

# Eclipse

ABR - OAE - ASSR



*Results you can trust*



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leading diagnostic solutions

# Eclipse

ABR - OAE - ASSR

## A solution that works

Critical decisions are made on the basis of test results, so it is essential that those results are accurate and reliable. Eclipse gives you the best possible foundation for achieving that goal.

### Based on user feedback

Eclipse is tried and tested in the field. It has been developed over a number of years using extensive feedback from end users, patients and audiological experts. It provides real results in real situations.

### A complete solution

Eclipse can measure all types of auditory evoked potentials and otoacoustic emissions. It performs all tests 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.

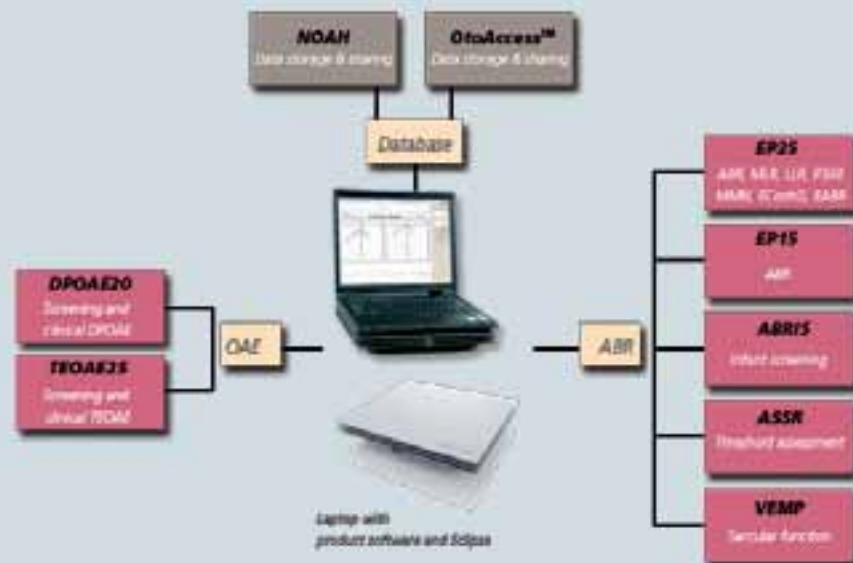
### Modular software

Modular software means you can assemble exactly the test battery you need. All modules have similar interfaces, making the whole system easy to learn and easy to use. And you can extend it at any time.



### Eclipse

- One platform for all tests
- Modular and future safe



# Eclipse for 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.

## **Automate the routine – focus on results**

Design a test. Save the settings under a name on the test protocol menu. Next time, load all those settings with a single mouse click. Use this feature to save time, to implement standard procedures or to reflect personal preferences. Eclipse takes the routine out of testing and lets you focus on results.

## **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**

Well presented results are easier to interpret, both onscreen and in printed reports. Eclipse features automatic labelling, 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.

# Eclipse for functionality

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

## **Hardware – compact and powerful**

Eclipse can be wall mounted or placed on a horizontal surface. It will even fit under your laptop if space demands it. Inside Eclipse is cutting edge architecture with state of the art components. Precision requires quality.



## **Good ideas – good design**

Eclipse has many features that save you time. For example, a preamplifier with a built in electrode impedance check so you can make sure electrodes have optimal skin contact without having to leave the patient to view the computer screen. And 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. Parents are often anxious about their child and even adult patients can find testing stressful. Eclipse has a built in medical safety transformer and complete optical isolation to ensure physical safety.



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# Auditory Evoked Potentials

Evoked potentials play an increasingly important role in audiology. Neonatal screening, neuro screening, threshold assessment, advanced diagnosis, balance testing are all areas affected by this trend.

Standard ABR is now routinely used for both threshold assessment and neurological screening. With this in mind, we have developed the EP15 with its focus on ease of use and a full set of built-in tests.

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.

### **Built in & user designed tests**

Built in tests are provided with each module. The system can therefore run immediately after installation. However, there are extensive possibilities to modify settings and design new tests.

