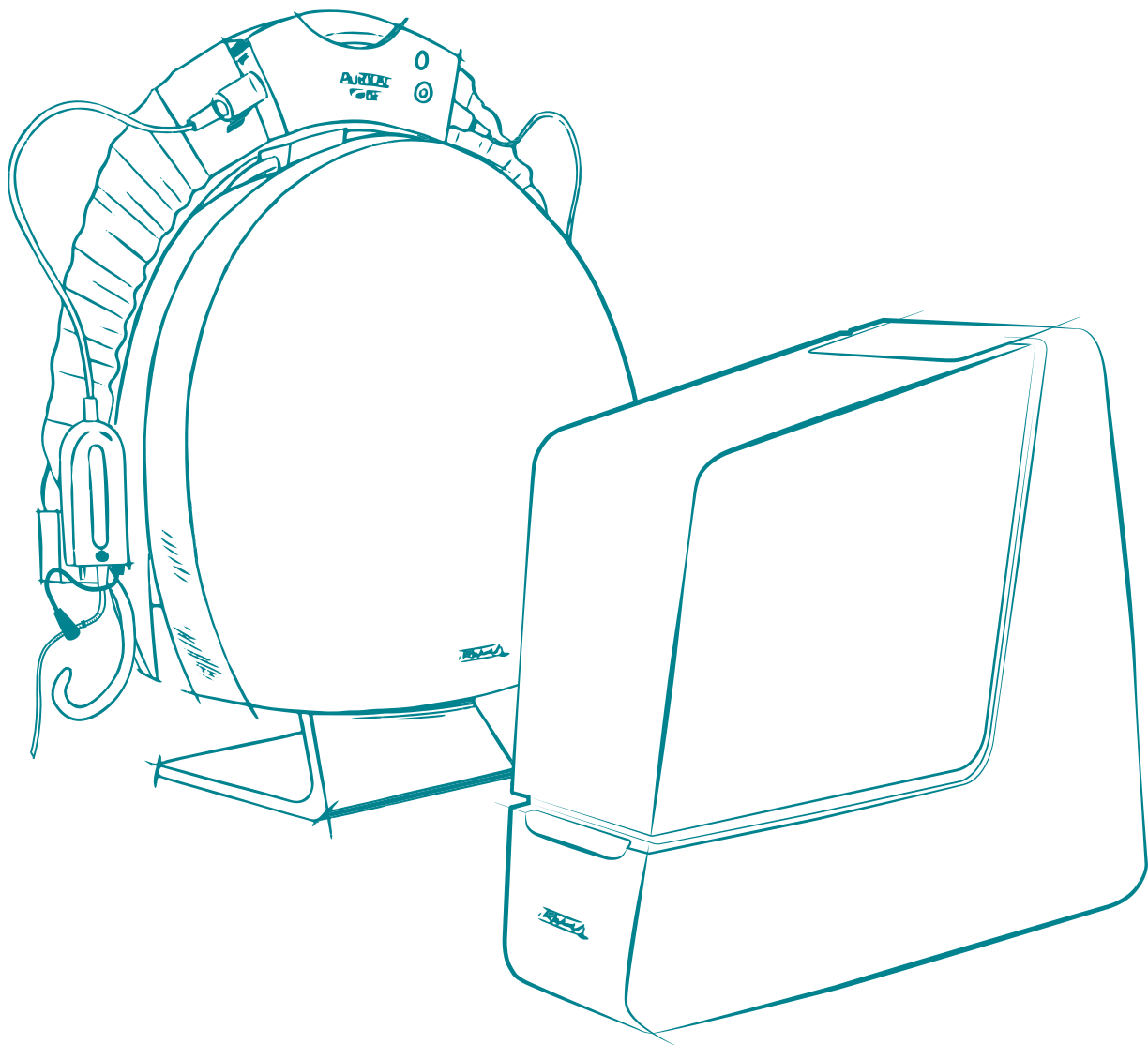


Hearing instrument verification using RECD



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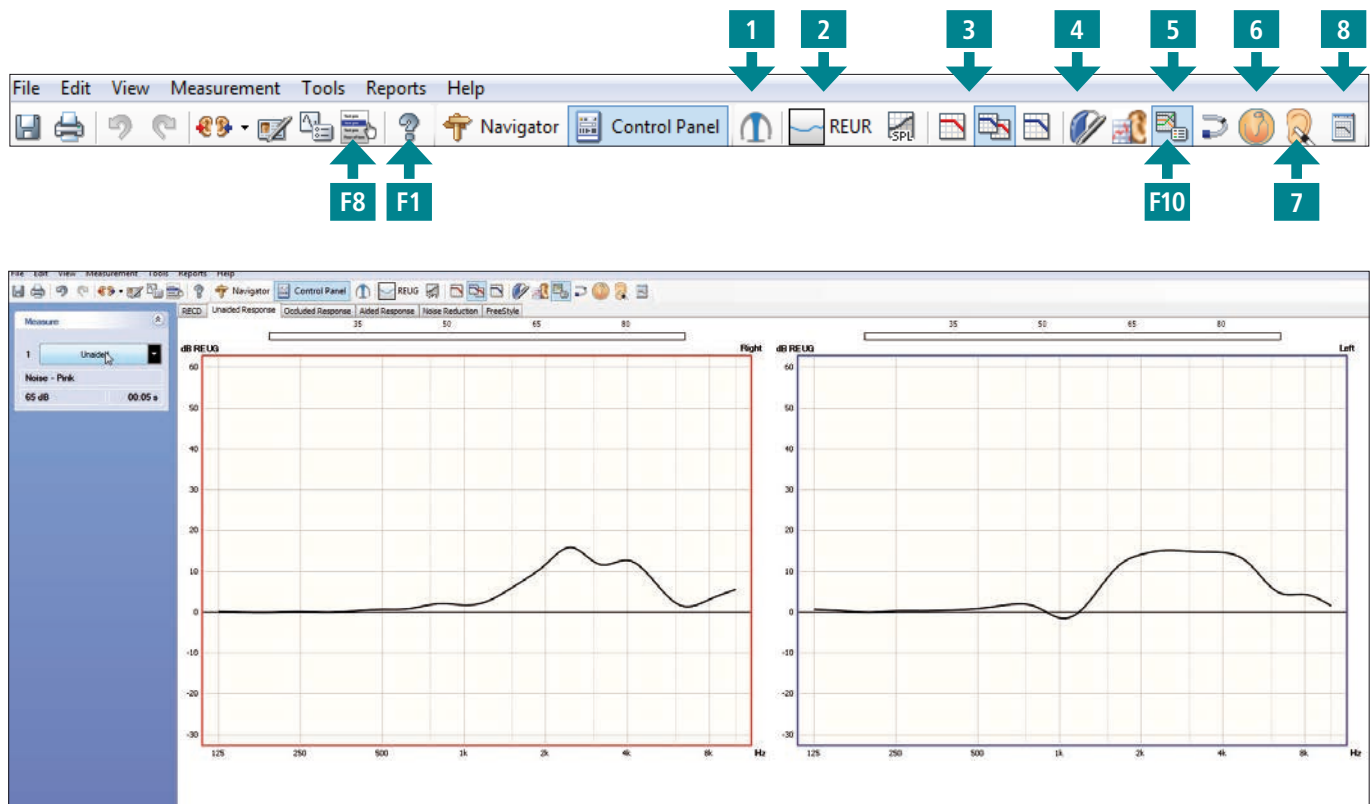
Overview of the Unaided Response screen

