MAC Allure Wash PC

Acoustic Test Report

Martin by HARMAN

HARMAN Professional Denmark ApS - Olof Palmes Allé 18 - 8200 Aarhus N - Denmark - www.martin.com

Title

MAC Allure Wash PC Acoustic Test Report

Test conditions

Test carried out according to ISO 3744:2010(E)

Device tested

Make: HARMAN Professional Denmark ApS

Model: MAC Allure Wash PC

Serial no: 15055066017

Software version: 1.0.0

Results

An image of the test setup can be found on Page 4. Test results are listed in Table 1 on Page 5. Figures of measurement results are shown in Appendix A on Page 7.

HARMAN Professional Denmark ApS, R&D QA are responsible for the test results given in this report.

Environment

Temperature: 28.8°C Ta

Humidity: 62.1 %RH

AC mains power: 220 V, 50 Hz

Background noise level: 8.9dBA

Warm-up time: 10 minutes at full intensity.

Fixture placement: Fixture was placed at least one meter from walls and ceiling, as described in the Standard ISO 3744:2010(E)

Remarks

Test results apply only to the tested specimen.

Rev: (last five)	Made by:	Description:	Approved by:	Date approved:
A	Chloe Liu	MAC Allure Wash PC Sound Measurement	Bo Horsted Poulsen	2019-10-25

Setup

The product was placed indoors in a semi-anechoic room in SDC of Harman Technology in Shenzhen, China (See Figure 1). The ceiling and walls were all acoustically absorbent and the floor was reflective. The main dimensions of the room were 4.2m * 3.2m * 2.5m (length * width * height).

Figure 1: Test setup

The product was allowed a minimum 10 minutes of warm-up time before measurements were performed.

Measurement method

Measurements were carried out using a setup with 1 microphone. The microphone was in turn moved to the measurement positions described below.

Measurement setup:

- Hemispherical measurement model
- 10 microphone positions in total
- Measurement surface area: 14.14 m^2

Instrumentation

Please refer to Page 6 for a full instrumentation list.

Results

The MAC Allure Wash PC was measured in 5 different scenarios:

1. All effects static, Light source ON, 100% output white light - Regulated Fan Mode
2. All effects static, Light source ON, 100% output white light - Constant Fan Mode Full
3. All effects static, Light source ON, 100% output white light - Constant Fan Mode Medium
4. All effects static, Light source ON, 100% output white light - Constant Fan Mode Low
5. All effects static, Light source ON, 100% output white light - Constant Fan Mode Ultra-Low

Test positions and sound pressure levels are shown in Table 1.

Sound Pressure Levels					
Distance from fixture	Regulated Fan (Max Output) **[dB(A)]**	Constant Fan Full **[dB(A)]**	Constant Fan Mid **[dB(A)]**	Constant Fan Low **[dB(A)]**	Constant Fan Ultra-Low **[dB(A)]**
LpA at 0m	45.8	51.4	47.6	45.3	44.7
LpA at 1m	37.8	43.4	39.6	37.3	36.7
LpA at 4m	25.8	31.4	27.6	25.3	24.7
LpA at 7m	20.9	26.5	22.7	20.4	19.8

The duration of the acoustical measurement for each position is 30s.

After calculated the time-averaged sound pressure levels of all positions and background noise, the difference between the two values is more than 15dB, therefore no correction for background noise shall be applied.

Table 1: Sound Pressure Levels

Sound Pressure Levels have been converted from Sound Power Levels using the formula: LpA = (LwA – $reduction_{distance}$)

Reductions used: 8dB(A)@1m, 20dB(A)@4m, 24.9dB(A)@7m

Noise level details

Appendix A displays measurement detail of noise level in Regulated Fan Mode scenario.

