

**Source: TSG-SA WG4**

**Title: CR TS 28.062 on Harmonisation of AMR Configurations (Release 6)**

**Document for: Approval**

**Agenda Item: 7.4.3**

The following CR, agreed at the TSG-SA WG4 meeting #32, is presented to TSG SA #25 for approval.

<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>Phase</b>	<b>Subject</b>	<b>Cat</b>	<b>Vers</b>	<b>WG</b>	<b>Meeting</b>	<b>S4 doc</b>
28.062	041	2	Rel-6	Harmonisation of AMR Configurations	C	5.4.0	S4	TSG-SA WG4#32	S4-040594

## CHANGE REQUEST

⌘ **TS 28.062 CR 041** ⌘ rev **2** ⌘ Current version: **5.4.0** ⌘

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

<b>Title:</b>	⌘ Harmonisation of AMR Configurations		
<b>Source:</b>	⌘ TSG SA WG4		
<b>Work item code:</b>	⌘ TEI6	<b>Date:</b>	⌘ 2004-09-14
<b>Category:</b>	⌘ <b>C</b>	<b>Release:</b>	⌘ REL-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ Without a recommended configuration for AMR the risk is high that different vendors in GERAN and UTRAN apply different, not-compatible AMR Configurations. This would either lead to additional transcoding, or at least to additional effort at call setup to negotiate the common configuration. SA2 has identified the need for this harmonisation in BARS, see TR 23.977.
<b>Summary of change:</b>	⌘ Introduction of a single recommended AMR Configuration for 2G-3G TFO/TrFO.
<b>Consequences if not approved:</b>	⌘ Harmonisation of AMR among operators and RANs is not guaranteed, with an unnecessary loss of voice quality and additional waste of DSP resources.

<b>Clauses affected:</b>	⌘ 7										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Y	N	X						Other core specifications	⌘ TS 26.103
Y	N										
X											
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘ If accepted, then ME and RAN test cases should be adapted										

### 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.

**FIRST CHANGE****7.11.3.1.3 AMR specific Codec\_Attribute\_Head Extension\_Block**

The AMR specific Codec\_Attribute\_Head Extension\_Block (Table 7.11.3.1.3-1) shall precede the Codec Attribute Extension\_Blocks of any AMR Codec\_Type.

**Table 7.11.3.1.3-1: AMR specific Codec\_Attribute\_Head Extension\_Block**

Bit	Description	Comment
Bit 1	"0"	normal IS-Message Sync Bit, constant.
Bit 2	<b>PAR_Sel</b>	Differentiates this Extension_Block <b>0</b> : Parameters included in <b>PAR</b> field: Simple Codec_List_Extension <b>1</b> : Length Indicator ( <b>LI</b> ) included: Parameters follow in subsequent Extension_Blocks
Bit 3..10	<b>CoID = HR_AMR or FR_AMR or UMTS_AMR or UMTS_AMR2 or OHR_AMR</b>	This field identifies the AMR Codec_Type for which the subsequent attributes are valid. The same coding as in the Codec_x Extension_Block is used (long form)
Bit 11	"0"	normal IS-Message Sync Bit, constant
Bit 12.. 15:	<b>LI / PAR</b>	If Par_Sel==1: LI: Length Indicator: 0000: reserved; 0001: one other Extension_Block follows, etc. If Par_Sel==0: PAR: Codec specific definition of these four bits
Bit 16..18:	<b>CRC</b>	3 CRC bits protecting Bits 2 to 10 and 12 to 15
Bit 19..20:	<b>EX</b>	The normal 2 bits for IS_Message Extension: 00: No other extension block follows 11: An other extension block follows

If PAR\_Sel is set to "1" then the AMR\_ACS and potentially AMR\_SCS is/are following.

The option "Par\_Sel=0" and the corresponding configuration codes can only be used in TFO Version 5 and onwards. A Pre-REL-5 implementation does not understand it and shall ignore it.

If PAR\_Sel is set to "0", then one of ~~15~~ 16 possible AMR Configurations is indicated in the PAR field and no additional Codec Attribute Extension\_Blocks do follow.  
 The coding for PAR (bits 12.13.14.15) is defined in Table 7.11.3.1.3-2 (Config-NB-Code):

**Table 7.11.3.1.3-2: Preferred Configurations for the Adaptive Multi-Rate Codec Types**

Configuration → (Config-NB-Code) ↓ Codec Mode	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
12,20		<u>1</u>						1							1	1
10,20							1						1	1		
7,95						1									1	1
7,40		<u>1</u>			1						1	1				
6,70				1						1	1	1	1	1		
5,90		<u>1</u>	1						1	1	1	1	1	1	1	1
5,15																
4,75	1	<u>1</u>							1	1	1	1	1	1	1	1
OM	F	<u>F</u>	F	F	F	F	F	F	F	F	F	A	F	A	F	A
HR_AMR	Y	<u>Y</u>	Y	Y	Y	Y			Y	Y	Y					
FR_AMR, OHR_AMR, UMTS_AMR, UMTS_AMR_2	Y	<u>Y</u>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

The "1" in the table indicates that the Codec Mode is included in the Active Codec Set of the Configuration.

The parameter "OM" (Optimisation Mode) defines whether the indicated Configuration can be changed to any of the other Allowed ones (OM == A) or if the change is Forbidden (OM == F). For the three "A" configurations (11, 13 and 15) the TFO Decision algorithm shall consider the SCS {1, 1, 1, 1, 1, 0, 1}, i.e. all AMR modes except the 5.15 kbps shall be treated as supported and the OM shall be assumed to be "Optimisation of the ACS supported". For the other "F" configurations the ACS and SCS shall be assumed to be identical and as shown in the configuration table. The OM shall be assumed to be "Optimisation of the ACS not supported".

A change via Maximum Rate Control is always possible (e.g. from configurations 10, 11, 12, 13, 14, 15 to 9 and 8).

The "Y" in the table indicates, which Configuration is defined for which Codec Type.

Among these 16 preferred AMR Configurations is one with specific importance for calls between GERAN and UTRAN: "Config-NB-Code = 1", with modes 12.2, 7.4, 5.9, 4.75. This Configuration is especially recommended, because it leads in all call cases to TFO/TrFO compatible connections with optimal voice quality.

In case this Configuration "Config-NB-Code = 1" is signalled in the TFO Negotiation for the HR\_AMR Codec Type, then it shall be assumed that AMR mode 12.2 kbps is (of course) not included. For all other AMR Codec Types all four modes are included.

**END OF CHANGES**