

# Otowave 202

## *Portable Tympanometer*



**amplivox**

*specialists in healthcare products*





**The Amplivox Otowave 202 provides fast, objective middle ear measurements to assist with the identification of middle ear disorders in neonates, children and adults.**

## Functionality

There are two versions of the Amplivox Otowave 202 available:

The Otowave 202-H option features a comprehensive range of test functions including user defined 226Hz and 1000Hz probe tone impedance measurements and a user programmable range of both ipsi and contra lateral reflex test measurements at 500Hz, 1kHz, 2kHz and 4kHz.

The standard Otowave 202 provides 226Hz probe tone impedance measurements together with a user programmable range of both ipsi and contra lateral reflex test measurements at 500Hz, 1kHz, 2kHz and 4kHz.

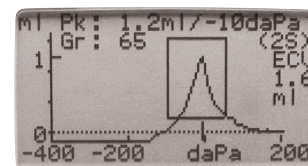
## Ease of use

When testing neonates and children, very fast, accurate middle ear measurements are essential. The advanced technology within the Otowave 202 makes this possible. The Otowave 202 is also very intuitive to use with on-screen information displayed before, during and after the automatic test.

## Tympanometry

When using the Otowave 202 in 226Hz probe tone mode, the compliance peak, compliance peak pressure, gradient and ear canal volume can be measured within seconds.

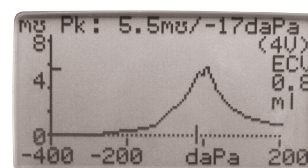
226Hz display



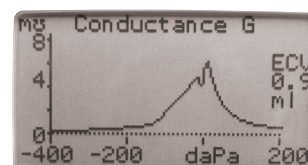
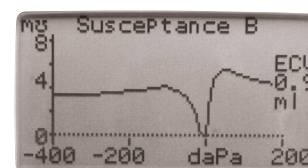
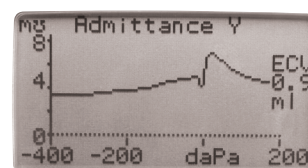
When using the Otowave 202-H option in 1000Hz probe tone mode, users can easily select a preferred display by simply pressing the probe function key to switch between:

- Scalar mode: a traditional admittance tympanogram, as above (Y only compensation)
- Vector mode: a tympanogram displaying B-G compensation

Vector



- Component mode: the separate admittance (Y), susceptance (B) and conductance (G) measurements are displayed for clinical review

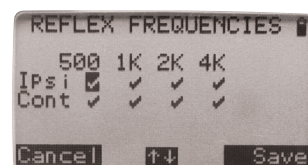


The ear canal volume is displayed whichever 1000Hz mode is selected.

## Acoustic reflex measurements

User-defined ipsi and contra lateral reflex test measurements can be easily added to the test sequence to ensure a comprehensive test routine that is completed in the minimum amount of time.

This user programmable acoustic reflex function includes reflex frequency selection, levels and sensitivity. The large display area facilitates a graphical display of the reflex response and a pass/no response indication.





## Recording results

Based upon user requirements, results can be:

- Saved within internal memory with a patient identifier
- Printed via an infra-red connection to the optional portable printer
- Transferred via USB to a PC for viewing and printing using the Amplivox Tymview application
- Transferred via USB to the NOAH database using the Amplivox NOAH Impedance module



## Usage and portability

Lightweight and compact, the Otowave 202 is designed to be used as a totally portable 'go anywhere' tympanometer and can be used with either alkaline or rechargeable batteries. Additionally the Otowave 202 can be mains powered if preferred. The Otowave 202 can also easily be used in a static clinical setting, where its small size is of great benefit when clinic space is at a premium.

## Summary of key features

- Fast, accurate impedance measurements
- Choice of 226Hz or 1000Hz tympanometry probe tone (202-H)
- Programmable ipsilateral reflex tests
- Programmable contralateral reflex tests
- Separate admittance, susceptance and conductance measurements (202-H)
- Totally portable
- Intuitive use
- Large graphics display
- User defined results recording options

# Otowave 202

## Technical specifications

### Available languages

English, French, German, Italian, Portuguese and Spanish

### Tympanometry measurements

Probe tone level and accuracy:	226Hz +/-2%; 85dB SPL +/-2dB 1000Hz +/-2%; 79dB SPL +/-2dB (202-H only) over ear canal volume range
Pressure range and accuracy:	+200daPa to -400daPa +/-10daPa or +/-10% (whichever is larger) over range 0.1ml to 5ml
Direction of sweep:	Positive to negative
Volumetric range and accuracy:	226Hz: 0.2ml to 5ml 1000Hz: 0.1ml to 5ml +/-0.1ml or +/-5% (whichever is larger)
Analysis performed:	Admittance peak level in ml (226Hz) or mΩ (1000Hz) & pressure at peak; Gradient in daPa (for 226Hz); Ear Canal Volume (ECV) @ 200daPa

### Reflex measurements

Reflex type:	Ipsilateral, contralateral or both
Reflex frequencies:	Ipsilateral and contralateral: User-selectable from: 500Hz, 1kHz, 2kHz & 4kHz (+/-2%)
Reflex levels:	Ipsilateral: 70dBHL to 100dBHL (+/-3dB) Contralateral: 70dBHL to 110dBHL (+/-3dB)
Reflex detection threshold:	0.01ml to 0.5ml +/-0.01ml (configurable in 0.01ml steps)
Analysis performed:	Reflex maximum amplitude and pass/fail at each test level

### Data management

Internal database:	16 patient records with patient record identifier
Printing from connected printer:	Designated high speed portable thermal printer using a wireless, infrared connection (IrDA 9600 baud) is available as an option
PC database interface:	The Amplivox NOAH Impedance module is included for data transfer to a NOAH database using a USB connection
Viewing and printing from a PC:	The Amplivox TympView application is available to transfer data to a PC using a USB connection and then view and print the test results

### Physical data

Power:	Mains: 100-240Vac; 50/60Hz via Amplivox mains adapter (approved to medical safety standards) Batteries: 4 x AA (either Alkaline or NiMH, the latter recharged external to the instrument)
Dimensions (mm):	Base unit: 190 long x 85 wide x 40 high (excluding connections) Probe: 130 long x 25 (max) diameter
Weight:	Base unit: 330g (without batteries, using mains power); 430g (with batteries) Probe: 110g (including connecting cable)

### Standards

The Otowave 202-H conforms to the relevant clauses of the following standards

Safety:	IEC 60601-1 (including national requirements for US and Canada)
EMC:	IEC 60601-1-2
Impedance:	IEC 60645-5 Type 2 tympanometer ANSI S3.39 Type 2 tympanometer
CE mark:	Complies to EU Medical Device directive

## Equipment

### Standard

- Test cavities
- Starter pack of disposable ear tips
- Contralateral transducer
- 4 x 1.5V Alkaline AA batteries
- Operating manual and Tymview PC application
- Amplivox NOAH impedance module
- USB cable
- Carrying case
- Mains adapter

### Optional

- High speed portable thermal printer
- Additional quantities of disposable ear tips

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