Minimum Technical Requirements for use of the HD Voice Logo with DECT issued by GSMA

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Antitrust Notice
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INTRODUCTION

This document holds ANNEX E to the GSMA HD Voice Logo Licence Agreement.

The GSMA HD Voice Logo Licence Agreement and further relevant information and contact details can be found on http://www.gsma.com/hd-voice.

ANNEX E: Minimum Requirements for Terminals for the usage of the 'HD voice' logo with DECT (Digital Enhanced Cordless Telecommunications)

This Annex defines the minimum requirements for the usage of the 'HD voice' logo by DECT device vendors.

Terms:

HD Voice (High Definition Voice) for DECT terminals comprises of G.722 codec and the enhancements to terminals according to the requirements defined in this Annex.

- ANNEX E1: Minimum Requirements to be fulfilled by DECT device vendors in order to use the 'HD voice' logo for the DECT devices supporting G.722.

ANNEX E1 Minimum Requirements for HD Voice DECT devices

A HD Voice DECT device is characterized by:

- Supporting the G.722 codec,
- Providing improved wide band and narrow band speech quality, acoustical characteristics and speech processing.

Corresponding requirements are defined by the CAT-iq 2.0 standard developed by DECT Forum. The associated certification program covers all domains (radio, protocol and audio) that guarantee High Definition Voice over DECT connected devices.

In particular the audio requirements as defined in DF_CAT-iq T_004 include all necessary specifications, namely:

- the support of the Wide band speech codec (G.722) and of the legacy narrow band one G.726,
- the acoustical performance and speech processing for all modes: handset narrow band and wide band, hands-free narrow band and wide band.

The following measurements are performed and checked in each relevant mode:

- Levels and frequency responses (transmission and reception directions).
- Echo, coupling, delay, noise, distortion, acoustic shocks, out of band signals, stability loss (transmission or reception directions).
- Double talk performances measurements.

The associated tests are summarized in Table E1 (from DF_CAT-iq Audio Results).

Table E1: CAT-iq 2.0 Certification Audio Result Template

As minimum requirements, a HD Voice DECT device shall be CAT-iq 2.0 certified according to the CAT-iq 2.0 certification program defined by DF_CAT-iq T_003.

Reference Documents

Tag	Title	Reference	Available at:
DF_CAT-iq T_003	Measurement Specification for CAT-iq 2.0 Testing	DF_CAT-iq T_003_V1.4_2010-12-22, Version 1.4 or later.	http://www.dect.org/documents.aspx
DF_CAT-iq T_004	Test specification Audio for CAT-iq 2.0 Devices	DF_CAT-iq T_004_V1.18_2012-02-10, Version 1.18 or later.	http://www.dect.org/documents.aspx
DF_CAT-iq Audio Results	CAT-iq 2.0 Certification Audio Result Template	CATiq2.0_Certification_Audio ResultTemplate_V1.3	http://www.dect.org/documents.aspx

DOCUMENT MANAGEMENT

Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	22 March 2013	– First version of Minimum terminal requirements for the use of the HD Voice Logo with DECT	PSMC, DECT Forum	DECT Forum

Other Information

Type	Description
Document Owner	GSMA Terminal Steering Group
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Your comments or suggestions & questions are always welcome.

