3GPP TSG-CN Meeting #25 **NP-040334**
8th – 10th September 2004. Palm Springs, USA.

Source: **TSG CN WG3**

Title: **CRs to Rel-6 on Work Item "IMS-CCR-IWCS"**

Agenda item: **9.12**

Document for: **APPROVAL**

Introduction:

This document contains 1 CR to Rel-6 on Work Item "IMS-CCR-IWCS" that has been agreed by TSG CN WG3, and is forwarded to TSG CN Plenary for approval.

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver	Work Item
N3-040591	29.163	050	3	F	Corrections to AMR codec parameter translations	Rel-6	6.3.0	IMS-CCR-IWCS

3GPP TSG-CN WG3 Meeting #33 **Tdoc N3-040591**
Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.163** **CR** **50** ⌘ **rev** **3** ⌘ Current version: **6.3.0** ⌘

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

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

Title:	⌘	Corrections to AMR codec parameter translations
Source:	⌘	TSG_CN WG3
Work item code:	⌘	IMS-CCR-IWCS
Date:	⌘	09/08/2004
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)*
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:	⌘	After careful analysis, the current parameter translation procedures appear to be inconsistent with OoBTC procedures.
Summary of change:	⌘	The codec parameter translation procedures for AMR and AMR-WB are modified for consistency with OoBTC.
Consequences if not approved:	⌘	Codec negotiation interworking may fail in some cases.

Clauses affected:	⌘	B.2.5, B.2.5.1 and B.2.5.2

	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.

B.2.5 Codec parameter translation between BICC CS network and the IM CN subsystem

The IM CN subsystem uses the Session Description Protocol (SDP, defined in RFC 2327 [56]) to select and potentially re-negotiate the codec type and configuration and associated bearer format attributes to be used in the user plane. RFC 3550 [51] defines the Real Time Protocol (RTP) for framing of all codecs in the user plane, RFC 3551 [52] and RFC 3555 [53] define the framing details for many of the ITU-T codecs, and RFC 3267 [23] defines framing details for the AMR family of codecs. This clause will focus only on codec-specific SDP parameters not already constrained by clause 5.1.1 of TS 26.236 [32]. The signalling plane of the IM CN subsystem uses SDP offer/answer procedures defined in RFC 3264 [36] to select the desired codec type and configuration for the user plane from a prioritized list of codec types and configurations and to re-negotiate the user plane ~~configuration~~ attributes as necessary.

The bearer independent CS network uses the Single Codec and Codec List information elements of the Application Transport Mechanism (APM) defined in ITU-T Q.765.5 [35] to negotiate (offer and select) and potentially re-negotiate the codec type and configuration and associated bearer format attributes to be used in the user plane. TS 29.414 [25] and TS 25.415 [26] define the IuFP framing protocol for all codecs in the user plane for both ATM and IP transport, and TS 26.102 [50] provides the framing details for AMR and PCM family codecs. The Codec List information element of the APM comprises multiple instances of the Single Codec information element in priority order, as shown in Figure 13 of ITU-T Q.765.5 [35]. Figure 14 of ITU-T Q.765.5 [35] defines the Single Codec information element. Clause 11.1.7.2 of ITU-T Q.765.5 [35] defines the encoding of the Single Codec information element for the ITU-T codecs. TS 26.103 [57] defines the encoding of the Single Codec information element for the 3GPP codecs, and Table 7.11.3.1.3-2 of TS 28.062 [58] defines the preferred configurations of the narrowband AMR codecs (Config-NB-Code) for interoperation with TFO. The signalling plane of the bearer independent CS network uses the APM to ~~select~~ negotiate the desired codec type and configuration for the user plane from the prioritized list of codec ~~configurations~~ types and to re-negotiate the user plane ~~configuration~~ attributes as necessary.

The following subclauses define the translations between the SDP payload format parameters of the IM CN subsystem and the corresponding subfields of the Single Codec information element of the bearer independent CS network for certain 3GPP and ITU-T codecs. Following these translation rules will in many cases allow the IM-MGW to perform interworking between the framing protocols on the bearer interfaces to the BICC CS network and the IM CN subsystem without transcoding. Implementations may signal other codec types not listed herein or other codec configurations of codec types listed herein. Implementations may also choose to perform transcoding between codec configurations signalled separately for the bearer interfaces to the networks, if necessary, but voice quality may suffer.

