

Source: TSG-S4 (Codec Working Group) Chairman
Title: Status Report at TSG-SA#4
Document for: Information and Decision
Agenda Item: 5.4.1

TSG-S4 Codec Working Group Status Report

Executive Summary

TSG-SA WG4 (also called in this report TSG-S4 or Codec Working Group) held one meeting since TSG-SA#3. This meeting was essentially dedicated to the review and update of the Baseline Specifications for the AMR speech codec and Codec for Circuit Switched H.324 based Multimedia Telephony services.

Five AMR specifications are considered stable enough to be presented to TSG-SA#4 for approval (versions 2.0.0). They include the General Description (TS 26.071), the Transcoding functions (TS 26.090), the Error Concealment of Lost Frames (TS 26.091), the Comfort Noise Aspects (TS 26.092) and the Source Controlled Rate Operation (TS 26.093). Two other specifications are presented for information: the Test Sequences (TS 26.074) and the Frame Structure (TS 26.101) specifications.

The approval of the ANSI C-Code (TS 26.073) and VAD (TS 26.094) specifications were once again postponed, pending the SMG11/SMG decision to remove or not a VAD option. Stable drafts are available for both specifications and could be presented at the next TSG-SA if required, with a limited editorial work.

It is now critical to identify the source of funding for performing the 3G AMR Characterization Tests. Since the AMR speech codec has been intensively tested in the GSM AMR Characterization, TSG-S4 agreed to perform a simplified characterization limited to 3G channel error conditions. The corresponding tests were estimated at 55 kEuros (against 440 kEuros for the GSM AMR Characterization Tests). A Liaison Statement was sent to TSG-SA to that purpose.

TSG-S4 members expressed some concerns regarding the limited progress in the definition of the support of the speech service over the Radio Access Network using Unequal Error Protection/Detection. This issue must be solved to complete the characterization and to check the consistency of the speech codec specifications.

Another liaison was sent to TSG-SA with few requests for clarifications regarding the 'transfer of the AMR specification from SMG to 3GPP.

The key specifications for the support of the Circuit Switched H.324 based Multimedia Telephony service (TS 26.110, TS 26.111 and TR.911) were also considered stable and are presented to TSG-SA for approval. The specification gathering the related Call Set-Up Requirements was sent to TSG-N1, N2 for comments and consideration.

TSG-S4 held preliminary discussions on real-time packet Multimedia services. A Liaison was sent to TSG-S2 and R3 to help the debate on the support of Unequal Error Protection for Packet services.

A new version of the Performance Evaluation Report of H.324 Annex C over 3G based on the tests sponsored by ARIB in 1Q99 was reviewed and sent to TSG-SA for information.

The ETSI SMG11AMR Wideband feasibility report was reviewed in TSG-S4#5 and considered in line with the 3GPP Wideband Codec project objectives. It was decided to prepare for the next meeting a set of 3G Wideband Codec Performance Requirements as input to a joint SMG/3G Wideband Codec development project.

Limited progress can be reported on the other Work Items: 3G Audio-Visual Terminal Characteristics and

Tandem Free Operation in 3G and between 2G and 3G systems. For TFO the drafting of the specification cannot start until the AMR TFO definition has been finalized. This task should be completed in 3Q99. The 3G specifications could then be derived from the GSM specifications on time for the approval of Release 99.

Annex A contains an updated status list of TSG-S4 deliverables. Annex B contains a copy of the slides presented to the TSG-SA#4 plenary.

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1. Introduction

The 3GPP Codec Working Group held one meeting since the last TSG-SA#3. TSG-S4#4 took place on June 14-16, 1999, hosted by BellSouth, Conexant, Ericsson, Lucent, Motorola Satellite Communications, Nokia, Nortel Networks, Omnipoint Communications Services, Pacific Bell Wireless, & Siemens in Miami, USA. The meeting was essentially dedicated to the review and update of the AMR Speech Codec and Codec for H.324 Based Multimedia Telephony Service specifications prior to their presentation for approval to TSG-SA. Preliminary discussions were also held on real-time packet multimedia service.

As can be seen in the following list of meeting dates, TSG-S4 has originally planned to meet 3 more times before the end of 1999. However, until now, it was not possible to identify an organization willing to host one of these meetings.