Mode	Type	Chapter	Name	Volume setting	Test Result (to be filled by certification body)	Pass criteria 1 (Do not modify)		Pass criteria 2 (Do not modify)		CAT-iq 2.0 audio results (Do not modify, this is automatically generated)		
						Is meast Critical ?	Result	Weight	Score			
Handset and headset narrow band mode	PP-A	2.4.3	PP send frequency response	nom	PASS	NO	OK	3	3	**Supplier score**	**184**	
	PP-A	2.4.4	PP receive frequency response	nom	PASS	NO	OK	3	3	Minimum required score for certif	160	
	PP-A	2.4.5	PP Nominal Send Loudness Rating	nom	PASS	CRITICAL	OK	3	3	Maximum score (if all tests PASS)	184	
	PP-A	2.4.6	PP Receive Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-A	2.4.6	PP Receive Loudness Rating	max	PASS	NO	OK	2	2	Allowed weight of failed measurements defined by DECT Forum	24	13%
	PP-A	2.4.7	Talker sidetone	nom	PASS	NO	OK	2	2			
	PP-A	2.4.8	Sidetone delay	nom	PASS	NO	OK	2	2			
	PP-A	2.4.9	TCLw	nom	PASS	CRITICAL	OK	3	3	**Pass criteria 1** (no critical requirement failed)	OK	
	PP-A	2.4.9	TCLw	max	PASS	NO	OK	3	3	**Pass criteria 2** (score greater than minimum)	OK	
	PP-A	2.4.10	Stability loss	max	PASS	NO	OK	2	2			
	PP-A	2.4.11	Send Distortion Average Level	nom	PASS	CRITICAL	OK	2	2	**CAT-iq 2.0 Global Audio certif result (Pass criteria 1 + pass criteria 2)**	**PASS**	
	PP-A	2.4.12	Send Distortion High Level	nom	PASS	CRITICAL	OK	2	2			
	PP-A	2.4.13	Receive Distortion - Average line level	max	PASS	NO	OK	2	2			
	PP-A	2.4.14	Receive Distortion - High line level	max	PASS	NO	OK	2	2			
	PP-A	2.4.15	Out-of-Band Signals in Send direction	nom	PASS	NO	OK	1	1	**Other statistics for information**		
	PP-A	2.4.16	Out-of-band signals in receive direction	nom	PASS	NO	OK	1	1	Supplier nb of PASS measurements	87	
	PP-A	2.4.17	Noise in send direction	nom	PASS	NO	OK	3	3	Supplier nb of FAIL measurements	0	
	PP-A	2.4.18	Noise in receive direction	nom	PASS	NO	OK	3	3	Supplier nb of SKIP measurements	0	
	PP-A	2.4.18	Noise in receive direction	max	PASS	NO	OK	2	2	Total nb of "measurements"	87	
	PP-A	2.4.19	Acoustic Shock (at 13N)	max	PASS	CRITICAL	OK	3	3			
	PP-A	2.4.20	Delay	nom	PASS	NO	OK	3	3			
	PP-A	2.4.21.1	Attenuation Range in Send Direction during Double Talk AH,S,dt	nom	PASS	NO	OK	2	2			
	PP-A	2.4.21.2	Attenuation Range in Receive Direction during Double Talk AH,R,dt	nom	PASS	NO	OK	1	1			
	PP-A	2.4.21.3	Detection of Echo Components during Double Talk	nom	PASS	NO	OK	1	1			
	PP-A	2.4.22.1	Activation in Send Direction	nom	PASS	NO	OK	1	1			
	PP-A	2.4.22.2	Activation in Receive Direction	nom	PASS	NO	OK	1	1			
	PP-A	2.4.23.1	Temporal echo effects	nom	PASS	NO	OK	1	1			
	PP-A	2.4.23.2	Spectral Echo Attenuation	nom	PASS	NO	OK	1	1			
Handset and headset wideband mode	PP-B	2.5.3	PP send frequency response	nom	PASS	NO	OK	3	3			
	PP-B	2.5.4	PP receive frequency response	nom	PASS	NO	OK	3	3			
	PP-B	2.5.5	PP Send Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-B	2.5.6	PP Receive Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-B	2.5.6	PP Receive Loudness Rating	max	PASS	NO	OK	2	2			
	PP-B	2.5.7	Talker sidetone	nom	PASS	NO	OK	2	2			
	PP-B	2.5.8	Sidetone delay	nom	PASS	NO	OK	2	2			
	PP-B	2.5.9	TCLw	nom	PASS	CRITICAL	OK	3	3			
	PP-B	2.5.9	TCLw	max	PASS	NO	OK	2	2			
	PP-B	2.5.10	Stability loss	max	PASS	NO	OK	2	2			
	PP-B	2.5.11	Send Distortion average Level	nom	PASS	CRITICAL	OK	2	2			
	PP-B	2.5.12	Send Distortion - high Level	nom	PASS	CRITICAL	OK	2	2			
	PP-B	2.5.13	Receive Distortion - Average line level	max	PASS	NO	OK	2	2			
	PP-B	2.5.14	Receive Distortion - High line level	max	PASS	NO	OK	2	2			
	PP-B	2.5.15	Noise in send direction	nom	PASS	NO	OK	3	3			
