

RECD

on the FONIX FP35

REAL-EAR TO COUPLER DIFFERENCE



Measuring the RECD and Performing Coupler Measurements to a Target using the FP35 Hearing Aid Analyzer

This workbook describes how to perform an RECD using the FP35 Hearing Aid Analyzer. The RECD is normally used to perform coupler measurements to a target. The RECD is composed of two separate measurements: a coupler measurement and a real-ear measurement. The coupler measurement is considered a calibration procedure and does not need to be performed for each patient.

Equipment needed:

ER3 50-ohm Insert Earphone
Probe microphone adapter (optional)
Infant Headband Setup (optional)

RECD: Coupler

EARPHONE CALIBRATION	
▶ Calibrate Ins. EarPhone Calibrate Ins. EarPhone (RECD)	
Calibration Status	
2008/12/01	System Calibrated (from EEROM)
2008/07/15	Coupler Mic ... Factory
	Probe Mic Unknown
2009/01/13	Earphone Calibrated (from EEROM)
Use HA2 Coupler with earphone cal adapter	
Temperature ... 37°C	
11:09AM	
ERASE EAR CAL	STORE EAR CAL

Figure 1: Insert Earphone Calibration screen.

1. Press [MENU] from the Opening Screen to enter the Default Settings Menu.
2. Press [F3] to select Calibrate.
3. Press [F4] to select Calibrate Earphone. This will take you to the Insert Earphone Calibration screen. *See Figure 1.*
4. Plug the insert earphone into the “earphone” jack on the back of the FP35 analyzer. You may need a ¼ in-to-3.5 mm adapter, depending on your FP35 configuration.
5. Remove the foam eartip from the insert earphone and connect it to the HA-2 coupler. Insert the FP35 coupler microphone into the coupler. *See Figure 2.*

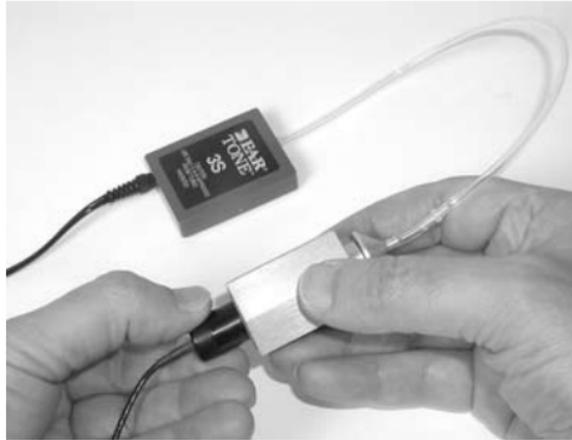


Figure 2: Coupler setup for RECD.

6. Press [START/STOP] twice to perform the measurement. (The measurement will not actually be displayed.)
7. Press [F5] to store the earphone calibration.
8. Use the down arrow key to select “Calibrate Ins. Earphone (RECD).”

9. Press [START/STOP] twice to perform the measurement and F5 to store it.
10. Press [EXIT] repeatedly until you return to the Opening screen. You have completed the coupler part of the RECD.

RECD: Real-ear

1. Press [F2] from the Opening Screen to enter the Audiogram Entry screen. If the Audiogram Entry screen is not displayed, press the [NEXT] button until it appears. *See Figure 3.*
2. Use [F2] repeatedly until RECD SELECT is displayed, as shown in *Figure 3.*

