AUDIBILITY EXTENDER

- The Audibility Extender uses linear transposition to move high frequency information downward in frequency to a region where it is audible to the user taking the individual hearing loss into account.

- The Audibility Extender automatically selects the most significant sound as the dominant signal from within the lost audible frequency region.

- The Audibility Extender automatically calculates if one or two octaves of signal are transposed downward depending on the transposition start frequency.

- Speech detection algorithm accurately finds important fricative speech sounds to transpose while detecting unvoiced speech sounds to preserve in the underlying signal.

OUTPUT FREQUENCY RANGE SETTINGS
BANDS CLOSED ABOVE START FREQUENCY GIVES NO AMPLIFICATION ABOVE START FREQUENCY OR CUT AND PASTE EFFECT OF TRANPOSED SIGNAL

BANDS OPEN ABOVE START FREQUENCY GIVES AMPLIFICATION ABOVE START FREQUENCY OR COPY AND PASTE EFFECT OF TRANPOSED SIGNAL

GOAL
The Audibility Extender improves speech perception and production for children and adults with a severe-to-profound high frequency hearing loss.

Progress in language scores and acceptance occur fast after targeted use of the Audibility Extender.
AUDIBILITY EXTENDER

THE AUDIBILITY EXTENDER IS FUNDAMENTALLY DIFFERENT FROM OTHER FREQUENCY COMPRESSION SCHEMES IN SEVERAL ASPECTS:

- It is active for the high frequency signals regardless of their voicing characteristics, i.e., voiced or voiceless. The speech detection system ensures that transposed voiced speech does not mask any underlying unvoiced speech.
- It preserves the harmonic relationship of the transposed signal and original signal. All transition cues are preserved as well. This minimises the perception of click-like artifacts.
- The output frequency range allows for the transposed information to remain audible in the output range above the start frequency. Maximising audibility either side of the transposition start frequency.
- The transposed signal is mixed with the original signal to give a richer, more “natural” sound perception. Systems that do not overlap the transposed sounds would risk “exaggerating” any unnaturalness of the transposed sounds.


![Graph showing percent correct (%) for fricatives, affricates, approximants, and nasals for different conditions.](image)

![Graph showing percent correct (%) for own hearing aids, AE 3 weeks, and AE 6 weeks for different conditions.](image)