HEAD acoustics

DATA SHEET

HAC III
(Code 6596)

Coil for hearing aid compatibility tests incl. positioner for large handsets

Overview

HAC III is a combination of a probe coil and a handset positioner. It is designed to verify the hearing aid compatibility of telephony handsets by measuring their magnetic coupling capabilities.

With a large mounting area and various options for fixating the handset, the positioner can accommodate all types and sizes of handsets. HAC III is fully compliant with IEEE 1027 and TIA-504-A.

The delivered probe coil is pre-calibrated and comes with a certificate of performance with individually measured parameters. Thus, HAC III does not require a set of Helmholtz coils for calibration as called for in IEEE 1027.

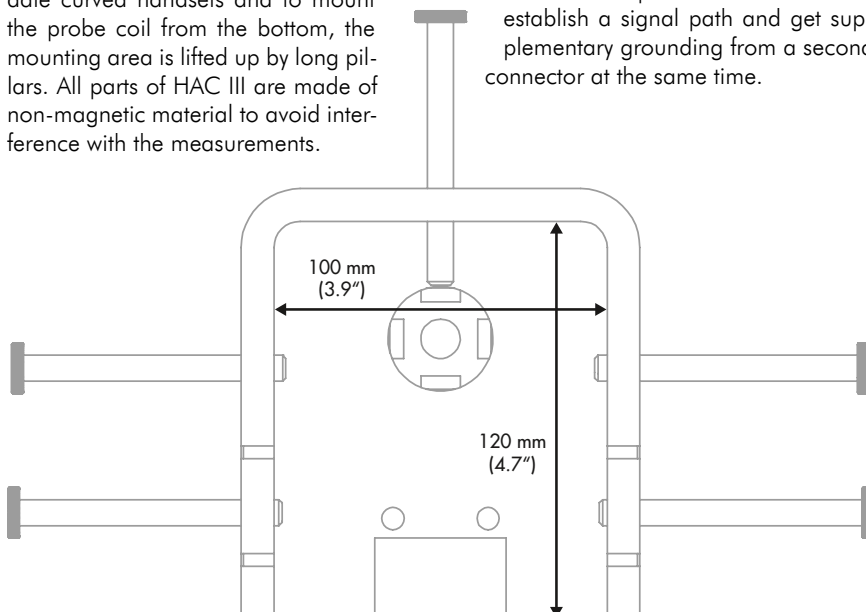Handset positioner of HAC III with mounted smartphone and probe coil with BNC cable

Description

The handset positioner of HAC III is designed with a very large mounting area for DUTs, acknowledging the growing size of smartphones ("phablets"). With a maximum width of 100 mm (3.9 in), the positioner will accept any telephony handset. Five hand-screws allow accurate positioning and secure fixation of the DUT without damage or accidental button actuation.

For large and bottom-heavy handsets, the positioner of HAC III has dedicated slots to pull the earpiece towards the mounting area with elastic bands. To accommodate curved handsets and to mount the probe coil from the bottom, the mounting area is lifted up by long pillars. All parts of HAC III are made of non-magnetic material to avoid interference with the measurements.

As required in TIA-504-A, the probe coil can be installed at five different locations of the handset positioner by screwing in the coil body at the desired position. This allows to determine the orientation of the coil's magnetic field in respect to the DUT. Each probe coil comes with an individual certificate of performance stating measured operating parameters. The target parameters for the probe coil are listed in the table below.

HAC III connects to the hardware platform with the delivered BNC adapter cable CBB V. A second BNC connector at its hardware platform end allows to establish a signal path and get supplementary grounding from a second connector at the same time.

Key Features

- Non-magnetic handset positioner with five coil positioning locations according to IEEE 1027 and TIA-504-A
- Positioner offers various options for DUT mounting and fixation
- Accommodates large DUTs with a width of up to 100 mm (3.9 in)
- Probe coil comes with measured operating parameters on individual certificate of performance
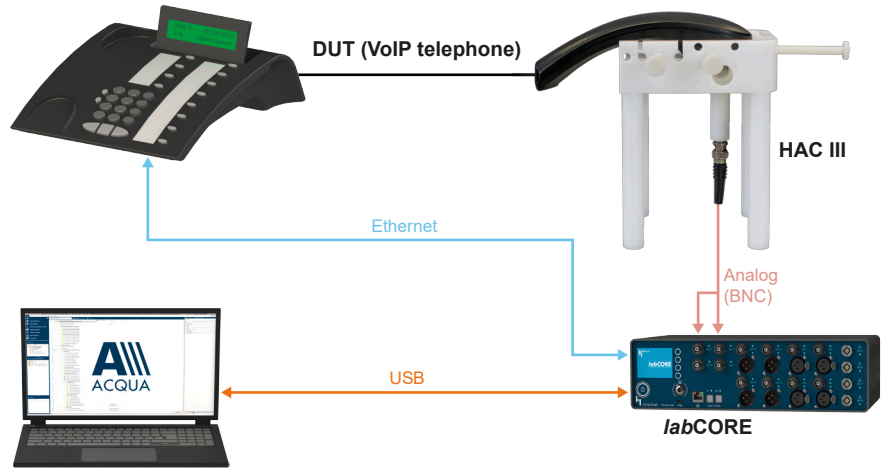
Applications

