

# Oticon Delta:

## Success with new users

Mark C. Flynn, PhD  
 Director of Product Definition  
 Oticon A/S, Denmark



Oticon Delta was designed specifically to meet the needs of adults with mild-to-moderate high frequency hearing loss. To facilitate this desire, Delta took the novel approach to hearing instrument development and design by ensuring that it met three predetermined success criteria. These being;

1. Maximising speech understanding in noise, rather than overall loudness compensation.
2. Excellent sound quality with no audible distortions
3. Great design and physical transparency.

### The Study

Nine adults with acquired sensorineural hearing loss (Figure 1) agreed to participate in the study. No participants had used hearing instruments previously. All participants were fitted with Delta 8000 bilaterally in prescribed settings. The Automatic Adaptation Manager was activated and by the completion of the study all participants were in Adaptation Step 3.

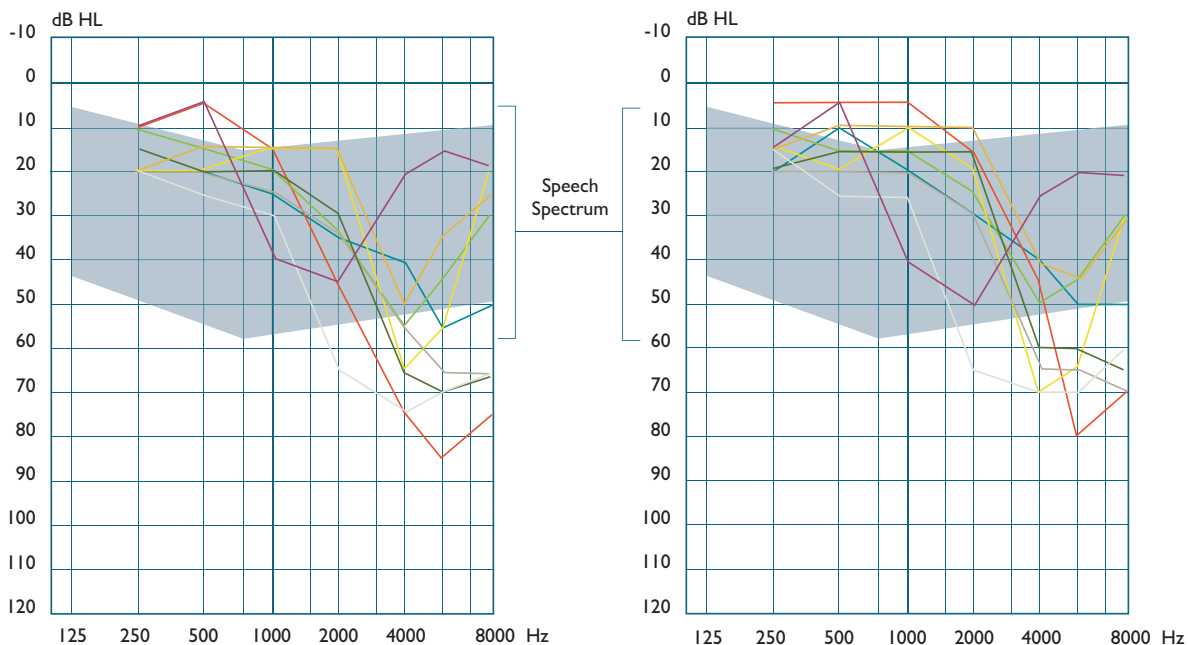


Figure 1. Audiograms from nine participants. Note the diversity of hearing loss as it relates to the fitting range of Delta.

*Oticon Delta provides first time users with a hearing solution that they can actually appreciate...*

Following a three-month period of wearing Delta binaurally, performance was evaluated using both subjective and objective measures of benefit. Objective performance was evaluated in a sound proof laboratory using the Dante-2 speech perception test in background noise.

