



# Live Speech Mapping

## Clinical Speech Mapping

Speech Mapping is proven to provide extremely accurate verification of what a hearing instrument is actually delivering in amplification to a specific patient's TM with their reduced dynamic hearing range. It is a true measurement of insitu hearing instrument performance and not based on formulas, averages or predictions.

### Why Does Speech Mapping Work?

Probe microphones are sensitive calibrated devices that account for specific anatomical differences in ear canals (length, width, resonance characteristics, TM flaccidity, depth of hearing aid insertion and device sound processing capabilities) to ensure accurate and precise analysis of the prescribed fitting.

Speech Mapping utilizes familiar sounds (real speech), not manufactured or artificial stimuli.

Speech Mapping eliminates predictive uncertainty of manufacturer recommended "first fit" algorithms or formulas based upon averages.

Speech Mapping engages both the patient and the 3rd party in an understandable process, increasing acceptance and acknowledgment of the scope of the loss and the goal of the hearing instrument.

### Pre-Test Suggestions

Ensure that the spouse or significant other joins the patient during the speech mapping analysis by the professional.

If the professional planned on using live voice as the stimulus, it's a good idea to have a copy of the Rainbow Passage available for the 3rd party to read (a copy is printed on page 2).

Briefly provide an overview of the goals of the speech mapping analysis.

## LSM - A Clinical Protocol

- STEP 1:** During the initial hearing exam, the clinician should record UCLs for tones as well as thresholds for inter-octave stimulus levels.
- STEP 2:** Situate the patient and the 3rd party so that they can comfortably and conveniently observe the computer monitor screen.
- STEP 3:** Install new probe tubes on the probe microphones and calibrate them for each new patient.
- STEP 4:** Carefully insert the probe microphone tubes in the right and left ear canals, just past the second bend in the canal or slightly beyond the tip of the earmold.
- STEP 5:** With the probe tubes properly placed, insert the patient's hearing aid(s) after connecting to the fitting software. Have the aids turned off for insertion.
- STEP 6:** Open NOAH™ first, select the client file, then open the AVANT REM software. Click on LSM to open the Live Speech Mapping module. At this point, it is important to explain the audiogram: the patient's thresholds, UCL's and the relevance of the modified "speech banana" (or relevance of the target the clinician has selected to use).
- STEP 7:** Select the stimulus the clinician would like to use (whether it's microphone/live voice or the recorded speech file option). Instruct the patient to sit as still as possible and try not to talk while the measurement is being obtained.
- STEP 8:** With the hearing aid now turned on, simply click the green 'start' button to turn the probe microphone on and begin the

measurement. Present speech (live voice or recorded) at 65 dB and observe the sound pressure level meter at the top of the screen. If using the live voice option, ensure the speaker is talking at a conversational level (65 dB). Observe the amplification characteristics to determine which frequencies need to be adjusted.

**STEP 9:** Click the red “stop” button to turn the probe microphone off and freeze the curve. This will show the performance of the hearing instrument to amplify sounds across the frequency spectrum. Which frequencies need adjusting (more gain or less gain)?

**STEP 10:** Make the necessary adjustments within the manufacturers fitting software. Adjust the programmable parameters of the hearing instrument to ensure that soft sounds are **A**udible, conversational speech at 65 dB is **C**omfortable, and loud sounds are **T**olerable (ACT).

**STEP 11:** Advise the patient that you will now turn the probe microphone back on to create a new measurement of the adjustments that were just made to the instrument. Again, instruct the patient to sit as still as possible and try not to speak. Repeat steps 8 - 11 until the measurement curve matches closely to the selected target area.

**STEP 12:** In some cases, specifically first time wearers, the clinician may decide to set a lower gain level than is the obvious ultimate goal. This will allow the patient to acclimate themselves to amplification in their early experiences.

The patient will know what the ultimate goal is, since they were involved in observing what the ultimate target is that's required for maximum benefit.

You have now experienced the power and integrity of speech mapping and can ensure that you have achieved maximum benefit from the hearing device you have fit!

## Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.