

By Standard Number / 1910.95 App E - Acoustic calibration of audiometers

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 - **Part Number Title:** Occupational Safety and Health Standards
 - **Subpart:** 1910 Subpart G
 - **Subpart Title:** Occupational Health and Environmental Control
 - **Standard Number:** 1910.95 App E
 - **Title:** Acoustic calibration of audiometers
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This Appendix is Mandatory

Audiometer calibration shall be checked acoustically, at least annually, according to the procedures described in this appendix. The equipment necessary to perform these measurements is a sound level meter, octave-band filter set, and a National Bureau of Standards 9A coupler. In making these measurements, the accuracy of the calibrating equipment shall be sufficient to determine that the audiometer is within the tolerances permitted by American Standard Specification for Audiometers, S3.6-1969.

(1) "Sound Pressure Output Check"

- A. Place the earphone coupler over the microphone of the sound level meter and place the earphone on the coupler.
- B. Set the audiometer's hearing threshold level (HTL) dial to 70 dB.
- C. Measure the sound pressure level of the tones at each test frequency from 500 Hz through 6000 Hz for each earphone.
- D. At each frequency the readout on the sound level meter should correspond to the levels in Table E-1 or Table E-2, as appropriate, for the type of earphone, in the column entitled "sound level meter reading."

(2) "Linearity Check"

- A. With the earphone in place, set the frequency to 1000 Hz and the HTL dial on the audiometer to 70 dB.
- B. Measure the sound levels in the coupler at each 10-dB decrement from 70 dB to 10 dB, noting the sound level meter reading at each setting.
- C. For each 10-dB decrement on the audiometer the sound level meter should indicate a corresponding 10 dB decrease.
- D. This measurement may be made electrically with a voltmeter connected to the earphone terminals.

(3) "Tolerances"

When any of the measured sound levels deviate from the levels in Table E-1 or Table E-2 by + or - 3 dB at any test frequency between 500 and 3000 Hz, 4 dB at 4000 Hz, or 5 dB at 6000 Hz, an exhaustive calibration is advised. An exhaustive calibration is required if the deviations are greater than 15 dB or greater at any test frequency.

TABLE E-1 - REFERENCE THRESHOLD LEVELS FOR TELEPHONICS -
TDH-39 EARPHONES

Frequency, Hz	Reference threshold level for TDH-39 earphones, dB	Sound level meter reading, dB
500	11.5	81.5
1000	7	77
2000	9	79
3000	10	80
4000	9.5	79.5
6000	15.5	85.5

TABLE E-2 - REFERENCE THRESHOLD LEVELS FOR TELEPHONICS -
TDH-49 EARPHONES

Frequency, Hz	Reference threshold level for TDH-49 earphones, dB	Sound level meter reading, dB
500	13.5	83.5
1000	7.5	77.5
2000	11	81.0
3000	9.5	79.5
4000	10.5	80.5
6000	13.5	83.5

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