B.2.5.1 Codec parameters for 3GPP AMR-NB codecs

Table B.1 shows the correspondence between the codec format parameters in the Single Codec information element (TS 26.103 [57]) and the SDP for the 3GPP narrowband AMR codecs (RFC 3267 [23]). ~~The table only shows preferred configurations that TS 28.062 [58] defines in Table 7.11.3.1.3-2 for TFO operation of AMR-NB, using the Config-NB-Code parameter. TS 28.062 [58] defines how Config-NB-Code values map to the ACS, SCS, OM and MACS parameters of the Single Codec information for AMR-NB codecs. Implementations may choose sets of values for the ACS, SCS, OM and MACS parameters that do not correspond to the preferred configurations defined by Config-NB-Code values. Translation between non-preferred AMR-NB configurations and SDP payload format configurations are not explicitly defined herein, but the principles of translation can be abstracted from the examples shown here.~~

Table B.1: Mapping between Single Codec subfields and SDP parameters for 3GPP AMR-NB codecs

Single Codec information element		SDP payload format parameters		
Codec IDentification	**ACS, SCS, OM, MACSConfig-NB-Code**	**Payload Type number**	**Encoding name**	**Other Parameters (NOTE1) (NOTE2)**
HR_AMR	OM=0 or Selected Codec Type	dynamic	AMR	mode-set=values corresponding to ACS; mode-change-period=2
HR_AMR	(OM=1 or OM not present) and (Supported Codec List or Available Codec List)	dynamic	AMR	mode-set=select from values corresponding to ACS, SCS and MACS (NOTE 3); mode-change-period=2
FR_AMR or OHR_AMR	OM=0 or Selected Codec Type	dynamic	AMR	mode-set=values corresponding to ACS; mode-change-period=2
FR_AMR or OHR_AMR	(OM=1 or OM not present) and (Supported Codec List or Available Codec List)	dynamic	AMR	mode-set=select from values corresponding to ACS, SCS and MACS (NOTE 3); mode-change-period=2
UMTS_AMR	OM=0 or Selected Codec Type	dynamic	AMR	mode-set=values corresponding to ACS; mode-change-period omitted
UMTS_AMR	(OM=1 or OM not present) and (Supported Codec List or Available Codec List)	dynamic	AMR	mode-set=select from values corresponding to ACS, SCS and MACS (NOTE 3); mode-change-period omitted
UMTS_AMR_2	OM=0 or Selected Codec Type	dynamic	AMR	mode-set=values corresponding to ACS; mode-change-period=1
UMTS_AMR_2	(OM=1 or OM not present) and (Supported Codec List or Available Codec List)	dynamic	AMR	mode-set=select from values corresponding to ACS, SCS and MACS (NOTE 3); mode-change-period=1
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~0~~	~~dynamic~~	~~AMR~~	~~mode-set=0~~
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~2~~	~~dynamic~~	~~AMR~~	~~mode-set=2~~
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~3~~	~~dynamic~~	~~AMR~~	~~mode-set=3~~
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~4~~	~~dynamic~~	~~AMR~~	~~mode-set=4~~
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~5~~	~~dynamic~~	~~AMR~~	~~mode-set=5~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~6~~	~~dynamic~~	~~AMR~~	~~mode-set=6~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2~~	~~7~~	~~dynamic~~	~~AMR~~	~~mode-set=7~~
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~8~~	~~dynamic~~	~~AMR~~	~~mode-set=0,2~~
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or~~	~~9~~	~~dynamic~~	~~AMR~~	~~mode-set=0,2,3~~

~~UMTS_AMR_2 (NOTE 1)~~				
~~HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~10~~	~~dynamic~~	~~AMR~~	~~mode-set=0,2,3,4~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~11~~	~~dynamic~~ ~~dynamic~~ ~~dynamic~~	~~AMR~~ ~~AMR~~ ~~AMR~~	~~mode-set=0,2,3,4~~ ~~mode-set=0,2,5,7~~ ~~mode-set=0,2,3,6~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~12~~	~~dynamic~~	~~AMR~~	~~mode-set=0,2,3,6~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~13~~	~~dynamic~~ ~~dynamic~~ ~~dynamic~~	~~AMR~~ ~~AMR~~ ~~AMR~~	~~mode-set=0,2,3,6~~ ~~mode-set=0,2,5,7~~ ~~mode-set=0,2,3,4~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~14~~	~~dynamic~~	~~AMR~~	~~mode-set=0,2,5,7~~
~~FR_AMR, OHR_AMR, UMTS_AMR or UMTS_AMR_2 (NOTE 1)~~	~~15~~	~~dynamic~~ ~~dynamic~~ ~~dynamic~~	~~AMR~~ ~~AMR~~ ~~AMR~~	~~mode-set=0,2,5,7~~ ~~mode-set=0,2,3,6~~ ~~mode-set=0,2,3,4~~

NOTE 1: Table 1 of RFC 3267 [23] provides the correspondence between codec rates and AMR modes for use when generating the "mode-set" parameter. When all modes are selected for use, the "mode-set" parameter should not be included in SDP.