Keyboard Shortcuts:

F1 = Help
F8 = Test Selector
F10 = Fitting Details

Control Panel Options:

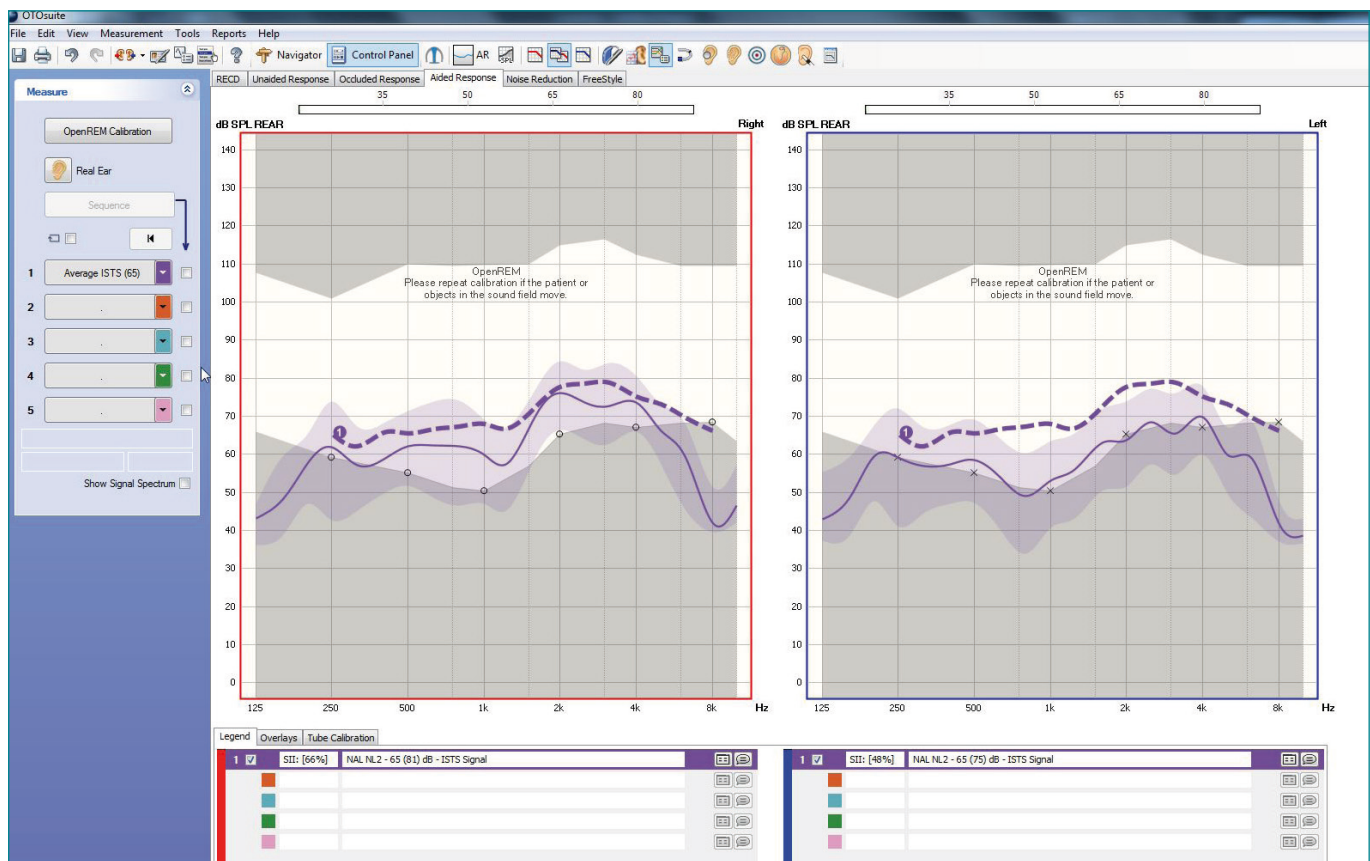
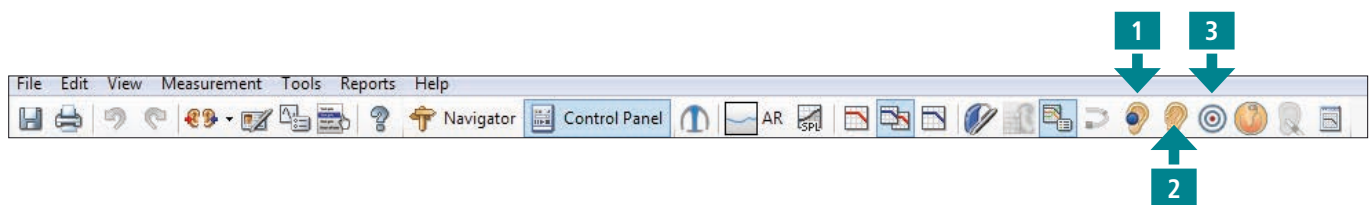
1. Select device
2. Toggle Gain/Response
3. Toggle HL/SPL
4. Right, Left or Binaural
5. Fitting Details
6. Show Video Otoscopy
7. ProbeTube Assistant
8. On Top Mode



