

Automatic REM guide

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Introduction

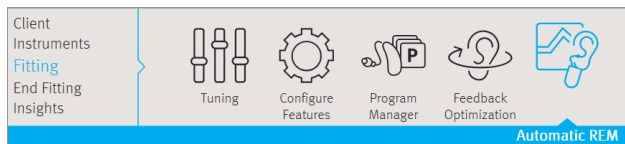
Automatic REM automates the process of incorporating Real Ear Measurements (REM) into the fitting process. The solution provides seamless, step by step workflows that take advantage of the features of the Aurical FreeFit solution for Automatic REM, and the Auditdata Primus, Interacoustics Affinity Suite and Signia Unity fitting systems for Automatic REM 2, guiding the user through the various steps of Real Ear Measurements and matching to targets from within the Unitron TrueFit™ fitting software. This creates an easy and effective way of incorporating Real Ear Measurement into the fitting process.

The fitting software will automatically identify the correct workflow based on the measurement system installed. For additional details on programming and fitting Unitron hearing instruments, please refer to the Unitron TrueFit user guide.

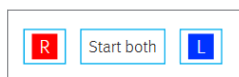
Automatic REM workflow

Compatible with the Aurical FreeFit solution

Automatic REM can be accessed via the **Fitting** tab. It is accessible within Unitron TrueFit™ fitting software when running Noah and connected to an Aurical FreeFit system. If there are Automatic REM results from a previous session, they will be visible regardless of connection status.

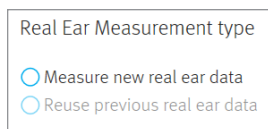


The workflow can be run for either Left or Right or both ears. Click **R** / **Start both** / **L** to start Automatic REM.



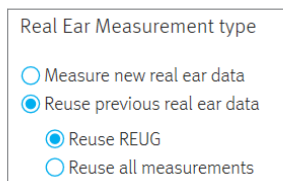
Preparation – configuration

While running Automatic REM for the first time, the only option is to select **Measure new real ear data**. The software will guide you through the steps to calibrate the probe tube, measure the REUG, Acoustic coupling, REOG, and MLE (Microphone Location Effect).



For a follow-up session with Automatic REM, you have the option to repeat measurements for either or both ears. Select **Reuse previous real ear data** and then one of the following two options:

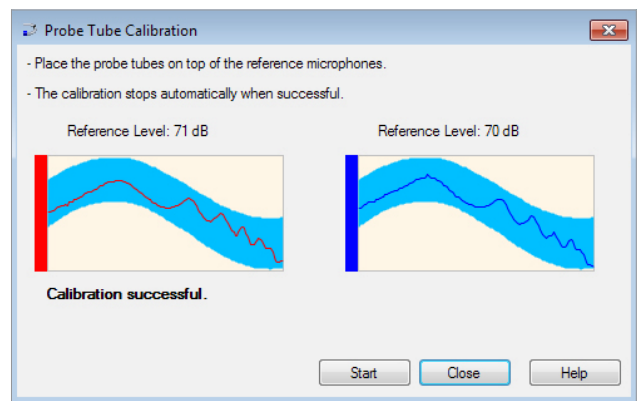
- **Reuse REUG** measurements and run the workflow from the acoustic coupling and REOG
- **Reuse all measurements** to re-run only the automatic match portion of the workflow



Note: If the Automatic REM is being run when the Automatic Adaptation Manager is not yet at 100%, the percentage will be set to 100% for the duration of the Automatic REM workflow. In addition, the app equalizer values will be set to zero for the duration of the workflow. Both will be returned to their original values on completion of the workflow.

Preparation – probe tube calibration

Follow the on-screen instructions to calibrate the probe tubes. Click **Close** to proceed.



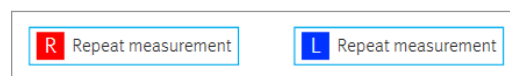
REUG measurement

Follow the on-screen REUG preparation instructions then click **R Start** / **L Start** to start the REUG measurement.



