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1 Introduction

Thank you for purchasing an Amplivox ER75 Electro-acoustic ear simulator. This product will give many years of reliable service if treated with care.

1.1 Intended applications

The intended application of the ER75 is to perform an objective performance check of the pure tone air conduction output of an audiometer as part of the routine checking regime specified in Clause 12 of ISO 8253-1:2010. It is not a calibration unit and does not replace the need for regular factory calibration of an audiometer.

1.2 Unpacking

Please check the contents of the shipping carton against the contents listed below to make sure that all items ordered have been included. If anything is missing, please contact the distributor who supplied the product or Amplivox if purchased directly.

1.3 Warranty card (UK Customers Only)

Please complete the enclosed warranty registration card and return it to Amplivox to register your purchase. This will help us to deal with your enquires, and we will also be able to send you details of updates to your product and of new products and services.

1.4 Contents

ER75
Patient response interconnecting lead
Printout of response levels recorded from the supplied unit
Operating manual
2 off 1.5V ‘AA’ batteries

2 Important Precautions

The Amplivox ER75 is not intended for, or capable of, the calibration of an audiometer. Such a calibration must always be performed using the appropriate specialist equipment and qualified personnel.
3 Instrument Preparation

3.1 Ambient conditions

The ER75 should be used in similar conditions to those used for audiometry (e.g. a quiet room or an acoustic booth). Ambient noise and/or vibrations through the test bench/table can affect the results.

3.2 Electromagnetic compatibility (EMC) considerations

The ER75 meets the appropriate standards for EMC. However portable and mobile radio-frequency (RF) communications equipment can affect medical electrical equipment and the ER75 should not be used adjacent to or stacked with other electronic equipment.

3.3 Battery operation

The ER75 is designed for continuous operation and is powered by batteries.

To fit the batteries, remove the 2 screws in the base of the ER75 and remove the base & back-panel cover by carefully sliding it down. Fit 2 x 1.5V ‘AA’ alkaline batteries according to the indications on the battery holder. Replace the cover and refit the screws.

Note that local regulations are likely to cover disposal of used batteries.

3.4 Connections

Place the audiometric headset earphones over the earphone couplers located on the sides of the ER75 such that there is a secure and
consistent fit. Connect the supplied interconnecting lead between the socket on the ER75 marked “output” and the socket marked “RESPONSE” or “RESP” which is normally located on the back panel of an audiometer.

If using the ER75 within an acoustic booth, the interconnecting lead should be inserted into the patient response socket inside the booth in place of the patient response switch.

4 Using the ER75

In use the ER75 simulates the actions of a patient responding to an audible stimulus. If a tone level greater than approximately 75dBHL is provided via the audiometric headset a response signal is output to the audiometer.

The ER75 can detect tones at a range of audiometric frequencies (see Section 6.1) and may be used with Amplivox audiometers operating in both manual and automatic modes.

4.1 Switching on the ER75

Press and hold the “on” button until the power indicator illuminates green.

4.2 Switching off the ER75

The instrument will automatically power down approximately 2 minutes after last response was made.

4.3 Testing the response indicator

Present an audiometer tone (1kHz, 80dBHL) and check that the indicators on the ER75 and the audiometer labelled “response” illuminate green.

4.4 Low battery indication

If the power indicator flashes (approximately 3 times per second) when the “on” button is held the batteries need to be changed.

4.5 Calibration indication

If the power indicator flashes slowly (approximately once every two seconds) when the “on” button is held the unit needs to be recalibrated (see Section 9).
5 Sequence of Operation and Suggested Test Procedure

5.1 Pre-test

(1) Set the audiometer up as normal with the exception of the patient response switch which should remain unconnected
(2) Place the earphones over the earphone couplers on the ER75
(3) Connect the patient response interconnecting lead, supplied with the ER75, between the audiometer and the ER75 (see Section 3.4)
(4) Switch the ER75 and the audiometer on.

