AUDIOLOGY
PRODUCTCATALOGUE
2024

BioMed®

Content Overview

AUDIOMETRY

MIDDLE EAR ANALYSIS

EVOKED POTENTIALS

OTOACOUSTIC EMISSIONS

eAUDIO^{USB}

The new dimension for computer pure tone
and speech audiometry

The **eAUDIO^{USB}** is a modern computer based audiometry system designed for daily work. Based on state of the art electronics the **eAUDIO^{USB}** creates new standards in 2 channel audiometry.

Standardised diagrams are integrated into a clearly structured interface to ensure optimal use of the system.
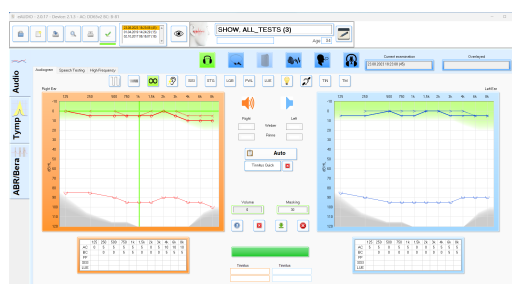
- Air conductor:

  Radioear DD65 V2

  125 - 8000 Hz

  -10 ... 120 dB nHL

  Sennheiser HDA 300

  125 - 16000 Hz

  -10 ... 110 dB nHL

- Bone conductor:

  B81 (up to 85 dB nHL)

- 3 active freefield channels
- 2 line out channels
- Microphone in and out
- 2 line in
- Patient response
- grandiose design allows wall or desk mounting
- USB 2.0
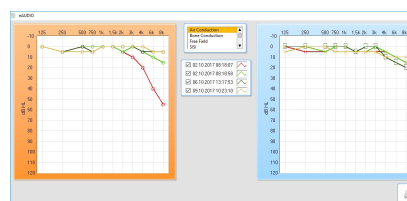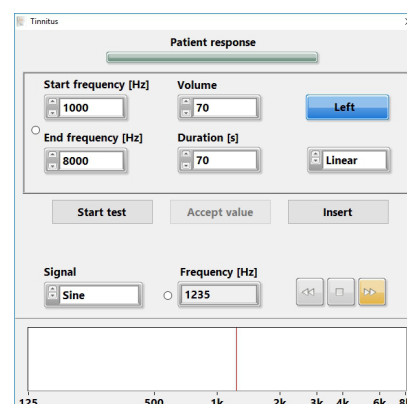
Overlay all data

