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Connexx 7 Tutorial.

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Module 01 – First Fit

Module 01 – First Fit

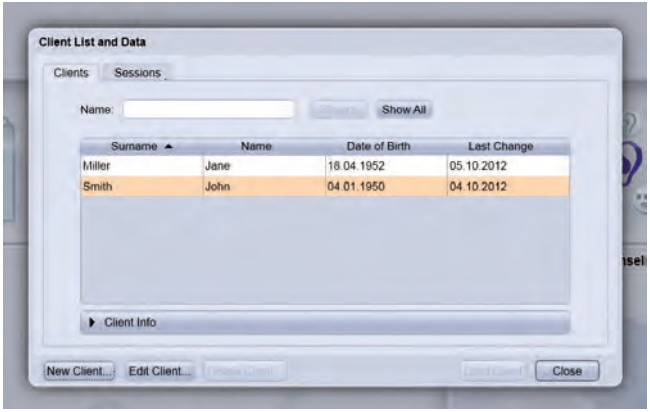
This section gives an overview of how to perform the **First Fit** for a selected hearing instrument.

Getting started.

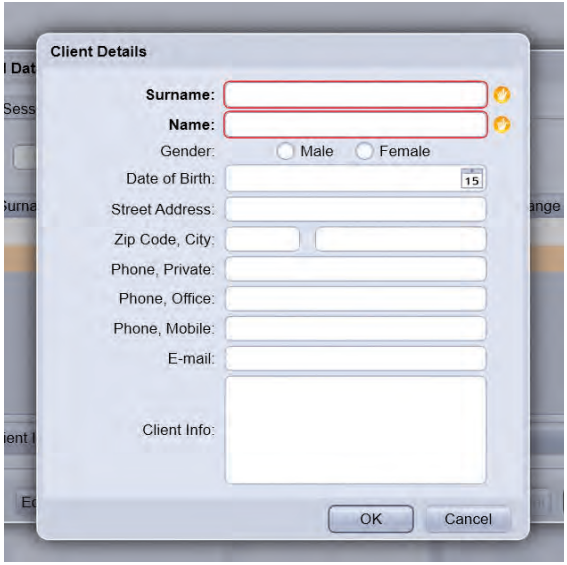
1. Selecting **Client List** allows you to either search for an existing client that has already been entered into the Connexx database or to enter a brand new client profile.
2. If you have already loaded your client's profile and audiometric data using an independent database, you can skip this step and proceed to the **Hearing Instruments** page.
3. If you have already determined which hearing instruments to fit to your client, you can begin the session by detecting the attached hearing aids.
4. To determine your client's individual hearing needs, go to the Connexx **Counseling Suite**.

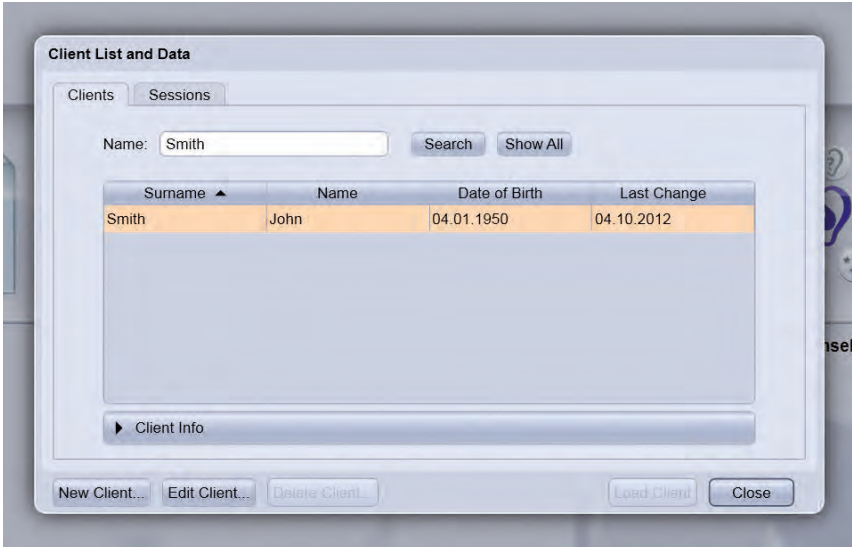
Entering new client data

When you select **Client List**, the window **Client List and Data** will open. You can select **New Client** to enter new client data, select an existing client from the list or use the search function to find a particular client.



To enter a new client, select **New Client** and then fill out the **Client Details** form. The new client will then be automatically highlighted in the **Client List and Data** window. Select **Load Client** and proceed to the audiogram page.





If the client has already been entered into the database, simply highlight the client in the list and then select **Load Client** and proceed to the audiogram page.

To search for a previously registered client, enter the client's name and select **Search**. The client's file will be highlighted when found. Simply select **Load Client** and proceed to the audiogram page.

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Entering an audiogram

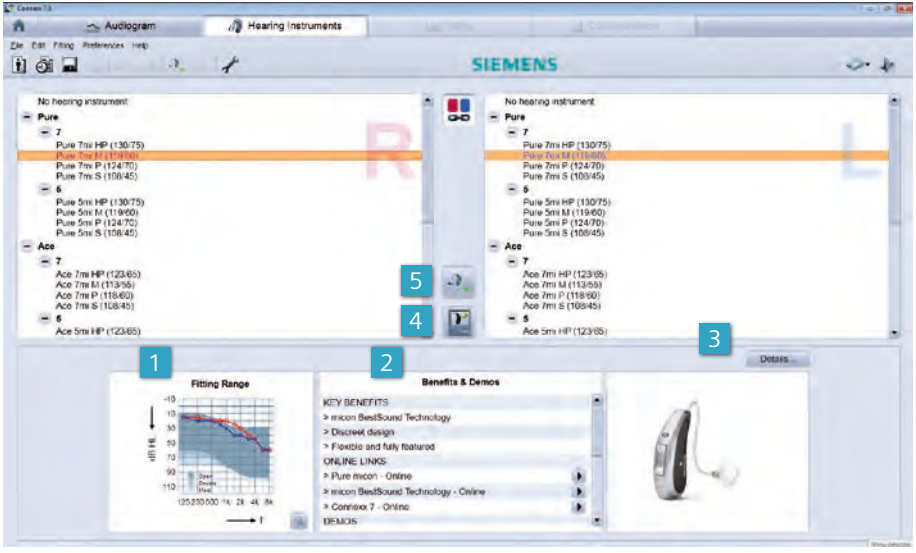
In order to enter the audiometric data for the client, select **Audiogram** from the Connexx 7 portal page or from the tool bar above. Double click on each value across the frequencies for the right and left ear, then select save

Simulating Hearing Instruments

To determine the most suitable hearing instruments for your client's needs, Connexx 7 offers several functions on the **Hearing Instruments** page. After you have selected hearing instruments, you will be able to see the fitting range based on a selection of acoustic coupling data relative to your client's audiogram data. This way, you can easily check to see if the selected hearing aids are appropriate for your client's hearing loss.

Note that Connexx 6 will launch automatically if the selected hearing instrument is not currently supported by Connexx 7 (i.e., not part of the micon family).

1. Check if the instrument's fitting range suits your clients' hearing loss.
2. You can find a list of **Benefits & Demos** for the selected instrument.
3. A click on a play button will open a short demonstration, which will help you explain its benefit to your client. Use the **Details** button to find technical details, information on accessories, demonstrate a 360° view of the selected Instrument as well as their color availability.

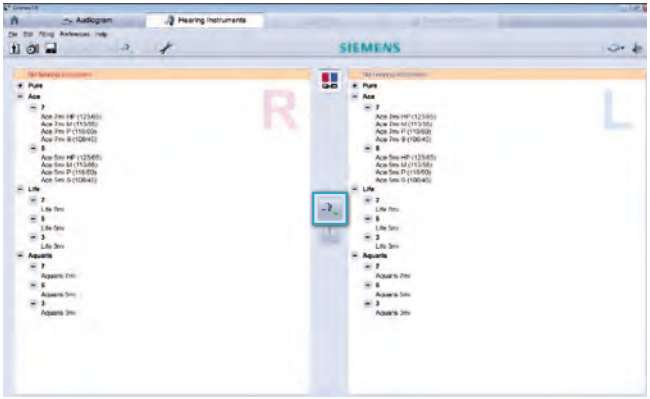


4. This way, you can show the instrument to your client without having to have it in stock. Use the **Simulate selected hearing systems** button to simulate a fitting.

5. It is possible to read out/detect attached hearing instruments from the **Portal page**, the **Audiogram** page and the **Hearing Instruments** page by clicking on the **Detected connected hearing systems** icon .

Detect hearing instruments from the portal page.

Detect hearing instruments from the audiogram page.



Detect hearing instruments from the **Hearing Instruments** page.

Once you have decided on which hearing instruments to fit and have connected them to the computer, click on **Detect connected hearing systems** to proceed with the fitting.

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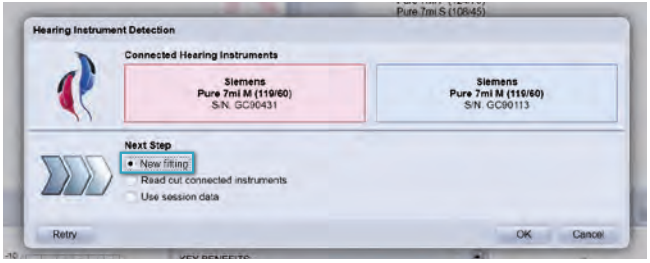
The First Fit

In the dialogue box that appears after the hearing instruments are detected, you are given a choice of **New fitting**, **Read out connected instruments** or **Use session data**. Select **New fitting** and then click **OK**, which will take you to the **Fitting Page**.



Based on the client's degree and configuration of hearing loss, as well as the selected hearing instruments, Connexx will automatically propose settings. An overview of these selections are included in each tab at the bottom of the page. For more details and to modify these settings or run the functions, click on each tab. On this screen, the arrow button can be used » to expand the menu at any time.

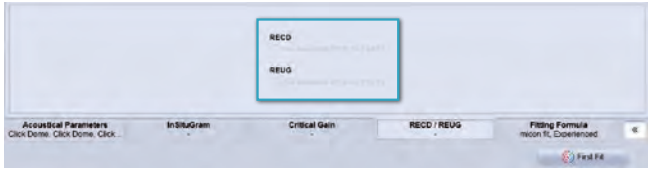
Acoustical Parameters: It is possible to modify ear hook, ear coupling, and venting so that it suits the client's needs prior to carrying out the **First Fit**.

Critical Gain: A measure to reduce the risk of feedback. To run it, ensure that the background noise is reduced and that the earmold/hearing aid fits securely in the client's ear. Then instruct the client to remain still and quiet while they hear a short broadband noise. Click on **Start** and follow the prompts.

Fitting Formula: A number of prescriptive targets are available by clicking on the drop down menu. Connexx will select the system default or the one that you have pre-defined in the **Preferences** settings (see Module 14).

Determine an InSituGram for the fitting: it is possible to use the hearing instrument to measure the client's hearing thresholds and use these values for the **First Fit**.

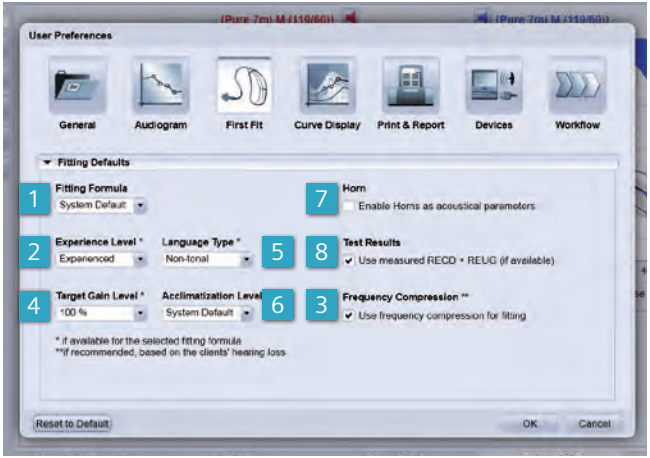
Enter an individually measured RECD/REUG: if you would like to include the RECD or REUG measurements in the **First Fit**, select box **Use measurement for First Fit**.



Once you are sure that everything is set to the client's needs, use First Fit to perform a **First Fit**. To show that a **First Fit** has been correctly performed, a ✓ will appear next to the **First Fit** button and on the **First Fit** section in the navigation column on the left side of the screen.

Defining preferred default settings.

Connexx 7 allows you to define your preferred default settings with the **Edit user preferences** symbol . You can also access the preferences settings on the toolbar by choosing **Preferences.**



For the **First Fit** you can set defaults for the following:

1. **Fitting Formula:**

   a. System default for that hearing instrument

   b. micon fit for micon products

   c. NAL-NL1*

   d. NAL-NL2

2. **Experience Level:** of the client and only if available for the selected fitting formula

3. **Frequency Compression:** can be activated or deactivated upon **First Fit**, if recommended, based on the client's hearing loss

4. **Target Gain Level:** set at 70, 80, 90, or 100%
5. **Language Type** of the client, either tonal or non-tonal
6. **Acclimatization Level**, system default or levels 1 through 4, depending on the selected fitting formula
7. **Horn:** can be selected to enable horns as acoustical parameters
8. **Test results:** measured RECD/REUG for the client can be automatically included in the **First Fit**, if provided.

The **Workflow** preferences allow you to define the page to which Connexx 7 automatically switches in case of a follow up fitting session.

Module 02 – Basic Tuning

This section shows how to do **Basic Tuning** for a selected hearing instrument. A variety of frequently used settings can be adjusted after the **First Fit** has been performed for a selected hearing instrument.

Master Gain, **Loudness** and **Sound Quality** can be easily modified to match the client's sound impressions. Always check the gain curves to see how these changes affect the settings.

For the **First Fit** you can set defaults for the following:

1. To access **Basic Tuning** following a **First Fit** or at a follow-up fitting session, select **Basic Tuning** on the menu on the left hand side.

2. Check if the binaural coupling of the hearing instrument is active or inactive by hovering over the icon with the mouse. If changes are desired for both hearing instruments simultaneously and to the same degree, ensure that binaural coupling is active. If it is preferable to adjust the hearing instruments independently, verify that the button is inactive.

3. Adjust **Master Gain, Loudness** and **Sound Quality** as needed. The following are descriptions of the controls:

4. **Master Gain** adjusts overall gain for soft, medium and loud inputs. By clicking on the icon, the overall gain will decrease. By selecting the icon, the overall gain will increase.

