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DATASHEET

TS 102 924/925 (Code 60035)

Superwideband /Fullband Speech Quality

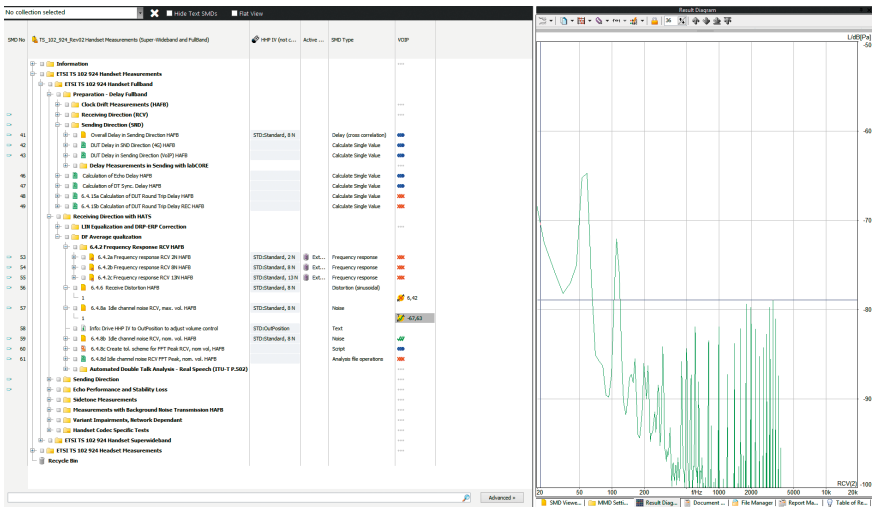
Overview

The standard database TS 102 924/925 contains measurements from ETSI TS 102 924 for handsets and headsets and ETSI TS 102 925 for hands-free devices. All measurements are applicable for superwideband and fullband.

Key features of TS 102 924/925:

- Speech quality measurements with background noise
- Echo cancellation quality
- Performance during double talk

HEAD acoustics provides the database implemented in the communication quality analysis system ACQUA and all necessary hardware equipment to execute the measurements.



ACQUA user interface with measurement tree and result diagram from TS 102 924/925

Description

The measurements implemented in the TS 102 924/925 database cover basic electroacoustic performance tests of superwideband / fullband handset, headset and hands-free devices.

The measurement sequences contain measurements to assess i.a. speech quality with background noise, the quality of implemented echo cancelers or performance under double talk. Included informations and instructions guide the user through the measurements. The report function of ACQUA generates clear and significant results of the measurements.

Some measurements for hands-free devices will be implemented into the database when the upcoming revision of ETSI TS 102 925 is in force.

Applications

- Verify conformance of superwideband / fullband handset, headset and hands-free devices according to ETSI TS 102 924 and ETSI TS 102 925.
- Automated quality analysis of superwideband / fullband handset, headset and hands-free devices.
- Advancement and optimization of superwideband / fullband handset, headset and hands-free devices with objective evaluation of speech quality (requires ACOPT 30 POLQA).

Database Revision	Based on Specification Version	Min. ACQUA Version
02	ETSI TS 102 924 V1.2.1 (03/2018)	4.0.50
01	ETSI TS 102 925 V1.1.1 (03/2013)	

Overview of database revisions and specification versions.

General requirements

Software

- **ACQUA** Communication Analysis System as one of the following variants (version 4.0.50 or later):
  - **Full License (Code 6810)**
  - **Workplace (Code 6830)**, for post-analysis and documentation only
  - **Compact Systems (Code 6860.xx)**
- **ACOPT 09 (Code 6819)**, option Speech Level Voltmeter
- **ACOPT 32 (Code 6859)**, option Speech-based Double Talk
- **ACOPT 35 (Code 6866)**, option 3QUEST-SWB/FB

Hardware

- ***lab*CORE (Code 7700)**, modular multi-channel hardware platform with *lab*CORE modules:
  - ***core*BUS (Code 7710)**, I/O bus mainboard
  - ***core*OUT-Amp2 (Code 7720)**, power amplifier output module (two channels)
  - ***core*IN-Mic4 (Code 7730)**, microphone input module (four channels)

- Alternative to *lab*CORE, *core*BUS, *core*OUT-Amp2 and *core*IN-Mic4:
  – MFE VI.1
- ***core*IP (Code 7770)**, *lab*CORE I/O module, VoIP reference gateway
  – ***core*IP-EVS (Code 7773)**, *lab*CORE VoIP EVS codec option
  – ***core*IP-OPUS (Code 7774)**, *lab*CORE VoIP OPUS codec option
- Alternative to *core*IP:
  – MFE VIII.1
- ***core*BEQ (Code 7740),** binaural equalizer
- Alternative to coreBEQ:
  – MFEVI-BEQ
- **HMS II.3-33 (Code 1230.1)**, Head and Torso Simulator (HATS) with pinna type 3.3

Application requirements

Handset

- **HHP IV (Code 1406)**, motorized handset positioner
- Alternative to HHP IV:
  – **HHP III.1 (1403)**, handset positioner
- **3PASS *lab* (Code 6990)**, background noise simulation software