Place the probe tip close to the eardrum and then press **Start**.

When the results of the REUG measurement are displayed, a green check mark indicates that the measurements were completed successfully. If there were any issues encountered with the measurements, a warning icon will be shown with a brief status message. The user then has the option to repeat the measurement if needed.



Real Ear Measurements: acoustic coupling, REOG, and MLE

Follow the preparation instructions:

Acoustic coupling & REOG preparation

!

Ensure that

- The hearing aids are now inserted
- The probe tubes are inserted and properly positioned
- Hearing aids are connected to the fitting device

i

Instructions to the client

- Be quiet during measurement
- Look at the screen or the front loudspeaker
- Do not turn the head while sounds are playing

Note: Please make sure that the probe tube position doesn't change while inserting the hearing instrument(s).

Click **Measure** to perform the acoustic coupling, REOG, and MLE measurements.

In the summary of the results, a status indication in bold with a warning or an error symbol indicates an issue occurred during one or more of the measurements and a similar icon next to the specific measurement indicates if it was impacted. A green check mark indicates that the measurements completed successfully.

R

Acoustic coupling & REOG

i

High ambient noise level

i

Acoustic Coupling

✓

REOG

✓

MLE

In the above scenario the REOG and MLE measurements completed successfully, but the acoustic coupling measurement was impacted by high ambient noise. Clicking on the **Details** button will provide additional details and recommendations.

R

Acoustic Coupling

i

High ambient noise level

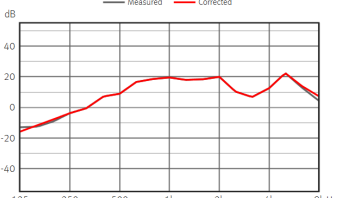
Ensure that

- Probe tube is correctly positioned and not clogged
- Earpiece & receiver are correctly selected in the session
- Earpiece is correctly inserted
- Receiver sound outlet & vent are free of cerumen
- Client keeps head still during measurement
- Client's age is entered correctly

☒ Use corrected curve

Measured

Corrected



Close

Measure and match targets

Select the program that will be active during verification.

Active program

Conversation in quiet (Startup) ▼ i

Set the maximum level at the eardrum at which to stop the measurement.

Stop measurement, if level at eardrum is higher than

R

99

+

 dB

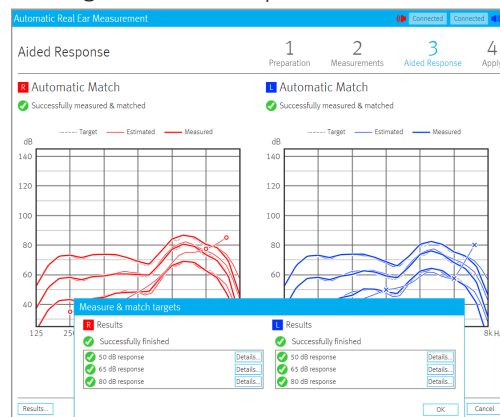
L

99

+

 dB

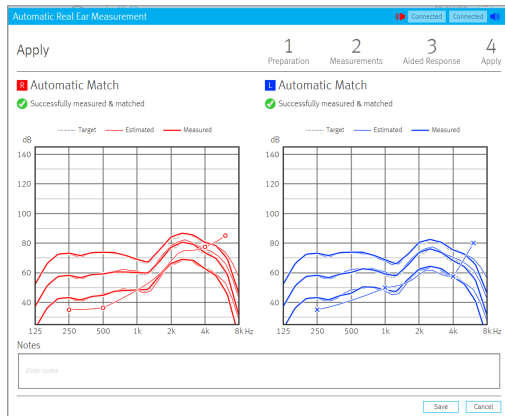
Click **Measure** to automatically apply acoustic information (i.e. REUG, acoustic coupling, and REOG), run aided response measurements, adjust the hearing instrument output to match targets and obtain the hearing instrument responses.