5. The **Loud Sounds** buttons adjusts the output of 80 dB inputs. To decrease loud sounds, click the icon. To increase the perception of loud sounds, click on the icon.

6. The **Soft Sounds** buttons adjust the output of 50 dB inputs. To decrease soft sounds, click icon. To increase the loudness of soft sounds, click .

7. **Medium Sounds** (65 dB input) can be decreased with and increased with .

8. The **Speech** buttons will alter the output for medium and low level sounds between 400 Hz and 5 kHz, which represents the intensities and frequencies of speech. Selecting will decrease the loudness of speech. Selecting will increase the loudness of speech.

9. The **Own Voice** control will adjust the output of loud and medium input levels between 400 Hz and 5 kHz for open fittings and below 1 kHz for closed fittings. Select to reduce the loudness of the client's own voice and click to increase the loudness of the client's own voice.

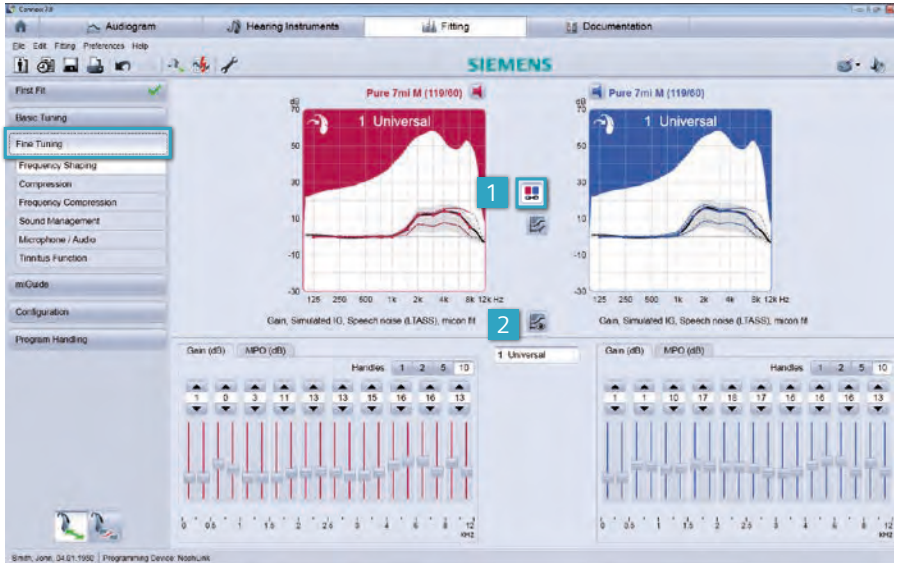
10. Finally, Sound Quality can be adjusted using the **Sharper** and **Softer** buttons. Clicking the Softer button decreases the output of sounds above 2 kHz and increases the output below this frequency. Selecting the Sharper button has the opposite effect.

Module 03 – Fine Tuning

This section looks at the different ways to fine-tune hearing instruments. It may be necessary to do some fine tuning after a **First Fit** or at a follow-up fitting session.

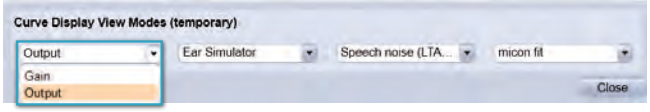
To access **Fine Tuning** after a **First Fit** or at a follow-up session, select **Fine Tuning** from the navigation column on the left side of the screen.

1. It is recommended that you check the binaural coupling status prior to making changes by selecting or de-selecting icon. To make changes to both hearing instruments simultaneously, couple the hearing instruments. To make changes to one hearing instrument at a time, ensure that the hearing instruments are decoupled.

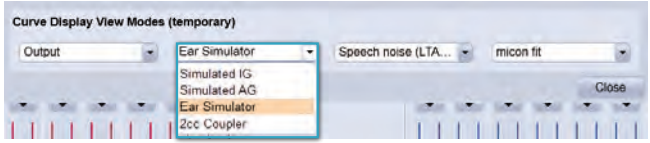


2. Selecting the Curve Display View Modes icon, allows you to decide what values you would like to temporarily view on the fitting screen, including gain or output, coupler type, stimulus type and target gain.

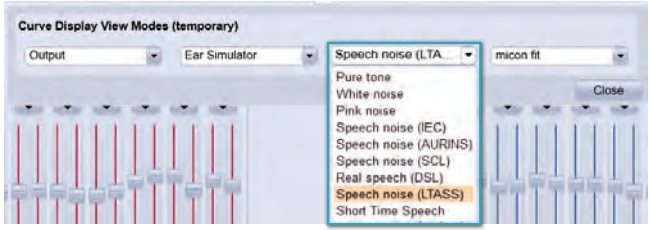
Gain or **Output** can be viewed on the curve display by selecting the drop down menu.



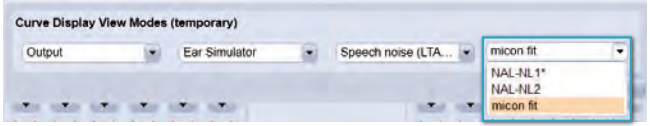
The following coupler types are available: **Ear Simulator**, **2cc Coupler**, **Simulated Aided Gain** or **Simulated Insertion Gain**.



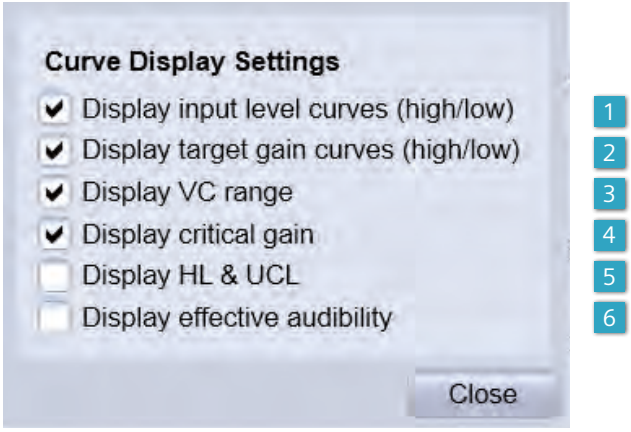
Several stimulus types are available, including **Pure tone, White noise, Pink noise, Speech noise (IEC, AURINS, DSL), Real speech (DSL), Speech noise (LTASS Long-term average speech spectrum)**, and **Short Time Speech**. The display curves on the graph are based on whichever stimulus type is selected from the drop down menu.



Finally, it is possible to select the targets that are shown on the curve display. It is important to note that the targets selected for this temporary view do not actually change the settings of the hearing instrument following the **First Fit** but rather are a means to compare the hearing instrument settings to the prescriptive targets used during the **First Fit**.



Selecting the **Curve Display Settings** icon takes you to a dialogue box where you can choose the values that you would like to view on the graphs:

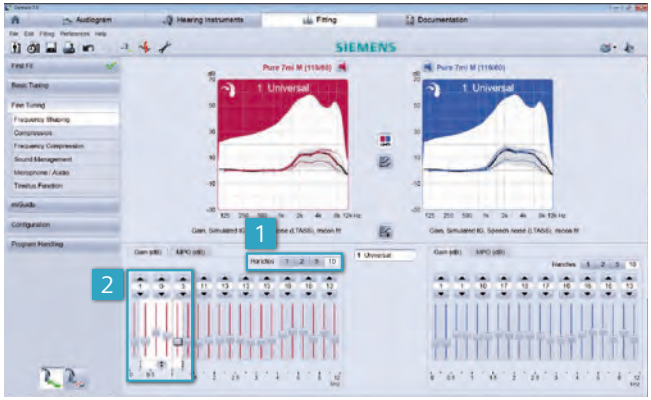


1. **Display input level curves (high/low):** shows the gain/output for soft and loud input.

2. **Display target gain curves (high/low):** shows the target gain based on the prescriptive formula for high, low, and medium inputs (80, 50, and 65 dB inputs, respectively).
3. **Display VC range:** volume control range selected in the fitting is shown on the curve display as a grey shaded area.
4. **Display critical gain:** lightly shaded area on the curve display in gain view that shows the area where there is a potential for feedback.
5. **Display HL & UCL:** hearing thresholds and UCLs are shown on the curve display,
6. **Display effective audibility** is not a target formula but rather a guide that displays the predicted limit of output that will maximize sound quality and speech intelligibility for the client. Exceeding this 'dotted' line suggests the level at which sound quality may be compromised without improving speech intelligibility. Output view must be open, and LTASS stimulus type must be selected, in order to see the effective audibility curve in a meaningful manner.

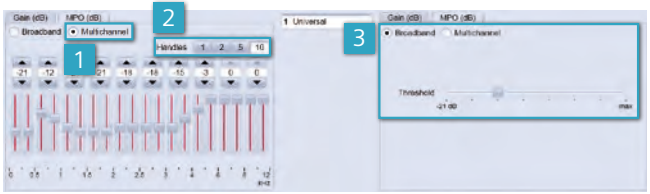
Frequency shaping

In the **Frequency Shaping** tab, master gain and MPO can be adjusted in 1 dB steps by using up to 20 channel handles.



1. It is also possible to reduce the number of handles from the maximum down to 1, depending on the level of technology. The number of handles selected is dependent on preference and requirements for frequency shaping.

2. To adjust the gain for several channels at once, click and drag the cursor across the desired frequencies to be adjusted. This way, the gain in several channels can be modified at once.



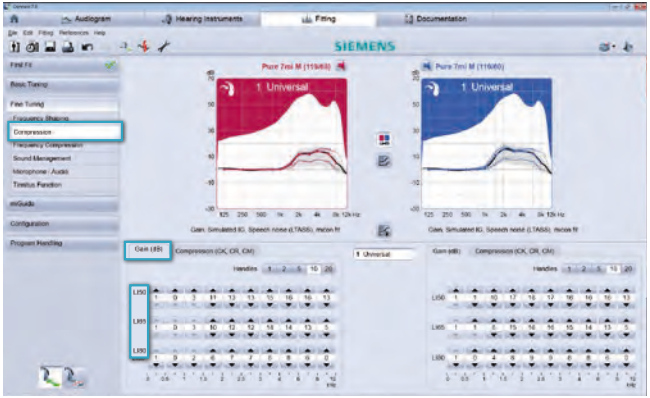
1. Adjustments to the maximum power output (**MPO**) can be made in much the same way as those for gain. There is an option to select the number of handles. Similarly, adjusting output for several channels at once can be accomplished by clicking and dragging the cursor across the desired frequencies.

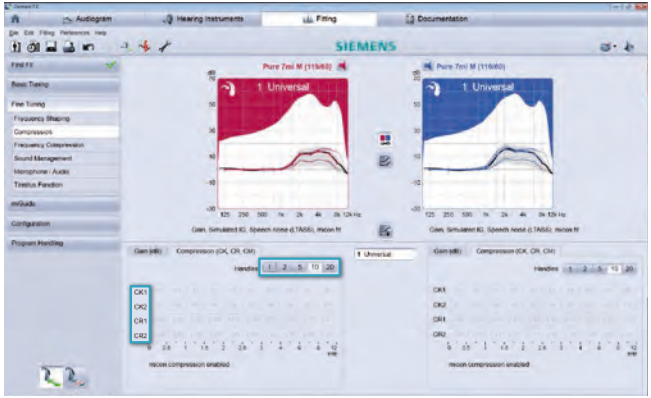
2. If you set the **MPO** to the **Multichannel** mode, you will limit the output signal in each channel.This means if you set all channels to **-12**, the output signal of each channel will be 12 dB below the hearing instrument's OSPL90 curve. Multichannel mode also allows different output values across the frequency range, i.e., in each channel.

3. However if you switch the view of MPO from **Multichannel** with the output signal of each channel set at **-12** to **Broadband** it shows a higher value. This is because the broadband MPO value represents the sum of all the channels, which is always higher than the values in the multichannel mode. It is preferable to use the multichannel view rather than the broadband view because it's more frequency specific. If there is little to no variation in UCLs across the frequency range, then the broadband view would be appropriate.

Compression

Click on the **Compression** tab to independently adjust gain for different input levels. **LI 50** (Level Input for 50 dB) refers to the output of soft level inputs. Similarly, **LI65** (Level Input for 65 dB) represents the output of the average level inputs. Finally, **LI80** (Level Input for 80 dB) shows the output for loud inputs. This is the most effective and efficient way to adjust gain and compression. Connexx will automatically adjust the settings for compression ratios and kneepoints.





When fitting to traditional prescriptive formulas, it is also possible to go to the **Compression (CK, CR, CM)** tab in order to adjust compression kneepoints, compression ratios and compression methods separately in the individual channels.

Microphone/Audio

It is recommended that you check the binaural coupling status of the hearing instruments prior to making changes by selecting or de-selecting the icon. When changing the microphone settings for both ears, it might be useful to work with coupled hearing instruments.

1. If **Automatic with TruEar** is selected, the hearing instrument's classifier decides which microphone system (TruEar or adaptive directional) is most suitable for a particular acoustic environment. TruEar is designed to help mimic the natural directional effects of the pinna in order to enhance localization front to back. When the automatic microphone is activated, the hearing instrument user does not have to manually change listening programs in order to change from spatial omnidirectional to directional mode. **Automatic with TruEar** is the preferred and default setting for the **Universal** listening program.

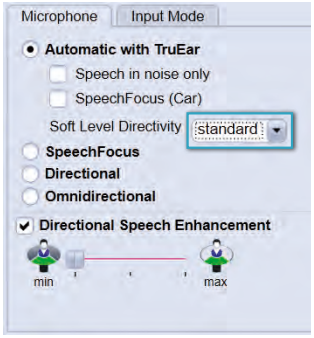
2. When **Speech in noise only** is selected, the classifier activates the directional microphone only if both speech and noise are detected at the same time. Otherwise, directional microphones would also be activated in noise-only situations.

3. **SpeechFocus** is another option under the **Microphone/ Audio** tab, which continuously screens the environment and selects the microphone mode that ensures the best speech intelligibility. It can be selected to operate automatically in the **Automatic with TruEar** program and will

engage when the classifier detects that the user is in a car. When **Speech Focus (Car)** is selected within the automatic mode, directionality will follow the most prominent speech source in a car.

