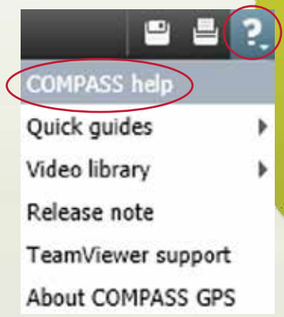
WIDEX **PEDIATRICS**

Professional Fitting Guide

WIDEX®
HIGH DEFINITION HEARING

WELCOME TO WIDEX **PEDIATRICS**

When programming pediatrics, Widex understands the fitting software needs to be flexible and easy to use. This guide will provide an overview of fitting possibilities and recommendations for children and teenagers when navigating through the **Widex Compass™ GPS software**.



HELPFUL HINT

If at any time questions arise while in Compass GPS, go to "Compass Help" in the top right corner of the Compass GPS software for more information on all topics discussed in this document.

Before the Fitting

Entering age and audiometric data into Compass GPS is recommended before the child arrives for the fitting.

1. Enter birthdate into the NOAH File (or other client database)
   a. Compass will utilize this data when applying pediatric age-specific REUG and RECD correction factors to the fitting
2. Open Compass GPS
   a. Select "Connect" at the top center of the page to detect the hearing aids. Select the appropriate tubing / receiver and dome / mold
   b. Under the "Fitting" tab, go to "More Tools" on the left
      i. Select "Audiometry" (Figure A) and enter available Audiogram/REUG/RECD information
      ii. Select "Rationale" (Figure B) and select the desired fitting rationale. See Table 1 Compass GPS Rationale options" for more information

NOTE: The Widex Fitting Rationale is the default setting. To change the default rationale, go to "Session Start" ➔ "Compass Setup" ➔ "Rationale"

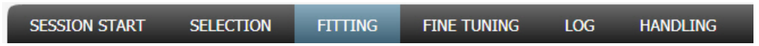
FIGURE A

FIGURE B

TABLE 1

RATIONALE OPTION	DESCRIPTION	GPS FITTING RATIONALE SETTING OPTIONS
Widex Fitting Rationale	Proprietary fitting prescription developed exclusively for Widex hearing aids. Incorporates DSL and NAL fitting philosophies.	ABG, UCL, Assessment of In-Situ Acoustics
NAL-NL2	Designed to equalize loudness across the frequency range. Can prescribe more high frequency gain than Widex Fitting Rationale depending on hearing loss	• Gender (Male vs Female) • Hearing Aid Experience (Experienced vs Inexperienced) • Language (Non-tonal vs Tonal • ABG, UCL, Assessment of In-Situ Acoustics
DSL v5.0 Pediatric	Similar to the DSL v5.0 Adults but with more of an emphasis on low level and medium level gain.	ABG, UCL, Assessment of In-Situ Acoustics
DSL v5.0 Adults	Designed to normalize loudness at individual frequencies. Can prescribe as much as 10-20 dB more gain in the high frequencies than Widex Fitting Rationale depending on hearing loss.	• Fitting type (binaural vs monaural) • ABG, UCL, Assessment of In-Situ Acoustics

The Fitting



Compass GPS utilizes the child's age, audiometric data, and specified fitting rationale to create initial fitting settings. Additional precision fitting options include:

1. **Feedback Test**: If possible, it is recommended that a Feedback test is measured with the hearing aids in the the child's ears (Figure C). The Feedback test measures the maximum available gain for the hearing aid when worn by the child.
   a. Within the "Fitting" Tab – select "Feedback Test"
      i. Place the hearing aid(s) in the child's ear(s)
      ii. The child and environment must be still and quiet. (room noise below 20dB HL)

