

## **Abstract EFAS/DGA 2007**

### **New Stimuli for Evaluation of Multichannel Noise Reduction Hearing Aids**

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Noise reduction in multichannel hearing aids is currently quantified by using steady-state signals and measuring the gain reduction. This method does not assess noise reduction within individual channels. In this presentation we describe new stimuli and their effectiveness in evaluating multichannel noise reduction circuits more precisely. The proposed stimuli were created by notch-filtering ICRA noise and filling-up the notch with steady-state narrowband noise so that the resultant spectrum matched that of the original ICRA noise.

Multichannel digital BTE hearing aids from five major manufacturers were programmed for a flat hearing loss; noise reduction “off” and “maximum” were stored as separate memories. All other features such as directionality, feedback suppression, and manual volume control were disabled. The hearing aids were mounted on KEMAR with custom earmold. The test stimuli were presented from a loud speaker at 65 dB in a double walled booth, and the output of each hearing aid was recorded. The amount of noise reduction achieved in each channel was calculated by measuring the “notch-depth” in the output spectrum. Results indicate that the proposed new stimuli can adequately measure noise reduction within individual channels and the degree of noise reduction varies significantly across the tested hearing aids.

