

Real-Ear Verification of the Phonak Naída™ Link (with Audioscan Verifit™)

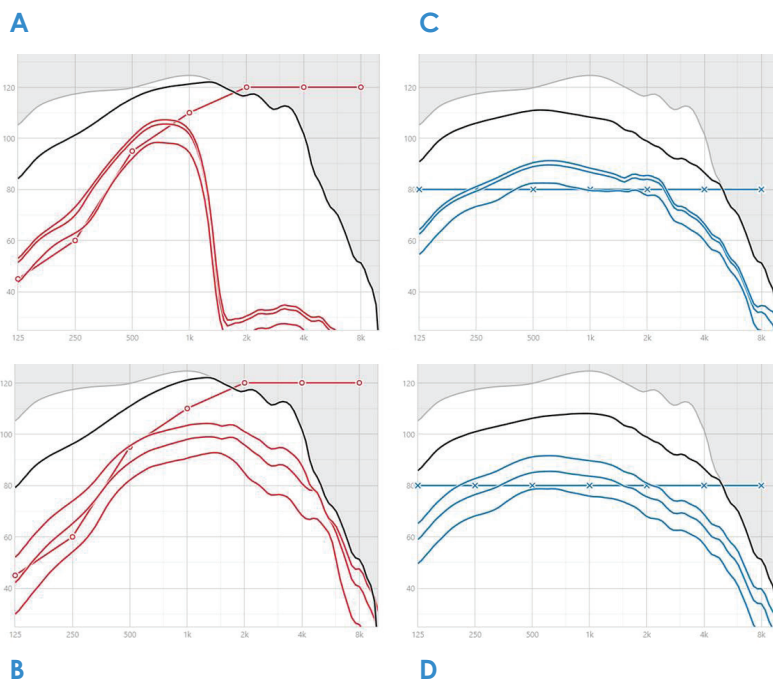
UNDERSTANDING THE USE OF THE ADAPTIVE PHONAK DIGITAL (APD) BIMODAL FITTING FORMULA:

It is strongly recommended that the Adaptive Phonak Digital (APD) Bimodal fitting formula be employed with all Phonak Naída Link hearing aid fittings in order to take full advantage of the aligned signal processing between the Naída Link and Advanced Bionics sound processors.

Because the APD Bimodal fitting formula is specifically designed to meet the needs of the bimodal hearing aid user, it is different from traditional formulas. For the bimodal listener, low frequencies (250-750 Hz) may be the most important to maximize bimodal benefit. The APD Bimodal fitting formula focuses more gain in this range, unlike traditional formulas that attempt to apply a significant amount of amplification in the high frequencies (1-4 kHz). Using traditional prescriptions for a bimodal fitting may cause misaligned frequency response, loudness growth and dynamic behavior and is therefore not recommended.

As explained, the output of the Naída Link using the APD Bimodal fitting formula should be different from that obtained with traditional formulas and therefore should not be adjusted to meet the targets of other non-bimodal fitting algorithms. It is important to also remember that real-ear verification equipment does not account for these expected differences in output and should not be used to adjust the fitting of the Naída Link.

In the event that a clinic is interested in performing real-ear verification with the Naída Link hearing aid and the APD Bimodal fitting formula, here are some guidelines to help navigate through the process which differs slightly from that of a traditional fitting formula and takes into account that there are no "targets" for APD Bimodal in real-ear verification equipment.



