

*TSGS#3(99)127*

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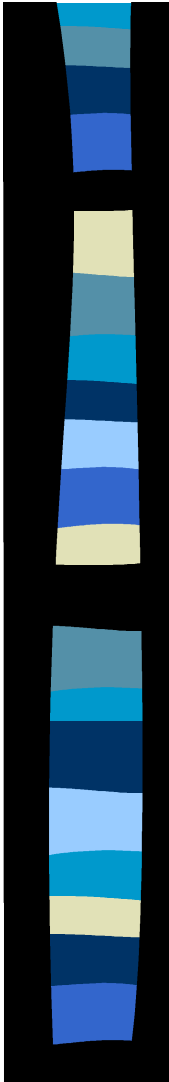
## ***TSG-S4 CODEC Working Group***

### **Status Report**

**TSG-SA#3  
April 26-28, 1999  
Yokohama, Japan**

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

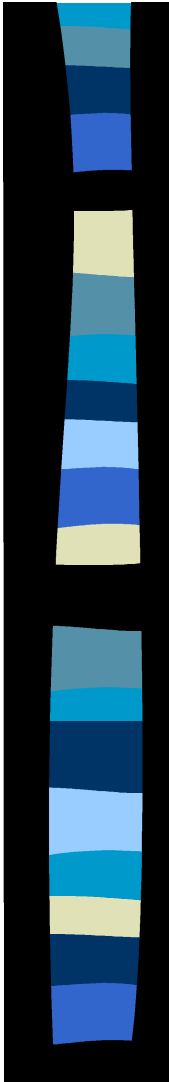
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## ***TSG-S4 Documents***

- SP-99126: TSG-S4 Status Report at TSG-SA#3
- SP-99127: TSG-S4 Status Report (Slides)
- SP-99128: Updated List of TSG-S4 Deliverables
- SP-99129: Proposed Work Item for Approval on 3G Audio-Visual Terminal Characteristics
- SP-99130: Work Program and Open Issues for Work Item S4-4 on QoS for Audio and Multimedia Codecs
- SP-99131 to SP-99140: TSG-S4 Specifications

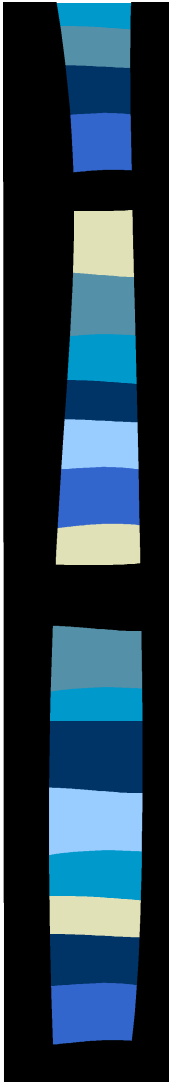
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## *Meetings Schedule*

- 2 Meetings held since TSG-SA#2
  - TSG-S4#3: March 24-26, 1999 in Yokosuka, Japan, Finland hosted by NTT DoCoMo
  - TSG-S4#4: April 20-22, 1999 in Munich, Germany hosted by Siemens
- Next Meetings Schedule
  - TSG-S4#5: June 14-16                    hosted by North America
  - TSG-S4#6: September 8-10            host required
  - TSG-S4#7: October 20-22            host required
  - TSG-S4#8: December 1-3            host required

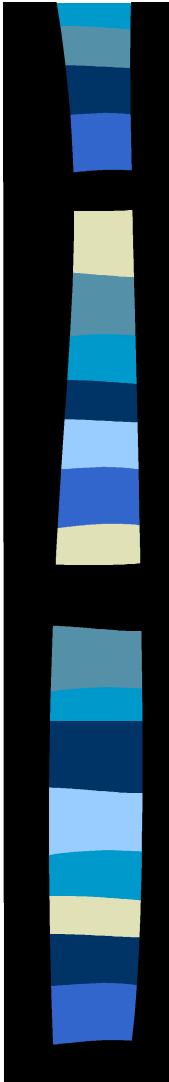
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## *Highlights*

- Review of Work Program for all Work Items  
Identification of Editors for Technical Specifications
- Production of first version of Technical Specifications for Mandatory/AMR Speech Codec
- Agreement on Mandatory Terminal Capabilities for Support of Circuit Switched H.324 Based Multimedia Telephony Service
- Production of first version of Technical Specifications for Codec for CS Multimedia Telephony Service
- Progress of other Work Items: QoS for Audio and Multimedia Codec, Tandem Free Operation in 3G
- Approval of New Work Item on 3G Audio-Visual Terminal Characteristics

