MAC Viper XIP
Acoustic Test Report

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Title

MAC Viper XIP Acoustic Test Report

Test conditions.

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

Device tested.

Make: HARMAN Professional Denmark ApS

Model: MAC Viper XIP

Serial no: 15077051973

Software version: V1.0.0

Results

An image of the test setup can be found on Page 3. Test results are listed in Table 1 & 2 on Page 5~6. 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: 26±2°C Ta

Humidity: 55 %RH

AC mains power: 230 V, 50 Hz

Background noise level: 8.9 dBA

Warm-up time: 30 minutes at each test scenario till fixture heat stable.

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	Guo, Kevin	MAC Viper XIP noise level measurement	Poulsen, Bo Horsted	2024-7-4

Setup

The product was placed indoors in a semi-anechoic room in the internal Lab of Harman Technology in Shenzhen, China (See Figure 1). The main dimensions of the room were 5.9m * 4.9m * 3.3m (length * width * height).

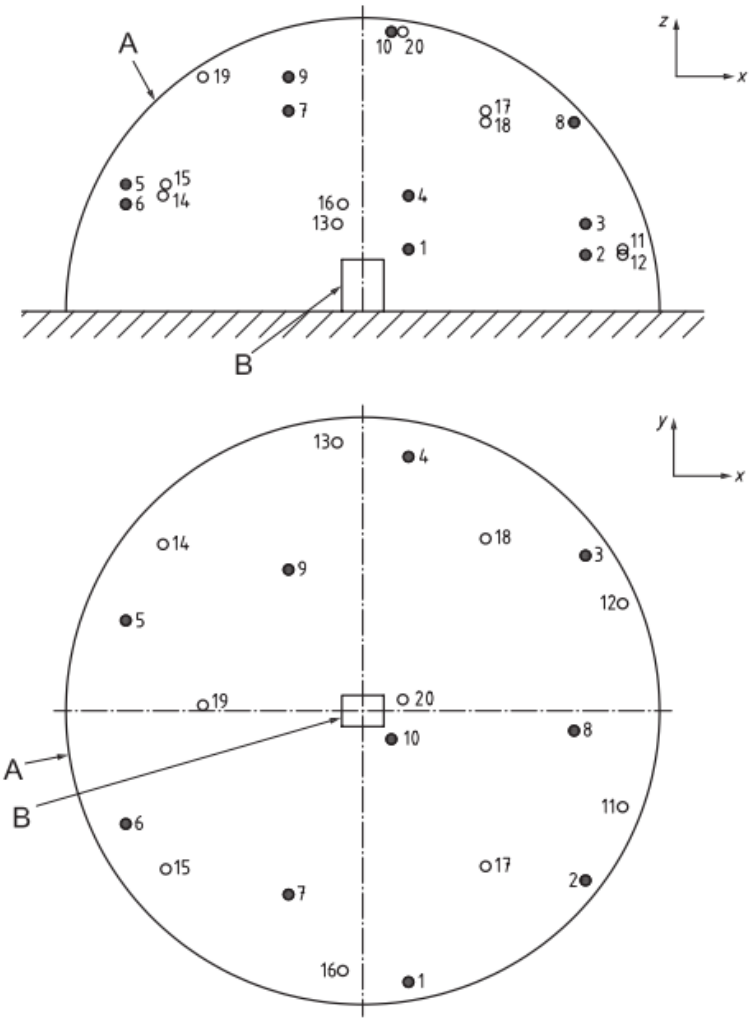
Figure 1: Test setup

The product was allowed a minimum 30 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 at hemispherical measurement model, as figure 2



Key

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

Figure 2: Microphone Positions

Note：

1. R=1.5m.
2. S=2πR², Measurement surface area: 14.14 m².
3. 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.
4. The dimensions of the reference box (L: W: H): 49.0 cm x 69.0 cm x 56.0 cm.

Results

The MAC Viper XIP was measured in below 5 different Modes:

- **[Studio mode: OFF]**

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

With head horizontal as “Figure 1” show.

Measured sound pressure levels results are shown in Table 1.

Distance from fixture	Regulated Fan [dBA]	Constant Fan Full [dBA]	Constant Fan Mid [dBA]	Constant Fan Low [dBA]	Constant Fan ULow [dBA]
LpA at 0m	46.5	61.6	56.8	48.3	39.9
LpA at 1m	**38.5**	**53.6**	**48.8**	**40.3**	**31.9**
LpA at 4m	26.5	41.6	36.8	28.3	19.9
LpA at 7m	21.6	36.7	31.9	23.4	15.0

Table 1: Sound Pressure Levels

The duration of the acoustical measurement for each position is 10s.

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.

- **[Studio mode: ON]**

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

With head horizontal as “Figure 1” show.

Measured sound pressure levels results are shown in Table 1.

Distance from fixture	Regulated Fan [dBA]	Constant Fan Full [dBA]	Constant Fan Mid [dBA]	Constant Fan Low [dBA]	Constant Fan ULow [dBA]
LpA at 0m	40.9	61.0	56.9	48.5	40.1
LpA at 1m	**32.9**	**53.0**	**48.9**	**40.5**	**32.1**
LpA at 4m	20.9	41.0	36.9	28.5	20.1
LpA at 7m	16.0	36.1	32.0	23.6	15.2

Table 2: Sound Pressure Levels

The duration of the acoustical measurement for each position is 10s.

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.

- **[Standby state]**

1. All effects static, Light source OFF, 0% output white light - Regulated Fan.

Distance from fixture	Standby [dBA]
LpA at 1m	28.1

Instrumentation

Test equipment list:

Equipment	Maker	Type
Harman	NTi Audio	NTi XL2 A2A-14709-E0
Harman	NTi Audio	MIC MA220 No.7587
Harman		Semi-anechoic room
Harman		Digital Barometer
Harman		Data logger for atmosphere & environment

Table 3: Instruments Used