- **Test signals:**

  Manual, continuous and pulsing

- **Masking signals:**

  narrow band noise, white noise, SSN

- **Threshold exceeding tests:**

  SISI test

  Lüscher - Zwislocki test

  Langenbeck test

  Stenger test

  Fowler test

- Multiple speech tests possible

- Automatic calibration function

- Speech in noise

- Age-depended normative values

- Tinnitus tone selector up to 16 KHz / Tinnitus masking

- Overlay function for all test

- use of different transducers possible

- compatible with Windows 11

eAUDIO^{USB} is available as a diagnostic and clinical version.
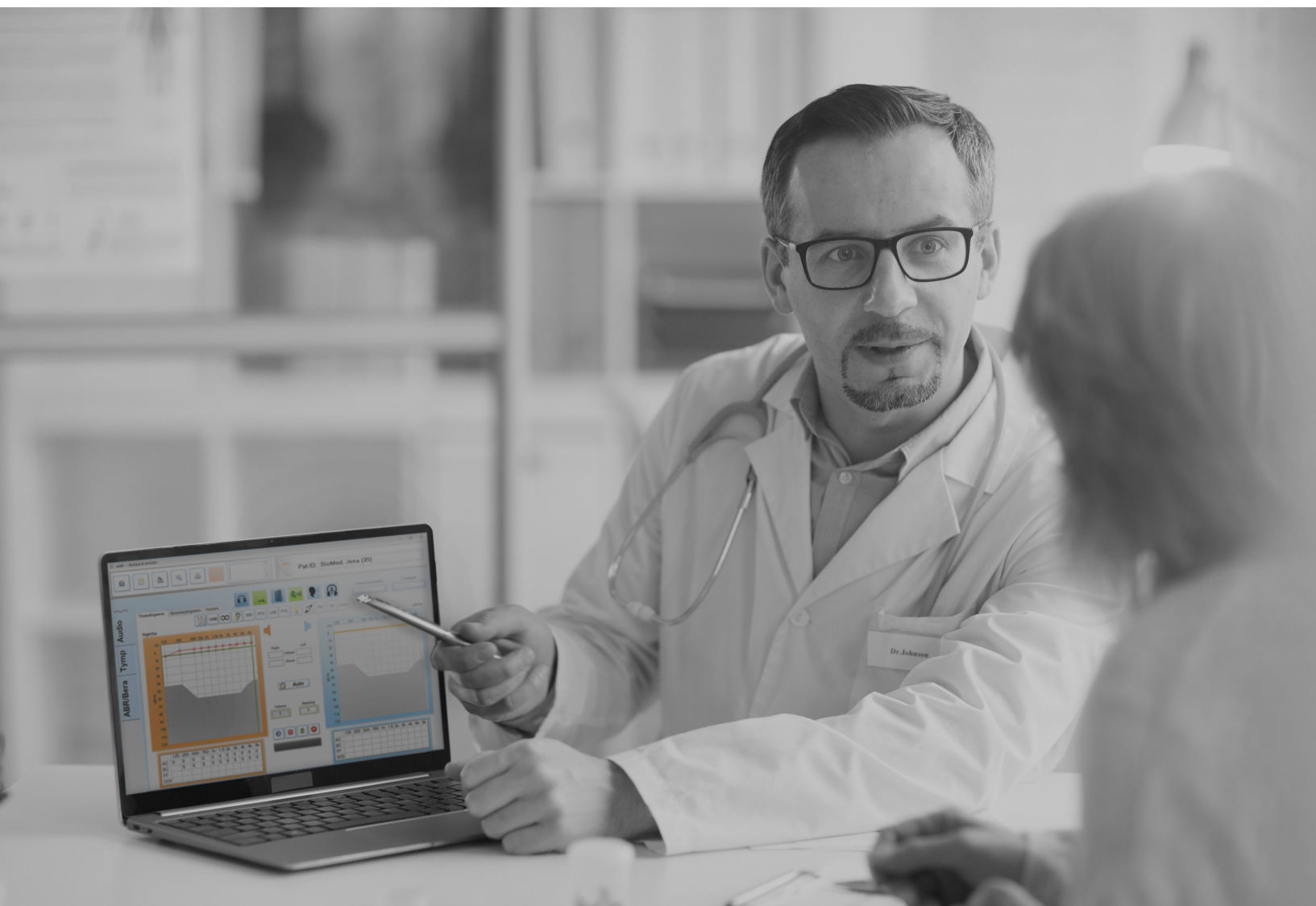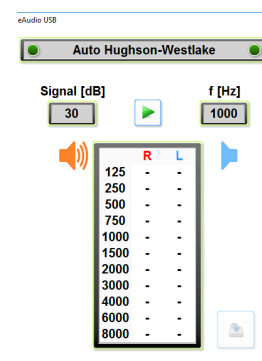
The ENTists!

