

# P3 PowerPort 2000

## Acoustic Test Report



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## 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:	P3 PowerPort 2000
Serial No	15300700187
Software Version	1.0.0

## Test Environment

Ambient Temperature	28.6 °C
Relative Humidity	60% RH
AC main power	230 V @ 50 Hz
Background noise level	8.9 dBA
Warm-up time	30 minutes

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A	Zhoubo Li	P3 PowerPort 2000 Sound Measurement	Verlinden Wouter	2024-07-03

## Test Setup

Room Dimension

5.9m L \* 4.9m W \* 3.3m H

Fixture Installation

At least one meter away from walls and ceiling

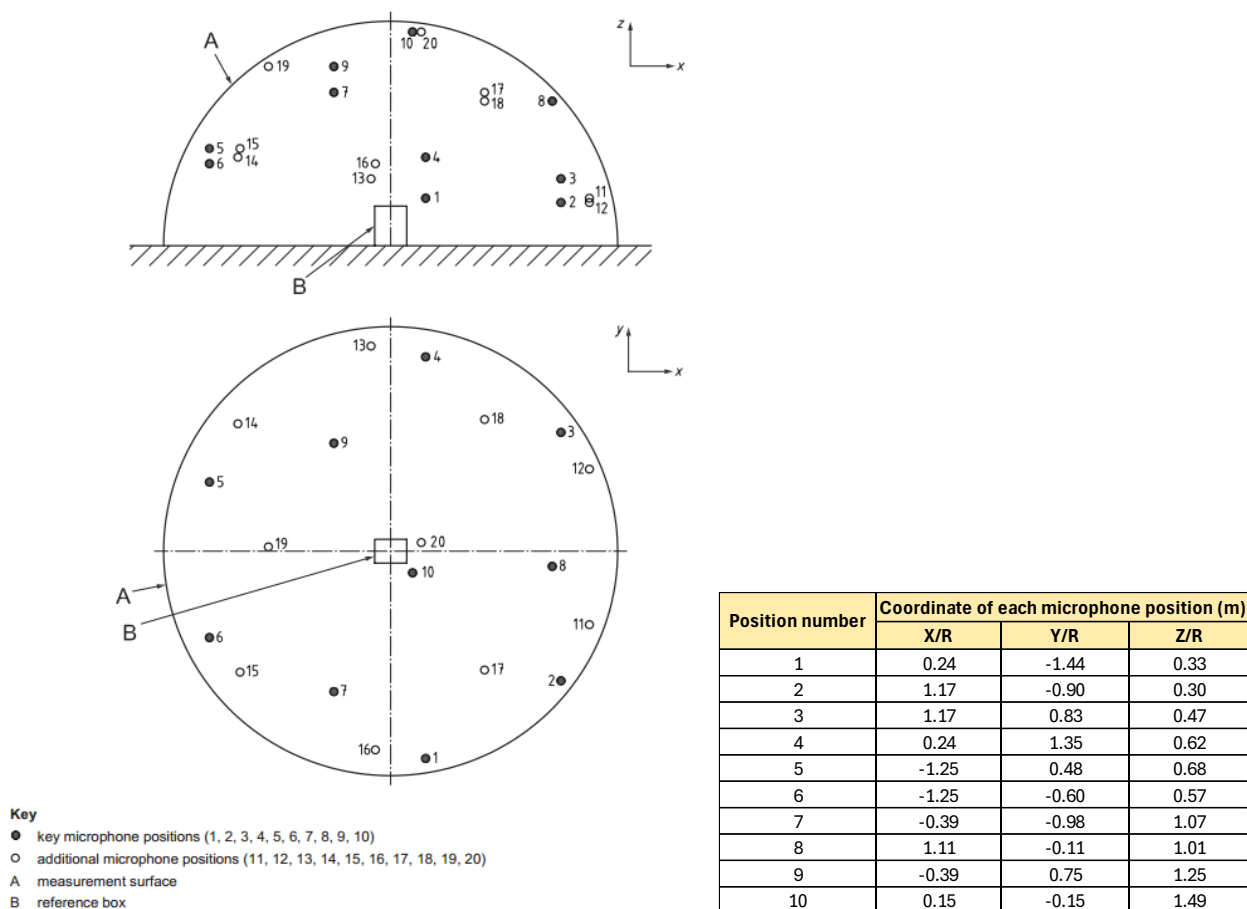
Setup pic.



Figure 1 Setup

## Test Procedure

1. Calculate the environmental correction  $K_2$  based on the room dimensions and sound absorption coefficient  $\alpha$
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 10s
4. The details of each position described below as Figure 2:



**Figure 2: Microphone Positions**

**Note:**

1. The dimensions of the reference box: 0.36 m x 0.44 m x 0.4 m,  $d_0 = 0.49$
2.  $r=1.5m \geq 2d_0$
3.  $S=2 \pi r^2$ , Measurement surface area: 14.14 m<sup>2</sup>.
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.

## Test Result

The P3 PowerPort 2000 was measured in 3 different scenarios:

1. Full power mode with 2000W load
2. Half power mode with 1000W load
3. Idle power mode without load

The data of each mode are summarized in Table 1.

Sound Pressure Level			
Distance from fixture	Idle power mode Without load [ dB(A) ]	Half power mode 1000W load [ dB(A) ]	Full power mode 2000W load [ dB(A) ]
L <sub>W</sub> A at 0m	51.5	61.4	65.7
L <sub>P</sub> A at 1m	<b>43.5</b>	<b>53.4</b>	<b>57.7</b>
L <sub>P</sub> A at 4m	31.4	41.4	45.6
L <sub>P</sub> A at 7m	26.6	36.5	40.8
Remark: 1. $L_{WA} = L_{PA} + 10 \cdot \log_{10}(S)$ 2. $L_{PAr_2} = L_{PAr_1} + 20 \log_{10}(r_2/r_1)$ , $r$ means the distance between measurement point and fixture 3. 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**