4. Alternatively, **SpeechFocus** can be activated as a microphone mode. In this case, directionality will always follow the most prominent speech source. Note, however, that this microphone mode is not recommended for the **Universal** program, but in a dedicated program for situations where the wearer might not be able to always face the speech source. **SpeechFocus** works by operating simultaneously, an omnidirectional microphone, an adaptive directional microphone, and a backward directional microphone. Unlike typical directional microphones that only attenuate sounds coming from the back, this backward directional microphone works like an acoustic rear-view mirror and focuses on speech that originates from the back while suppressing noise from the front. The signals from the microphones are then analyzed for speech patterns. The microphone that picks up the most speech pattern is chosen as the appropriate microphone mode.

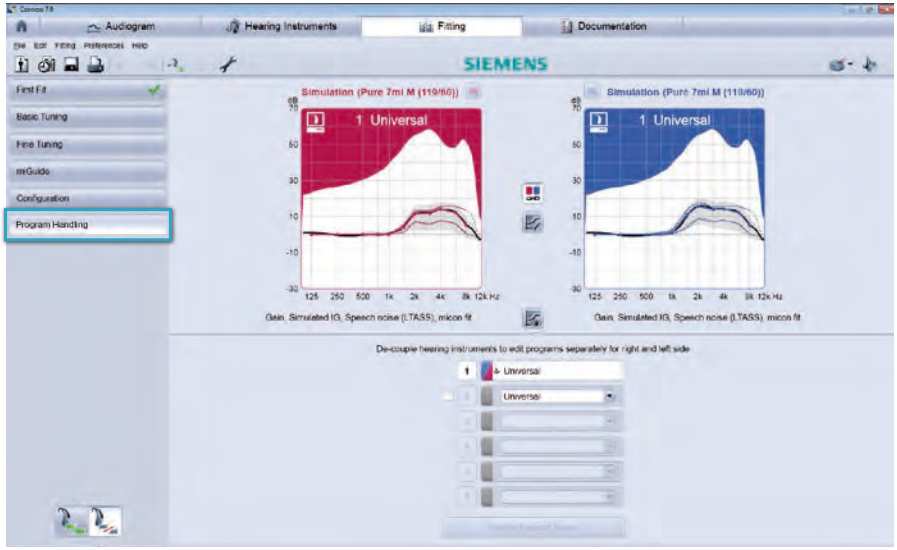
5. The new **directional speech enhancement** feature will help attenuate background noise in the directional microphone mode. This innovative algorithm is able to suppress noises from the back, even if these are fluctuating or speech noises. The degree of attenuation can be modified by using the slider. After First Fit, directional speech enhancement will be set to **min** in the Universal program. If you select a dedicated Noise program in **Program Handling**, then directional speech enhancement will be automatically set to **max**.



Soft Level Directivity represents the level of environmental noise necessary to fully engage the directional microphone. “Standard” is the default setting after First Fit.

Module 04 – Program Handling

This section looks at how to add and change additional listening programs. There is an option to add more programs after completing the fine tuning for the **Universal** program. This is accomplished via the **Program Handling** page.



Program selection

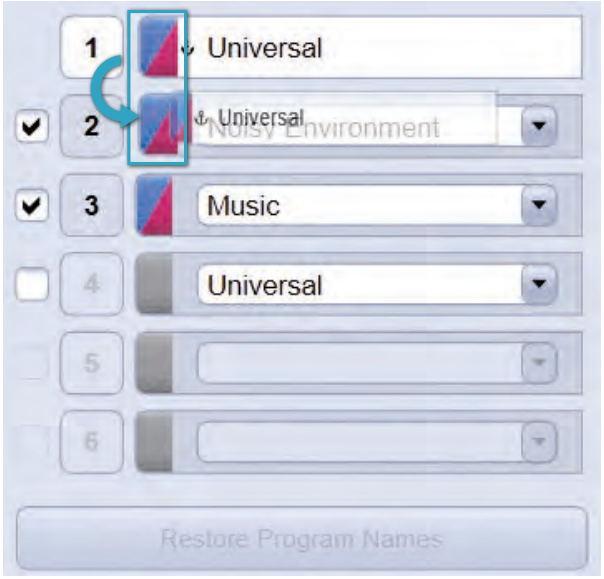
In addition to the **Universal** program (listening program 1), it is possible to add up to 5 more listening programs from the drop down menu. The fine tuning done previously for listening program 1 will be the starting point for any additional programs.

To add a program, just click on the arrow for the drop down menu to select a program from the list or select the small white box next to the left of the program number. Repeat this sequence to select additional programs.

Changing the program order

To change the order of the programs, click your cursor on the program number that you want to move, then drag and drop it into the desired location amongst the other programs. The program number will automatically change.

Additionally, it is possible to copy the configuration of one program to another program by clicking your cursor on the red and blue box next to the left of the program name and dragging it on top of another program.



Deleting a program

To delete a program, simply deactivate the check box next to it. This will automatically rearrange the order of the remaining programs. It is not necessary to delete programs from the bottom to the top.

Fitting different programs to different ears

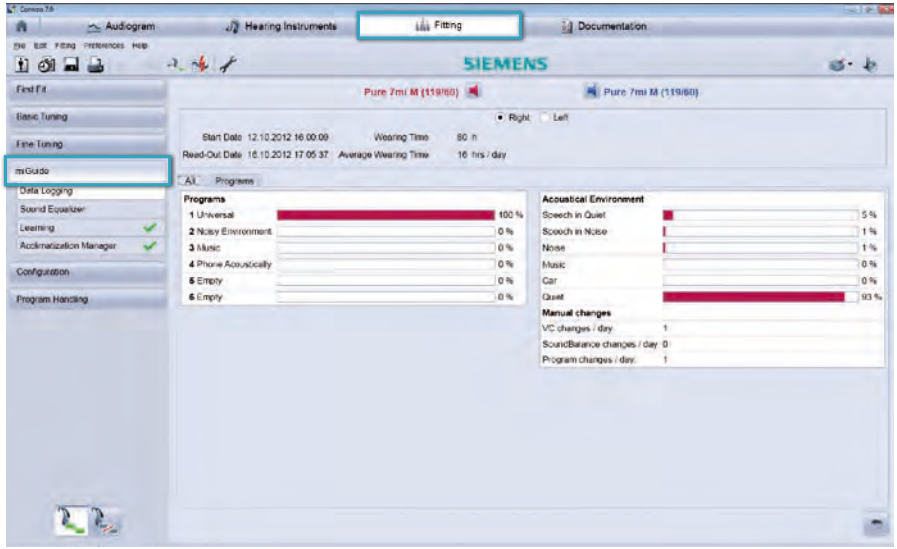
It is possible to allocate different programs to the right and left ears. By **De-couple hearing instruments** , the view is separated. This is useful when fitting hearing instruments with a telecoil – the wearer may want a telecoil on one ear and privacy or microphone on the other ear. This separated view also allows the contents of a listening program to be copied between program slots as well as left and right ears with the help of drag and drop.

Renaming a program

With the exception of program 1, all listening programs can be renamed. Simply click in the text field for the desired listening program and change the name accordingly. The new name will also appear in the printed documentation as well as in the connected remote controls, using a display, such as Tek™ Connect. Initial program names can be restored by using the respective program selection button. The initial name is also shown via a tooltip when using the mouse to hover over the renamed listening program.

Module 05 – miGuide

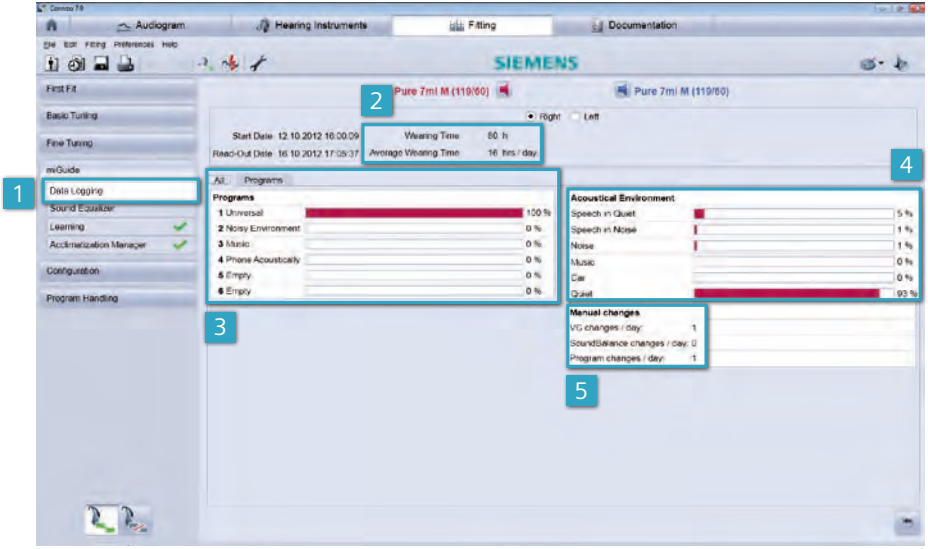
This module looks at miGuide™, which combines several features such as **Data Logging**, **Sound Equalizer**, **Learning** and **Acclimitization Manager**.



To access **miGuide**, select it from the navigation column on the left hand side of the screen in the **Fitting** tab.

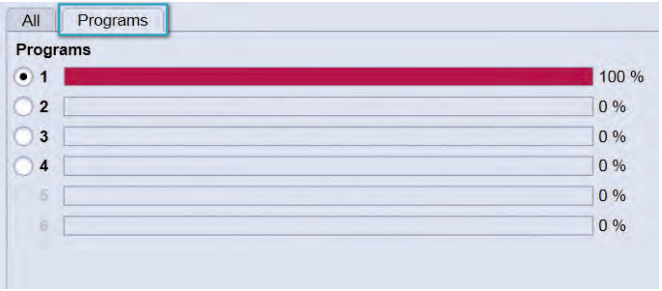
Data Logging

The **Data Logging** page contains information about how the hearing instruments have been used, which can help manage a wearer's expectations and concerns, as well as improve counseling.



1. To access the Data Logging page, click on **Data Logging** from within **miGuide**
2. **Data Logging** shows information about the hearing instrument wearing time for each ear.
3. It also shows the percentage of time each program was used.
4. Additionally, acoustic environments that have been detected by the hearing instruments are shown.
5. Lastly, this page provides information on the average number of times the wearer has made changes to volume and programs per day.

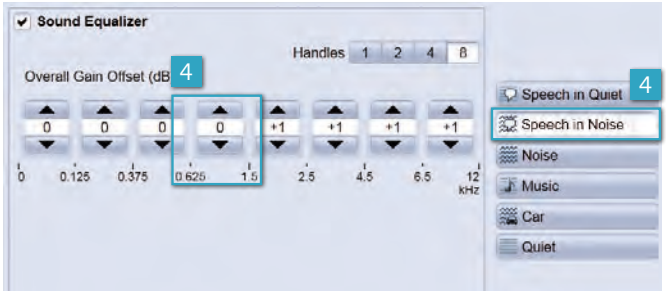
To view the acoustic situations that have been detected by the hearing instruments for each program separately, select the **Programs** tab. This section also contains information about the microphone mode as well as speech and noise management usage within the particular program.



Sound Equalizer

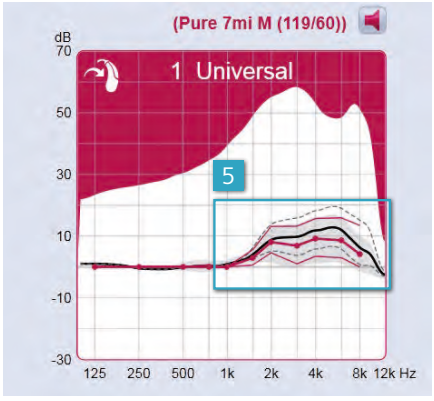
The **Sound Equalizer** differentiates between 6 different acoustic situations in program 1 (**Universal**), including **Speech in Quiet**, **Speech in Noise**, **Noise**, **Music**, **Car**, and **Quiet**. For each acoustic situation there is an optimized frequency response. The respective gain settings are defined as offsets against the general settings in program 1.

1. To access **Sound Equalizer**, select it from the navigation column under **miGuide** on the left hand side of the screen.
2. To activate the function, select the box next to **Sound Equalizer**.
3. The settings for the class **Speech in Quiet** are identical to the general settings for program 1, which is why offsets are set to zero and cannot be changed.
4. If it is necessary to change the settings for **Speech in Quiet**, go to **Basic Tuning** or **Fine Tuning** in program 1 to modify the frequency response and/or compression. For other situations, including **Speech in Noise**, **Noise**, **Music**, **Car**, and **Quiet**, Connexx uses different



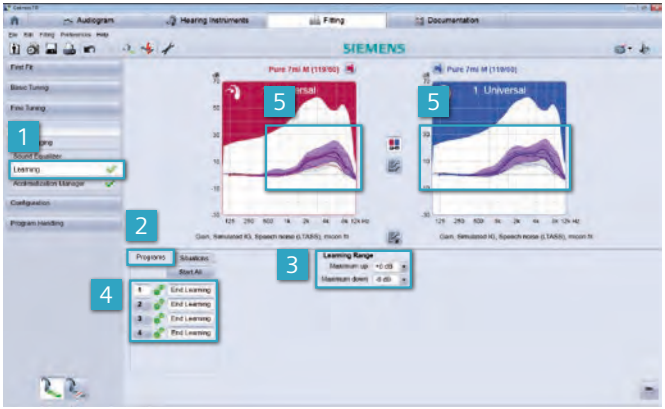
offsets which can be further optimized manually if desired. To modify a value, select the respective situation and click the up or down arrow of the handle that requires modification, which will result in a change in gain in the specific channel.

5. In the curve view you will be able to see the gain curves you have defined for the selected situation.

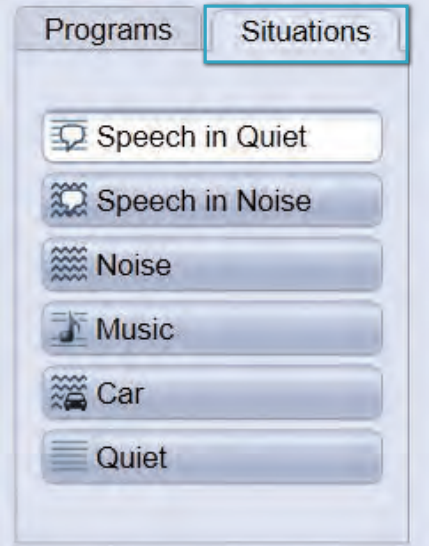


Learning

1. This feature allows the wearer to personally train their hearing instruments to suit their listening preferences after fine tuning has been completed. Learning defaults are set to off following a **First Fit..** To enable learning in all programs or just some of the programs, select **Learning** from the navigation column on the left hand side of the screen under **miGuide**.
2. Then select **Programs**.



