ACOUSTICS2008/2725
Audio-visual quality model for internet protocol television services

Marieneige Garcia and Alexander Raake

Deutsche Telekom Laboratories, Berlin Institute of Technology, Ernst-Reuter-Platz 7, 10587 Berlin, Germany

This paper presents a model for predicting the perceived audio-visual quality of IPTV services. Our model follows a modular approach and audio-visual quality is deduced from the perceived audio quality, the perceived video quality, the interaction between the audio quality and the video quality and the quality of the interaction between audio and video (lip-synchronization). In its current form, the model covers H.264 video codec, Standard Definition and High Definition video resolutions, MP2 audio codec and wav audio format. Addressed degradations, which generate different visual and auditory perceptual dimensions, are compression artifacts, packet losses, reduced bandwidth and delay between audio and video. Results demonstrate a mutual influence of the perceived audio and video qualities and the predominance of the video quality on the overall audio-visual quality. We analyze the interaction between visual perceptual dimensions, like blockiness, blurriness, slicing and freezing, and auditory perceptual dimensions, like frequency content (brightness), interruptedness, and freezing. We also study the influence of the type of the degradation on the interaction between perceived audio and video qualities. At last, we examine the influence of the audio-visual content (music video, news, etc.) on the perceived audio-visual quality. An outlook highlights future model extensions.