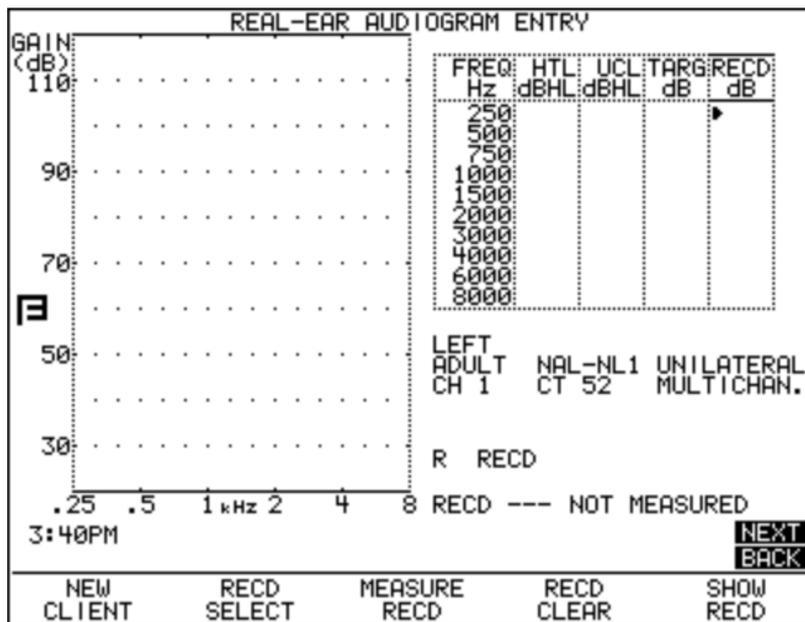


Figure 3: Audiogram Entry – RECD.

3. Press [F3] to select MEASURE RECD.
4. Place the earhook on the patient. If you are testing an infant or small child, you may want to use the Infant Headband set, which supports the weight of the probe microphone on the child's head instead of the ear. (If you are using the Integrated Probe Microphone, you will need to remove the probe microphone from the ear hook and attach to the infant headband with a piece of the provided Velcro.) The reference microphone is not used for this measurement, so it does not need to be placed above the patient's ear.
5. Insert the probe microphone into the patient's ear, as you would normally do for an unaided measurement.
6. Insert the insert earphone into the patient's ear using a foam ear tip or custom ear mold. Make sure the insert earphone is plugged into the back of the FP35 analyzer using the "earphone" plug.

7. Press [START/STOP] The resulting RECD will be displayed in both graphical and numeric format.

Note: If you measured the RECD in a previous patient visit, you can input the RECD manually by using the arrow keys.

RECD: Calibration Check

It's a good idea to periodically check the RECD measurement to make sure you are getting valid results. The probe microphone adapter is used for this check. Instead of measuring an actual real-ear response, we use the adapter to measure the coupler response with the probe microphone. The resulting RECD should be all zeroes.

1. Insert the probe tube through the ribbed side of the black probe microphone adapter so that it sticks out a few millimeters on the other side of the adapter. Use a dab of Fun Tak to hold the probe tube in place. *See Figure 4.*



Figure 4: Probe tube inserted through probe microphone adapter.

2. Attach the probe tube to the probe microphone and insert the adapter into the HA-2 coupler.

3. Attach insert earphone to HA-2 coupler and plug the insert earphone into the back of the FP35 analyzer.
4. Follow steps 1-3 and step 7 in the RECD: Real-ear section of this workbook to measure the RECD with this setup. The resulting RECD should consist of all zeros plus or minus 1 dB from 250-4000 Hz. It is not uncommon for the results to be off by more at 6000 and 8000 Hz, which are difficult frequencies to measure for the RECD.

Coupler Measurements

If an RECD is manually input or measured, it is automatically used when converting from real-ear to coupler (and back again).

1. Press [F2] from the Opening Screen to enter the Audiogram Entry screen. If the Audiogram Entry screen is not displayed, press the [NEXT] button until it appears.
2. Use [F2] to select HTL and input the patient's threshold val-

ues. If desired, use the [F2] key to select UCL and input the measured UCLs.

3. Press [F3] to generate the target.
4. Use [F2] to select RECD and [F3] to select MEASURE RECD. Note: If the RECD is set to AVG, the age-corrected RECD is automatically used in all conversions.
5. Measure the RECD as described in the RECD: Real-ear section or use the arrow keys to input a previously measured RECD.
6. Press [EXIT] to return to the Opening Screen.
7. Press [F3] to enter the Coupler Multicurve screen and then press [NEXT] to enter the Coupler Target screen. In the Coupler Target screen, the real-ear targets are converted into coupler targets that can then be compared directly to coupler measurements. *See Figure 5.*

8. Press [MENU] and [BACK] to enter the Target Menu. Make the appropriate selections for the selected fitting rule. In particular, make sure to set the correct Aid Type, Vent, and Tubing selections. Set the TARGET REF to AUTO. Press [EXIT] to close the local menu.
9. Level the sound chamber, if necessary, connect the hearing aid to the appropriate coupler, and position in the chamber as normal for coupler measurements.
10. Press [START/STOP] to perform the coupler measurement. Adjust the measurement to the target. By factory default the source level will be set to 50 dB SPL. You can adjust this using the up and down arrow keys. Press [START/STOP] to stop the measurement.
11. Use the [F2] key to select CRV 2. By factory default, the source level of this curve is 70 dB SPL. Press [START/STOP] to start the measurement, and adjust the hearing aid as necessary to match the target. Press [START/STOP] again to stop the test.