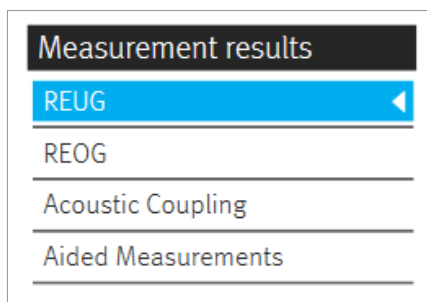
In the above example, the green check marks indicate that all measurements completed successfully. If any one or more of the measurements encounter an issue, an appropriate warning/error icon and status message will be displayed. Select **Details** for each of the measurements to see an explanation of the results.

Finishing Automatic REM

Click **Save** to apply the changes to the fitting and store all measurements within the current session in the Untron TrueFit fitting software with the option to add notes.



Once saved, you can view the results for the REUG, REOG, acoustic coupling and aided measurements on the **Fitting > Automatic REM** screen.

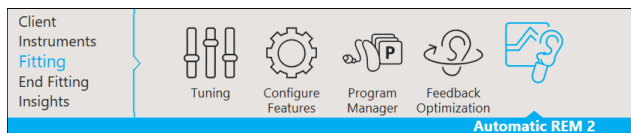


Note: The REUG measurements are also displayed in the **Client > REUG** screen.

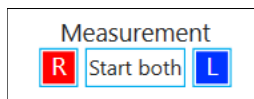
Automatic REM 2 workflow

Compatible with Auditdata Primus, Interacoustics Affinity Suite and Signia Unity fitting systems

Automatic REM 2 can be accessed via the Fitting tab. It is accessible within Unitron TrueFit fitting software when running Noah and connected to an Auditdata Primus, Interacoustics Affinity Suite or Signia Unity fitting system. If there are Automatic REM 2 results from a previous session, they will be visible regardless of connection status.

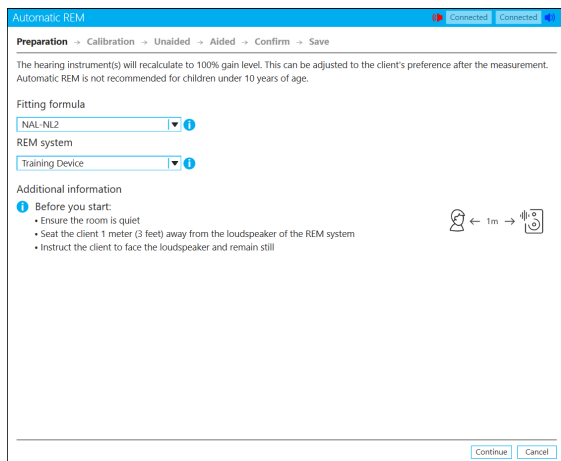


The workflow can be run for either Left or Right or both ears. Click **R / Start both / L** to start Automatic REM 2.



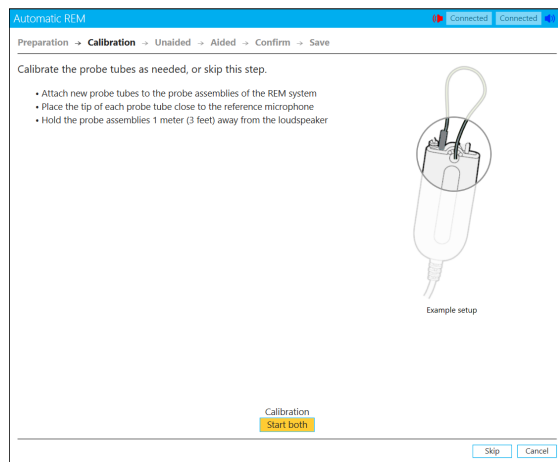
Preparation

Choose the preferred fitting formula and select the REM system being used. If launching the workflow within a training session, 'Training Device' will be listed under **REM system**, as pictured below.

