

Results you can trust



Interacoustics[®]

Eclipse

Eclipse ABR - OAE - ASSR

Performance solution

Based on user feedback

Critical decisions are made on the basis of test results, so it is essential that those results are accurate and reliable. Eclipse provides the best possible foundation for achieving that goal because it has been developed using extensive feedback from end users, patients and audiological experts. It provides real results in real situations.

A complete solution

Eclipse performs auditory evoked potentials and otoacoustic emissions from a single high performance hardware unit connected directly to your own pc, laptop or workstation. Results go to a common database with printable reports in paper form or shared electronically.

Modular software

Modular software means you can assemble exactly the test battery you need. Similar interfaces make the whole system easy to learn and easy to use, and you can expand it at any time.



- One platform for all tests
- Modular and future safe



product software and Eclipse

Convenience

Equipment is good if it helps you achieve good results. Eclipse provides you with everything you need to make testing easier. And it lets you decide how these features are applied.

Customize and automate – focus on results

Name and design your own test protocol. Select your preferred test and simply press "Start". Now you can focus on results and save valuable time.

Flexibility – puts you in control

Eclipse gives you complete control over all test parameters. You can design your own tests, configure stimuli and set recording options freely. You can even change parameters in the middle of a test without having to restart. This flexibility is central to Interacoustics design.

Presentation assists interpretation

Crisp, clear images are easier to interpret, both onscreen and in printed reports. Eclipse features automatic labeling, easy to read formats and clear layouts. This means you can focus quickly and easily on essential values and comparisons. Reports can be printed in PDF or exported in XML format.





Technical features are important. They reveal how well the designers understand the clinical process and should reflect what audiologists are looking for. Eclipse is full of practical and powerful features.

Hardware – compact and powerful

Cutting edge architecture presents: Small footprint permitting a variety of placements. Wall mounted, under a desk, or beneath a laptop are a few of the possibilities.

Good ideas – good design

Features that save you time include a pre amplifier with a built in electrode impedance check located close to the patient means not leaving the patient to view the computer screen. For OAE there is a probe check that ensures proper placement of the probe before testing begins.

Patient safety

Patient safety is a key issue in the Eclipse. The Eclipse has a built in medical safety transformer and complete optical isolation to ensure physical safety.





Auditory Evoked Potentials

Evoked potentials play an increasingly important role in neonatal screening, neuro screening, threshold assessment, advanced diagnosis and balance testing.

Standard ABR is routinely used for threshold assessment and neurological screening. With this in mind the EP15 focuses on ease of use.

For those testing middle and late latency responses (MMN, P300,etc) as well as specialized procedures, we have developed the EP25. This contains all the features of the EP15, but adds the extra functionality needed by more specialized clinics. The EP15 and EP25 both come with standard protocols and easily configured user defined tests.

Customized normative data

Default normal values for latency are programmed into the system. These are shown as shaded areas when actual test results are plotted graphically simplifying assessment. The normal ranges can be changed easily by the user.

Soft Attenuation

This feature is especially important when there is a risk of startling the patient with loud stimuli. The stimulus begins at a lower intensity and is gradually increased to the selected test level.

Wave reproducibility

This function indicates the stability of the recording. It divides the response in a particular time period between two buffers which are then correlated. High correlation indicates a stable and reliable response. The time period over which this takes place is defined by the user.

Trigger functions (EP25 only)

Synchronization signals can be exchanged between Eclipse and an external device.

EP15 – Diagnostic ABR system

Typically used for threshold assessment, neurological screening and intra operative monitoring. The emphasis is on ease of use and clarity.

- 15ms response window
- Early latency tests

EP25 – Full Clinical ABR system

Designed for full clinical ABR/OAE. The emphasis is on flexibility and a full range of measurements. Includes trigger functions.

- 980ms response window
- Early, Middle & Late latency tests
- ECochG markers





Layout facilitates threshold detection

EP15 – Diagnostic ABR system

- Reliable diagnostic ABR
- Pre-programmed tests
- Easy editing and analysis

EP25 – Full Clinical ABR system

- Advanced clinical ABR
- Flexible user interface
- Quality reports and EMR



ABR waves labelled automatically



Latency plotted against normal range



Interacoustics[®]



Threshold estimation with ASSR

A new generation

Interacoustics ASSR is a major breakthrough in technology that provides accurate threshold estimates in half the time required by traditional ASSR.