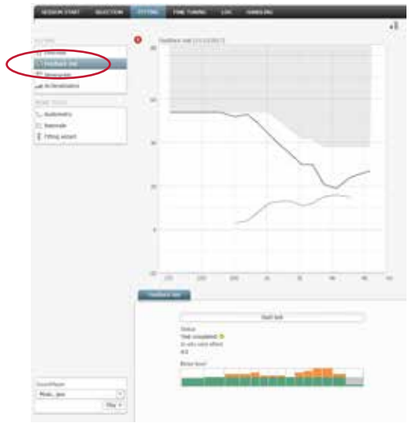


FIGURE C

HELPFUL HINT

After completing the Feedback test, Compass GPS displays the "in-situ vent effect" to indicate the amount of leakage from the physical fit of the earmold/shell/instant tip. This is especially beneficial when working with small ears that grow rapidly to ensure the fit is appropriate.

2. **Sensogram**: If appropriate and possible, it is recommended that a Sensogram be performed / measured (Figure D). The Sensogram is an in-situ threshold measurement and one of the most accurate ways of fitting a hearing aid. The measured in-situ thresholds take into account the physical fit of the earmold / shell / instant tip, the size of the individual ear canal, and the hearing loss.
   a. The Sensogram thresholds are measured with the same method as an audiometric threshold, using an ascending/descending method.
   b. Measuring 500, 1K, 2K and 4K Hz are required to save the Sensogram settings. It is recommended that as many thresholds are measured as possible.

FIGURE D

HELPFUL HINT

Try play audiometry for young children to get Sensogram values in the office.

3. **Equivalent Adult Threshold (EAT)** FIGURE E

- The Widex Pediatric Fitting Rationale utilizes Equivalent Adult Thresholds (EAT) in order to match the SPL in a child's ear canal to what the SPL would be in an adult ear canal (for an adult with the same degree of HL). To calculate the EAT, Widex takes HL thresholds for a small child and extrapolates what they would be when the child's ear canal reaches adult size and assuming no progression of HL.
- EAT adjustments happen automatically with all pediatric fittings under the age of 10 years. It is recommended that you update the fitting when the child gets older. When a previously fit/programmed Widex hearing aid is connected to Compass GPS, the software will ask the hearing healthcare professional if they want to update the fitting. Confirm to update when prompted.
- The end result is a higher degree of accuracy with the Widex Fitting Rationale when used with children.

Fine Tuning

SESSION START | SELECTION | FITTING | FINE TUNING | LOG | HANDLING

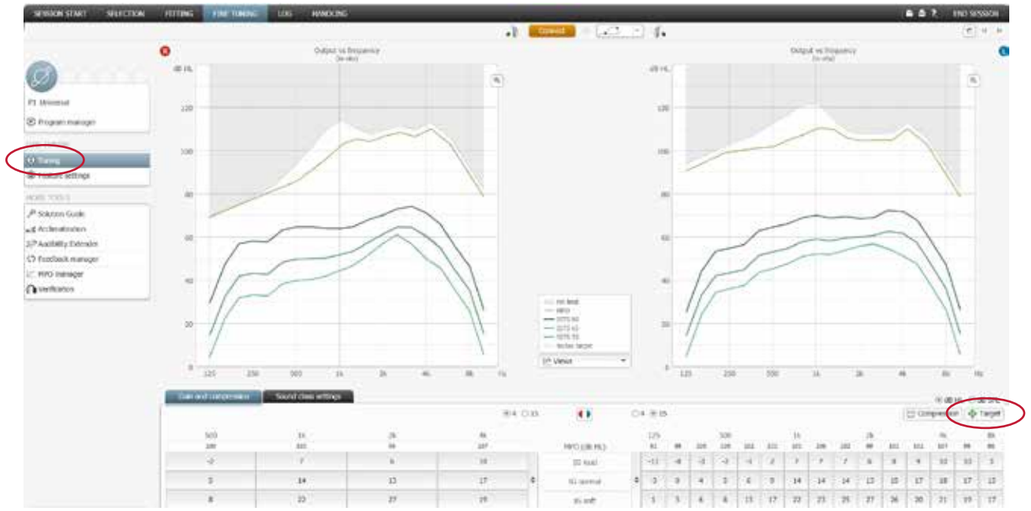
After completing the Fitting of the hearing aid(s), the “Fine Tuning” section will allow for adjustments (if needed) to ensure optimum performance from the hearing aid(s).