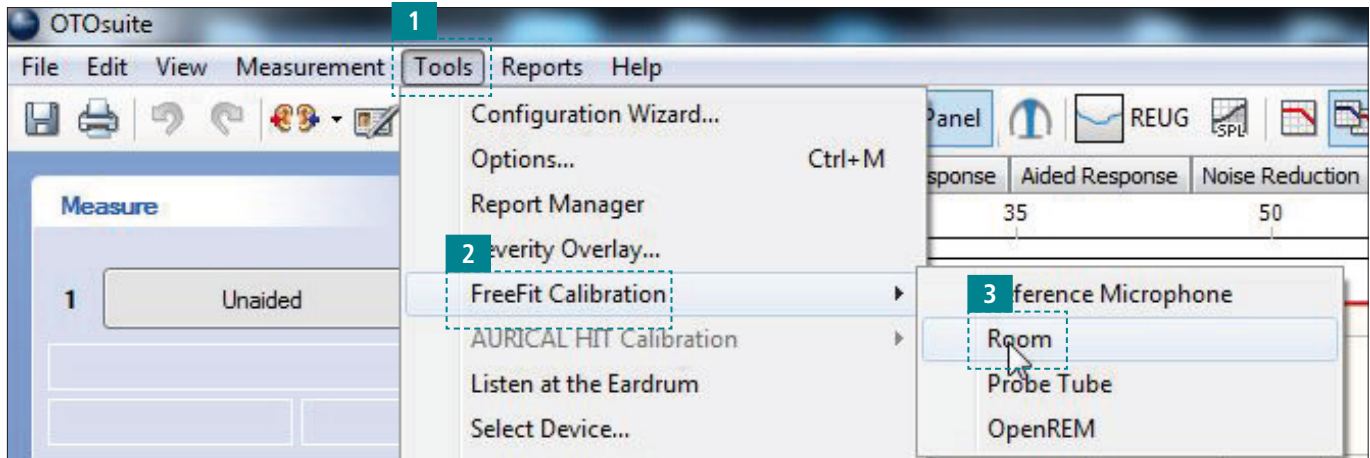
Overview of the Aided Response screen

Control panel options:

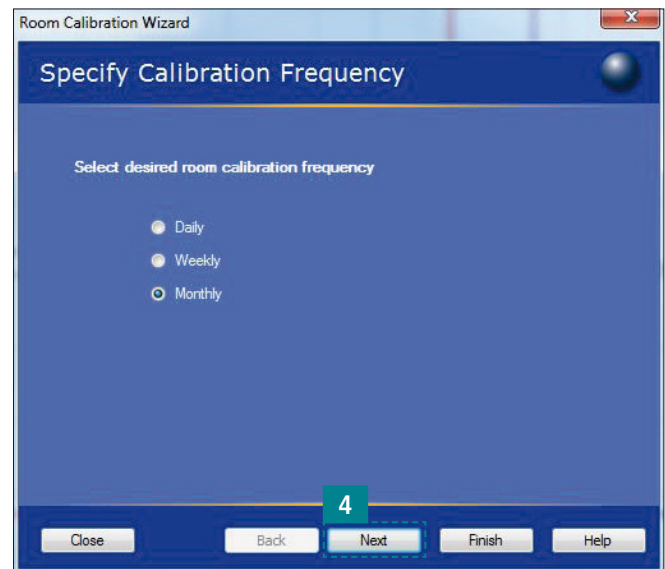
1. OpenREM Calibration or normal calibration
2. Real Ear/Coupler based fitting
3. Show/hide OnTarget view



Step one – Room calibration



- 1 Select **"Tools"**.
- 2 Select **"Freefit Calibration"**.
- 3 Select **"Room"**.
- 4 Click **"Next"**. The system is configured to remind you to perform the room calibration monthly.



Room calibration (continued)



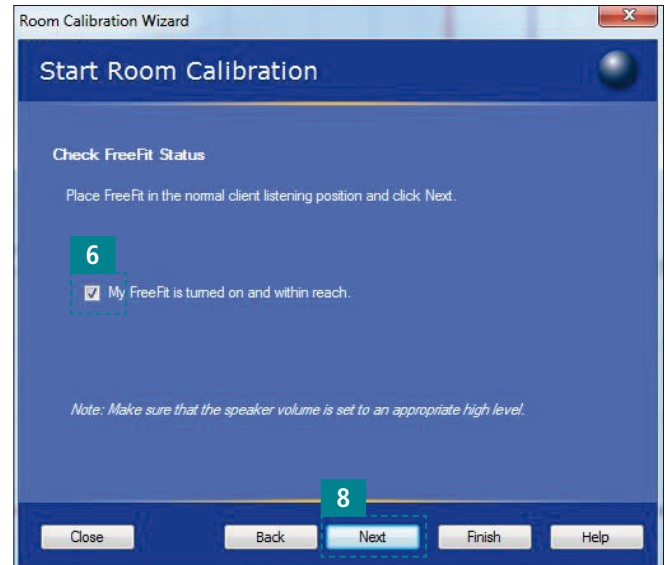
5 Turn on the Freefit by pressing the button.
A green light will show.

