

AURICAL FreeFit

Let's get started

Probe **M**icrophone **M**easurements
have never been easier!



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This guide will introduce you to PMM. It will guide you from launching OTOsuite through entering a reference audiogram, to making real ear measurements and demonstrating hearing aid features. Let's get started.

Launching OTOsuite – two ways to get started

Option 1 – Stand-alone mode



1. Open **OTOsuite**.
2. Manually enter the patient's audiogram.

Option 2 – OTOsuite with NOAH



1. Open NOAH and select the client and session.



2. Click the **Open Module Selection** button.




3. Select the **Measurement** tab and then double click the OTOsuite logo.

If the patient audiogram has been entered into NOAH, it will automatically be transferred to OTOsuite.

If you have not entered the audiogram previously in NOAH or if you use OTOsuite in stand-alone mode, you can enter the audiogram manually in OTOsuite. You do this in the **Tone** screen in the **Audiometry** module.

Manually entering the audiogram

- 1 Click the **Tone** and then select the manual Entry icon. 
- 2 Click the **Control Panel** icon.
- 3 In the Control Panel, under Audiogram type, select standard Audiogram.
- 4 Select your view preference.


To enter a standard audiogram:

- 5 On the Control Panel select the type of measurements you want to enter in the graph.
- 6 Double click on the graph to enter the audiogram according to the level and frequency response.

Manually entering ABR/ASSR values:

- A In the Control Panel, under **Audiogram type**, select **ABR/ASSR Audiogram**.
- B Click the **New Audiogram** Icon on the tool bar.
- C Enter the ABR/ASSR values in the table below the graph.
- D A conversion will be applied as indicated for each frequency.
- E To create or modify your own conversion table, click the **nHL-to-eHL Conversion** drop-down menu and select **Custom**, and then click **Edit**.
- F Enter the conversion values in the table and then click **OK**. Click **Apply** to update your data.

Navigator to access the modules



Control Panel

Manual entry mode - Click to edit

eHL Thresholds (dB)	
125	250
500	750
1k	1.5k
2k	3k
4k	6k
8k	

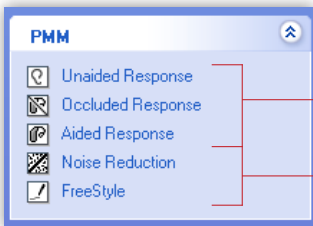
Conversion (dB)	
20	20
17	15
12	10
7	5
5	5

Please refer to the AURICAL Visible Speech Quick Guide for more information about the Hearing Instrument Simulator.

PMM

PMM is composed of 5 sections:

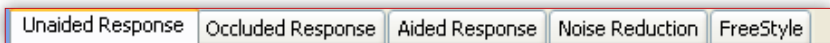
(the sections appear as menu items in the Navigator panel, and as tabs within PMM)



Dynamic REM

Show and Demonstrate hearing instrument features

The Tabs




Click the **Navigator** icon in the toolbar to display the Navigator panel. Under PMM, click **Unaided Response**.

Click the **Control Panel** icon, and then PMM will automatically connect to FreeFit's wireless neck set.

Step One: Probe Tube Calibration

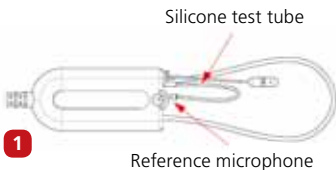
The first time FreeFit is connected to PMM, PMM will prompt for the probe tubes to be calibrated.

This step is recommended prior to each fitting session to allow the system to accurately account for the acoustic influence of each individual tube on the frequency response.

The **Probe Tube Calibration** dialog box can be opened with either the icon on the tool bar  or by clicking **Tools > Calibration > Probe Tube**.

- 1 Place the tube over the reference microphone on each probe (see illustration below).
- 2 Click **Start**.
- 3 If the tubes pass calibration, a **Calibration successful** message will appear. If the tubes fail calibration, the system will prompt for re-calibration.

Calibration screen




Step Two: Patient Setup

Drape FreeFit around the back of the patient's neck and over the shoulders. Slide the probe housings off the FreeFit shoulder strap and hang them around the patient's ears. Adjust each cord to fit snugly around the ear by pulling either end of the cord. Attach the provided weights to hold FreeFit in place; or attach to NoahLink using provided cables.



Step Three: Fitting Details

The **Fitting Details** dialog box can be opened with either the icon on the tool bar  or the keyboard shortcut **F10**.

It is important to customize these options for each fitting to select the desired fitting Target Rule, and to make the fitting accurate and aligned with the individual's requirements. Note that you must select the **Use OpenREM calibration** option if you are fitting an open ear instrument.

