HEAD acoustics

DATA SHEET

APPLICATION EXAMPLES INCLUDED

Code 60046

GSMA HD Voice+

GSMA HD Voice+ Logo Minimum Requirements for Mobile Devices

OVERVIEW

GSMA HD Voice+

Code 60046

HD Voice+ Logo Minimum Requirements for Mobile Devices and Headsets

GSMA has specified test methods to assess the minimum performance requirements that mobile device and headset manufacturers have to meet in order to use the GSMA trademarked HD Voice+ logo.

HEAD acoustics has implemented all speech quality measurements required by the GSMA HD Voice+ Annex H (cf. below: "Applications") into the automated test suite GSMA HD Voice+ for the communication quality analysis system ACQUA.

GSMA HD Voice+ thus allows manufacturers to ensure that their mobile devices and headsets meet the specifications required for using the HD Voice+ logo.

KEY FEATURES

Implementation as ACQUA standard of:

› Minimum Technical Requirements for use of the HD Voice+ Logo with LTE (Annex H) Version 1.0 - 22. November 2017

Measurements for bandwidths: super-wideband and fullband

Determing ECRP for handsets providing non-traditional earpiece (HaNTE-devices)

Supports close-to-reality noise playback measurements

Generates automated MS Excel report according to GSMA specifications

APPLICATIONS

Conformance tests of super-wideband and fullband mobile devices:

› Handset
› Headset
› Handheld hands-free

DETAILS

DESCRIPTION

General

The tests implemented in the ACQUA standard GSMA HD Voice+ cover all relevant acoustic test methods and requirements for mobile terminals for super-wideband and fullband scenarios. GSMA HD Voice+ provides automated measurement presets and enables fast and easy acquisition, analysis, and documentation of measurement data. The requirements from GSMA HD Voice+ are automatically compared to the measurement results. Conformance with the requirements is immediately visible in ACQUA.

ACQUA Projects and Standards

The ACQUA standard divides into three ACQUA projects according to the specifications of the device under test.

- Handheld hands-free (LTE/5G)
- Handset (LTE/5G)
- Headset (LTE/5G)

Special Features

GSMA HD Voice+ includes measurement methods from standard TS 26 132 and requirements from standard TS 26 131, which contains automated features for convenient measuring:

- Automated volume control via Bluetooth® HID profile
- Automated determination of ECRP with HHP IV for handsets providing non-traditional earpiece
- Automated handset positioning with HHP IV

Handheld hands-free measurement

Headset measurement

DATABASE CONTENTS

The following measurements can be performed with GSMA HD Voice+:

Handheld Hands-Free (LTE/5G)

Super-wideband and fullband :

- Frequency response SND/RCV
- Loudness rating
- Echo loss

Handset (LTE/5G)

Super-wideband and fullband :

- Frequency response SND/RCV
- Loudness rating SND/RCV
- Echo loss
- Distortion SND/RCV
- Idle noise SND/RCV
- Speech path delay of mobile HD Voice devices
- Speech quality with ambient noise
- Speech quality in conditions with packet arrival time variations and packet loss
- Noise reduction – Objective evaluation
- Sidetone characteristics

Headset (LTE/5G)

Super-wideband and fullband :

- Loudness rating SND/RCV
- Frequency response SND/RCV
- Idle noise SND/RCV
- Sidetone characteristics SND/RCV
- Speech path delay of mobile HD Voice+ devices
- Speech quality in conditions with packet arrival time variations and packet loss

GENERAL REQUIREMENTS

All Projects

Hardware Platform

*lab*CORE (Code 7700)

- Modular multi-channel hardware platform

Measurement and Analysis Software

One of the following software applications:
ACQUA (Code 6810)

- Advanced Communication Quality Analysis Software, full license version

ACQUA Compact (Code 6860)

- Compact test system

ACQUA Standard

GSMA HD Voice (Code 60018)

- HD Voice Logo Minimum Requirements for Mobile Devices and Headsets

UG TS 26 SWB/FB (Code 60028)

- 3GPP TS 26.131/132, Mobile Terminals, Extension super-wideband and fullband

TS 26 131-32 (Code 6777)

