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**Source:** TSG SA WG4 Chairman  
**Title:** TSG SA WG4 Status Report at TSG SA#16  
**Document for:** Information  
**Agenda Item:** 7.4.1

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### Executive Summary

Since TSG SA#15, TSG SA WG4 (SA4) has held one SA4 plenary meeting (SA4#21 on May 13<sup>th</sup> – 17<sup>th</sup>, 2002).

### **Progress in Release 5 Work**

- **Overall work status:** All Rel-5 TSs from SA4 have been approved by TSG SA (at TSG SA#15 or earlier). The remaining Rel-5 issues are: a) finalisation of some technical reports (not critical to be completed by TSG SA#16), and b) finalisation of recommendation for QoS parameter values for various PS media types.
- **Wideband Telephony Service – AMR:** Finalisation of TR 26.976 “AMR-WB Speech Codec Performance Characterisation” is the only remaining SA4 work. Some editorial work is needed to finalise the TR. Also, one experiment (PS conversational and streaming applications) remains to be designed and to be carried out. The TR is planned to be completed by TSG SA#18. The remaining AMR-WB Floating-Point codec verification results for VAD and comfort noise generation were presented at SA4#21 showing good performance. CRs to TS 28.062 “In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3” on introduction of AMR-WB are presented to TSG SA for approval.
- **Extended Transparent End-to-End Packet Switched Streaming Service (PSS-E):** The remaining work is to prepare TR 26.937 “RTP Usage Model”. The TR scope section was revised by SA4 to better express the target of the work, i.e., that the scope is to characterise the streaming service rather than to define any optimal configuration model. The work for the TR is still in a very initial phase, and it has therefore not yet been distributed for review to other WGs. Completion is expected by TSG SA#18. CRs to TS 26.234 “Packet-switched Streaming Services (PSS); Protocols and Codecs” are brought to TSG SA for approval.
- **Multimedia Codecs and Protocols for Conversational Packet Switched Services (part of feature Provisioning of IP Based Multimedia Services):** Preparation of TR 26.xyz “Performance characterization of default codecs for PS conversational multimedia applications” has not yet been started and input/work is needed in SA4. (If real-time applications would not be supported in IMS Rel-5, proper testing and characterisation may be difficult thus impacting the preparation of the TR.) The finalisation target for the TR is December 2002. In work task “definition of QoS parameter values for various media types”, SA4 has defined recommended tables for the mapping of SDP parameters to UMTS bearer QoS parameters for applications using codecs (for both conversational and streaming applications). Finalisation needs further work, and target is to complete this task by September 2002. (Preliminary versions of the tables were defined already by TSG SA#15 and are given in informative annexes of Rel-5 TSs 26.234 and 26.236.)

### **Release 6 Work**

- **Overall work status:** No Rel-6 WIDs have yet been prepared in SA4. Initial discussion of Streaming for Rel-6 took place at SA4#21, and a list of possible Rel-6 topics was prepared. This was sent to other WGs (SA1, SA2, SA3, SA5, T2) for comments. SA1 and SA4 will have a joint meeting on the scope and work plan of Rel-6 streaming (to be held on July 11<sup>th</sup> during SA1 SWG meetings in Rome, Italy).

### **Change Requests**

- CRs are presented for TSs 06.74 (R98), 26.103 (R99, Rel-4, Rel-5), 26.140 (Rel-5), 26.234 (Rel-4, Rel-5) and 28.062 (Rel-4, Rel-5).

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**Note:** Annex B (in separate zipped file) contains slides presentation of the report.

## 1. General issues

### 1.1 Officials

The TSG SA WG4 (SA4) officials are:

Chairman:	Kari Järvinen	(Nokia / ETSI)
Vice Chairman:	Tomoyuki Ohya	(NTT DoCoMo / ARIB)
Secretary:	Paolo Usai	(3GPP Support)
SWG Chairmen:		
	SQ (Speech Quality):	Paolo Usai (ETSI)
	TFO (Tandem Free Operation):	Clemens Suerbaum (Siemens / ETSI)
	PSM (Packet Switched Multimedia):	Rolf Hakenberg (Panasonic / ETSI)

There are no changes, except that the AMR-WB (AMR Wideband) SWG is not expected to meet anymore due to the finalisation of AMR-WB codec issues in SA4 by TSG SA#15. The remaining issue of finalising the TR on AMR-WB Speech Codec Performance Characterisation is primarily speech quality issue and, as such, will be finalised within SQ SWG. SA4 thanks Imre Varga (Siemens) for his good work as the Chairman of the AMR-WB SWG.

