MedRx®

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M STUDIO Software

Measure the ear response
with an ear tip or ear mold

STEP BY STEP
RECD Guide

Real Ear to Coupler Difference

The RECD task involves 4 steps:
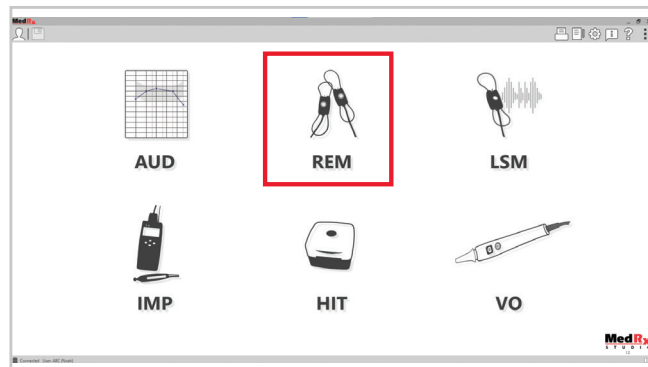
1 - Calibrate the Probe Tube
2 - Measure an Ear Response
3 - Perform a Coupler Measurement
4 - Apply the RECD Data to your
     Hearing Aid Fitting

The Real Ear to Coupler Difference (RECD) is used to simulate real ear measurements in a coupler and is useful when fitting children or difficult to fit patients


STEP 1 Calibrate the Probe tube

Probe Tube Calibration

- Select the REM module in the Studio software and select the Tube Calibration icon.

- Place the tube in the V-notch (which is located on the illuminated portion of the probe microphone) This V-notch will hold the tube in place for calibration. The tip of the tube should be lying directly over the top of the reference microphone in the center.

- Hold the probe microphone roughly one-half to one meter (19-39") from the speakers.

- Click **Start Both** to run the calibrations
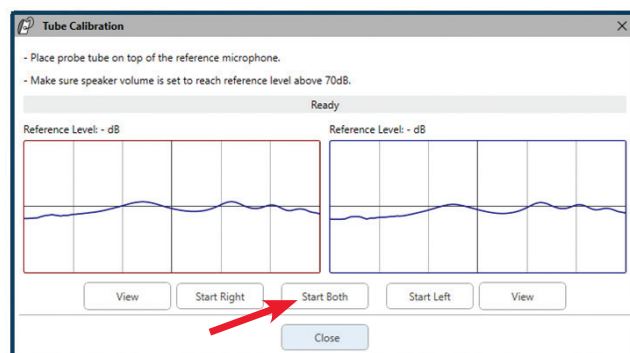
STEP 2 Measure an Ear Response

- Unplug the speaker and plug the Button Receiver into the port labeled **Speakers** on the AWRC, REM+, or ARC system.

There are 2 options to measure the Ear Response:

With An Ear Tip:

- Add the ear tip adapter and an appropriately sized ear tip to the button receiver.

With An Ear Mold:

- Add the ear tip adapter and a tube nipple to the button receiver. Place the ear mold onto the tube nipple.
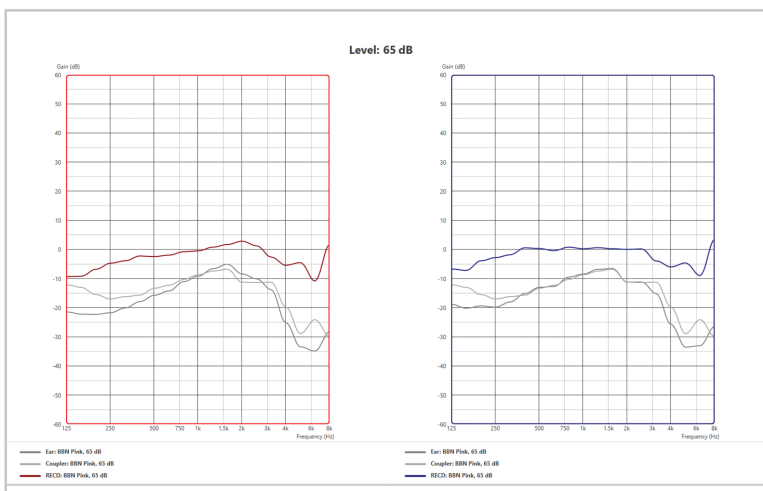
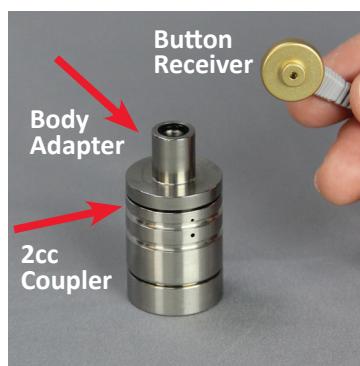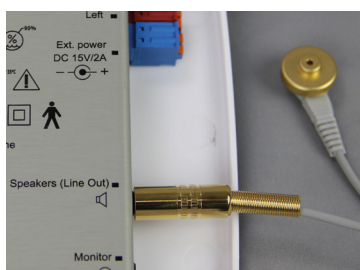- Choose the ear side you would like to start with.

