

Best Practice Protocols

Electroacoustic verification of SoundRecover using the Audioscan Verifit®

The following step-by-step protocol using different stimuli (i.e. calibrated 1/3 band filtered signals and live voice production) for verifying SoundRecover is described below for the Audioscan Verifit®.

1. Disable SoundRecover in the hearing aids using the fitting software.
2. Evaluate the shape and gain of the hearing aid fitting using speech stimuli (i.e. Speech-std(1) or (2) or Speech-ISTS) with SoundRecover disabled.
 - a. Ensure that the aided speech spectra meet prescriptive targets to give as broad a bandwidth of audibility as possible. If necessary, adjust the output response to optimize the fitting.
 - b. Note: MPO measurements are not valid in the frequency-lowered region. Therefore, always measure MPO with SoundRecover disabled.
3. Enable SoundRecover. Choose moderate-level stimuli such as calibrated filtered signals and/or live speech to represent /s/ and /sh/ respectively.
 - a. For the calibrated 6300 Hz filtered band test, go to "Speech6300" under "Stimulus Options" and then run a 65 dB input. Fine tune to provide audibility. However, depending upon audiometric configuration, it is important to note that audibility of /s/ is not always possible.
 - b. The 4000 Hz filtered speech band in the Audioscan Verifit® appears to be a reasonable estimate of the center frequency for /sh/. Go to "Speech4000" under "Stimulus Options" and then run a 65 dB input. Fine tune to provide audibility when possible.
 - c. Live voice productions of isolated /sh/ and /s/ can also be measured with the Audioscan Verifit®. Use the "Speech-Live" option under "Stimulus Options" and then the "Freeze Curve" can be used to capture the fricative in isolation.^{1,2}
 - d. Use the weakest SoundRecover setting that provides audibility when possible and check for separation of /s/ and /sh/. Adjust as necessary to optimize benefit.
4. Compare the output responses for the stimuli used to evaluate SoundRecover and fine tune to avoid complete spectral overlap.
5. Perform a listening check prior to completing a fitting with SoundRecover. Due to some fittings having high output levels, it may be easier to listen to the output of the hearing aids via the test box. Headphones can be plugged into the Audioscan Verifit® allowing the clinician to adjust the volume and to listen to the aided responses during verification, either in the test box or on ear. If you cannot detect any difference between aided /s/ and /sh/, consider the spectral overlap of these sounds, and the possibility of a milder frequency lowering setting.

References

1. Glista, D., Scollie, S., and Sulkers, J. (2012). Perceptual Acclimatization Post Nonlinear Frequency Compression Hearing Aid Fitting in Older Children. *Journal of Speech, Language, and Hearing Research*, 55(6): 1765-87.
2. Scollie, S. & Glista, D. (2011). Digital signal processing for access to high frequency sounds: implications for children who use hearing aids. *ENT & Audiology News*, 20(5): 83-88.