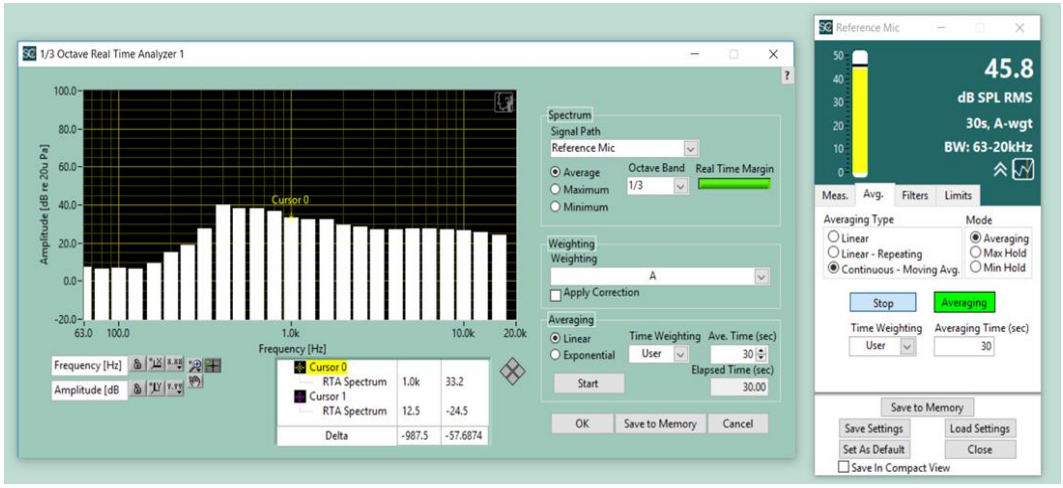
Instrumentation

Equipment	Make	Type
SoundCheck 16 Ampconnect	Listen Inc.	
Microphone	G.R.A.S	40PP-S1

