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Solutions to improve the quality of life



FONIX FP35 Portable Hearing Aid Analyzer



Test Fit and Functionality with the FONIX FP35 Hearing Aid Analyzer!

The FONIX FP35 Hearing Aid Analyzer is a valuable tool for any hearing aid clinician. Within its sleek, compact design is the ability to check that the hearing aid is functioning properly as well as verify the suitability of its amplification for a particular patient. It also has excellent computer compatibility and can be controlled using a simple Windows-based interface from within NOAH.

REM

When the Real-ear Option is ordered, the FP35 Hearing Aid Analyzer comes with the Integrated Probe Microphone, a lightweight, adjustable probe microphone for performing real-ear measurements (REM). REM is recommended by all the leading audiologists and researchers in the world for use in verifying the suitability of the hearing aid fitting for the patient. Hearing aid fitting software can only give you the best guess of the hearing aid amplification inside the patient's ear. The only way you can know for sure is to test it with REM.



The Real-ear Option comes with the non-linear fitting formulas of DSL, NAL-NL1, and the new MOD NAL for mild to moderate gain hearing aids. Test results are available in both the traditional insertion gain format and the newer Real-ear SPL test screen that allows you to compare REM results with the patient's HTLs and UCLs. All measurements are automatically converted between insertion gain and SPL, so you never have to duplicate curves to look at them from a different perspective.

Digital Speech

All FP35 Hearing Aid Analyzers now come with the Composite and Digital Speech input signals. These are broadband signals used to produce quick, accurate test results of the hearing aid response across the entire frequency spectrum. The Digital Speech signal has recently been updated in order to keep up with the latest in hearing aid technology and produce stable, accurate test results in mere seconds of testing. Several different speech spectra are available for the Composite and Digital Speech signals including ANSI S3.42, ICRA, and LTASS (Adult and Child).

Visible Speech

With the Real-ear Option, you can use the FP35 Hearing Aid Analyzer to perform Visible Speech testing with both live speech and pre-recorded speech from an attached iPod or CD player. In Visible Speech mode, the analyzer performs a long-term peak pulsed averaging of the amplified signal, allow you to see how the hearing aid amplifies the speech signal in comparison to the patient's HTLs and UCLs. If desired, you can switch the display from the long-term averaging to vertical bars that show the amplification range of the hearing aid during the Visible Speech test.

Coupler Targets

In some cases, it may not be practical or possible to perform REM on a patient. This is particularly the case when testing infants or small children. With the FP35 Hearing Aid Analyzer, you can perform a simple RECD measurement that is automatically used to convert REM targets into coupler targets, or coupler measurements into simulated REM. This allows you to fit the hearing aid accurately using sound chamber measurements. If it is not possible to measure the RECD, an age-appropriate average RECD is automatically substituted.

Test Functionality

All FP35 Hearing Aid Analyzers come with your choice of automated test sequence: ANSI S3.22 96/03, IEC, JIS, or ISI (we sell the FP35 analyzer all around the world, so we have test sequences for everyone!) These test sequences allow you to compare the hearing aid's specifications from the manufacturer to actual performance results.

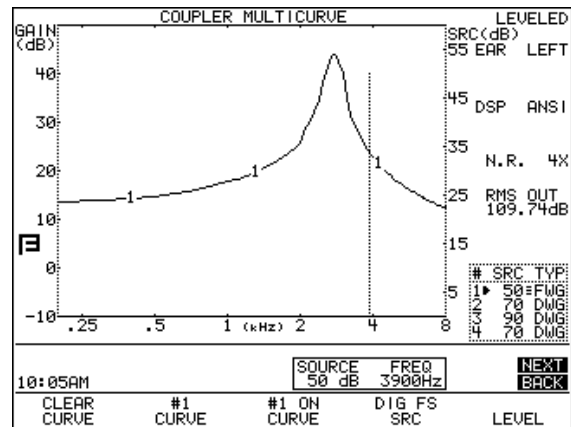


For many clinicians, the test results from ANSI or IEC is not enough. Does the hearing aid distort sound in a loud environment? What are the frequency response and compression characteristics with a broadband signal? How well does a hearing aid's noise suppression abilities work? All of these questions can be answered by using the Coupler Multicurve screen on the FP35 analyzer.

Improve your customer's experience by being able to troubleshoot problems immediately instead of sending the hearing aid to a repair facility. Distinguish yourself from your competition by providing the best service possible for your patient.

Test Frequency-Shifting Hearing Aids

The FP35 Hearing Aid Analyzer has a new test for frequency-shifting hearing aids. This test presents a pure-tone at the frequency of your choice and measures the entire response of the hearing aid, allowing you to determine at which frequency the hearing aid is actually amplifying the signal.



Frequency-shift test: the dotted line represents the input signal

Third Octave Analysis

It is now possible to perform third octave type analysis in the Real-ear SPL screen and in the Coupler Multicurve test screen. This analysis type has greater resolution in the lower frequencies than in the high frequencies and will display more output when testing with the Composite or Digital Speech signals.



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FP35 OPTIONS

The FONIX FP35 Portable Hearing Aid Analyzer has many available options and accessories. Here's a description of the most popular ones.

Real-Ear Measurements

Real-ear measurements take the guesswork out of a hearing aid fitting. You find out the exact frequency response inside the patient's ear and how changes to the hearing aid fitting program effect the actual real-ear response.