1. “**TUNING**” is used to adjust the gain and compression within each individual channel as needed.
   a. The “Gain and Compression” Tab displays:
      i. Gain per channel / per input. Adjustments are displayed and modified in 1 dB steps.
      ii. Compression Ratios per channel / per input region
         – CR Low = 20-50 dB input
         – CR High - 51-80 dB input
   b. Standard (500, 1K, 2K, and 4K) channels are displayed. Select the radio buttons above the graph to display / adjust each individual channel.
   c. Gain targets can be displayed by selecting the “Target” button (Figure F).

HELPFUL HINT

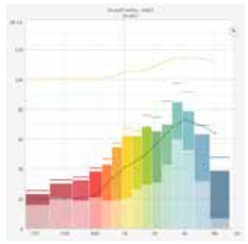
To change several parameters simultaneously, drag the mouse over the desired fields to highlight the desired gain regions, then make the modifications for the entire selection.

FIGURE F

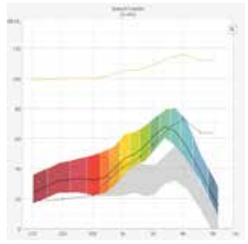


2. **Views / Graphics**: Compass GPS provides various performance and verification graphs. Use the “View” button between the graphics if you want to change to one of the various options.

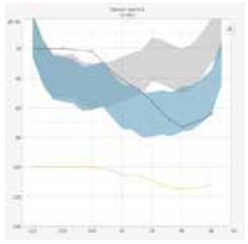
Sound Tracker



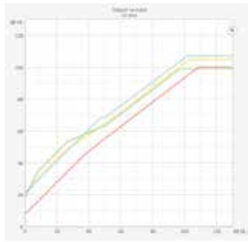
Speech Tracker



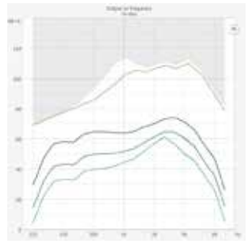
Speech Spectra



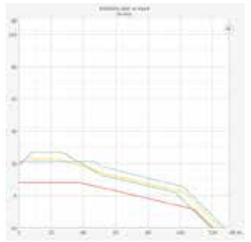
Output vs Input



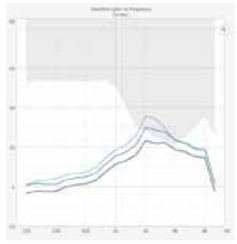
Output vs Frequency



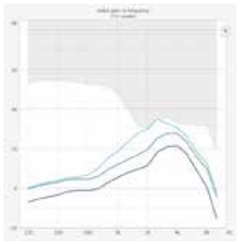
Insertion Gain vs Input



Insertion Gain vs Frequency



Aided Gain vs Frequency



HELPFUL HINT

SoundTracker shows parents a live demonstration of hearing aid benefits

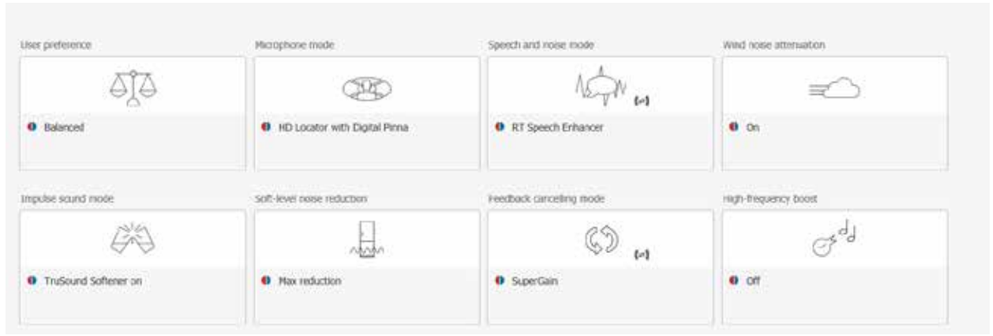
Turn on SoundTracker to show a live display of unaided versus aided audibility. It’s also fun for the child to see the “dancing bars” move when he / she talks and see what the hearing aid is doing. This can be very entertaining for a child as you counsel the parents.

