

## Measurement Protocol

Measurement Object	Microsoft Teams conferencing device 2.3m for NXP Conversa i.MX RT1170 software pack at 16kHz
--------------------	--

Project	Mockup NXP Conversa i.MX RT1170 Software Pack
Report Generation Date	2/24/2023 6:05 AM
Evaluation procedure	MS Teams certification procedure v5
Conversa parameter file	conversa_parameter_config_RT1170swp16k.src 2023/02/24 16:00:26
Responsible Person	Mathieu BAQUE



## Notes

- **PxxA measurements:** They should be done in an anechoic room as required by the Microsoft Teams test suit. The room used for these measures is an absorbent room but not a full anechoic room. **PxxA are grouped in the below table with a blue background.**
- **PxxR measurements:** They are done in a more reverberant room than the one expected by Microsoft Teams test suit. **PxxR are grouped in the below table with an orange background.**
- **P02A and P14A:** Tests latency fail due to the intern network latency.

## Status Overview

SMD	Status	Single Value Description	Single Value	Object
P01A Send path - avg MOS-LQO - Shared Space	Ok	Calculated Value [MOS]	3.8	RT1170 SWP 16kHz 2.3m
P02A Send path - avg latency over E2E	Not Ok	Calculated Value [ms]	296.9	RT1170 SWP 16kHz 2.3m
P03A Send path: signal level with normal speech	Ok	Calculated Value	-16.0	RT1170 SWP 16kHz 2.3m
P04A Send path - signal level with quiet speech	Ok	Calculated Value	-21.5	RT1170 SWP 16kHz 2.3m
P05A Send path - idle channel SpNR	Ok	Calculated Value	59	RT1170 SWP 16kHz 2.3m
P06A Send path - active channel SpNR	Ok	Calculated Value	47	RT1170 SWP 16kHz 2.3m
P07A Single Frequency Interference SND	Ok	Min. dist. to tolerance scheme [dB], 298.8 Hz	2.66	RT1170 SWP 16kHz 2.3m
P08A Send path - distortion and noise	Ok			RT1170 SWP 16kHz 2.3m
P09A Send path- act. sens.- 2nd mask - Shared Space	Ok	Min. dist. to tolerance scheme [dB], 1.843 s	5.83	RT1170 SWP 16kHz 2.3m
P10A Send path: SpNR with maximum microphone gain	Ok	Calculated Value [dB]	51.2	RT1170 SWP 16kHz 2.3m
P11A Send path - freq. resp.- Shared Space Speakerphone	Ok	Min. dist. to tolerance scheme, 3150.0 Hz	3.80	RT1170 SWP 16kHz 2.3m
P12A Receive path - output level - Shared - up to 2.3m	Ok	Level [dB[SPL]], 0	69.30	RT1170 SWP 16kHz 2.3m
P13A Receive path - avg MOS-LQO - Shared Space Sp.	Ok	Calculated Value [MOS]	3.75	RT1170 SWP 16kHz 2.3m
P14A Receive path - avg latency over E2E call	Not Ok	Calculated Value [ms]	292.56	RT1170 SWP 16kHz 2.3m
P15A Receive idle channel noise - Personal/Shared space	Ok	Level [dB[SPL]](A)]	18.69	RT1170 SWP 16kHz 2.3m
P16A Single Frequency Interference RCV	Ok	Min. dist. to tolerance scheme [dB], 7010.7 Hz	0.44	RT1170 SWP 16kHz 2.3m
P17A Receive path - distortion and noise - Shared Space	Ok			RT1170 SWP 16kHz 2.3m
P18A Receive path - freq. resp. - Shared Space Sp.	Ok	Min. dist. to tolerance scheme [Pa/V], 6300.0 Hz	3.41	RT1170 SWP 16kHz 2.3m
P19A Receive path - no extra gain for quiet signals	Ok	Calculated Value	-0.07	RT1170 SWP 16kHz 2.3m
P20A Echo path - terminal coupling loss (TCL)	Ok	Calculated Value [dB]	64	RT1170 SWP 16kHz 2.3m
P21A Echo path - EQUEST nomvol - worst of 6	Ok	Calculated Value [MOS]	4.4	RT1170 SWP 16kHz 2.3m
P22A Echo path - echo dur alt. SND- RCV P1- ARnom - 2.3m	Ok	Min. dist. to tolerance scheme [dB], 34.977 s	14.03	RT1170 SWP 16kHz 2.3m
P22A Echo path - echo dur alt. SND- RCV P2- ARnom - 2.3m	Ok	Min. dist. to tolerance scheme [dB], 54.764 s	10.88	RT1170 SWP 16kHz 2.3m

P23A Echo path - SND attn. dur. DT - ARNom - 2.3m	Ok	Calculated Value [dB]	9.6	RT1170 SWP 16kHz 2.3m
P01R Send quality with ambient noise - avg S-MOS	Ok	Calculated Value [MOS (Avg)]	4.03	RT1170 SWP 16kHz 2.3m
P02R Send quality with ambient noise - avg N-MOS	Ok	Calculated Value [MOS (Avg)]	3.59	RT1170 SWP 16kHz 2.3m
P03R Send path - Average Alter. talker1&2 S-MOS	Ok	Calculated Value [MOS]	4.1	RT1170 SWP 16kHz 2.3m
P04R Send path - Average Alter. talker 1&2 - Level	Ok	Calculated Value [dB]	-16.7	RT1170 SWP 16kHz 2.3m
P05R Receive path: output level in reverber - upto 2.3m	Ok	Level [dB[SPL](C)], 0	70.20	RT1170 SWP 16kHz 2.3m
P06R Echo path - EQUEST nomvol - worst of 6	Ok	Calculated Value [MOS]	4.30	RT1170 SWP 16kHz 2.3m
P07R Echo Path- A-wt echo during alt. SND-RCV P1-Reverb	Ok	Min. dist. to tolerance scheme [dB], 18.641 s	6.09	RT1170 SWP 16kHz 2.3m
P07R Echo Path- A-wt echo during alt. SND-RCV P2-Reverb	Ok	Min. dist. to tolerance scheme [dB], 57.436 s	12.14	RT1170 SWP 16kHz 2.3m
P08R Echo path -AEC convergence test A-wt at call start	Ok	Min. dist. to tolerance scheme [dB], 14.176 s	3.58	RT1170 SWP 16kHz 2.3m