Headset

- **3PASS *lab* (Code 6990)**, background noise simulation software

Hands-free

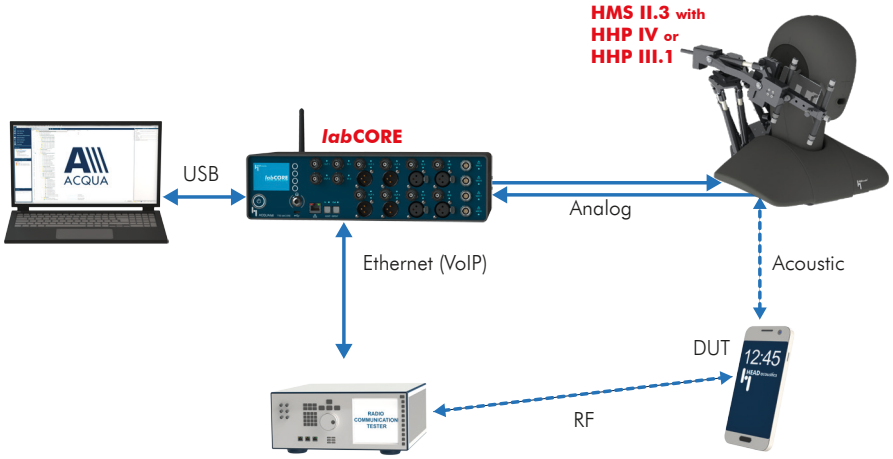
- **HIS L (Code 1231)**, HEAD impedance simulator, left ear

Options

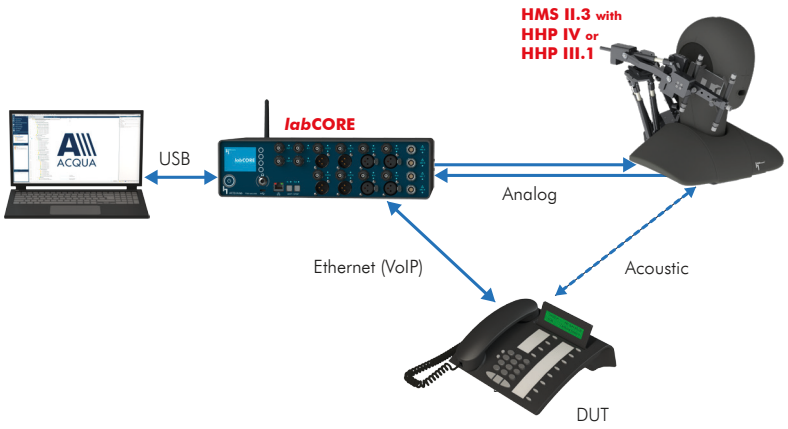
- ***core*IP-IMP (Code 7771)**, *lab*CORE VoIP impairment option
- **ACOPT 30 (Code 6857)**, option POLQA

Delivery items

- **TS 102 924/925**, delivered as ACQUA database
- **V2C file**
- **Standard documentation** as PDF



Configuration with mobile phone (exemplary)



Configuration with VoIP telephone (exemplary)

Measurements

The table gives an overview of the measurements included in TS 102 924/925:

Bandwidth / Application / SMD	Superwideband			Fullband		
	Handset	Headset	Hands-free	Handset	Headset	Hands-free
Delay SND/RCV/Echo/Round Trip/Sidetone	•	•	•	•	•	•
Send - Frequency response	•	•	•	•	•	•
Send - Loudness rating	•	•	•	•	•	•
Send - Noise	•	•	•	•	•	•
Send - Distortion	•	•	•	•	•	•
Send - Microphone mute	•	•	n/a	•	•	n/a
Send - Activation	•	•	n/a	•	•	n/a
Send - Clock accuracy	•	•	n/a	•	•	n/a
Send - Delay variation	•	•	n/a	•	•	n/a
Send - Attenuation range during double talk	•	•	•	•	•	•
Send - Linearity range of loudness rating	•	•	n/a	•	•	n/a
Receive - Frequency response	•	•	•	•	•	•
Receive - Loudness rating	•	•	•	•	•	•
Receive - Noise	•	•	•	•	•	•
Receive - Distortion	•	•	•	•	•	•
Receive - Attenuation range during double talk	•	•	•	•	•	•
Terminal coupling loss	•	•	•	•	•	•
Sidetone masking rating (STMR)	•	•	n/a	•	•	n/a
Stability loss	•	•	n/a	•	•	n/a
Detection of echo components during double talk	•	•	n/a	•	•	n/a
Comfort noise injection	•	•	n/a	•	•	n/a
Preparation speech quality in the presence of background noise	•	•	n/a	•	•	n/a
Speech quality in presence of background noise	•	•	n/a	•	•	n/a
Quality of background noise transmission with far end speech	•	•	n/a	•	•	n/a
Temporal echo effects	•	•	n/a	•	•	n/a
Spectral echo attenuation	•	•	n/a	•	•	n/a
Echo performance with time variant echo path speech	•	•	n/a	•	•	n/a
Quality of jitter buffer adjustment	•	•	n/a	•	•	n/a
Useful - Clock drift	•	•	n/a	•	•	n/a
Useful - Listening speech quality POLQA	•	•	•	•	•	•