



International Telecommunication Union

# ITU-T Study Group 12

## ITU-T Study Group 12 activities

Jean-Yves MONFORT

FTR&D

ITU-T SG 12 Chairman

Workshop. Dakar 2001



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## ITU-T Study Group 12 End-to-end transmission performance of networks and terminals

# Lead Study Group on Quality of Service and Performance

Responsible for guidance on the **end-to-end transmission performance** of networks, terminals and their interactions, in relation to the **perceived quality** and **acceptance by users** of text, speech, and image applications. This work includes the related transmission implications of **all networks** (e.g., those based on PDH, SDH, ATM and IP) and all telecommunication terminals (e.g., handset, handsfree, headset, mobile, audiovisual, and interactive voice response).




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# Organization of SG 12

Chairman : **J.Y. Monfort** (FTR&D)

Vice -Chairmen :

**C. Dvorak** (AT&T), in charge of leading Role  
on QoS 

**K. Adler** (Mannesmann Mobilfunk), also  
WP2 Chairman

Working Party Chairmen

WP1 : **R. Ceruti** (TILAB)

WP 3 : **P. Coverdale** (Nortel Networks)

TSB Councillor : **J. Katona-Kiss**



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## Structure of SG 12

**WP1 Terminals and  
Telephony**

**WP2 Performance, planning and  
assessment**

**WP3 QoS over IP**

Q.1/12 (Evolution of work Programm)

Q.15/12 (QoS and Performance coordination)



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## Working Party 1

- Q.3/12 : Transmission characteristics of **speech terminals** both for **fixed** circuit-switched and **mobile** networks.  
Rapporteur : A. Kamcke (Siemens)
- Q. 4/12 : Telephonometric methodologies for **handsfree** terminals and **speech enhancement** devices (including **AEC** and **Noise Reduction**).  
Rapporteur : V. Turbin (FTR&D)
- Q.5/12 : **Telephonometric** methodologies for handset and **headset** terminals.  
Rapporteur : L. Madec (Itek/B&K)
- Q.6/12 : **Analysis** methods using **complex** measurements **signals**.  
Rapporteur : H.W. Gierlich (DT/ HA)



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## Working Party 2

- Q.7/12 : Methods, tools and test plans for the **subjective assessment** of speech and audio quality.  
Rapporteurs : D. Pascal (FTR&D), P. Usai (ETSI)
- Q. 8/12 : Extension of the **E-Model**.  
Rapporteurs : U. Jekosh, S. Möller (DT/Ruhr University)
- Q.9/12 : **Objective** measurement of speech quality under conditions of **non-linear** and **time variant processing**.  
Rapporteur : H. Klaus (DT Berkom)
- Q.10/12 : **Transmission planning** for voiceband, data and multimedia services.  
Rapporteur : V. Sypli (RTP)
- Q.11/12 : **Speech transmission planning** for multiple interconnected networks (e.g. public, private, internet).  
Rapporteur : J. Pomy (Ténovis)



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## Working Party 3

- o Q.2/12 : **Speech Transmission** Characteristics and measurement methods for **terminals and Gateways** interfacing Packet-Switched (**IP**) networks.
- o Q. 12/12 : **Transmission performance** considerations for **voiceband services** carried on networks that use **Internet Protocol**.  
Rapporteur : S. Pennock (Lucent)
- o Q.13/12 : **QoS/performance Multimedia** requirements.  
Rapporteur : P. Coverdale (Nortel Networks)
- o Q.14/12 : **Effects of interworking** between multiple IP domains on the **transmission performance** of VoIP and voice band services.  
Rapporteur : D. Mustill (BT Exact)
- o Q.16/12 : In service non-intrusive assessment of voice transmission performance  
Rapporteur : V. Barriac (FTR&D)

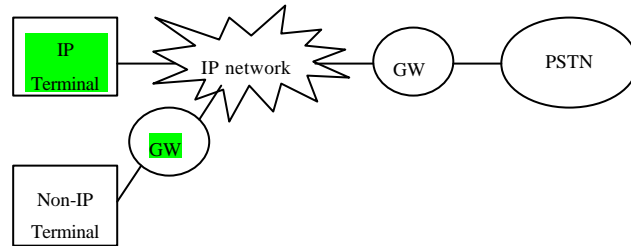


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## Structure of Working Party 3

