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DATA SHEET

MFE XI (Code 6482)
Universal *Bluetooth®*
Access Point

OVERVIEW

MFE XI is a light-weight and compact access point for acoustic measurements of voice and audio devices with *Bluetooth®* wireless technology. It is equipped with *Bluetooth®* antenna, AES/EBU and Pulse interfaces as well as 3-port USB 2.0 hi-speed hub.

In conjunction with the communication quality analysis system ACQUA and other HEAD acoustics components, MFE XI can be used for automated measurements according to international, user-defined or HEAD acoustics standards.

DESCRIPTION

MFE XI serves as universal access point for acoustic measurements of voice and audio devices with *Bluetooth®* wireless technology. MFE XI supports the following profiles defined by the *Bluetooth®* standard (Core 3.0):

- Hands-free profile (HFP, version 1.6), as audio gateway (AG) or hands-free (HF) audio device
- Headset profile (HSP), as audio gateway (AG) or headset (HS) audio device
- A2DP sink
- A2DP source (sampling rate 44.1/48 kHz)

Optionally, MFE XI can be used for wideband transmission (MFE XI-EXT, Code 6492) by providing the additional codec mSBC in the HF profiles. This optional extension pack also provides aptX® as alternative for the SBC codec in the A2DP profiles.

Connected via USB (Plug & Play) with a PC or notebook, MFE XI is configured and controlled by ACQUA (alternatively: RC-MFE XI).

By means of MFE XI and other HEAD acoustics components, ACQUA conducts automated measurements according to international, HEAD acoustics or user-defined standards. MFE XI thus serves for development and optimization as well as quality control and benchmark testing in all areas where excellent voice and audio quality of *Bluetooth®* devices plays a decisive role.

KEY FEATURES

- *Bluetooth®* profiles: HFP, HFP-AG, HSP, HSP-AG, A2DP Sink, A2DP Source
- Transmission of AT commands possible when using HFP/HSP (AG)
- Control and automation via ACQUA (alternatively: RC-MFE XI)
- Optional: Wideband capability (mSBC for HF profiles)
- Optional: aptX® codec (for A2DP profiles)

APPLICATIONS

- Acoustical measurements of voice and audio devices with *Bluetooth®* wireless technology
- Acoustical measurements with MFE XI as audio gateway or A2DP source, e.g. tests of:
  - headsets
  - *Bluetooth®* loudspeakers
  - hands-free devices (head unit)
- Electrical measurements with MFE XI as hands-free unit or A2DP sink, e.g. tests of:
  - mobile phones
 - audio players

SYSTEM REQUIREMENTS

- **ACQUA (Code 6810 etc.):** Advanced Communication Quality Analysis, Version 3.3.200 or later *Note: Valid SMA (software maintenance agreement) required!* Alternatively: RC-MFE XI (Code 6974), Remote Configuration Software for MFE XI, Version 1.1.700 or later
- **PC or Notebook** as specified by ACQUA datasheet

OPTIONS

- **MFE XI-EXT (Code 6492)**: Option Extension Pack for MFE XI, incl. Wideband Capability for HF profiles & aptX® for A2DP profiles
- **UG MFE XI-EXT (Code 6493):** Upgrade MFE XI-WB -> MFE XI-EXT (for owners of Code 6483 MFE XI-WB)