P01A Send path - avg MOS-LQO - Shared Space, Index: 1.....	5
P02A Send path - avg latency over E2E, Index: 1.....	5
P03A Send path: signal level with normal speech, Index: 1 .....	6
P04A Send path - signal level with quiet speech, Index: 1.....	6
P05A Send path - idle channel SpNR , Index: 1 .....	6
P06A Send path - active channel SpNR, Index: 1 .....	7
P07A Single Frequency Interference SND, Index: 1 .....	7
P08A Send path - distortion and noise, Index: 1.....	8
P09A Send path- act. sens.- 2nd mask - Shared Space, Index: 1 .....	9
P10A Send path: SpNR with maximum microphone gain , Index: 1 .....	9
P11A Send path - freq. resp.- Shared Space Speakerphone, Index: 1 .....	10
P12A Receive path - output level - Shared - up to 2.3m, Index: 1 .....	10
P13A Receive path - avg MOS-LQO - Shared Space Sp., Index: 1 .....	10
P14A Receive path - avg latency over E2E call, Index: 1 .....	11
P15A Receive idle channel noise - Personal/Shared space, Index: 1.....	12
P16A Single Frequency Interference RCV , Index: 1 .....	12
P17A Receive path - distortion and noise - Shared Space, Index: 1 .....	13
P18A Receive path - freq. resp. - Shared Space Sp., Index: 1 .....	14
P19A Receive path - no extra gain for quiet signals, Index: 1.....	14
P20A Echo path - terminal coupling loss (TCL) , Index: 2.....	15
P21A Echo path - EQUEST nomvol - worst of 6, Index: 2.....	15
P22A Echo path - echo dur alt. SND-RCV P1- ARnom - 2.3m, Index: 2 .....	16
P22A Echo path - echo dur alt. SND-RCV P2- ARnom - 2.3m, Index: 2 .....	17
P23A Echo path - SND attn. dur. DT - ARNom - 2.3m, Index: 2 .....	17
P01R Send quality with ambient noise - avg S-MOS, Index: 1 .....	18
P02R Send quality with ambient noise - avg N-MOS , Index: 1 .....	18
P03R Send path - Average Alter. talker1&2 S-MOS, Index: 1 .....	18
P04R Send path - Average Alter. talker 1&2 - Level, Index: 1.....	19
P05R Receive path: output level in reverber - upto 2.3m, Index: 1.....	19
P06R Echo path - EQUEST nomvol - worst of 6, Index: 3 .....	19
P07R Echo Path- A-wt echo during alt. SND-RCV P1-Reverb, Index: 2 .....	20
P07R Echo Path- A-wt echo during alt. SND-RCV P2-Reverb, Index: 2 .....	21
P08R Echo path -AEC convergence test A-wt at call start, Index: 1.....	22

**P01A Send path - avg MOS-LQO - Shared Space, Index: 1****Correction**

PMOS_SND_F1	3.600	2/24/2023	Measured	Super Wideband MOS (P.863) SND - female run 1
PMOS_SND_F2	3.600	2/24/2023	Measured	Super Wideband MOS (P.863) SND - female run 2
PMOS_SND_M1	4.000	2/24/2023	Measured	Super Wideband MOS (P.863) SND - male run 1
PMOS_SND_M2	4.000	2/24/2023	Measured	Super Wideband MOS (P.863) SND - male run 2

$(\text{PMOS\_SND\_F1} + \text{PMOS\_SND\_F2} + \text{PMOS\_SND\_M1} + \text{PMOS\_SND\_M2}) / 4$

Calculated Value: 3.8 MOS Ok

**Ok**

2/24/2023 10:39 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P02A Send path - avg latency over E2E, Index: 1****Correction**

DELAY_SND_F1	294.110 ms	2/24/2023	Measured	Super Wideband MOS (P.863) SND - female run 1
DELAY_SND_M1	296.009 ms	2/24/2023	Measured	Super Wideband MOS (P.863) SND - male run 1
DELAY_SND_F2	297.666 ms	2/24/2023	Measured	Super Wideband MOS (P.863) SND - female run 2
DELAY_SND_M2	299.865 ms	2/24/2023	Measured	Super Wideband MOS (P.863) SND - male run 2

$(\text{DELAY\_SND\_F1} + \text{DELAY\_SND\_M1} + \text{DELAY\_SND\_F2} + \text{DELAY\_SND\_M2}) / 4$

Calculated Value: 296.9 ms Not Ok

**Not Ok**

2/24/2023 10:39 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P03A Send path: signal level with normal speech, Index: 1****Correction**

SNDLVL_N_AR_SHAR2.3	-15.990 dBm0	2/24/2023	Measured	Rec. for P03A Send path signal level with normal speech
---------------------	--------------	-----------	----------	---

SNDLVL\_N\_AR\_SHAR2.3

Calculated Value: -16.0 Ok

**Ok**

2/24/2023 10:40 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P04A Send path - signal level with quiet speech, Index: 1****Correction**

SNDLVL_Q_AR_SHAR2.3	-21.490 dBm0	2/24/2023	Measured	Rec. for P04A Send path signal level with quiet speech
---------------------	--------------	-----------	----------	--

SNDLVL\_Q\_AR\_SHAR2.3

Calculated Value: -21.5 Ok

**Ok**

2/24/2023 10:41 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P05A Send path - idle channel SpNR , Index: 1****Correction**

SND_SP_LVL_SHAR2.3	-15.820 dBm0	2/24/2023	Measured	Graph for P05A- P06A - speech level
SND_IDLE_NOI_SHAR2.3	-75.320 dBm0	2/24/2023	Measured	Graph for P05A - idle channel noise A-weight

