCR-IWCS |
| ***Date:*** | ⌘ | 03/11/2004 |
| ***Category:*** | ⌘ | **D** |
| ***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:*

| | |
|---|---|
| *Ph2* | *(GSM Phase 2)* |
| *R96* | *(Release 1996)* |
| *R97* | *(Release 1997)* |
| *R98* | *(Release 1998)* |
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| *Rel-4* | *(Release 4)* |
| *Rel-5* | *(Release 5)* |
| *Rel-6* | *(Release 6)* |
| *Rel-7* | *(Release 7)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | Field ìDerived from Generic Number (ACgPN) address signals (See table 13)î repeated twice in last line of table |
| ***Summary of change:*** | ⌘ | Remove dublication |
| ***Consequences if not approved:*** | ⌘ | Some confusion about meaning of split cell in table. |

| | | |
|---|---|---|
| ***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:*** ⌘

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 = ìrestrictedî, SIP or SIPS URI with addr spec ìanonymous@anonymous.invalidî (note 2) | If Calling Party Number parameter APRI = ìrestrictedî then priv-value =: ìidî. For other APRI settings Privacy header is not included or if included, ìidî 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)<br>~~Derived from Generic Number (ACgPN) address signals (See table 13)~~ | If Calling Party Number parameter APRI = ìrestrictedî then priv-value =: ìidî. For other APRI settings Privacy header is not included or if included, ìidî 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 ìdisplayî 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 ìFromî header may contain an ìAnonymous URIî. An ìAnonymous URIî 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.