Three different measurement screens as well as the Audiogram Entry screen are included with the Real-ear Option. This allows you to view the real-ear response in terms of Insertion Gain, Gain, or SPL by flipping through the different screens. In the Real-ear SPL screen, the patient's threshold values and uncomfortable values are displayed together with the real-ear response and target, making these measurements directly comparable.

The FP35 Real-ear Option now includes an adjustable, integrated probe microphone that is both light-weight and easy to use.

Open Fit Coupler

The Open Fit coupler is designed to give you a realistic frequency response of an open fit hearing aid. The coupler is easy to use and doesn't require any putty or special attachments. The clinician puts the earpiece of the hearing

aid into the coupler just as it would be inserted into the ear. The resulting frequency response is generally more like the real-ear response of the hearing aid than the response obtained from a standard 2-cc coupler.

CIC

When a CIC hearing aid is tested using a 2-cc HA-1 coupler, the frequency response, while conforming to ANSI specifications, is very misleading. These small hearing aids, placed deeply into the ear canal, provide a great deal more amplification in the patient's ear than is indicated by the 2-cc coupler response.

The CIC coupler, combined with software correction factors, provide a more realistic picture of what the frequency response inside the patient's ear will be. Real-ear measurements are the most accurate way of determining the amplification the patient is actually receiving, but the CIC Option is the next best thing.

External Monitor Connection

The External Monitor option needs to be included if you want to connect the FP35 to an external monitor for better viewing by the patient and others in the room. When enabled, the FP35 display is shown on both the internal LCD and the connected monitor. Just about any standard computer



monitor is compatible, including a modern flat screen. This option consists of an internal circuit board that is installed into the FP35 analyzer. It does not include the external monitor itself.

Other Options

- Carrying Case: Great for portability!
- External speaker on a swing arm or stand: Adds convenience to real-ear measurements
- Screening audiometer: Pure tone air threshold testing using an insert earphone
- OES: An approximation of the Zwislocki high-end coupler
- Telecoil: Available with the ANSI S3.22 Telewand or an external Telecoil board
- Spanish language: Software and operator's manual are available!
- Battery Pills: For testing battery current drain. Requires new main electronics board.
- External sound chamber. Requires the M311 coupler microphone.



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FONIX FP35 Portable Hearing Aid Analyzer

SPECIFICATIONS

FREQUENCIES

Range: 200-8000 Hz in 100 Hz intervals (user interface)
200-8000 Hz in 1 Hz intervals (RS232)

Accuracy: $\pm 0.25\%$.

SIGNAL LEVELS

Range: 40-100 dB in 5 dB intervals coupler, 40-90 dB in 5 dB intervals real-ear (user interface)
40-100 dB in 0.01 dB intervals coupler, 40-90 dB in 0.01 dB real-ear (RS232)

Accuracy: Coupler: ± 2.5 dB from 300 to 5000 Hz, all others ± 3.5 dB (after leveling)
Real-ear: ± 3 dB, 200-8000 Hz (after leveling)

Distortion (at 70 dB SPL): Puretone: $< 0.5\%$, 400-2500 Hz

SIGNAL TYPES

Digital Speech, Composite, Puretone (Long, Normal, Fast, and Short sweeps), External

TELECOIL

Electrical output: 0 – 8.0 mA RMS puretone

Magnetic field strength settings: TMFS (Telewand), 1, 1.78, 3.16, 5.62, 10, 17.8, 31.6, 56.2,
100 mA/m (Telecoil board) (user interface)
0-180 mA/m in 0.01 mA/m specified intervals (RS232)

Accuracy: ± 2 dB

DIGITAL MEASUREMENT AND READOUT OF SOUND PRESSURE LEVEL

Frequency Range: 200-8000 Hz

Amplitude Range: 0-150 dB SPL

Resolution: 0.1 dB

MEASUREMENT ACCURACY & RANGE

Coupler measurements: ± 2.0 dB

Probe measurements: ± 2.0 dB

Reference measurements: ± 2.0 dB

Equivalent Input Noise: < 50 dB SPL

HARMONIC DISTORTION

Tests available: 2nd, 3rd, and Total (2nd + 3rd)

Resolution: 0.1 %

Accuracy: $\pm 10\%$ of measurement (at signal levels 80 dB SPL and above)

AVAILABLE TESTS

Automated test sequences: ANSI S3.22-1996, ANSI S3.22-2003, IEC 60118-7:1994, JIS:2000, ISI

Additional Coupler Test Screens: Coupler Multicurve, Coupler Target, Coupler EarSim

Real-ear Test Screens: Audiogram Entry, Insertion Gain, Real-ear Unaided & Aided, Real-ear SPL

POWER

Source voltage: 90 - 250 volt AC

Frequency Range: 47 - 63 Hz

PHYSICAL CHARACTERISTICS

Net Size: 16 x 11 x 4.9 inches

Net Weight: 12 lbs (5.45 Kg) with softcase and all accessories except manual

Chamber test area: 2.65" W x 5.25" L x 1.1" H in acoustical foam treated area

Shipping weight: 16 lbs

Shipping dimensions: 20 x 17 x 10 in

INTERNAL PRINTER

Type: Thermal

Paper width: 79 mm

EXTERNAL PRINTER

Interface: Parallel

Language: HP PCL3



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