SND\_SP\_LVL\_SHAR2.3 - SND\_IDLE\_NOI\_SHAR2.3

Calculated Value: 59 Ok

**Ok**

2/24/2023 10:42 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P06A Send path - active channel SpNR, Index: 1****Correction**

SND_SP_LVL_SHAR2.3	-15.820 dBm0	2/24/2023	Measured	Graph for P05A- P06A - speech level
SND_ACT_NOI_SHAR2.3	-63.210 dBm0	2/24/2023	Measured	Graph for P06A - active channel noise A-weight

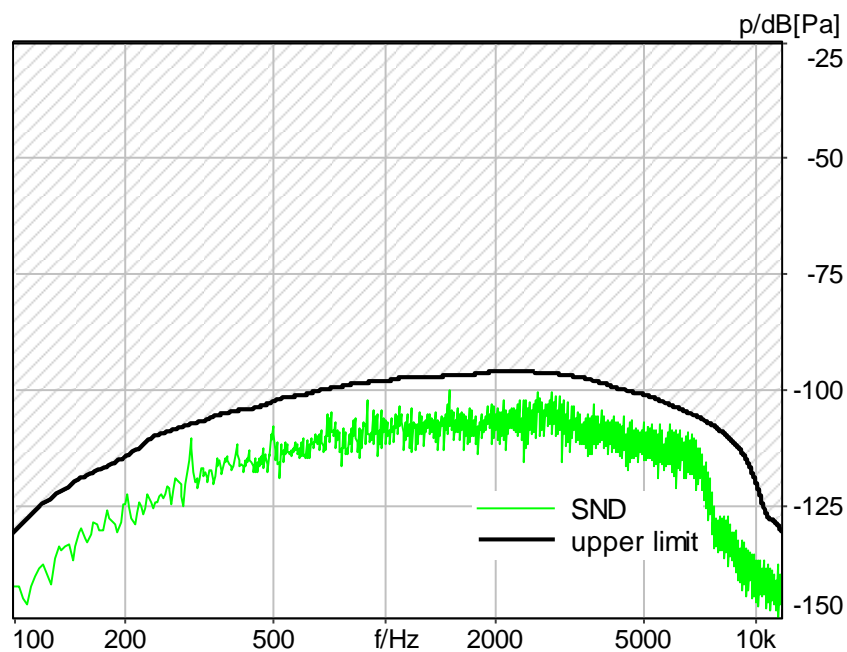
SND\_SP\_LVL\_SHAR2.3 - SND\_ACT\_NOI\_SHAR2.3

Calculated Value: 47 Ok

**Ok**

2/24/2023 10:42 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P07A Single Frequency Interference SND, Index: 1**

Absolute minimal distance

2.66 dB at 298.8 Hz Ok

**Ok**

2/24/2023 10:42 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

If this test case shows a failing result then please check next SMD for the peak noise level value.

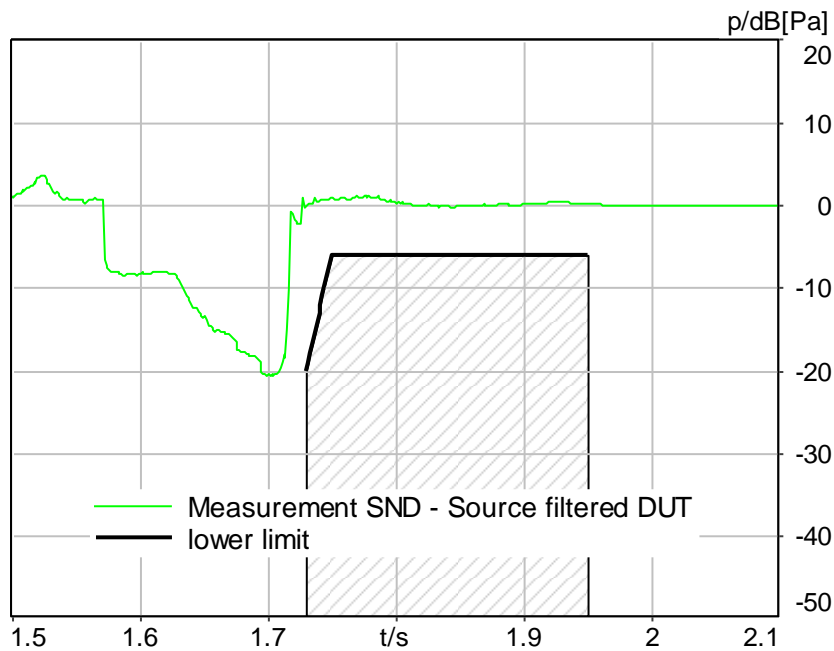
If the peak interference noise level measured is below -80dBV then the result of send interference noise test can be marked as Pass over ruling the calculated result.

**P08A Send path - distortion and noise, Index: 1**

Variable Name	Distortion Value [dB]	Lower Limit [dB]	Frequency Range [Hz]	Center Frequency [Hz]	Pass/Fail
iso24_89_SP	41.84	30	224...282	250	Pass
iso25_89_SP	40.75	30	282...355	315	Pass
iso26_89_SP	40.63	30	355...447	400	Pass
iso27_89_SP	45.74	30	447...562	500	Pass
iso28_89_SP	42.91	30	562...708	630	Pass
iso29_89_SP	50.26	30	708...891	800	Pass
iso30_89_SP	49.46	30	891...1122	1000	Pass
iso31_89_SP	51.06	30	1122...1413	1250	Pass
iso32_89_SP	51.72	30	1413...1778	1600	Pass
iso33_89_SP	43.18	30	1778...2239	2000	Pass
iso34_89_SP	50.2	30	2239...2818	2500	Pass
iso35_89_SP	45.34	30	2818...3548	3150	Pass
iso36_89_SP	51.49	30	3548...4467	4000	Pass
iso37_89_SP	52.5	28	4467...5623	5000	Pass