### **User definable 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. This simplifies 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 is initially presented at a lower intensity and gradually increased to test level over a few seconds.

### **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

therefore reliable response. The time period over which this takes place is defined by the user.

### **Trigger functions (EP25 only)**

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

### **EP15 – Diagnostic ABR system**

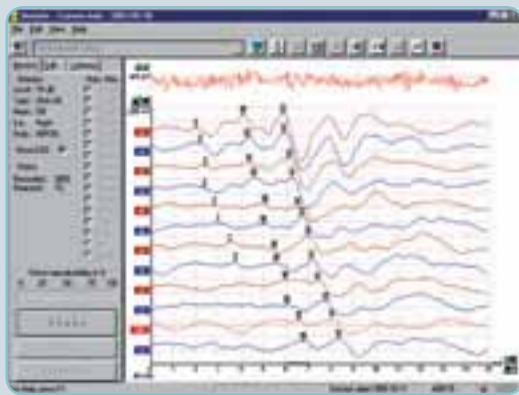
*EP15 is traditional ABR, typically used for threshold assessment, neurological screening and intra operative monitoring. The emphasis is on ease of use and clarity.*

- 15ms response window
- Early latency tests

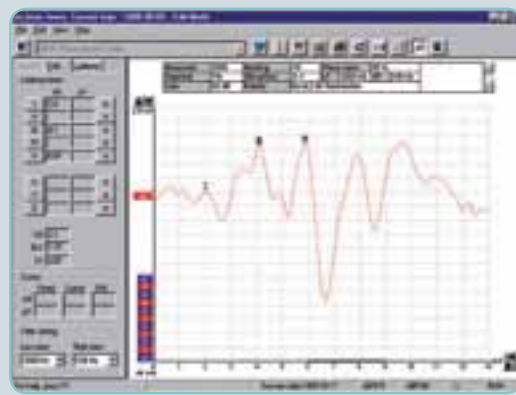
### **EP25 – Full Clinical ABR system**

*EP25 is 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



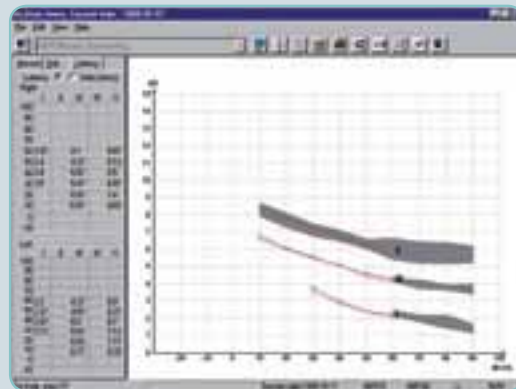
ABR waves labelled automatically

### **EP15 – Diagnostic ABR system**

- Reliable diagnostic ABR
- Pre-programmed tests
- Tests both ears simultaneously

### **EP25 – Full Clinical ABR system**

- Advanced clinical ABR
- User control over all settings
- Trigger in/out of external devices



Latency plotted against normal range



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# Eclipse ASSR

## Threshold estimation with ASSR

Interacoustics ASSR is the new generation of ASSR. It is a major breakthrough 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 specially formed 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 thresholds

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 behavioural 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 shows as 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% compared to systems that do not use it.

### 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

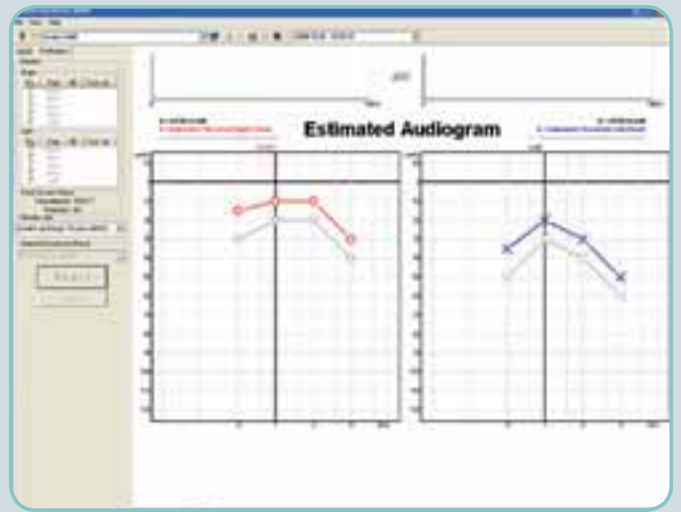
<sup>1</sup>Ekkehard Stürzebecher, Claus Elberling et al. "New Efficient Stimuli for Evoking Frequency-Specific Auditory Steady-State Responses". *Journal of American Academy of Audiology* 17:448-461 (2006).

