
Using the FONIX FA10 Audiometer for the TEN(HL) Test

Diagnosis of dead regions in the cochlea



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Calibration

1. Set the **Input** dials on the left and right sides of the audiometer to **External**, and the **Output** dials on the left and right sides of the audiometer to **Phone**. See Figure 1.

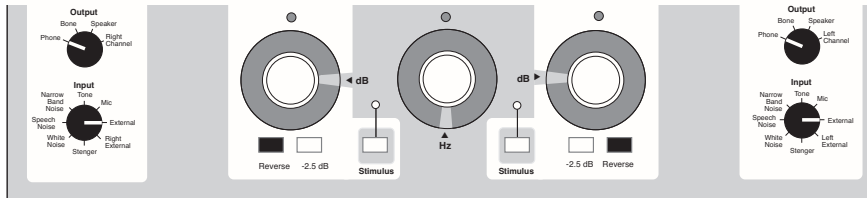


Figure 1: Setup for calibration of the TEN(HL) CD.

3. Press the **Reverse** button for both audiometer channels in order to play the CD track continuously.
4. Play Track 1 on the CD player and adjust the left and right **External** knobs so that the VU meters read 0 for both channels.

Performing the TEN (HL) Test

1. Set the **Input** dials on the left and right sides of the audiometer to **External**.
2. Mix both channels of the CD player to the ear you want to test:
 - a. To test the right ear, set the **Output** knob on the right side of the audiometer to **Phone** and the **Output** knob on the left side of the audiometer to **Right Channel**. See Figure 2.

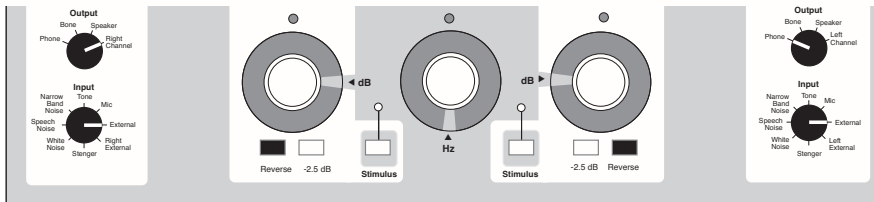


Figure 2: Setup for testing the right ear.

- b. To test the left ear, set the **Output** knob on the left side of the audiometer to **Phone** and the **Output** knob on the right side of the audiometer to **Left Channel**. See Figure 3.

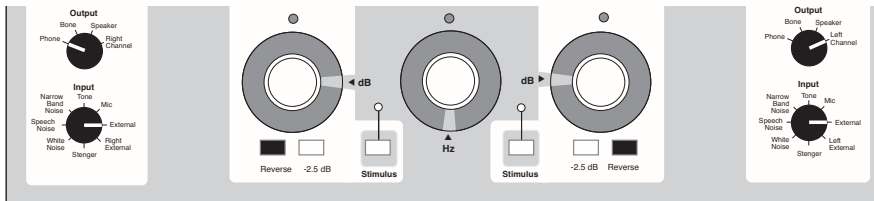


Figure 3: Setup for testing the left ear.

3. Play Track 2 on the CD player. This track contains a puretone at 500 Hz. Use it to obtain the patient's threshold value at that frequency by using the **Right Hearing Level** knob to adjust the signal level and the **Right Stimulus** button to present the tone. Use the **-2.5 dB** button for best accuracy.

4. Continue with the audiometric testing, obtaining the patient's puretone threshold at each frequency. When complete, switch to the other ear and repeat the process. See Step 2 for instructions on how to present the signals for the other ear. Please note that the same controls are used for performing the test on both the left and right ears: the **Right Hearing Level** knob controls the tone level. The output knobs control whether the signal goes to the left or right ear.
 - Track 3: 750 Hz
 - Track 4: 1000 Hz
 - Track 5: 1500 Hz

- Track 6: 2000 Hz
- Track 7: 3000 Hz
- Track 8: 4000 Hz

5. Add the noise signal to the puretone signal (both signals will be presented to the test ear simultaneously) by setting the desired noise level using the **Left Hearing Level** knob and pushing the **Left Reverse** button to turn the noise on continuously. See Step 2 for instructions on how to set the output knobs to choose which ear to test. The noise level should be 10 dB above the puretone audiometric threshold for each frequency. For example, if the threshold at 500 Hz is 50 dB, set the noise level to 60 dB.
6. Measure the masked threshold for each ear at each frequency while playing the noise signal continually. Adjust the noise signal to be 10 dB above the puretone threshold value for each

frequency. Use the **-2.5 dB** button for best accuracy. The **Right Hearing Level** knob controls the puretone level and the **Left Hearing Level** knob controls the noise level.

7. Compare the masked threshold to the puretone threshold and the noise level. If the masked threshold is 10 dB above both the puretone threshold and the noise level for a particular frequency, then there is probably a dead region in the ear at that frequency.

Examples:

- If for a particular frequency, the puretone threshold is 40 dB, the noise level used for the test was set to 50 dB, and the masked threshold is 60 dB, there is a dead region at that frequency.

- If for a particular frequency, the puretone threshold is 50, the noise level used for the test was set to 60 dB, and the masked threshold is 65 dB, there is **not** a dead region at that frequency.

8. Re-test the puretone threshold at any frequency that has been determined to be a dead region. Use the **-2.5 dB** button for best accuracy. Double-check that the masked threshold is 10 dB or more above the puretone threshold.



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