3. **Feature Settings** (Figure G) are used to access and adjust various processing parameters of the hearing aid. These options vary depending upon the technology level of the selected hearing aid(s).* For a detailed listing of features per technology level, please see Widex guide DRM256, available on www.widexpro.com.
   a. **User Preference** – The default setting is always at the center of the slider. Move towards "More Audibility" to provide more sound and a better speech intelligibility in the hearing aid. Move towards "More Comfort" to provide less overall sound in the hearing aid.
   b. **Microphone Mode** – Defaults to "HD Locator with Digital Pinna" automatic adaptive mode. This can be changed based on the classroom/lifestyle needs for the child for each individual program.
   c. **Speech and Noise Mode** – Defaults to "RT Speech Enhancer" to provide automatic adaptive speech and noise management to enhance speech over the noise.
   d. **Wind Noise Attenuation** – Defaults to "ON" to reduce wind noise while preserving speech in wind.
   e. **Impulse Sound Mode** – Defaults to "TruSound Softener ON" to provide a pre-compression response to sudden impulse sounds.
   f. **Soft-level Noise Reduction** – Defaults to "Max Reduction" to reduce very soft-level ambient noises, such as fans, computers, and refrigerators, while preserving soft level speech.
   g. **Feedback Cancelling Mode** – Defaults to "SuperGain" to maximize gain while reducing acoustic feedback.
   h. **High-Frequency Boost** – Defaults to "OFF" (Defaults "ON" with the music program). When turned on, high-frequency gain is boosted at 6 kHz and 8 kHz when the hearing loss is 35 dB or worse.

HELPFUL HINT

Widex default Feature Settings, including directionality and speech in noise settings meet AAA 2013 Guideline for Children

FIGURE G



* Options shown are available in UNIQUE and BEYOND 440 technology levels.

4. **More Tools.** Within the fine tuning tab there are a variety of additional features and programming options. Two important sections for pediatrics include:
   a. **Audibility Extender** utilizes linear frequency lowering technology to provide the child with access to high-frequency sounds when the degree of hearing loss is too severe to be improved with traditional amplification strategies.

Audibility Extender has been shown to significantly improve speech awareness, discrimination and production. The Audibility Extender preserves the natural formants of speech, providing a more naturalness to the transposed signals (available in both UNIQUE / BEYOND). For more information, see the September 2017 Article in *Hearing Review* by Francis Kuk.

This feature defaults to "off" to make sure the clinician has verified the patient is a candidate (not meeting targets with traditional amplification). Once confirmed, the Audibility Extender can be added to one or all programs.

