

Reduced listening effort in noise with StereoZoom™¹

Objective:

To investigate listening and memory effort with StereoZoom via:

- ▶ Objective EEG measurement &
- ▶ Subjective ratings



Changes in the alpha frequency band (8-12 Hz) reflect changes in listening effort^{2,3}

Methodology:



StereoZoom: wirelessly connected binaural, directional microphone technology to improve speech intelligibility in loud background noise

Comparison of listening effort of:



Task:

- ▶ Word Recall: 2 sentences consecutively - percentage of correctly recalled sentence parts

Measures:

- ▶ Recording of brain activity with EEG
- ▶ Subjective rating of effort



65 dB diffuse cafeteria noise

Results:

1. Objective EEG measurement
Lower alpha spectral density in noise with:

Phonak SPILN < Competitor SPILN

2. Subjective effort ratings

Phonak SPILN < Competitor SPILN

Subjective listening and memory effort ratings correlates with objective EEG findings

Subjective and EEG measuring show less effort with StereoZoom



Speech signal easier to understand



Less cafeteria noise to be suppressed by brain



Lower brain activity = lower listening effort

¹ Winneke, A., et al. (2018). Less listening- and memory effort in noisy situations with StereoZoom. Phonak Field Study News, retrieved from <https://www.phonakpro.com/en/resources/information-forms/evidence.html>, accessed on 16th November 2018.

² Winneke, A., et al. (2016). Neuroergonomic assessment of listening effort in older call center employees. Proceedings of the 9th AAL Kongress, Frankfurt/Main.

³ Winneke, A., et al. (2016). Reduction of listening effort with binaural algorithms in hearing aids: an EEG Study. Poster presented at the 43rd Annual Scientific and Technology Meeting of the American Auditory Society, Scottsdale, AZ.