Audiogram

Right Ear

Left Ear

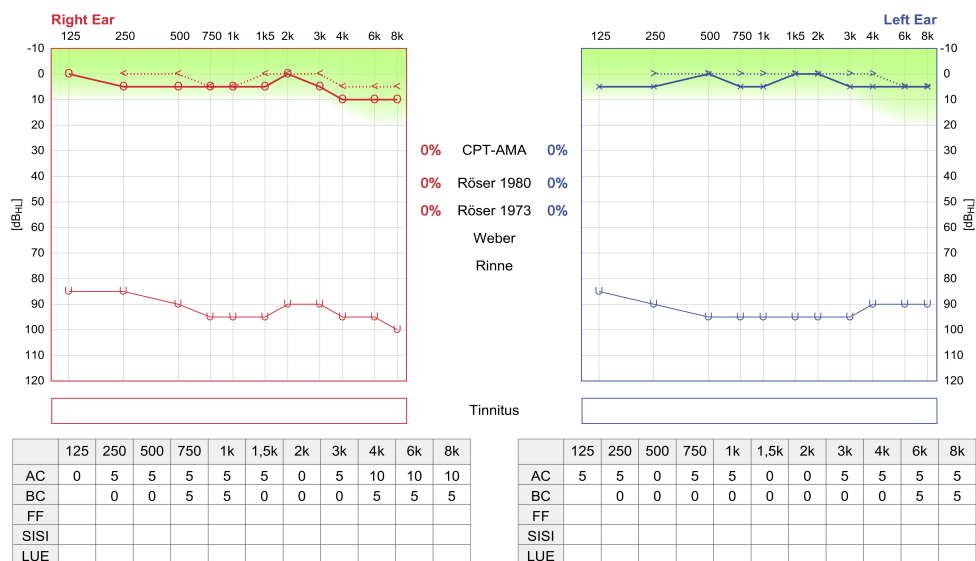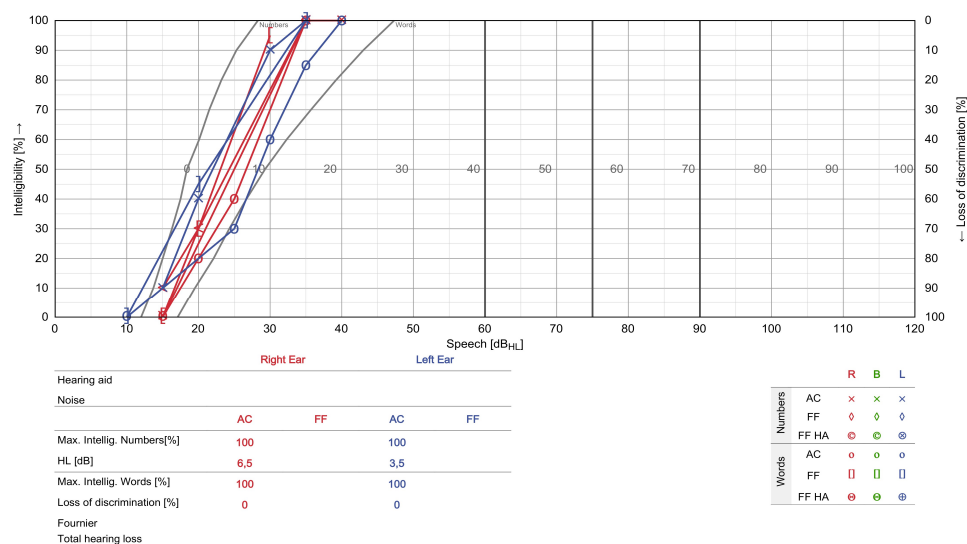| | 0% | CPT-AMA | 0% |
	0%	Röser 1980	0%
	0%	Röser 1973	0%
		Weber	
		Rinne	

Tinnitus

Right Ear

	125	250	500	750	1k	1,5k	2k	3k	4k	6k	8k
AC	0	5	5	5	5	5	0	5	10	10	10
BC		0	0	5	5	0	0	0	5	5	5
FF											
SISI											
LUE											

Left Ear

	125	250	500	750	1k	1,5k	2k	3k	4k	6k	8k
AC	5	5	0	5	5	0	0	5	5	5	5
BC		0	0	0	0	0	0	0	0	5	5
FF											
SISI											
LUE											

Speech Testing

Right Ear   **Left Ear**

		R	B	L
Numbers	AC	×	×	×
	FF	◊	◊	◊
	FF HA	⊙	⊙	⊗
Words	AC	○	○	○
	FF	[]	[]	[]
	FF HA	⊖	⊖	⊕

Hearing aid				
Noise				
	AC	FF	AC	FF
Max. Intellig. Numbers[%]	100		100	
HL [dB]	6,5		3,5	
Max. Intellig. Words [%]	100		100	
Loss of discrimination [%]	0		0	
Fournier				
Total hearing loss				

All BioMed Jena products are developed
and produced in Jena, Germany

eTYMP^{USB}

Middle Ear Analyzer

The **eTYMP**^{USB} is a computer based middle ear analyzer for practical routine and clinical applications.
The **eTYMP**^{USB}- offers the possibility to create user-defined test protocols by combining different tests from the test battery into one test flow. For instance you can create a simple screening procedure and a more in-depth evaluation.
The device is characterized by its compact, functional and attractive design.

- Tympanometry with 226 Hz (standard), 678 Hz, 800 Hz (by request) and 1000 Hz

- Acoustic reflex threshold testing - ipsilateral, contralateral, freefield* and nonacoustic*

- Reflex decay testing - ipsilateral and contralateral

- Eustachian tube function (ETF) testing with intact and perforated tymp. membran

- Triggered measurement of acoustic reflex caused by direct stimulation of the cochlear implant (CI)

- Free scientific test mode

- Automatic altitude correction for exact admittance values

- All relevant calibration values are stored in the probe

- Robust acoustic reflex detection

*optional

- Small and lightweight probe, easy to clean

- Various trigger functionality over decoupled input and output.