2/24/2023 10:44 AM ACQUA



**P09A Send path- act. sens.- 2nd mask - Shared Space, Index: 1**

Absolute minimal distance

5.83 dB at 1.843 s Ok

**Ok**

2/24/2023 10:46 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P10A Send path: SpNR with maximum microphone gain , Index: 1****Correction**

spnr_89	63.400 dB	2/24/2023	Measured	Analysis - SpNR - 89dBSPL
spnr_86	59.700 dB	2/24/2023	Measured	Analysis - SpNR - 86dBSPL
spnr_83	57.400 dB	2/24/2023	Measured	Analysis - SpNR - 83dBSPL
spnr_80	54.400 dB	2/24/2023	Measured	Analysis - SpNR - 80dBSPL
spnr_77	51.200 dB	2/24/2023	Measured	Analysis - SpNR - 77dBSPL

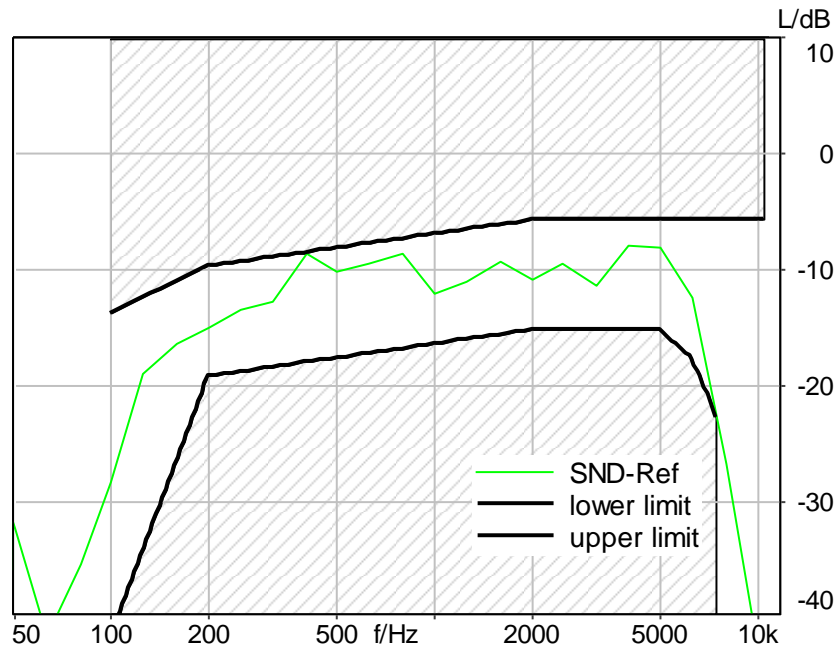
min ( min( min ( min (spnr\_89, spnr\_86), spnr\_83), spnr\_80), spnr\_77)

Calculated Value: 51.2 dB Ok

**Ok**

2/24/2023 10:48 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P11A Send path - freq. resp.- Shared Space Speakerphone, Index: 1**

Absolute minimal distance

3.80 dB at 3150.0 Hz Ok

**Ok**

2/24/2023 11:46 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P12A Receive path - output level - Shared - up to 2.3m, Index: 1**

Level RCV: 69.30 dB[SPL] Ok

**Ok**

2/24/2023 10:50 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P13A Receive path - avg MOS-LQO - Shared Space Sp., Index: 1****Correction**

PMOS_RCV_F1	3.700	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - female run 1
PMOS_RCV_F2	3.700	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - female run 2
PMOS_RCV_M1	3.800	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - male run 1
PMOS_RCV_M2	3.800	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - male run 2

$(\text{PMOS\_RCV\_F1} + \text{PMOS\_RCV\_F2} + \text{PMOS\_RCV\_M1} + \text{PMOS\_RCV\_M2}) / 4$

Calculated Value: 3.75 MOS Ok

**Ok**

2/24/2023 10:52 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

## **P14A Receive path - avg latency over E2E call, Index: 1**

### **Correction**

DELAY_RCV_F1	292.959 ms	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - female run 1
DELAY_RCV_M1	299.589 ms	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - male run 1
DELAY_RCV_F2	289.512 ms	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - female run 2
DELAY_RCV_M2	288.169 ms	2/24/2023	Measured	Super Wideband MOS (P.863) RCV - male run 2

$(\text{DELAY\_RCV\_F1} + \text{DELAY\_RCV\_M1} + \text{DELAY\_RCV\_F2} + \text{DELAY\_RCV\_M2}) / 4$

