



ITU-T Workshop on "From Speech to Audio: bandwidth extension, binaural perception"

Lannion, France, 10-12 September 2008

Roundtable with SDOs

**Activities in ITU-R Study Group 6
on quality assessment and spatial audio**

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Scope of ITU-R Study Group 6

- Broadcast Service
 - Audio Broadcasting
 - Television
 - End-to-end approach
- New Structure in new period:
 - WP 6A - Terrestrial broadcasting delivery
 - WP 6B - Broadcast Service assembly and access
 - WP 6C - Programme production and quality assessment

Hot Topics in Audio of ITU-R WP6C

- Review of multichannel audio used in broadcasting
 - Variety of loudspeaker setups on the market: 5.1/22.2/2+2+2/WFS
 - Current Recommendations only 5.1
 - Optimum loudspeaker arrangements?
 - Forward/backward compatibility?
 - Coding parameters?
 - Transcoding between formats?

Hot Topics in Audio of ITU-R WP6C

- Objective assessment of audio quality
 - ➡ Today: BS.1387 (PEAQ) for mono and stereo at high quality (→ listening tests according to BS.1116)
 - ➡ Work on revision of BS.1387 for
 - Multichannel (spatial) audio
 - Re-verification using newer audio codecs using parametric coding
 - Lower audio quality levels (→ listening tests according to BS.1534)

Hot Topics in Audio of ITU-R WP6C

- Measurement of programme loudness
 - BS.1770 “Algorithms to measure audio programme loudness and true-peak audio level”
 - Verified for dialog only
 - Mono, stereo and multi-channel
 - Pragmatic and simple approach (better performance than perceptual models)
 - Revision concerning temporal integration ?
 - Revision using perceptual modeling ?

Quality Assessment in ITU-R and ITU-T

- ITU-R started at full band and high quality (“transparent quality”)
 - ➔ Currently activities towards lower bitrates and qualities
 - ITU-T started at narrow band
 - ➔ Currently activities towards higher bitrates and qualities
 - Many aspects of quality assessment non application specific
- Time for an ITU Quality Study Group (ITU-Q) ?