

Sennheiser Conversation Clear Plus and ConC 400 claim verification

1. Summary

FORCE Technology has conducted a listening test and verified the results and calculations, which contribute towards substantiating the following claim.

The claim wording is created by Sennheiser, for their products, **Conversation Clear Plus** and **ConC 400**.

Products	Claim
<ul style="list-style-type: none"> • Conversation Clear Plus • ConC 400 	<i>95% of users experience significant speech enhancement in noisy situations</i>

2. Method

Sennheiser Conversation Clear Plus and ConC 400 was tested for 3 different settings against an unaided condition in a Paired Comparison listening test with 50 relevant consumers*.

The evaluations were based on Binaural recordings of the products made on a KEMAR in a standardized listening room at FORCE Technology, Denmark. A 24 channel loudspeaker setup was used to reproduce accurate sound fields of 4 different environments (Restaurant, Pub, Metro platform underground, Metro train ride) at levels ranging from 62 – 72dBA. Additionally, Target speech and distractor speech was presented over 3 discrete loudspeakers located at 0, -45 and 150 degrees and for two different levels of Speech-to-Noise ratios.

The listening test was performed in listening booths with low background noise levels, and the binaural recordings were presented at calibrated playback levels over Sennheiser HD650 headphones.

The test question for the Paired Comparison test was: *"Which of the two sounds has the clearest speech?"*

The stimuli were presented in a balanced double blind test design and responses collected via a professional software tool developed by FORCE Technology called SenseLabOnline.

A total of 96 comparisons were made per participant. A significance level of $\alpha=0.05$ is reached when at least 57 out of 96 responses are in favor of the product over the unaided condition**.

All of the 50 participants reached a significant level in favor of the Sennheiser product over unaided condition.

*) *Relevant consumer of the product is defined as:* 45-70 years of age, not hearing aid user, experience with challenging speech in noisy situations, user of smartphone, tablet or PC. The participants all received a fee for their participation that also covered transport cost.

***) According to Table 1, ASTM Standard Guide for Sensory Claim Substantiation (E1958-20, Jan. 2020)

3. Disclaimers

This claim relates to perceived Speech clarity.

4. Document validation

On November 1st 2022, FORCE Technology confirms that more than 95% of the participants in the listening tests experienced significant Speech Enhancement in noisy situations when listening to Sennheiser Conversation Clear Plus and ConC 400 compared to unaided condition, substantiating the claim.

Authorized by FORCE Technology