- Place the probe tube into the patient's ear so it is 3-5 mm from the ear drum and insert the button receiver with the ear tip or mold into the ear.

- Select the **Start** button under **Ear** to run an ear response.
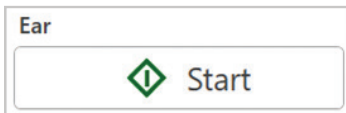
- Remove the button receiver and probe tube from the ear and repeat on opposite ear.
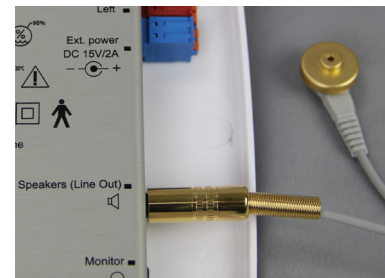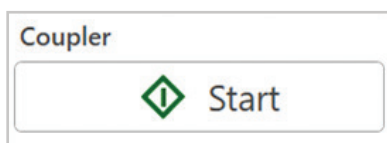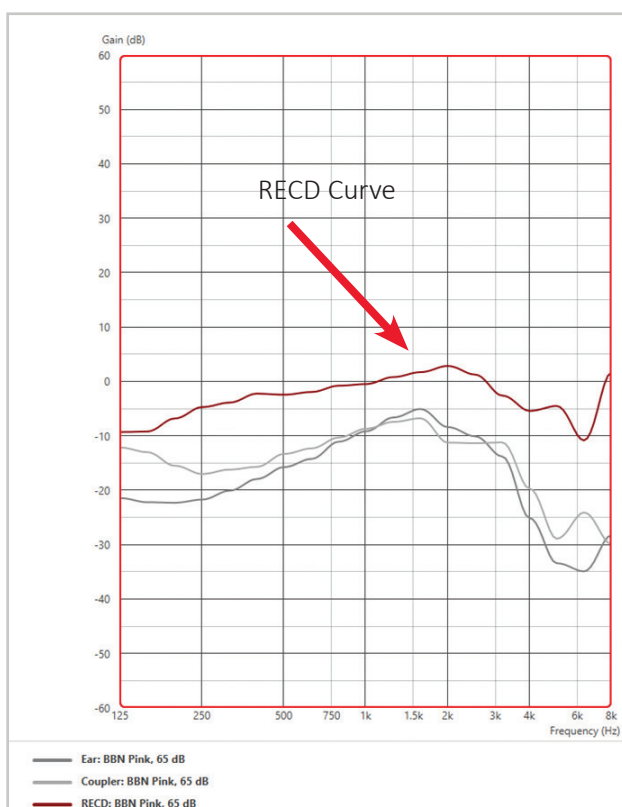
STEP 3 Perform a Coupler Measurement

Measure a Coupler Response

- Verify the Button Receiver is plugged into the speaker port on the AWRC, REM+, or ARC.
- Detach the ear tip adapter from the button receiver.
- Place the body adapter onto the 2cc coupler and snap the button receiver into place.
- Insert the probe tube via the hole on the side of the coupler.
- Select the **Start** button under **Coupler** to calculate the RECD.

- The RECD curve is the difference between the Ear Response and the Coupler Response.

RECD Curve

Gain (dB)

Frequency (Hz)

Ear: BBN Pink, 65 dB
Coupler: BBN Pink, 65 dB
RECD: BBN Pink, 65 dB

Button Receiver

Body Adapter

2cc Coupler

M STUDIO Software

How is the RECD used?

The RECD values are used as a correction to coupler measures for a client's hearing instruments.

By performing all subsequent measures in the coupler and applying the RECD corrections to the coupler measures, the real ear factors are incorporated into the results.

The resulting simulated measurements provide information to select and make adjustments to the hearing instrument and verify adjustments in the coupler (or the hearing instrument test box) rather than in the uncooperative client's ear.

This is particularly important in the case of children, whose small volume ear canals enhance high frequency amplification more so than in average adults. This is an essential consideration in determining the maximum output of the hearing instrument.