<sup>2</sup>Mario 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).

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



ASSR curves



ASSR audiogram



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## ABR Screening

### Infant screening with ABRIS

**ABR Infant Screening** is a very fast neonatal screening test based on specialized ABR. It returns a simple pass/refer result with very high sensitivity and specificity. It requires minimal tester training and is automatic and objective. Test time for a typical normal ear is 20 seconds.

#### Red or Green

As a double-guard against human error, the test result is presented clearly in both text and colour. A refer result is displayed in red, a pass result in green.

#### Easy to use

After attaching the electrodes and making a quick impedance check with the preamplifier lights the operator only has to click START.

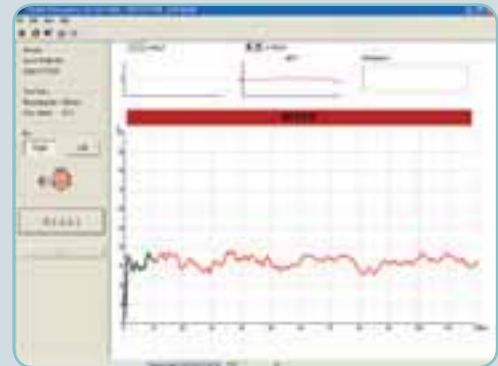
#### Reliable screening

ABRIS sensitivity is 99,99% (sensitivity measures the ability to correctly identify babies with hearing problems).

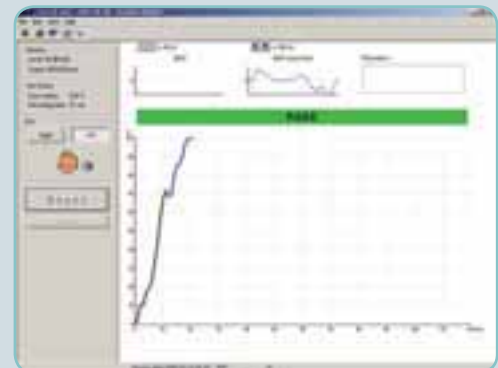
ABRIS specificity is 97% (specificity measures the ability to correctly exclude babies with normal hearing).

#### EEG noise monitoring

EEG activity levels are continuously monitored and reported back to the tester. No measurements are saved during "noisy" periods.



ABRIS refer



ABRIS pass

#### ABRIS

- Very fast & automatic
- Objective and reliable
- Easy to use

# Eclipse VEMP

## Vestibular investigation with VEMP

The VEMP test measures and analyses the vestibular evoked myogenic potential generated by a loud stimulus in the ipsilateral ear with the patient positioned to produce maximal tone in the sternocleidomastoid muscle. The VEMP ratio (difference between ears) is calculated automatically. The VEMP test is used to evaluate saccular function and the integrity of the inferior vestibular nerve.

### Muscle tonus monitoring

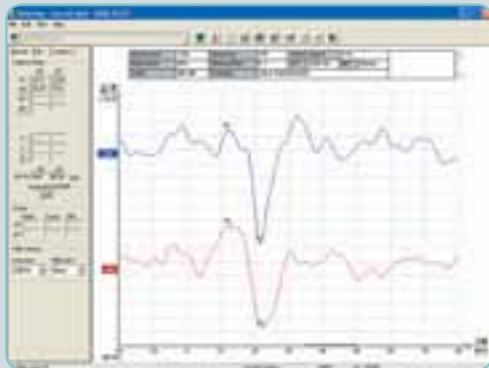
Ongoing EEG activity is displayed to make it easy to monitor muscle tension.