3. A learning range or limit has to be set to ensure that the wearer still receives the correct amplification. This defines how many dB the hearing instrument can be trained to deviate from the original settings. The learning range is accessed by clicking on the pull down menu for **Maximum Up** and **Maximum Down**. The minimum learning range is +3/-3 dB and the maximum learning range is +/- 16 dB.
4. Once the range has been selected, click on **Start Learning** for each program where you would like learning to occur.
5. In the curve view, the initial as well as the trained settings are displayed for each program.

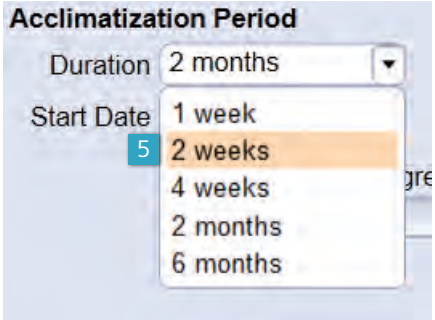


At a follow-up fitting, the trained settings for each of the 6 situations can be gathered from the **Situations** tab.

Please note that learned settings only become available after the instrument has been used for a sufficient amount of time and that there have been enough interactions to show a training effect.

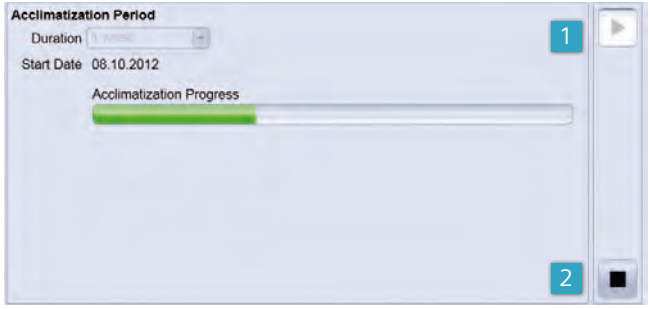
Acclimatization Manager

The **Acclimatization Manager** automatically increases the gain of the hearing instruments to a prescriptive target or an **Individual Target** over a pre-determined period of time that is chosen by the fitter. This gradual increase allows wearers to become accustomed to an amplification which is optimal for their hearing loss, especially with regards to speech understanding. Therefore, automatic acclimatization allows for optimal spontaneous acceptance at the **First Fit**, and then optimal audibility over time without sacrificing sound comfort.



1. **Acclimatization Manager** can be accessed from the navigation column on the left side of the screen.
2. The hearing instrument can slowly increase gain towards a prescribed target, including **micon fit Experienced, NAL-NL2 Experienced**,
3. or one that can be defined by the fitter in up to 8 channels by selecting **Individual Target**.
4. The time span in which the automatic acclimatization should be completed can also be pre-set as 1 week, 2 weeks, 4 weeks, 2 months, or 6 months.

5. Click on the pull down menu **Duration** under **Acclimatization Period** to select the time span. A selected duration of 2 months means that the target will be reached within 2 months, with an average wearing time of 10 hours per day. If the hearing instruments are worn for less than 10 hours a day, the acclimatization time will be automatically adjusted and it will take proportionally longer to reach the pre-set target. Before starting automatic acclimitization, click on **Pre-listen** to demonstrate the end result of this process to the client and to ensure that no feedback occurs.



1. After setting all the details, press start to begin acclimatization.
2. Use the stop button to restore the original settings before **Acclimatization Manager** is started.

Module 06 – Frequency Compression

Frequency compression is recommended for those individuals whose severity of hearing loss, especially in the higher frequencies, may prevent them from deriving benefit from traditional means of amplification.

Connexx 7.0 employs a strategy for frequency compression in order to preserve natural sound quality of the input signal as much as possible. When it is activated, it is set in a way that the wearer should still be able to differentiate between /s/ and /sh/. For asymmetric hearing losses, frequency compression is set to the better ear bilaterally. For open fittings, frequency compression is not recommended; there is an interaction between the altered tonality of the output and the direct sound because it is an open fitting, which could result in poorer sound quality.

Fine Tuning frequency compression

1. The settings for **Frequency Compression** can be adjusted in the **Fine Tuning** section.
2. It is possible to engage or disengage **Frequency Compression** by selecting or de-selecting the check box.

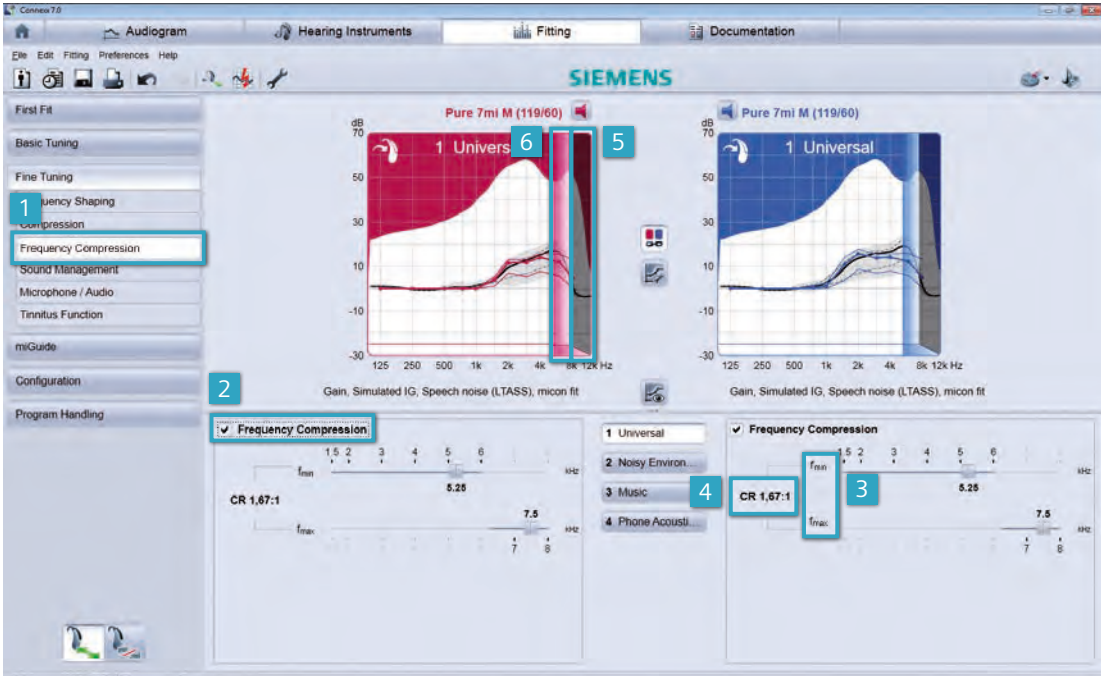
Frequency compression will default to 'on' if the appropriate audiometric criteria are met.

3. There are two controls, **fmin** and **fmax**, which are configurable. **fmin** represents the starting point of the frequency compression region. **fmax** is the maximal audible frequency after frequency compression.
4. **CR** describes the resulting compression ratio out of **fmin** and **fmax**. Relevant information from incoming frequencies above **fmin** will be compressed into the range between **fmin** and **fmax**.

Even though the **fmin** and **fmax** parameters are automatically set to match the wearer's hearing loss, it is possible to modify these values by using the slider controls.

The curve view shows the range for which frequency compression applies.

5. The area above **fmax** is grayed out to indicate the lack of acoustic output in this frequency region.
6. All incoming sounds above **fmin** will be compressed into the frequency range between **fmin** and **fmax** so they become audible again for the individual wearer.



Since frequency compression alters the tonality of the acoustic environment, we recommend that the wearer should try to acclimatize to the **First Fit** settings of frequency compression for a minimum of 2 weeks. If required, the **fmin** and **fmax** parameters, which are preselected after **First Fit**, can be changed according to the wearers' needs and preferences.

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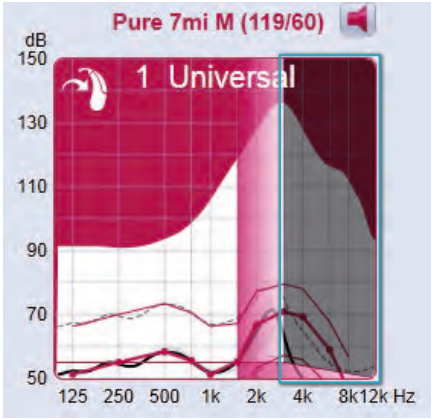
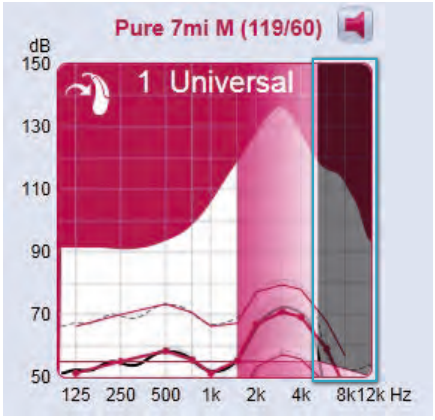
Module 06 – Frequency Compression

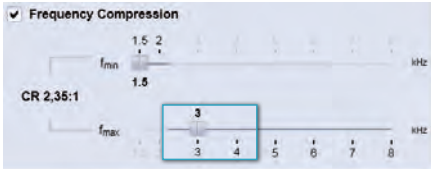
To improve sound quality:

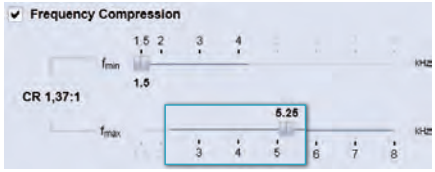
If the wearer has a small residual audible band (**fmin** <= 2,5 kHz with frequency compression activated), raise **fmax** by clicking on the control and sliding it to the right. This action will widen the frequency compressed region and reduce the area where no amplification is provided. This will result in less frequency-compressed sound quality.

fmax is adjusted from 3.0 to 5.25, which decreases the area where no amplification is provided.



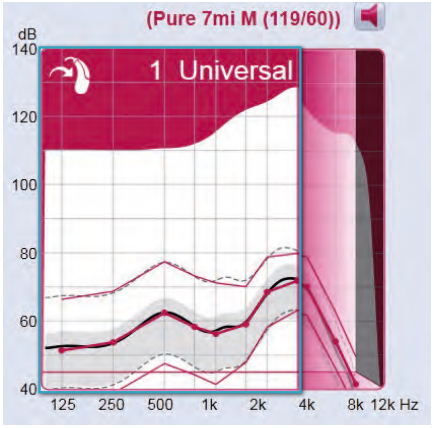


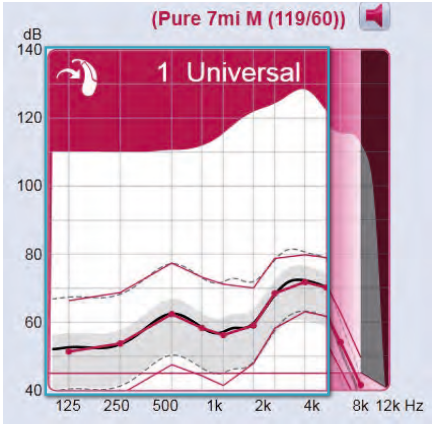




If the wearer has a larger audible band (**fmin** > 2,5 kHz with frequency compression activated) raise the **fmin** by clicking on the slider and moving it to the right so that more of the original input signal will remain unmodified.

fmin is adjusted from 3.0 to 4.5 so that less of the input signal is modified.



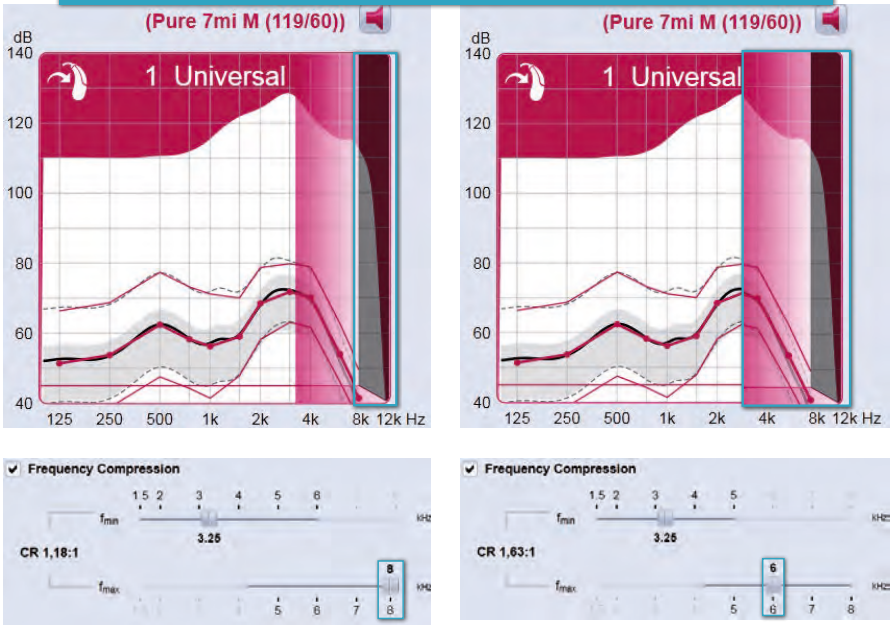


Module 06 – Frequency Compression

Audibility:

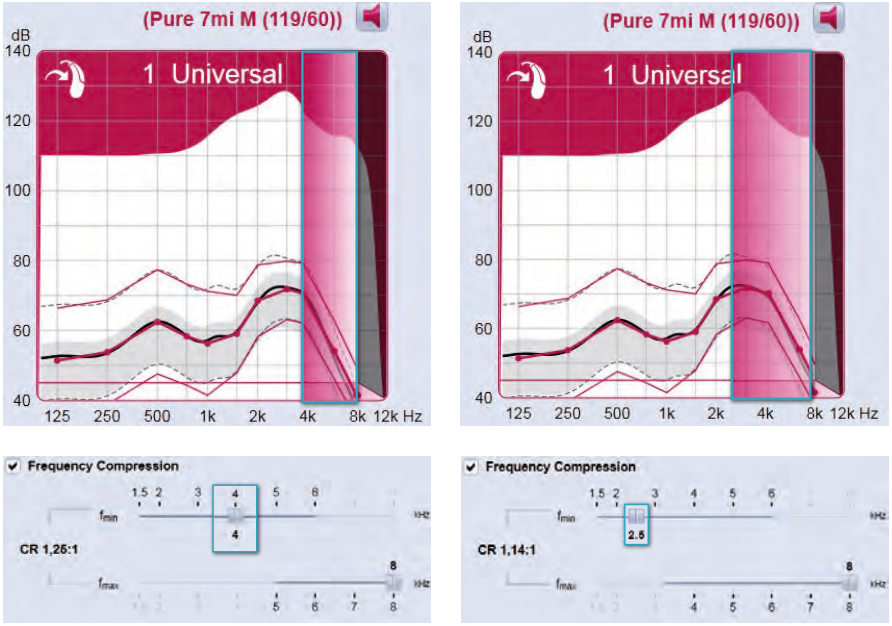
If the wearer needs more frequency compression to improve audibility, reduce **fmax** by clicking on the control and sliding it to the left. This will provide more information in the wearer's audible range.