NOTE 2: SDP payload format configurations in this table with only one value in the "mode-set" parameter should not include the "mode-change-period" parameter.

NOTE 3: RFC 3267 [23] does not currently provide a mechanism to signal the SCS, MACS or OM parameters in SDP, nor does it distinguish between the different AMR-NB codec types. Each AMR-NB codec type in the Supported Codec List or the Available Codec List with OM=1 should be translated into a list of SDP payload formats in priority order, where each includes a "mode-set" parameter with a unique value derived from the ACS, SCS and MACS. Each "mode-set" shall correspond to a codec configuration that is compatible with the given codec type according to the compatibility rules defined in clauses 11 and 12 of TS 28.062 [58].~~**NOTE 1**: SDP payload format configurations corresponding to HR_AMR, FR_AMR, and OHR_AMR shall also include the "mode-change-period=2" parameter. SDP payload format configurations corresponding to UMTS_AMR shall also include the "mode-change-period=1" parameter. SDP payload format configurations corresponding to UMTS_AMR_2 shall not include the "mode-change-period" parameter when generating SDP from the Single Codec information element. When generating Single Codec information elements from SDP, the MGCF may include UMTS_AMR_2 with either a "mode-change-period=1" parameter, a "mode-change-period=2" parameter, or no "mode-change-period" parameter.~~

~~**NOTE 2**: SDP payload format configurations in this table with only one value in the "mode-set" parameter (corresponding to Config-NB-Code values of 0 through 7) do not use the "mode-change-period" parameter.~~

~~**NOTE 3**: Every SDP payload format configuration in this table with more than one value in the "mode-set" parameter (corresponding to Config-NB-Code values of 8-15) shall also include the "mode-change-neighbor=1" parameter when generating SDP from the Single Codec information element.~~

Definitions:

Supported Codec List: contains the offered Codec Types and Configuration-possibilities of the node initiating codec negotiation in BICC (see also TS 23.153). The Supported Codec List is sent from the initiating node forward to the terminating node. The Supported Codec List corresponds to an SDP offer during codec negotiation..

Available Codec List: contains the offered Codec Types and Configuration-possibilities of the contiguous portion of the connection between initiating and terminating BICC nodes, including all intermediate nodes through the BICC network(s). The Available Codec List is sent from the BICC node terminating codec negotiation backward to the initiating node. The Available Codec List corresponds to information sometimes available in a first-round SDP answer. The Available Codec List might not represent an end-to-end view of the available Codec Types and Configuration-possibilities when traversing both BICC and SIP networks.

Selected Codec Type: is determined by the node terminating codec negotiation. It specifies exactly the Codec Type and one unique Codec Configuration for the call. The Selected Codec Type corresponds to the final SDP answer.

When translating from a Single Codec information element to the equivalent SDP payload format parameters, where either OM=0 (in the Supported or Available Codec List) or the information element is the Selected Codec Type, the SDP shall include a ~~distinct~~ single payload type and any associated parameters ~~for each row in the table that matches the Config-NB-Code parameter~~from the corresponding row in Table B.1. When translating from a Single Codec information element to the equivalent SDP payload format parameters, where OM=1 in the Supported or Available Codec List, the SDP shall only include payload formats corresponding to Codec Configurations compatible with the offered ACS, SCS and MACS, according to Table B.1. Since the number of compatible payload formats can be large, implementations should select a reasonable subset of the higher-priority payload formats for inclusion in the SDP. ~~For example, OHR_AMR with Config-NB-Code=11 shall generate three SDP payload types for AMR, each including the "mode-change-period=2" parameter, the "mode-change-neighbor=1" parameter, and the "mode-set" parameter with value sets "0,2,3,4", "0,2,5,7", and "0,2,3,6", respectively.~~ When translating a list of Single Codec information elements into SDP, ~~only a single version of each distinct payload type shall be included in the SDP, and redundant entries~~duplicate payload types (matching on all parameters) shall be removed.

The following guidelines shall apply ~~When~~ when translating from an SDP payload format specification~~s~~ to a Single Codec information element~~s~~:

- If there is no “mode-set” parameter in the SDP and the SDP is to be translated into a Supported or Available Codec List, then the corresponding Single Codec subfields shall be OM=1, MACS=8, all SCS modes offered, and ACS modes offered. Alternatively it is sufficient to specify only the Codec Type (see below) and omit the other parameters.

