

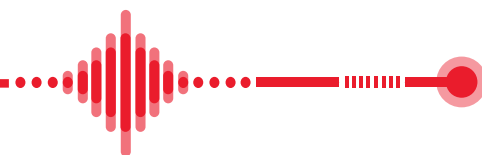


The Tinnitus Test

A unique tool that can help hearing care professionals provide more comprehensive and effective care for tinnitus patients

Available on MedRx Audiometers

AVANT A2D+, AVANT ARC,
and the MedRx AWRC

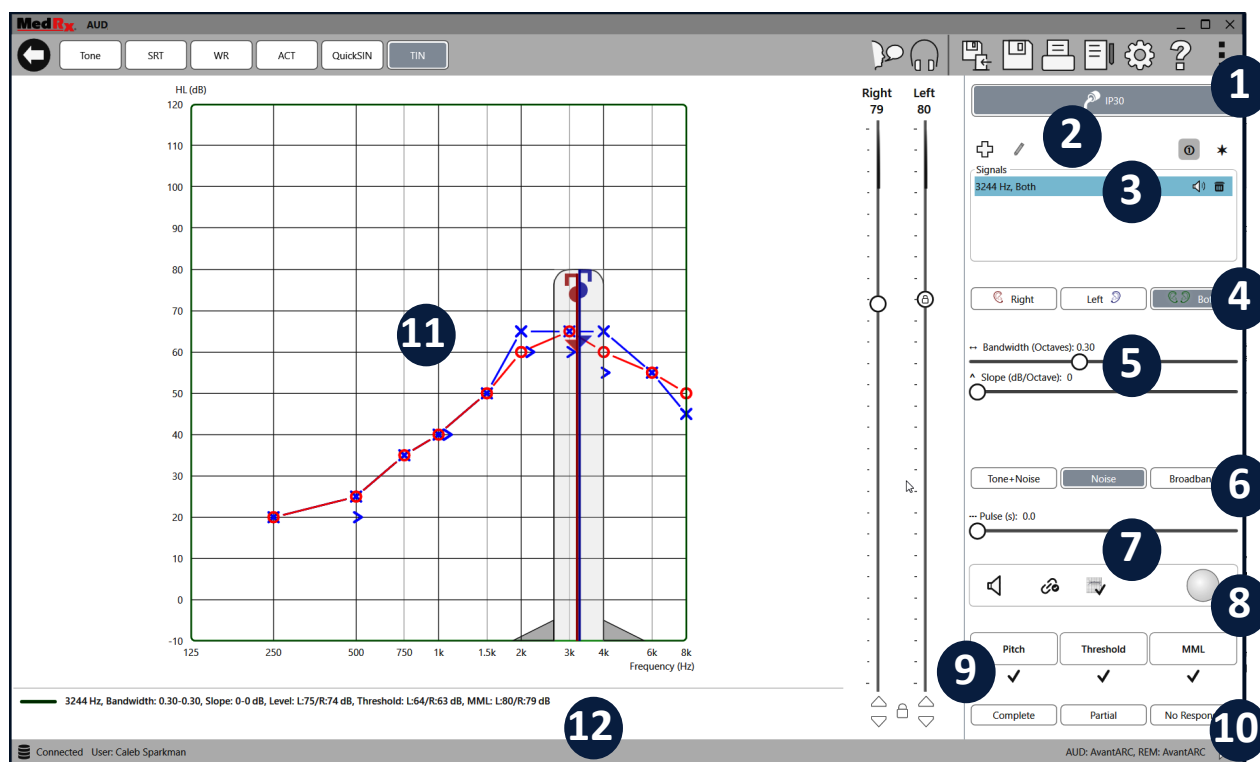


The Tinnitus Test: Now Available on MedRx Audiometers

The MedRx Tinnitus Test Goes Beyond The Standard Audiogram

This test allows a clinician to fully shape a sound to mimic what the patient hears. Clinicians have precise control over frequency and level of a stimulus by allowing 1 Hz and 1 dB change.

The test takes less than 10 minutes and gives you a unique insight into the nuances of patient tinnitus.



Overview of Main Screen Functions

- 1. INPUT TRANSDUCERS** - Inserts, Headphones
- 2. SIGNAL OPTIONS** - Add, Select Tinnitus Type, Play One, Play All
- 3. SIGNALS** - Number of Tinnitus Presentations
- 4. EAR SIDE** - Right, Left, Both
- 5. BANDWIDTH & SLOPE** - Adjust Width and Signal Filter by dB
- 6. STIMULUS SIGNAL** - Tone+Noise, Noise, Broadband
- 7. PULSE** - Adjust the Duration Between Signal and Quiet
- 8. CONTROLS** - Starts/Stops Signals, Separate Left & Right Bandwidth & Slope, Threshold Offsets, and Patient Response Indicator
- 9. TINNITUS MEASUREMENTS** - Saves Signal Information for the Pitch, Threshold, & MML
- 10. RESULT** - Complete, Partial, No Response
- 11. GRAPHICAL REPRESENTATION** - View of the Stimulus Being Played and the Shape of the Signal
- 12. LEGEND** - Descriptions of the Items in the Graphical Representation

The Test Procedure



The tinnitus test is available within the AUD module in the MedRx Studio software and found by clicking the button labeled TIN in the top menu bar.