- Contineous measurement

- Easy and Expertmode

- USB 2.0
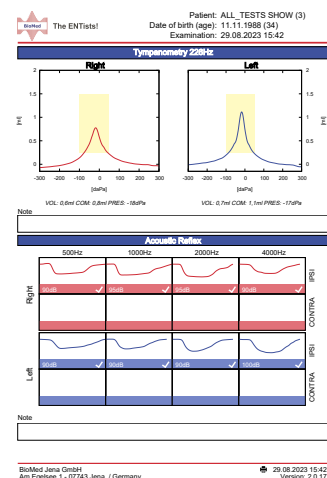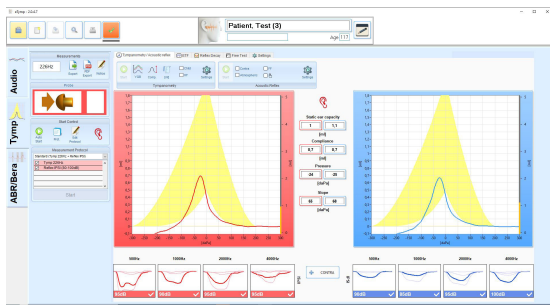
Software - eAUDIO^{USB}

The heart of the device beats in the computer. As a part of **eAUDIO** software all functions can be easily accessed. The device can be controlled manually or in a complete time saving automatic mode. With the **eAUDIO**^{USB}, **eABR**^{USB} and **eOAE** a modern diagnostic center can be build and all relevant data be seen at a glance. The **eAUDIO** software is integrated in the **eDM** - Diagnostic Manager.

FREE ONLINE UPDATE OF THE SOFTWARE!

Admittance Measurements

- **Probe tone frequencies:**   226 Hz , 678 Hz, 1000 Hz +/- 1%
                                            (800 Hz @ 75 dB on request)
- **Probe tone intensities:**   85, 80, 75 dB SPL +/-3dB.
- **THD+N:**   Less then 4% (acoustical measured)
- **Pressure range:**   +400 ... -600 daPa.
- **Pressure accuracy:**   +/-5% oder 10 daPa
- **Compliance range:**   0.1 ... 6.0 ml (8.0 ml on request)
- **Compliance accuracy**   +/-5% oder 0.1 ml
- **Pump velocity:**   100-400 daPa/sec.
- **Pump control:**   Automatic/manual
- **Compliance unit:**   Equivalent air volume [ml]
                                            or mmho
- **Number of curves:**   1 per page, overwriting
- **LED function:**   Six colors and blinking LED shows current
   device and probe state
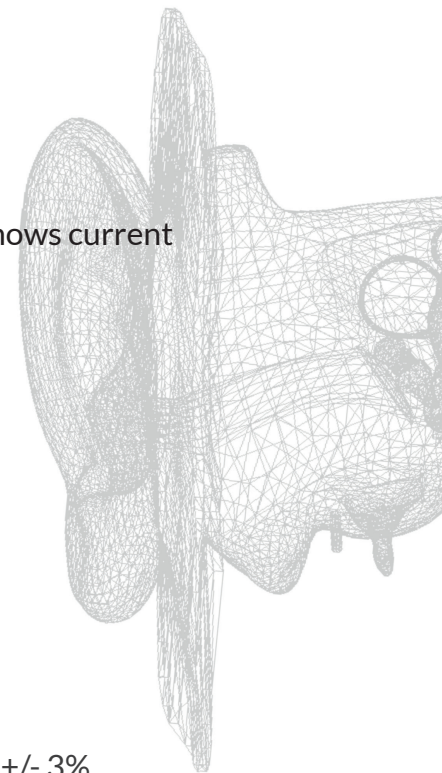
Acoustic reflex

- **IPSI pure tone:**   500,1000, 2000 und 4000 Hz +/- 3%
- **IPSI intensity:**   Max. 110 dBHL +/- 3dB
- **CONTRA-pure tone:**   500,1000, 2000 und 4000 Hz +/- 3% + user defined stimulus
- **CONTRA intensity:**   Max. 120 dBHL +/- 3dB
- **CONTRA head phone:**   DD45 Contra
- **THD+N:**   Less then 5% (acoustical measured)
- **Min. intensity:**   40 dBHL
- **Measurement:**   Automatic or manual
- **Automatic test:**   5 dB/10 dB steps per frequency
- **Manual test:**   unlimited curves per frequency and ear
- **Stimulus Duration:**   0.4..1.5 seconds (Reflexdecay 60s)

Eustachian Tube Function

- **Perforated ear drum:**   Active and passive tube opening (valsalva maneuver)
- **Intact ear drum:**   Williams test (3 curves per ear)