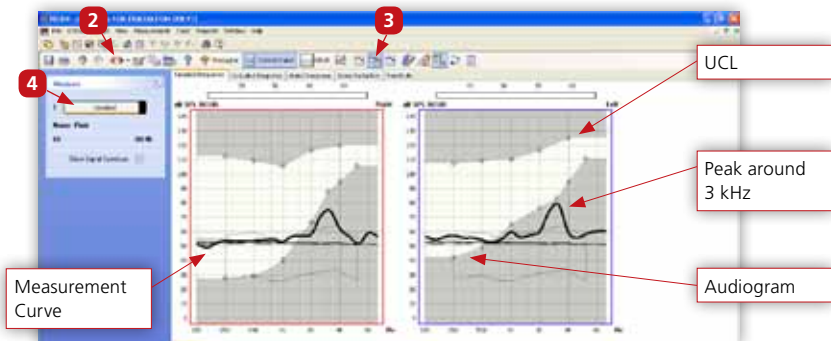


Step Four: Dynamic REM (Unaided/Occluded/Aided Responses)

• Unaided Response (Real Ear Unaided Response/REUR)

Use without hearing instruments in ears to measure the natural amplification (resonance) provided by the ear canal.

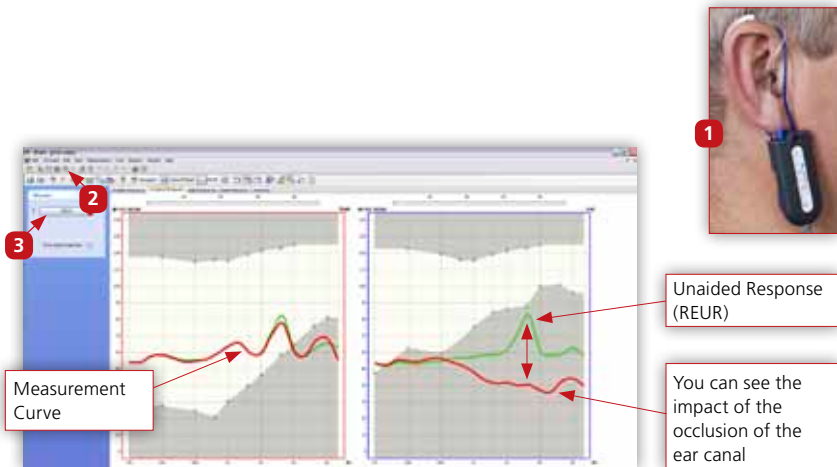
- 1 Insert the probe tube in the ear canal to a depth of 3-5 mm from the eardrum.
- 2 Select the individual ear you want to measure, or binaural.
- 3 Select the graph that correlates with your measurement choice.
- 4 Click the Unaided button on the Control Panel. Note: In an unaided measurement, we usually expect a peak on the measurement curve around the 3 kHz frequency of about 10-20 dB SPL.



• Occluded Response (Real Ear Occluded Response/REOR)

Use with muted hearing instruments in ears to measure the actual occlusion or openness of the fitting

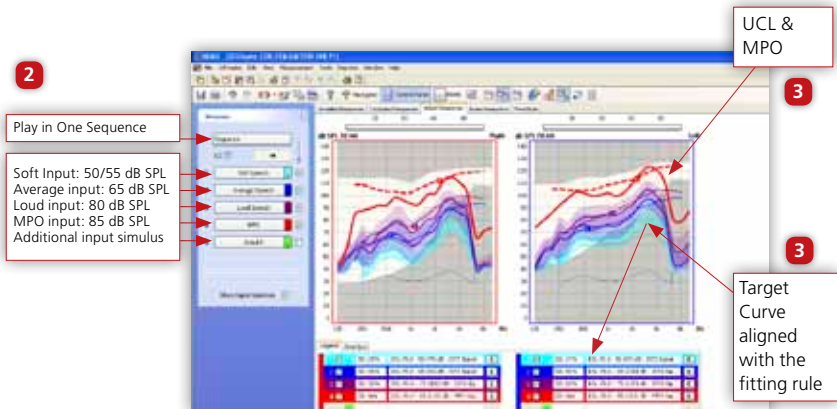
- 1 Place the Hearing Instrument on the ear of your patient and make sure it is turned off or muted.
- 2 Select the ear you want to test or the binaural measurement. See notes for Step 1.
- 3 Click the **Occluded** button in the Control Panel.



• Aided Response (Real Ear Aided Response/REAR)

Demonstrates the gain that the hearing instruments are providing in relation to a specified prescriptive fitting target.

Switch the hearing aid on without moving it. All the hearing instrument features should be left on with the general use program selected. You can configure the control panel to play up to 5 signals. An appropriate setup is displayed below, i.e. 3 input levels for a speech or speech-like stimulus: Soft (50/55 dB SPL), Average (65 dB SPL) and Loud (80 dB SPL). In addition, an MPO* stimulus is available. If the fitting software provides acclimatization levels, it is advisable to set the aid to the highest level.



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- 1 Give the patient an overview of the Aided Response step. This is especially important prior to running the MPO signal.
- 2 Present the various input levels and MPO signal separately or in one sequence. In some rooms due to the noise floor, it may be necessary to record at 55 or 60 dB SPL rather than 50 dB SPL for the soft speech level.
- 3 Compare the measured aided response curve to the prescriptive target values (dashed curve) and the measured MPO* curve to the UCL. Consider adjusting the MPO (Maximum Power Output) if indicated by any report of loudness discomfort.
- 4 View OTOsuite in On Top mode while you adjust the hearing instrument with the fitting software to achieve the desired gain, and repeat the measurements to evaluate the effects of the changes.
- 5 If after adjustment, the patient finds the sound of the hearing aid too loud, use clinical judgment and reduce the acclimatization level in the fitting software.