### High output

Eclipse can stimulate up to 100dBnHL (clicks and 500Hz tone burst). Increments of 1dB are possible when establishing optimum stimulus levels.

### VEMP ratio – easy calculation

Mark two places on the VEMP curve and the software will calculate the VEMP ratio using  $(\text{Amplitude}_{\text{LEFT}} - \text{Amplitude}_{\text{RIGHT}}) / (\text{Amplitude}_{\text{LEFT}} + \text{Amplitude}_{\text{RIGHT}})$ .



VEMP curves

### VEMP

- VEMP only solution
- Augmented VEMP calculation
- Combines with VNG to make a complete balance system



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## 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 analysing 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 and 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 set optimum sensitivity quickly and easily.

### Probe check

There is an automatic check to ensure that the probe has been correctly placed in the ear canal before testing.

### Validity checkmarks

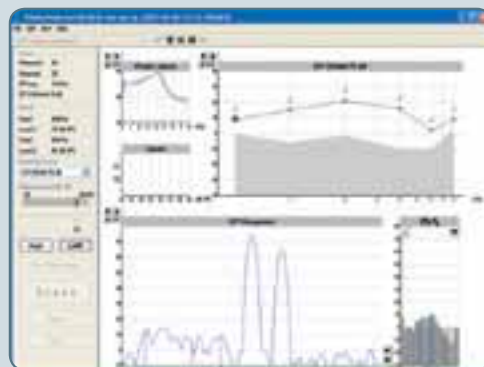
During a test, checkmarks at each test intensity indicate that a valid otoacoustic emission was detected.

### **Distortion product emissions (DPOAE20)**

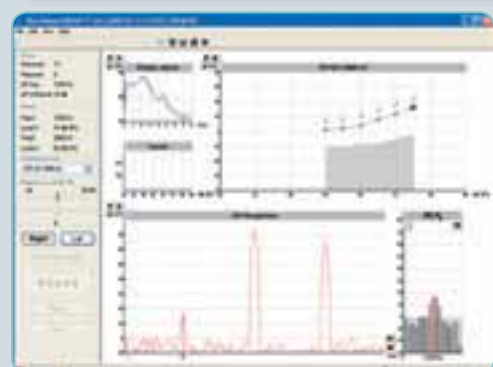
*DPOAE20 initially produces a detailed DP gram which can be followed by input/output tests at specific frequencies. If needed, the DP gram can be restricted to a single frequency for screening purposes. Built-in test protocols exist for these applications, but you can easily create other test protocols.*

### **Transient evoked emissions (TEOAE25)**

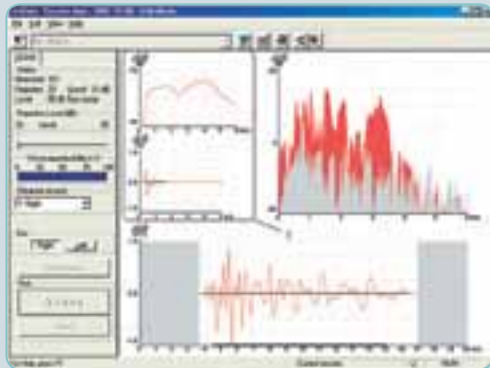
*TEOAE25 uses linear or non linear broad band clicks to stimulate otoacoustic emissions. Although primarily designed for hearing screening, for which it can be programmed to return an automatic pass/refer result, TEOAE25 provides detailed information on the emissions.*