Meetings held:

TSG-S4#5: June 14-16 hosted by multiple North America 3GPP members in Miami, FL

Next Meetings dates:

TSG-S4#6: September 8-10 host required
 TSG-S4#7: October 20-22 host required
 TSG-S4#8: December 1-3 host required

Annex A contains an updated list of TSG-S4 deliverables providing status information and target approval dates for each specification.

Annex B contains a copy of the slides presented at TSG-SA#4.

2. Mandatory Speech Codec

The AMR Speech Codec specifications were reviewed and updated during TSG-S4#5 in line with the latest versions approved in SMG11. Five specifications were upgraded to version 2.0.0. They are presented to TSG-SA for approval in documents SP-99244 to SP-99248. A first draft of the Test Sequence specification (TS 26.074) was reviewed and approved as version 1. It is presented to TSG-SA for information. An updated version of the Frame structure specification (TS 26.101 version 1.2.0) is also presented for information. The complete status list of the AMR specifications is provided in the following table.

Deliverable	Title	Latest version	Comment/Status
TS 26.071	AMR Speech Codec; General Description	2.0.0	Stable. Presented for approval at TSG-SA#4 in Tdoc SP-99244
TS 26.090	AMR Speech Codec; Transcoding functions	2.0.0	Stable. Presented for approval at TSG-SA#4 in Tdoc SP-99245
TS 26.073	AMR Speech Codec; ANSI C-Code	0.1.0	Internal drafts available. Limited editorial work required. Approval Postponed pending final VAD decision in SMG.
TS 26.074	AMR Speech Codec; Test Sequences	1.0.0	New Specification. Includes Test Sequences for ENS VAD option only. Presented for information at TSG-SA#4 in Tdoc SP-99252
TS 26.091	AMR Speech Codec; Error Concealment of lost frames	2.0.0	Stable. Presented for approval at TSG-SA#4 in Tdoc SP-99246
TS 26.092	AMR Speech Codec; Comfort noise aspects	2.0.0	Stable. Presented for approval at TSG-SA#4 in Tdoc SP-99247

Deliverable	Title	Latest version	Comment/Status
TS 26.093	AMR Speech Codec Source Controlled Rate operation	2.0.0	Stable. Presented for approval at TSG-SA#4 in Tdoc SP-99248
TS 26.094	AMR Speech Codec Voice Activity Detector	0.1.0	Internal drafts available. Limited editorial work required. Approval Postponed pending final VAD decision in SMG.
TS 26.101	AMR Speech Codec Frame Structure	1.2.0	Important modifications compared to previous version. Presented for information at TSG-SA#4 in Tdoc SP-99253
TS 26.102	AMR Speech Codec Interface to lu and Uu	0.2.0	Internal drafts available. Final content dependent of definition of support of speech service over the Radio Access Network
TR 26.901	AMR Speech Codec Performances Characterisation	-	No Funding identified yet Preparation of Test plan transferred to SMG11 SQ

Overall, the preparation of the AMR specifications in the scope of the 3G Release 99 is progressing fairly well.

The only pending issues are related to:

- The ANSI C-Code (TS 26.073) and VAD (TS 26.094) specifications, which approval was once again postponed pending a final decision in SMG11/SMG on the removal of one VAD option. TSG-S4 has reviewed internal drafts of both specifications based on the latest versions approved by SMG. The edition of the 3G specifications may require simple editorial corrections before being presented to the next TSG-SA for approval, providing that SMG is able to decide on the VAD options to include in the final versions of the AMR specifications.
- TSG-S4 members expressed some concerns on the progress in TSG-RAN on the support of the speech service over the Radio Access Network using dedicated Unequal Error Protection/Detection. A Liaison Statement was drafted and sent to that purpose to TSG-R1, R2 and R3. The final decision in TSG-RAN could impact the AMR frame structure defined in TS 26.101. Likewise, TSG-S4 had planned to edit a specification (TS 26.102) to describe the handling of the Speech Frames over the lu and Uu interfaces. However, the content of this specification will largely depend on the choices made in TSG-RAN for the support or not of Unequal Error Protection (dedicated channel coding as in 2G systems or multiple RABs).
- The preparation of the Characterization Test Plan cannot start until the source of funding for performing the corresponding tests has been identified. TSG-S4 has estimated that a large part of the tests performed for the GSM AMR Characterization could also be applicable to the 3G AMR. TSG-S4 still believes that it is critical to complete this data with a small number of tests under 3G channel errors, once the support of the speech service over the Radio Access Network has been finalized by TSG-RAN. The corresponding tests could be compiled in 2 Experiments representing a cost estimate of 55 kEuros (compared to 440 kEuros for the GSM AMR Characterization). A Liaison was sent to TSG-SA to ask 3GPP members to confirm their support for this activity and to identify possible source of funding. The liaison sent to TSG-R1, R2, R3 also proposed that TSG-S4 assume the responsibility to agree on the channel conditions for which the codec should be tested and to prepare the required Error Patterns to process the speech samples to use in the subjective listening tests.