NOTE:

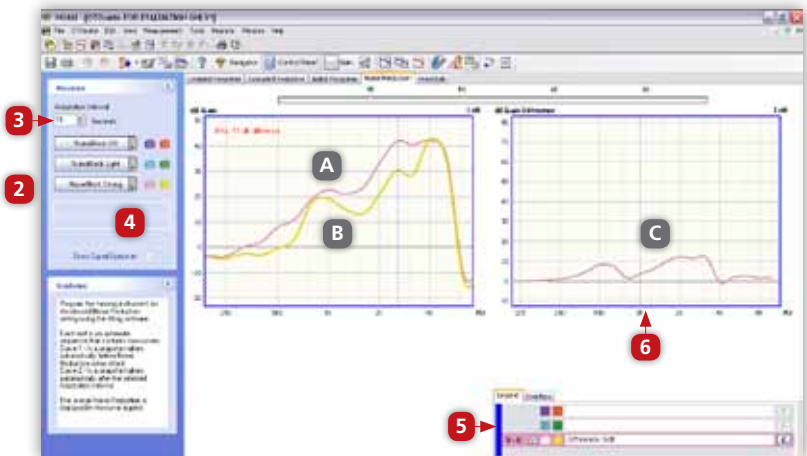
Instruments can also be adjusted in On Top mode of manufacturer's software, as shown. With our On Top mode feature we can measure the simultaneous instrument adjustment and measurement.

Step Five: Demonstrate hearing instrument features

The Noise Reduction and Freestyle test screens provide you with a dedicated demonstration section within PMM.

Noise Reduction allows for the presentation of various stimuli to evaluate and adjust the effectiveness and strength of this feature within the instrument programming software. Each Noise Reduction test is an automatic sequence that contains two curves (with a delay between the two curves):

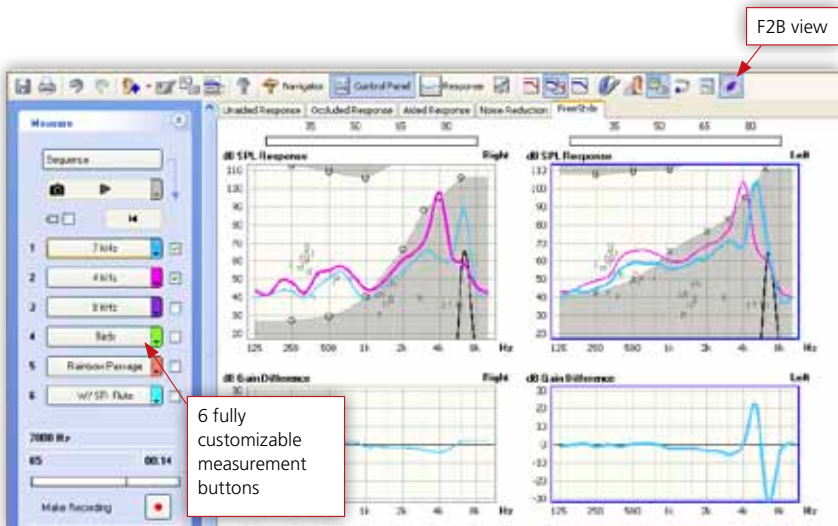
- A** Curve 1 – is a snapshot taken immediately, before Noise Reduction takes effect.
 - B** Curve 2 – is a snapshot taken automatically after the selected adaptation Interval when the Noise Reduction has taken effect.
- 1** Using the fitting software, program the hearing instrument for the desired Noise Reduction setting.
 - 2** Configure the measurement buttons in to compare the conditions you prefer, i.e. Off versus On; or Mild versus Strong.
 - 3** Select the time difference between the two measurements to select the time difference you want to measure the Noise Reduction outcome from. In the example below, 10 seconds was selected. Curve B represents the responses after 10 seconds of Noise Reduction.
 - 4** Click a measurement button in the control panel.
 - 5** The snapshot curves are displayed in the graph and the overall Noise Reduction is displayed in the curve legend.
 - 6** The F2B view gives you the opportunity to see and show the gain difference in an easy to understand graph.



- A** - response with the NR turned off
- B** - response with the NR activated
- C** - gain difference curve between A and B

Let's get started

The **FreeStyle** test screen works in the same way but with numerous possibilities to **customize protocols**. This powerful tool gives the clinician great freedom in demonstrating hearing instrument features in a way that clients can see and understand.



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Version release date

August 30, 2010.

Technical support

Please contact your supplier.

Important!

For comprehensive information regarding safety, see the AURICAL FreeFit and the Probe Microphone Measurements Module User Manual. It contains information and warnings, which must be followed to ensure the safe performance of OTOSuite and AURICAL FreeFit. Local government rules and regulations, if applicable, should also be followed at all times.

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