Decreasing **fmax** from 8.0 to 6.0 increases the area where no amplification is provided thus providing frequency compression to a greater area of the frequency response.



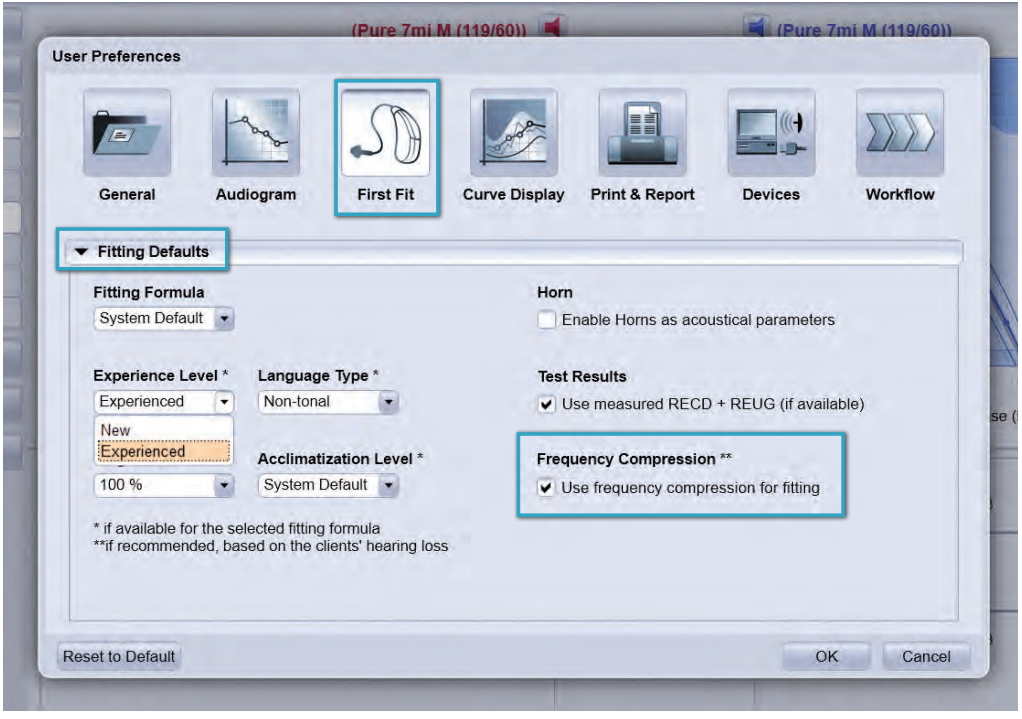
If the wearer's residual aid-able hearing extends further out in the high frequency range, audibility may be improved by decreasing **fmin**.

Decreasing **fmin** from 4 to 2.5 widens the area for compressed frequencies.



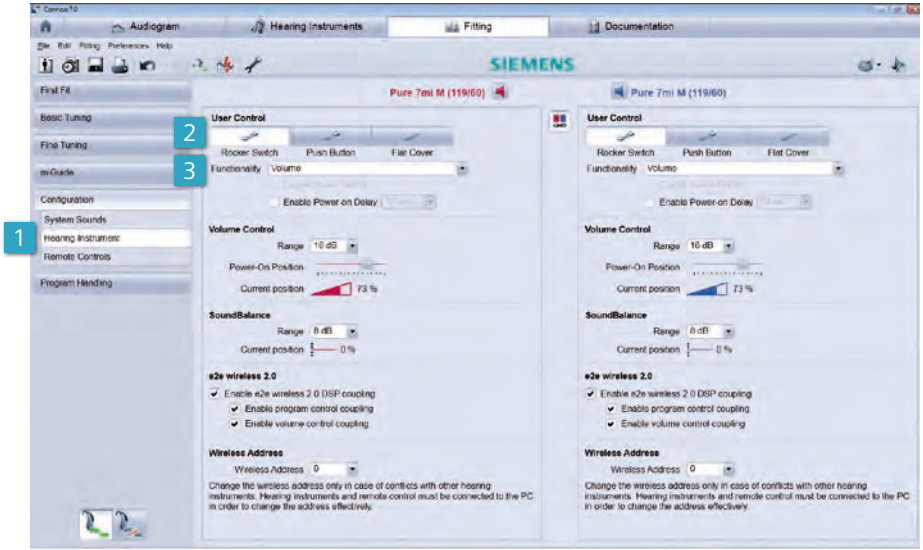
Module 06 – Frequency Compression

The **Frequency Compression** option can be set as a default for those individuals who may not benefit from traditional means of amplification. If it is generally not desired to apply frequency compression after **First Fit** in these cases, it can be deactivated under the **First Fit** section in the **User Preferences**. To access **User Settings**, go to **Preferences** on the toolbar or click on the icon .


(Pure 7mi M (119/60))
(Pure 7mi M (119/60))
User Preferences
General
Audiogram
First Fit
Curve Display
Print & Report
Devices
Workflow
Fitting Defaults
Fitting Formula
System Default
Horn
Enable Horns as acoustical parameters
Experience Level *
Experienced
New
Experienced
Language Type *
Non-tonal
Test Results
Use measured RECD + REUG (if available)
Acclimatization Level *
100 %
System Default
Frequency Compression **
Use frequency compression for fitting
* if available for the selected fitting formula
**if recommended, based on the clients' hearing loss
Reset to Default
OK
Cancel

Module 07 – User Control Configuration

This module shows how to use the **Configuration** view to assign different functions to the hearing instrument's controls.



Hearing instrument

1. To access this function, select **Configuration** from the navigation column on the left hand side of the screen, under the **Fitting** tab. Then select **Hearing Instrument**.

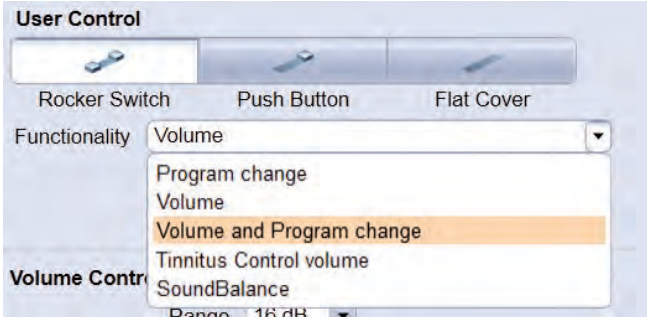
Within the **Hearing Instrument** section, the desired functions for the instrument's controls can be specified. The user control options for each side will be shown underneath the user controls. The selection will depend on the type of hearing instrument and the featured user controls (if any) that are being configured. Examples of configurable user control functions include volume, program change, volume and program change, tinnitus volume, and SoundBalance™.

User Controls and Functionality:

2. Select the type of user control by clicking on the desired control. Available controls for the particular hearing instrument will be listed under **User Control**.

3. Then select the functionality of the chosen control from the drop down menu.

Different functions can be assigned to the selected user controls. For example, a rocker switch can be set to change the volume on one side and change the program on the other, providing e2e wireless™ 2.0 is enabled for volume and program (see below for further details on e2e wireless 2.0).



The options will change according to the selected user control. For example, the control may offer **Program change**, **Volume**, **Volume and Program change**, **Tinnitus Control volume** and **SoundBalance**.

Program Change: wearer can adjust the programs set up by the hearing care professional.

Volume: wearer can adjust the volume of the hearing aid microphone.

Volume and Program Change: wearer can adjust the volume as well as the hearing instrument programs; pressing the switch for one second up or down affects volume up or down, pressing the switch for two seconds changes the program and pressing the switch for five seconds turns the hearing instrument on/off. This function is only available with a rocker switch.

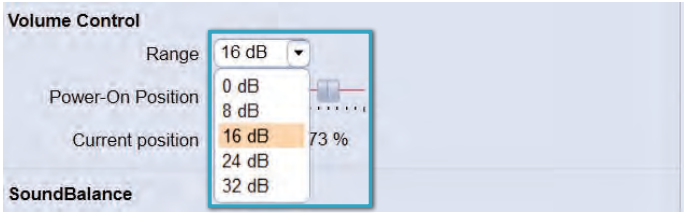
Tinnitus Control volume: wearer can adjust the volume of the therapy noise in their tinnitus program.

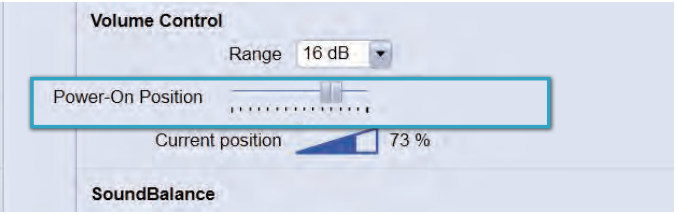
SoundBalance: wearer can adjust the volume above 1000 Hz.

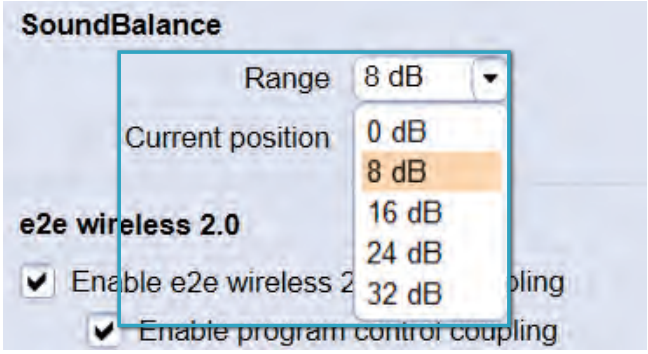
Volume control:

The range of the volume control is configurable by clicking the drop down menu under **Volume Control/Range** and selecting a value from 0 dB to 32 dB.

Power-On-Position represents the volume control level of the hearing instrument when it is switched on.





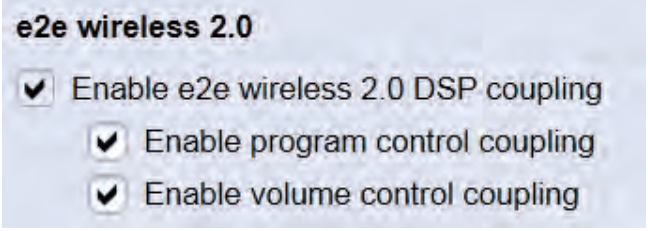


The same can be done for **SoundBalance**. **SoundBalance** is a volume control that only changes gain above 1000 Hz. The range for the **SoundBalance** control can be defined by clicking on the drop down menu and selecting a range from 0 to 32 dB.

e2e wireless 2.0

If **e2e wireless 2.0™** coupling is switched on, features such as the automatic microphone settings will be simultaneously aligned in both hearing instruments.

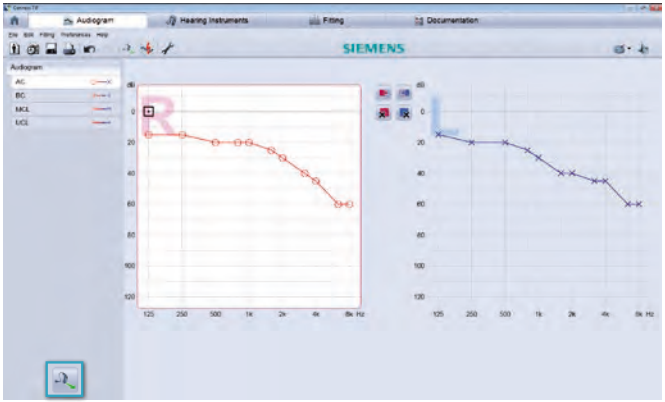
If Volume Control and / or Program coupling are also activated by having selected **Enable program control coupling** and **Enable volume control coupling**, any changes the wearer makes for one ear will be automatically applied to the other ear by means of a bilateral synchronization. For example, if the right hearing instrument's control is programmed as a volume control and the left hearing instrument's control is configured to program change, then when the wearer increases the volume by adjusting the control on the right hearing instrument, the volume on the left ear will increase simultaneously and by the same amount. This is especially beneficial since it improves left to right localization and is simpler for the wearer. The same would apply to program change.



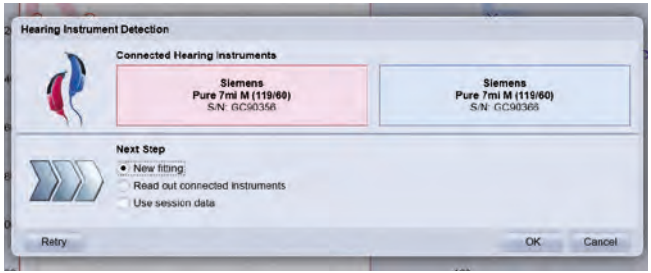
Module 08 – InSituGram

This section is a step-by-step guide on how to perform a **First Fit** using the **InSituGram™** function. An **InSituGram** allows the wearer's hearing thresholds to be verified directly via his hearing instruments.

To determine an in-situ audiogram, in addition to the traditional pure tone audiogram for use in fitting, the wearer's hearing instruments must first be connected to Connexx by clicking on the **Detect connected hearing systems** button.

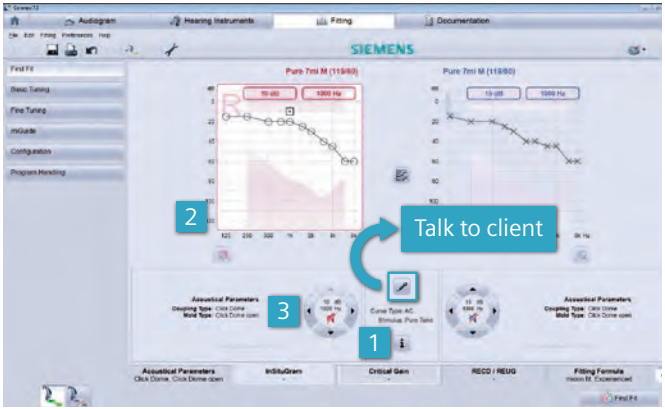


Next, select **New Fitting** and hit **OK**.