	PP-B	2.5.16	Noise in receive direction	nom	PASS	NO	OK	3	3			
	PP-B	2.5.16	Noise in receive direction	max	PASS	NO	OK	2	2			
	PP-B	2.5.17	Acoustic Shock (at 13N)	max	PASS	CRITICAL	OK	3	3			
	PP-B	2.5.18	Delay	nom	PASS	NO	OK	3	3			
	PP-B	2.5.19.1	Attenuation Range in Send Direction during Double Talk AH,S,dt	nom	PASS	NO	OK	2	2			
	PP-B	2.5.19.2	Attenuation Range in Receive Direction during Double Talk AH,S,dt	nom	PASS	NO	OK	1	1			
	PP-B	2.5.19.3	Detection of Echo Components during Double Talk	nom	PASS	NO	OK	1	1			
	PP-B	2.5.20.1	Activation in Send Direction	nom	PASS	NO	OK	1	1			
	PP-B	2.5.20.2	Activation in Receiving Direction	nom	PASS	NO	OK	1	1			
	PP-B	2.5.21.1	Temporal echo effects	nom	PASS	NO	OK	1	1			
	PP-B	2.5.21.2	Spectral Echo Attenuation	nom	PASS	NO	OK	2	2			
Narrowband handsfree	PP-C	2.6.3	Send Frequency Response	nom	PASS	NO	OK	2	2			
	PP-C	2.6.4	Receive Frequency Response	nom	PASS	NO	OK	2	2			
	PP-C	2.6.5	Send Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-C	2.6.6	Receive Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-C	2.6.7	Send Distortion	nom	PASS	NO	OK	2	2			
	PP-C	2.6.8	Receive Distortion	max	PASS	NO	OK	3	3			
	PP-C	2.6.9	Out-of-band signals in receive direction	nom	PASS	NO	OK	1	1			
	PP-C	2.6.10	Send noise	nom	PASS	NO	OK	3	3			
	PP-C	2.6.11	Receive noise	nom	PASS	NO	OK	3	3			
	PP-C	2.6.12	Terminal Coupling Loss of PP	nom	PASS	NO	OK	2	2			
	PP-C	2.6.12	Terminal Coupling Loss of PP	max	PASS	CRITICAL	OK	3	3			
	PP-C	2.6.13	Delay	nom	PASS	NO	OK	2	2			
	PP-C	2.6.14.1	Detection of Echo Components during Double Talk	nom	PASS	NO	OK	1	1			
	PP-C	2.6.15.1	Activation in Send Direction	nom	PASS	NO	OK	1	1			
	PP-C	2.6.15.2	Activation in Receive Direction	nom	PASS	NO	OK	1	1			
	PP-C	2.6.16.1	Temporal echo effects	nom	PASS	NO	OK	1	1			
	PP-C	2.6.16.2	Spectral Echo Attenuation	nom	PASS	NO	OK	1	1			
Wideband handsfree	PP-D	2.7.3	Send Frequency Response	nom	PASS	NO	OK	3	3			
	PP-D	2.7.4	Receive Frequency Response	nom	PASS	NO	OK	2	2			
	PP-D	2.7.5	Send Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-D	2.7.6	Receive Loudness Rating	nom	PASS	CRITICAL	OK	3	3			
	PP-D	2.7.7	Send Distortion	nom	PASS	NO	OK	3	3			
	PP-D	2.7.8	Receive Distortion	max	PASS	NO	OK	3	3			
	PP-D	2.7.9	Send noise	nom	PASS	NO	OK	3	3			
	PP-D	2.7.10	Receive noise	nom	PASS	NO	OK	3	3			
	PP-D	2.7.11	Terminal Coupling Loss of PP	nom	PASS	NO	OK	2	2			
	PP-D	2.7.11	Terminal Coupling Loss of PP	max	PASS	CRITICAL	OK	3	3			
	PP-D	2.7.12	Delay	nom	PASS	NO	OK	2	2			
	PP-D	2.7.13.1	Detection of Echo Components during Double Talk	nom	PASS	NO	OK	1	1			
	PP-D	2.7.14.1	Activation in Send Direction	nom	PASS	NO	OK	1	1			
	PP-D	2.7.14.2	Activation in Receive Direction	nom	PASS	NO	OK	1	1			
	PP-D	2.7.15.1	Temporal echo effects	nom	PASS	NO	OK	1	1			
	PP-D	2.7.15.2	Spectral Echo Attenuation	nom	PASS	NO	OK	2	2			
								184	184			

Explanations :
In order to fullfill the CAT-iq 2.0 audio certification, the device must fullfill Pass criteria 1 **and** Pass criteria 2.
- Pass criteria 1 : all measurements defined as "CRITICAL" shall PASS
- Pass criteria 2 : the score shall be greater than the minimum score defined by DECT Forum above. The score is the summ of all measurements weigthed with 1,2 or 3 (3=highest possible weight of a measurement). The minimum score was defined by DECT Forum.

Example : if the minimum score is 160 and the maximum is 184 (allowed weight of failed = 24), then up to 8 measurements of weight 3 are allowed to be "FAIL". If 9 measurements of weight 3 are "FAIL" then pass criteria 2 is "FAIL"

PASS	CRITICAL	OK
FAIL	NO	KO
SKIP		