8 thresholds (4 frequencies bilaterally) can be achieved in less than 30 minutes, making Interacoustics ASSR ideal for threshold assessment in very young children and other patients where behavioural audiometry is impractical. A new stimulus and the Full Spectrum Detection

Engine are two of the patented features that enable Interacoustics ASSR to easily outperform traditional ASSR techniques for both accuracy and speed.

Accurate threshold estimation

All ASSR systems depend on correction factors to convert ASSR thresholds into estimates of behavioural thresholds. Diagnostic trials have shown that thresholds derived from Interacoustics ASSR are significantly closer to behavioral thresholds than those reported in studies on other ASSR systems. This reliability is one of the key features of Interacoustics ASSR.

Maximizing the response

Traditional ASSR stimuli do not compensate for the cochlear travel time involved when a stimulus wave travels through a band of hair cells around the test frequency. This omission contributes to the weaker response from some ASSR systems. Interacoustics ASSR uses a patented stimuli that causes all the target hair cells to fire simultaneously thereby generating a maximal response. This generates a stronger, sharper evoked potential that is easier to detect, especially near threshold.

Better response analysis

To obtain maximum information from the response, Interacoustics ASSR evaluates phase coherence and response magnitude from seven harmonics of the fundamental modulation rate. This feature alone can reduce test time by 50%.

Full stimulus control

Intensity levels and start/stop times are independent for each of the 8 stimulus channels (2 ears x 4 frequencies). This enables the user to shorten test time by selecting appropriate stimulus levels based on current and previous results. It is also possible to switch between 40Hz and 90Hz stimulation rates during a test session if required.

Other features

- Comprehensive reports
- NOAH compatibility
- Identical electrode montage to ABR

Interacoustics ASSR

- New generation ASSR technology
- Faster test time
- Accurate estimated audiogram
- NOAH compatible

¹Ekkehard Stürzebecher, Claus Elberling et al. "New Efficient Stimuli for Evoking Frequency-Specific Auditory Steady-State Responses". Journal of American Academy of Audiology 17:448-461 (2006).

²Mario Cebulla et al. "Objective Detection of Auditory Steady-State Responses: Comparison of One-Sample and q-Sample Tests". Journal of American Academy of Audiology 17:93-103 (2006).

³Claus Elberling, Mario Cebulla and Ekkehard Stüzebecher. "Simultaneous multiple stimulation of the ASSR". Paper presented at the International Symposium on Auditory and Audiological Research (ISAAR), Denmark (2007)







ASSR curves

ASSR audiogram



Eclipse DPOAE - TEOAE

Otoacoustic emissions

Otoacoustic emissions have applications in neonatal screening, differential diagnosis (e.g. auditory neuropathy) and monitoring (e.g. ototoxicity). Eclipse has separate modules for analyzing distortion product emissions (DPOAE20) and transient evoked emissions(TEOAE25). The two modules share a number of features.

Lightweight probe

The same probe type is used for both modules. Lightweight, with very low internal noise, it is small enough to accommodate neonatal ear tips. It is simple, quick and inexpensive to clean and maintain.

Noise rejection feedback

Recording sensitivity is user controlled. A simple feedback mechanism uses red and green bars to indicate noise and signal levels. A slider bar allows the user to quickly and easily set optimum sensitivity.

Probe check

An automatic check ensures that the probe has been correctly placed in the ear canal before testing.

Validity checkmarks

During a test, checkmarks at each test intensity indicate that a valid otoacoustic emission was detected.