If RECD data is present, the software will display an option on the right side of the screen to choose between Ear or Coupler measurement on all Real Ear screens where measurements in a coupler are appropriate. Again, the coupler measurements can be performed in a REM coupler or in a test box (if available)
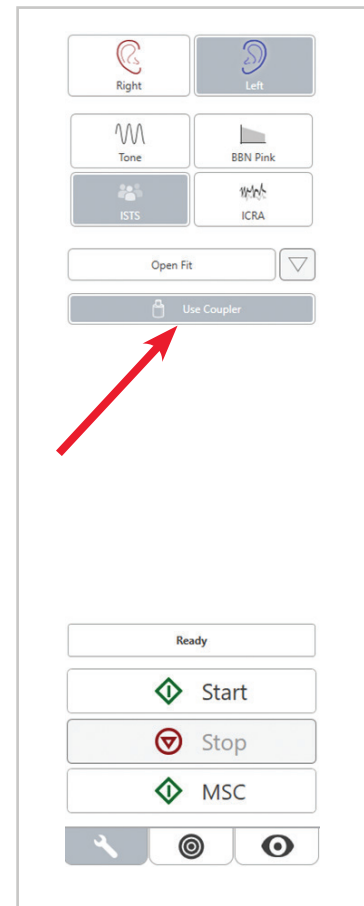
What do you do with the RECD data?

Once the RECD data is calculated and a curve is established, the data can then be used in most hearing aid fitting software programs.

Many hearing aid manufacturers have an RECD section within their fitting software and is used when calculating first fit or auto fit programs.

Export the RECD Data

Within the MedRx REM system, the RECD needs to be exported to a data file.

This can be accomplished by following the steps below:

- From the RECD screen, click on the **three dots** in the top right corner, and select the **save icon** that is labeled *save the current session to a file* if you place your cursor over it.
- A Save As window will pop up.
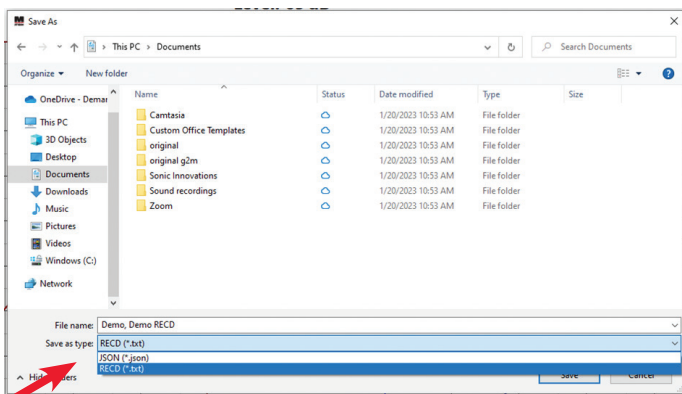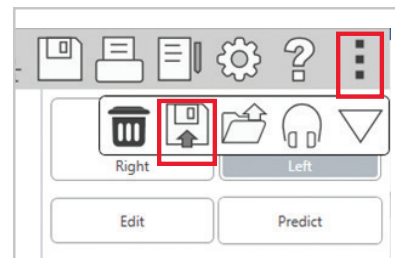
- Select a location that is easily accessible and name your file accordingly. Under the "Save as type" open the drop down and select **RECD (*.txt)**. Click **Save**.
- Locate the file location and open in Notepad or WordPad. The data will be displayed in raw numbers. ▶
- Place the numbers for RECD Left Ear or RECD Right Ear in the hearing aid programming software in the appropriate locations.

Once the RECD data is recorded in the hearing instrument fitting software, run the first fit or auto fit feature.

Once the hearing instrument is programmed, the fitting can then be measured against a target using traditional real ear measurements or speech mapping within your MedRx REM system.
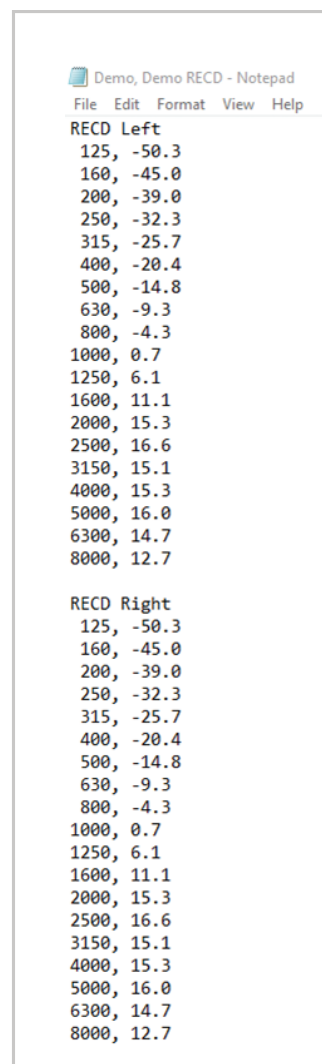
STEP 4 Apply The RECD Data

How do you apply the RECD data to your fitting?