- 3GPP TS 26.131/132, Mobile Terminals

Network Simulation

Radio communication tester (third party device)

For detailed requirements of each project, refer to Project Requirements on page 6

SCOPE OF DELIVERY

GSMA HD Voice+ (Code 60046)

- Delivered as ACQUA database

V2C file

- License file for ACQUA dongle

Revision history

- PDF file

Manual

- PDF file

OPTIONS

Bluetooth Volume Control

*core*BT2 (Code 7782)

› *lab*CORE I/O Module, Bluetooth Reference Access Point, Version 2

*core*BT2HID (Code 7786)

› *lab*CORE Bluetooth human interface device (requires CBA IV-V1)

RELEASE NOTES

Database revision and specification version		
Database revision	**Based on specification**	**ACQUA version**
Revision 02	GSMA Internal Masterdocument – HD Voice Logo Technical Annexes, Annex H, Version 7.0, March 23, 2017. 3GPP TS 26.131-32 Release 18	at least 6.1.100

PROJECT REQUIREMENTS

Project / Product Required: ✓ Not required: ✗	Handset	Headset	Handheld Hands-Free
One of the following Head Measurement Systems: › HMS II.3 (Code 1703) » Head Measurement System, basic version with right ear simulator, 3.3 pinna and artificial mouth › HMS II.3 LN (Code 1703.1) » Head Measurement System, low-noise version with right ear simulator, 3.3 pinna and artificial mouth	✓	✓	✓
One of the following Head Impedance Simulators for the respective Head Measurement System: › HIS L (Code 1701) » Head Impedance Simulator, left › HIS L LN (Code 1701.1) » Head Impedance Simulator, left, low-noise version	✗ 1	✓	✓
One of the following handset positioners: › HHP IV (Code 1406) » Handset positioner, MotoMount (Hexapod) version › HHP III.1 (Code 1403) » Handset positioner, VariMount version	✓	✗	✗
One of the following software applications for background noise simulation: › 3PASS *lab* (Code 6990) » Advanced background noise simulation system with automated equalization – lab version › HAE-BGN (Code 6971) » Basic background noise simulation system with semi-automated equalization (no longer available)	✓	✗	✓
› *core*BUS (Code 7710) » *lab*CORE I/O bus mainboard	✓	✓	✓
› *core*OUT-Amp2 (Code 7720) » *lab*CORE power amplifier board	✓	✓	✓
› *core*IN-Mic4 (Code 7730) » *lab*CORE microphone input board	✓	✓	✓
› *core*BEQ (Code 7740) » Binaural equalization for one artificial head	✗ 1	✗ 1	✓

1 These options are not necessary for the measurements but are needed for a binaural equalization of the background noise simulation.