6 In the "Room Calibration Wizard" select
"My Freefit is turned on and within reach".

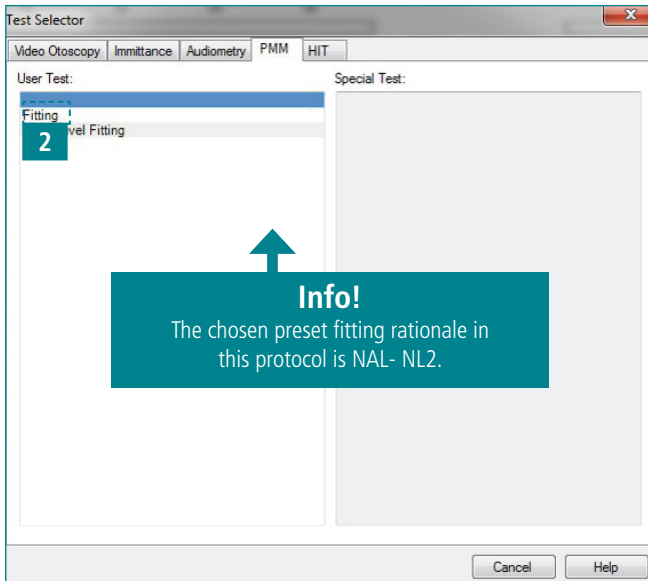
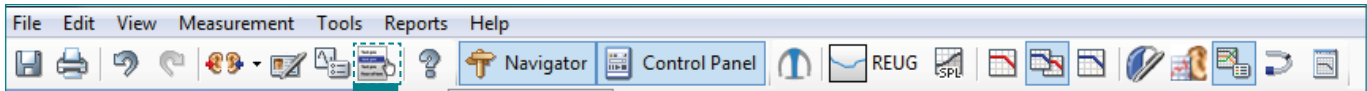
7 Before starting the room calibration, position the
Freefit in the intended client location, preferably
placed on the shoulders of a person.

8 Select "Next".

9 Select "Finish".



Step two – Choose protocol for Real Ear Measurements (REM)

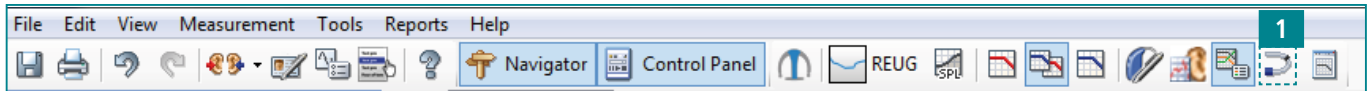


- 1 Select **"Test Selector"** icon (or keyboard shortcut F8).
- 2 In **"User Test"** select **"Fitting"**.

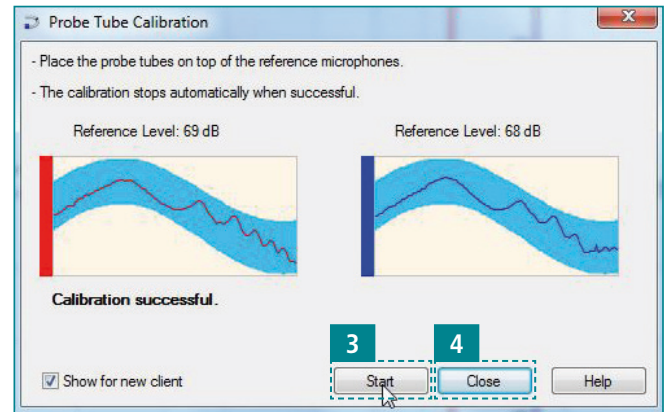
Before starting the fitting procedure, remember to program the hearing instrument in the hearing instrument software:

- Choose rationale – NAL - NL2
- Set vent size
- Set user experience – as experienced non liniair
- Mute the hearing instruments

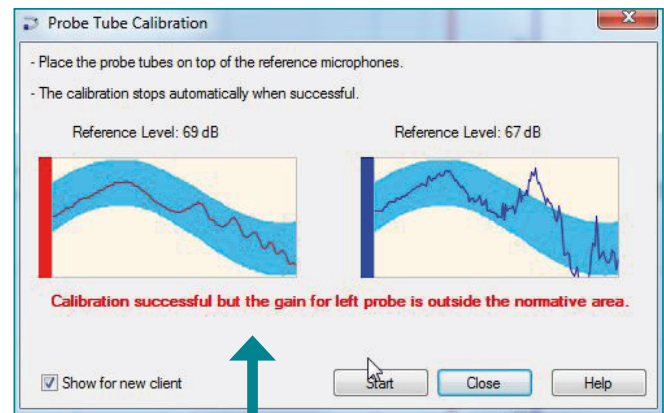
Step three – Probe tube calibration



- 1** The **"Probe Tube Calibration"** Box should appear automatically for each new session. If not, select the Probe Tube Calibration icon.
- 2** Fixate the probe tubes in the small holder over both reference microphones.
- 3** Hold the Freefit around 30 cm away from the loudspeaker and select **"Start"**.
- 4** After completing probe tube calibration, select **"Close"**.



Info!
Remember to
change the
probe for each
new person



Note!