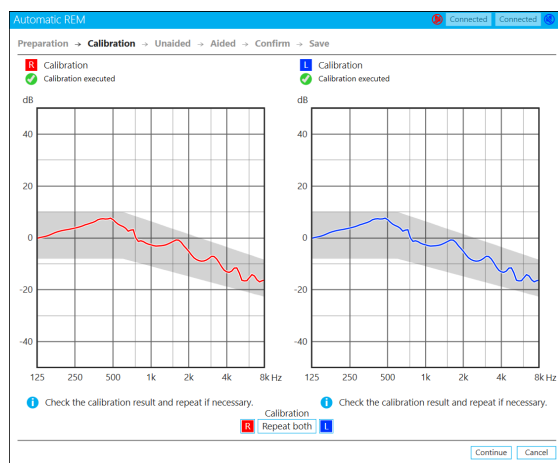


Calibration

Follow the on-screen instructions to calibrate the probe tubes or select **Skip** to move to the next step.

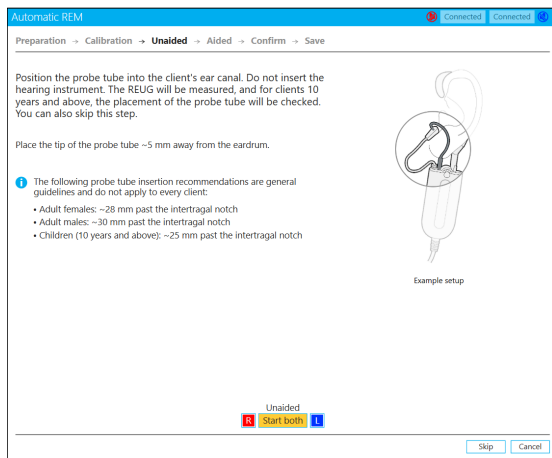


Check the calibration result and repeat if necessary. Measurements can be repeated bilaterally, or unilaterally as required.

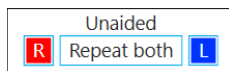


Unaided

This is the REUG measurement. Follow the on-screen preparation instructions then click **R / Start both / L** to start the measurement or select **Skip** to move to the next step.

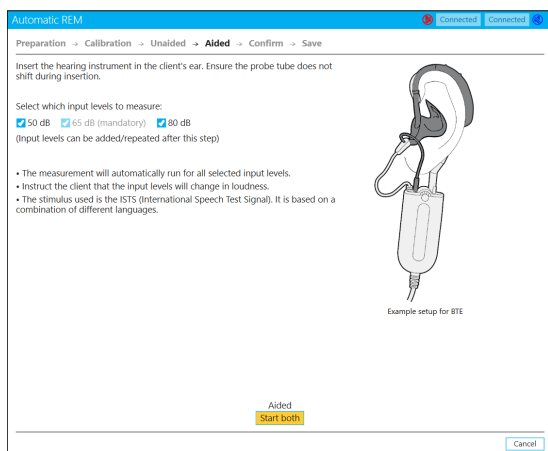


When the results of the REUG measurement are displayed, a green check mark indicates that the measurements were completed successfully. If there were any issues encountered with the measurements, a warning icon will be shown with a brief status message. The user then has the option to repeat the measurement if needed.



Aided

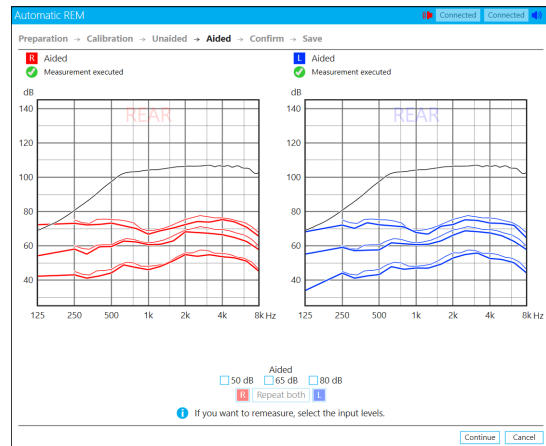
Follow the on-screen preparation instructions. Select the input levels required (65 dB is mandatory), then click **Start** to start the measurement.