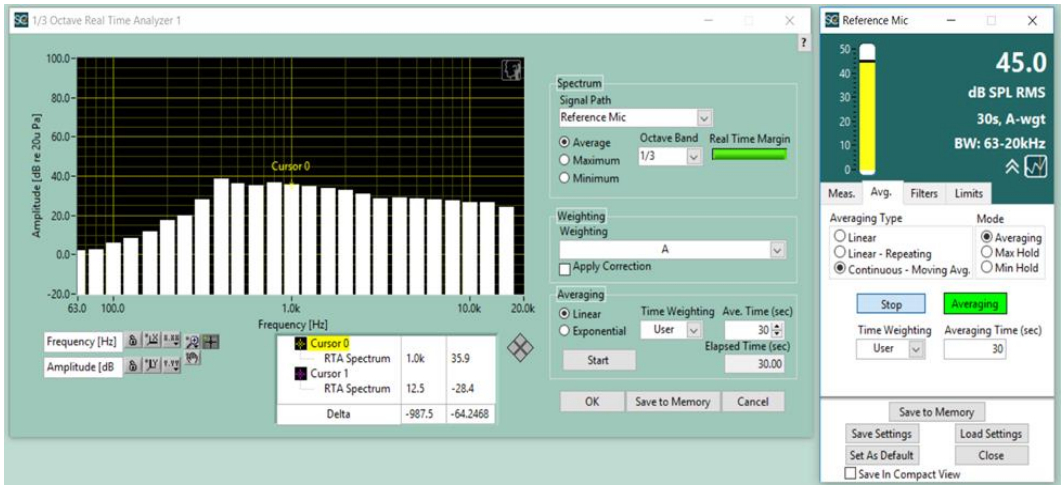
Table 2: Instruments Used

Appendix A: Measurement of Noise Level in Regulated Fan Mode

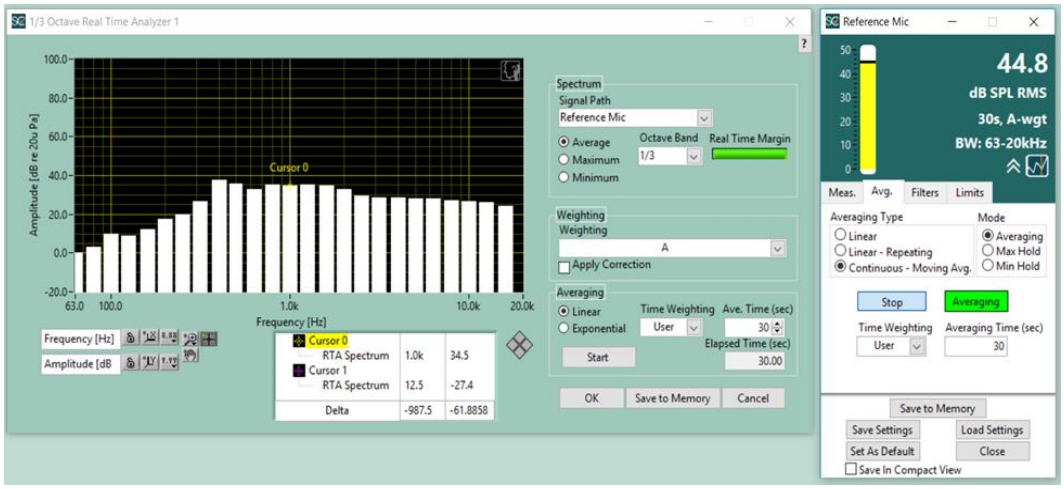
Position 1



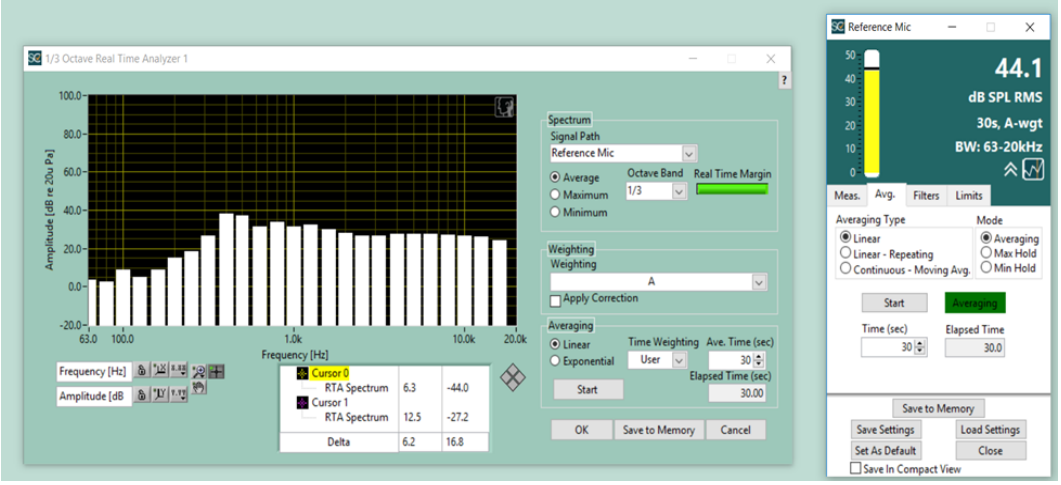
Position 2



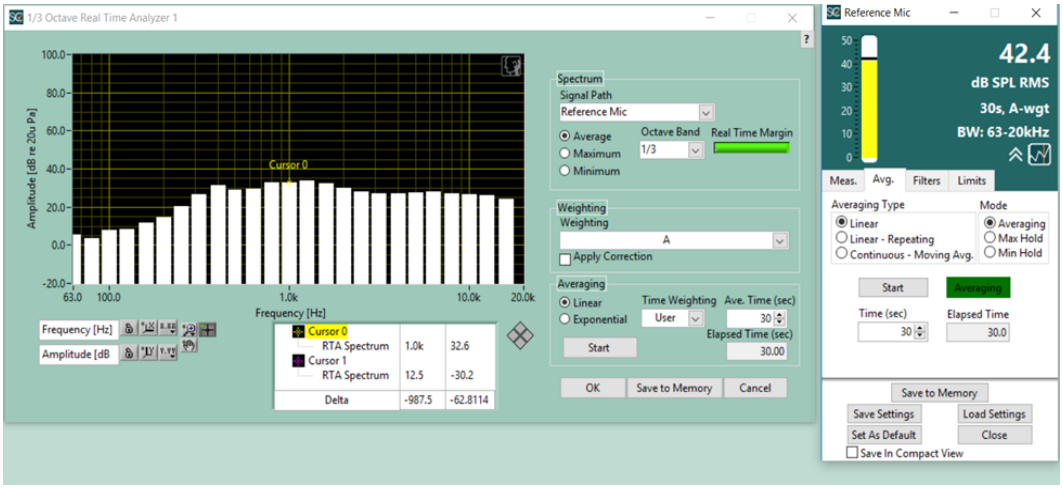
Position 3



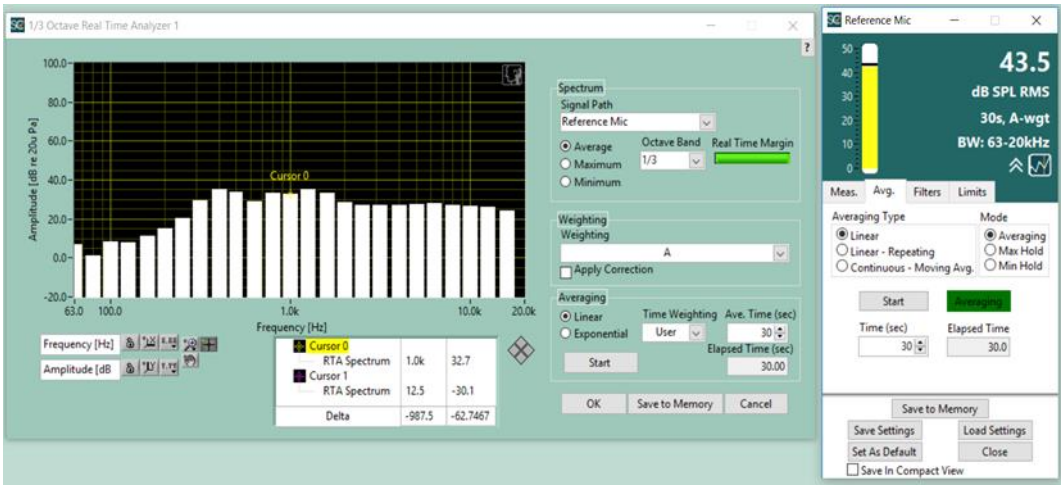
Position 4



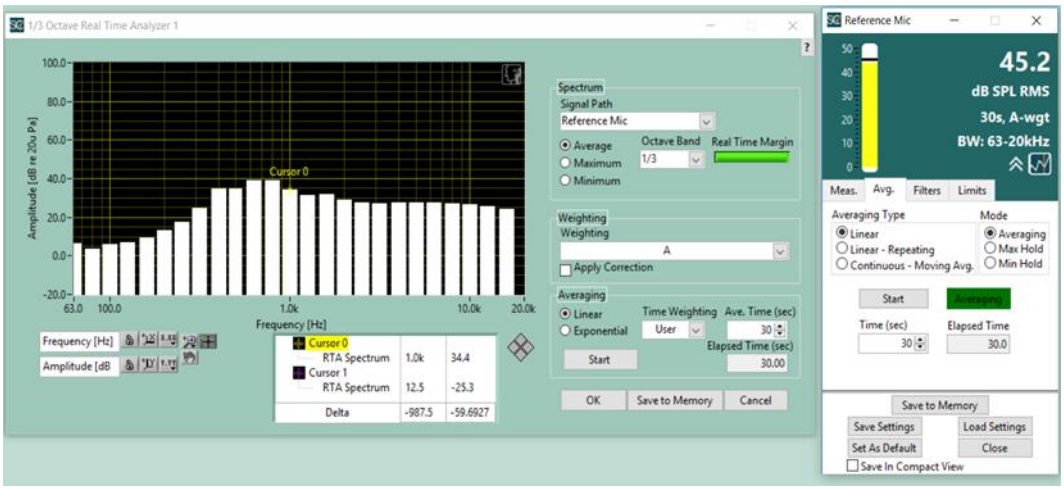
Position 5



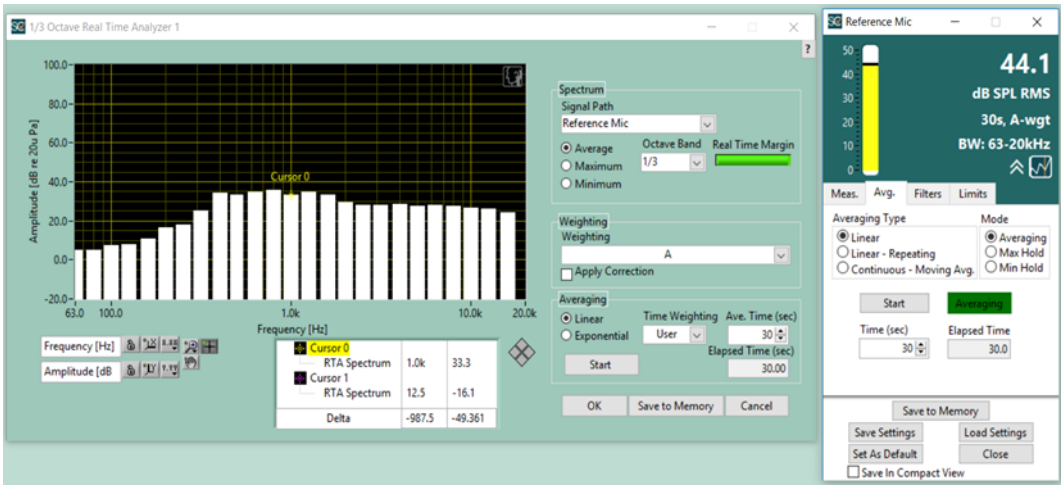
Position 6



