

The Effect of Objective Room Acoustic Parameters on Auditory Steady-State Responses - DTU Orbit (08/11/2017)

The Effect of Objective Room Acoustic Parameters on Auditory Steady-State Responses

Verification that Hearing Aids (HA) have been fitted correctly in pre-lingual infants and hard-to-test adults is an important emerging application in technical audiology. These test subjects are unable to undergo reliable behavioral testing, so an objective method is required. Auditory steady-state responses (ASSR), recorded in a sound field is a promising technology to verify the hearing aid fitting. The test involves the presentation of the auditory stimuli via a loudspeaker, unlike the usual procedure of delivering via insert earphones. Room reverberation clearly may significantly affect the features of the stimulus important for eliciting a strong electrophysiological response, and thus complicate its detection. This study investigates the effect of different room acoustic conditions on recorded ASSRs via an auralisation approach using insert earphones. Fifteen normal-hearing listeners were tested using narrow-band (NB) CE-Chirps centered at the octave-bands of 0.5, 1.0, 2.0 and 4.0 kHz. These stimuli were convolved with impulse responses of three rooms simulated using a Green's function approach to recreate different sound-field conditions. Comparisons with the unmodified stimuli recordings (reference condition) quantified that room acoustics significantly affects the amplitudes of the ASSRs.

General information

State: Published

Organisations: Department of Electrical Engineering, Acoustic Technology, Interacoustics A/S

Authors: Zapata Rodriguez, V. (Intern), M. Harte, J. (Ekstern), Jeong, C. (Intern), Brunskog, J. (Intern)

Number of pages: 4

Publication date: 2016

Host publication information

Title of host publication: Proceedings of DAGA 2016

Publisher: Deutsche Gesellschaft für Akustik e.V.

Main Research Area: Technical/natural sciences

Conference: DAGA 2016 Aachen, Aachen, Germany, 14/03/2016 - 14/03/2016

Source: PublicationPreSubmission

Source-ID: 122968697

Publication: Research - peer-review › Article in proceedings – Annual report year: 2016