The two year period of the current SA4 Chairman will expire at the next SA4 meeting (SA4#22 in July 2002), and election of SA4 Chairman is scheduled for that meeting.

### 1.2 Meetings

Since TSG SA#15, SA4 has held one plenary meeting. In addition, the TFO SWG held a teleconference meeting to progress TFO issues (before the SA4 plenary meeting).

#### Meetings held:

SA4 TFO SWG ad-hoc	April 26, 2002	(ad-hoc teleconference meeting)
SA4#21:	May 13-17, 2002	Host: France Télécom R&D, Venue: Rennes, France

#### Calendar of future meetings:

SA4#22:	July 22-26, 2002	Host: Nokia, Venue: Tampere, Finland
SA4#23:	Sept 30 - Oct 4, 2002	Host: VoiceAge, Venue: Montreal, Canada
SA4#24:	Nov 11-15, 2002	Host: Microsoft, Venue: tbd
SA4#25:	Early 2003	Host: AT&T Wireless Services, Venue: USA (tbc)

During the SA4#21 meeting, the PSM, SQ and TFO SWGs met. About 50 delegates participated in the meeting and around 140 documents were covered. There were 19 incoming LSs, and 9 outgoing LSs (and 2 agreed communications to ITU-T to be submitted as direct company contributions).

Annex A of this document contains a list of all SA4 input documents to TSG SA#16. The input documents from SA4 are contained in Tdoc SP-020221 until Tdoc SP-020228. Annex B (in a separate file) of this document contains a copy of the slides presentation of SA4 progress report at TSG SA#16.

## 2. Progress in Release 5 Work

### 2.1 Wideband Telephony Service – AMR

The only remaining work in SA4 is the finalisation of TR 26.976 “AMR-WB Speech Codec Performance Characterisation”. A draft version v.0.6.0 was presented for information at TSG SA#14 (in Tdoc SP-010692). At SA4#21, the draft TR was updated to v.0.7.0 by including the results of AMR-WB floating-point codec verification tests. Further editorial work for the TR is needed, e.g., to check the analysis of the results and figures. Also, one planned experiment (Experiment 10: Packet-switched conversational and streaming applications) remains to be designed and to be carried out. Input is needed in SA4 on testing methodologies and test configurations for these PS applications. If no progress will be made at SA4#22 with regard to Exp. 10, then the TR could be finalised without it, and results of Exp. 10 could be included later through CR(s). The TR is expected to be completed by TSG SA#18.

The remaining AMR-WB Floating-Point codec performance verification results were presented in SA4#21 for VAD and comfort noise generation. These show good performance (very similar to the corresponding fixed-point implementation). This completes the verification tests for the floating-point AMR-WB codec version. (The floating-point AMR-WB codec is defined in TS 26.204. This TS was approved at TSG SA#15.)

Several CRs bringing corrections to TS 28.062 “In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3 - Service Description” for AMR-WB are presented for approval at TSG SA#16.

The limitation of AMR-WB modes for speech telephony service from 9 to 5 results in some updates for TS 26.103 (Codec Lists). Two alternative CR versions were presented at SA4#21; the other one proposing also additional restrictions for the allowed AMR-WB mode combinations within codec sets (to simplify testing and interoperability). Time was given until SA4#22 to consider these two alternative CRs. (Also, it was noted in SA4#21 that due to limitation of the number of modes for speech telephony service, transcoding is needed for the specific case when speech encoded with the 4 “other modes” is sent from ITU-T G.722.2 encoder to 3GPP AMR-WB decoder.)