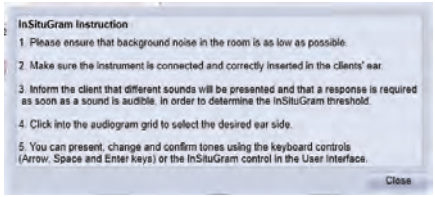


The **First Fit** screen will appear. The **InSituGram** will be found in the expanded menu at the bottom of the screen. Once in the **InSituGram** page, the microphones of the hearing instruments will be disabled.

Use the **Talk to client** button to talk to the wearer via the hearing instrument microphones. This will temporarily re-activate the hearing instruments' microphones and thereby interrupt the **InSituGram** procedure.



1. Before performing the **InSituGram**, click on the info button to review the brief instructions .

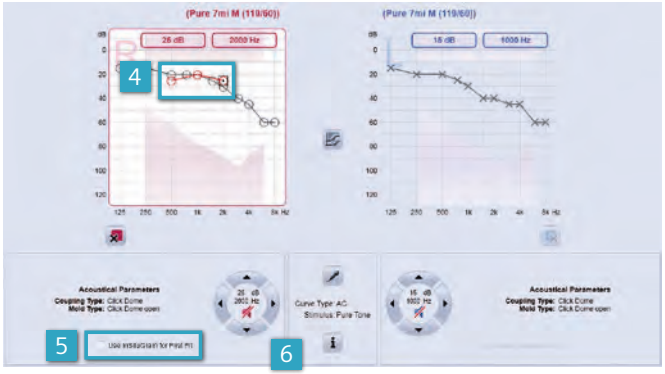


2. To begin the measurement, click on the audiogram screen of the ear you would like to test.

Then use the **arrow buttons** on the keyboard to change volume and frequency of the tones.

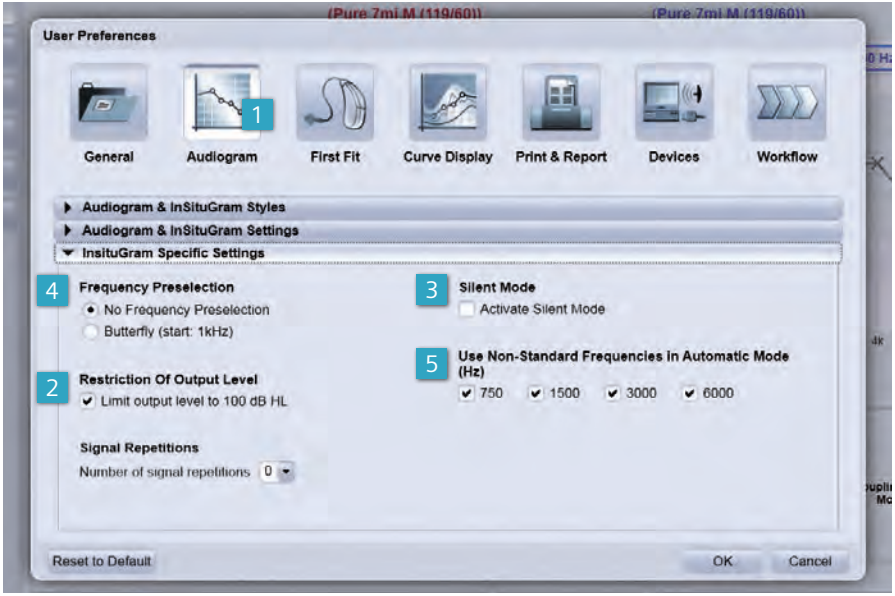
Press **Space** Space to present the tone to the wearer and select **Enter** ↵ to set the value in the audiogram.

3. Alternatively, the buttons in the user interface can be used. Select the up/down arrows to increase or decrease the tone. Use the left/right arrows to change the frequency. For both methods, the signal will be played as long as the button or key is pressed.
4. To use the **InSituGram** for the **First Fit**, values for at least 500 Hz, 2 kHz and a third frequency between 400 Hz and 5 kHz need to be included.
5. Additionally, the box next to **Use InSituGram for First Fit** must be check off.
6. The red writing on the **InSituGram** tab indicates that the **InSituGram** is used for the right ear. The same holds true for the left ear in blue.



More functions and settings of the **InSituGram** can be defined through the preferences window, including **Limit of Output Level**, **Silent Mode**, Butterfly Start, and the Number of Signal Repetitions.

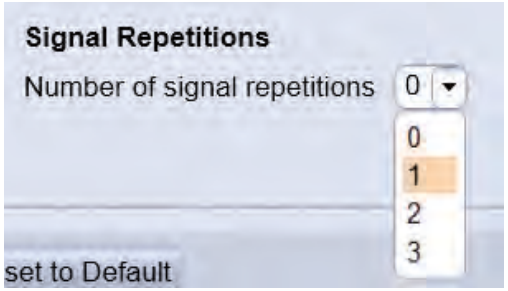
1. To access these settings, go to **Preferences** in the main menu or click on the icon in the toolbar, then go to **Audiogram**.

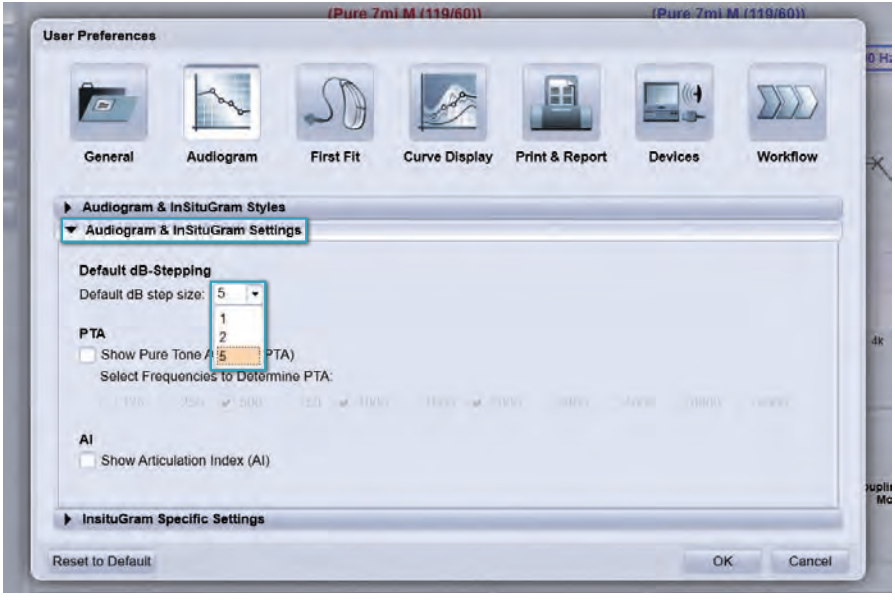


2. From **InSituGram Specific Settings**, it is possible to enable the security measure **Restriction of Output Level**. If **Limit output level to 100 dB HL** is checked, the hearing care professional is prevented from presenting pure tone signals above 100 dB HL through the hearing instrument.
3. To engage **Silent Mode**, check the box **Activate Silent Mode** in the InsituGram Specific Settings. In this mode, the test signal can be changed without the wearer hearing any mouse clicks or key strokes. To use **Silent Mode**, hover the mouse over the **InSituGram** controls and Connexx will automatically adjust the volume and frequency of the test signal.

4. Automatic **Butterfly** mode will automatically select the standard frequencies of 250 Hz, 500 Hz, 1, 2, 4 and 8 kHz for the **InSituGram** if **Butterfly (start: 1 kHz)** is checked. The reference to **start 1 kHz** means that in this mode, the test will always begin at 1 kHz and then automatically jump to the next frequency. Once the higher frequency values are confirmed, the test will move to the lower frequency range.
5. Other frequencies can be selected by checking them off in the section **Use Non- Standard Frequencies in Automatic Mode (Hz)**.

Signal Repetitions refers to the number of times the wearer has to respond to the pure tones before the value is entered into the **InSituGram**. This can be pre-set.





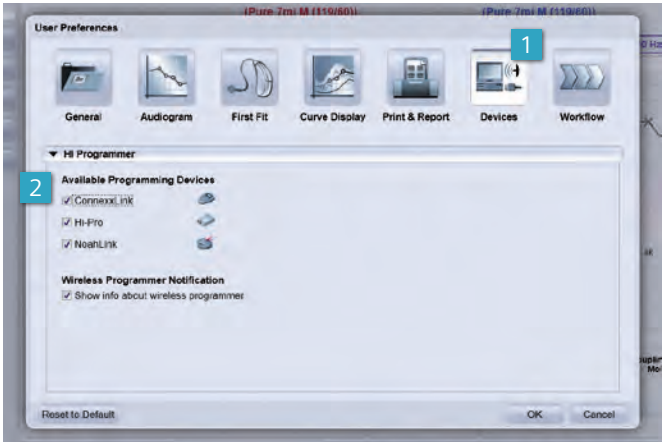
It is also possible to choose the default dB per step for the InSituGram from the **Audiogram and InSituGram Specific Settings**. Simply select 1, 2, 5 dB stepping so that the gain can only be increased by the selected dB at a time.

When all the preferences have been selected, save the changes by selecting **OK**. Before performing **First Fit**, check if all **First Fit** options are set to the wearer's needs, including acoustical parameters, critical gain and fitting formula.

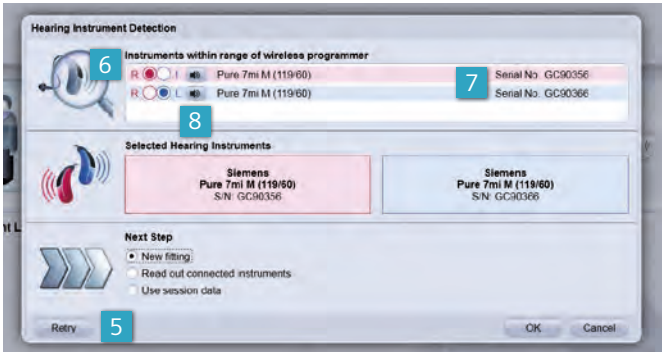
Module 09 – Wireless Programming

This section looks at how to apply wireless programming using **ConnexxLink™**.
With this device, no programming cords are necessary.

Enter the **User Preferences** dialogue via the toolbar icon, or the menu entry **Preferences**. Here, different programming devices can be enabled.



1. Go to **Devices**.
2. Enable the desired programming devices and hit **OK**.
3. This has to be set up only once; from now on **ConnexxLink** can be in the top right corner of the menu bar.
4. Arrange the hearing instruments within the neck loop and then click on **Detect Hearing Instruments**.
5. If ConnexxLink is unable to detect the desired hearing instrument(s), check if the hearing instruments are switched on and are properly located within the range of the neck loop. It is also a good idea to check on the battery. Then click “Re-try” to repeat detection.
6. One instrument can be selected for the right (R) and left (L) ear using the radio button selection in the dialog box.



7. If more than one hearing instrument has been detected, or if the detected hearing instrument has not yet been assigned to the left or right ear, it is also possible to check the serial number of the instruments in the same section.
8. For a confirmation that the correct hearing instrument has been selected, a detection melody can be played in the instrument using the loudspeaker symbol.

After the correct hearing instruments have been assigned, select the **Next Step** (for example **New Fitting** or **Follow-up fitting**) and then click **OK**. The fitting workflow can now be continued as usual.

Module 10 – Configuring Remote Controls

This section demonstrates how to configure different remote controls.

Remote controls are only available for configuration if the selected hearing instruments are able to support e2e wireless 2.0.

1. To configure remote controls, go to the **Configuration** view and enter **Remote Controls** in **Fitting**.
2. To configure a standard remote control that does not support Bluetooth like **ePen™** or **ePocket™** select it.
3. Then click **Activate RCU**.
4. To configure the Bluetooth remote control miniTek™ or Tek™, select it from the list of remote controls and physically connect it to the computer using a USB programming cable. A small symbol will indicate the connection status . To activate it, click on the **Activate RCU** button.
5. For miniTek it is possible to pair a second Tek transmitter. To do so, place a check mark in the box next to **Second Tek Transmitter** and then enter the **Bluetooth Address**, which is noted on the back of the Tek transmitter. This will allow the second Tek transmitter to communicate with the Bluetooth remote control miniTek.

Audiogram
Hearing Instruments
Fitting
Documentation
SIEMENS
4
First Fit
Basic Tuning
Fine Tuning
mGuide
Configuration
System Sounds
Hearing Instrument
Remote Controls
Program Handling
Pure 7mi M (119/00)
Pure 7mi M (119/00)
5
miniTek
Tek Connect
ProPocket
ePen
No remote control
Remote Control
Model miniTek
Serial number RA05000
Status Connected, Activated
Deactivate RCU
Tek Transmitter
First Tek Transmitter
Second Tek Transmitter
Bluetooth address 0012 - 6F - 219092
Bluetooth address

Module 10 – Configuring Remote Controls

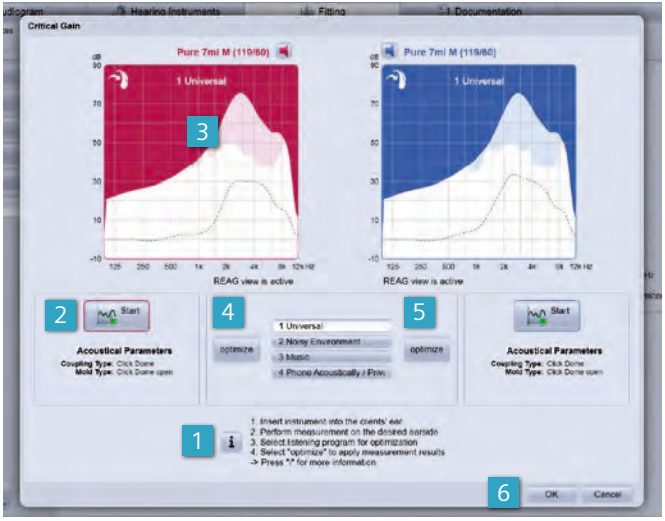
For remote controls such as Tek Connect, it is possible to define, for example, a start-up text or to change program names, which can be separately transferred to the remote control via a **Transfer Text** option. This means it is not necessary to repeat full programming of the remote.

