

CAT-IQ 2.0 measurement standard in analysis system ACQUA

**Overview**

The DECT successor standard CAT-iq™ (Cordless Advanced Technology - Internet and Quality) has successfully been introduced to the market by the DECT Forum. CAT-iq™ is continuously developed in further versions and requires a certification of terminals by means of measurement systems approved by the DECT Forum and used by qualified test laboratories.

As official partner of the DECT Forum HEAD acoustics is actively involved in the continuous development of the CAT-iq™ audio test specification.

The current version of the Test Specification Audio for CAT-iq™ 2.0 Devices has been implemented as measurement standard CAT-IQ 2.0 for the communication analysis system ACQUA\*.

(\* requires ACQUA 2.5.100 or later)

**DESCRIPTION**

The „Test Specification Audio for CAT-iq™ 2.0 Devices“ describes the voice and audio requirements for DECT/CAT-iq™ terminals. The test suites specified by the standard were implemented into a measurement standard for the communication analysis system ACQUA\* by HEAD acoustics.

In conjunction with the analysis system ACQUA and additional HEAD acoustics components (cf. system requirements) the CAT-IQ 2.0 test suite with its predefined measurement descriptors and automated test sequences allows the fast and easy acquisition, analysis and documentation of measurement data.

Manufacturers of DECT/CAT-iq™ terminals can thus make sure that their products achieve an excellent voice and audio quality in order to successfully apply for the CAT-iq™ certification required by the DECT Forum.

**APPLICATIONS**

- Automated acoustic tests of DECT/CAT-iq™ terminals according to the current version of the „Test Specification Audio for CAT-iq™ 2.0 Devices“ of the DECT Forum.

**MEASUREMENTS**

The ACQUA measurement standard CAT-IQ 2.0 contains the full implementation of all measurements specified by the „Test Specification Audio for CAT-iq™ 2.0 Devices“ as automated test suite for the communication analysis system ACQUA.

The following list gives a summary of the measurements (FP = fixed part; PP = portable part):

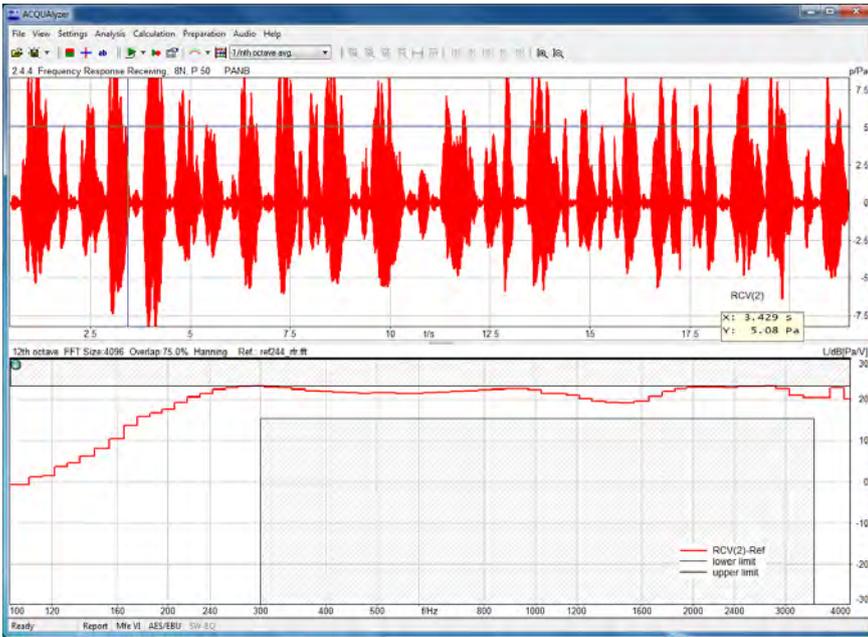
- FP Group A: VoIP Narrowband Mode**
- FP Group B: VoIP Wideband Mode**

Note: FP measurements are non-mandatory for CAT-iq™ 2.0.