DPOAE20 DPgram



DPOAE20 input/output



TEOAE25 curves



TEOAE25 curves

#### **DPOAE20**

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

#### **TEOAE25**

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



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## Hardware Specifications

<b>Standards:</b>	IEC 60601-1 (General safety) Class I, Type BF. IEC 60601-1-1 (Safety of systems). Class I, Type BF. IEC 60601-1-2 (EMC).
<b>PC requirements (PC not included):</b>	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.
<b>System:</b>	Eclipse Black box to connect to your own PC.
<b>Safety:</b>	Medical Safety transformer built-in. Optical isolation to PreAmplifier. Optical Isolation to PC (optional).
<b>Printout:</b>	Customized printouts. Hardcopy or as pdf file for EMR.
<b>Patient communication:</b>	Talk back (built in loudspeaker).
<b>OtoAccess database:</b>	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.
<b>NOAH:</b>	NOAH compatible (NOAH 3.6 or higher). (Estimated Audiogram available for Hearing Aid Fitting NOAH modules).
<b>Networks:</b>	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.
<b>Dimensions and weight:</b>	(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
<b>Software modules available for the Eclipse black box:</b>	<ul style="list-style-type: none"> <li>• ABR (EP15/25)</li> <li>• ABR Infant Screening (ABRIS)</li> <li>• TEOAE (TEOAE25)</li> <li>• DPOAE (DPOAE20)</li> <li>• VEMP</li> </ul>
<b>Included parts:</b>	USB cable 2m Power cable Software CD as ordered OtoAccess™ database software Mouse pad Operation Manual, CE Manual
<b>Optional parts:</b>	UCO15 Optical USB cable for Eclipse (can be delivered with 1 or 5 metres USB extension cable).



Read more here:  
[www.interacoustics-us.com/com/Eclipse](http://www.interacoustics-us.com/com/Eclipse)



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## EP15/25 Specifications

<b>Standards:</b>	IEC 60601-2-26 (Electroencephalographs). IEC 60645-1/ANSI S3.6 (Audiometers). IEC 60645-3 (Auditory test signals)
<b>PreAmplifier:</b>	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: >10MΩ. Accepted electrode offset: >300mV. Power: From main unit
<b>Impedance check:</b>	30Hz rectangle. Impedance information for each individual electrode. No unplugging of electrode leads required. Readout directly on Amplifier. Measuring Current: 25uA.Ranges: 0.5kΩ-25kΩ.
<b>Stimuli:</b>	Click and Tone Bursts. Rate: 0.1 – 80.1 per sec. 20 – 130dB peSPL in 1dB steps -10 – 100dB nHL in 1 dB steps
<b>Tone burst:</b>	Frequencies: .5kHz to 4kHz. Number of cycles: 1 – 3120. Envelopes: Blackman, Gaussian, Hanning, Hamming, Bartlett, Rectangle, and manual rise/plateau/fall.
<b>Masking:</b>	White noise. 0 - -40dB relative to stimulus.
<b>Number of channels:</b>	2 channels. (EPA3: 1 channel).
<b>Number of curves per session:</b>	Unlimited.
<b>Automatic tests:</b>	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.
<b>Data acquisition:</b>	Analysis time: 15-900mS window. Acquisition start: +/- 2mS from stimulus onset. A/D resolution: 16bit. Points per trace: 450 displayed.
<b>Gain:</b>	Automatic: Before each new intensity is tested, the best suitable gain is automatically selected. Manual: 6dB steps from 74dB to 104dB (10µV to 320µV input).
<b>Rejection system:</b>	Two rejection engines work in tandem.
<b>Raw EEG:</b>	Displayed online. Refresh rate: 10Hz typical.
<b>Filters:</b>	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.
<b>Patient communication:</b>	Talk forward. Talk back (built in loudspeaker).
<b>Cochlear implants:</b>	The EP25 may be controlled or may itself control stimulators for cochlear implants.
<b>Networks:</b>	The EP15/EP25 may connect to a network. Subsequent marking and editing, including 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.
<b>NOAH:</b>	Module available for EP15/EP25 for NOAH 3.0 (optional).
<b>HELP:</b>	On-line Help for buttons, entry fields etc., as well as an electronic operation manual with search functions and cross references are included.
<b>EP25 features (not included with the EP15):</b>	ECochG recordings with markers. Middle Latency. Late Latency (P300, MMN etc.). VEMP (optional). Cochlear implant stimulator control.