- If there is no “mode-set” parameter in an SDP answer which is to be translated into a Selected Codec Type, then the corresponding Single Codec subfields shall be derived from the corresponding payload type in the SDP offer (to which the SDP answer was sent in response).

- If there is a “mode-set” parameter in the SDP, then the corresponding Single Codec subfields shall be OM=0 and ACS modes selected according to the value of “mode-set”. The SCS shall be set identical to the ACS and MACS shall be set to the number of modes in the ACS. If this “mode-set” does not represent a valid configuration for the Codec Type (determined by OoBTC procedures), then the corresponding payload format shall not be translated.

- If “mode-change-period=2” in an SDP offer which is to be translated into a Supported Codec List, then the Codec IDentification value shall be FR_AMR.

- If “mode-change-period=2” in an SDP answer which is to be translated into a Selected Codec Type or Available Codec List, then the Codec IDentification value shall be one of FR_AMR, HR_AMR, OHR_AMR or UMTS_AMR_2, if offered in the Supported Codec List.

- If “mode-change-period=1” in an SDP offer which is to be translated into a Supported Codec List, then the Codec IDentification value shall be UMTS_AMR_2.

- If “mode-change-period=1” in an SDP answer which is to be translated into a Selected Codec Type or Available Codec List, then the Codec IDentification value shall be one of UMTS_AMR_2, FR_AMR, HR_AMR, OHR_AMR or UMTS_AMR, if offered in the Supported Codec List.

- If there is no “mode-change-period” parameter in an SDP offer which is to be translated into a Supported Codec List, then the Codec IDentification value shall be UMTS_AMR.

- If there is no “mode-change-period” parameter in an SDP answer which is to be translated into a Selected Codec Type or Available Codec List, then the Codec IDentification value shall be UMTS_AMR, if allowed by OoBTC codec negotiation procedures. If this is not the case, then the corresponding payload format shall not be translated.

~~, all Codec IDentification values that match shall be represented, and matching configurations for each Codec IDentification value shall be represented with the fewest values of Config-NB-Code, while retaining the priority represented by the order of the SDP payload format specifications. For example, three SDP payload types for AMR, each including the "mode-change-neighbor=1" parameter, and the "mode-set" parameter with value sets "0,2,3", "0,2,5,7", "0,2,3,4", and "0,2,3,6", respectively, shall generate the Single Codec information elements corresponding to the following: HR_AMR, FR_AMR, OHR_AMR, UMTS_AMR and UMTS_AMR_2 with Config-NB-Code=9; and FR_AMR, OHR_AMR, UMTS_AMR and UMTS_AMR_2 with Config-NB-Code=15. Note that other values of Config-NB-Code for these codecs are excluded even though they are all consistent with the available mode-set values.~~

B.2.5.2 Codec parameters for 3GPP AMR-WB codecs

Table B.2 shows the correspondence between the codec format parameters in the Single Codec information element (TS 26.103 [57]) and the SDP for the 3GPP wideband AMR codecs (RFC 3267 [23]).

Table B.2: Mapping between Single Codec subfields and SDP parameters for 3GPP AMR-WB codecs

Single Codec information element		SDP payload format parameters		
Codec IDentification	**Config-WB-Code**	**Payload Type number**	**Encoding name**	**Other Parameters**
FR_AMR-WB	0	dynamic	AMR-WB	mode-set=0,1,2; mode-change-period=2
OHR_AMR-WB	0	dynamic	AMR-WB	mode-set=0,1,2; mode-change-period=2
OFR_AMR-WB or UMTS_AMR-WB ~~(NOTE 1)~~	0	dynamic	AMR-WB	mode-set=0,1,2 (NOTE 1)
OFR_AMR-WB or UMTS_AMR-WB ~~(NOTE 1)~~	1	dynamic dynamic dynamic	AMR-WB AMR-WB AMR-WB	mode-set=0,1,2 mode-set=0,1,2,8 mode-set=0,1,2,4 (NOTE 1)
OFR_AMR-WB or UMTS_AMR-WB ~~(NOTE 1)~~	2	dynamic	AMR-WB	mode-set=0,1,2,4 (NOTE 1)
OFR_AMR-WB or UMTS_AMR-WB ~~(NOTE 1)~~	3	dynamic dynamic dynamic	AMR-WB AMR-WB AMR-WB	mode-set=0,1,2,4 mode-set=0,1,2,8 mode-set=0,1,2 (NOTE 1)
OFR_AMR-WB or UMTS_AMR-WB ~~(NOTE 1)~~	4	dynamic	AMR-WB	mode-set=0,1,2,8 (NOTE 1)
OFR_AMR-WB or UMTS_AMR-WB ~~(NOTE 1)~~	5	dynamic dynamic dynamic	AMR-WB AMR-WB AMR-WB	mode-set=0,1,2,8 mode-set=0,1,2,4 mode-set=0,1,2 (NOTE 1)