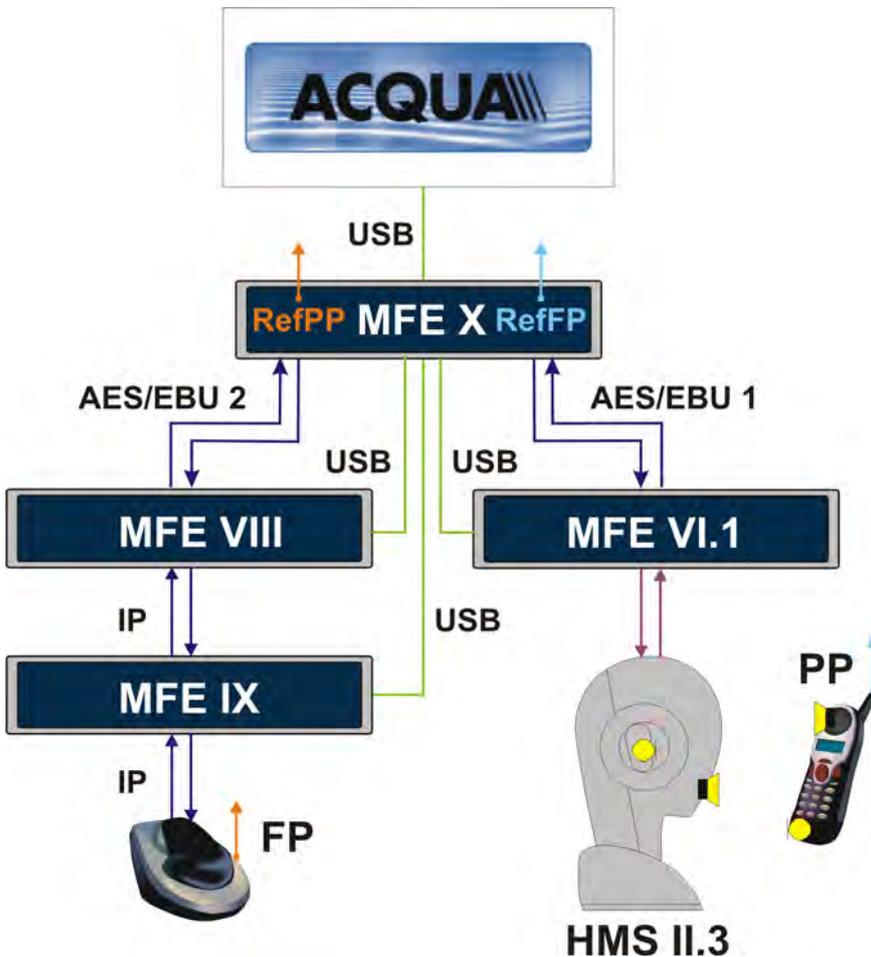
- PP Type Detection
- Echo Canceller for PP
- Echo Suppressor for PP
- Delay
- Quality of Packet Loss Concealment
- Send Jitter
- Clock Accuracy

- PP Group A: Handset and Headset in Narrowband Mode**
- PP Group B: Handset and Headset in Wideband Mode**
- PP Group C: Narrowband Handsfree**
- PP Group D: Wideband Handsfree**

- Frequency Response
- Loudness Rating
- Talker Sidetone
- Terminal Coupling Loss weighted
- Stability Loss
- Distortion
- Out of Band
- Noise
- Delay
- Double Talk Performance
- Switching Characteristics
- Quality of Echo Cancellation



Example: Measurement signal and analysis result of a frequency response measurement



Example configuration: CAT-iq™ acoustic measurements with analysis system ACQUA, artificial head HMS II.3, front ends MFE VI.1, MFE VIII, MFE IX and MFE X.

## SYSTEM REQUIREMENTS

The ACQUA measurement standard CAT-iQ 2.0 requires the following system components:

- **ACQUA** Communication Analysis System as one of the following versions (version 2.5.100 or later):
  - Full-licence (Code 6810)
  - Workplace (Code 6830, for post-analysis and documentation only)
  - Compact Systems (Code 6860.xx)
- **HMS II.3** Artificial Head Measurement System (Code 1230) with pinna **HER IV.2** (Code 1381) according to ITU-T P.57 type 3.3
- **HHP III** Handset Positioning Mechanism (Code 1400)
- **MFE VI.1** USB Measurement Front End, Analog, with Integrated Mouth Amplifier (Code 6462). For handsfree measurements, option **MFEVI-BEQ** (Code 6461) is additionally required.
- **MFE X** NG-DECT/CAT-iq™ Front End (Code 6481)

The following components are only required for Fixed Part (FP) measurements (non-mandatory for CAT-iq 2.0):

- **MFE VIII** IP Reference Gateway (Code 6468) with option **MFEVIII-CLC** (Code 6469)
- **MFE IX** IP Network Impairment Simulator & Monitor with WLAN/WiFi Access Point (Code 6480); *Note: other simulators can also be used.*
- **ACOPT 16** Option PESQ (Code 6836)
- **External frequency counter**, only required for FP clock accuracy measurements (not delivered by HEAD acoustics)

## DELIVERY

- **CAT-iQ 2.0** measurement standard, delivered as ACQUA database on CD (Code 6794)
- **Keyfile** (for ACQUA 2.5.100) or **V2C file** (For ACQUA 3.0.100 or later) on CD
- **Manual** as PDF on CD

