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Fitting *m*-models with Compass V4

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WIDEX®

high definition hearing

This bulletin describes the four main steps in fitting *m*-models with Compass V4. The descriptions refer to the options in the Selection and Fitting sections in Compass, including change of the acoustic identity of the *m*-models and the Preconditions, Sensogram, Feedback test and Program manager windows. 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. The *m*-models follow the fine tuning procedure of their respective product family. For detailed information about the fine tuning please refer to the specific bulletins for Inteo, AIKIA or Flash.

Selection

In the Selection section, you can select the acoustic identity of an *m*-model. For the *m*-models you have a choice of four different acoustic identities: élan open, élan flex, Classic open and Classic flex. Please observe that each of the models has its own fitting range. After selecting the right model for your client, you go on to the Fitting section by selecting Fitting in the menu in the left side of the window. The easiest way of fitting *m*-models is by following the Fitting wizard. You could also proceed by connecting the *m*-model using the connect icon in the Toptool bar.
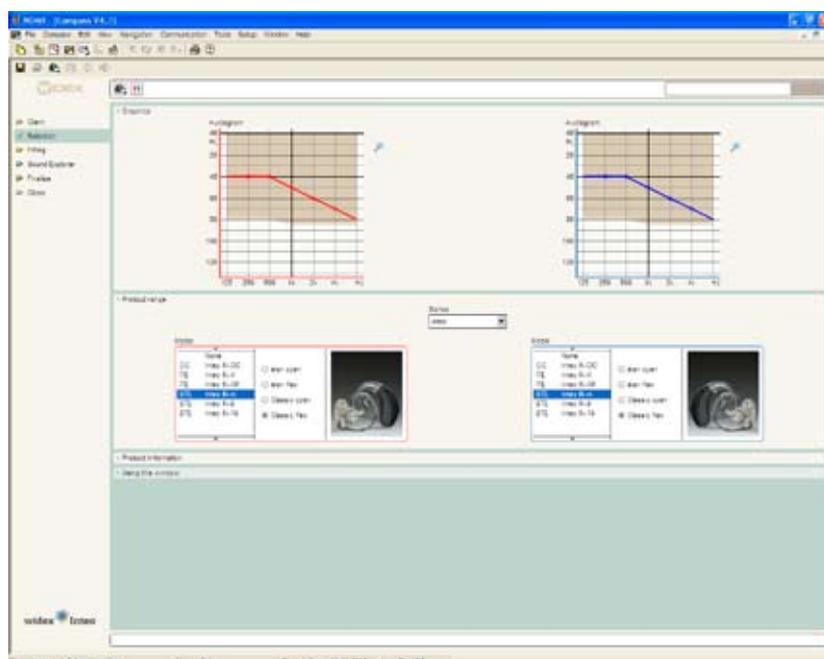
On-line communication

After selecting the appropriate hearing aid model, you must establish contact with the hearing aid. On-line communication is available in binaural, right or left mode. You can also choose simulated mode if no hearing aid is attached via the computer. Based on the client data, Compass will make a choice as default.

Define starting point

The Fitting wizard will automatically guide you through the essential steps of the fitting of *m*-models. If you prefer to do the fitting without the guidance of the Fitting wizard, you may do so by going to Fitting status.


Acoustic identity

You may tailor the acoustic identity of the *m*-model in the On-line communication window. Use the radio buttons in the acoustic identity section to adjust your choice. You have the choice between élan open, élan flex, Classic open, Classic flex. If you change the acoustic identity, Compass will configure the hearing aid to the new acoustic identity. The configuration can take up to several minutes. It is very important to make sure that the acoustic identity of the hearing aid is identical to the physical setup of the hearing aid.