NOTE 1: SDP payload format configurations corresponding to OFR_AMR-WB shall also include the "mode-change-period=2" parameter. SDP payload format configurations corresponding to UMTS_AMR-WB shall ~~not~~ include the "mode-change-period=1" parameter when generating SDP from the Single Codec information element. ~~When generating Single Codec information elements from SDP, the MGCF may include UMTS_AMR-WB with either a "mode-change-period=1" parameter, a "mode-change-period=2" parameter, or no "mode-change-period" parameter.~~

~~**NOTE 2**: Every SDP payload format configuration in this table shall also include the "mode-change-neighbor=1" parameter when generating SDP from the Single Codec information element.~~

When translating from a Single Codec information element to the equivalent SDP payload format parameters, the SDP shall include a distinct payload type and any associated parameters for each row in the table that matches the Config-WB-Code parameter. For example, OFR_AMR-WB with Config-WB-Code=3 shall generate three SDP payload types for AMR-WB, each including the "mode-change-period=2" parameter, ~~the "mode-change-neighbor=1" parameter,~~ and the "mode-set" parameter with value sets "0,1,2,4", "0,1,2,8", and "0,1,2", respectively. When translating a list of Single Codec information elements~~,~~ into SDP, duplicate payload types (matching on all parameters) ~~only a single version of each distinct payload type shall be included in the SDP, and redundant entries~~ shall be removed.

The following guidelines shall apply when~~When~~ translating from one or more SDP payload format specifications to a Single Codec information element:

- Payload formats that match except for different values of "mode-set" shall be represented with the fewest values of Config-WB-Code, while retaining the priority represented by the order of the payload formats in the SDP. ~~s, all Codec IDentification values that match shall be represented, and matching configurations for each Codec IDentification value shall be represented with the fewest values of Config-WB-Code, while retaining the priority represented by the order of the SDP payload format specifications.~~ For example, three SDP payload types for AMR-WB, each including the "mode-change-period=2" parameter~~, the "mode-change-neighbor=1" parameter~~, and the "mode-set" parameter with value sets "0,1,2,4", "0,1,2,8", and "0,1,2", respectively, shall generate ~~the following Single Codec information elements: UMTS_AMR-WB with~~ Config-WB-Code=3~~; OFR_AMR-WB with Config-WB-Code=3; OHR_AMR-WB with Config-WB-Code=0; and FR_AMR-WB with Config-WB-Code=0. Note that other values of Config-WB-Code for UMTS_AMR-WB and OFR_AMR-WB are excluded even though they are all consistent with the available mode-set values~~.

- A payload format with no mode-set parameter shall be represented by a Config-WB-Code value of 1.
- If “mode-change-period=2” in an SDP offer which is to be translated into a Supported Codec List, then the Codec IDentification value shall be OFR_AMR-WB.
- If “mode-change-period=2” in an SDP answer which is to be translated into a Selected Codec Type or Available Codec List, then the Codec IDentification value shall be one of OFR_AMR-WB, FR_AMR-WB, OHR_AMR-WB or UMTS_AMR-WB, if offered in the Supported Codec List.
- If “mode-change-period=1” in an SDP offer which is to be translated into a Supported Codec List, then the Codec IDentification value shall be UMTS_AMR-WB.
- If “mode-change-period=1” in an SDP answer which is to be translated into a Selected Codec Type or Available Codec List, then the Codec IDentification value shall be one of UMTS_AMR-WB, OFR_AMR-WB, FR_AMR-WB or OHR_AMR-WB, if offered in the Supported Codec List.
- If there is no “mode-change-period” parameter in an SDP offer which is to be translated into a Supported Codec List, then the Codec IDentification value shall be UMTS_AMR-WB.
- If there is no “mode-change-period” parameter in an SDP answer which is to be translated into a Selected Codec Type or Available Codec List, then the Codec IDentification value shall be UMTS_AMR-WB, if offered in the Supported Codec List. If this is not the case, then the corresponding payload format shall not be translated.