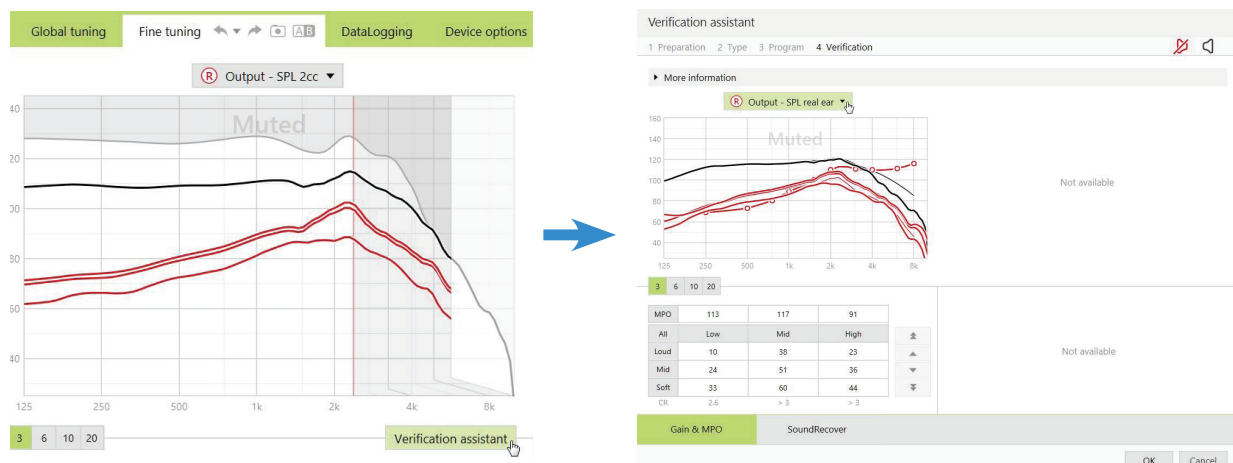
Prescribed output for speech of 50, 65 and 80 dB SPL for:

- A.** Sloping loss with Adaptive Phonak Digital Bimodal
- B.** Sloping loss with Adaptive Phonak Digital
- C.** Flat loss with Adaptive Phonak Digital Bimodal
- D.** Flat loss with Adaptive Phonak Digital

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GENERAL STEPS FOR PERFORMING SPEECHMAPPING WITH THE APD BIMODAL FITTING FORMULA:

1. Enter the relevant patient details into the verification system. Indicate the fit is "Binaural". Do not select a target (i.e. NAL-NL2). Prepare the recipient for real-ear verification.
2. Enter the Verification Assistant in the Phonak Target software from the Fine Tuning tab to turn off adaptive features in the Phonak Naída Link during verification. Follow the on-screen instructions to prepare the hearing aid for verification.



Make sure the displays are set to your preferred view (Gain or Output; real-ear or 2cc coupler).

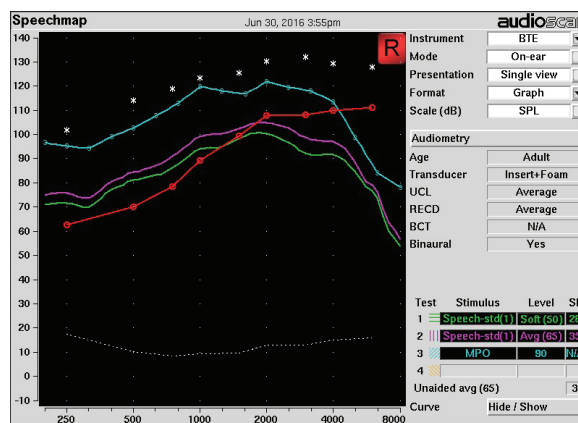
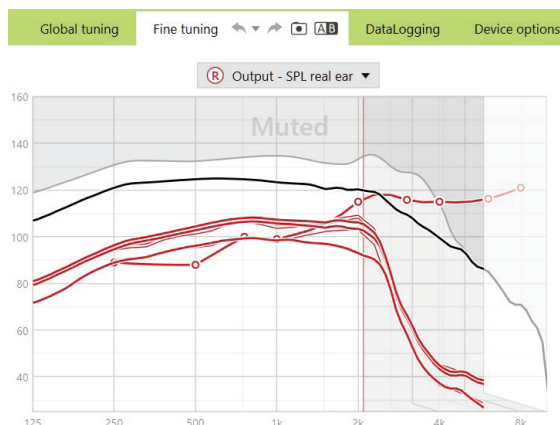
3. Obtain the Long Term Average Speech Spectrum (LTASS) curves for speech input at soft (50 dB) and moderate (65 dB) levels. Present the signal for a minimum of five seconds before recording the measurement in order to allow for signal processing parameters like attack time to fully engage.
4. Run the MPO test (loud input) to ensure UCL is not exceeded.
5. If SoundRecover is being utilized, consider using the 4000 Hz and/or 6300 Hz input for verification.
6. Depending on the results of steps 3-5, make gain adjustments in Target as appropriate (see next section for additional considerations). Repeat steps 3 – 5 as needed.