General

- Size (LxHxW):   310mmx105mmx250mm
- Weight: ca. 1500 g
- Probe Weight: 4g
- Power consumption: max. 20 W
- Interface: Isolated USB 2.0
- Test types: Tympanometry, Acoustic Reflex Threshold, Reflex Decay, Eustachian Tube Function (intact and perforated)
- CONTRA output: 6,35 mm
- Trigger input: 3,5 mm, optocoupler 5KV, Ifd=5-20 mA intern limited
- Trigger output: 3,5 mm, optocoupler 5KV, open collector
- Environmental: 10°C...40°C, max. 90% Humidty
- Standards: DIN EN 60645-5
  DIN EN 60601-1
  EWG 93/42 EEC

Made in Germany
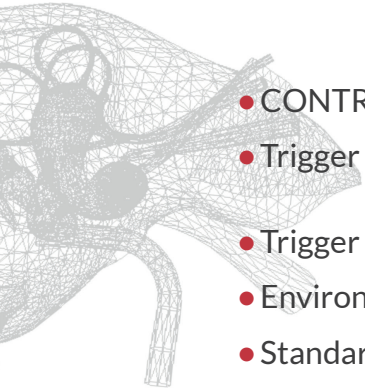
All BioMed Jena products are developed
and produced in Jena, Germany.

eABR^{USB}

2 channel modul for measuring
not only auditory evoked potentials

The **eABR**^{USB} – small like a remote control- is the mobile full routine device for acoustic evoked potentials.

The **eABR**^{USB} combines newest state of the art electronics with an easy to use interface. This ensure best results in routine and clinical use.

Auditory evoked potentials

Vestibular evoked myogenic potentials (c- and oVEMP)

The **eABR**^{USB} has hardware encoded head and in ear phones. The device automatically selects the right calibration values. With the ability to create custom test protocols, the routine is simplified.
The **eABR**^{USB} also has an vestibular modul for c- and oVEMP testing*.

*optional

- AC-Phones:

    Radioear DD 45 shielded

    Radioear IP 30 Bera

- Click, Burst, Chirp
- Click: Pos., Neg. Alt.
- Masking: Noise
- ADC:

    2 Kanal 24 Bit, 48KHz

- CMR > 130 dB @ 50 Hz/60HZ
- Up to 10.000 Sweeps
- USB 2.0 - bus powered
- EN 60645-7:2010
- Compatible with Windows 11

- Automated assistance functions:
    - Automatic electrode impedance control
    - Automatic gain control (AGC)
    - Automatic artefact rejection
    - Automatic stop function
- 24 Bit conversation
- Free definable protocols

    e.g. Treshhold-BERA

- c- and oVEMP*
- easy to use curve handling
- automated coupler detection
- Automatic PDF Export
- Lifetime free online software update