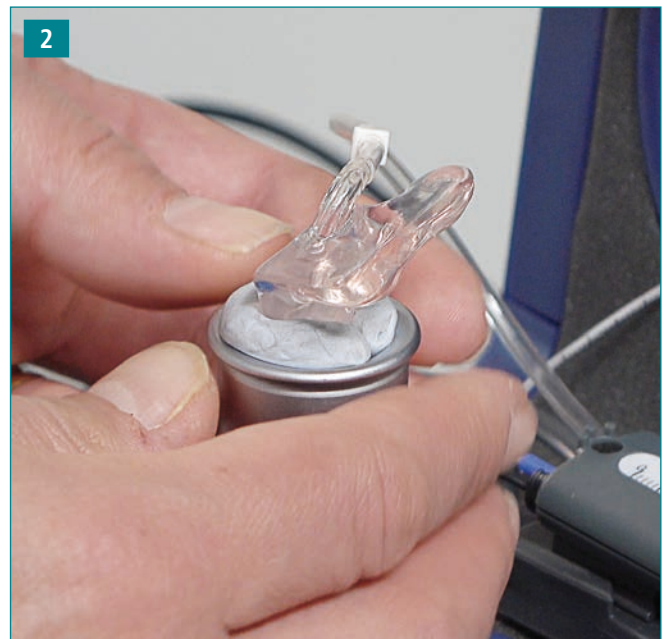
An unsuccessful calibration will result in a red message.

Please try the following:

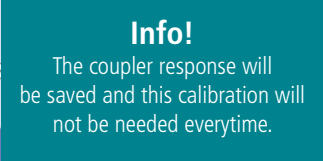
- Replace the probe tubes
- Straighten the probe tubes
- Stabilize the Freefit on the person's shoulders

Step four – Connect RECD coupler to BTE adapter

- 1 Roll the foam between your fingers and press it into the adapter forming a circle.
- 2 Place the ear mold down into the foam on the adapter.
- 3 Make sure the foam does not cover or block the hole in the center of the adapter.
- 4 If the hearing instrument is an ITE, use HA1; if it is a BTE use HA2.

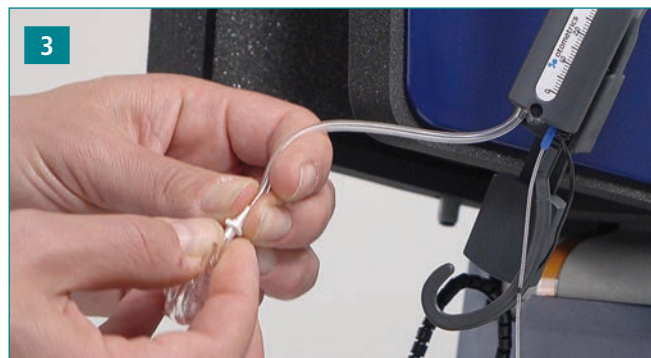


- 1 Select the "RECD" tab.
- 2 Select "**Couple Response**".
- 3 Select "**Measure Right**".
- 4 Repeat the process with the left RECD coupling and select "**Measure Left**".
- 5 Select "**OK**".



Step six – Insert probe tube and insert tip/mold

- 1 Perform an Otoscopy. Use a standard otoscopy, or the "Aurical Otocam 300" for a video otoscopy.
- 2 Attach probe tube holder, probe tube and RECD coupling to both probe tube housings.
- 3 Connect each RECD coupling to an ear mold or a foam insert tip.
- 4 Place the black marker ring on the probe tube utilizing the ruler on the probe tube housing.
- 5 Put both probe tubes through the small holes in the probe tube holders.
- 6 Place the black hangers of the probe tube housings on the person's ears. Insert probe tubes slowly in both ear canals until the black rings rest in the intertragal notches of the ears.
- 7 Insert the ear mold or foam insert tip in each ear without moving the probe tube.



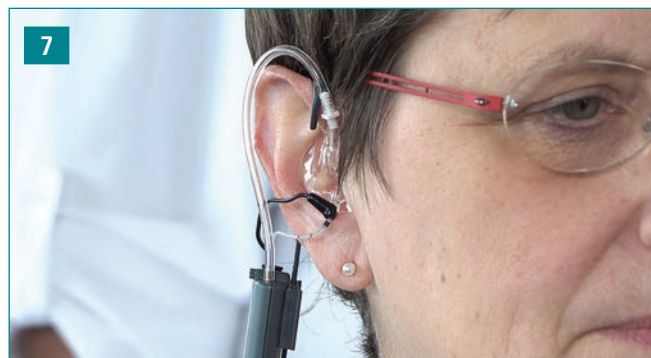
Info!

Probe tube insertion depth
Male: 27 mm - Female: 25 mm



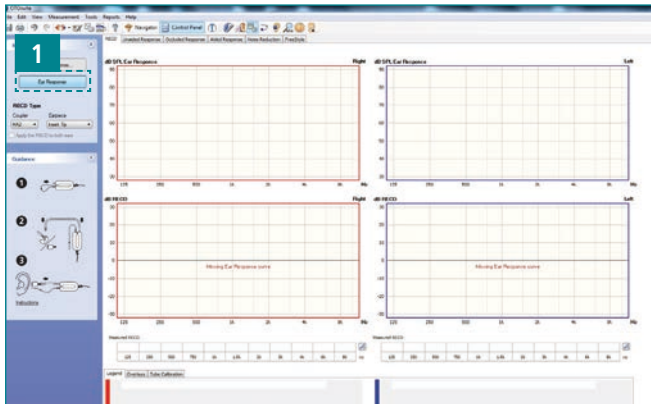
Note!

You can also use the Probe Tube Assistant feature in Otosuite for insertion of probe tube. See the functionality at the end of this Guide.



