



Code 60047

# **TIA-920.120-B**

**Digital Interface Communications Devices with Speakerphones**

# OVERVIEW

---

## TIA-920.120-B

### Code 60047

#### Digital Interface Communications Devices with Speakerphones

The TIA-920.120-B ACQUA standard incorporates transmission requirements from ANSI/TIA-920.120-B-2017 for digital interface communications devices. HEAD acoustics provides all measurements and analyses in one database to verify compliance with ANSI/TIA-920.120-B-2017.

The implementation of the database is executed with ACQUA. HEAD acoustics also provides necessary hardware for executing the measurements.

The ACQUA standard combines requirements for narrowband and wideband measurements according to the specification.

## KEY FEATURES

---

Automated and repeatable test sequences

Measurements according to the methods from ANSI/TIA-920.120-B-2017

Assessment according to the requirements from ANSI/TIA-920.120-B-2017

## APPLICATIONS

---

USB speakerphone devices

VoIP communications devices (cordless, corded) in speakerphone mode

Bluetooth® wireless technology speakerphone devices

DECT communications devices in speakerphone mode

# DETAILS

---

## DESCRIPTION

TIA-920.120-B includes measurements and analyses from ANSI/TIA-920.120-B-2017 for speakerphone devices with digital interfaces. These devices shall have the functionality for narrowband and/or wideband transmission. The supported digital interfaces are USB, VoIP, DECT, and Bluetooth wireless technology. Available measurements are executed in receiving direction as well as sending direction. They include determination and analysis of parameters such as frequency response, noise, level directionality, and distortion. Furthermore, there are measurements for evaluating the echo attenuation performance of the device under test. The ACQUA standard also consists of informative measurements to assess speech quality in sending direction with the presence of background noise.

## MEASUREMENTS

All measurements are available for devices applying narrowband transmission and/or wideband transmission.

### Receive performance

- › Delay
- › Output level
- › Volume control
- › Frequency response
- › Noise idle channel
- › Noise active channel
- › Single frequency interference idle channel
- › Distortion and noise

### Sending performance

- › Delay
- › Output level
- › Frequency response
- › Level directionality
- › Noise without stimulus
- › Single frequency interference idle channel
- › Noise with stimulus
- › Distortion and noise

### Terminal coupling loss

- › Weighted terminal coupling loss

### Informative measurements

- › Listening speech quality (POLQA)
- › 3QUEST: Speech quality in the presence of background noise

## GENERAL REQUIREMENTS

---

### Hardware

#### General

- lab*CORE (Code 7700)
  - › Modular multi-channel hardware platform
- core*BUS (Code 7710)
  - › I/O bus mainboard

*Continued on next page*

# OPTIONS

## Hardware

HRT I (Code 6498)

- › HEAD acoustics remote-operated turntable

## Software

3PASS *lab* (Code 6990)

- › Advanced background noise simulation system with automated equalization – *lab* version

## ACQUA options

ACOPT 21 (Code 6844)

- › Option 3QUEST – 3fold Quality Evaluation of Speech in Telecommunication (narrowband/wideband)

ACOPT 30 (Code 6857)

- › Option POLQA

# RELEASE NOTES

## Database revision and specification version

Database revision	Based on specification	ACQUA version
Revision 02	ANSI/TIA-920.120-B-2017	at least 6.0.200

## SCOPE OF DELIVERY

TIA-920.120-B (Code 60047)

- › delivered as ACQUA database backup V2C file
- › License file for ACQUA dongle
- Revision history
- › PDF file

# GENERAL REQUIREMENTS

coreIN-Mic4 (Code 7730)

- › *lab*CORE microphone input board

## Sending

One of the following devices:

- › Artificial mouth according to recommendation ITU-T P.51
- › Head measurement system of the HMS II series including an artificial mouth

## Receiving

Free-field microphone

## USB connection

Included in *lab*CORE (Code 7700)

## Bluetooth connection

coreBT2 (Code 7782)

- › *lab*CORE I/O module, Bluetooth reference access point, version 2

## DECT connection

MFE X (Code 6481)

- › Digital hardware platform for DECT/NG-DECT/CAT-iq™

## IP connection

coreIP (Code 7770)

- › *lab*CORE I/O module, voice over IP reference

## 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 options

ACOPT 09 (Code 6819)