Figure 2 indicates the improved speech understanding achieved with Delta. It was pleasing to note that the directional microphone technology developed for Delta resulted in an impressive 3 dB of speech understanding benefit; a 3 dB improvement in S/N translates to an approximate 30% improvement in speech understanding. It is also important to note that this 3 dB improvement was achieved with a fully open dome fitting, as is standard for Delta for the hearing losses fit in this study.

Examination of individual data revealed that all participants obtained a significant benefit in speech understanding. Subjective test scores are interesting for first time users, as they typically view amplification negatively as it may not deliver what was promised or perceived. Figure 3 illustrates that very good scores were recorded for speech understanding, listening comfort and overall performance. Importantly, when compared with reference data for first time users of other digital hearing instruments, the reported benefit was significantly higher with Delta than with other premium digital instruments ( $p < .01$ ).

**Summary**

The current study summarises the performance of a group of first time users with Oticon Delta. All participants demonstrated improvements in speech understanding in noise and all subjects demonstrated qualitative benefit in addition to their continued use of amplification.

Oticon Delta provides first time users with a hearing solution that they can actually appreciate and offers the po-

tential that after a number of years of false starts we may begin to provide suitable solutions for this population. Unlike previous attempts, Delta succeeds by recognising that the needs of this population are categorically different from those with a more significant hearing loss and therefore the fresh approach provided by Delta is required.

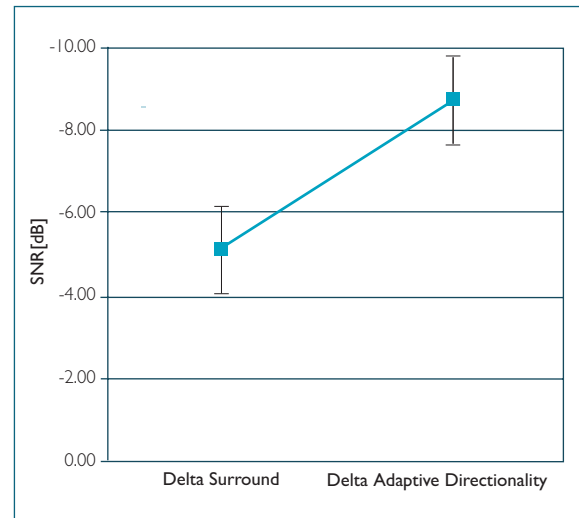


Figure 2. Directional benefit obtained by first time users of Oticon Delta.

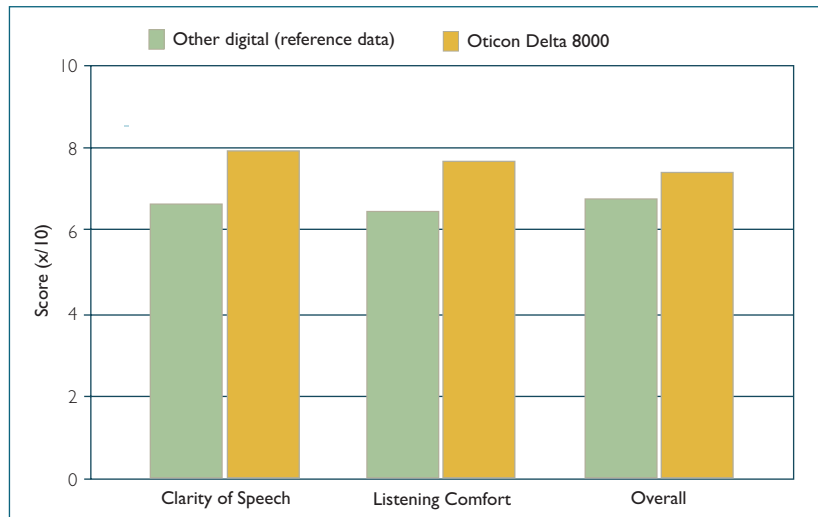


Figure 3. Subjective ratings of performance benefit in terms of clarity of speech, listening comfort and overall perceived benefit.