Unplug the button receiver and plug the speaker back into the system.

Using REM or LSM

• Couple the hearing instrument to the RECD 2cc coupler using the appropriate adapter and position it so the front mic is facing the speaker and it is within one-half to one meter (19-39") from the speaker. Place the probe tube inside the coupler (see picture).

• In the Studio software, choose the preferred method of verification, Real Ear Measurement (REM) or Live Speech Map (LSM).

• Select Use Coupler.

• Press the Start button to perform your measurement.

• Compare the outcome to target and make adjustments in your hearing instrument software if needed. Rerun measurements to see changes.

• To change presentation level, adjust the slide bar on the right.
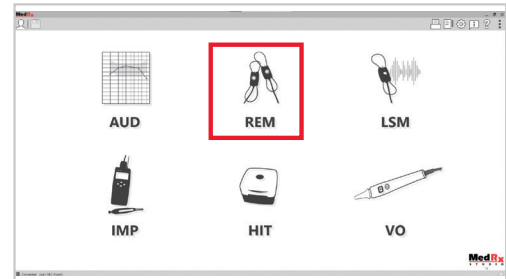
Using HIT

• Select the HIT module and open the fitting tab.

• Properly couple the hearing aid using its corresponding adapter and the standard 2cc Coupler.

• Position the hearing aid in the test box so the front hearing aid mic is as close as you can get it to the reference mic without touching.

• Close the box and press the Start button to perform your measurement.

• Compare the outcome to target and make adjustments in your hearing instrument software if needed. Rerun measurements to see changes.

• To change presentation level, adjust the slide bar on the right.
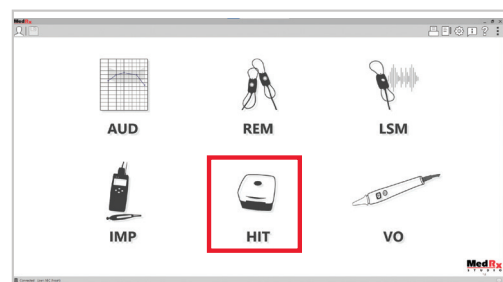
Manual Input

If already known, RECD data can be entered manually.

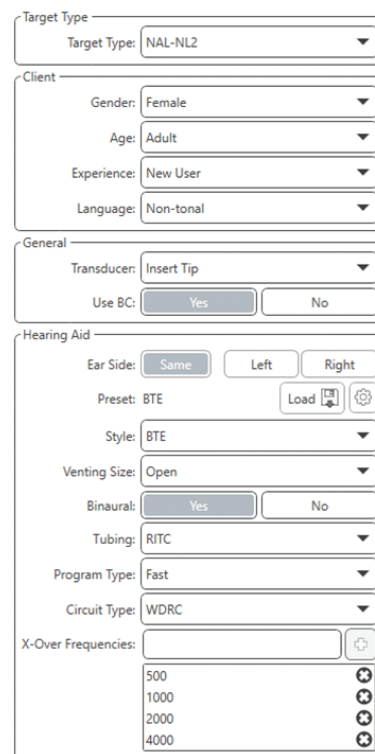Click the Edit button, then click on the plot to enter points.
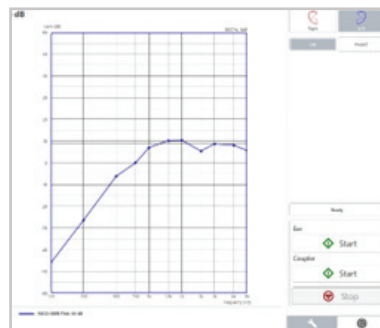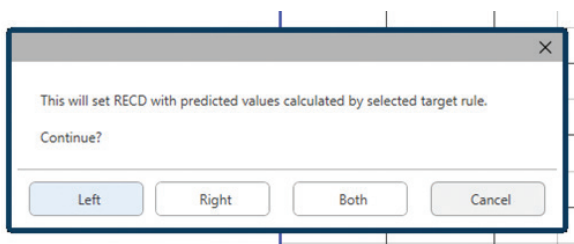

Predicted RECD

Select the target tab icon on the right-hand side.

Input your client's information and hearing aid parameters. Factors such as your patient's age and gender, test transducer type, hearing aid style, venting size, and more will affect your patient's predicted RECD. ▶

Return to the wrench tab and select predict.

A popup will display on the screen allowing you to choose which ear to display a predicted RECD.

When possible, measuring RECD is preferred over using predicted values

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Coupler measurements can be performed in a REM coupler or in a test box