5.2 Test procedure for manual audiometers

(1) Set the audiometer step size to 2.5dB if this facility is available
(2) Present the first test tone at 65dBHL at 1kHz to the left headphone
(3) If the ER75 responds by illuminating the response indicator on the audiometer **return the ER75 for calibration**; if there is no response, move to step 4
(4) Increase the signal level in steps until the ER75 responds - this should occur at approximately 75dBHL; record this signal level on an audiogram form
(5) Select the next test frequency
(6) Repeat steps 2 to 5, testing the frequencies in the following order: 1kHz, 1.5kHz, 2kHz, 3kHz, 4kHz, 6kHz, 8kHz, 250Hz and 500Hz.
(7) Repeat steps 2 to 6 for the right headphone

5.3 Test procedure for automatic audiometers

(1) Run the automatic test sequence (using the ‘Bekesy’ test mode if this is available)
(2) Print a copy of the results
(3) If responses are made at any frequency at levels of 65dBHL or less **return the ER75 for calibration**

5.4 Action following test procedure

Compare the results with the response levels supplied originally with the ER75, or with the most recent response levels if the ER75 has been recalibrated. The audiometer should be returned for calibration either to Amplivox or to the designated distributor if the two sets of results differ by more than that specified in the routine checking regime that has been established by the user organization (see ISO 8253-1:2010).
6 Specification

6.1 Performance data

Audiometric frequencies detected: 250Hz, 500Hz, 750Hz, 1kHz, 1.5kHz, 2kHz, 3kHz, 4kHz, 6kHz & 8kHz
Frequency detection range: ±5% of nominal value
Level to trigger a response: 75dBHL
Response signal duration: 1 second (minimum)

6.2 Physical data

Power (battery): 2 x 1.5V AA cell batteries
Power consumption: 120mW operating, 40μW standby
Dimensions: 150mm (w) x 110mm (d) x 95mm (h)
Construction: Plastic
Weight: 360g (excluding batteries)
Operating temperature: +15°C to +35°C

6.3 Equipment classification

Degree of protection against ingress of water: Not protected
Mode of operation: Continuous operation
Equipment mobility: Portable

The ER75 is CE marked to EMC directive and meets the requirements of the following standards:

- EN 61000-6-1:2007
- EN 61000-6-3:2007

7 Routine Maintenance

The ER75 is a precision instrument. Handle it carefully in order to ensure its continued accuracy and service.

When cleaning the instrument use a soft cloth and mild detergent to clean the instrument surfaces and the earphone couplers. Do not allow any moisture to enter the microphones in the centre of the circular earphone couplers.
8 Instrument Storage and Transportation

If the instrument is not likely to be used for three months or longer, please remove the batteries from the instrument.

Please note that this instrument can be stored or transported with the following environmental parameters:

Temperature: -20°C to +70°C  
Humidity: 10% to 90% (non-condensing)  
Atmospheric Pressure: 500 hPa to 1060 hPa

9 Calibration and Repair of the Instrument

Amplivox recommend that this instrument should be calibrated on an annual basis. Please contact Amplivox or the designated distributor for details of calibration services.

The instrument should be returned to the manufacturer for service & repair. There are no user-serviceable parts within it.

When packing the instrument for shipping, please use the original shipping carton and packing materials.

10 Guarantee

All Amplivox instruments are guaranteed against faulty materials and manufacture. The instrument will be repaired free of charge for a period of two years from the date of despatch if returned, carriage paid, to the Amplivox service department. Return carriage is free of charge for customers in the UK and chargeable for overseas customers.

11 Ordering Parts

To order parts, please contact Amplivox Ltd for current prices and delivery charges. The items available are listed below:

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A074</td>
<td>Patient response interconnecting lead</td>
</tr>
<tr>
<td>MANER75</td>
<td>ER75 Operating Manual</td>
</tr>
</tbody>
</table>
12 Disposal Information

Amplivox Limited is fully compliant with the WEEE (Waste Electrical and Electronic Equipment) Regulations. Our PRN (Producer Registration Number) is WEE/GA0116XU and we are registered with the approved WEEE Compliance Scheme, B2B Compliance, approval number WEE/MP3338PT/SCH.

The main purpose of the WEEE Regulations is to encourage the segregation of waste electrical items from the general waste stream and into reuse, recovery and recycling routes.

For any waste electrical units purchased from Amplivox that either:

- bear the crossed out wheeled bin symbol with black bar underneath
- or, have been replaced with new Amplivox products on a like-for-like basis

please contact our WEEE Compliance Scheme using the details below. B2B Compliance will be able to provide further information on how to recycle your waste electrical units and answer any queries you may have.

**B2B Compliance**
Tel: +44 (0) 1691 676 124 (Option 2)
Email: operations@b2bcompliance.org.uk