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

Significance of the Study: The focus of the study was to examine the viability of RECD with four hearing aid configurations in order to understand the potential impact on hearing aid fitting. The study aimed to explore whether RECD could be used to achieve prescribed output targets.

Methods, continued

Part I: Measurement of the RECD

- Face-inward measurement condition were determined to be of interest to all participants.
- ER3A RECD + Bilateral vented earmolds coupling (Condition #1).
- ER3A RECD + Vent-eroc coupling (Condition #3).
- ER3A RECD + Vent-eroc coupling (Condition #5).
- ER3A RECD + Bare #13 tube HA coupling - was not measured due to instability.

Part II: Measurement of the RECD

- RECD values < -20 were limited to -20 during coupler and in situ measurements.
- A sixth condition - Bare #13 tube RECD + Bare #13 tube HA coupling - was not measured due to insurmountable feedback.

Summary and Conclusions

Part I: Measurement of the RECD

- Maximal RECD values were obtained at the critical audiometric frequencies.

Part II: Measurement of the RECD

- Maximal RECD values were obtained at the critical audiometric frequencies.

Results, continued

Table 2: RECD values for the simulated flat 40 dB and sloping audiograms.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>500 Hz</th>
<th>1000 Hz</th>
<th>2000 Hz</th>
<th>3000 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat dB SPL</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Sloping dB SPL</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
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</table>

Table 3: RECD values for the simulated flat 50 dB and sloping audiograms.

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References


Note that only the clinically significant comparisons are shown.

Figure 1a. Boxplots of measured RECDs at audiometric frequencies for an ER3A foam tip (upper left panel), custom occluded earmold (upper right panel), bare #13 tube (lower left panel), and in situ measurements (lower right panel). The red line indicates the DSL v5 target for the simulated flat 40 dB hearing loss.

Figure 1b. Distribution of measured in situ hearing aid output responses as a function of frequency. The red line indicates the DSL v5 prescribed output target for the simulated flat 40 dB hearing loss.

Figure 2a. Distribution of measured hearing aid output responses as a function of frequency. The red line indicates the DSL v5 prescribed output target for the simulated flat 40 dB hearing loss.

Figure 2b. Distribution of measured hearing aid output responses as a function of frequency. The red line indicates the DSL v5 prescribed output target for the simulated flat 40 dB hearing loss.