* Optional

Made in Germany
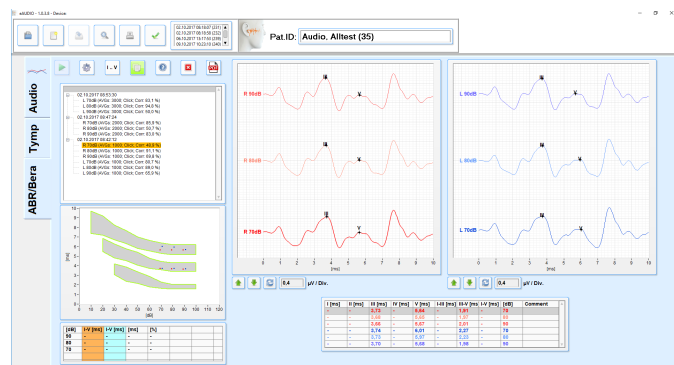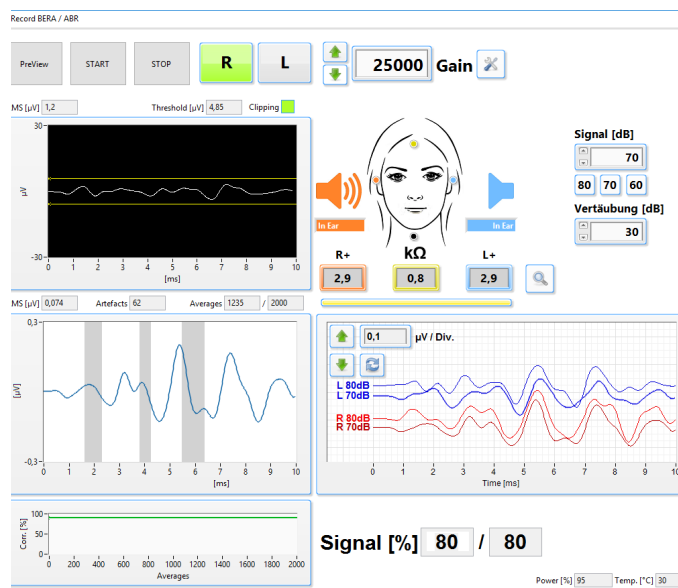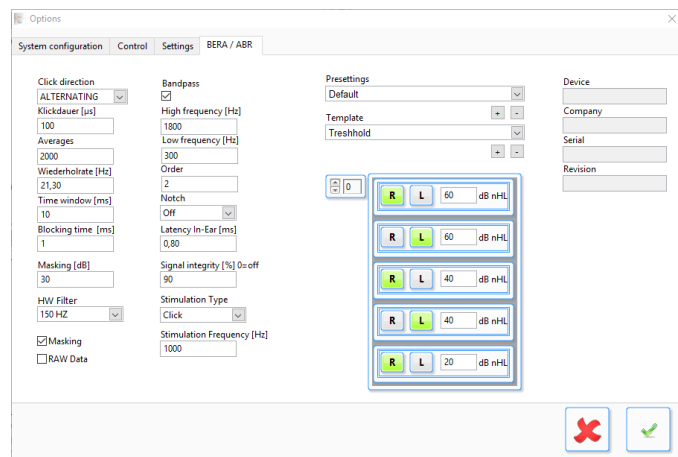
All BioMed Jena products are developed
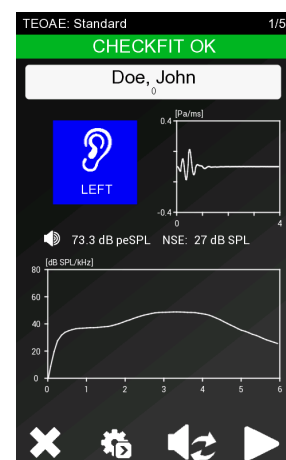and produced in Jena, Germany.

eOAE

Hand held TEOAE+DPOAE device

When an acoustic signal hits the auditory system, the inner ear sends back a very quiet sound, the otoacoustic emissions. A distinction is made between transitory otoacoustic emissions (TEOAE) and distorsively produced otoacoustic emissions (DPOAE).

Both TEOAE and DPOAE can be measured with the **eOAE** device. A special screening mode is implemented for performing screening examinations on newborns.

11:31 15.02.2021

Messung läuft

Zeit 3s
Frequenz 4000Hz
Artefakte 0
dB Verh. 65 / 55

SIG/NSE

-20   20

Pegel Differenz
F1
-10   10
F2

Abbruch

SNR (dB SPL/kHz)
30

0

-30
0   1   2   3   4   5   6   7   8

TEOAE: Standard   1/5

Sondensitz OK

Doe, John
0

LINKS

[Pa/ms]
0.4

-0.4
0   1   2   3   4

73.4 dB peSPL   NSE: 25 dB SPL

[dB SPL/kHz]
80
60
40
20
0
0   1   2   3   4   5   6

A	0.5k	1k	2k	3k	4k
New	69.0	71.4	71.9	86.2	94.5
Old	69.1	71.6	72.0	85.1	94.6

B	0.5k	1k	2k	3k	4k
New	69.5	71.3	68.9	83.9	93.7
Old	69.7	71.7	71.0	85.9	94.5

[mPa/ms]
0.6

0

-0.6
0   13

09:26   29.1.2020   USB

Doe, John
0

TEOAE   Screen

DPOAE

Patienten   Einstellungen

Hauptmenü

- **TEOAE**

User defineable stop criteria

4 adjustable profiles

Display as time graph or

frequency diagram

All parameters at a glance

- **DPOAE**

4 adjustable profiles

Display as DP-Gramm and Table

- **Screening**

Method TEOAE/DPOAE

Clear result presentation

- Easy cleaning of the probe parts
- Good disinfectability through touch screen
- Optional printer available
- Clear measurement data management also on the device
- QWERTZ keyboard for convenient data input on the device
- Capacity for 10.000 tests
- Full integration into the eDM - Diagnostic Manager
- Easy charging via docking station
- PC Software for remote operation
- complies with DIN EN 60645-6

Device specifications

- Samplerate: 48 KHz
- ADC resolution: 24 Bit
- Display: 5" touch display
- Weight: 320 gramm
- Battery: 3880 mAh, 400 tests min.
- Head phone output for masking
- Dimensions: 141x97x27 mm