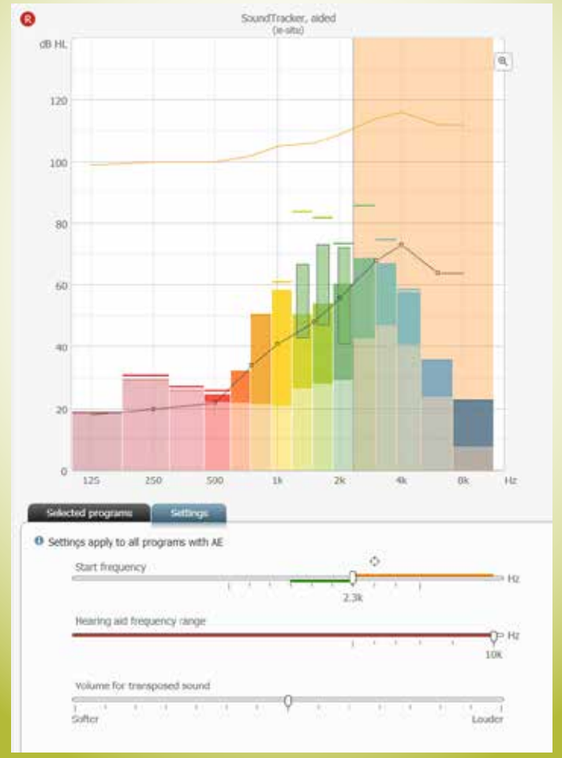


FIGURE H

b. **Verification**

   i. “Normal Adaptive Test Mode” — Real-ear or test box measurements with modulated speech signals (for instance ISTS). (Figure I)

   ii. “Non-Adaptive Test Mode” — Real-ear or coupler measurements with unmodulated test signals (for instance, speech noise), or when measuring aided thresholds with narrow-band signals. (Figure J)

FIGURE I

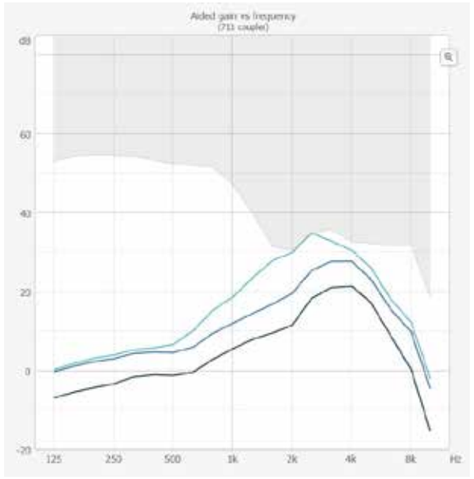
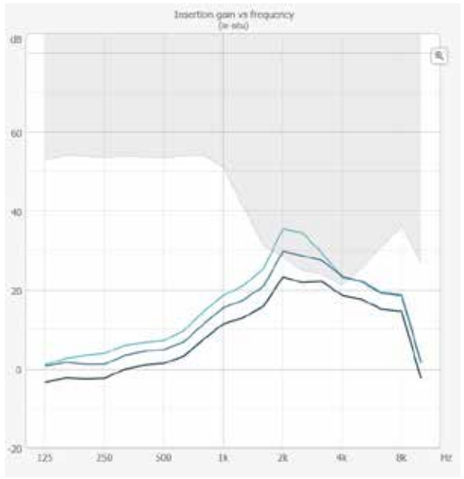


FIGURE J



For more information on verification, see the Widex Pediatric Guidebook

Log / Sound Diary

SESSION START | SELECTION | FITTING | FINE TUNING | LOG | HANDLING

The Sound Diary section displays statistical information collected by the data logging features in the hearing aids. These provide information regarding patient use, manual adjustments and environment characteristics.

1. **Log Overview** — Turn the Sound Diary on or off after the current session. This tab displays the average daily use of the hearing aids as well as information about the child’s actions. It also displays how much the hearing aids are used in environments with speech and without speech. (Figure K)

FIGURE K

2. **Program Use** — Displays how much each program in the hearing aids have been used. Displays preference control (volume) changes per program. (Figure L)

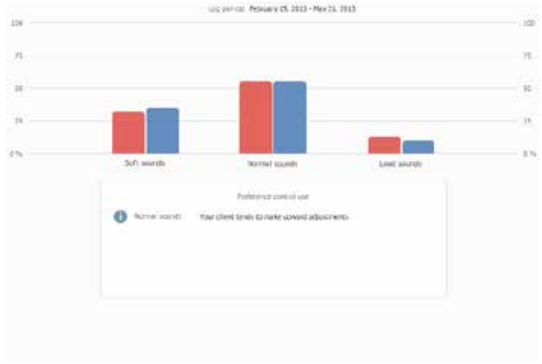


FIGURE L

3. **Environment** — Provides an overview of the different environments in which the hearing aids have been used and subsequent preference control (volume) changes made. (Figure M)