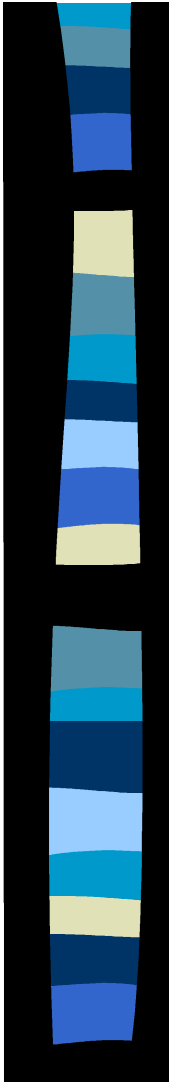
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## *Mandatory Speech Codec*

- Agreement on Structure of 3GPP Mandatory Speech Codec Specifications
  - TS 26.010: AMR Speech Codec; General Description
  - TS 26.011: AMR Speech Codec; Transcoding Functions
  - TS 26.012: AMR Speech Codec; ANSI C-Code
  - TS 26.013: AMR Speech Codec; Test Sequences
  - TS 26.014: AMR Speech Codec; Comfort Noise Aspects
  - TS 26.015: AMR Speech Codec; Error Concealment of Lost Frames
  - TS 26.016: AMR Speech Codec; Source Controlled Rate Operation
  - TS 26.017: AMR Speech Codec; Voice Activity Detection
  - TS 26.018: AMR Speech Codec; Frame Structure
  - TS 26.019: AMR Speech Codec; Interface to Iu and Uu
  - TR 26.020: AMR Speech Codec; Performances Characterization

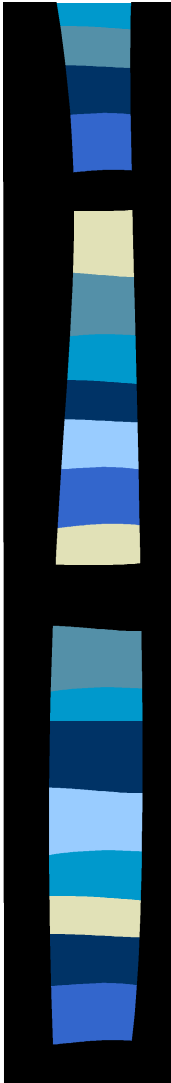
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## ***AMR Speech Codec: Open Issues***

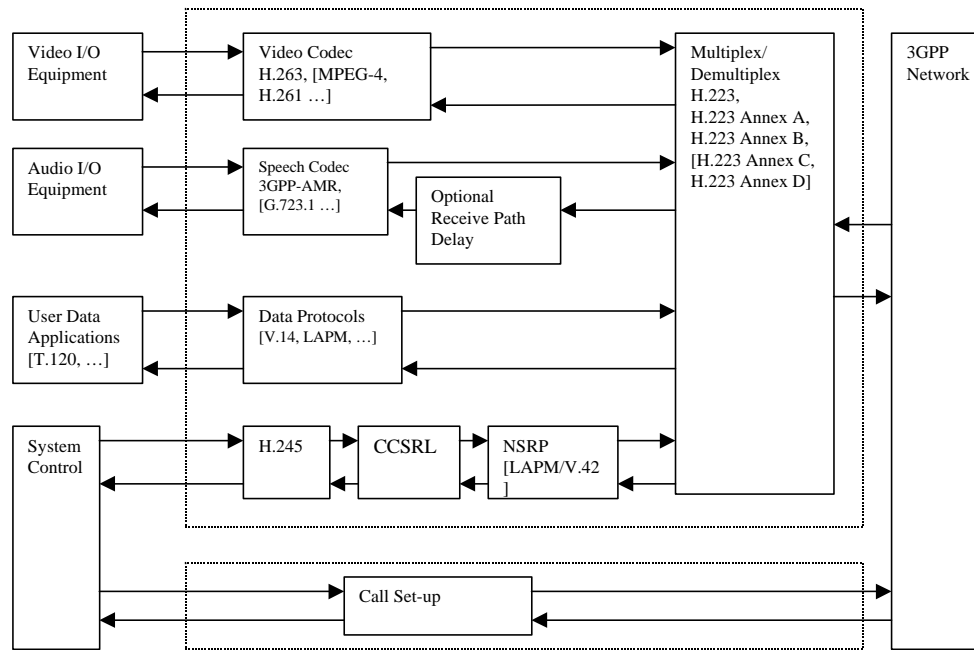
- AMR specifications for ANSI-C Code and VAD previously approved by SMG must be reviewed for consistency by SMG11 before transfer to 3GPP  
⇒ To be presented at TSG-SA#4
- Preparation of Characterization Test Plan to be transferred to Speech Quality Group of SMG11  
⇒ Source of Funding for Characterization Tests?
- Definition of Channel Coding for Mandatory Speech Codec under discussion with TSG-RAN-WG1  
⇒ Support of Unequal Error Protection under review