Optional printer
- Type: thermal printer
- Paper width: 57,5 mm
- Resolution: 8 p/mm, 384 p/line

Probe specifications

- Type: TEOAE and DPOAE
- Stimulus:
    TEOAE: nonlinear Clicks
    DPOAE: pure tone f1:f2 = 1:1,2
- Frequency range:
    TEOAE 1-4 KHz
    DPOAE: 0.5-12 KHz

- Level:
    TEOAE 40-90 dB peSPL
    DPOAE 40-70 dB SPL
- Probe cable length: 1,5 m
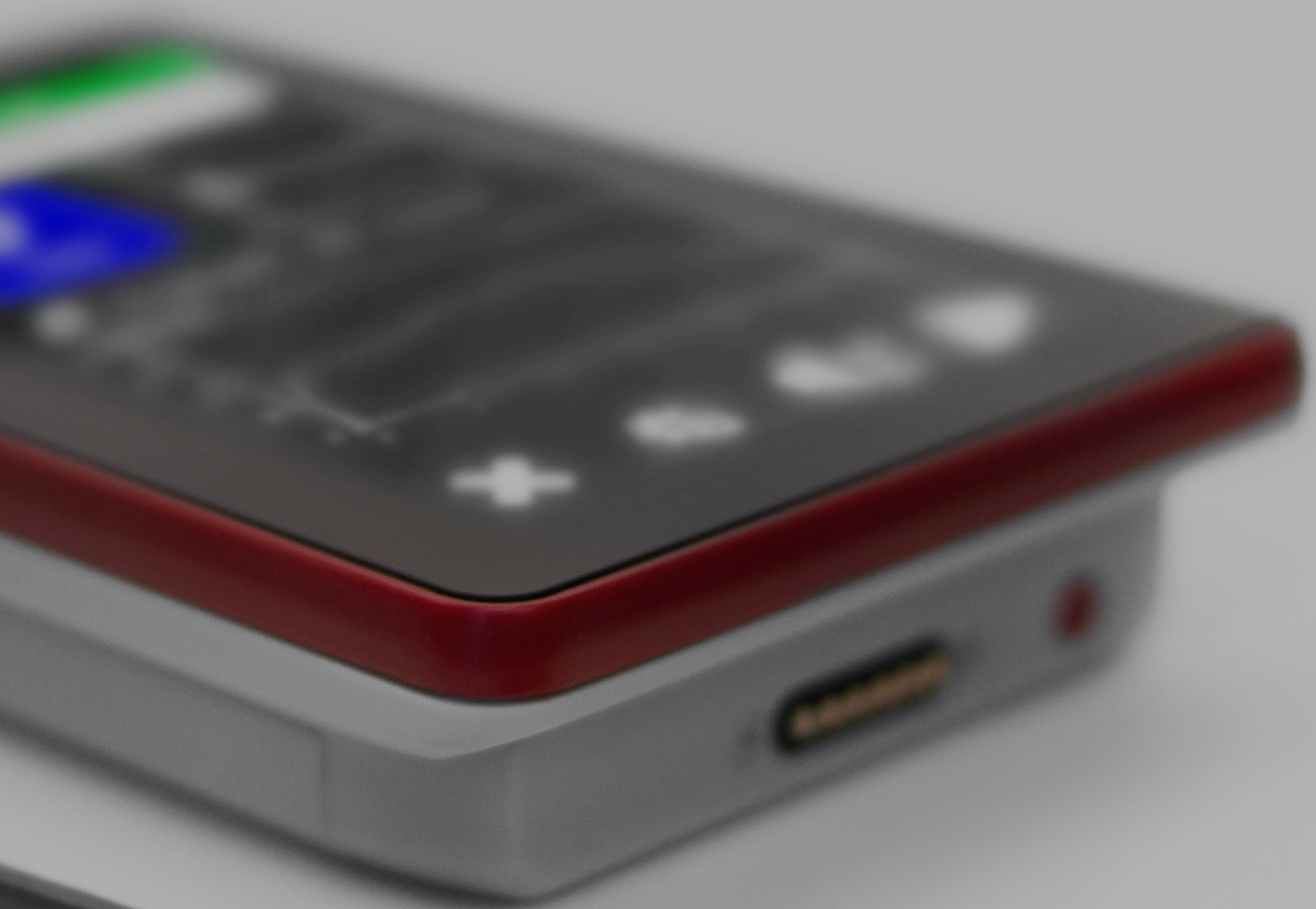
AudioBox

4 to 6 channel free field amplifier

The **AudioBox** is a modern computer controlled free field amplifier for connecting up to 6 passive speakers. The 6 output channels can be assigned to 4 input channels. Each input channel can be individually calibrated with up to 50 positions (125 Hz, 250 Hz etc.).
Furthermore, the device has, on customer
request, 6 signal channels with which an event can be displayed.