Step seven – Measure Ear Response

- 1 Select the **"Ear Response"** tab.
- 2 The **"Ear Response"** curve will show



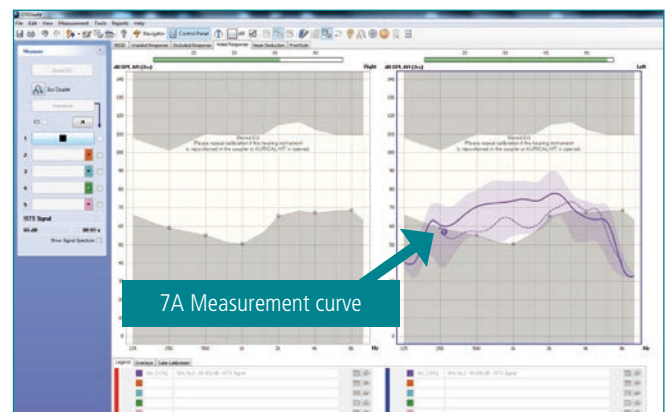
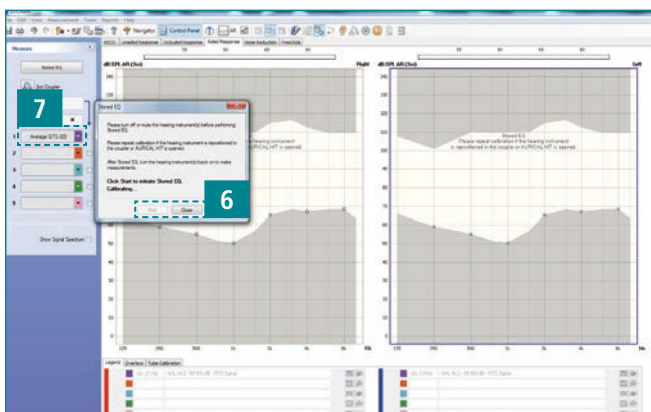
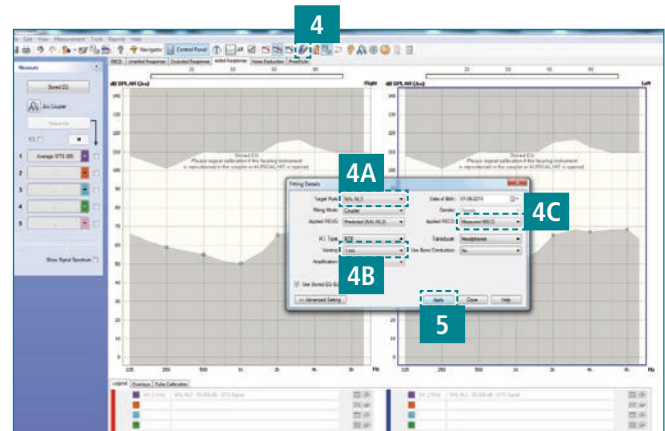
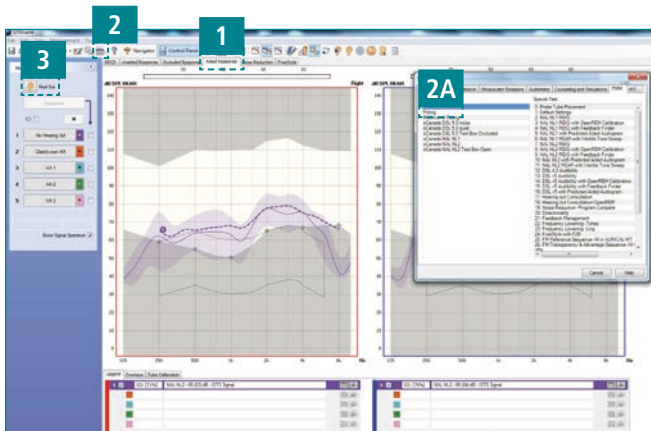
Step eight – Verify hearing instruments

- 1 Attach the 2 CC coupler cavity to the coupler microphone.
- 2 Place the BTE (HA2) adapter on top of the coupler microphone.
- 3 Attach the BTE adapter tube to the BTE adapter (HA2).
- 4 Connect the BTE hearing instrument hook to the BTE adapter tube. Slightly tilt the hearing instrument forward to align the microphones.
- 5 Place the reference microphone as close as possible to the front microphone of the hearing instrument without touching.
- 6 Close the HIT box and proceed with the verification.