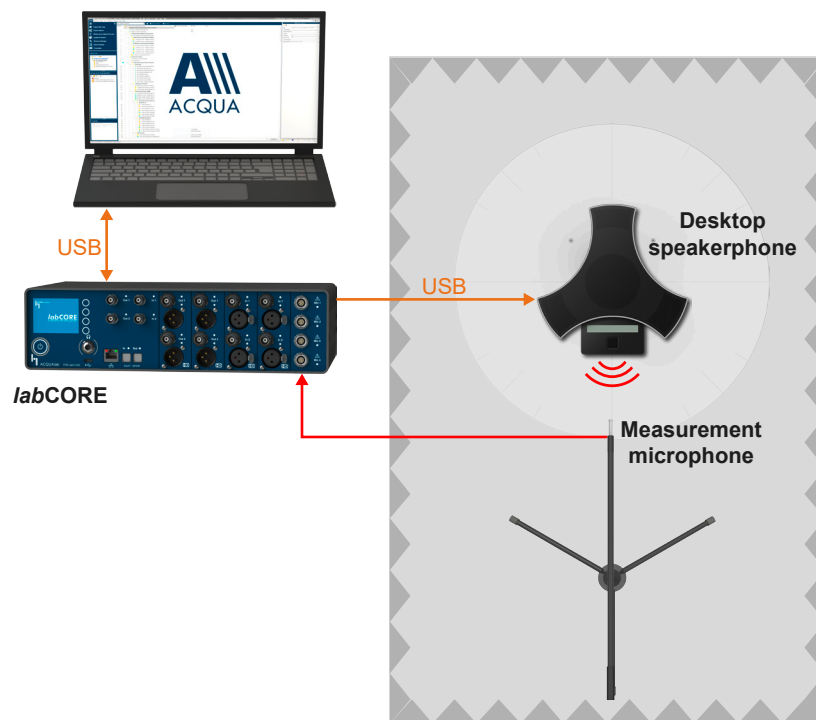
- › Option SLVM P.56

# IN PRACTICE

## APPLICATION EXAMPLES

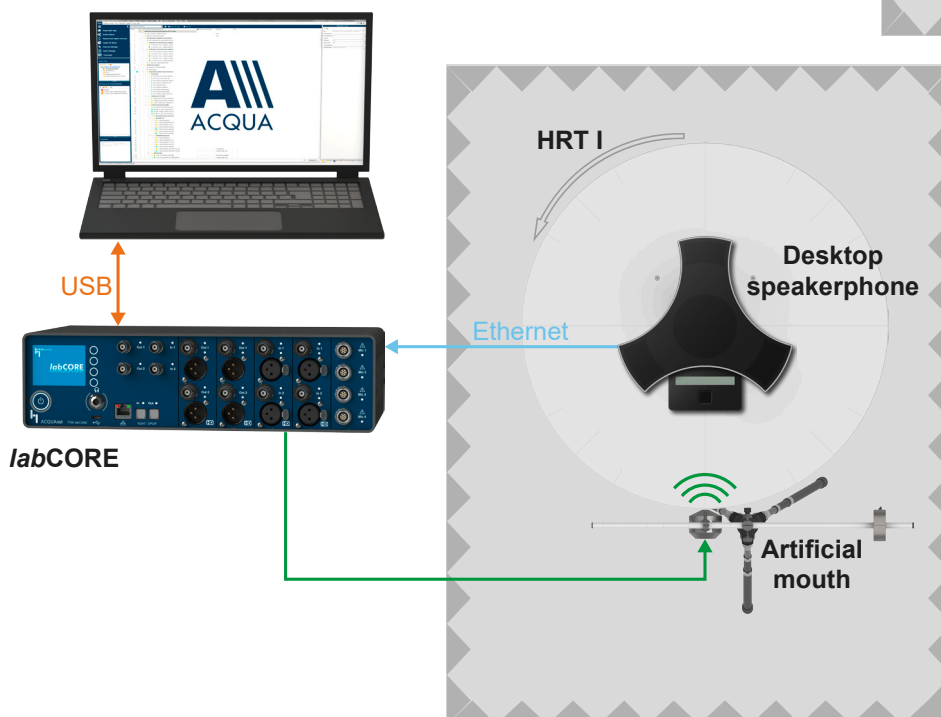
### Measurements in receiving direction with USB speakerphone (exemplary)

labCORE connects to the speakerphone and ACQUA PC via USB. ACQUA sends the measurement signal via labCORE to the speakerphone. The signal plays back at the loudspeaker of the speakerphone and the measurement microphone transmits it via labCORE to ACQUA for recording and analyses.