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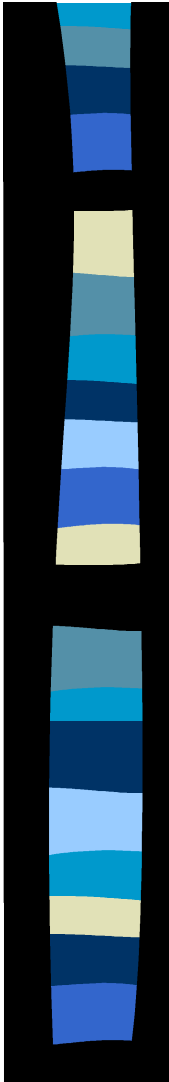


# Codec for CS Multimedia Telephony Service

- Based on ITU H.324 + Annex C (H.324-M)



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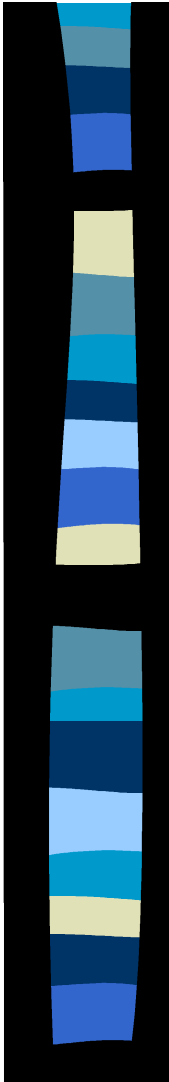


## ***Codec for CS Multimedia Telephony Service : Assumptions & Decisions***

- Focus on Multimedia Telephony Service within 3G system
  - Low penetration of fixed access Multimedia Terminals
  - Requirement for gateway if interoperability required (especially if fixed Terminal not compatible with 'Mobile' version of H.324 = H.324-M)
- 3G to carry Multimedia data flow as a single data flow at the output of the H.223 Multiplex (vs multiple media flows on different RABs)
- Agreement on Limited set of Mandatory Terminal Capabilities:
  - Support of AMR for Audio part as only Mandatory Speech Codec (ITU H.324 specifies G.723.1 as the mandatory speech codec)
  - Support of H.263 as the Mandatory Video Codec (ITU H.324 also includes H.261 as a second mandatory video codec)
  - Support of H.223 Annex B for Multiplex functions
  - Minimum user data rate of 32 kbit/s
- Additional set of recommendations included in Terminal Implementor's Guide (TR 26.115)

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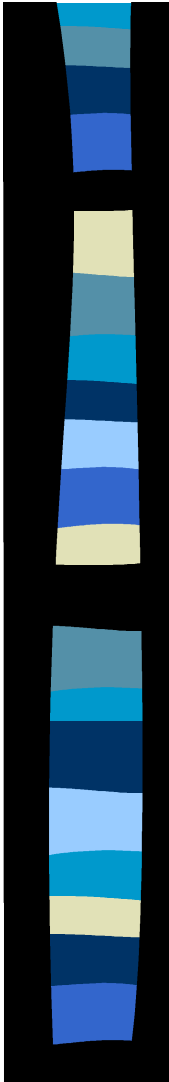




## ***Codec for CS Multimedia Telephony Service***

- Agreement on Structure of Specifications
  - TS 26.110: Codec for CS Multimedia Telephony Service;  
General Description
  - TS 26.111: Codec for CS Multimedia Telephony Service;  
Modifications to H.324
  - TS 26.112: Codec for CS Multimedia Telephony Service;  
Call Set-Up Requirements  
(sent to TSG-CN for Consideration)
  - TR 26.115: Codec for CS Multimedia Telephony Service;  
Terminal Implementor's Guide
  
- Versions 1.0.0 provided to TSG-SA#3

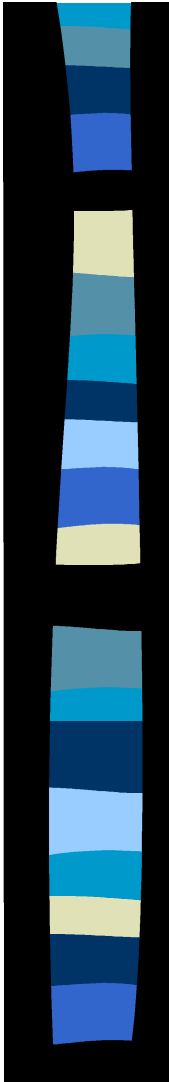
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## ***Other Approved Work Items***

