

## **Abstract EFAS/DGA 2007**

### **Speech recognition in a realistic noise field: a test method for hearing and hearing aid evaluation**

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#### **Background:**

About 5 % of the general population will be in a need of hearing aids. Most of them are found in the elderly groups. The cost of hearing aid programs is increasing, and both the government and the individual hard-of-hearing subject will, depending on the support system in each country, be heavily charged. The evaluation of hearing aid fittings is therefore crucial, and the cost-benefit has to be shown in each individual case. It is of great importance to develop methods where some quality insurance of the hearing aid fitting may be presented.

#### **Methods:**

We have developed a system based on the anechoic chamber in our department. A speech material is presented from a front loudspeaker, and all together six loudspeakers will present noise in a free field. The noise signal is taken from the ICRA record and is presented uncorrelated (> 10 sec. delay) in the different channels. Speech or noise level may be varied, and the signal-to-noise ratio (S/N) is determined for a fixed, 40 to 60 % speech recognition.

#### **Results:**

The S/N-ratio may be presented for the unfitted situation and for left and right ear fittings and compared to the binaural fitting. As such, the binaural advantage may be demonstrated. The different two- and three-microphone hearing aids may be compared regarding the effects of the directional characteristics, and the different noise suppression and speech enhancement systems may also be compared.

#### **Conclusion:**

We believe that such measurements will be of great importance in the future evaluation or quality insurance of hearing aid fittings. These measurements should be a general part of the fitting procedure and will hopefully add more information than what is generally possible with the present routine methods. The results will have a better reproducibility when measurements are performed in an anechoic chamber, but the system will also work in an ordinary audiometric room, but with less precision

