Technical Specification Group Services and System Aspects **TSGS#17(02)0438** Meeting #17, Biarritz, France, 9-12 September 2002

Source: TSG-SA WG4

Title: CRs to TS 28.062 on TFO Signalling for preferred AMR-NB

Configurations and TFO Version Handling (Release 5)

Document for: Approval

Agenda Item: 7.4.3

The following CRs, agreed at the TSG-SA WG4 meeting #22, are presented to TSG SA #17 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
28.062	033	2	Rel-5	TFO Signalling for preferred AMR-NB Configurations	F	5.1.0	S4	TSG-SA WG4#22	S4-020479
28.062	034		Rel-5	TFO Version Handling	F	5.1.0	S4	TSG-SA WG4#22	S4-020466

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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.

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.

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Table 7.11.3.1.3-1: AMR specific Codec_	Allibule	HEAU EXICHSION	DIUCK
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Bit	Description	Comment
Bit 1	"0"	normal IS-Message Sync Bit, constant.
Bit 2	PAR_Sel	Differentiates this Extension_Block 0: Parameters included in PAR field: Simple Codec_List_Extension 1: Length Indicator (LI) included: Parameters follow in subsequent Extension_Blocks
Bit 310	COID = HR_AMR or FR_AMR or UMTS_AMR or UMTS_AMR2 or OHR_AMR	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:		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 1618:	CRC	3 CRC bits protecting Bits 2 to 10 and 12 to 15
Bit 1920:	EX	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 16-15 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

$\frac{\text{Configuration} \rightarrow}{(\text{Config-NB-Code})}$ $\downarrow \text{Codec Mode}$	<u>0</u>	1	2	3	4	<u>5</u>	<u>6</u>	7	8	9	<u>10</u>	<u>11</u>	12	<u>13</u>	14	<u>15</u>
12.20								1							1	1
10.20							1						1	1		
7.95						1									1	1
7.40					1						1	1				
6.70				1						1	1	1	1	1		
5.90			1						1	1	1	1	1	1	1	1
<u>5.15</u>																
4.75	1								1	1	1	1	1	1	1	1
<u>OM</u>	<u>F</u>		<u>F</u>	<u>A</u>	<u>F</u>	<u>A</u>	<u>F</u>	<u>A</u>								
HR AMR	<u>Y</u>		<u>Y</u>	Y	Y	<u>Y</u>			Y	Y	<u>Y</u>					
FR AMR, OHR AMR, UMTS_AMR,	Y		<u>Y</u>	Y	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	Y	Y	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	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 $\{1, 1, 1, 1, 1, 1, 1, 0, 1\}$, 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). Note: therefore configurations 12 and 13 are not essential, the code points should be kept for future extensions.

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

Coding for PAR (bits 12.13.14.15): 0000: to

1111: for further study.

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 ignores it.

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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.

4.3 TFO Standard Version Handling

In TFO Specifications before REL-4 no TFO version handling is defined.

In TFO Specifications of REL-4 an "AMR TFO version number" is defined in the Ver (Version number) field of the AMR_ACS and AMR_SCS Extension Blocks (see clause 7) and the ATVN field in AMR Configuration frames (see Annex C). Only one REL-4 AMR TFO version is defined: version "0".

From REL-5 onwards the "TFO Version number" contained in the "TFO Version" extension block (section 7) and in "Generic Configuration Frames" (Annex H) shall reflect the Version and Subversion of the corresponding TS 28.062 (first and second digit of the TS version number, see foreword). The AMR TFO version number (Ver, AVTN, as in REL-4) shall be treated as "undefined" in case the TFO Version Number (as in REL-5 and onwards) is indicated in the TFO Messages.

The current TFO Version supports the GSM_FR, GSM_HR, GSM_EFR, five AMR (Narrow Band) speech codec types (FR_AMR, HR_AMR, UMTS_AMR, UMTS_AMR_2, OHR_AMR: AMR-NB family) and four AMR Wide Band speech codec types (FR_AMR-WB, UMTS_AMR-WB, OFR_AMR-WB, OHR_AMR-WB: AMR-WB family).

The smallest defined TFO Version number is 0.0. It stands for all TFO Versions before 5.24. All numbers between 0.0 and 5.24 are reserved for future use. If the Local and Distant version numbers differ, the smallest version number shall have precedence and shall be applied on both sides. The following features (table 4.3-1) are optional or mandatory for the different Codec Types, depending on the applicable version number:

Table 4.3-1: TFO Version Handling

Feature→ Codec Type↓	TFO Version	Immediate Codec Type Optimisation	Generic Configuration Frames
GSM_FR GSM_HR GSM_EFR	Optional. The TFO Version extension block need not to be sent. If not contained in TFO Messages, or is lower than 5.24, then Pre-REL-5 handling shall apply	Mandatory, if TFO Version is 5.24 or higher.	If the TFO Version is lower than 5.21 then Generic Configuration Frames shall not be used. Only TFO_REQ_L and (TFO_ACK_L) shall be used. If the TFO Version is 5.21 or higher, then Generic Configuration Frames shall be used. TFO_REQ_L and TFO_ACK_L shall not be used embedded into TFO Frames.
FR_AMR HR_AMR UMTS_AMR UMTS_AMR2 OHR_AMR	Optional. The TFO Version extension block need not to be sent. If not contained in TFO Messages, or is lower than 5.24, then Pre-REL-5 handling shall apply	Mandatory, if TFO Version is 5.24 or higher.	If the TFO Version is lower than 5.42, then Generic ConfigurationFrames shall not be used. It is optional to use either TFO_REQ_L or AMR Configuration frames, see Annex C.8.5. If the TFO Version is 5.4-2 or higher, then Generic Configuration Frames shall be used. The parameter field in REL-4 AMR Configuration frames shall be treated as undefined. TFO_REQ_L and TFO_ACK_L shall not be used embedded into TFO Frames.
FR_AMR-WB UMTS_AMR- WB OFR_AMR-WB OHR_AMR-WB	Mandatory. The TFO Version extension block shall always be sent.	Mandatory.	Generic Configuration Frames shall be used. TFO_REQ_L and TFO_ACK_L shall not be used embedded into TFO Frames.