The first fitting step - Preconditions

After you have established contact with the hearing aids, you proceed to fitting. Here the first step is to define the fitting preconditions. Most of the parameters in the Preconditions window have been pre-set based on the age and audiogram data stored in NOAH/InfoTrack, but if desired, they can be changed. The choices in the Preconditions window will depend on the selected acoustic identity of the hearing aid.
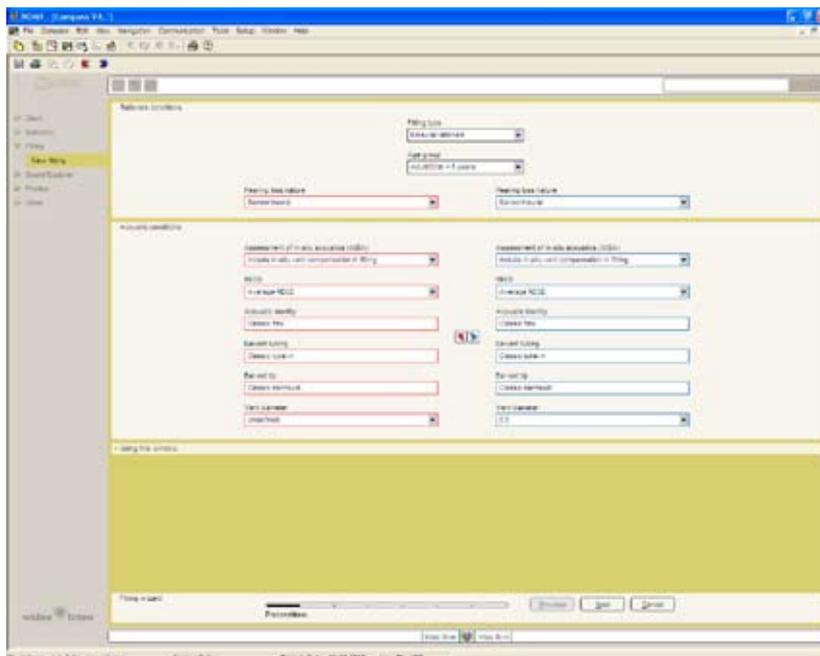
Fitting type

If you have connected two hearing aids, Compass will automatically select the binaural rationale. If only one hearing aid is connected, the monaural rationale will be selected. The latter will result in a slight increase in amplification to compensate for the loss of binaural summation.

Age group

The age group is automatically pre-set based on the age information stored in NOAH or InfoTrack. If an age younger than five years is selected, the paediatric rationale will be used to ensure that the smaller ear canal in young children is taken into account in the fitting. An extra step will be added to the Fitting wizard, allowing you to indicate audiogram transducer information.

Hearing loss nature

The type of hearing loss (Sensorineural or Conductive/Mixed) is automatically selected based on the audiogram information stored in NOAH/InfoTrack. If a conductive/mixed hearing loss is indicated, the Inteo rationale will automatically compensate for the conductive component with less compression and more gain.

Assessment of in-situ acoustics

For the In-m and AK-m models, you can choose how the assessment of in-situ acoustics (AISA) should affect the fitting. Assessment of in-situ acoustics is not available for the FL-m models. For In-m and AK-m, you can choose between three different approaches:

Include in-situ vent compensation in fitting uses the results of the AISA estimated vent effect for gain compensation in the fitting, all reflected and displayed in the performance graphics. The Sensogram is displayed as an AISA Sensogram in the SoundTracker and Speech spectra views (in-situ vent effect is included). The gain and output graphics include the in-situ vent effect and gain compensation, as well as the effect of the vent-transmitted sound path.

Display assessment results only displays the results of the AISA estimated vent effect. No compensation is applied in the fitting. The gain and output graphics include the in-situ vent effect and the effect of the vent-transmitted sound path.

Ignore AISA (off) neither displays nor compensates for the vent effect. All performance graphics and gain settings in the hearing aid assume a completely unvented shell/earmould (0 mm).

RECD

The real-ear-to-coupler difference indicates how much the individual ear canal acoustics differ from the acoustics of a standard 2cc coupler. These values are used in the calculation of gain to ensure the right amount of amplification at the eardrum. Since *m*-models are fitted using in-situ audiometric measurements (the Sensogram), the individual differences in ear canal size are, to a large extent, taken into account. However, if desired, you can choose to include individually measured RECD values in the fitting. If you select this option, two extra steps will be included in the Fitting wizard, allowing you to indicate data from the RECD measurements.