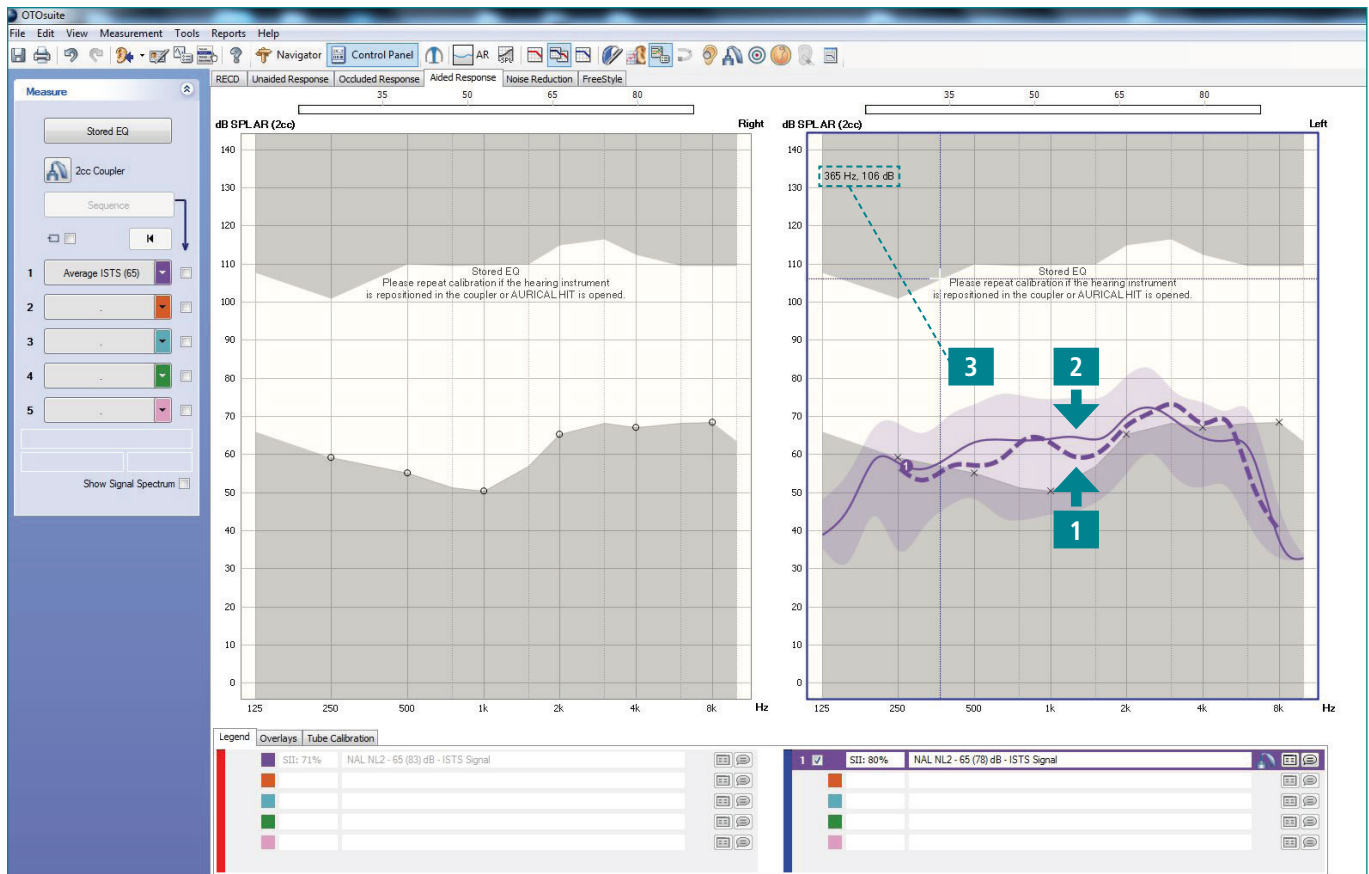
Step nine – Perform aided response

- 1 Select the **"Aided Response"** tab.
- 2 Select the **"Test Selector"** icon and select **"Fitting"** (2A).
- 3 Toggle **"Real Ear"** to **"2 CC Coupler"** by clicking on the icon. 
- 4 Select **"Fitting Details"** and choose **"NAL-NL2"** (4A) as target rule, choice of **"Venting"** (4B), and **"Applied RECD"** (4C).
- 5 Then select **"Apply"**.
- 6 In the **"Stored EQ"** box, select **"Start"**. After successful calibration select **"Close"**.
- 7 Select **"Average ISTS (65)"** and then the measurement will start (7A).
- 8 Repeat the process for the other ear.



View of the aided response curve

- 1 The dashed purple curve is the target.
- 2 The solid purple curve is the LTASS response of the hearing instruments (Long Term Average Speech Spectrum).
- 3 Place the cursor in the different frequencies in order to see the amount of gain that needs to be adjusted.

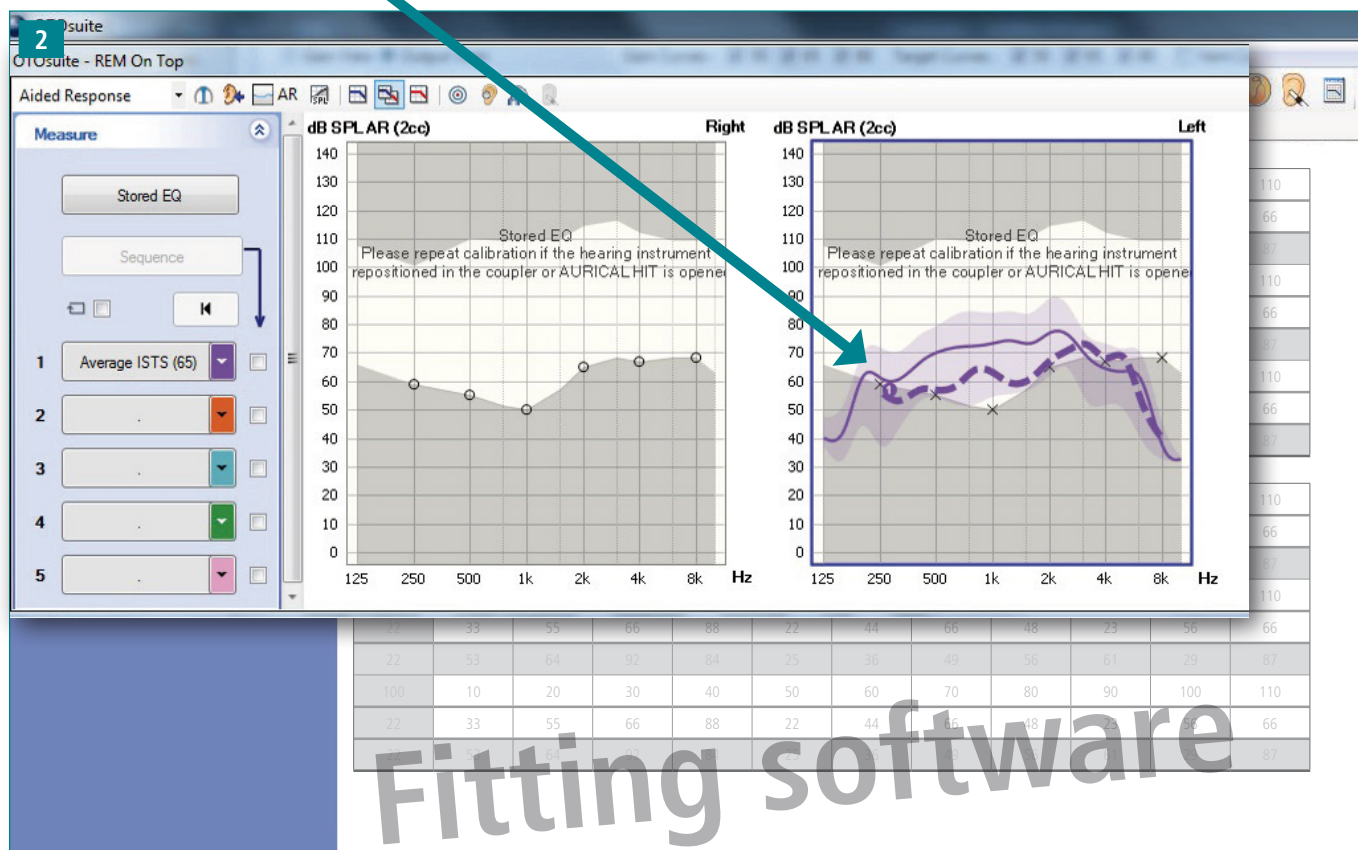
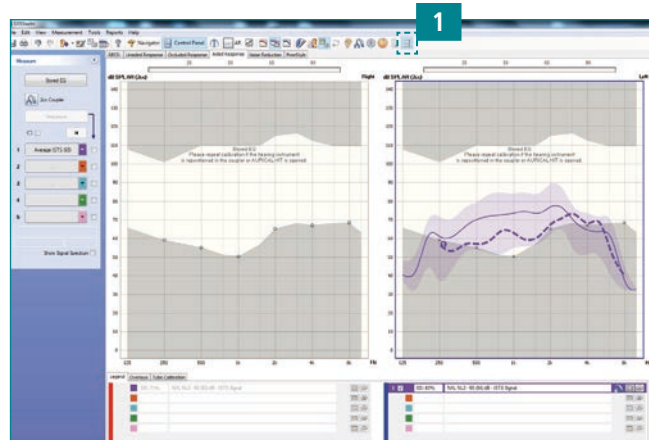


