MAC Aura Raven XIP

Acoustic Test Report

HARMAN Professional Denmark ApS - Olof Palmes Allé 44 - 8200 Aarhus N - Denmark - www.martin.com

Purpose

To determine the sound power levels and sound pressure levels of specimen using engineering methods for an essentially free field over a reflecting plane.

Reference Standard

ISO 3744:2010 Acoustics- Engineering methods

Device Information

Brand owner	HARMAN Professional Denmark ApS
Model:	MAC Aura Raven XIP
Serial No	15079820072
Software Version	1.0.0

Test Environment

Ambient Temperature	26.8 °C
Relative Humidity	60% RH
AC main power	230 V @ 50 Hz
Background noise level	8.9 dBA
Warm-up time	30 minutes at full intensity

Rev:	Issued by:	Description:	Approved by:	Date approved:
A	Zhoubo Li	MAC Aura Raven XIP Sound Measurement	Verlinden Wouter	2025-04-27

Test Setup

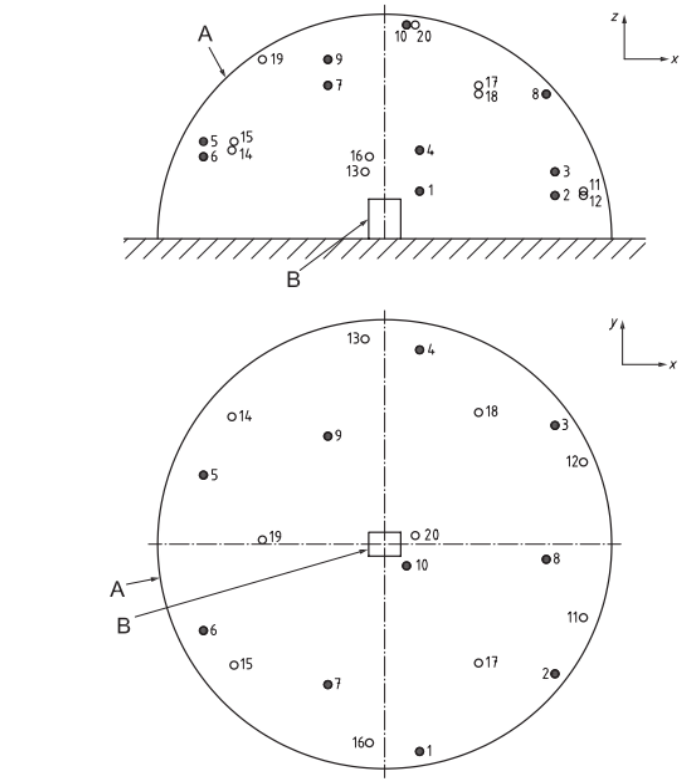
Room Dimension	5.9m L * 4.9m W * 3.3m H
Fixture Installation	At least one meter away from walls and ceiling

Setup pic.

Figure 1 Setup

Test Procedure

1. Calculate the environmental correction K2 based on the room dimensions and sound absorption coefficient α
2. Conduct the measurement using a setup with 1 microphone and setup at hemispherical measurement model
3. Move the microphone to each position for the time-averaged sound pressure levels measurement, the duration of each position shall be 15s
4. The details of each position described below as Figure 2:



Key
- ● key microphone positions (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
- o additional microphone positions (11, 12, 13, 14, 15, 16, 17, 18, 19, 20)
- A measurement surface
- B reference box

Position number	Coordinate of each microphone position (m)		
	X/R	Y/R	Z/R
1	0.24	-1.44	0.33
2	1.17	-0.90	0.30
3	1.17	0.83	0.47
4	0.24	1.35	0.62
5	-1.25	0.48	0.68
6	-1.25	-0.60	0.57
7	-0.39	-0.98	1.07
8	1.11	-0.11	1.01
9	-0.39	0.75	1.25
10	0.15	-0.15	1.49

Figure 2: Microphone Positions

Note：

1. The dimensions of the reference box: 0.595 m x 0.449 m x 0.275 m, $d_0 = 0.46$
2. $r=1.5m \geq 2d_0$
3. $S=2\pi r^2$, Measurement surface area: 14.137 m^2 .
4. 10 key microphones were taken measurement, as the range of A-weighted sound pressure levels measured at position 1 to 10 does not exceed 10 dB, additional 11 to 20 can be not considered.

The MAC Aura Raven XIP was measured in 5 different scenarios:

1. 100% output white light (Beam + Aura) – Regulate FAN mode
2. 100% output white light (Beam + Aura) – Constant Full FAN mode
3. 100% output white light (Beam + Aura) – Constant Medium FAN mode
4. 100% output white light (Beam + Aura) – Constant Low FAN mode
5. 100% output white light (Beam + Aura) – Constant Ultra-Low power mode

The data of each mode are summarized in Table 1.

Sound Pressure Level					
Distance from fixture	Regulate **[dB(A)]**	Constant Full **[dB(A)]**	Constant Medium **[dB(A)]**	Constant Low **[dB(A)]**	Constant Ultra-Low **[dB(A)]**
L_WA at 0m	43.5	56.5	50.6	43.0	31.6
L_PA at 1m	**35.5**	**48.5**	**42.6**	**35.0**	**23.6**
L_PA at 4m	23.5	36.5	30.6	23.0	11.6
L_PA at 7m	18.6	31.6	25.7	18.1	6.7
Remark: *1. $L_WA=L_PA+10 \cdot log10(S)$* *2. $L_PA_{r2}= L_PA_{r1}+20log_{10}(r_2/r_1)$, **r** means the distance between measurement point and fixture* *Test results only apply to the tested specimen*					

Table 1: Sound Pressure Level

Instrumentation

Equipment	Brand	Type
Sound Level meter	NTi Audio	NTi XL2 A2A-14709-E0
Microphone	NTi Audio	MIC MA220 No.7587
Temperature & humidity meter	Deli	/
Semi-anechoic room	Harman	/

Table 2: Instruments Used