- WI S4-3: QoS for Speech and Multimedia Codec
  - Presentation and Demo of Video Codec Performances
  - Reviewed ARIB Evaluation Test Results of Video Codec for CS Multimedia Telephony Service
  - Key Results to be provided in TR 26.116
- WI S4-5: Codec(s) for Wideband Telephony Services
  - No Contributions
  - Results of ETSI SMG11 Feasibility Study expected for 6/99
- WI S4-6: Tandem Free Operations in 3G or between 2G and 3G systems
  - Reviewed updated Requirement Specification (TS 02.53 -> TS 22.053, sent to TSG-S1 for review)
  - Progress dependent on decisions on Transcoder Location

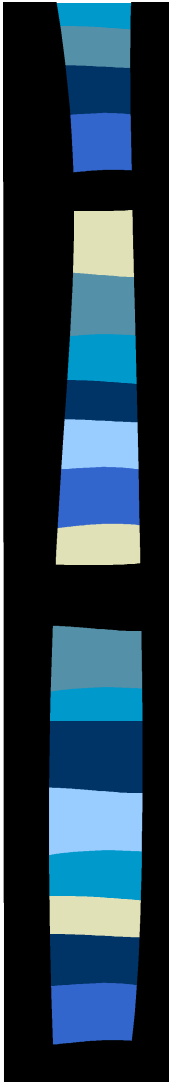
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## ***New Work Item***

- **WI S4-4: 3G Audio-Visual Terminal Characteristics**
  - Scope: Specification of Acoustic and Visual Performances and Test Requirements of 3G Terminals, for the Narrowband and Wideband speech and Multimedia Telephony services
  - Specifications Approval for Narrowband speech and Video Telephony Acoustic Characteristics  
December 1999
  - Specifications Approval for Visual Characteristics of 3G Multimedia Terminals  
December 1999
  - Specifications Approval for Wideband speech Acoustic Characteristics  
December 2000

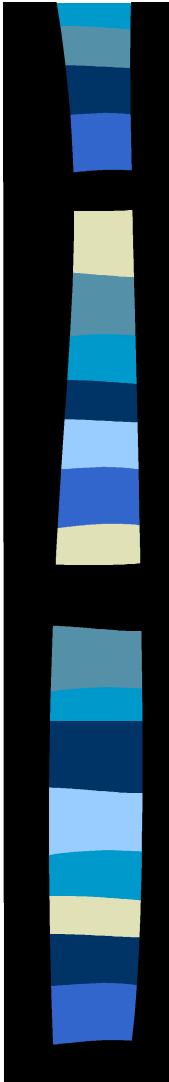
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## *Required inputs from other Working Groups*

- Channel coding for mandatory speech service (TSG-R1)
  - Item under study: Support of Unequal Error Protection
  - On-going exchange of Liaison Statements
- Location of Transcoder (TSG-S2)
  - Key to define Tandem Free Operation in 3G systems
  - Related support of out-of-Band TFO

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## ***Documents Presented to TSG-SA***

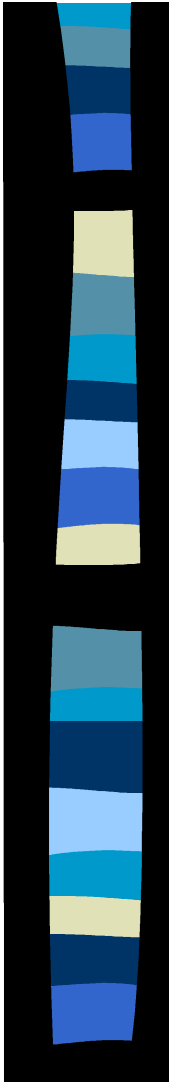
### For Information:

- SP-99128: Updated List of TSG-S4 Deliverables
- SP-99130: Work Program and Open Issues for WI-3 QoS for Audio and Multimedia Codecs

### For Approval:

- SP-99129: Proposed WI on 3G Terminals Audio-Visual Characteristics

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## ***Specifications Presented to TSG-SA***

### AMR Speech Codec:

- SP-99131: TS 26.010 Version 1.0.0: General description
- SP-99132: TS 26.011 Version 1.0.0: Transcoding functions
- SP-99133: TS 26.014 Version 1.0.0: Comfort noise
- SP-99134: TS 26.015 Version 1.0.0: Error concealment of lost..
- SP-99135: TS 26.016 Version 1.0.0: Source controlled rate...
- SP-99136: TR 26.018 Version 1.0.0: Frame structure

### Circuit Switched Multimedia Telephony Service:

- SP-99137: TS 26.110 Version 1.0.0: General description
- SP-99138: TS 26.111 Version 1.0.0: Modifications to H.324
- SP-99139: TS 26.112 Version 1.0.0: Call Set-Up Requirements
- SP-99140: TR 26.115 Version 1.0.0: Terminal Implementor's...

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