6. To include a start-up text, check the box next to **Show individual start-up text** and then type the desired text.

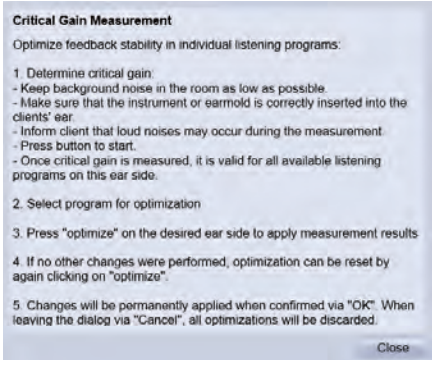
Module 11 – Critical Gain Measurement for Follow-Up Fittings

This module looks at how to apply critical gain measurements for follow-up fittings.

If a wearer experiences feedback problems in a particular listening situation, a critical gain measurement can be performed after **First Fit** has been carried out, even if a critical gain measure was run at **First Fit**. The critical gain measurement is a useful tool for troubleshooting feedback at follow-up fittings and is easily accessed via a toolbar button .



1. Prior to the critical gain measurement, click on the **info** button for instructions on how to perform the test.



2. Critical gain measurements are done separately for each ear. Click on **Start Critical Gain Measurement** to start the measurement for the desired ear.
3. The area of critical gain is displayed in the curve view as a shaded area, which represents the likelihood of feedback; the closer the shaded area is to the curves, the more likely feedback is to occur.

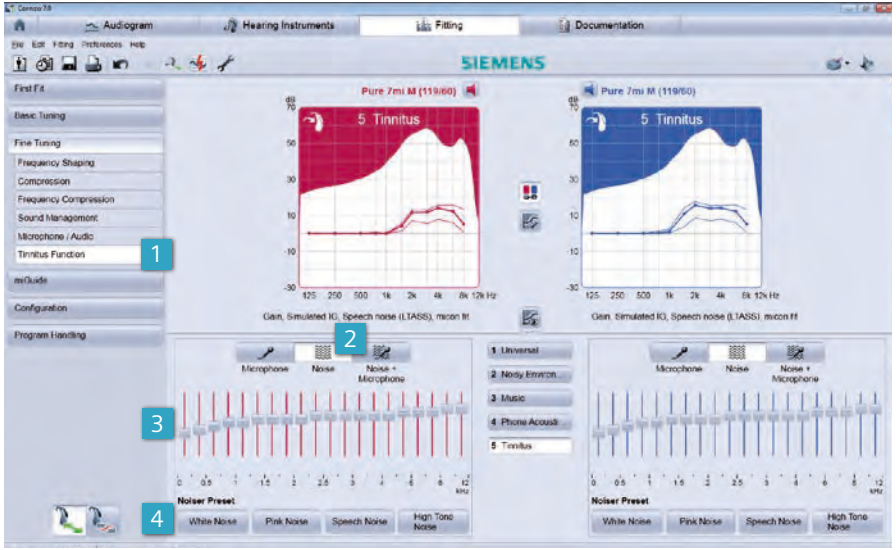
   If required, the same measurement can be done for the left ear.
4. Next, select the listening program in which a feedback problem persists.
5. Click **Optimize** to apply the critical gain measurement result. Gain may be decreased in critical frequencies (i.e., shaded area on the curve view) to minimize feedback and accommodate the results of the Critical Gain Measurement.

   Click **Okay** to keep the optimization changes. To discard all the changes and measurement results, reset the instrument to its initial settings via **Cancel**.

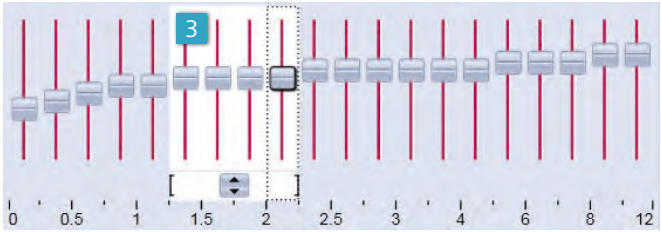
Module 12 – Tinnitus Settings

This module explains how to set up a tinntius program and apply all required settings.

If the wearer needs a tinnitus noiser, go to **Program Handling**, activate the desired program for the tinnitus noiser and choose **Tinnitus** from the drop down menu. It is advisable to set up a dedicated tinnitus program beyond the **Universal** listening program. The tinnitus function can be activated and configured separately for each listening program. Refer to Module 04 for details on how to set up additional programs.



1. Once the tinnitus program has been designated, click on **Fine Tuning** and then **Tinnitus Function** in the navigation column on the left hand side of the screen
2. To set up a program, first choose either **Noise** or **Noise + Microphone**. When **Noise** is enabled, the hearing instrument will not provide amplification for microphone signals. Only the designated tinnitus noiser will be audible. When **Noise + Microphone** is selected, both the hearing instrument microphone as well as the noiser will be engaged.
3. It is possible to shape the frequency response of the noiser in all available hearing instrument channels so that it suits the wearer's needs and supports the method of tinnitus management. Simply click on the particular frequency and adjust up or down. Alternatively, left mouse click and drag the cursor to modify a group of frequencies at once.

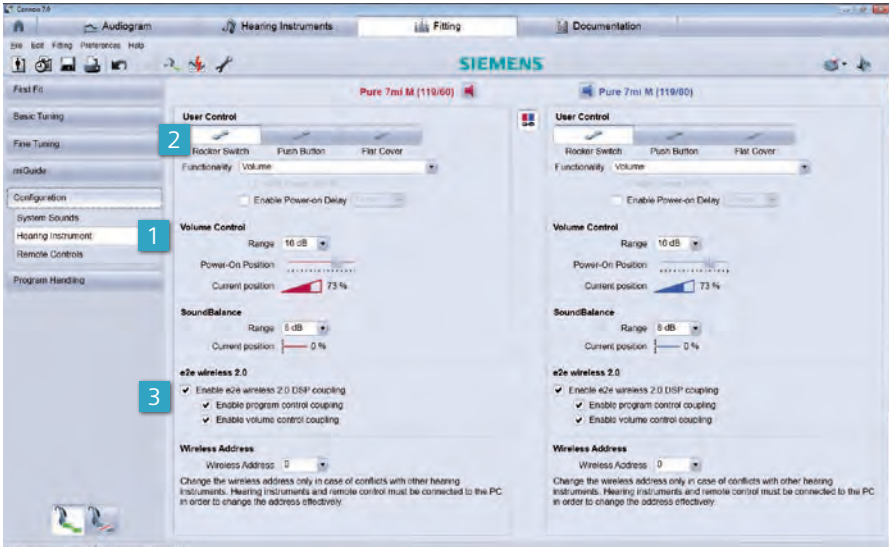


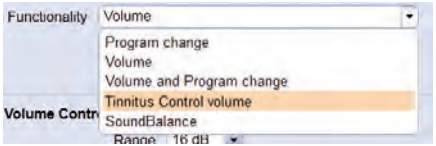
4. Pre-defined noises, called **Noiser Preset** can also be used, such as **White Noise**, **Pink Noise**, **Speech Noise** or **High Tone Noise**.

Module 12 – Tinnitus Settings

It may be desirable for the wearer to be able to adjust the volume of the noiser, depending on the type of tinnitus management program.

1. In order for the wearer to manipulate volume, switch to the **Configuration** view and select **Hearing Instrument**.





2. Then select **Tinntus Control volume** from the drop down menu **Functionality**. This feature is only available in products that offer a rocker switch.

3. By enabling **e2e wireless 2.0 coupling**, adjusting the control on one ear will modify volume on both ears.

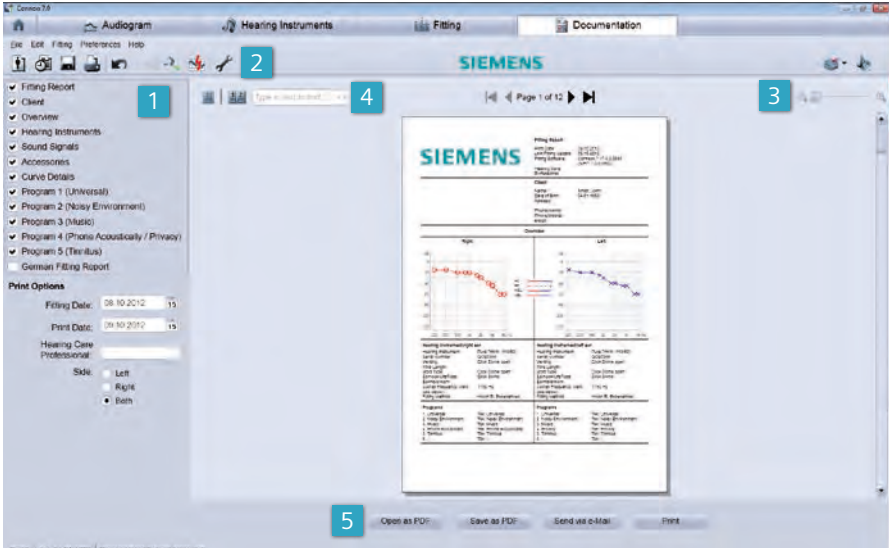
It is very useful to note that if a **Tek Connect** remote control has been configured for use with the hearing instrument, the **SoundBalance** control will automatically act as volume control for the Tinnitus Noise.

Module 13 – Documentation Settings

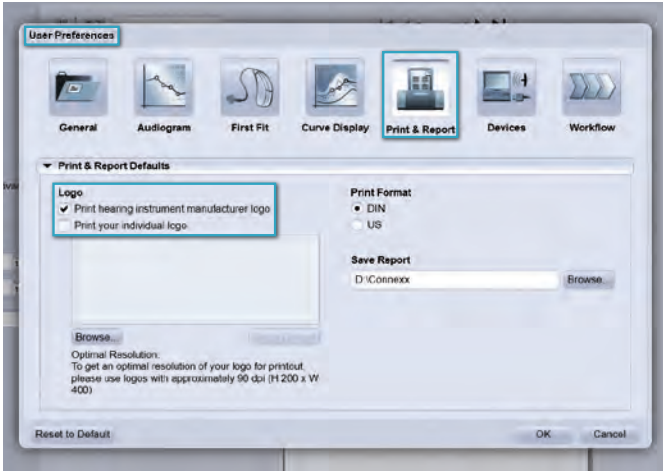
This section goes through the steps needed to configure the various documentation settings.

A new feature of Connexx 7 is a documentation option that can be configured to suit individual preferences.

1. In the **Documentation** tab it is possible to select the information that you would like contained in the printout of the report, including **Fitting Report**, **Client**, **Overview**, **Hearing Instruments**, **Sound Signals**, **Accessories**, **Curve Details**, **Programs** and **Print Options**.



2. Using the **Print & Report** preferences from within **User Preferences**, a personalized logo can be uploaded onto the printout.



3. Once the **User Preferences** have been set, a preview of all pages is given. To have a better look at the details, simply zoom in and out.

4. There is a type-ahead search included in the preview so that the content of the documentation can be checked for certain words or expressions. For example, to check the settings for **program 2**, simply type in **program 2** and select enter. Connexx will take you directly to the page with information on **program 2**.

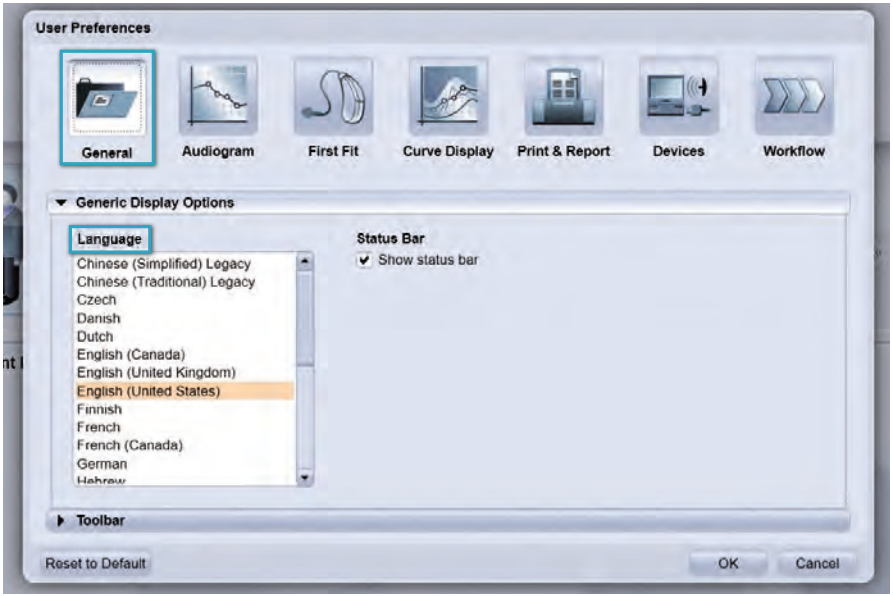
5. The report can then be printed as well as opened, stored or sent directly as a PDF file.

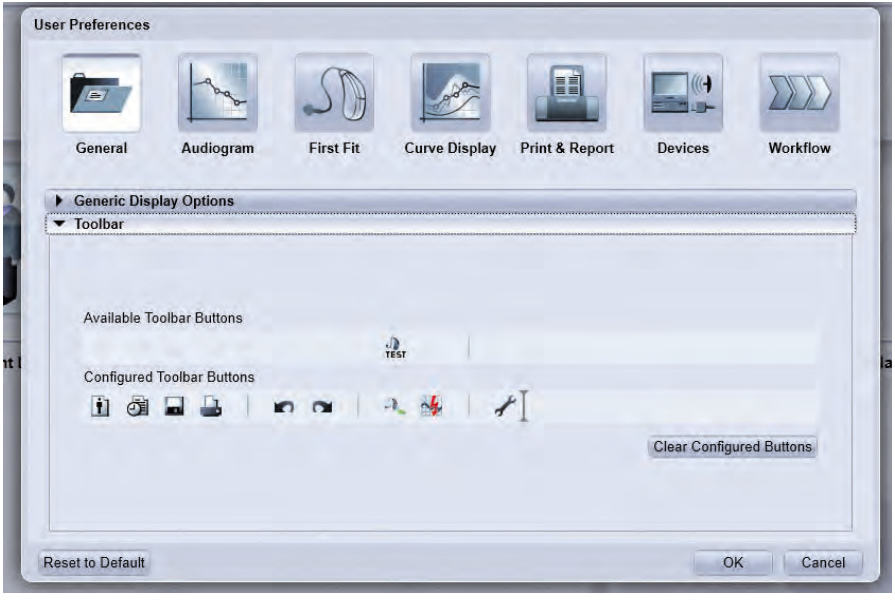
Module 14 – Preferences

This module focuses on the preference settings that are provided by Connexx7, including sections on **General Settings**, **Audiogram**, **First Fit**, **Curve Display**, **Print & Report**, **Devices** and **Workflow**.

