Viability of RECD in Fitting Vented and Open-Canal Hearing Aids

Ryan L. Irey, M.A.¹, Jason A. Galster, Ph.D.¹, and Ryan W. McCreery, Ph.D.²

¹Starkey Hearing Technologies, Eden Prairie, MN. ²Hearing and Amplification Research Laboratory, Boys Town National Research Hospital, Omaha, NE.

Introduction

The purpose of the present study was to examine the effects of non-occluded fitting configurations on the real ear in situ response of a hearing aid. Ongoing research has focused on the in situ response of hearing aids for in-the-ear (ITE) and in-the-canal (ITC) hearing aids. The in situ response is the difference between the nominal output of the hearing aid and the ear canal response. This difference can be attributed to the acoustic properties of the ear canal and the hearing aid settings.

Methods

The RECDs were obtained for each participant under four different configurations of coupling to the ear:

1. ER3A RECD + Occluded earmold HA coupling
2. ER3A RECD + Occluded earmold HA coupling (2 mm vent)
3. ER3A RECD + Custom vented earmold HA coupling
4. ER3A RECD + Bare #13 + HA coupling

Part II: Measurement of 2 cc coupler response

Audiometric thresholds (dB HL) for the simulated Flat 50 dB and Sloping audiograms.

Table 1.

Part III: Measurement of the real ear response

In situ measurements of hearing aid output responses (dB SPL) for each test condition. The red line indicates the DSL v5 prescribed output targets for the simulated flat 50 dB hearing loss.

Results

• Clinically significant differences were identified by comparing the 95% confidence interval obtained for one-sample, two-sided paired t-tests.

Conclusions


References