Step ten – Adjust the hearing instruments

- 1 Select the "On Top Mode" to see both "Otosuite PMM" and the hearing instrument software (select the same icon to return to normal view).
- 2 In the hearing instrument software adjust the gain by turning up or down in accordance with the difference between the target and the gain measured.

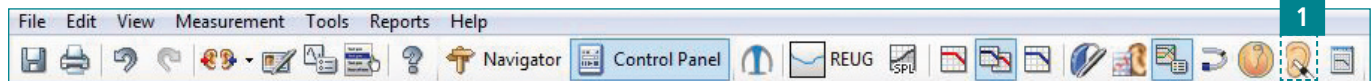
Info!

The fitting goal is to increase or decrease the hearing instrument gain to make the dashed and solid curves match as much as possible (± 5 dB), especially for the frequency range of 750-4000 Hz.



Fitting software

How to use the Probe Tube Assistant

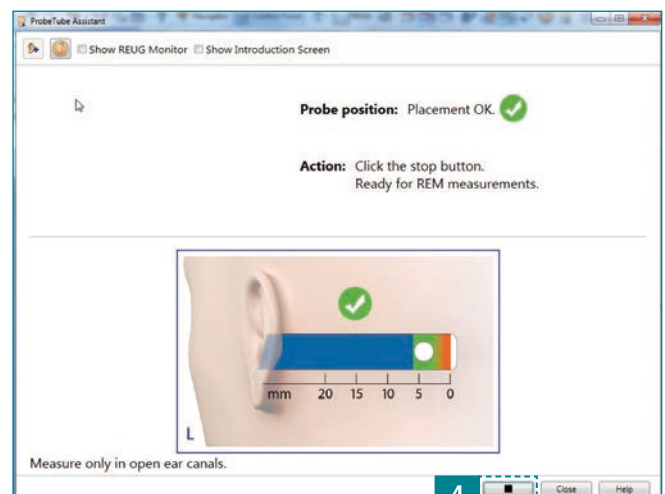
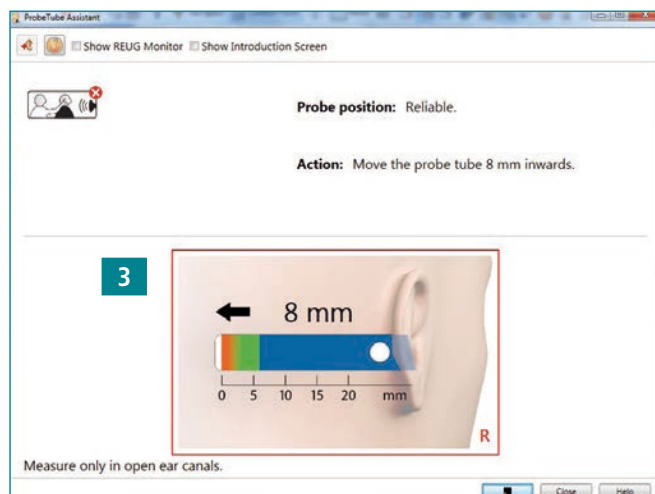


- 1 Select the **Probe Tube Assistant** icon.
- 2 Press the button on the Freefit to start the measurement.
- 3 Insert the Probe Tube slowly while observing the information about insertion depth.
- 4 When the Probe Tube has been placed correctly, select **"Stop"**.



Note!

- Before using the Probe Tube Assistant remember these steps:
- 1) Perform an otoscopy.
 - 2) Place the client facing the Aurical speaker.
 - 3) Place the black marker ring on the probe tube utilizing the ruler on the probe tube housing.



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