**Included parts:**

EP15 / EP25 Software CD  
EPA4 Preamplifier  
ETB Standard electrode cable with buttons  
ETU Universal electrode cable  
ETR Electrode cable with re-usable electrodes  
PEG15 Set of 25 single use pre-gelled electrodes  
ETT Tip trode electrode cable set (only EP25)  
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  
Gauze Swabs  
LBK15 Loop Back unit for system performance check  
Electrode gel  
Alcohol pads (100 pcs.)

**Optional parts:**

TDH39 Headset  
DT48h Headset  
B71 Bone conductor  
EPA3 Preamplifier (one channel/3 electrodes)  
EPA4V (preamplifier for VEMP)  
License for VEMP functions



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## VEMP

<b>Hardware platform:</b>	Eclipse for USB PC connection
<b>PreAmplifier EPA4V:</b>	2 channels. Gain: 60/80dB. Impedance information for each individual electrode. Readout directly on Amplifier.
<b>Transducers:</b>	Ear-Tone ABR insert phones included. Independent calibration for TDH39 (not included). Independent calibration for B71 (not included).
<b>Stimuli:</b>	Click and Tone Bursts. Rate: 0.1 – 8.1 per sec. (default 5.1 per sec.) 20 – 130dB peSPL in 1dB steps. -10 – 100dB nHL in 1 dB steps
<b>Tone burst:</b>	Frequencies: .5kHz to 4kHz. Number of cycles: 1 – 520 Envelopes: Blackman, Gaussian, Hanning, Hamming, Bartlett, Rectangle, and manual rise/plateau/fall.
<b>Number of curves per session:</b>	Unlimited.
<b>Automatic tests:</b>	Automatic test protocols included for Click and 500Hz Toneburst. As many automatic test protocols as desired, may be designed and added by operator. Manual control during automatic testing is available.
<b>Data acquisition:</b>	Analysis time: -20 to 80mS (150mS max. window) Acquisition start: +/- 20mS from stimulus onset
<b>Rejection system:</b>	Two rejection engines work in tandem.
<b>Raw EEG:</b>	Large online displayed EEG throughout testing. Refresh rate: 10Hz typical.
<b>Patient communication:</b>	Talk forward. Talk back (built in loudspeaker).
<b>Database:</b>	Included – unlimited storage. Patient demographic data. Patient Journal. May also include data from Interacoustics' audiometers, impedance audiometers, and hearing aid analyzers. Easy back-up function.
<b>Included parts:</b>	VEMP Software CD EPA4V Preamplifier ETB Standard electrode cable with buttons ETU Universal electrode cable ETR Electrode cable with re-usable electrodes PEG15 Set of 25 single use pre-gelled electrodes 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.) Gauze Swabs
<b>Optional parts:</b>	TDH39 Headset DT48h Headset B71 Bone conductor EPK15v upgrade kit for EP15 functions EPK25v upgrade kit for EP25 functions

# Eclipse ASSR

<b>Standards:</b>	IEC 60601-2-26 (Electroencephalographs). IEC 60645-1/ANSI S3.6 (Audiometers). IEC 60645-3 (Auditory test signals).
<b>System:</b>	Eclipse for USB PC connection
<b>Safety:</b>	Medical Safety transformer built-in. Optical isolation to PreAmplifier. Optical Isolation to PC (optional).
<b>PreAmplifier:</b>	2 channels. (EPA3: 1 channel). 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. Accepted electrode offset: >300mV. Power: From main unit.
<b>Anti Aliasing Filter:</b>	Analogue 8kHz 24dB / octave. (30kHz Sampling rate).
<b>Impedance Check:</b>	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 $\Omega$ .
<b>Transducers:</b>	Ear-Tone ABR insert phones included. Independent calibration for TDH39 (not included).
<b>Number of Channels:</b>	2 channel response detection. (EPA3: 1 channel). 8 channels for stimulus control.
<b>Test Protocols:</b>	Test protocols included for children and for adults (sleeping and awake). Customized protocols can be created by user.
<b>Stimuli:</b>	500Hz, 1kHz, 2kHz, 4kHz. Bandwidth: +/- 1/2 octave -3dB. Very steep roll offs. Compensation for cochlear delays. Simultaneous stimuli: 8 (4 frequencies in each Ear).
<b>Modulation Rates:</b>	90Hz and 40Hz. Can be changed within the same session.
<b>Masking:</b>	White noise. 0 – 100dB HL.
<b>Stimulus Control:</b>	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 assistance. Independent start / stop control for each of the 8 stimuli.
<b>Data Acquisition:</b>	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%.
<b>Gain:</b>	Manual: 6dB steps from 74dB to 110dB (5 $\mu$ V to 320 $\mu$ V input).
<b>Rejection system:</b>	Manual increase and decrease of rejection limits during data acquisition.
<b>Raw EEG:</b>	Online display for each channel simultaneously. Refresh rate: 10Hz typical.
<b>Included Parts ASSR:</b>	ASSR Software CD EPA4 Preamplifier ETB Standard electrode cable with buttons ETU Universal electrode cable ETR 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.) Gauze Swabs
<b>Optional Parts:</b>	TDH39 Headset EPA3 Preamplifier (one channel/3 electrodes)



