GSI AUDERA™

COMPLETE EVOKED POTENTIAL ASSESSMENT

Setting The Clinical Standard

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The Demand

Universal newborn hearing screening using OAE and ABR technology is expanding globally. The result is that more infants require diagnostic follow-up testing. Consequently, there is a greater demand for accurate and frequency-specific hearing assessment of these infants. In addition, there are applications in older children and adults for frequency-specific objective testing.

The Solution

Auditory Steady-State Response (ASSR) is the solution for frequency-specific hearing assessment for people of all ages. Also called the steady-state auditory evoked potential (SSEP), ASSR meets all the criteria for follow-up diagnostic testing.

Auditory Steady-State Response

- Can be reliably recorded in sleeping neonates, children and adults
- Are evoked by frequency-specific tonal stimuli
- Can be detected objectively using statistical algorithms
- Have thresholds that are highly correlated with behavioral audiogram thresholds

And now the ASSR solution is available in a clinical instrument — the GSI Audera.

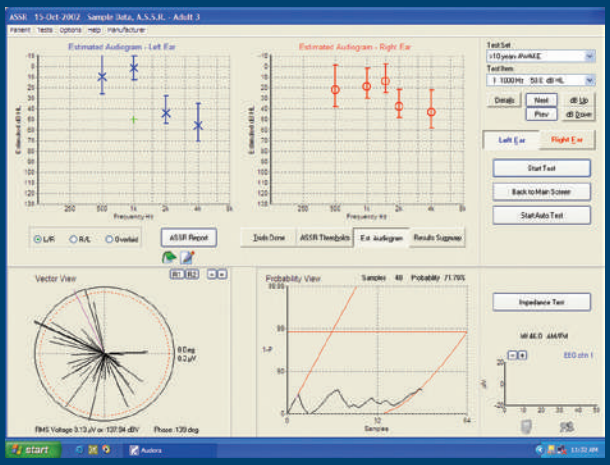
Delivering AEP, ASSR and OAE

ASSR Software Features:

- Clinically-validated protocols - University of Melbourne
- All ASSR information is shown in a single display
- Continuous live display allows easy monitoring of ongoing EEG signals
- Electrode attachment integrity can be assessed with a one-button, on-screen impedance measurement
- Evoke the ASSR with AM/FM modulated tonal stimuli for the 250 - 8,000 Hz frequency range
- Objective ASSR detection using patented algorithms eliminates tester subjectivity and provides quality control
- ASSR thresholds can be measured to 5 dB accuracy
- The behavioral audiogram is estimated using patented algorithms, and a confidence interval is calculated for each threshold
- With one click of a button, quickly change between displaying individual trial results, ASSR threshold plots, and estimated audiograms
- Preview reports on screen and print them in full-size, single-page format in black and white or color

ASSR Auditory Steady-State Responses

Obtain frequency-specific ASSR results and an estimated audiogram using GSI Audera's testing features. Designed with the user in mind, these features have been refined with more than 10 years of clinical use.



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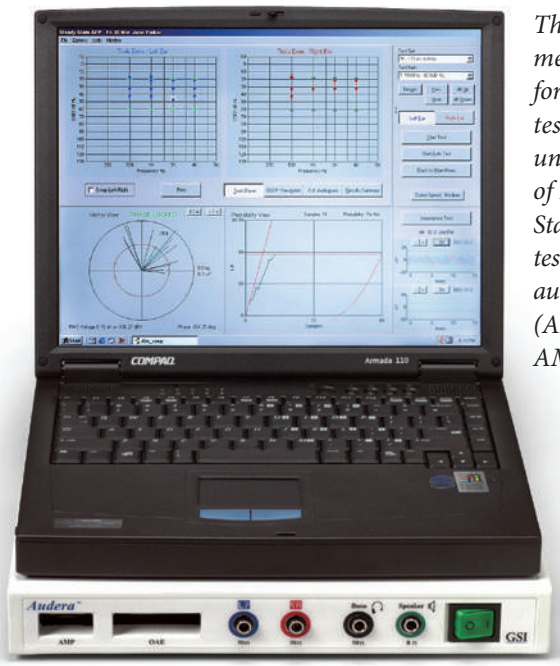

The GSI Audera meets all your needs for Evoked Potential testing by providing a unique combination of Auditory Steady State Response (ASSR) testing and traditional auditory potentials (ABR, ECochG, AMLR and CAEP).