ACCESSORIES

- **HMS II.3-33 or II.3-34 (Code 1230.1 or 1230.2)**: Head and Torso Simulator (HATS) according to ITU-T P.57 and P.58, with pinna simulator type 3.3 or 3.4
- **MFE VI.1 (Code 6462)**: Measurement Front End with integrated power amplifier
- **MFE VI-BEQ (Code 6461)**: Option Binaural Equalizer for MFE VI.1
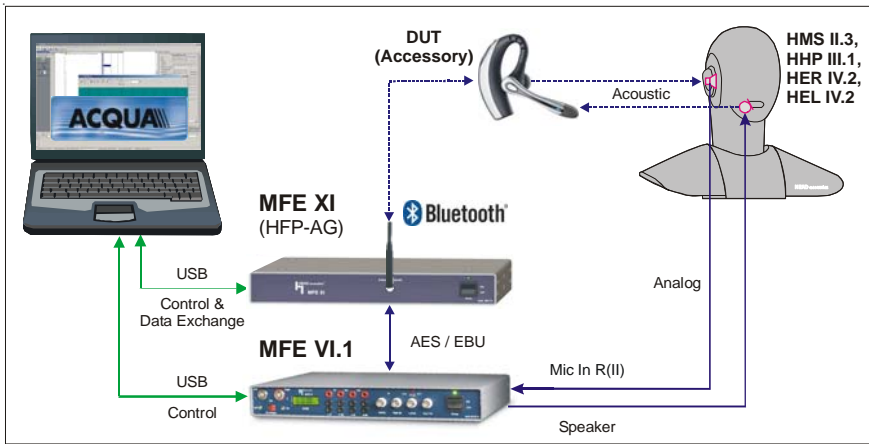
Example configuration: acoustical measurements for tests of headsets, head units etc. with ACQUA, MFE VI.1, MFE XI (as HFP-AG), HMS II.3
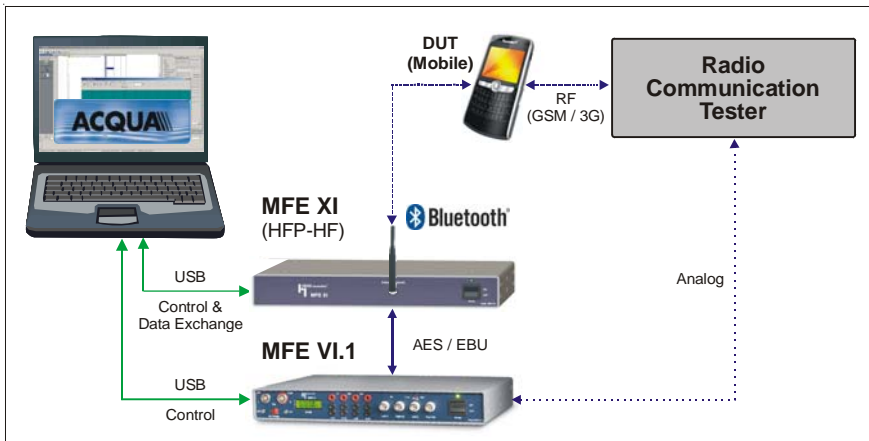
Example configuration: electrical measurements for tests of mobile phones with ACQUA, MFE VI.1, MFE XI (as HFP-HF), Radio Communication Tester

DELIVERY ITEMS

- **MFE XI (Code 6482)**:
  Universal *Bluetooth®* Access Point
- **PSH I.1 (Code 1364):**
  External power supply, 110-250 V AC -> 15 V DC
- **PCC I.9x (Code 997x)**:
  Mains cable, country-specific
- **1x CUSB II.1.5 (Code 5478-1.5):**
  Cable USB 2.0, with ferrite, 1.5 m
- **1x USB Cable**, short (ca. 0.5 m)
- **1x Pulse Breakout Cable**
- **2x CXX II.03:** AES/EBU cable, short
- **1x CXX III.03:** DC power supply cable (for power bridge with other MFEs)
- ***Bluetooth®* Antenna**
- **Antenna Extension Cable**
- **Carrying Case**
- **Manual**

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Technical data – MFE XI	
Measurement Unit	
Operation:	Control via ACQUA software (version 3.3.200 or later). Alternatively: control via RC-MFE XI (version 1.1.700 or later).
Power supply:	Desktop power supply PSH I.1 (cf. data sheet PSH Overview)
Power consumption:	8 W max.
Interfaces & Connectors	
Bluetooth®	1x at front, incl. screw-on turnable antenna. Bluetooth® core 3.0 compliant. Supported Bluetooth® profiles: • HFP (AG/HF, version 1.6, SCO/eSCO, CVSD, optional: mSBC) • HSP (AG/HS, SCO/eSCO, CVSD) • A2DP sink (optional: aptX®) • A2DP source (SBC codec, 44.1/48 kHz sample rate, optional: aptX®)
AES EBU 1 In/Out	1x at rear, XLR, digital audio input/output, 48 kHz sample rate
AES EBU 2 In/Out	1x at rear, XLR, digital audio input/output, 48 kHz sample rate
Pulse In/Out	1x at rear, RS232, TTL level (absolute maximum ratings: min: -0.5V, max 5.5V), pulse inputs/outputs not galvanically separated
USB In	1x at rear, USB 2.0, control and data exchange with ACQUA
USB Out	3x at rear, USB 2.0, bus-powered (max. 100 mA each)
DC In/Out	1x at rear, XLR 4 pin, DC-In looped through to DC-Out
Environmental Conditions	
Operating temp. range:	0°C - 50°C, 32°F - 122°F
Storage temp. range:	-20°C - 70°C, -4°F - 158°F
Air Humidity:	0 – 90 % rel. hum., non-condensing
Housing	
Overall dimensions (WxHxD):	327 mm x 44 mm x 230 mm
Weight:	ca. 2 kg

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