The **AudioBox** can be used to extend a conventional audiometer for lateralisation analysis or pediatric audiometry.

Technical specification

- 4 Inputs max. 5 V
- 6 Outputs with 100 W each
- Isolated USB 2.0 interface
- API for C/C++, C#, Delphi, Labview

- Windows software
- medical power supply

AudioControl

The special keyboard for Audiometry

This special keyboard was developed for an ergonomic Audiometry operation. With 2 sliders the volume levels of tone and masking can be controlled. 16 touch buttons ensure absolutely silent operation.

This keyboard works with **eAUDIO**USB software.
For OEM applications the keyboard can easily integrated via a HID Joystick interface.

eDM

Diagnostic Manager

The **eDM** makes the daily work more efficient and easy at the same time.

The **eDM** is the optimal solution for measuring, visualizing, managing and storing ENT data, acquired by BioMed Jena devices.
All different tests can be easily accessed. To optimize the workflow a measurement schedule for each patient can be ceated. Also the **eDM** is able to import PDF documents from other sources.
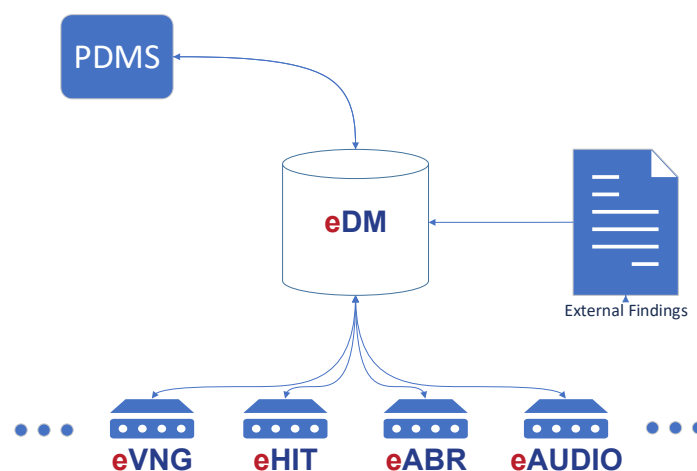
Remote support as simple as possible - start the remote control software „Anydesk" directly from **eDM**.

eHIT^{USB}   eDVA^{USB}   eABR^{USB}   eTYMP^{USB}   eVEMP^{USB}   eSUV^{USB}

KALORIstar^{CT}   eAUDIO^{USB}   eOAE   eVNG^{USB}   ePOSTURO^{USB}

Feature highlight of eDM - Diagnostic Manager

One software for all BioMed Jena devices

- Only one patient database
- Easy and quick data preview
- Configurable overview for all measurements
- Easy data administration (one for all)
- External PDF import / Automatic PDF export
- User profiles with independent settings for each user

MEASUREMENT SCHEDULE

EASY IMPORT OF EXTERNAL FILES

Network support

- Create measurement schedule for every patient
- No storage limits - Firebird database
- No workplace licence
- GDT interface included, HL7 on request

1997	Founded by Prof. Dr.-Ing. Lutz Herrmann and Dipl. Ing. René Schüler
1998	Start of the vertigo diagnostic line as an OEM developer and manufactory
2004	Production start of the own brand: the „**e**" line with the **eVNG**
2008	First VNG system with USB 2.0 and 100 Frames/s binocularly data acquisition **eVNG**^{USB}
from 2011	Full solution of vestibular diagnostics with all products: **eHIT**^{USB}, **KALORIstar**, **eVEMP**^{USB} and **KALORIstarlet**
2015	**ePOSTURO**, **eDVA**^{USB} and manual pendula test
2016	**eMANAGER**, **eFRENZEL**^{USB}, **eAUDIO**^{USB} and **eABR**^{USB}
2017	**eTYMP**^{USB} and move to new location „Am Egelsee 1" in Jena
2018	Redesign of our famous Airirrigator KALORIstar Arctic
2019	Development of the **eEMG** data logger and signal processor
2020	Further Development of the **KALORIstar** to **KALORIstar**^{CT}
2021	Release of the **eDM** and **eOAE**
2022/2023	Development of new AABR/ABR module for **eOAE**

Made in Germany

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