12. Use the [F2] key to select CRV 3. By factory default, the source level of this curve is 90 dB SPL. Press [START/STOP] to perform this measurement.

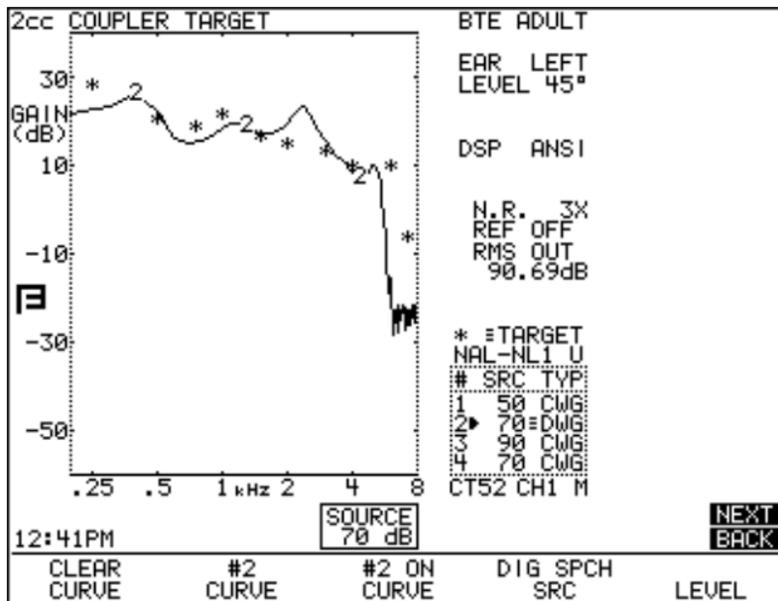


Figure 5: Measurements in the Coupler Target screen.

13. Press [NEXT] to enter the Coupler EarSim screen. In this screen, instead of converting the real-ear target into a coupler target, the actual real-ear target is displayed, and the coupler measurements are converted into “simulated real-ear.” The operation of this screen is exactly the same as the Coupler Target screen. *See Figure 6.* Use the local menu to change the Display between Gain and SPL in order to display insertion gain targets or Real-ear SPL targets.

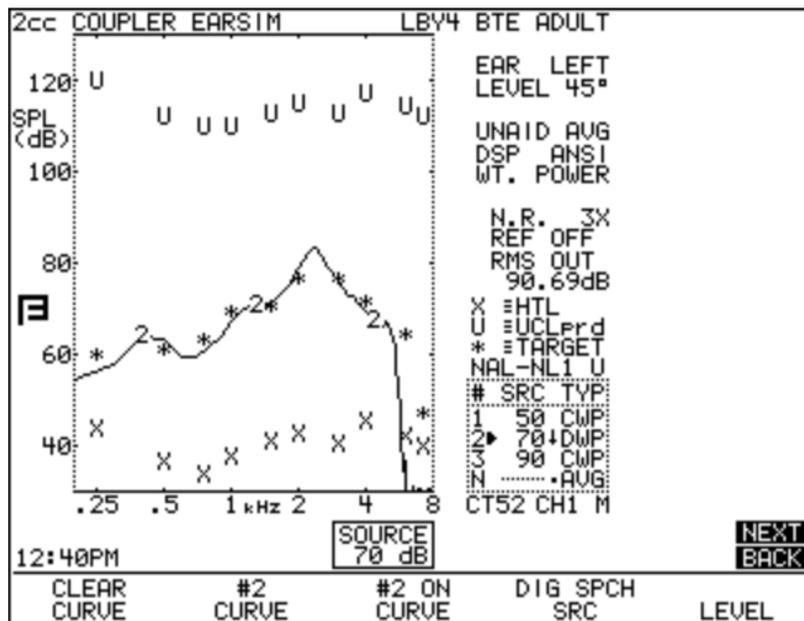


Figure 6: Measurements in the Coupler EarSim screen.