**Table 1: Status list of AMR-WB codec specifications under SA4 responsibility**

Deliverable	Title	Latest version	Comment/Status	Approval
TS 26.171	AMR Wideband Speech Codec; General description	5.0.0	Approved at TSG SA#11 in Tdoc SP-010082.	Approved at TSG SA#11*
TS 26.173	AMR Wideband Speech Codec; C-source code	5.4.0	Approved at TSG SA#11 in Tdoc SP-010083.	Approved at TSG SA#11 *
TS 26.174	AMR-WB speech codec; test sequences	5.3.0	Approved at TSG SA#11 in Tdoc SP-010084.	Approved at TSG SA#11 *
TS 26.190	AMR Wideband Speech Codec; Transcoding Functions	5.1.0	Approved at TSG SA#11 in Tdoc SP-010085.	Approved at TSG SA#11 *
TS 26.191	AMR Wideband Speech Codec; Error concealment of erroneous or lost frames	5.1.0	Approved at TSG SA#11 in Tdoc SP-010086.	Approved at TSG SA#11 *
TS 26.192	AMR Wideband Speech Codec; CN for AMR Speech Traffic Channels	5.0.0	Approved at TSG SA#11 in Tdoc SP-010087.	Approved at TSG SA#11 *
TS 26.193	AMR Wideband Speech Codec; Source Controlled Rate operation	5.0.0	Approved at TSG SA#11 in Tdoc SP-010088.	Approved at TSG SA#11 *
TS 26.194	AMR Wideband Speech Codec; VAD for AMR Speech Traffic Channels	5.0.0	Approved at TSG SA#11 in Tdoc SP-010089.	Approved at TSG SA#11 *
TS 26.201	AMR Wideband Speech Codec; Speech Codec Frame Structure	5.0.0	Approved at TSG SA#11 in Tdoc SP-010090.	Approved at TSG SA#11 *
TS 26.202	AMR-WB speech codec; interface to lu and Uu	5.0.0	Approved at TSG SA#11 in Tdoc SP-010091.	Approved at TSG SA#11 *
TS 26.204	Floating-Point ANSI-C Code for the AMR-WB Speech Codec	5.0.0	Approved at TSG SA#15 in Tdoc SP-020073.	Approved at TSG SA#15
TR 26.976	AMR-WB Speech Codec Performance Characterisation	0.6.0 (latest internal SA4 working version is 0.7.0)	Phase 1A carried out by TSG SA#12. Draft TR v.0.3.0 presented for information at TSG SA#12 in Tdoc SP-010302. Phase 1B is completed by TSG SA#14 and updated draft TR v.0.6.0 was presented for information in Tdoc SP-010692. Phase 2 schedule and test plan is under definition in SA4. Exp 10 on Packet-switched conversational and streaming applications needs work in SA4. The TR may be presented for approval without Exp. 10, and it could be included later when ready. Verification test results for AMR-WB floating-point codec included in SA4 internal working draft v.0.7.0 at SA4#21.	Target for approval is TSG SA#18

\*) Approved for Rel-5 at TSG SA#11. (At TSG SA#11, it was also decided that the AMR-WB Codec WI is functionally frozen and only corrections would be allowed to these specifications).

## 2.2 Extended Transparent End-to-end Packet Switched Streaming Service (PSS-E)

The SA4 work is completed except for TR 26.937 “RTP Usage Model”. During SA4#21, the scope section of the TR was revised to better express the target of the work, i.e., that the scope is to characterise the streaming service rather than to define any optimal configuration model. The TR considers the impacts of network configurations and how the streaming mechanism itself could be optimised (rather than defining any optimal network configuration for streaming). Due to the effort put earlier into finalising the Streaming TSs (26.233 “General Description” and 26.234 “Protocols and Codecs”), the work for the TR is still in a very initial phase in SA4, and therefore it has not yet been distributed for review and comments to other relevant WGs. The TR is expected to be completed by TSG SA#18.

CRs to TS 26.234 “Packet-switched Streaming Services (PSS); Protocols and Codecs” for minor corrections are brought to TSG SA#16 for approval.

**Table 2: Status list of specifications for PSS-E under SA4 responsibility**

Deliverable	Title	Latest version	Comment/Status	Approval
<b>TS 26.233</b>	Packet-switched Streaming Services (PSS); General Description	5.0.0	PSS-E for Rel-5 was brought through CRs to the existing Rel-4 TS.	Approved at TSG SA#15
<b>TS 26.234</b>	Packet-switched Streaming Services (PSS); Protocols and Codecs	5.0.0	PSS-E for Rel-5 was brought through CRs to the existing Rel-4 TS.	Approved at TSG SA#15
<b>TR 26.937</b>	Packet-switched Streaming Services (PSS); RTP usage model	-	Initial drafting ongoing in SA4.	Target for approval is TSG SA#18.

### 2.3 Multimedia Messaging Service (MMS) media formats and codecs (part of feature Messaging Enhancements)

The SA4 work (preparation of TS 26.140 "MMS media formats and codecs") was completed by TSG SA#15. One CR to TS 26.140 is brought for approval to TSG SA#16 correcting one reference (IETF RFC is now available on AMR and AMR-WB RTP payload).

**Table 3: Status list of specifications for MMS under SA4 responsibility**

Deliverable	Title	Latest Version	Comment/Status	Approval
<b>TS 26.140</b>	Multimedia Messaging Service (MMS); Media formats and codecs	5.0.0	Approved at TSG SA#15 in Tdoc SP-020075.	Approved at TSG SA#15

### 2.4 Multimedia Codecs and Protocols for Conversational Packet Switched Services (part of feature Provisioning of IP Based Multimedia Services)

Two issues remain in Rel-5: 1) preparation of TR 26.xyz "Performance characterization of default codecs for PS conversational multimedia applications" and 2) completion of definition of QoS parameter values for various media types.

Preparation of TR 26.xyz has not yet been started and input and work is needed in SA4. If real-time applications are not supported in IMS Rel-5, proper testing and characterisation is difficult thus impacting the preparation of the TR (and even making the need of the TR in Rel-5 questionable.) Also, funding is likely needed to carry out the characterisation testing. The current finalisation target for the TR is December 2002.

For task "definition of QoS parameter values for various media types", SA4 has defined recommended tables for the mapping of SDP parameters to UMTS bearer QoS parameters for applications using codecs. Preliminary mapping tables were defined at SA4#20 both for conversational and streaming services applications, and are already included as informative annexes of the respective Rel-5 TSs 26.234 and 26.236. Finalisation of the tables is ongoing. Some questions were received from other WGs (RAN2), and further discussion is needed at next SA4 meeting to finalise the tables. The finalisation target of this task is September 2002.

**Table 4: Status list of specifications for Multimedia Codecs and Protocols for Conversational PS Services**

Deliverable	Title	Latest Version	Comment/Status	Approval
<b>TS 26.235</b>	Packet Switched Conversational Multimedia Applications; Default Codecs	5.1.0	Approved at TSG SA#11 in Tdoc SP-010095.	Approved at TSG SA#11 for Rel-4. Moved to Rel-5 at TSG SA#12.
<b>TS 26.236</b>	Packet Switched Conversational Multimedia Applications; Transport Protocols	5.0.0	Approved at TSG SA#15 in Tdoc SP-020074.	Approved at TSG SA#15
<b>TR 26.xyz</b>	Performance characterization of default codecs for PS conversational multimedia applications	-	No work done yet in SA4. (If real-time applications are not supported in IMS Rel-5, proper testing and characterisation may be difficult thus impacting the preparation of the TR. Funding for testing may be needed.)	Target for approval is TSG SA#18.

## 2.5 Cellular Text telephone Modem (part of feature Global Text Telephony)

All three Cellular Text Telephone Modem (CTM) specifications under the responsibility of SA4 were approved at TSG SA#10 and TSG SA#11 completing the SA4 part.

**Table 5: Status list of Global Text Telephony specifications under SA4 responsibility**

Deliverable	Title	Latest Version	Comment/Status	Approval
<b>TS 26.226</b>	GTT Cellular Text Telephone Modem; General Description	5.0.0	Approved at TSG SA#10 in Tdoc SP-000569.	Approved at TSG SA#10 for Rel-4. Moved to Rel-5 at TSG SA#11.
<b>TS 26.230</b>	GTT Cellular Text Telephone Modem; Transmitter C-code Description	5.0.1	Approved at TSG SA#10 in Tdoc SP-000570.	Approved at TSG SA#10 for Rel-4. Moved to Rel-5 at TSG SA#11.
<b>TS 26.231</b>	GTT Cellular Text Telephone Modem; Minimum Performance Specification	5.2.0	Approved at TSG SA#11 in Tdoc SP-010092.	Approved at TSG SA#11 (for Rel-5).

## 2.6 Summary of Release 5 work status in SA4

All Rel-5 TSs from SA4 have been finalised (approved at TSG SA#15 or earlier)

The Rel-5 work is completed except:

1. Completion of the following Technical Reports:

- TR 26.976 "AMR-WB Speech Codec Performance Characterisation" (for AMR-WB)
- TR 26.937 "RTP usage model" (for PSS-E)
- TR 26.xyz "Performance characterization of default codecs for PS conversational multimedia applications" (for Multimedia Codecs and Protocols for Conversational PS Services / IMS)

The current finalisation target for all is December 2002. As TRs these are not "release-critical", and not necessary to be finalised along with the related TSs. (Performance Characterisation TRs are always completed after approval of the corresponding TSs, as they characterise the algorithms in the TSs.)

2. Recommendation for QoS parameter values for various PS media types is ongoing jointly with other relevant WGs (RAN2, CN3, SA1, SA2 etc.). SA4 has defined recommended tables for the mapping of SDP parameters to UMTS bearer QoS parameters for applications using codecs. Preliminary mapping tables were defined at SA4#20 both for conversational and streaming services applications, and are included as informative annexes of the respective Rel-5 TSs 26.234 and 26.236. The finalisation target is September 2002.

## 3. Release 6 work

No Rel-6 WIDs have yet been prepared in SA4.

Initial discussion of Rel-6 PS Streaming took place at SA4#21, and a list of possible Rel-6 issues was prepared (e.g., possible new codecs and formats, DRM, use of IMS for PSS, MMS interworking issues, QoS metrics). The initial list was sent to relevant WGs (SA1, SA2, SA3, SA5, T2) for discussion and for comments. SA4 and SA1 will have a joint meeting on the scope and work plan of Rel-6 streaming (foreseen to be held on July 11<sup>th</sup> during SA1 SWG meetings). Other Rel-6 work (e.g., DRM, GUP) is potentially related to streaming and may provide new functionalities for Rel-6 Streaming. Also, the use of IMS for streaming in Rel-6 is under some discussion in SA2.

## 4. Maintenance of releases (Change Requests)

CRs are presented for the following TSs: TS 06.74 (R98), TS 26.103 (R99, Rel-4 and Rel-5), TS 26.140 (Rel-5), TS 26.234 (Rel-4, Rel-5) and TS 28.062 (Rel-4, Rel-5).

Tdoc SP-020222: CR to TS 06.74 "AMR Speech Codec; Test Sequences" on Update of set DTX test vectors for VAD option 1 (R98):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
06.74	A003		R98	Update of set DTX test vectors for VAD option 1	F	7.2.0	S4	TSG-SA WG4#21	S4-020244

- At TSG SA#15, alternative DTX test vectors using DAI interface (testing through

channel coding/decoding) were added for AMR codec into Rel-98 (GSM) (in Tdoc SP-0200076). The test sequences provided with that CR were only for VAD Option 2. This CR brings the test sequences also for VAD Option 1, and will complement the earlier CR.

Tdoc SP-020223: CRs to TS 26.103 “Codec Lists” on Default Codec Type UMTS\_AMR2 (R99, Release 4 and 5):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.103	012	2	R99	UMTS_AMR2 is default Codec Type in R99 dual_mode terminals	F	3.1.0	S4	TSG-SA WG4#21	S4-020325
26.103	013	2	REL-4	UMTS_AMR2 is default Codec Type in all terminals of REL-4 and onwards	F	4.2.0	S4	TSG-SA WG4#21	S4-020326
26.103	014	2	REL-5	UMTS_AMR2 is default Codec Type in all terminals of Rel-4 and onwards	A	5.1.0	S4	TSG-SA WG4#21	S4-020327

- These CRs declare UMTS AMR2<sup>1</sup> to be the default codec type for UTRAN access in R99 dual-mode (UTRAN and GSM radio access) terminals, and for UTRAN access in all UMTS terminals in Rel-4 and onwards. (R99 UTRAN only terminals may use either UMTS AMR or UMTS AMR2 as default codec for UTRAN access.)

SA4 feels it useful to include a clear declaration in TS 26.103 as this TS is a central one with regard the codecs and codec types. (The issue has been discussed in the past in CN1, T2 and TSG-T, and a similar type of definition was included already earlier in TS 23.153.) At TSG SA#15, corresponding CRs on “Default Codec Type UMTS\_AMR2” (CRs 012, 013 and 014 in Tdoc SP-020078) were presented by SA4 for approval. However, these CRs were postponed to verify the signalling. CN1 was asked to make the necessary checks and report the results to TSG SA and SA4.

Also, at TSG SA#15, the wording of the CRs was thought to be somewhat ambiguous, as it could be interpreted to exclude the GSM Full Rate Codec as a default codec. Therefore, SA4 has revised the wording slightly in the CRs presented for approval at TSG SA#16, now clarifying better that the default is only for “UTRAN access”.

(The Rel-4 and Rel-5 CRs also remove the not needed GSM codec types (FR AMR and HR AMR) from UTRAN as UMTS AMR2 is fully compatible replacement. This change was made already earlier for R99.)

Note: The presentation of these CRs is conditional to confirmation from CN1 that no signalling problems exist for the CRs (specifically that no extra signalling is needed). By SA4#21, SA4 had not received confirmation from CN1.

Tdoc SP-020224: CR to TS 26.140 “Multimedia Messaging Service (MMS); Media formats and codecs” on Correcting the reference to AMR and AMR-WB RTP payload (Release 5):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.140	001		REL-5	Correcting the reference to AMR and AMR-WB RTP payload	F	5.0.0	S4	TSG-SA WG4#21	S4-020274

- Reference to AMR and AMR-WB payload has become available from IETF (RFC 3267) and is updated in the TS.

Tdoc SP-020225: CRs to TS 26.234 “Packet-switched Streaming Services (PSS); Protocols and Codecs” on Corrections Based on Interoperability Issues, and Mime media type update (Release 4):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.234	025	3	REL-4	Mime media type update	F	4.3.0	S4	TSG-SA WG4#21	S4-020348
26.234	028	1	REL-4	Corrections Based on Interoperability Issues	F	4.3.0	S4	TSG-SA WG4#21	S4-020350

<sup>1</sup> The difference between UMTS AMR and UMTS AMR2 is only the restriction for mode change from 20 ms to 40 ms (every 2<sup>nd</sup> 20 ms frame) in UMTS AMR2 encoder. This has been introduced for interoperability with GSM AMR codec types (FR AMR and HR AMR) in the case of TFO. As it is only the encoder which has this restriction, the UMTS AMR2 decoder is indifferent to whether the encoder operates as UMTS AMR or UMTS AMR2.

- These clarify how the codec configuration information is sent for MPEG-4 audio and video codecs. Also, some other corrections are brought to avoid potential misunderstandings and, consequently, interoperability problems between implementations.

Tdoc SP-020226: CRs to TS 26.234 “Packet-switched Streaming Services (PSS); Protocols and Codecs” on Corrections Based on Interoperability Issues, Mime media type update, sample Description atom and Timed Text Format (Release 5):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.234	024	1	REL-5	Correction to Timed Text	F	5.0.0	S4	TSG-SA WG4#21	S4-020363
26.234	026	3	REL-5	Mime media type update	A	5.0.0	S4	TSG-SA WG4#21	S4-020349
26.234	027		REL-5	Corrections to the description of Sample Description atom and Timed Text Format	F	5.0.0	S4	TSG-SA WG4#21	S4-020308
26.234	029	1	REL-5	Corrections Based on Interoperability Issues	A	5.0.0	S4	TSG-SA WG4#21	S4-020351

- The corrections corresponding to Rel-4 (in Tdoc SP-020225) are brought also in Rel-5. In addition, some corrections are made in the description of use of Timed Text media type. Also, some corrections are made for the description of file format.

Tdoc SP-020227: CRs to TS 28.062 “In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3 - Service Description” on Corrections to Clauses 9 and 10, and Clarifications of Extendibility of TFO Messages (Release 4):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
28.062	018	2	REL-4	Clarify Extendibility of TFO_Messages	F	4.3.0	S4	TSG-SA WG4#21	S4-020347
28.862	025		REL-4	Corrections to Clause 9 and 10	F	4.3.0	S4	TSG-SA WG4#21	S4-020313

- Some clarifications are brought for the extendability mechanism of TFO Messages. Also, some corrections are brought to TFO state machine figure and TFO protocol tables in Clauses 9 and 10.

Tdoc SP-020228: CRs to TS 28.062 “In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3 - Service Description” on Corrections to Clauses 4 to 10 and to Annexes C and H, Additional TFO\_Message Elements for Immediate Codec Type Optimisation, TFO Version Handling (Release 5):

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
28.062	017	1	REL-5	Editorial corrections and additions	F	5.0.0	S4	TSG-SA WG4#21	S4-020311
28.862	019	2	REL-5	Additional TFO_Message Elements for Immediate Codec Type Optimisation	F	5.0.0	S4	TSG-SA WG4#21	S4-020355
28.862	020	2	REL-5	Corrections to TS 28.062, sections 4 to 8	F	5.0.0	S4	TSG-SA WG4#21	S4-020352
28.862	021	3	REL-5	Corrections to TS 28.062, Annex C	F	5.0.0	S4	TSG-SA WG4#21	S4-020364
28.862	022	2	REL-5	TFO Version Handling	F	5.0.0	S4	TSG-SA WG4#21	S4-020357
28.862	023	2	REL-5	Configuration Exchange in Annex C	F	5.0.0	S4	TSG-SA WG4#21	S4-020358
28.862	024	2	REL-5	Corrections to Annex H	F	5.0.0	S4	TSG-SA WG4#21	S4-020359
28.862	026	1	REL-5	Corrections to sections 9 and 10	F	5.0.0	S4	TSG-SA WG4#21	S4-020353
28.862	027	1	REL-5	Immediate Codec Type Optimization	F	5.0.0	S4	TSG-SA WG4#21	S4-020356

- These bring several corrections: e.g., corrections to the description of the input and output files of the TFO algorithm C-code, clarifications on the description of extendability of TFO Request/Acknowledgement Messages, removal of inconsistencies in the TFO Frame Format tables, corrections to Annexes C (description of TFO operation in GSM) and H (Generic configuration frames of TFO), immediate TFO optimisation is enabled allowing to start using AMR-WB at a very early stage in the TFO establishment (if AMR-WB codec is supported by both sides) and inclusion of TFO version handling (identification of TFO version in TFO Messages from Rel-5 onwards, e.g., to be used for identification if immediate TFO

optimisation is possible).

## 5. Other issues

- AMR Noise Suppression (AMR-NS) algorithm from Mitsubishi Electric Co. was brought for validation to SA4#21. SA4 analysed the presented test results, and endorsed the algorithm. The endorsement means that SA4 considers the algorithm to meet the recommended minimum performance requirements given in TS 26.077 "Minimum Performance Requirements for Noise Suppressor; Application to the AMR Speech Encoder". There are no other implications from this endorsement. (The endorsement procedure is explained in the scope section of TS 26.077.)
- SA4#21 considered a LS from SA1 on codecs for MBMS, and also the (draft) report of recent MBMS Workshop (6-7 May, 2002). SA4 plans to take MBMS into account in Rel-6 work. The need for specific SA4 WID on MBMS codecs will be considered at forthcoming SA4 meetings. It is the intention of SA4 to reuse codecs from MMS and PSS as much as possible. However, it will take some time to consider particular implications of the MBMS system on codecs.
- SA4#21 was informed that IMTC (International Multimedia Telecommunications Consortium) and ISMA (Internet Streaming Media Alliance) are in the process of requesting a liaison status with 3GPP. Both committees do work related to SA4 activities, especially streaming: IMTC promotes the development and implementation of interoperable multimedia solutions and is currently doing interoperability testing on 3GPP streaming specifications (TSs 26.233 and 26.234). ISMA prepares specifications to define interoperable implementations for streaming. At SA4#21, support was expressed by several companies in favour of the authorisation for the two committees to liaise with 3GPP; and none disagreeing. This is not an SA4 issue and will be dealt on the 3GPP Project Coordination Group (PCG) level. Nevertheless, SA4 Chairman was requested to mention this support from SA4 in his report to TSG SA#16 Plenary.

## 6. Approval requested

SA4 requests TSG SA#16 to approve the following CRs:

- a) Tdoc SP-020222: CR to TS 06.74 "AMR Speech Codec; Test Sequences" on Update of set DTX test vectors for VAD option 1 (R98)
- b) Tdoc SP-020223: CRs to TS 26.103 "Codec Lists" on Default Codec Type UMTS\_AMR2 (R99, Release 4 and 5) Note: Presentation for approval is conditional to confirmation from CN1 that no signalling problems exist for the CRs (see Section 4).
- c) Tdoc SP-020224: CR to TS 26.140 "Multimedia Messaging Service (MMS); Media formats and codecs" on Correcting the reference to AMR and AMR-WB RTP payload (Release 5)
- d) Tdoc SP-020225: CRs to TS 26.234 "Packet-switched Streaming Services (PSS); Protocols and Codecs" on Corrections Based on Interoperability Issues, and Mime media type update (Release 4)
- e) Tdoc SP-020226: CRs to TS 26.234 "Packet-switched Streaming Services (PSS); Protocols and Codecs" on Corrections Based on Interoperability Issues, Mime media type update, sample Description atom and Timed Text Format (Release 5)
- f) Tdoc SP-020227: CRs to TS 28.062 "In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3 - Service Description" on Corrections to Clauses 9 and 10, and Clarifications of Extendibility of TFO Messages (Release 4)
- g) Tdoc SP-020228: CRs to TS 28.062 "In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3 - Service Description" on Corrections to Clauses 4 to 10 and to Annexes C and H, Additional TFO\_Message Elements for Immediate Codec Type Optimisation, TFO Version Handling (Release 5)



## ANNEX A: List of input documents to TSG SA#16 from TSG SA WG4

Tdoc	Title	Source	Agenda item	Document for
SP-020221	TSG SA WG4 Status Report at TSG SA#16	SA WG4 Chairman	7.4.1	Information
SP-020222	CR to TS 06.74 on Update of set DTX test vectors for VAD option 1 (R98)	SA WG4	7.4.3	Approval
SP-020223	CRs to TS 26.103 on Default Codec Type UMTS_AMR2 (R99, Release 4 and 5)	SA WG4	7.4.3	Approval
SP-020224	CR to TS 26.140 on Correcting the reference to AMR and AMR-WB RTP payload (Release 5)	SA WG4	7.4.3	Approval
SP-020225	CRs to TS 26.234 on Corrections Based on Interoperability Issues, and Mime media type update (Release 4)	SA WG4	7.4.3	Approval
SP-020226	CRs to TS 26.234 on Corrections Based on Interoperability Issues, Mime media type update, sample Description atom and Timed Text Format (Release 5)	SA WG4	7.4.3	Approval
SP-020227	CRs to TS 28.062 on Corrections to Clauses 9 and 10, and Clarifications of Extendibility of TFO Messages (Release 4)	SA WG4	7.4.3	Approval
SP-020228	CRs to TS 28.062 on Corrections to Clauses 4 to 10 and to Annexes C and H, Additional TFO_Message Elements for Immediate Codec Type Optimisation, TFO Version Handling (Release 5)	SA WG4	7.4.3	Approval

**ANNEX B: Slides presentation of the SA4 status report**

(Included in separate zipped file: "SP-020221 Annex B .ppt")