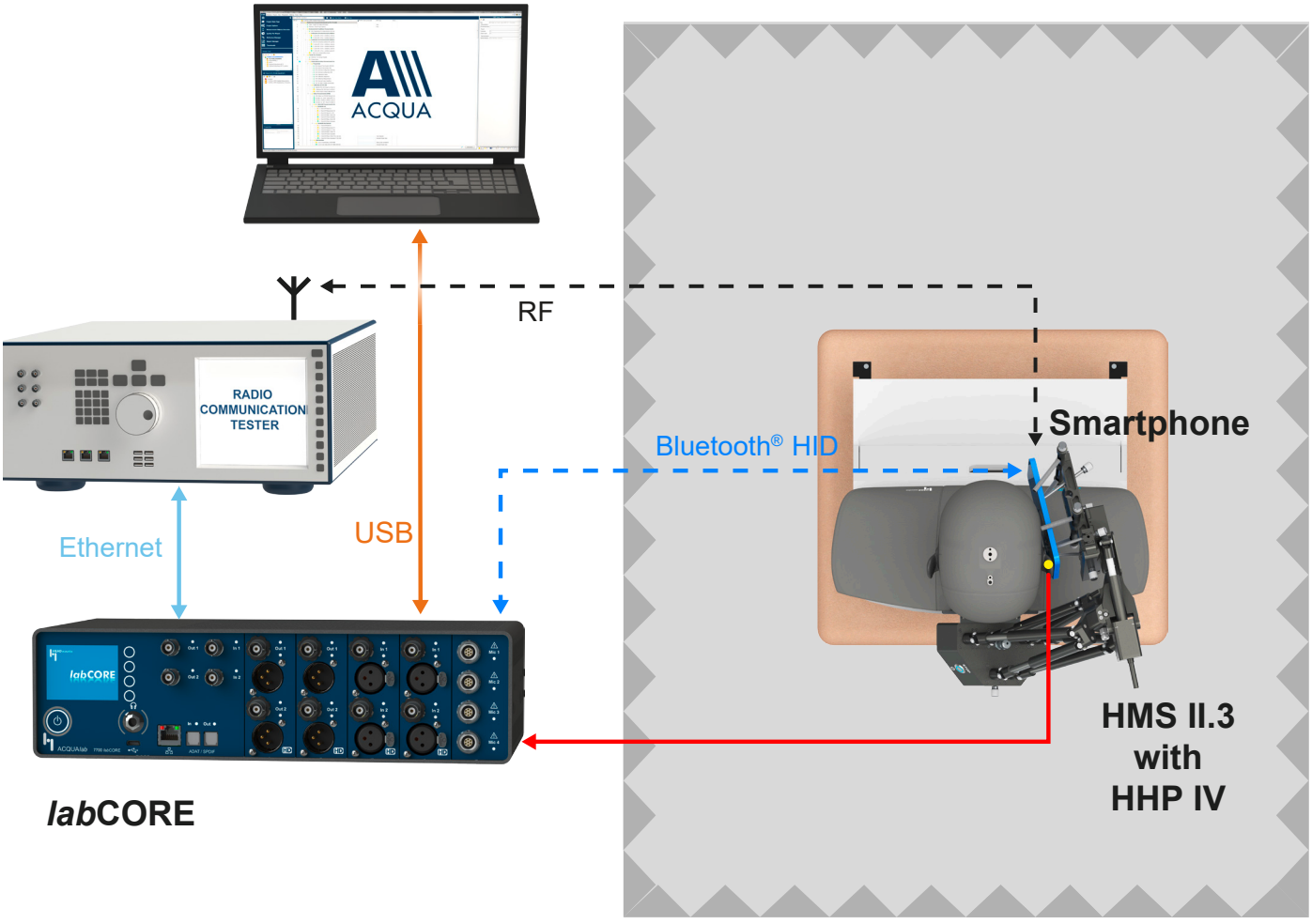
Project / Product Required: ✓ Not required: ✗	Handset	Headset	Handheld Hands-Free
Packet-switched network › coreIP (Code 7770) » *lab*CORE I/O module, Voice over IP reference gateway › coreIP-EVS (Code 7773) » *lab*CORE EVS codec option	✓	✓	✓
Packet-switched network impairments › coreIP-IMP (Code 7771) » *lab*CORE VoIP impairment option	✓	✗	✗
› ACOPT 09 (Code 6819) » Option SLVM P.56	✓	✓	✗
› ACOPT 30 (Code 6857) » Option POLQA	✓	✓	✗
› ACOPT 35 (Code 6866) » Option 3QUEST – 3fold Quality Evaluation of Speech in Telecommunication (super-wideband/fullband)	✓	✗	✗

IN PRACTICE

APPLICATION EXAMPLES

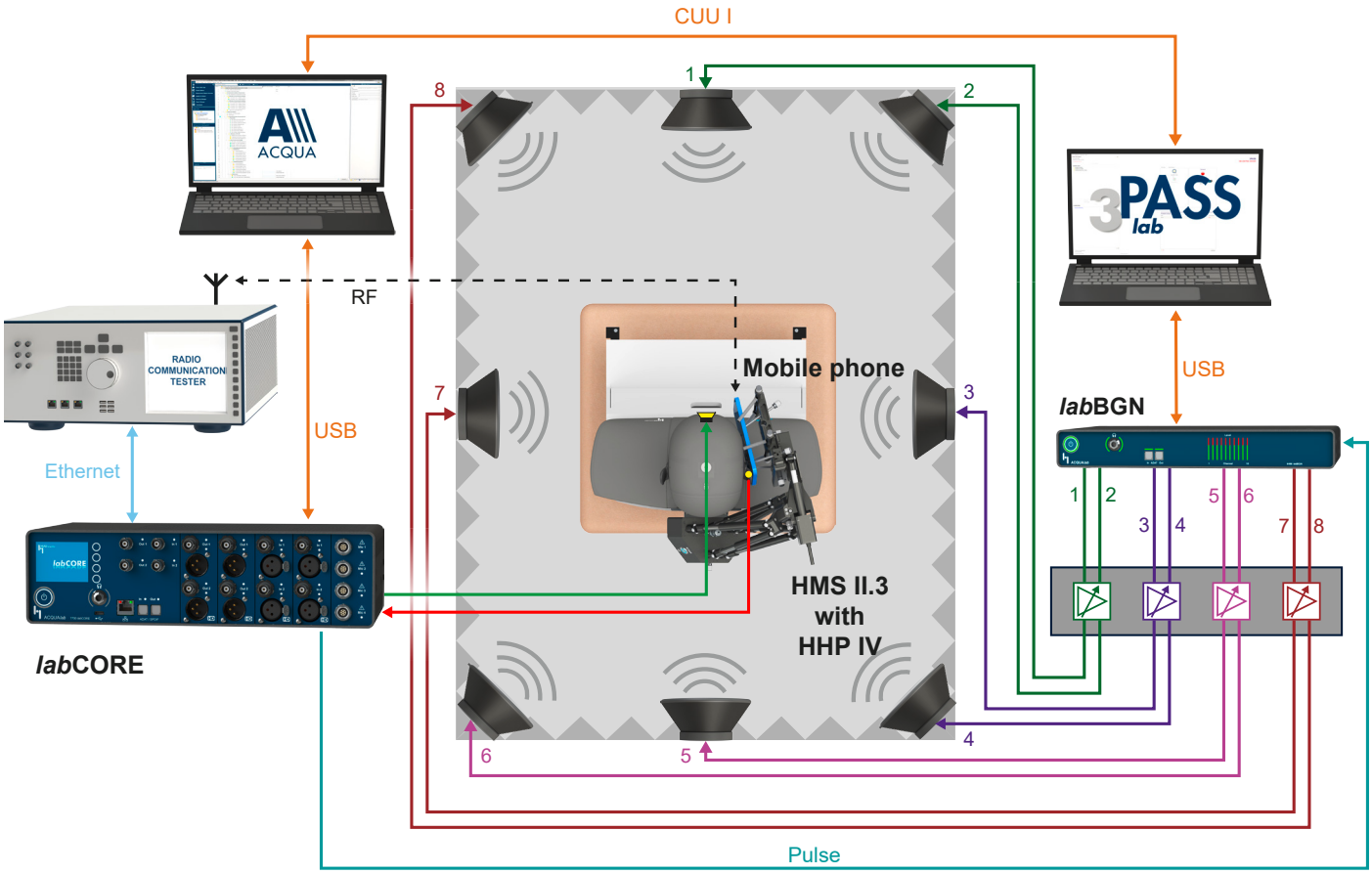
Handset: Automatic Determination of Nominal Volume

The handset is clamped into HHP IV and connects via packet-switched network to a radio tester. *lab*CORE transmits the audio signal via the radio tester to the handset. Furthermore, it connects to the handset by Bluetooth HID profile for setting the required volume step automatically. The handset plays back the signal through its earpiece. *lab*CORE receives the signal from HMS II.3 and transmits it to ACQUA for recording. ACQUA plays back signals, determines the volume step of the handset, as well as analyzes the recorded signals according to the receive loudness rating requirements of 3GPP TS 26.131.



Handset: VoLTE Measurements with Ambient Noise

The handset is clamped into HHP IV and connects via packet-switched network to a radio tester. *lab*CORE transmits signals to HMS II.3 for playback and receives signals from HMS II.3 for recording. ACQUA generates the signals for playback and analyzes the recorded signals. 3PASS *lab* plays back background noises and ACQUA assesses speech signal processing of the smartphone under real-life conditions according to the requirements of 3GPP TS 26.131.



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