Measurements required by standards
- TIA-1083
- ITU-T P.370
- FCC 47 CFR Ch.I §68.316/7
- ETSI ES 200 381-1
- ANSI C63.19

100 mm (3.9")

120 mm (4.7")

Top view of the HAC III handset positioner with dimensions of the mounting area

| Probe coil target parameters	
DC resistance	900 Ω
Resistance at 1 kHz	920 Ω
Resistance at 10 kHz	1.55 kΩ
Inductance at 1 kHz	140 mH
Inductance at 10 kHz	135 mH
Open circuit sensitivity at 1 kHz	-60.0 dBV/A/m

General requirements

- **ACQUA (Code 6810 etc.)**, Advanced Communication Analysis System
- **HAC-Suite (Code 60021)**, Hearing Aid Compatibility Test Suite
- *lab*CORE **(Code 7700)**, modular multi-channel hardware platform
- One of the following **telephone interfaces** (depending on application):
    - **Radio communication tester** (not provided by HEAD acoustics), for mobile phones
    - **coreIP (Code 7770)**, *lab*CORE VoIP gateway extension, for VoIP telephony
   - **MFE X (Code 6481)**, frontend for DECT/NG-DECT/CAT-iq™

Delivery items

- **HAC III (Code 6594)**, Coil for hearing aid compatibility tests acc. to TIA-504-A, incl. positioner for large handsets
- **CBB V (Code 6112)**, Adapter BNC <> 2x BNC (Connection *lab*CORE <> HAC II/III)
- **Certificate of performance** for probe coil
- **Manual**

Exemplary measurement configuration for VoIP telephone
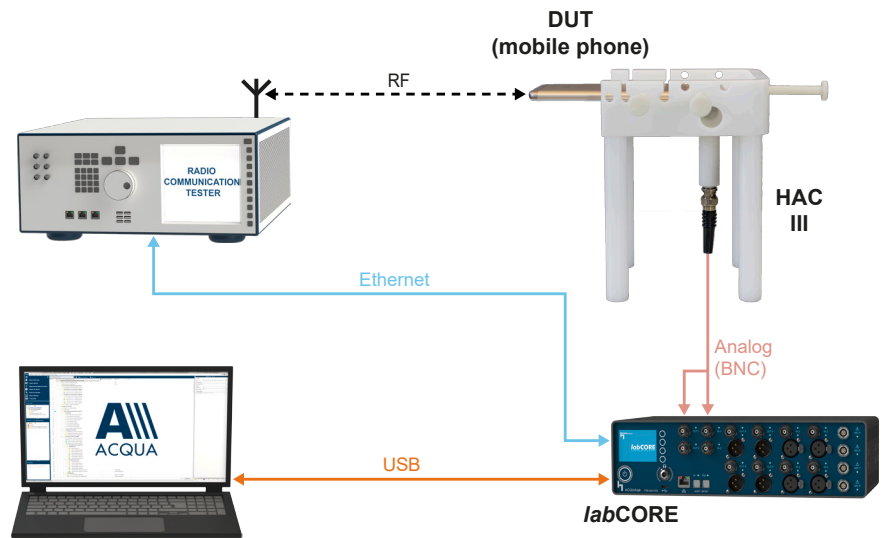
Exemplary measurement configuration for mobile phone with HAC III
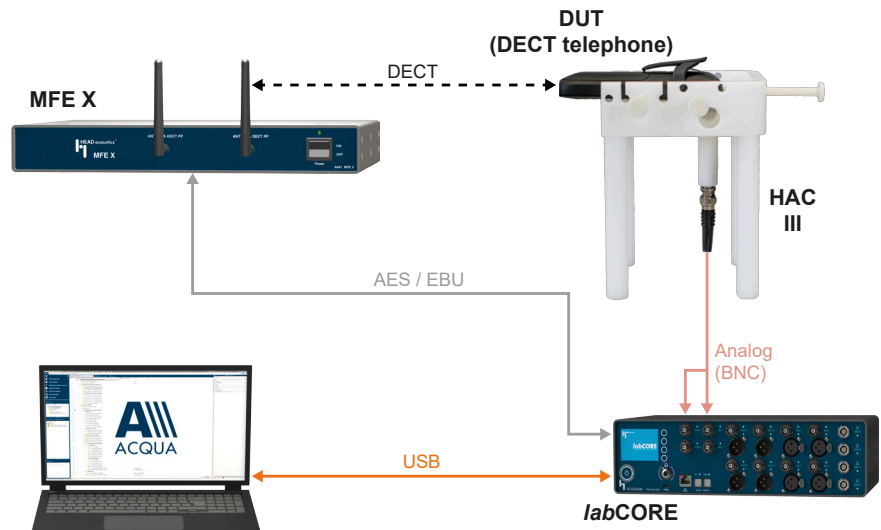
Exemplary measurement configuration for DECT telephone with HAC III