To enter the **User Preferences** window click on **Preferences > Edit User Preferences** in the menu or alternatively click on the respective button in the toolbar .

The **Generic Display Options** section provides access to **Language** and **Toolbar**.





The buttons displayed on the toolbar can also be customized by simply dragging and dropping them where they should appear.

Content
Module 01
Module 02
Module 03
Module 04
Module 05
Module 06
Module 07
Module 08
Module 09
Module 10
Module 11
Module 12
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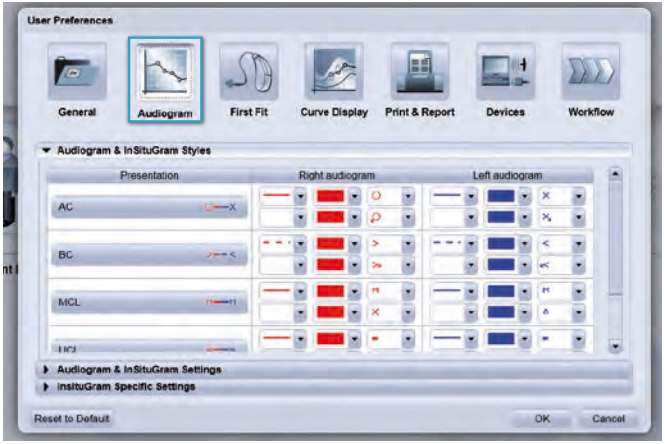
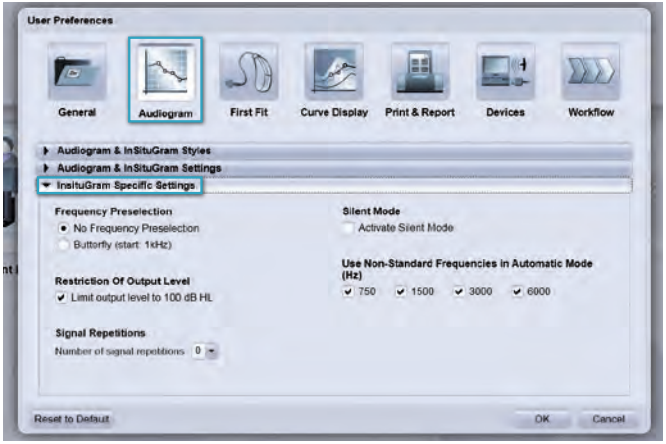
Module 14 – Preferences



Within the **Audiogram** page, it is possible to modify Audiogram and InSituGram styles and settings for each test.

Go to **Audiogram** in **User Preferences**, and choose **Audiogram and InSituGram Styles** to change the symbols and colors of the Audiogram and InSituGram page views.

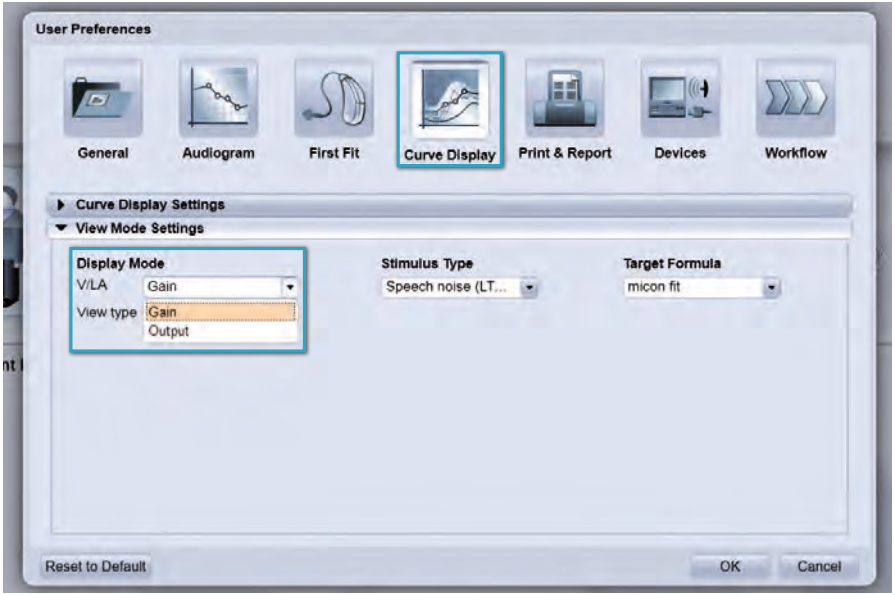
Go to **InsituGram Specific Settings** to set up preferences for the InSituGram test.



Within **First Fit** it is possible to define the following default settings:

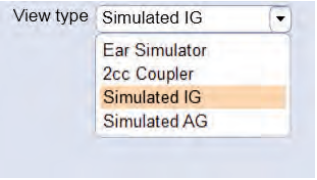
· Fitting Formula
· Activation of Frequency Compression
· Language Type
· Experience Level of the wearer
· Acclimatization Level and Step
· Allow Horns as acoustical parameters and,
· Use of measured RECD/REUG, if these are available

For each hearing instrument **First Fit**, the **Fitting Defaults** will be used.
To access the default settings for the curve view, click on **Curve Display Settings** in **User Preferences**. Here you can select the measurements for the display, including input levels, target gain, VC range, MPO, critical gain, HL and UCL, as well as effective audibility.



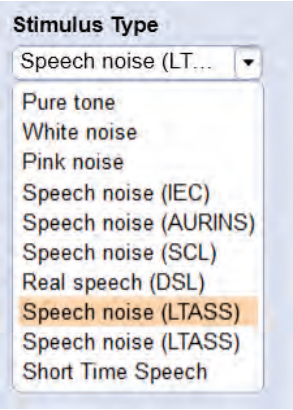
View Mode Settings provides options for the display mode (gain or output), **View Type** (Ear Simulator, 2cc Coupler, REIG, or REAG), as well as many other options and **Target Formula**.

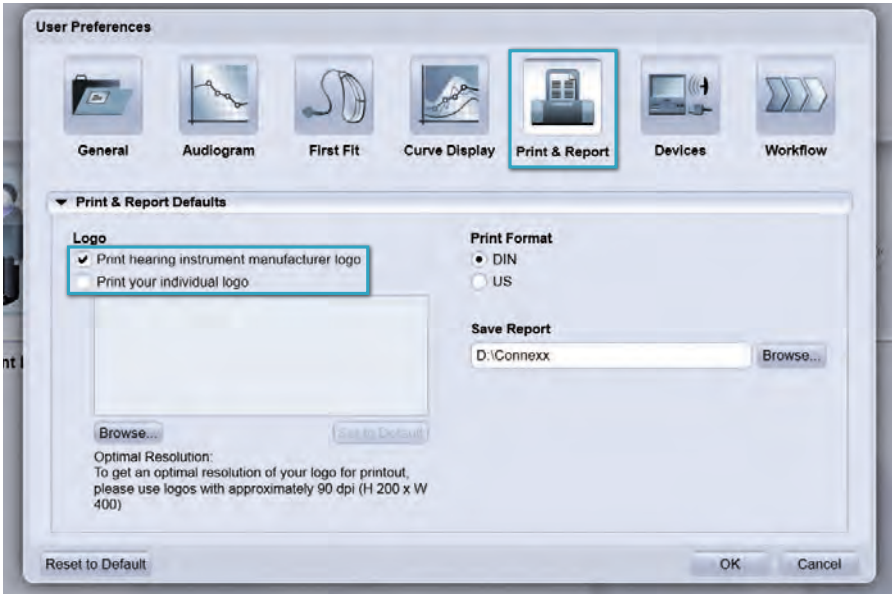
Display Mode default options: Gain or Output.



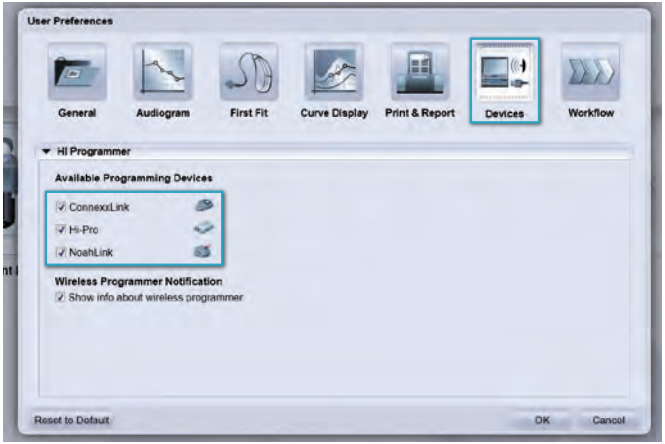
View Type default options: **Ear Simulator**, **2cc Coupler**, **Simulated IG**, **Simulated AG**.

Stimulus Type default options: **Pure tone**, **White Noise**, **Pink Noise**, **IEC Noise**, **Aurins Noise**, **DSL Speech Noise**, **DSL Real Speech**, **LTASS**, and **Short Time Speech**.

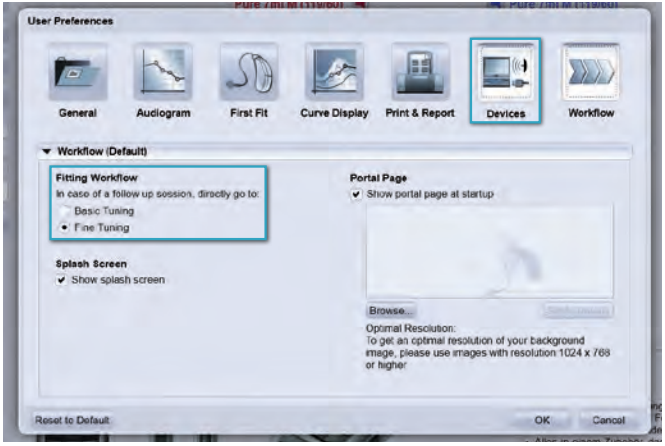




The Print & Report defaults allow you to include your company logo on the report that prints from Connexx.



The default device for programming can be set by checking it off in **Devices** under **User Preferences**. Check the desired device.



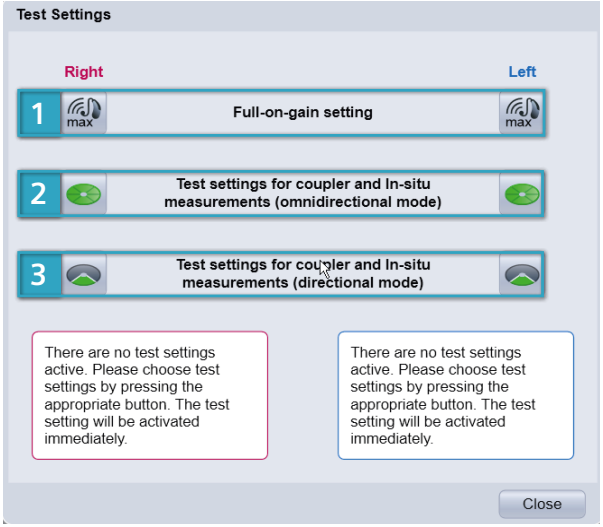
Finally, default options for the desired workflow can be set up in the **Workflow** section in **User Preferences**. In a follow-up fitting, it is possible for Connexx to bring the hearing care professional directly to **Basic Tuning** or to **Fine Tuning**.

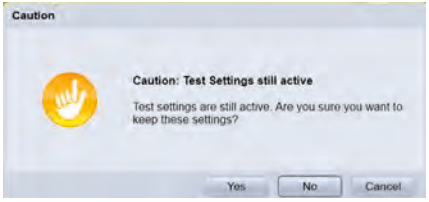
Module 15 – Real Ear Measurements

This section provides an overview of how to use the Test Settings feature and the Measurement Settings function.

Test Settings
To access the Test Settings options, choose **Test Settings** from the **Fitting** menu or select the icon from the toolbar.

The following options appear: **Full-on-gain setting**, as well as **Test settings for coupler and In-situ measurements** (omnidirectional or directional). Note that this feature is only accessible when hearing instruments are connected. Furthermore, this feature only allows for a fixed set of measurement settings; further configuration of the settings is not possible in Test Settings mode.





1. Choose **Full-on-gain setting** for testing the hearing instrument in a test box. The hearing instrument will be set to full-on gain and all adaptive parameters will be switched off so that you can easily measure the maximum gain curve without having to make the adjustments manually.
2. Activate **Test settings for coupler and In-situ measurements (omnidirectional mode)** to test the hearing instrument in the test box or perform real ear measurements. All adaptive features are turned off, gain and compression remain unchanged and the microphone is set to the dedicated omnidirectional mode.
3. Finally, activate **Test settings for coupler and In-situ measurements (directional mode)** to test the hearing instrument in the test box or perform real ear measurements. All adaptive features are turned off, gain and compression remain unchanged and the microphone is set to the dedicated directional mode.

Once the test is completed, selecting **Close** will prompt you to either keep the test settings by clicking on **Yes** or return the hearing instrument to its original settings by clicking on **No**.

Measurement Settings
Measurement Settings is located within Fine Tuning on the left hand side of the screen. These settings are useful for verification (real-ear and/or coupler measures) in Program 1.

1. **Switch off all adaptive parameters/ Set microphone to omnidirectional mode** will automatically adjust the following:

- Microphone mode – omnidirectional
- Speech and noise management – OFF
- SoundSmoothing™ – OFF
- eWindscreen™ – OFF
- Current setting for feedback cancellation – unaffected
- Compression method for micon fit – unaffected
- Compression method for traditional formulae – syllabic
- Frequency compression – OFF (if activated)

Fine tuning of the frequency response is possible in Measurement Settings. IMPORTANT: If you have made changes to the adaptive parameters after First Fit, make sure to save your fitting first before clicking this button. Otherwise, your changes will be lost.

Now you will be able to use all the fine tuning options and perform the verification measurements as necessary.

2. Once the measurements and adjustments are completed, select the button **Reset adaptive parameters and microphone mode**. This will restore the adaptive parameters, compression settings and microphone mode to First Fit default settings.

Please note: Connexx will NOT warn you in case the adaptive parameters are still switched off and compression is still in syllabic when you leave the fitting session.

The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases and are subject to change without prior notice.

The required features should therefore be specified in each individual case at the time of conclusion of the respective contract.

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