Acoustic identity

If you are working with hearing aids that can be defined with different acoustic identities, this field shows the selection you have made. You cannot change the acoustic identity from the Preconditions window, but you can register the ear-set that your client uses. If you want to change the acoustic identity, you must go back to the Selection window.

Ear-set tubing

This option provides a drop-down list where you can identify the exact tube length that your client is fitted with. This option is available for fittings with the élan tube. You can choose between the different tube lengths from 1-5.

Ear-set tip

This option provides a drop-down list where you can identify the exact ear-tip size that your client is fitted with. This option is available for fittings with the élan tube. You can choose between four different ear-tip sizes and a Custom ear-tip.

Vent diameter

This option provides a drop-down list where you can select the appropriate vent size for a given fitting. An asterisk (*) next to one of the diameters indicates that this is the vent size recommended by Widex for the particular hearing loss. The fitting rationale will automatically compensate for the impact of the vent in the fitting. This ensures that the output of the hearing aid at the eardrum is always the output prescribed by the fitting rationale. The default setting of the vent size is "Undefined". Please be aware that the vent size drop-down list will differ significantly depending on the selected ear-tip. Due to large vent length differences between the Custom ear-tip and the Classic earmould and the impact of the vent length on the in-situ vent effect, Compass offers two distinct parameter sets for these two types of solutions.

The second fitting step – the Sensogram

The second step in the Fitting wizard is the Sensogram. The Sensogram is an in-situ audiometric measurement in which the user's hearing thresholds are measured through the hearing aid. Place the cursor in one of the value fields, click once and use the arrows to set the level of the test tone. Press the Tone button to activate the tone. You can also use the arrow keys on your keyboard to set the level and the space bar to activate the test tone. Once the thresholds in the four basic bands (500, 1000, 2000 and 4000 Hz) have been measured, you can also measure one or more of the intermediate bands by choosing the Expanded Sensogram option. If the earmould or shell is fitted with a vent, it can be particularly useful to measure the thresholds below 500 Hz, as this will enhance the precision of the vent effect compensation using the AISA strategy. If you are fitting an In-m you have the option to perform the expanded Sensogram. For AK-m you can measure the extra Sensogram threshold at 250 Hz for more precision in the lower frequency area.

The third fitting step – Enhanced feedback test

The third step in the Fitting wizard is the Enhanced feedback test, which serves to initialise the active feedback cancelling feature in In-m and AK-m models. This system ensures that more gain (Super-Gain) can be provided for the individual fitting without increasing the risk of feedback. If the available gain (measured gain limit + SuperGain) is sufficient to amplify normal conversational speech as prescribed by the rationale, an "OK" will be displayed in the Test result value field. If not, "***" will be displayed, indicating that the feedback test is not OK, either because the physical fit of the hearing aid/earmould is not acceptable, or because background noise interfered with the measurement. You should not proceed with the fitting until you have an accepted feedback test indicated by "OK". The enhanced feedback test is also used to estimate the in-situ acoustics of the hearing aid fitting. This is expressed as the in-situ vent effect in the Feedback test window. The in-situ vent effect is shown as the vent size needed in an average ear with an average earmould to give a vent effect similar to the one measured on this individual ear. Once measured, the in-situ vent effect replaces the physical vent size selected in the Preconditions window to ensure an even more precise compensation for the loss of amplification associated with ventilation in and leakage around the earmould.

For FL-m the feedback test differs from In-m and AK-m in the following points. The maximum gain before feedback is measured and the settings in the Flash feedback system are defined by the feedback test. If the available gain is sufficient to amplify normal conversational speech as prescribed by the Flash rationale, an "OK" will be displayed in the Test result value field. If not, "***" will be displayed, indicating that the feedback test is not OK, either because the physical fit of the hearing aid/earmould is not acceptable, or because background noise interfered with the measurement. You should not proceed with the fitting until you have an accepted feedback test indicated by "OK". The in-situ vent effect assessment is not available in FL-m.

The fourth fitting step – the Program manager

The fourth and last step in the Fitting wizard is the Program manager. Here you are allowed to select the number and types of programs you wish to enable in the hearing aids. You have now concluded a successful fitting with the *m*-model and you can proceed to Sound Explorer to evaluate the fitting.