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## ABRIS Specifications

<b>Hardware platform:</b>	Eclipse for USB PC connection
<b>Database:</b>	OtoAccess™.
<b>Stimulus:</b>	Click. 93Hz stimulus rate.
<b>Level:</b>	30dBHL, 35dBHL or 40dBHL.
<b>Security:</b>	Password protection of test parameters.
<b>Test time:</b>	Typically 20 seconds per ear.
<b>Algorithmical sensitivity:</b>	99.99%.
<b>Specificity:</b>	Typically 97%.
<b>Included parts:</b>	ABRIS™ Software CD Preamplifier EPA4 ETB Standard electrode cable with buttons ETU Universal electrode cable ETR Electrode cable with re-usable electrodes PEG15 Set of 25 single use pre-gelled electrodes SPG15 Tube of skin preparation gel Gauze Swabs Electrode gel Alcohol pads (100 pcs.) EARTone ABR Insert Earphones
<b>Optional parts:</b>	EPA3 Preamplifier for 3 electrode mounting



# Eclipse

## OAE Specifications

<b>Standards:</b>	IEC 60645-3 Audiometer
<b>System:</b>	Eclipse for USB PC connection
<b>Database:</b>	OtoAccess™ - storage only limited by hard drive size
<b>Hardware:</b>	OAE Probe and Interacoustics Eclipse.
<b>Probe:</b>	TEOAE and DPOAE capable. Weight: 3 grams. Replaceable probe tip
<b>Display gain:</b>	General Display gain: Applicable during testing
<b>Upgradable:</b>	EP15 or EP25 ABR system. ABRIS ABR Screener. DPOAE20/TEOAE25
<b>DPOAE20 Specifications:</b>	
<b>Stimulus:</b>	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
<b>Recording:</b>	Analysis time: Minimum 2 sec to unlimited test time A/D Resolution: 16 bit, 3.7 Hz resolution Artifact Reject System: Adjustable: -30 to 30dB SPL or off. Applicable during testing. SNR Criteria: 1-20 dB SPL
<b>Displays:</b>	Probe fit - with stimulus and intensity. Response. Level fit. DP-gram or Input/Output
<b>Auto tests:</b>	Preprogrammed tests. Additional tests preprogrammable by user. Checkmark indication for S/N R passed
<b>TEOAE25 Specifications:</b>	
<b>Stimulus:</b>	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.
<b>Displays:</b>	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
<b>Auto tests:</b>	Preprogrammed tests. Additional tests preprogrammable by user. Checkmark indication for S/N R passed
<b>Automated screening:</b>	Algorithm included. Optional user defined algorithms. Security system - password protection
<b>Included Parts</b>	DPOAE20 and/or TEOAE25 software CD
<b>DPOAE20/TEOAE25:</b>	OAE Probe, complete BET25 Assortment Box with eartips for OAE NEOPT Neonatal Probetip



**Interacoustics®**

leading diagnostic solutions

### 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.

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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
- ABRIS Newborn Screening
- VEMP
- TEOAE25 Screening and Clinical TEOAE
- DPOAE20 Screening and Clinical DPOAE

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- OtoAccess™ database
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