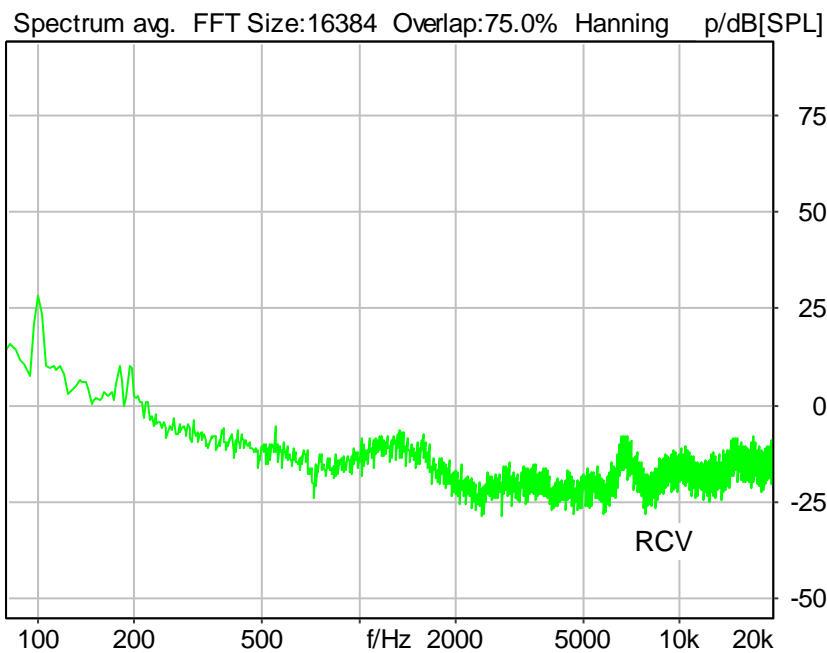
Calculated Value: 292.56 ms Not Ok

**Not Ok**

2/24/2023 10:52 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

## **P15A Receive idle channel noise - Personal/Shared space, Index: 1**



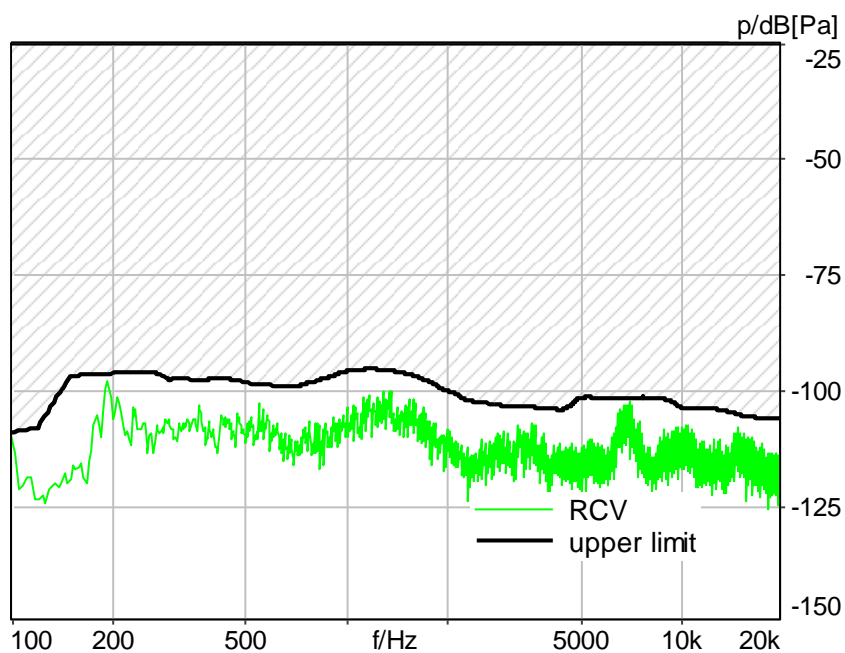
Level: 18.69 dB[SPL](A) Ok

**Ok**

2/24/2023 10:52 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

## **P16A Single Frequency Interference RCV , Index: 1**



Absolute minimal distance  
0.44 dB at 7010.7 Hz Ok

**Ok**

2/24/2023 10:53 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

---

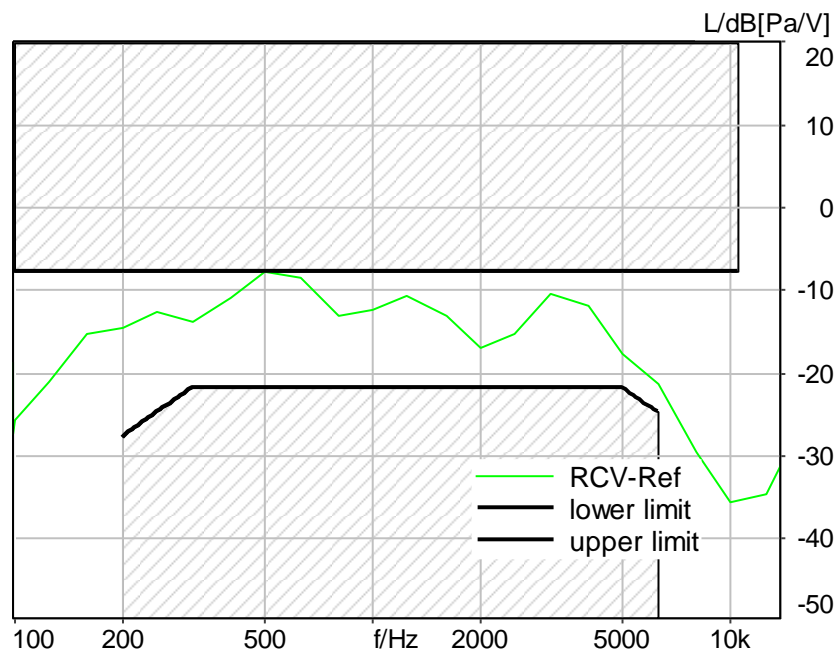
If this test case shows a failing result then please check next SMD for the peak noise level value.

If the peak interference noise level measured is below 24dB SPL then the result of receive interference noise test can be marked as Pass over ruling the calculated result.

### **P17A Receive path - distortion and noise - Shared Space, Index: 1**

Variable Name	Distortion Value [dB]	Lower Limit [dB]	Frequency Range [Hz]	Center Frequency [Hz]	Pass/Fail
iso24_16_SP	36.1	20	224...282	250	Pass
iso25_16_SP	35.38	20	282...355	315	Pass
iso26_16_SP	39.21	22	355...447	400	Pass
iso27_16_SP	43.98	24	447...562	500	Pass
iso28_16_SP	39.13	24	562...708	630	Pass
iso29_16_SP	41.37	24	708...891	800	Pass
iso30_16_SP	42.09	24	891...1122	1000	Pass
iso31_16_SP	41.81	24	1122...1413	1250	Pass
iso32_16_SP	38.1	24	1413...1778	1600	Pass
iso33_16_SP	33.87	24	1778...2239	2000	Pass
iso34_16_SP	35.16	24	2239...2818	2500	Pass
iso35_16_SP	38.27	24	2818...3548	3150	Pass
iso36_16_SP	37.33	24	3548...4467	4000	Pass
iso37_16_SP	29.64	24	4467...5623	5000	Pass