AEP Software Features:

- Click, tone pip and tone burst stimuli with contralateral masking available
- No predefined limits on number of waveforms displayed
- Multiple panels of waveforms displayed simultaneously
- Continuous live display of ongoing input signals
- Display results for different tests, recorded with different time bases, in a single chart
- Unlimited number of user-defined test protocols
- Built-in, one-button electrode impedance measurement
- Data collected with different protocols can be displayed in the same chart or different charts
- User-definable marker/measurement tables

AEP Auditory Evoked Potentials

Use GSI Audera to assess both cochlear and retro-cochlear function with these additional AEP testing capabilities:

- Electrocochleography (ECochG)
- Auditory Brainstem Responses (ABR)
- Auditory Middle Latency Responses (AMLR)
- Long Latency or Cortical Responses (LLR)
- Electrical (ABR)

OAE Software Features:

- All DPOAE information is shown in a single display, including the FFT
- IOgrams provide input-output function analysis
- Automatic scoring available for DPOAE
- Spontaneous OAE functionality included
- Easy upgrades for existing GSI Audera systems with software and probe

OAE Otoacoustic Emissions

With its combination of reliable DP technology, user-friendly graphic interface and easy-to-understand results, the GSI Audera DPOAE is the instrument for otoacoustic emissions testing in hospitals, clinics and offices around the world.

Setting The Clinical Standard

For over 60 years Grason-Stadler (GSI) has been "Setting The Clinical Standard" in Audiometery, Tympanometry and hearing healthcare diagnostics. Far more than a tagline, it is embedded in our corporate DNA and is the driving force behind everything we do.

Market feedback confirmed that GSI is seen as the Clinical Standard. It also established the three attributes most identified with the GSI brand; Quality, Reliability, User-Friendly.

Quality

Quality was by far the most frequently used word by our partners to describe the company and the brand. Product quality has been a hallmark of the GSI brand over the years, and remains the predominant association people have with the company to this day.

Reliability

Reliability, durability, longevity, trustworthiness. GSI products exceed industry expectations regarding reliability. It has become another way of defining the organization and a proven benefit of a partnership with GSI.

User-Friendly

As hearing healthcare technologies have developed, the vast number of potential features can become quite overwhelming. This is why GSI has always worked closely with our Partners to identify and prioritize what product functionality is most important to them, how it should be conveyed, and what will provide maximum user and patient benefit.

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Features

GSI Audera Main Unit

- Separate output jacks for left, right and bone transducers, and a free-field speaker output eliminates time wasted switching between transducers
- Built-in mains isolation transformer for safety provides isolated power for a notebook computer and an inkjet printer
- Standard USB interface connects to virtually all of the latest computers
- High-speed serial interface connects to the GSI Audera digital amplifier subsystem

GSI Audera Digital Amplifier Subsystem

- Small size and weight facilitates convenient placement near the patient
- Full two-channel capability for ispilateral/contralateral ABR recordings
- Isolation for patient safety
- Digital connection to main unit minimizes interference from external noise sources
- Built-in impedance measurement with LED readout at the amplifier minimizes preparation time

GSI Audera OAE Probe

- Superior probe design for neonatal to adult testing
- LED indicates test status
- Backward compatible with all GSI Audera systems

GSI Audera is Compatible With Most Personal Computers

- 32-bit application software operates in several versions of Windows
- Operates with display resolution of 1024 x 768 or higher
- Uses standard Windows drivers for printing on the device of your choice
- Patient database can be backed up on most Windows-compatible archiving devices

GSI Audera's Standard TIP-50 Insert Transducers

- Foam tips of various sizes eliminate the problem of collapsing ear canals
- Soft 2.5 and 3 mm tips included for tiny infant canals
- Silicone tubes create an acoustic delay, minimizing the click stimulus artifact in ABR recordings
- Stimuli are calibrated in dB HL for ASSR testing and in dB nHL for AEP — calibration data is provided for each transducer set

It is now recognized that early intervention is critical to speech and language development in hearing impaired infants and children. Available interventions include fitting a hearing aid before six months or performing a cochlear implant as early as one year of age. Selection of the proper plan requires accurate, detailed information about the hearing loss at all frequencies important for speech and language development.

This makes it critical that hearing clinicians have an objective, reliable method for measuring frequency specific hearing thresholds in neonates and infants with mild to profound hearing losses. While various technologies including OAE, ABR, and visual reinforcement audiometry have been used, their limitations prevent them from fully meeting the need.

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