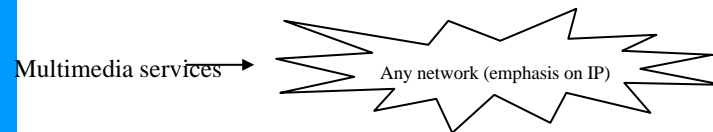
Q.2

**Speech quality** for devices at the edge of an IP network eg **terminals and gateways**.



Q.13

**Performance aspects of multimedia services** over any network, but with a focus on IP.



Q.12

**Fundamental impact of IP network impairments** on voiceband services

Voiceband services (focus speech)



Q.14

**Planning rules for speech quality** of multiple interconnected IP networks.



Interconnection may be PSTN, IP etc





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# Work programm (1/6)

## Terminals

### o Mobiles

- New P.CMTH (Handsfree)
- Rev. P.313 (Handset and headset)

### o Multimedia

- P.30x Group Audio Terminals
- P.MMT (Speech Quality for multimedia terminals)

### o IP

- P.VOIP (IP terminals)
- P.GTWY (Gateways)

### o Headset

- P.380



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## Work programm (2/6)

### - Telephonometry

- P.SPDA Test methods and characteristics of Speech Processing devices for acoustic enhancement (e.g., AEC, Noise Reduction,...)
- P.57 rev.

### - Overall Quality perceived by users

- P.OQN Objective Quality Number (Combination of different criteria and technical characteristics)



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## Work programm (3/6)

### Subjective assessment activities

- o Test Plans For speech coders  
(collaboration with SG 16) e.g. 4kbit/s
- o Recommendations
  - **P.PAC** Subjective evaluation of the effects of time-varying impairments (eg. Packet loss)
  - **P.800 Rev.** Methods for subjective determination of transmission quality Subjective evaluation of noise suppression algorithms (**P.NSA**), for music quality of narrowband and wideband telephony (**P.MUS**), of active signal processing devices (**P.ASPD**), of voice activity detectors (**P.VOAD**)



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## Work programm (4/6) Modelling

- o E Model (Enhancements of G.107)
  - Terminal Equipment, Wideband, User expectation, Conversation quality features
  - New le values and methods for derivation
- o Perceptual Models ( Enhancements of P.862)
  - Influence of terminals, of conversational situations, ...



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# Work programm (5/6)

## Planning and performance over IP networks

- o **G.17x** "Transmission Planning For Voiceband Services Over IP Connections"
- o **G.IPP** "Transmission Performance Parameters Of IP Networks Affecting Perceived Speech Quality And Other Voiceband Services"
- o **G.VoIP-Islands**: Trans. Plan. for interconnected IP-based networks supporting VoIP services.
- o **G.VBS-Islands**: Trans. Plan. for interconnected IP-based networks supporting PSTN-type speech and voiceband data services.
- o **G.GAEC**"Guidance for Application of Echo Cancellers »
- o Revision, harmonization and development of new **HRC's(G.103 and G.105)**
- o **Rec. G.1n1** Environmental noise classification and minimum performance requirements of noise reduction algorithms



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## Work programm (6/6)

- o INMD Methods
  - P.561 Rev. (new impairments, mainly for IP)
  - P.562 Rev.
- o Measurement signals and Analysis Methods
  - Revision of P. 501 and P.502
- o QoS Requirements (IP)
  - G.QoSRT (“Multimedia QoS Requirements”).



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## SG12 as the QoS Lead SG

- *Internal to the ITU-T, provide a **roadmap** for QoS activities that can be used to identify, communicate and resolve QoS-related issues.*
- *External to the ITU-T, improve the **visibility** and utilisation of **ITU-T expertise in QoS**, and **better leverage this expertise in specifications being developed elsewhere in the industry.***