Note: Please make sure that the probe tube position doesn't change while inserting the hearing instruments.

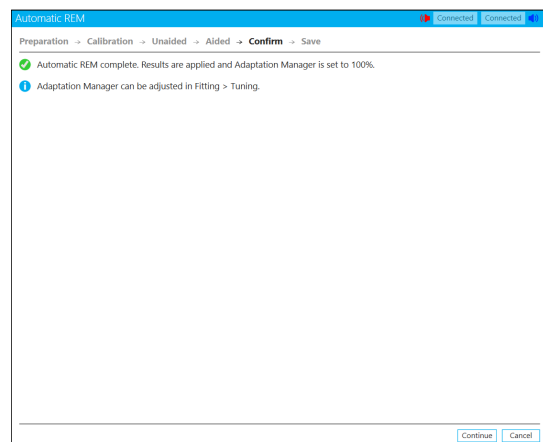
The ambient noise, acoustic coupling, REOG and MLE will all be measured during this step, before automatically proceeding to match to target.

When the measurement is completed, results will be displayed for review. The measurement can be repeated for any or all the input levels from this screen.



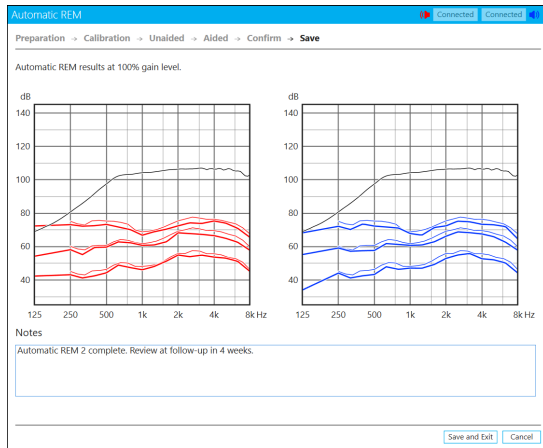
Confirm

The Automatic Adaptation Manager will be set to 100% upon completion of the workflow. Should adjustments to the Automatic Adaptation Manager be required, navigate to **Fitting > Tuning**.

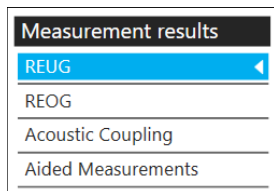


Save

The final step presents a summary of the measurements, a reminder that the gain level is set to 100%, and the option to leave a note on the session. Click **Save and Exit** to complete the workflow.



Once saved, you can view the results for the REUG, REOG, Acoustic Coupling and Aided Measurements on the **Fitting > Automatic REM 2** screen.



Note: The REUG measurements are also displayed in the **Client > REUG** screen.

Glossary

Acoustic coupling - a measurement performed to characterise the acoustic impact of the physical coupling of the hearing instrument to the client's ear. This is also known as the ear-to-coupler level difference (ECLD).

Aided Measurements - Real Ear Measurements (REM) performed with the hearing instrument inserted in the clients ear and turned on.

Automatic REM and Automatic REM 2 - automated system for REM that provides users with a seamless, step by step workflow that incorporates Real Ear Measurements into the fitting process, directly in Unitron TrueFit fitting software.

MLE - Microphone Location Effect

REOG - Real Ear Occluded Gain

REUG - Real Ear Unaided Gain

System requirements

Unitron TrueFit fitting software version	Unitron TrueFit v5.6 or higher
NOAH version	Noah 4.4 Build 2280 or higher

Automatic REM requirements

Otometrics Otosuite version	Otosuite 4.83.00 or higher
Equipment Otometrics	AURICAL FreeFit

Automatic REM 2 requirements

Auditdata Primus - Primus Pro	Version 4.1-5.2
Interacoustics Affinity Suite - Affinity 2.0 & Affinity Compact	Version 2.19-2.24
Signia Unity - Unity 3	Version 5.9-6.2