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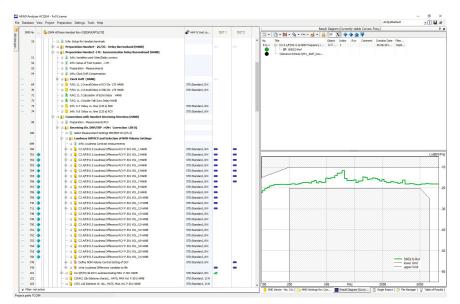D-52134 Herzogenrath
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GSMA HD Voice (Code 60018)

HD Voice Logo Minimum Requirements for Mobile Devices and Headsets

OVERVIEW

GSMA has specified test methods to assess the minimum performance requirements for allowing manufacturers of mobile devices and headsets to make use of the HD Voice Logo registered as trademark by GSMA.

HEAD acoustics has implemented all speech quality measurements required by the GSMA HD Voice specifications (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.

Measurement standard „GSMA HD Voice" in communication quality analysis system ACQUA.
Note: numbering of SMDs in the measurement tree is now according to HD Voice specification.

DESCRIPTION

The tests implemented in the GSMA HD Voice test suite cover all **acoustic performance** aspects concerning mobile devices (handset, headset, handheld hands-free), both for narrowband and wideband scenarios, as specified by the GSMA HD Voice standard.

For the determination of background noise transmission quality, 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.

In conjunction with the analysis system ACQUA, the analysis option ACOPT 21 (3QUEST), and the measurement front end MFE VI.1 with BEQ option as well as other components (cf. system requirements), the GSMA HD Voice test suite with its predefined measurement descriptors and automated measurement sequences allows the fast and easy acquisition, analysis and documentation of measurement data.

Note: As a new feature as of Rev03, acoustic performance test results are automatically added to the Excel report template during the measurement (as recommended in the specification)

APPLICATIONS

- **Conformance tests** of narrow- and wideband mobile devices (handset, headset, handheld hands-free) according to:

a) Minimum Technical Requirements for the usage of the 'HD Voice' logo with GSM/UMTS issued by GSMA (Annex C) Version 2.0 - 12 November 2013

b) Minimum Requirements for Mobile Networks and Terminals for the usage of the 'HD Voice' logo with CDMA2000 (Annex D) Version 2.0 - 12 November 2013

c) Minimum Requirements for Mobile Networks and Terminals for the usage of the 'HD Voice' logo with LTE (Annex F) Version 3.0 - 10 August 2016

d) Minimum Technical Requirements for the usage of the 'HD Voice' logo. Headset Electrical Interface (Annex G) Version 2.0 - 22nd March 2017

Note: "Minimum Technical Requirements for use of the HD Voice Logo with DECT issued by GSMA Version 1.0 [22nd March 2013]" do not require the HD Voice standard (Code 60018), but the CAT-IQ 2.0 standard (Code 6794).

Database Revision	Based on Specification Version	Min. ACQUA Version
3	GSMA Internal Masterdocument - HD Voice Logo Technical Annexes Version 7.0, 23 March 2017. 3GPP TS 26.131-132 Release 13 3GPP2 C.S0056-A V1.0 ITU-T P.381 (03/2017)	3.5.200

MEASUREMENTS

The following measurements can be performed with GSMA HD Voice:

Title	NB				WB			
	Handset [GSM/ UMTS/LTE]	Handset [CDMA]	Handheld Hands-free	Headset	Handset [GSM/ UMTS/LTE]	Handset [CDMA]	Handheld Hands-free	Headset
Frequency Response SND	●	n/a	●	●	●	n/a	●	●
Frequency Response RCV	●	●	●	●	●	●	●	●
Loudness	●	●	●	●	●	●	●	●
Loudness RCV MAX	●	●	n/a	n/a	●	●	n/a	n/a
Echo Loss	●	●	●	n/a	●	●	●	n/a
Distortion RCV	●	n/a	n/a	n/a	●	n/a	n/a	n/a
Distortion SND	●	n/a	n/a	n/a	●	n/a	n/a	n/a
Idle Noise RCV	●	●	n/a	●	●	●	n/a	●
Idle Noise SND	●	●	n/a	●	●	●	n/a	●
Speech path Delay of mobile HD Voice devices	●	●	n/a	n/a	●	●	n/a	n/a
UE delay in jitter and error free conditions	●	n/a	n/a	●	●	n/a	n/a	●
UE delay and speech quality in conditions with packet arrival time variations and packet loss	●	n/a	n/a	n/a	●	n/a	n/a	n/a
Noise Reduction - Objective evaluation	●	n/a	n/a	n/a	●	n/a	n/a	n/a
Sidetone characteristics	●	●	n/a	●	●	●	n/a	●

Headset Electrical Interface Measurements	
Communication Mode (NB, WB)	
Level in Send	●
Level in Receive	●
Frequency Response Sending Side	●
Frequency Response Receiving Side	●
Sidetone Loss	●
Sidetone Delay	●
Noise in Sending Side	●
Noise in Receiving Side	●
Distortion in Sending Side	●
Distortion in Receiving Side	●
One-way Speech Quality in Sending Side	●
One-way Speech Quality in Receiving Side	●
Terminal Coupling loss TCLw	●

Acoustic Headset Measurements	
Communication Mode (NB, WB)	
Sensitivity Sending Side	●
Sensitivity Receiving Side	●
Frequency Response Sending Side	●
Frequency Response Receiving Side	●
Noise in Sending Side	●
Distortion in Sending Side	●
Coupling loss weighted (HTCLw)	●
Multimedia Mode	
Sensitivity	●

SYSTEM REQUIREMENTS

GSMA HD Voice (Code 60018) requires the following system components:

- **TS 26 131-32 (Code 6777)** 3GPP TS 26.131/132, 3G/4G Terminals
- **ACQUA (Code 6810 etc.):** Advanced Communication Quality Analysis System
- **HMS II.3-33 (Code 1230.1)**, artificial HEAD Measurement System with pinna simulator type 3.3 **and HIS L (Code 1231)**, HEAD Impedance Simulator, Left
- **HHP IV (Code 1406)**, handset positioner *MotoMount* (Hexapod); alternatively: **HHP III.1 (Code 1403)**, handset positioner *VariMount*
- **MFE VI.1 (Code 6462)**, analog USB measurement front end with option **MFE VI-BEQ (Code 6461)**, optional binaural equalization for MFE VI.1
- **HAE-BGN (Code 6971)** Background Noise Simulation incl. corresponding system components (cf. HAE-BGN data sheet)
- **HIB I (Code 6002)**, Headset Interface Box
- **ACOPT 09 (Code 6819)** Option SLVM, P.56
- **ACOPT 21 (Code 6844)** Option 3QUEST, 3-fold Quality Evaluation of Speech in Telecommunications
- **ACOPT 30 (Code 6857)** Option POLQA
- **2G/3G/4G Radio Tester** *(not provided by HEAD acoustics)*

OPTIONS

- **ACOPT 20 (Code 6843)** Quality Pie
- **CUU I (Code 6085)** Adapter USB <> USB for Remote Control HAE (Connection ACQUA PC <> HAE PC)

DELIVERY ITEMS

- **GSMA HD Voice (Code 60018)** Measurement Standard, delivered as ACQUA database
- **V2C file**
- **Manual** as PDF

represented by

Valid since standard implementation Rev3, subject to change