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TEOAE25 curves

NyN LA



DPOAE20 DPgram





DPOAE20

- Fast and automatic
- Dedicated DP-gram
- Accurate and safe

TEOAE25

- Automated screening OAE
- Detailed diagnostic OAE
- User friendly interface



Eclipse *Hardware Specifications*

Standards:	EN 60601-1 (General safety) Class I, Type BF. EN 60601-1-1 (Safety of systems). Class I, Type BF. EN 60601-1-2 (EMC).
PC Requirements (PC not included):	Operating System: Windows XP©. Processor: Pentium III, 650MHz or better. RAM: 256MB. Hard disk: 5GB. Display Resolution: 1024 x 768 or better. USB: 1.1 or higher.
System:	Eclipse Black box to connect to your own PC.
Safety:	Medical Safety transformer built-in. Optical isolation to PreAmplifier. Optical Isolation to PC (optional).
Printout:	Customized printouts. Hardcopy or as pdf file for EMR.
Patient communication:	Talk back (built in loudspeaker).
OtoAccess Database:	Included Database: SQL. Data format: XML Full network capability Unlimited storage. Patient demographic data. Patient Journal. May also include data from Interacoustics' audiometers, impedance audiometers, and hearing aid analyzers. Easy back-up function. Interacoustics® ASSR may alternatively run without a database.
NOAH:	NOAH compatible (NOAH 3.6 or higher). (Estimated Audiogram available for Hearing Aid Fitting NOAH modules).
Networks:	May connect to a network. Subsequent session viewing from reader stations. With optional software, even tests in progress may be monitored and controlled from any reader station in the network.
Dimensions and weight:	(L x W x H) 28 x 32 x 5,5 cm / 11 x 12.5 x 6 inches. Weight: 2,5 kg / 5,5 lbs excluding accessories
Included parts:	USB cable 2m Power cable Software CD as ordered OtoAccess™ Database Software Operation Manual
Optional parts:	UCO15 Optical USB cable for Eclipse (can be delivered with 1 or 5 metres USB extension cable).



Read more here: www.interacoustics-us.com/us/Eclipse



Eclipse *EP15/25 Specifications*

Standards:	EN 60601-2-26 (Electroencephalographs). EN60645-1/ANSI S3.6 (Audiometers). EN 60645-3 (Auditory test signals)
PreAmplifier:	2 channels. Gain: 80 dB. (EPA4V: 60/80dB). Frequency Response: Up to 8000Hz. Noise: $6.0nV\sqrt{Hz}$. $0.33\mu V$ RMS (0-3kHz).CMR ratio: >115 dB at any frequency between 0.1Hz and 100 Hz. Input impedance: >10M Ω . Accepted electrode offset: >300mV. Power: From main unit
Impedance Check:	30Hz rectangle. Impedance information for each individual electrode. No unplugging of electrode leads required. Readout directly on Amplifier. Measuring Current: 25uA.Ranges: $0.5k\Omega$ -25k Ω .
Stimuli:	Click and Tone Bursts. Rate: 0.1 – 80.1 per sec. 20 – 130dB peSPL in 1dB steps -10 – 100dB nHL in 1 dB steps
Tone Burst:	Frequencies: .5kHz to 4kHz. Number of cycles: 1 – 3120. Envelopes: Blackman, Gaussian, Hanning, Hamming, Bartlett, Rectangle, and manual rise/plateau/fall.
Masking:	White noise. 040dB relative to stimulus.
Number of Channels:	2 channels. (EPA3: 1 channel).
Number of Curves per Session:	Unlimited.
Automatic Tests:	Several automatic test protocols included. As many automatic tests as desired may be designed and added by operator. Manual control during automatic testing is available.
Data Acquisition:	Analysis time: 15-900mS window. Acquisition start: +/- 2mS from stimulus onset. A/D resolution: 16bit. Points per trace: 450 displayed.
Gain:	Automatic: Before each new intensity is tested, the best suitable gain is automatically selected. Manual: 6dB steps from 74dB to 104dB (10μ V to 320μ V input).
Rejection system:	Two rejection engines work in tandem.
Raw EEG:	Displayed online. Refresh rate: 10Hz typical.
Filters:	Digital filtering for Low Pass and High Pass. Low Pass FIR filters without time shift of wave peak. On the EP15/EP25 or from any reader station in a network it is possible to apply different filtering during testing as well as after the test is completed. Analogue input filters: 0.5Hz to 100Hz - will track test selection.
Patient communication:	Talk forward. Talk back (built in loudspeaker).
Cochlear Implants:	The EP25 may be controlled or may itself control stimulators for cochlear implants.
Networks:	The EP15/EP25 may connect to a network. Subsequent marking and editing, inclu- ding filter changes etc., may also be carried out from other reader stations at any time, without the EP15/EP25 being available. With optional software, even tests in progress may be monitored and controlled from any reader station in the network.
NOAH:	Module available for EP15/EP25 for NOAH 3.0 (optional).
HELP:	On-line Help for buttons, entry fields etc., as well as an electronic operation manual with search functions and cross references are included.
EP25 features (not in- cluded with the EP15):	ECochG recordings with markers. Middle Latency. Late Latency (P300, MMN etc.). Cochlear implant stimulator control.