2/24/2023 11:09 AM ACQUA

**P18A Receive path - freq. resp. - Shared Space Sp., Index: 1**

Absolute minimal distance

3.41 dB at 6300.0 Hz Ok

**Ok**

2/24/2023 11:46 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P19A Receive path - no extra gain for quiet signals, Index: 1****Correction**

DRC_gain_1	-60.570 dB[Pa]	2/24/2023	Measured	Analysis P19A compression - quiet signal - beginning
DRC_gain_2	-60.640 dB[Pa]	2/24/2023	Measured	Analysis P19A compression - quiet signal - end

DRC\_gain\_2 - DRC\_gain\_1

Calculated Value: -0.07 Ok

**Ok**

2/24/2023 11:10 AM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P20A Echo path - terminal coupling loss (TCL) , Index: 2****Correction**

echo_tcl_e2e	60.950 dB	2/24/2023	Measured	Recording for P20A terminal coupling loss (TCL)
snd_normal_tcl_e2e	-15.370 dBm0	2/24/2023	Measured	Send path - signal level with normal speech for TCL

$\text{echo\_tcl\_e2e} + (\text{snd\_normal\_tcl\_e2e} - (-18))$

Calculated Value: 64 dB Ok

**Ok**

2/24/2023 3:40 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P21A Echo path - EQUEST nomvol - worst of 6, Index: 2****Correction**

EMOS_E2E_AR_NOM_1	5.000	2/24/2023	Measured	Echo path - P21A EQUEST nomvol (male) 1/6
EMOS_E2E_AR_NOM_2	4.400	2/24/2023	Measured	Echo path - P21A EQUEST nomvol (female) 2/6
EMOS_E2E_AR_NOM_3	5.000	2/24/2023	Measured	Echo path - P21A EQUEST nomvol (male) 3/6
EMOS_E2E_AR_NOM_4	5.000	2/24/2023	Measured	Echo path - P21A EQUEST nomvol (male) 4/6
EMOS_E2E_AR_NOM_5	4.500	2/24/2023	Measured	Echo path - P21A EQUEST nomvol (female) 5/6
EMOS_E2E_AR_NOM_6	4.400	2/24/2023	Measured	Echo path - P21A EQUEST nomvol (female) 6/6

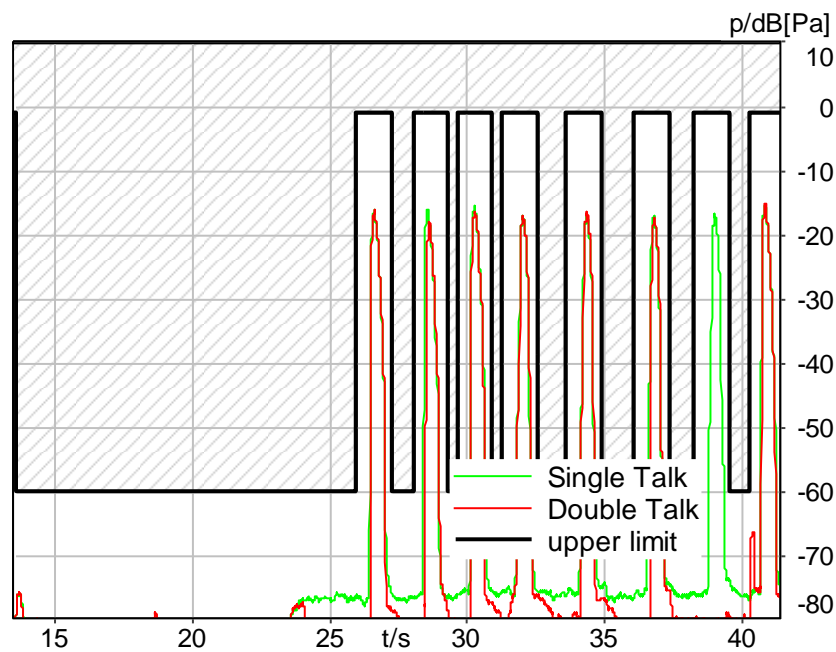
$\min(\min(\min(\min(\text{EMOS\_E2E\_AR\_NOM\_1}, \text{EMOS\_E2E\_AR\_NOM\_2}), \text{EMOS\_E2E\_AR\_NOM\_3}), \text{EMOS\_E2E\_AR\_NOM\_4}), \text{EMOS\_E2E\_AR\_NOM\_5}), \text{EMOS\_E2E\_AR\_NOM\_6})$

Calculated Value: 4.4 MOS Ok

**Ok**

2/24/2023 3:41 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P22A Echo path - echo dur alt. SND-RCV P1- ARnom - 2.3m, Index: 2**