TSG-S4 members expressed some concerns regarding the announced 'transfer' of the AMR specifications from SMG to 3GPP. A Liaison was drafted and sent to TSG-SA to clarify that the AMR specifications had not been yet transferred. TSG-S4 members also wanted to made clear that because of differences between the 3G and 2G network architecture, the content of the 3GPP and corresponding SMG specifications were usually different from each other, but functionally equivalent. TSG-S4 would also appreciate if TSG-SA could clarify that the transfer of a specification does not mean that the GSM version will cease to exist or being updated and that the content of the two specifications (GSM and 3GPP) may indeed be slightly different.

3. Codec for Circuit Switched H.324 Based Multimedia Telephony Service

An updated status list of all deliverables for this work item is provided below and in Annex A.

It was decided to modify the naming for the 3G Terminals compliant with the 3GPP CS H.324 Based Multimedia specifications from 3G H.324M Terminals to 3G-324M terminals to avoid any confusion between the ITU H.324

standard and the 3G standard. It was felt necessary for manufacturers to understand that it is not enough to comply with the ITU H.324 standard to support the corresponding service in the 3G network. The H.324 specifications and report were updated accordingly.

TSG-S4 discussed the possibility to include additional recommendations for 3G-324M Terminals, especially related to different annexes of H.263 (Video Codec). However, it was not possible to reach a consensus on a single list of Annexes for inclusion in the Terminal Implementor's Guide. It was decided to keep the corresponding text unchanged (only H.263 Annex K is mentioned). Another recommendation to support 1:1 pixel aspect ratio was accepted. This last recommendation is motivated by the type of hardware components (camera, display) now available for Terminals manufacturers, and to avoid the dual pixel aspect ratio conversion often made necessary (when implemented) by the default 12:11 pixel aspect ratio. It was only accepted as a recommendation.

Two specifications (TS 26.110 and TS 26.111) and the Implementor's Guide (TR 26.911) for CS H.324 Based Telephony service were considered stable enough to be presented for approval at TSG-SA#4.

The Call Set-up Requirements for H.324 Based Multimedia Telephony Service was partially updated (new version 1.1.0) with comments received from 3GPP members. The previous version of this specification was sent to TSG-CN and TSG-S2 for comments and consideration. Only a draft response from TSG-S2 was available and presented for information. Considering that TSG-S4 did not have the full expertise to work on this specification, the new version was sent to TSG-N1 and N2 for comments and as inputs to their respective activity.

Deliverable	Title	Latest Version	Comment/Status
TS 26.110	Codec(s) for Circuit Switched Multimedia Telephony Service General Description	2.0.0	Stable Presented for approval at TSG-SA#4 in Tdoc SP-99249
TS 26.111	Codec(s) for Circuit Switched Multimedia Telephony Service Modifications to H.324	2.0.0	Stable Presented for information at TSG-SA#4 in Tdoc SP-99250
TS 26.112	Codec(s) for Circuit Switched Multimedia Telephony Service Call Set Up Requirements	1.1.0	Version 1.0.0 presented for information at TSG-SA#3 in Tdoc SP-99204 Version 1.1.0 reviewed in TSG-S4#5 (S4-99177) and sent to TSG-N1,N2
TR 26.911	Codec(s) for Circuit Switched Multimedia Telephony Service Terminal Implementor's Guide	2.0.0	Stable Presented for approval at TSG-SA#4 in Tdoc SP-99251

TSG-S4 also held preliminary discussions on the support of real-time H.323 based packet multimedia service. Few input were available at this stage. The group considered the possibility to edit a new Terminal Implementor's Guide for H.323 based service, providing that related inputs would be submitted in future meetings. Following a discussion on the transport over the Access Network of real time H.323 data packets, it was decided to draft and send a Liaison to TSG-S2 and TSG-R3 on the Error Resilience of different H.323 Multimedia Payloads. This Liaison provides background information for the definition of real-time packet multimedia services showing the potential benefits of Unequal Error Protection.

Few members supported that TSG-S4 established a formal relation with the ITU SG16 Q#13 for the definition of the support of H.323 over Mobile Terminals. Other members did not support this proposal questioning the scope and efficiency of such collaboration at TSG-S4 level.

4. QoS for Audio and Multimedia Codecs

The complete list of deliverables for this work item is provided below and in Annex A.

Deliverable	Title	Latest Version	Comment/Status
TR 26.912	Quantitative performance evaluation of H.324 Annex C over 3G	1.0.0	Version based on ARIB test results Presented for Information at TSG-SA#4 in Tdoc SP-99254

Deliverable	Title	Latest Version	Comment/Status
TR 26.913	Quantitative performance evaluation of real-time packet switched multimedia services over 3G	0.0.1	Reviewed in TSG-S4#5 Inputs expected for next TSG-S4 meetings
TR 26.915	Transmission planning aspects of the services in 3G PLMN System	-	First draft now expected for 9/99

A new version of the Performance Evaluation Report of H.324 Annex C over 3G was reviewed and approved for submission for information to TSG-SA#4. This version is based on the H.324 video codec evaluation results sponsored by ARIB in 1Q99. TSG-S4 agreed that additional performance should complete this report especially with test results of the other Media (Audio, Control info, Data) and with Multi-modal tests. A preliminary list of possible evaluation tests was produced during the meeting. It is provided in the table below. Unfortunately, in most cases, it was not possible to identify volunteers to perform the corresponding experiments. All TSG-S4 participants were invited to investigate possible future contributions in this area.

Test/Input Proposal for 3G-324M Evaluation	Volunteer
MOS tests for speech data flow in H.324M Multimedia using the multiple codecs options (G.723.1 or AMR Codec modes) compared to the quality offered for the speech service	
Multi-modal test Speech/Video: Evaluation of the subjective quality in multiple configurations	
Objective tests for control	
Objective tests for data (throughput, delay...)	
Audio: Derive quality information from GSM AMR characterization phase	GSM North America Ericsson
Influence of the delay on the subjective quality of the service	

A preliminary draft outline specification for the evaluation of real time packet switched multimedia services H.323 based was also reviewed in TSG-S4#5. In this case, no test result is available yet.

Inputs on the transmission plan for 3G systems are expected for the upcoming meetings.

5. 3G Audio-Visual Terminal Characteristics

No contributions were received on this work item. Preliminary drafts for the 1999 deliverables (see Annex A) are now expected for the next TSG-S4 meeting in 9/99.

6. Codec(s) for Wideband Telephony services

A preliminary version of the ETSI SMG11 AMR Wideband feasibility study was presented at TSG-S4#5 for information.

The conclusions of the report appeared to be in line with the TSG-S4 wideband project objectives. Consequently, it was agreed to prepare for the next TSG-S4 meeting a set of 3G Wideband Codec Performance Requirements. These requirements will then be submitted to SMG11 as an input to a joint project development.

7. Tandem Free Operation in 3G systems and between 2G and 3G systems

A new version of the work item Work Plan (ver. 0.2.0) was reviewed in TSG-S4#5.

No response had officially been received to the Liaison Statements previously sent to TSG-S2. However, a draft version still under discussion in S2 was available and was presented for information. TSG-S4 noted the current working assumptions in TSG-S2 for the support of Tandem Free Operation in Release 99 using an in-band signaling solution equivalent to the TFO solution specified in SMG. It was also noted that the location of the transcoders in the Gateway MSC was not a Release 99 feature.

Based on this information and the current progress status of the TFO definition for GSM AMR (to be completed

for 9/99), it was agreed to target 3Q99 for the availability of the preliminary drafts of the corresponding deliverables (see Annex A).

Limited progress is possible on this work item until the GSM AMR TFO has been finalized.

8. TSG-S4 Work Program

Annex A contains an updated list of TSG-S4 deliverables and Work Plan references.

Draft work programs are available for most Work Items. They are currently restricted to internal use, except for the Work Program on the Work Item 3 on QoS for Audio and Multimedia Codecs, which was provided for information at the last TSG-SA#3.

Annex A: List of TSG-S4 Deliverables:

Version: 0.3, 1999-04-21

Deliverable	Title	Features under study	Editor	Date for approval	WI Rapporteur	Comment/Status
TS 26.071	AMR Speech Codec; General Description	None Mandatory Speech Codec selected	Erik Ekudden Ericsson	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99244
TS 26.090	AMR Speech Codec; Transcoding functions	None Mandatory Speech Codec selected	Erik Ekudden Ericsson	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99245
TS 26.073	AMR Speech Codec; ANSI C-Code	None Mandatory Speech Codec selected <u>Dependency:</u> Document to be derived from final version to be approved in SMG11/SMG	Erik Ekudden Ericsson	Baseline: TSG-SA#4 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 0.1.0 proposals reviewed in TSG-S4#3 (S4-99060 & S4-99079)
TS 26.074	AMR Speech Codec; Test Sequences	Definition of Test Sequences	Erik Ekudden Ericsson	Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 1.0.0 presented for information at TSG-SA#4 in Tdoc SP-99252
TS 26.091	AMR Speech Codec; Error Concealment of lost frames	None Mandatory Speech Codec selected	Erik Ekudden Ericsson	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99246
TS 26.092	AMR Speech Codec; Comfort noise aspects	None Mandatory Speech Codec selected	Erik Ekudden Ericsson	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99247
TS 26.093	AMR Speech Codec Source Controlled Rate operation	Adaptation of existing GSM DTX specification	Erik Ekudden Ericsson	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99248
TS 26.094	AMR Speech Codec Voice Activity Detector	<u>Dependency:</u> Document to be derived from final version to be approved in SMG11/SMG	Nokia/Motorola	Baseline: TSG-SA#4 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 0.1.0 proposals reviewed in TSG-S4#3 (S4-99064 & S4-99079)
TS 26.101	AMR Speech Codec Frame Structure	Frame bit content, CRC, Octet Aligned Frame Format for AMR Codec Modes <u>Dependency:</u> Support of Speech Service over Access Network	Jari Hagqvist Nokia	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 1.2.0 presented for information at TSG-SA#4 in Tdoc SP-99253
TS 26.102	AMR Speech Codec Interface to Iu and Uu	In relation with definition of system interfaces (Iu) <u>Dependency:</u> Support of Speech Service over Access Network	Wiliam Navarro Nortel Networks	Baseline: TSG-SA#4 Release 99: TSG-SA#6	Erik Ekudden Ericsson	Version 0.2.0 reviewed in TSG-S4#4 (S4-99133)
TR 26.901	AMR Speech Codec Performances Characterisation	Preparation of test plan, identification of Host Lab and Listening Lab <u>Dependency:</u> Definition of Channel Coding by TSG-R1, Agreement on Channel conditions to test and production of Error Patterns	Alain Ohana GSM North America	Release 99: TSG-SA#6	Erik Ekudden Ericsson	No Funding identified yet Preparation of Test plan transferred to SMG11 SQ
TS 26.110	Codec(s) for Circuit Switched Multimedia Telephony Service General Description	-	Barry Aronson Toshiba	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Barry Aronson Toshiba	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99249
TS 26.111	Codec(s) for Circuit Switched Multimedia Telephony Service Modifications to H.324	-	Hirokazu Tanaka Toshiba	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Barry Aronson Toshiba	Version 2.0.0 presented for information at TSG-SA#4 in Tdoc SP-99250
TS 26.112	Codec(s) for Circuit Switched Multimedia Telephony Service Call Set Up Requirements	Requirements gathered by TSG-S4, sent as input for TSG-CN, N1, N2 work	Harri Honko Nokia	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Barry Aronson Toshiba	Version 1.0.0 presented for information at TSG-SA#3 in Tdoc SP-99204 Version 1.1.0 reviewed in TSG-S4#5 (S4-99177) and sent to TSG-N1,N2

Annex A: List of TSG-S4 Deliverables:

Version: 0.3, 1999-04-21

Deliverable	Title	Features under study	Editor	Date for approval	WI Rapporteur	Comment/Status
TR 26.911	Codec(s) for Circuit Switched Multimedia Telephony Service Terminal Implementor's Guide	-	Petri Haavisto Nokia	Baseline: TSG-SA#3 Release 99: TSG-SA#6	Barry Aronson Toshiba	Version 2.0.0 presented for approval at TSG-SA#4 in Tdoc SP-99251
TR 26.912	Quantitative performance evaluation of H.324 Annex C over 3G	-	Olle Franceschi, Ericsson	Baseline: TSG-SA#4 Release 99: TSG-SA#6	Harri Honko Nokia	Version 1.0.0 presented for Information at TSG-SA#4 in Tdoc SP-99254
TR 26.913	Quantitative performance evaluation of real-time packet switched multimedia services over 3G	-	Harri Honko Nokia	Release 99: TSG-SA#6	Harri Honko Nokia	Version 0.0.1 reviewed in TSG-S4#5 (S4-99160)
TR 26.915	Transmission planning aspects of the services in 3G PLMN System	Possibly derived from GSM03.50	Ian Goetz BT-Cellnet (tbc)	Release 99: TSG-SA#6	Harri Honko Nokia	First draft now expected for 9/99
TS 26.xx1	Narrow Band (3.1kHz) Speech & Video Telephony Terminal Acoustic Characteristics	-	Ian Goetz BT-Cellnet	Release 99: TSG-SA#6	Ian Goetz BT-Cellnet	First draft expected for 9/99
TS 26.xx2	Narrow Band (3.1kHz) Speech & Video Telephony Terminal Acoustic Test Specification.	-	Ian Goetz BT-Cellnet	Release 99: TSG-SA#6	Ian Goetz BT-Cellnet	First draft expected for 12/99
TS 26.xx3	Wide Band Speech Telephony Terminal Acoustic Characteristics	-	Paul Barrett BT	Release 00	Ian Goetz BT-Cellnet	First draft expected for 12/99
TS 26.xx4	Wide Band Speech Telephony Terminal Acoustic Test Specification	-	Paul Barrett BT	Release 00	Ian Goetz BT-Cellnet	First draft expected in 2000
TS 26.xx5	Terminal Display and Camera Characteristics For H.324 Narrow-band Video Telephony Service	-	tbd	Release 99: TSG-SA#6	Ian Goetz BT-Cellnet	First draft expected for 12/99
TS 26.xx6	Terminal Display and Camera Test Specifications For H.324 Narrow-band Video Telephony Service	-	tbd	Release 99: TSG-SA#6	Ian Goetz BT-Cellnet	First draft expected for 12/99
TS 26.xx7	Terminal Display and Camera Characteristics For H.323 Narrow-band Video Telephony Service	-	tbd	Release 99: TSG-SA#6	Ian Goetz BT-Cellnet	First draft expected for 12/99
TS 26.xx8	Terminal Display and Camera Test Specifications For H.324 Narrow-band Video Telephony Service	-	tbd	Release 99: TSG-SA#6	Ian Goetz BT-Cellnet	First draft expected for 12/99
TS 22.053	Tandem Free Operation of speech codecs; Stage 1 service description	Evolution of GSM 02.53 Sent to TSG-S1 for review	William Navarro Nortel Networks	Release 99: TSG-SA#6	William Navarro Nortel Networks	Version 0.1.1 reviewed in TSG-S4#4 (S4-99138)
TR 26.920	Architectural Model for the 3G Transcoders	Version 0.1.1 sent to TSG-S2 for comments	William Navarro Nortel Networks	Release 99: TSG-SA#6	William Navarro Nortel Networks	Version 0.1.1 reviewed in TSG-S4#4 (S4-99147)

Deliverable	Title	Features under study	Editor	Date for approval	WI Rapporteur	Comment/Status
TS 26.121	Technical Specification for Tandem Free Operation within 3G networks	Derived from GSM 08.62	?	Release 99: TSG-SA#6	William Navarro Nortel Networks	
TS 26.122	Technical Specification for Tandem Free Operation between 3G and 2G networks	Also derived from GSM 08.62	?	Release 99: TSG-SA#6	William Navarro Nortel Networks	

Work Programs:

WI-S4-1: Mandatory Speech Codec for Narrow band Speech Telephony Service
Draft Work Program available for internal TSG-S4 use

WI-S4-2: Codec for Low bit rate Multimedia Telephony Service
Draft Work Program available for internal TSG-S4 use

WI-S4-3: QoS for Speech and Multimedia Codec
Work Program version 0.2.0 presented for information at TSG-SA#3 (Tdoc SP-99130)

WI-S4-4: 3G Audio-Visual Terminal Characteristics
Draft Work Program expected for TSG-S4#6

WI-S4-5: Codec(s) for Wideband Telephony Services
Draft Work Program expected for TSG-S4#6

WI-S4-6: Tandem Free Operation in 3G systems and between 2G and 3G systems
Work Program version 0.3.0 reviewed in TSG-S4#5 (Tdoc S4-99174)

Source: TSG-S4

TSGS#4(99)260

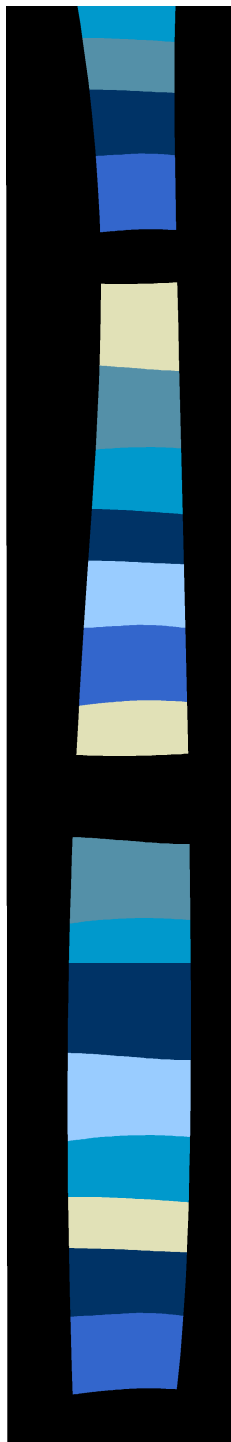
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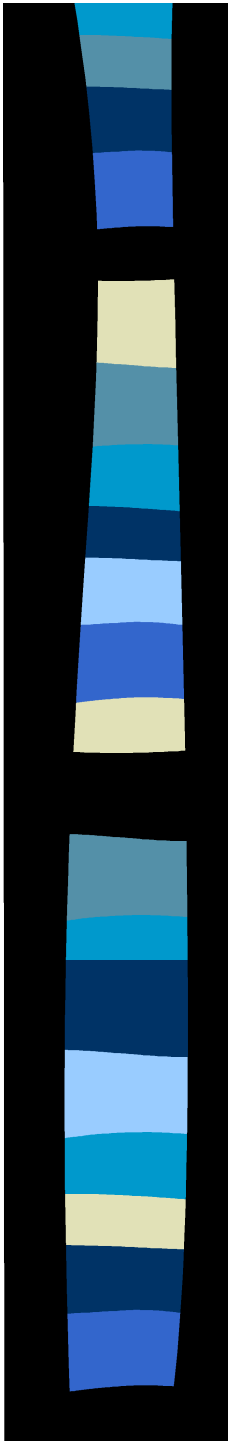
Status Report

**TSG-SA#4
June 21-23, 1999
Miami, FL-USA**

**Alain Ohana
TSG-S4 Chairman
GSM North America, T1**

3GPP TSG-S4





TSG-S4 Documents

- TSG-S4 Status Report: SP-99260
- Specifications: SP-99244 to SP-99254
- Liaisons: SP-99255 & SP-99256

3GPP TSG-S4



Meetings Schedule

- 1 Meeting held since TSG-SA#2
 - TSG-S4#5: June 14-16, 1999 in Miami, FL-USA
Same hosts as TSG-SA#4

- Next Meetings Schedule
 - TSG-S4#6: September 8-10 host required
 - TSG-S4#7: October 20-22 host required
 - TSG-S4#8: December 1-3 host required

- Meetings Statistics
 - ~35 Participants, 2-3 days, ~50 Documents



Highlights

- AMR Speech Codec
 - Key specifications versions 2.0.0 presented for approval
 - ANSI C-Code & VAD approval still pending SMG decision
 - Uncertainty on source of funding for Characterization Tests
- H.324 Based Multimedia Telephony Service:
 - Specifications version 2.0.0 presented for approval
- H.323 Based Packet Multimedia Service:
 - Preliminary discussions
- Other Work Items: Limited progress
 - Wideband Speech Codec
 - Tandem Free Operation



AMR Speech Codec

- Key specifications updated with last CRs agreed in SMG11
- Specifications considered stable:
Presented to TSG-SA#4 for approval (as version 2.0.0)
 - TS 26.071: General Description
 - TS 26.090: Transcoding Functions
 - TS 26.091: Error Concealment of Lost Frames
 - TS 26.092: Comfort Noise Aspects
 - TS 26.093: Source Controlled Rate Operation
- Specifications presented for information:
 - TS 26.074: Test Sequences (version 1.0.0)
 - TS 26.101: Frame Structure (version 1.2.0)



AMR Speech Codec

- TS 26.073: ANSI C-Code
TS 26.094: Voice Activity Detection
 - Approval postponed until SMG decision on VAD algorithm: Drafts available. Light editorial work required

- TS 26.102: Interface to Iu and Uu
 - Text content pending definition of the support of the speech service over the Radio Access Network

- TR 26.901: Performances Characterization
 - Identification of source of funding required to prepare Test Plan (see related LS to TSG-SA)
 - Error Patterns to be prepared once support of speech service over RAN is finalized



AMR Speech Codec: Open Issues

- Presentation and Approval of ANSI-C Code and VAD specifications postponed until final decision in SMG11/SMG
- Support of the speech service over the RAN still unclear to TSG-S4 members
 - Is Unequal Error Protection still considered?
 - Planning for completion?
 - LS sent to TSG-R1, R2 & R3
- ‘Transfer’ of AMR specifications needs to be clarified
 - LS to TSG-SA in SP-99255
- Characterization Phase
 - LS to TSG-SA in SP-99256 on Funding
 - Proposal to assume the responsibility to prepare the required Error Patterns sent to TSG-R1



Codec for H.324 Based CS Multimedia Telephony Service

- Specifications considered stable:
Presented to TSG-SA#4 for approval (as version 2.0.0)
 - TS 26.110: General Description
 - TS 26.111: Modifications to H.324
 - TR 26.911: Terminal Implementor's Guide
- TS 26.112: Call Set-Up Requirements, was updated and sent to TSG-N1, N2 for further consideration
- First version of evaluation report based on tests performed in ARIB presented for information:
 - TS 26.912: Quantitative performance evaluation of H.324 Annex C over 3G



Codec for H.323 Based Real Time Packet Multimedia Service

- Preliminary discussions held in TSG-S4#5
- No specification envisaged at this point
- Edition of an 'Implementor's Guide' under discussion
- Liaison sent to TSG-S2, R1, R2, R3 with inputs on the Error Resilience of data flows for real-time Packet Multimedia service
 - Support of Unequal Error Protection in real-time packet H.323 based multimedia services



Other Approved Work Items

- WI S4-4: 3G Audio-Visual Terminal Characteristics
 - No progress to report

- WI S4-5: Codec(s) for Wideband Telephony Services
 - Reviewed AMR Wideband Feasibility Study Report from SMG11
 - 3G Wideband Speech Codec performance requirements to be prepared for next TSG-S4 and provided an input for a joint development project

- WI S4-6: Tandem Free Operation in 3G or between 2G and 3G systems
 - Reviewed updated Work Plan
 - Preliminary draft of the 3G specifications now expected for 9/99, pending completion of TFO definition for GSM AMR



Required inputs from TSG-SA

- Transfer of AMR Specifications from SMG (SP-99255)
 - None transferred yet
 - Because of differences in Network Architecture, codec adaptation, the content of the GSM AMR and 3GPP AMR specifications are not identical, but functionally equivalent
 - ANSI C-Code is identical
- Funding of Characterization Tests (SP-99256)
 - TSG-SA to confirm interest in performing 3G AMR Characterization Tests
 - Limited to evaluation of AMR in 3G Radio Channels
 - Cost Estimate of 55 Euros (compared to 440 kEuros for GSM AMR Characterization Tests)
 - Identification of Source of Funding required to prepare the Test Plan



Specifications Presented for Approval

AMR Speech Codec:

- SP-99244: TS 26.071 Ver. 2.0.0: General description
- SP-99245: TS 26.090 Ver. 2.0.0: Transcoding functions
- SP-99246: TS 26.092 Ver. 2.0.0: Comfort noise
- SP-99247: TS 26.091 Ver. 2.0.0: Error concealment of lost frames
- SP-99248: TS 26.093 Ver. 2.0.0: Source controlled rate adaptation

Circuit Switched Multimedia Telephony Service:

- SP-99249: TS 26.110 Ver. 2.0.0: General description
- SP-99250: TS 26.111 Ver. 2.0.0: Modifications to H.324
- SP-99251: TR 26.911 Ver. 2.0.0: Terminal Implementor's Guide



Specifications Presented for Information

AMR Speech Codec:

- SP-99252: TS 26.074 Version 1.0.0: Test Sequences
- SP-99253: TS 26.101 Version 1.2.0: Frame structure

Circuit Switched Multimedia Telephony Service:

- SP-99254: TR 26.912 Ver. 1.0.0: Quantitative Performance Evaluation of H.324 Annex C over 3G