



DESCRIPTION

In contrast to HMS II.3, HMS II.4 is equipped with an ear simulator only, not with an artificial mouth thus serving for measurements in receiving direction.

The artificial outer ear (pinna) is used for recording. The acoustic characteristics of this artificial ear are modeled on those of the human ear. The ear simulator is internally connected according to IEC 711 (right ear). In standard delivery, HMS II.4 is fitted with a flexible pinna according to ITU-T Recommendation P.57 type 3.4. This specific pinna is modeled on the mechanic stiffness of the human ear and its acoustical properties. The use of this pinna is recommended for tests of sound sources (e.g. handsets) where the application force to the ear significantly influences the measurement result.

As an alternative to the pinna type 3.4, the anatomically shaped pinna according to ITU-T Recommendation P.57 Type 3.3 (also available as additional option) can be chosen when initially ordering HMS II.4. This pinna is recommended for use when the anatomy of the human ear plays an important part (e.g. for the measurement of intra-concha headsets).

The shoulder and torso simulation of HMS II.4 reproduces the acoustic behavior of test persons. The geometrical dimensions of HMS II.4 meet the requirements of ITU-T Recommendation P.58. This document also defines essential head contour data at various section planes. HMS II.4 meets the tolerances for all head section planes.

The torso can be used to integrate additional electronics accessories. The compact design allows easy handling and transportation of the complete system.

HMS II.4 is connected to the Communication Analysis System ACQUA via the Measurement Front Ends MFE III-VIII and can be used either as a fixed or portable measurement system depending on the measurement task and the front ends used.

EXTENSIONS

For the binaural measurement of close-to-the-ear sound sources such as head phones and active/passive hearing protection systems the left ear of HMS II.4 can also be equipped with an ear simulator.

Note: HMS II.4 cannot be extended by an artificial mouth. For measurements in sending and receiving direction HMS II.3 should be used.

DATA SHEET

HMS II.4 (Code 1240)

HEAD Measurement System

HEAD Measurement System with Ear Simulator

Overview

HMS II.4 is an Artificial Head Measurement System with ear simulator for measurements of communication devices and networks in receiving direction, particularly headphones, headsets and hearing protectors.

HMS II.4 meets the requirements of ITU-T Recommendation P.58 in receiving direction. The simulation of the head geometry has been reduced to the acoustically relevant structures of the human anatomy and results in a recording technology which corresponds to the acoustical behavior of human test persons under realistic conditions. HMS II.4 is equipped with an impedance simulator in the right ear. Optionally, the left ear can also be equipped with an impedance simulator.

Note: HMS II.4 is not equipped with an artificial mouth and cannot be extended with it!

APPLICATIONS

- Measurement of communication devices and networks in sending direction
- Testing of active and passive hearing protection systems for industrial use
- Testing of headphones
- Testing of hearing aid devices
- Use in quality control for special measurements and in standard measuring

SPECIAL FEATURES

- Built according to ITU-T P.58
- Ear simulator according to IEC 711
- Flexible pinna (left/right) according to ITU-T P.57 Type 3.4
- Anatomically shaped pinna (left/right) according to ITU-T P.57 Type 3.3 (option)
- Portable, mains-independent system in conjunction with MFE VI (accessory)
- Compatible with human hearing and conventional measuring technology
- Calibratable
- Award-winning design
- Extendable with second ear simulator for binaural measurements
- Low-cost alternative to HMS II.3, where only measurements in receiving direction are required

STANDARD DELIVERY ITEMS

HMS II.4 (Code 1240)

Comprises the following components:

- **Artificial head** consisting of:
 - **HHS II.3 (Code 1251):** Head and shoulder simulation (modified, without artificial mouth)
 - **HER III.1 (Code 1249):** Pinna (right) according to ITU-T P.57 Type 3.4; *alternatively (please indicate when ordering:)* **HER IV/IV.1/IV.2 (Code 1359/1372/1381):** Pinna (right) according to ITU-T P.57 Type 3.3, anatomically shaped
 - **HIS R (Code 1232):** Impedance simulation, right ear
 - **ECS I.0 (Code 1350):** Ear canal simulation
- **Accessories** (2 different calibration adapters)
- **Screw driver** inbus 2.5 mm
- **Ear canal key**
- **HTB V (Code 1374):** HEAD torso box for mobile artificial head measurements, expandable for various hardware configurations
- **HSD II.2 (Code 1258):** User's manual HMS II.3 / II.4 / II.5

OPTIONS

- **HIS L (Code 1231):** Impedance simulation, left ear, including microphone
- **HEL/HER IV (Code 1358/1359), HEL/HER IV.1 (Code 1371/1372), HEL/HER IV.2 (Code 1381/1382):** Pinna (left/right) according to ITU-T P.57 Type 3.3, anatomically shaped

ACCESSORIES

- **MFE III/VII/VIII:** Analog and digital front ends for data acquisition and signal conditioning
- **MFE VI (Code 6460):** Measurement frontend with level converter, optionally with binaural equalizer functionality
- **BEQ II.1 (Code 1347):** Digital binaural equalizer with two microphone amplifiers, individually programmable filters, pulse inputs, analog outputs, USB
- **PEQ V (Code 2492):** Programmable, digital equalizer with USB, AES/EBU, Line as well as pulse and optical multi-channel interfaces for the true-to-original reproduction of aurally-accurate recordings
- **HD IV.1 (Code 2380):** Dynamic headphones for PEQ V
- **PVA IV.3 (Code 2486):** Power amplifier for PEQ V for two HEADphones HA III
- **HA III (Code 2480):** Electrostatic HEADphones for PVA IV.3
- **HWS (Code 1960):** Windshield for outdoor recording
- **HMT II (Code 1962):** Height-adjustable tripod for HMS II
- **HSC IV (Code 1524):** Carrying case for HMS

Technical Data

Receiving Direction (Ear)

Transmission range:	3 Hz – 20 kHz
Dynamics:	> 110 dB
Frequency response:	according to ITU-T P.58
Diredivity characteristics:	according to ITU-T P.58

Environmental conditions

Operating temperature range:	0°C - 65°C, 32°F - 149°F
In-store temperature range:	-40°C - 80°C, -40°F - 176°F

Housing (Head-and-shoulder simulation without torso box)

Overall dimensions (WxHxD):	450 mm x 400 mm x 180 mm
Weight:	5.4 kg

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