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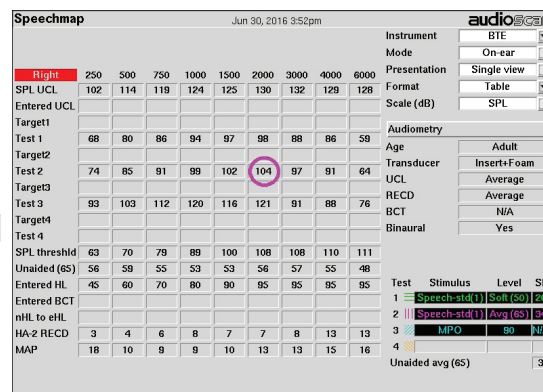
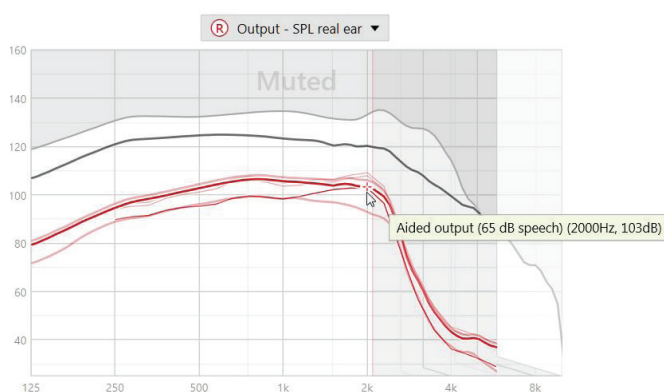
INTERPRETATION OF SPEECHMAPPING RESULTS (SPECIFIC TO PHONAK NAÍDA LINK WITH THE APD BIMODAL FITTING FORMULA):

1. Expected vs. measured output or gain (for any level of hearing loss)

Compare prescribed hearing aid output/gain curves from Target to the hearing aid output or gain curves obtained in the ear. In the image below, you will observe that the curves obtained in the ear for soft, medium and loud input are similar to the predicted results from Target, as expected.



Or, compare predicted versus measured output/gain at specific frequencies. For example, in the image below, you see that predicted aided output for a 65 dB input at 2000 Hz is within 1 dB of the response obtained in the ear (though deviations within +/- 3 dB are acceptable).



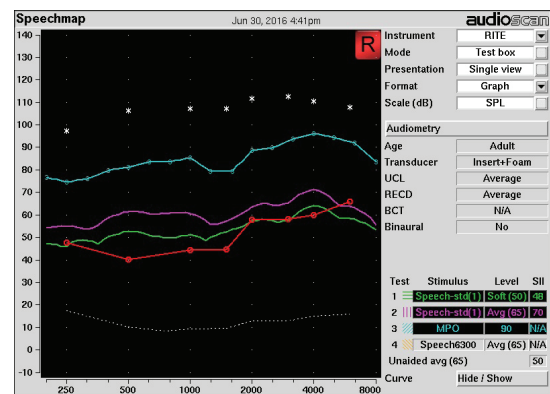
Determining that the hearing aid is performing in the ear as predicted by Target, based on the programming parameters, serves as a verification of appropriate function.

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INTERPRETATION OF SPEECHMAPPING RESULTS (SPECIFIC TO PHONAK NAÍDA LINK WITH THE APD BIMODAL FITTING FORMULA):

2. Assess audibility with the Speech Intelligibility Index (SII) (for mild-moderate flat losses)

- Soft speech (50 dB) LTASS should be at or slightly above (~3 dB) threshold (green line to the right).
- Moderate speech (65 dB) LTASS should generally be above threshold with an SII of approximately 70 (magenta line to the right).
- MPO should remain comfortably below UCL (blue line to the right).



Special considerations for steeply sloping losses:

When using the APD Bimodal fitting formula, specifically with individuals whose audiograms indicate cochlear dead regions, you may observe increased gain in the low frequencies and very little gain in the areas of suspected cochlear dead regions. This is expected and appropriate with the Naída bimodal hearing solution. Audibility in the high-frequencies is not the goal when fitting with the APD Bimodal fitting formula, and in fact may be counter-productive in the case of cochlear dead regions. Verify your fitting using the first method above to ensure the hearing aid output is as predicted in Target, but do not adjust the high frequency output of the Naída Link. The APD Bimodal fitting formula is intended to deliver the optimal gain for bimodal users with the Naída Link hearing aid.