Absolute minimal distance

14.03 dB at 34.977 s Ok

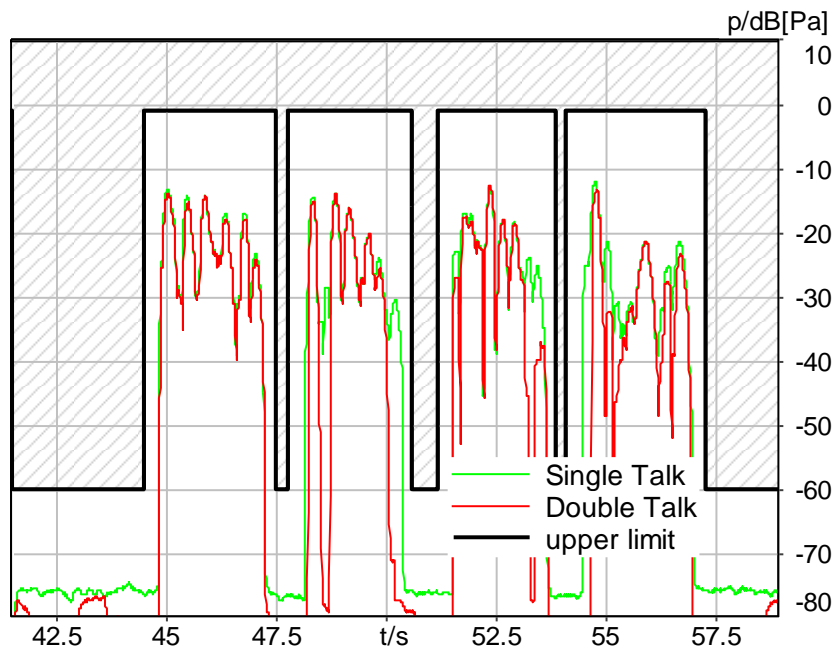
**Ok**

2/24/2023 3:45 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor



## **P22A Echo path - echo dur alt. SND-RCV P2- ARnom - 2.3m, Index: 2**



Absolute minimal distance

10.88 dB at 54.764 s Ok

**Ok**

2/24/2023 3:45 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

## **P23A Echo path - SND attn. dur. DT - ARNom - 2.3m, Index: 2**

### **Correction**

DTatt_E2E_NOM_1_SH23	2.791 dB	2/24/2023	Measured	Analysis P23A - SNDattn.during DT P1 - ARNom - 2.3m
DTatt_E2E_NOM_2_SH23	9.586 dB	2/24/2023	Measured	Analysis P23A - SNDattn.during DT P2 - ARNom - 2.3m

max (DTatt\_E2E\_NOM\_1\_SH23, DTatt\_E2E\_NOM\_2\_SH23)

Calculated Value: 9.6 dB Ok

**Ok**

2/24/2023 3:45 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P01R Send quality with ambient noise - avg S-MOS, Index: 1****Correction**

S_MOS_E2E_PROJ_SHAR	4.007	2/24/2023	Measured	A. Analyze 3QUEST - Projector noise - Pos1
S_MOS_E2E_CONF_SHAR	4.062	2/24/2023	Measured	B. Analyze 3QUEST - Conference 3 noise - Pos1

 $1/2 * (S\_MOS\_E2E\_PROJ\_SHAR + S\_MOS\_E2E\_CONF\_SHAR)$ 

Calculated Value: 4.03 MOS (Avg) Ok

**Ok**

2/24/2023 5:37 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P02R Send quality with ambient noise - avg N-MOS , Index: 1****Correction**

N_MOS_E2E_PROJ_SHAR	3.703	2/24/2023	Measured	A. Analyze 3QUEST - Projector noise - Pos1
N_MOS_E2E_CONF_SHAR	3.469	2/24/2023	Measured	B. Analyze 3QUEST - Conference 3 noise - Pos1

 $1/2 * (N\_MOS\_E2E\_PROJ\_SHAR + N\_MOS\_E2E\_CONF\_SHAR)$ 

Calculated Value: 3.59 MOS (Avg) Ok

**Ok**

2/24/2023 5:37 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P03R Send path - Average Alter. talker1&2 S-MOS, Index: 1****Correction**

S_MOS_MIN_T1_SHAR	4.100 MOS	2/24/2023	Measured	Calc P03R Send path - Altern. talker S-MOS - Talker 1
-------------------	-----------	-----------	----------	---

S_MOS_MIN_T2_SHAR	4.200 MOS	2/24/2023	Measured	Calc P03R Send path - Altern. talker S-MOS - Talker 2
-------------------	-----------	-----------	----------	--

min(S\_MOS\_MIN\_T1\_SHAR, S\_MOS\_MIN\_T2\_SHAR)

Calculated Value: 4.1 MOS Ok

Ok

2/24/2023 5:58 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### **P04R Send path - Average Alter. talker 1&2 - Level, Index: 1**

#### **Correction**

LVL_ALT_T1	-16.700 dB	2/24/2023	Measured	Calc P04R Send - Alternating talker level - Talker 1
LVL_ALT_T2	-15.700 dB	2/24/2023	Measured	Calc P04R Send - Alternating talker level - Talker 2

min(LVL\_ALT\_T1, LVL\_ALT\_T2)

Calculated Value: -16.7 dB Ok

Ok

2/24/2023 5:58 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### **P05R Receive path: output level in reverber - upto 2.3m, Index: 1**

Level RCV: 70.20 dB[SPL](C) Ok

Ok

2/24/2023 4:30 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### **P06R Echo path - EQUEST nomvol - worst of 6, Index: 3**

#### **Correction**

EMOS_E2ERR_NOM_SHAR1	5.000	2/24/2023	Measured	Echo path - P06R EQUEST RR nomvol (male) 1/6
----------------------	-------	-----------	----------	---

EMOS_E2ERR_NOM_SHAR2	4.500	2/24/2023	Measured	Echo path - P06R EQUEST RR nomvol (female) 2/6
EMOS_E2ERR_NOM_SHAR3	5.000	2/24/2023	Measured	Echo path - P06R EQUEST RR nomvol (male) 3/6
EMOS_E2ERR_NOM_SHAR4	5.000	2/24/2023	Measured	Echo path - P06R EQUEST RR nomvol (male) 4/6
EMOS_E2ERR_NOM_SHAR5	4.500	2/24/2023	Measured	Echo path - P06R EQUEST RR nomvol (female) 5/6
EMOS_E2ERR_NOM_SHAR6	4.300	2/24/2023	Measured	Echo path - P06R EQUEST RR nomvol (female) 6/6

min ( min ( min( min ( min (EMOS\_E2ERR\_NOM\_SHAR1, EMOS\_E2ERR\_NOM\_SHAR2),  
EMOS\_E2ERR\_NOM\_SHAR3) ,EMOS\_E2ERR\_NOM\_SHAR4) ,EMOS\_E2ERR\_NOM\_SHAR5) ,EMOS\_E2ERR\_NOM\_SHAR6)