Included Parts:	EPA4 Preamplifier ETB4 Standard electrode cable with buttons ETU4 Universal electrode cable ETR4 Electrode cable with re-usable electrodes PEG15 Set of 25 single use pre-gelled electrodes TEB4 Tip trode electrode cable set with buttons (only EP25) TEU4 Tip trode electrode cable cet universal (EP25 only) TTE25 Tip trode gold electrodes 10 pcs. for ECochG (EP25 only) 20 pcs. of Infant eartip (2 x 10) EarTone ABR Insert ear phones w/foam tips SPG15 Tube of skin preparation gel Electrode gel Alcohol pads (100 pcs.) Software CD as ordered
Optional Parts:	TDH39 Headset DT48h Headset B71 Bone conductor





Eclipse ASSR Specifications

Standards:	EN 60601-1 (General safety) Class I, Type BF. EN 60601-1-1 (Safety of systems) Class I, Type BF. EN 60601-1-2 (EMC). EN 60601-2-26 (Electroence-phalographs). EN60645-1/ANSI S3.6 (Audiometers). EN 60645-3 (Auditory test signals).
System:	Eclipse for USB PC connection
Safety:	Medical Safety transformer built-in. Optical isolation to PreAmplifier. Optical Isolation to PC (optional).
PreAmplifier:	2 channels. (EPA3: 1 channel). Gain: 80 dB. (EPA4V: 60/80dB). Frequency Response: Up to 8000Hz. Noise: 6.0nV√Hz (0.33µV RMS (0-3kHz)). CMR ratio: >115 dB at any frequency between 0.1Hz and 100 Hz. Input impedance: >10M. Accepted electrode offset: >300mV. Power: From main unit.
Anti Aliasing Filter:	Analogue 8kHz 24dB / octave. (30kHz Sampling rate).
Impedance Check:	30Hz rectangle. Impedance information for each individual electrode. No unplugging of electrode leads required. Readout directly on Amplifier. Measuring Current: 25uA. Ranges: $0.5k\Omega$ -25k Ω .
Transducers:	Ear-Tone ABR insert phones included. Independent calibration for TDH39 (not included).
Number of Channels:	2 channel response detection. (EPA3: 1 channel). 8 channels for stimulus control.
Test Protocols:	Test protocols included for children and for adults (sleeping and awake). Customized protocols can be created by user.
Stimuli:	500Hz, 1kHz, 2kHz, 4kHz. Bandwidth: +/- ½ octave -3dB. Very steep roll offs. Compensation for cochlear delays. Simultaneous stimuli: 8 (4 frequencies in each Ear).
Modulation Rates:	90Hz and 40Hz. Can be changed within the same session.
Masking:	White noise. 0 – 100dB HL.
Stimulus Control:	Independent control of up to 8 simultaneous stimuli (max. 4 per ear). Independent stimulus level control for each of the 8 stimuli, with dynamic range as- sistance. Independent start / stop control for each of the 8 stimuli.
Data Acquisition:	2 channels. Separate Detection Algorithm for each Channel. A/D resolution: 16bit. Manual Start and Stop: Global as well as for each stimulus. Time out limits: Max 15min. (Default: 6 min.). Manual change in +/- 1 min. steps. False Pass Probability Settings: 1% and 5%.
Gain:	Manual: 6dB steps from 74dB to 110dB (5µV to 320µV input).
Rejection system:	Manual increase and decrease of rejection limits during data acquisition.
Raw EEG:	Online display for each channel simultaneously. Refresh rate: 10Hz typical.
Included Parts ASSR:	EPA4 Preamplifier ETB4 Standard electrode cable with buttons ETU4 Universal electrode cable ETR4 Electrode cable with re-usable electrodes PEG15 Set of 25 single use pre-gelled electrodes EarTone ABR Insert ear phones w/foam tips 20 pcs. of Infant eartip (2 x 10) SPG15 Tube of skin preparation gel Electrode gel Alcohol pads (100 pcs.) Software CD
Optional Parts:	TDH39 Headset

Eclipse OAE Specifications

Standards:	EN60601-1 (General safety), EN60601-1-1 (Safety of system), EN60601-1-2 (EMC) EN60645-3 Audiometer
System:	Eclipse for USB PC connection
Hardware:	OAE Probe and Interacoustics Eclipse.
Probe:	TEOAE and DPOAE capable. Weight: 3 grams. Replaceable probe tip
Display gain:	General Display gain: Applicable during testing
Upgradable:	EP15 or EP25 ABR system. DPOAE20/TEOAE25
DPOAE20 Specifications:	
Stimulus:	Frequency Range: 500-8000 Hz. Frequency Step: 50 Hz. Level: 30-75 dB SPL (70 dB for freq. above 6kHz). Level Step: 1 dB SPL. Transducer: Dedicated DPOAE20/TEOAE25 probe
Recording:	Analysis time: Minimum 2 sec to unlimited test time A/D Resolution: 16 bit, 3.7 Hz resolution Artifact Reject System: Adjustable: -30 to 30dBSPL or off. Applicable during testing. SNR Criteria: 1-20 dB SPL
Displays:	Probe fit - with stimulus and intensity. Response. Level fit. DP-gram or Input/Output
Auto tests:	Preprogrammed tests. Additional tests preprogrammable by user. Checkmark indication for S/N R passed
TEOAE25 Specifications:	
Stimulus:	Linear or non linear clicks. Level: 50-90 dB SPL. Level Step: 1 dB SPL. Transducer: Dedicated DPOAE20/TEOAE25 probe. Accuracy: 0.5 dB. Bandwidth: 400 Hz – 4000Hz +/- 2dB Recording: Analysis time: 25 to 32000 samples. A/D Resolution: 16 bit, 3.7 Hz resolution. Artifact Reject System: 25 – 55 dB SPL or off. Applicable during testing. SNR Criteria: 5 individual frequency bands can be set 1-30 dB SPL.
Displays:	Probe fit – with stimulus and frequency response display OAE time window, OAE FFT. 1kHz Pass / Refer bands. 1/3 octave bands, 1/6 octave bands, 1/12 octave bands. dB OAE, dB Signal to Noise ratio
Auto tests:	Preprogrammed tests. Additional tests preprogrammable by user. Checkmark indication for S/N R passed
Automated screening:	Algorithm included. Optional user defined algorithms. Security system - password protection
Included Parts DPOAE20/TEOAE25:	OAE Probe, complete DPOAE20 and/or TEOAE25 software BET25 Assortment Box with eartips for OAE NEOPT Neonatal Probetip
Included Parts DPOAE20/TEOAE25 Kit:	OPT25 Probe with interface DPOAE20 and/or TEOAE25 Software BET25 Assortment Box with eartips for OAE NEOPT Neonatal Probetip



Interacoustics – the best choice

With over 40 years of experience, Interacoustics is dedicated to supplying its customers with the best possible solutions for their audiologic needs. This is accomplished by maintaining a continuous dialogue with healthcare professionals working in all sectors of audiology. Our equipment meets the highest possible engineering standards and we provide design know-how that can only come from close contact with clinical practice.

Solutions on every scale

Designing equipment for every size of clinic in so many countries puts us in the unique position of being able to offer solutions that fit your requirements exactly. Audiometry, tympanometry, electrophysiology, hearing aid testing, balance investigation are all within our scope and can be integrated to suit your needs.

Design for diagnosis

We design equipment to make testing and interpretation easier. This means better interfaces, well designed screen layouts, printed reports and interaction over networks with databases and electronic records systems. In most cases, you can configure the settings and layout yourself.

Support worldwide

The Interacoustics name is not only your guarantee of quality and functionality, but also for support. We operate in over 100 countries worldwide through a well coordinated network of distributors and service centres to ensure that you receive total support and service.



Products in this group:

- Eclipse Hardware
- EP25 Advanced ABR
- EP15 Clinical ABR
- Interacoustics[®] ASSR
- TEOAE25 Sreening and Clinical TEOAE
- DPOAE20 Screening and Clinical DPOAE

Related products:

- OtoAccess[™] database
- OtoRead Handheld OAE

Sales and service in your area:

Read more here: www.interacoustics-us.com/us/Eclipse



leading diagnostic solutions

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