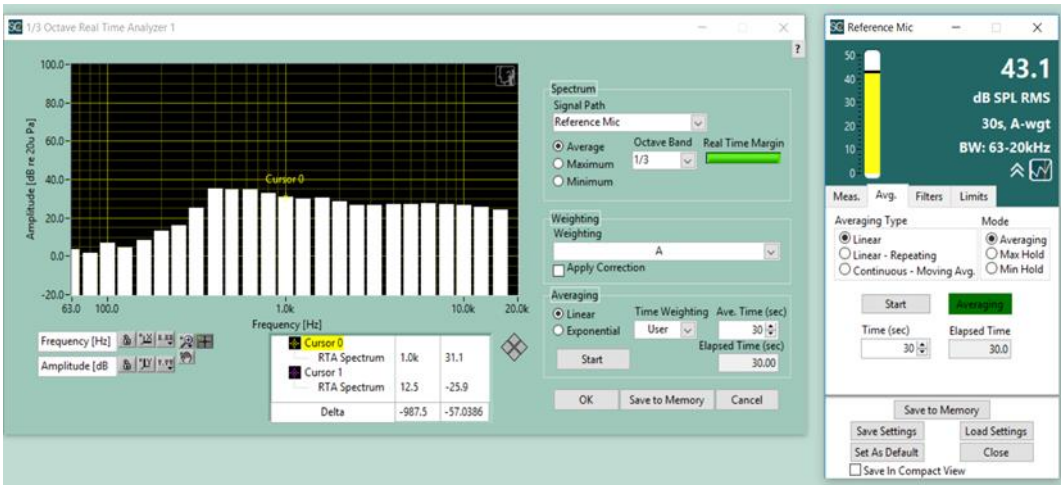
Position 7



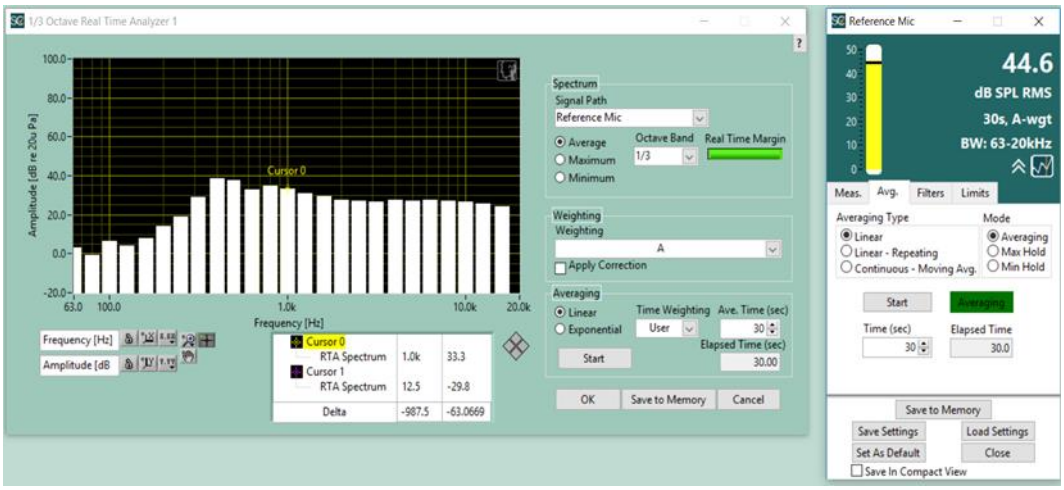
Position 8



Position 9



Position 10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Amplitude [dB re 20u Pa]
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Frequency [Hz]
Spectrum
Signal Path
Reference Mic
Average
Maximum
Minimum
Octave Band
1/3
Real Time Margin
Weighting
Weighting
A
Apply Correction
Averaging
Linear
Exponential
Time Weighting
User
Ave. Time (sec)
30
Elapsed Time (sec)
30.00
Start
OK
Save to Memory
Cancel
Cursor 0
RTA Spectrum 1.0k 33.3
Cursor 1
RTA Spectrum 12.5 -29.8
Delta -987.5 -63.0669
Reference Mic
44.6
dB SPL RMS
30s, A-wgt
BW: 63-20kHz
Meas.
Avg.
Filters
Limits
Averaging Type
Linear
Linear - Repeating
Continuous - Moving Avg.
Mode
Averaging
Max Hold
Min Hold
Start
Averaging
Time (sec)
30
Elapsed Time
30.0
Save to Memory
Save Settings
Load Settings
Set As Default
Close
Save In Compact View