

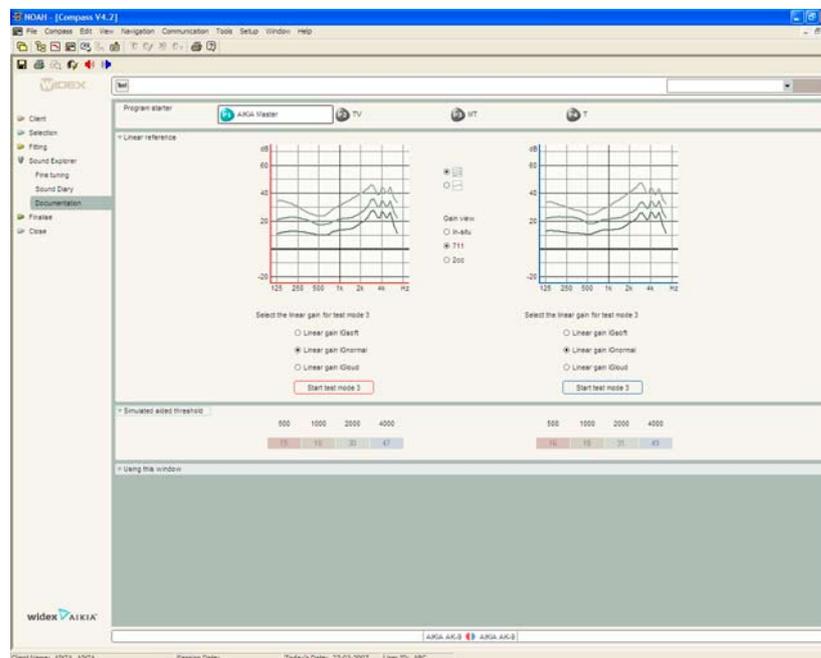
Audiological Bulletin no. 26

Using Documentation in the Sound Explorer

News from Audiological Research and Communication

This bulletin describes hearing aid performance documentation and test modes in Compass V4.2. The descriptions refer to the Documentation window in Sound Explorer in Compass. Please refer to Compass in order to see the details of the screen. Remember that Compass offers several help functions to explain the different options in the program: Tooltips, Using this window panels and the help manual.

When you have concluded the fitting and fine tuning of the hearing aids, you can use the Documentation section to document or verify the performance of the hearing aid. In this part of Compass you cannot adjust any hearing aid parameters. The Documentation section can only be used to examine the result of the fitting in terms of aided performance in the client's ear.



Linear reference

AIKIA hearing aids are fitted based on in-situ data (Sensogram and in-situ vent effect estimation), resulting in a fitting where the individual variations in ear canal and earmould/shell acoustics are taken into account. As a consequence, the performance graphics displayed in Compass can be trusted to represent the actual aided performance in the client's ear. If you wish to verify that this is the case, you can use the **Linear reference panel** to set the hearing aid in a linear mode and measure how well the hearing aid's performance in the ear (or in a coupler) corresponds to the displayed reference curves.

Linear test mode

Since the influence of the individual ear acoustics on the hearing aid's real ear performance is independent of the signal processing in the hearing aid, it makes sense to use a linear setting of the hearing aid, as this makes it easier to achieve reliable real-ear or coupler responses. In the Linear reference panel, you can see the targets for the hearing aid. The hearing aid can be set in a temporary setting, **test mode 3**, in which the gain in the hearing aid is set to individual linear gain corresponding to **IGsoft**, **IGNormal** or **IGIoud**. Simply select the gain level you wish to verify and select **Start test mode 3**.

In-situ or coupler gain can then be measured with standard equipment and the result compared with the reference curves displayed in the graphics panels. Please be aware that when the hearing aid is set in test mode 3, the Speech and noise system, Feedback cancelling system and microphone squelch are disabled and the microphone system is set to AIKIA Locator omni.

The hearing aid must be online when you activate the test mode and stay online while you perform the test. The test mode setting will remain active in the hearing aid until you select *Stop test mode 3*.

Reference curves

The graphics in the linear reference panel show gain versus frequency curves corresponding to the test mode 3 gain levels. You can choose the reference curves you wish to view depending on the test setup you are using. Choose between the following curve types: In-situ gain, 711 coupler gain, 2cc coupler gain (HA-1 or HA-2 will automatically be selected by Compass depending on the hearing model).

You can also choose to view curves for all three gain levels simultaneously (default view) or to view only the curve corresponding to the selected gain level.

Simulated aided threshold

Aided thresholds provide information about the softest sounds that the user can hear while wearing hearing aids. In nonlinear hearing aids, the aided thresholds cannot be predicted easily from insertion gain measurements, since the gain level for very soft sounds is likely to be significantly higher than the gain corresponding to typical input levels used in real-ear measurements.

The Simulated aided threshold panel shows the simulated aided thresholds for the four basic bands in the hearing aid (500 Hz, 1000 Hz, 2000 Hz, 4000 Hz). The aided thresholds are calculated from the Sensogram thresholds adding the hearing aid gain including all individual fitting data. As a consequence, the simulated aided thresholds can be trusted to predict the actual aided performance with the hearing aids placed in the client's ear.

Test modes

Test modes are temporary hearing aid settings designed to facilitate hearing aid verification and validation. Test modes are available from the Toptool bar in the Documentation window.

From the Test mode window you can select the test mode you wish to activate in the hearing aid, you can choose between various test mode settings and you can activate and deactivate the various test modes. The test modes remain active in the hearing aid as long as the hearing aid is online in the Test mode window in Compass. If you select Stop test, if you disconnect the hearing aid or if you leave the Test mode window, the test mode will be deactivated and the hearing aid will return to its normal setting. Detailed online descriptions of the various test modes are available in the Using this window panels in Compass.

Test mode 3

Use Test mode 3 for individual quality inspection and documentation of the individual fitting. The hearing aid is set to a linear mode with the insertion gain corresponding to IGsoft, IGnormal and IGLoud. Insertion gain can be measured with standard equipment. Active test condition: gain is linear

corresponding to IGsoft, IGnormal or IGloud, the Microphone mode is set to AIKIA Locator omni. The following features are disabled: Speech and noise mode, Feedback cancelling, and microphone squelch.

Test mode 2

Test mode 2 is intended for quality inspection and documentation of the current individual fitting. Active test condition: The hearing aid is set to an individual nonlinear mode. The regulation speed is very fast. The Speech and noise mode is turned off, the Feedback cancelling mode is set to Supergain music, and the Microphone mode is set to AIKIA Locator omni.

Test mode 1

Test mode 1 should be used for coupler or Kemar/HATS measurements only. It is intended for quality inspection and objective performance checks. The performance should correspond to the data sheet. Active test condition: The hearing aid is set in a linear mode with a fixed gain level, so that the hearing aid is saturated when making an OSPL90 measurement. You can select Omnidirectional microphone or Telecoil. The following features are disabled in Test mode 1: Speech and noise mode, Feedback cancelling, microphone squelch, and AOC.

Self-test

You can let Compass make a test of the hearing aid to see whether it may be defective. Compass runs the test and shows a message indicating whether something may be wrong with a specific part of the hearing aid, for instance the amplifier. If Compass finds errors, it suggests what you should do to correct them.