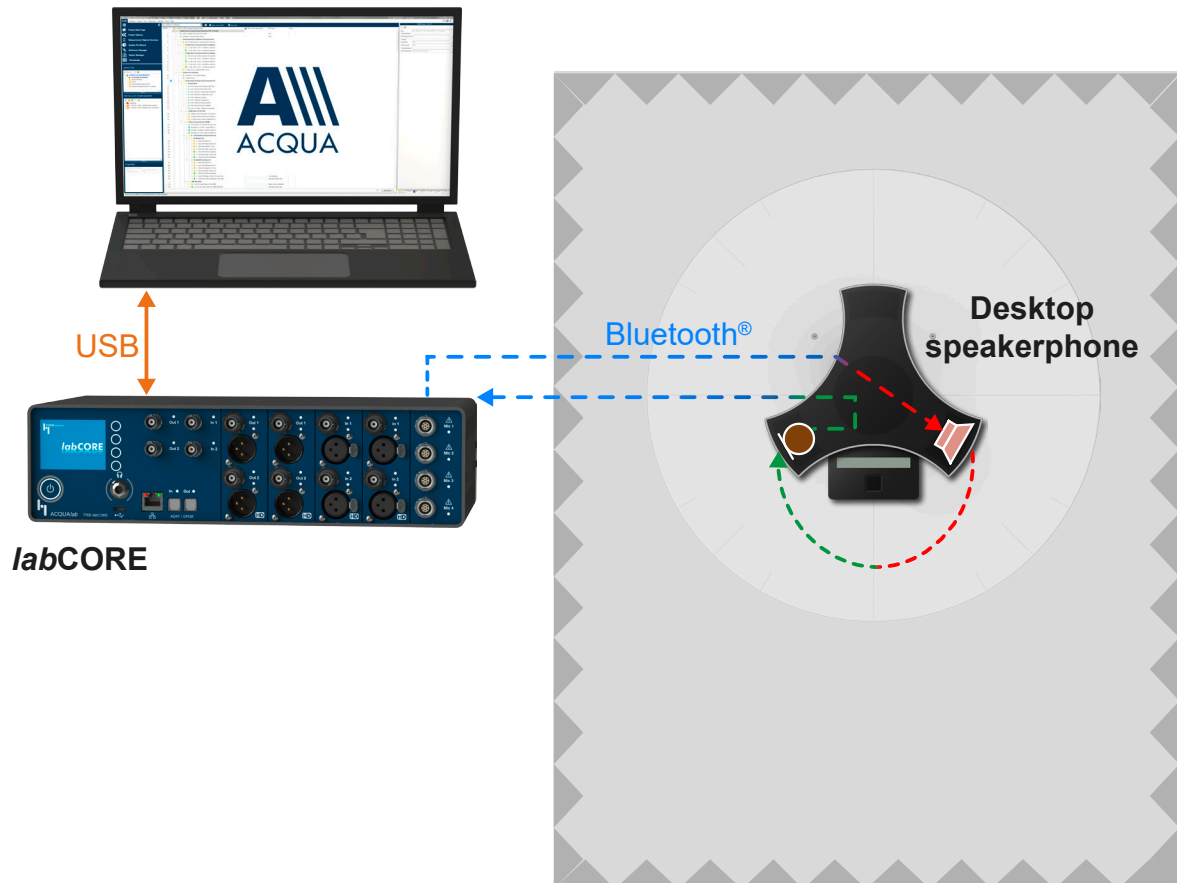
### Measurements in sending direction with IP speakerphone (exemplary)

labCORE connects to the ACQUA PC via USB and to the speakerphone via Ethernet. ACQUA sends the measurement signal via labCORE to the artificial mouth and controls the rotation of HRT I for measuring level directionality. The signal plays back at the artificial mouth and the microphone of the speakerphone transmits it via labCORE to ACQUA for recording and analyses.



## Weighted terminal coupling loss (TCLw) measurements with Bluetooth speakerphone (exemplary)

labCORE connects to the ACQUA PC via USB and to the speakerphone via Bluetooth. ACQUA sends the measurement signal via labCORE to the speakerphone. The signal plays back at the loudspeaker of the speakerphone and its microphone transmits the signal via labCORE to ACQUA for recording and analyses.



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by HEAD acoustics GmbH is under license. Other trademarks and trade names are those of their respective owners.



### Contact Information

Ebertstraße 30a

52134 Herzogenrath, Germany

**Phone:** +49 (0) 2407 577-0

**E-Mail:** [sales@head-acoustics.com](mailto:sales@head-acoustics.com)

**Website:** [www.head-acoustics.com](http://www.head-acoustics.com)