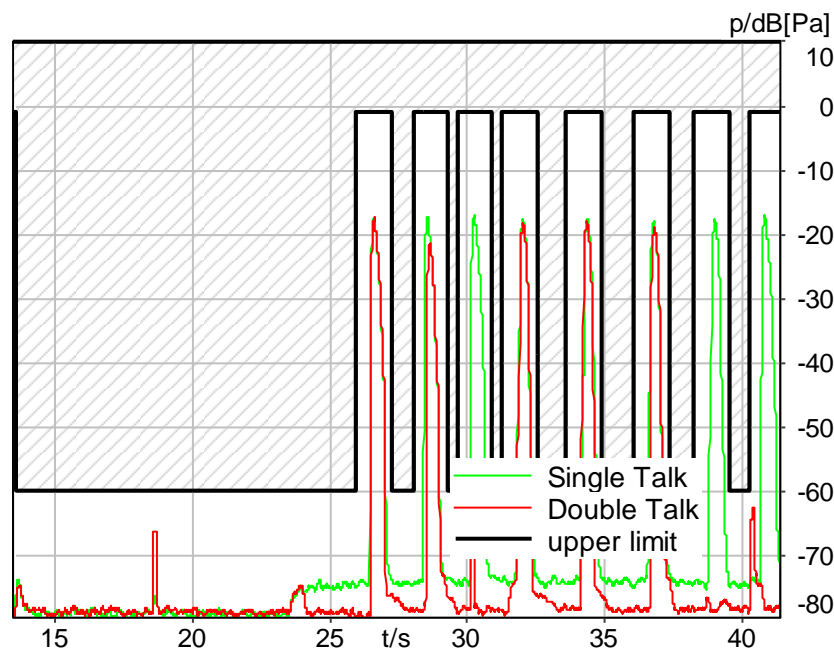
Calculated Value: 4.30 MOS Ok

**Ok**

2/24/2023 4:50 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

## **P07R Echo Path- A-wt echo during alt. SND-RCV P1-Reverb, Index: 2**

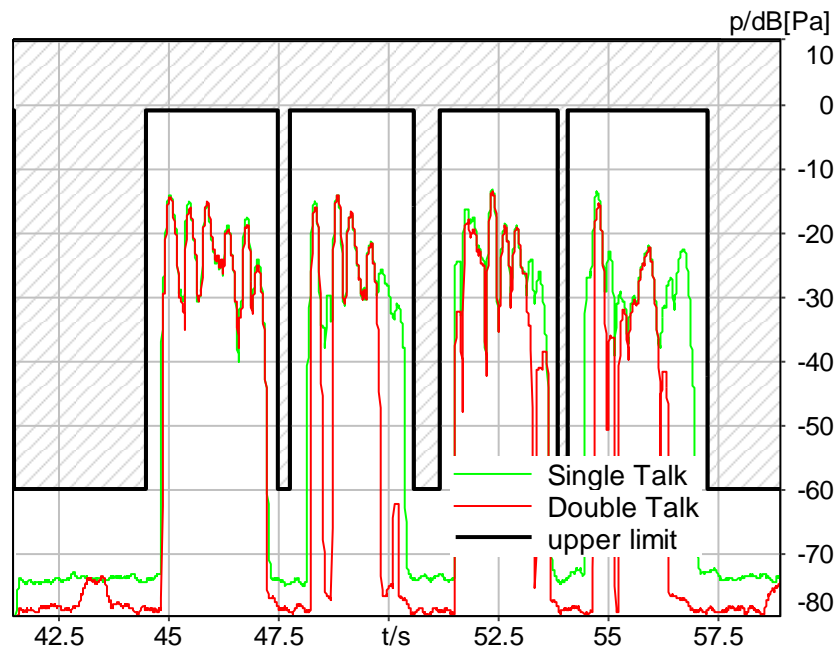


Absolute minimal distance  
6.09 dB at 18.641 s Ok

**Ok**

2/24/2023 4:45 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P07R Echo Path- A-wt echo during alt. SND-RCV P2-Reverb, Index: 2**

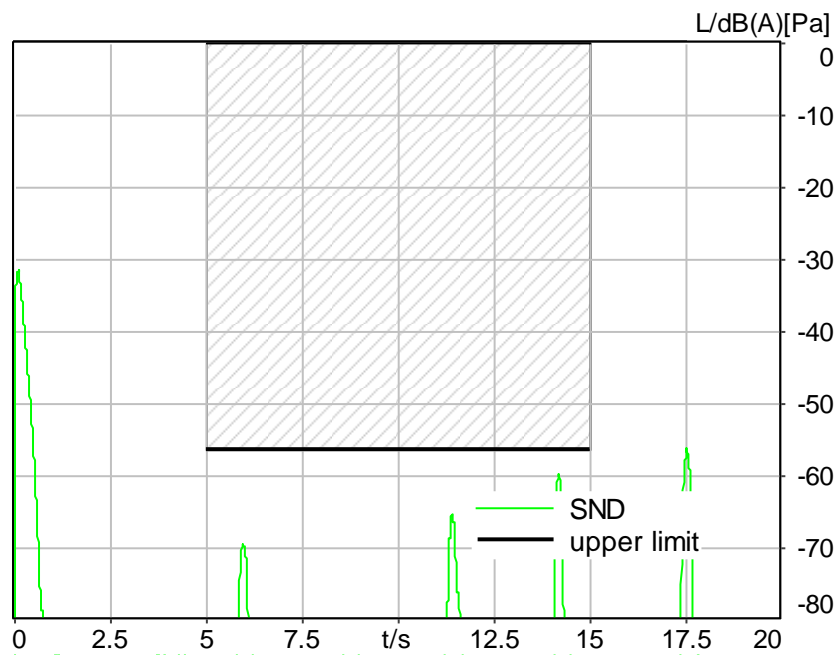
Absolute minimal distance

12.14 dB at 57.436 s Ok

**Ok**

2/24/2023 4:45 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**P08R Echo path -AEC convergence test A-wt at call start, Index: 1**

Absolute minimal distance

3.58 dB at 14.176 s Ok

**Ok**

2/24/2023 4:39 PM ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor