HEAD acoustics

DATA SHEET

Code 60062

UG CTIA SPTP-WB/SWB

CTIA Speech Performance Test Plan, Wideband and Super-Wideband Extension

OVERVIEW

UG CTIA SPTP-WB/SWB

Code 60062

CTIA Speech Performance Test Plan, Wideband and Super-Wideband Extension

The CTIA Speech Performance Test Plan specifies test methods to assess the requirements for the acoustic characteristics of terminals.

The ACQUA standard UG CTIA SPTP-WB/SWB includes the wideband (WB) part and super-wideband (SWB) part of speech quality measurements from version 2.5.2 of the CTIA Speech Performance Test Plan.

Therefore, UG CTIA SPTP-WB/SWB enables manufacturers of mobile terminal devices to ensure that their devices meet the requirements specified in the CTIA Speech Performance Test Plan.

KEY FEATURES

Automated and repeatable test sequences

Measurements for wideband/super-wideband according to the CTIA Speech Performance Test Plan

Analyses of wideband/super-wideband measurements according to the CTIA Speech Performance Test Plan

APPLICATIONS

Conformance testing, automated quality analysis as well as experimental development and optimization of mobile terminal devices according to CTIA Speech Performance Test Plan

UG CTIA-SPTP-WB/SWB provides projects including measurements and requirements for:

- Handsets
- Headsets
- Headset interfaces
- Handheld hands-free/speakerphones
- Wrist-worn wearables (e.g., smartwatches)

ctia™ Everything Wireless™

DETAILS

The business association CTIA represents the wireless communications industry in the USA. Their Speech Performance Test Plan lays out tests for the speech quality and electro-acoustic performance aspects of mobile terminals.

DESCRIPTION

General

The wideband (WB) part and the super-wideband (SWB) part of the CTIA Speech Performance Test Plan are implemented in the automated UG CTIA SPTP-WB/SWB test suite for the advanced communication quality analysis software ACQUA. The UG CTIA SPTP-WB/SWB test suite enables fast and easy acquisition, analysis and documentation of measurement data. It contains predefined measurements, analyses, and automated measurement sequences.

The CTIA Speech Performance Test Plan is based on measurements from:

- 3GPP TS 26.132 v16.2.0 (2020-03)
- 3GPP2 C.S0056-A v 1.0 (2013-03)
- ITU-T P.381 Ed.4 (2017-03)

Structure

The ACQUA standard divides into five ACQUA projects. Each project provides measurements and analyses for a certain device type:

- Handset
- Headset
- Headset interface
- Handheld hands-free
- Wrist-worn wearables

MEASUREMENTS AND ANALYSES

Handset

- Loudness rating
- Noise
- Frequency response
- Distortion (sinusoidal)
- Sidetone masking rating
- Echo loss
- Double talk

- Speech quality in the presence of background noise
- Speech quality with packet variation (only packet-switched connection)
- Level vs. time

Headset

- Loudness rating
- Sidetone masking rating
- Noise
- Frequency response
- Distortion (sinusoidal)
- Echo loss

Headset Interface

- Active speech level
- Loudness rating
- Sidetone masking rating
- Noise
- Frequency response
- Echo loss

Handheld Hands-Free

- Loudness rating
- Frequency response
- Echo loss
- Speech quality in the presence of background noise

Wrist-Worn Wearables

- Loudness rating
- Frequency response
- Echo loss
- Speech quality in the presence of background noise

GENERAL REQUIREMENTS

All Projects

ACQUA Standard

CTIA SPTP-NB (Code 60060)
- CTIA Speech Performance Test Plan,Narrowband part

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

Network Simulation

Radio communication tester (third-party equipment)

For detailed requirements of each project, refer to *Project Requirements on page 5*

SCOPE OF DELIVERY

UG CTIA SPTP-WB/SWB (Code 60062)
- delivered as ACQUA database backup

V2C file
- License file for ACQUA dongle

Revision history
- PDF file

PROJECT REQUIREMENTS

Project / Product Required: ✓ Not required: ✗	Handset	Headset	Headset Interface	Handheld Hands-Free	Wrist-Worn Wearables
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 › HMS II.3 LN HEC (Code 1703.2) » Head Measurement System, low-noise version with human-like ear canal simulator right and artificial mouth	✓	✓	✗	✓	✓
One of the following left 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 › HIS L LN HEC (Code 1701.2) » Head Impedance Simulator, left, low noise, human-like ear canal version	✓	✓	✗	✓	✓
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	✓	✗	✗	✓	✓
› *core*BUS (Code 7710) » *lab*CORE I/O bus mainboard	✓	✓	✗	✓	✓
› *core*OUT-Amp2 (Code 7720) » *lab*CORE power amplifier board	✓	✓	✗	✓	✓

Project / Product Required: ✓ Not required: ✗	Handset	Headset	Headset Interface	Handheld Hands-Free	Wrist-Worn Wearables
› coreIN-Mic4 (Code 7730) » *lab*CORE microphone input board	✓	✓	✗	✓	✓
› coreBEQ (Code 7740) » Binaural equalization for one artificial head	✓	✗	✗	✓	✓
Packet-switched network › coreIP (Code 7770) » *lab*CORE I/O module, Voice over IP reference gateway Codec options › coreIP-AMR (Code 7772) » *lab*CORE AMR codec option or › 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	✓	✗	✓	✓	✗
Wideband › ACOPT 21 (Code 6844) » Option 3QUEST – 3fold Quality Evaluation of Speech in Telecommunication (narrowband/wideband) › Measurement microphone (third-party equipment)	✓	✗	✗	✓	✓
Super-Wideband › ACOPT 35 (Code 6866) » Option 3QUEST Super-wideband/ Fullband according to ETSI TS 103 281, Model A	✓	✗	✗	✓	✗
› ACOPT 30 (Code 6857) » Option POLQA	✓	✗	✗	✗	✗
› ACOPT 32 (Code 6859) » Option Speech-based Double Talk analysis	✓	✗	✗	✗	✗
› HIB I (Code 6002) » Headset Interface Box	✗	✗	✓	✗	✗

OPTIONS

Bluetooth® Volume Control

CBA IV-V1 (Code 6599-V1)

› Bluetooth transceiver for *lab*CORE module *core*BT2 (USB-based, includes antenna)

*core*BT2HID (Code 7786)

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

RELEASE NOTES

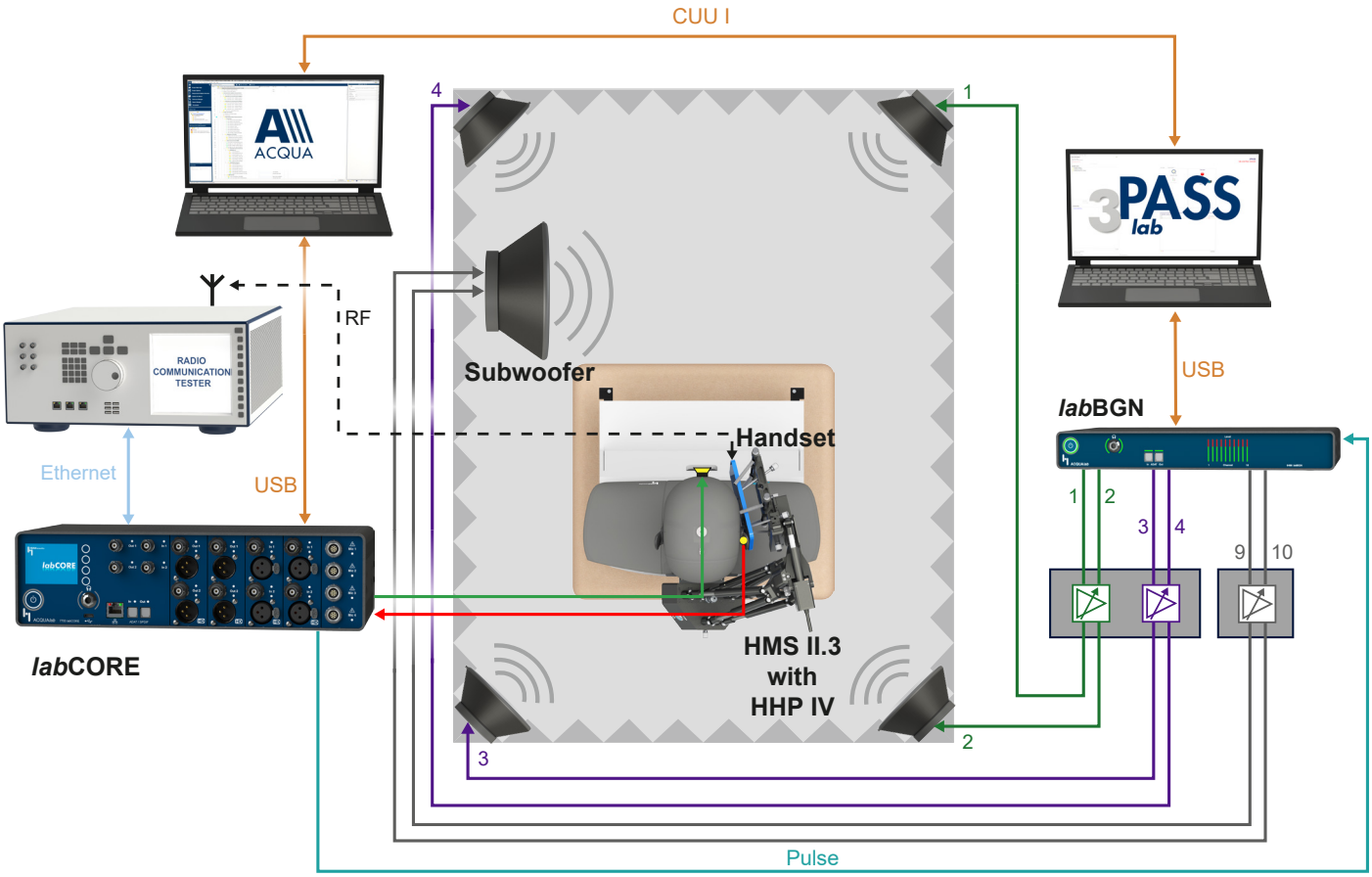
Database revision and specification version		
Database revision	**Based on specification**	**ACQUA version**
Revision 03 SP1	CTIA Speech Performance Test Plan version 2.5.2 (September 2024)	at least 6.1.100 + Update 1

IN PRACTICE

APPLICATION EXAMPLE

Handset: VoIP Measurements with Ambient Noise

The handset is clamped into HHP IV and connected via packet-switched network to the 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 interfering background noises and ACQUA assesses speech signal processing of the handset according to the requirements of CTIA SPTP.



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