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UG DTAG-Mobile-WB (Code 60014)

Voice Quality Evaluation of Mobile Phones, Upgrade to Wideband

Overview

Deutsche Telekom AG (DTAG) has defined new test specifications for narrowband and wideband mobile terminals which have been implemented by HEAD acoustics as measurement standards for the communication analysis system ACQUA.

The test suite UG DTAG-Mobile-WB (Code 60014) provides **wideband measurements** as optional extension of the narrowband measurements contained in the test suite DTAG-Mobile-NB (Code 60013).

Manufacturers need UG DTAG-Mobile-WB to be able to prove conformance of their wideband mobile devices with the requirements of the new DTAG test specifications.

Measurement tree and result diagram for UG DTAG-Mobile-WB in communication analysis system ACQUA

DESCRIPTION

The tests implemented in UG DTAG-Mobile-WB cover all requirements of the new DTAG specification regarding **voice quality in the wideband range** such as

- delay measurements in sending and receiving direction
- objective speech quality assessment under single talk conditions in sending and receiving direction
- echo tests
- detailed evaluation of quality during double talk
- quality of background noise transmission.

In addition, **recordings using real speech** under single talk, echo and double talk conditions are implemented. Apart from the measured parameters these recordings also provide listening examples which can be used for audio demonstrations.

For determination of the quality of background noise transmission a standardized arrangement consisting of four loudspeakers and one subwoofer is used in a separate test room setup. It allows a **close-to-reality noise playback** and can be used for all types of background noise.

SYSTEM REQUIREMENTS

UG DTAG-Mobile-WB is **only available in comjunction with DTAG-Mobile-NB** (Code 60013) and requires the following system components:

- **ACQUA** Communication Analysis System as one of the following variants (version 3.0.110 or later):
  - Full-license (Code 6810)
  - Workplace (Code 6830, for post-analysis and documentation only)
  - Compact Systems (Code 6860.xx)
- **HMS II.3** HEAD Measurement System (Code 1230) with pinna type 3.3. *Note: additional left ear simulator required for headset measurements.*
- **HHP III** Handset Positioner (Code 1400)
- **MFE VI.1** Measurement Frontend (Code 6462) with option **MFEVI-BEQ** (Code 6461)
- **HAE-BGN** Background Noise Simulation (Code 6971)
- **ACOPT 09** Speech Level Voltmeter according to ITU-T P.56 (Code 6819)
- **ACOPT 10** TOSQA2001 Telecommunications Objective Speech Quality Assessment (Code 6820)
- **ACOPT 21** 3QUEST, 3-fold Quality Evaluation of Speech in Telecommunications (Code 6844)
- **System Simulator** e.g. R&S CMU200 with corresponding wideband option (not delivered by HEAD acoustics)

APPLICATIONS

- **Conformance tests** of wideband mobile terminals (handset, hands-free and headset modes) according to DTAG "Test Specification for Wideband Mobile Terminals"

MEASUREMENTS

The table on the reverse lists all measurements that can be performed with UG DTAG-Mobile-WB.

OPTIONS

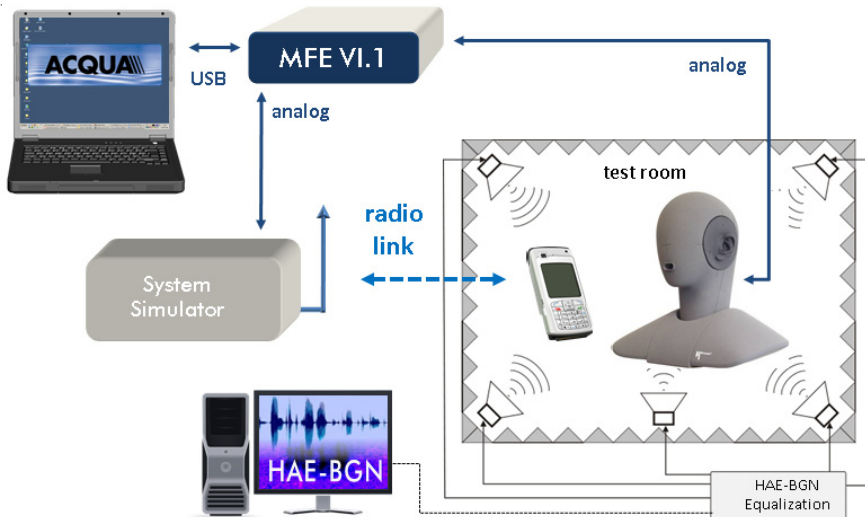- **ACOPT 20** Quality Pie (Code 6843)

DELIVERY ITEMS

- **UG DTAG-Mobile-WB** measurement standard, delivered as ACQUA database on CD (Code 60014)
- **V2C file** (for ACQUA 3.0.110 or later), on CD
- **Manual** as PDF on CD

MEASUREMENTS

The following measurements can be performed with UG DTAG-Mobile-WB:

	Handset WB	Handheld Hands-free WB	Headset WB
CMU Calibration	●	●	●
Delay*	●	●	●
Loudness Rating - Real Speech, CSS*	RCV, SND	RCV, SND	RCV, SND
Frequency Response - Real Speech, CSS*	RCV, SND	RCV, SND	RCV, SND
Idle Channel Noise*	RCV, SND	RCV, SND	RCV, SND
Distortion - with activation, without activation	RCV, SND	RCV, SND	RCV, SND
Activation Sensitivity - Switch On	RCV	RCV	RCV
Attenuation Range - Switch Over	RCV, SND	RCV, SND	RCV, SND
Speech Qual. TMOS - AMR-WB*	RCV, SND	RCV, SND	RCV, SND
Activation in Sending Direction	SND	SND	SND
AGC Test SND	SND	SND	SND
Sidetone Delay	●	–	●
STMR Real Speech, CSS, MAX, NOM	●	–	●
Overall Echo Att. - Real Speech, CSS -5dBm0 - MAX, NOM	●	●	●
Echo Att. vs. Time; -5, -25 dBm0 - MAX, NOM	●	●	●
Spectral Echo Att. - Real Speech, -5 dBm0 CSS - MAX, NOM	●	●	●
Echo vs. Time, VAR; -5, -16, -25 dBm0 - MAX, NOM	●	–	–
Initial Convergence with Hoth BGN - MAX	●	●	●
Stability loss - MAX	●	●	●
Attenuation Range DT - Double Talk, constant level, variant level signal	RCV, SND	RCV, SND	RCV, SND
Detection of Echo Components DT	●	●	●
SNR', Cafe, Car, Train, Road	SND	SND	SND
BGNT with Near End Speech - Cafe, Car	●	●	●
BGNT with Far End Speech - Cafe, Car	●	●	●
Comfort Noise: Level Adjustment -Cafe	●	●	●
Comfort Noise: Spectral Adjustment - Cafe	●	●	●
Speech and Noise Quality BGN - Cafe, Car, Train, Road	SND	SND	SND
Speech and Noise Quality BGN S-N-G-MOS - Cafe, Car, Train, Road	SND	SND	SND
Speech Single Talk	RCV, SND	RCV, SND	RCV, SND
Speech Double Talk	RCV, SND	RCV, SND	RCV, SND
Speech in Sending Direction, Echo	●	●	●
Speech Single Talk, BGN	RCV, SND	RCV, SND	RCV, SND
Speech in Sending Direction, Double Talk BGN	●	●	●
Speech in SND Direction, Echo, BGN	●	●	●
Speech in Sending Direction, Echo Model	●	●	●
Speech in SND Direction, Echo Model BGN	●	●	●

*comprises several measurement variants, e.g. varying application forces

Typical test setup