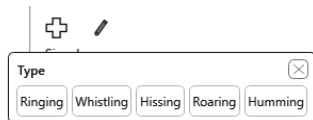
In Tinnitus testing we recommend setting the Threshold Offset to 5-10 dB which will allow the signal to follow the audiogram levels at your chosen 5 or 10 dB above threshold. Be sure you choose **"Follow Audiogram"** on the test screen.

Step 1: Audiometry

Complete audiometric testing

Step 2: Stimulus Setup

Ask the listener what their tinnitus sounds like to them. In **Signal Options** add new signal, choose the closest pre-tuned signal that best matches their answer.



Be sure that you have the appropriate ear side chosen when adding new stimulus. We recommend presenting all signals binaurally whenever a patient describes their tinnitus as similar in both ears.

Step 3: Pitch Matching

To present the stimulus to a listener and allow the listener to compare it to their tinnitus, we recommend pulsating the sound by 1 to 3 seconds. Use the **Pulse slider** to adjust the pulsation to your desired tempo.



Begin the presentation of the sound to the listener by clicking the **speaker icon**. Ask them to compare it to their tinnitus. Adjust the bandwidth and slope of the stimulus until the patient says the sound quality is similar. Ask the listener if the pitch being played is higher or lower than their tinnitus pitch.

Let the listener know you will adjust the pitch of the stimulus and instruct the listener to push the button when the sound presented is close to their tinnitus in

pitch. Move frequencies slowly as the sound pulsates every few seconds. Stop at the button push and ask the listener to compare the new sound to their tinnitus. Repeat this process until you have matched the patient's tinnitus pitch.

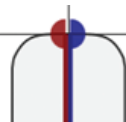
Step 4: Loudness Matching

Now that the pitch has been matched to the listeners' tinnitus, the next step will be to match the loudness of the tinnitus. Continue to pulsate the stimulus being presented to make it easy for the listener to compare their tinnitus to the stimulus from the audiometer. Instruct the listener to try to match the loudness of their tinnitus with the sound being played. Adjust the stimulus level and have the listener push the button when the stimulus is blending with their tinnitus. Once complete, confirm that the tinnitus level and pitch are a fair representation of the listeners tinnitus.



Press the **Pitch button** to lock in the pitch and loudness of the listeners tinnitus.

You will see the check mark filled in under the button and marks appear on the tinnitus graph.



This indicates that you have successfully matched both pitch and loudness for the listener. **The frequency adjustments will be locked for this stimulus from this point forward in the testing.**

Note: If you need to remove your recording, right click the check mark under the button.

Step 5: Threshold

As you are presenting the tinnitus stimulus to the listener it is important to determine the threshold level. To complete this, turn off the sound and lower below estimated threshold. Set the stimulus to a constant by moving pulse to 0 sec:



Instruct the patient to listen and push the button as soon as they hear the stimulus being presented. Complete this task until a repeatable threshold is found. Click the **threshold button** to mark the threshold.

You will see the check mark filled in under the button and marks appear on the tinnitus graph.

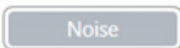


This indicates that you have successfully matched both pitch and loudness for the listener. **The frequency adjustments will be locked for this stimulus from this point forward in the testing.**

Step 6: Minimum Masking Levels

At this point in the testing, pitch, loudness, and threshold of the tinnitus has been determined. It is important to next determine if the listener is a good candidate for sound therapies like hearing aid maskers. Determining the minimum masking levels for the listeners' tinnitus can indicate whether this could be viable.

To complete minimum masking levels, you need to determine the type of stimulus you plan to use for masking. MedRx recommends using either a narrowband noise centered at the listener's tinnitus pitch or a broadband noise.



To make a narrowband noise, you must select the Noise from the sidebar.

This removes the tonal component meant to mimic a tinnitus sound. It is also recommended to set a slope close to 0 and open the bandwidth to at least 1/3 (0.33) of an octave.



MedRx

Good Things Come in Small Packages

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Broadband

To make a broadband noise, you must select broadband from the sidebar.

This will change the signal to a broadband noise where slope and bandwidth will no longer affect the noise.

After determining the type of noise you would like to present to the listener, you will need to instruct the listener to push the button when the stimulus being played is the only sound that can be heard or the tinnitus is less noticeable than the patients' perceived tinnitus. Begin to increase the volume of the masking noise gradually until the listener pushes the button. Continue to play the sound for up to 60 seconds. Ask the listener if their tinnitus was less noticeable but still perceptible (**Partial masking**) or completely covered (**Complete masking**) while you were playing the stimulus. If the listener states that neither partial or complete masking occurs then this would be considered a not maskable (**No Response**). Click the **MML** button and mark the appropriate masking type.

Pitch	Threshold	MML
✓	✓	✓
Complete	Partial	No Response

If the initial level does not produce masking, then it is acceptable to increase the level above initial and try again.

Listeners that experience complete and partial masking are considered candidates where sound therapies may be viable.

The Tinnitus Test

Tinnitus is the perception of ringing or other noises in one or both ears without an external sound source. The MedRx tinnitus test is designed to create customized stimulus designed to match a person's perceived tinnitus, locate level threshold, and determine minimum masking level.

Your Patients Deserve Quality Tinnitus Treatment

If you are interested in learning more about the tinnitus test, equipment compatibility, or to book an online demo, contact your local MedRx rep!