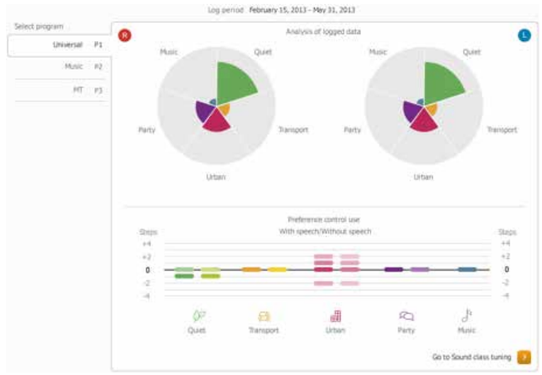


FIGURE M

4. **Input level** — Displays how much the hearing aids have been used when in various input levels (soft, normal and loud inputs). (Figure N)

FIGURE N

Handling

The HANDLING section provides information on matching DEX wireless accessories, CROS devices (when applicable), and edit user controls and indicators on the hearing aid(s).

1. **DEX** – Match the RC-DEX and/or TV-DEX to the child's hearing aid(s). All other DEX devices utilize auto-connect and do not need to be matched or paired.
2. **Mobile Connectivity** – Reset Bluetooth pairings. Deletes all previous Bluetooth pairings to the hearing aid(s).
3. **CROS/BiCROS** – Match a Widex CROS to any UNIQUE hearing aid.
4. **Hearing Aid Configuration** – Define the child's specific acoustical settings within the hearing aid(s), including: SmartSpeak language, acoustic indicators, and functioning of ear-level buttons. (Figure O)

HELPFUL HINT

The FM+DEX can be matched instantly with any Widex wireless hearing aid with no pairing in the software. It can also use any manufacturer FM receiver. This means that a family can provide an FM+DEX to the school and it will work seamlessly with an already established FM system by plugging the matching FM receiver. Then, when the child or teenager takes it home, it can be used for telecoil for loop systems or as headphones with a direct audio input plug.

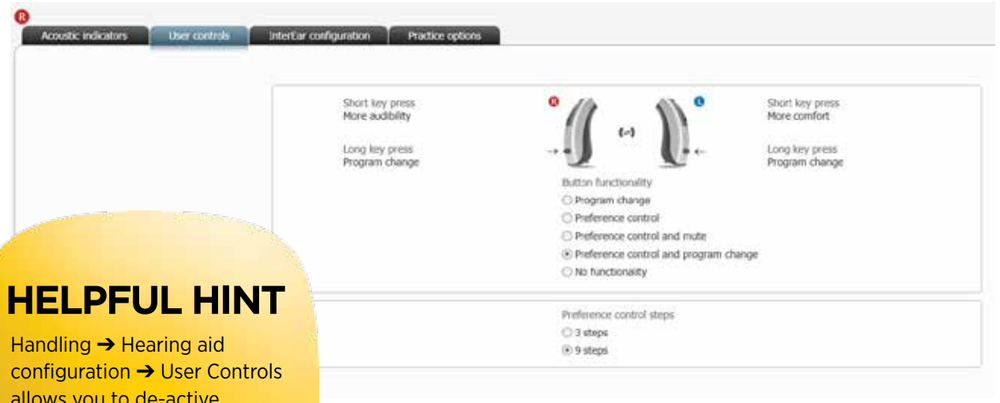


FIGURE O

HELPFUL HINT

Handling ➔ Hearing aid configuration ➔ User Controls allows you to de-active onboard controls for children that are not old enough to use these features.

Save the Fitting

Select "End Session" to save the fitting within the database. All hearing aid settings and adjustments are ALWAYS saved in real-time within the hearing aid(s).

YOU DID IT!

Your pediatric patients will have unlimited potential with the superior performance of their Widex hearing aids!

WIDEX PEDIATRICS

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