



佛山鎡利電子有限公司  
Vanson Electronics (NanHai) Co., Ltd.  
HTTP:// www.vecoco.com.cn  
Luocun Industrial zone Nanhai District Foshan city  
Guangdong Province China Eail: fsvecoco@vecoco.com.cn  
廣東省佛山市南海區羅村工業區 郵編:528226  
TEL:+86-757-8126 6388 FAX:+86-757-8126 6389

# Specification

## 規格書

品名 (Product Name)	揚聲器 (Speaker)
料號 (Model No.)	P50CUG04HXE-3-D3

Revision History			
Version	Date	Description	Author
00	2014/10/17	preliminary	LHN

核準 (Approval)	高紅華	2014/10/17
審查 (Check)	曾憲財	2014/10/17
設計 (Design)	吳生	2014/10/17
製作 (Author)	劉紅妮	2014/10/17

**Vanson Electronics(Nanhai) Co., Ltd.**

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1.	<b>MODEL:</b>	<b>P50CUG04HXE-3-D3</b>
2	Cone and edge type:	Cone : <b>Paper</b> Edge : <b>PU</b>
3	Dimension & Weight & Type	Outer Diameter <b>Ø 50</b> mm
		Baffle Opening <b>Ø 45</b> mm
		Height <b>Refer to drawing</b> Weight <b>38</b> Grams
4	Magnet	Materials <b>NdFeB</b> Size <b>φ 19.5*4.4</b> mm
5.	DC Resistance	<b>4</b> Ω ± 15 %, <b>On OHM Meter</b>
6.	Power Rating	Normal <b>5.0</b> Watts Maximum <b>6.0</b> Watts Sine
		Normal Watts Maximum Watts Square
7.	Resonant Frequency	<b>200</b> ± 20 % Hz.
8.	Output Sound Pressure Level (S.P.L.)	<b>86</b> ± 3 db/ <b>1.0</b> Watt · 0.5 Meter
		Average at <b>600 800 1000 1200</b> Hz.
9.	Frequency Range	<b>FO</b> ~ <b>20000</b> Hz. Average SPL – 10 db.
10.	Distortion	<b>5</b> % Maximum At <b>1000</b> Hz. <b>1.0</b> Watt · 0.5 Meter
11	Abnormal Sound test	Must be Normal Tested By <b>4.47</b> Volts. Sine Wave.
12	Load Test	Pink noise with HPF(High Pass Filter 235HZ-3db/Oct) <b>4.47</b> Volts. (RMS.) <b>96</b> Hours.
13	Polarity	Diaphragm shall move Forward while Apply a Positive DC Signal to the " + " or " Marked " Terminal.

Above Measuring condition under temperature : 15~35°C R.H. 25 ~75%. According to standard GB/T9396-1996

**Mechanical and vibration test**

14	High Temperature	+ 60 ± 2 °C Humidity Random for 96 Hours. (GB2423.2-81)
15	Low Temperature	- 25 ± 2 °C Humidity Random for 96 Hours. (GB2423.1-81)
16	Humidity	+ 40 ± 2 °C Relative Humidity (RH) 90 ~ 95 % 96 Hours.
17	Vibration	Frequency 30 ± 15 Hz, Amplitude 1.5 mm for 3 Hours. (GB11606.8-89)
18	Drop test	75 CM free falling on Concrete floor, 10 times. (GB2423. 8-81)

After test leave speakers at room temperature for 1 hour, SPL shall not deviate by ± 3 db from pre-test Measurement, and meet above spec. item 6. 7. 8. 9. 10.

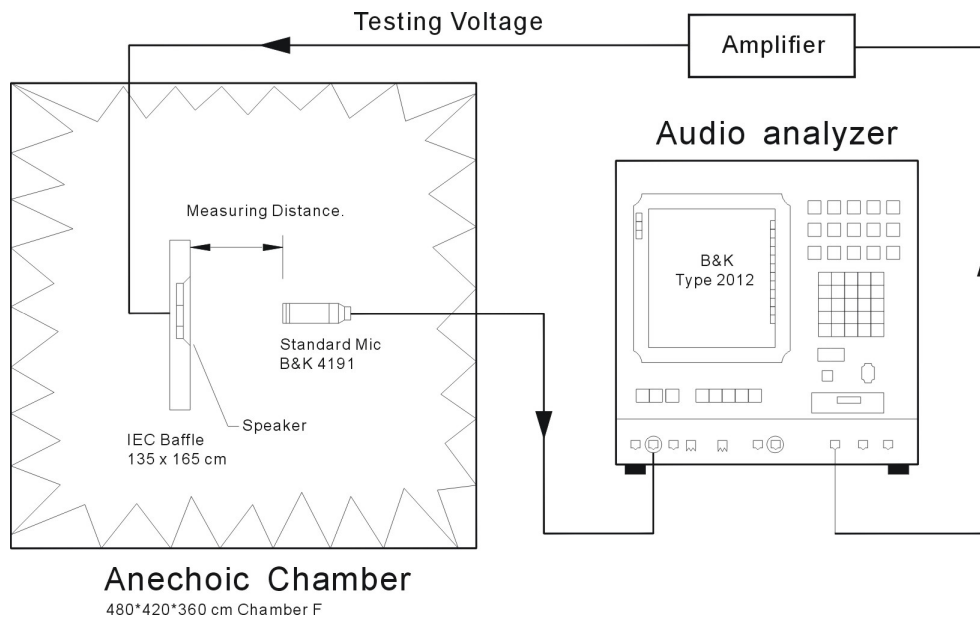
19	Temperature Cycle test	- 25 ~ + 60 °C 4 Cycles Temperature test. (GB5170.18-87)
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After test leave speakers at room temperature for 1 hour, SPL shall not deviate by ± 4 db from pre-test Measurement, and meet above spec. item 6. 7. 8. 9. 10.

Please refer to next pages for more detailed testing method.

## Test method and User precaution.

1. Characteristics measured according to standard GB/T 9396-1996
  - 1.1 Except other specified, measuring are under Temperature 15~35°C R.H. 25 ~75%
  - 1.2 Judgement condition Temperature 20 ±2 R.H. 63~67%
  - 1.3 .Product shelf life is valid for 12 months only.
  
2. Output Sound Pressure Level (S.P.L.) and distortion testing setup



### 3. Environment & Mechanical test:

#### 3.1 High Temperature: GB2423.2-81

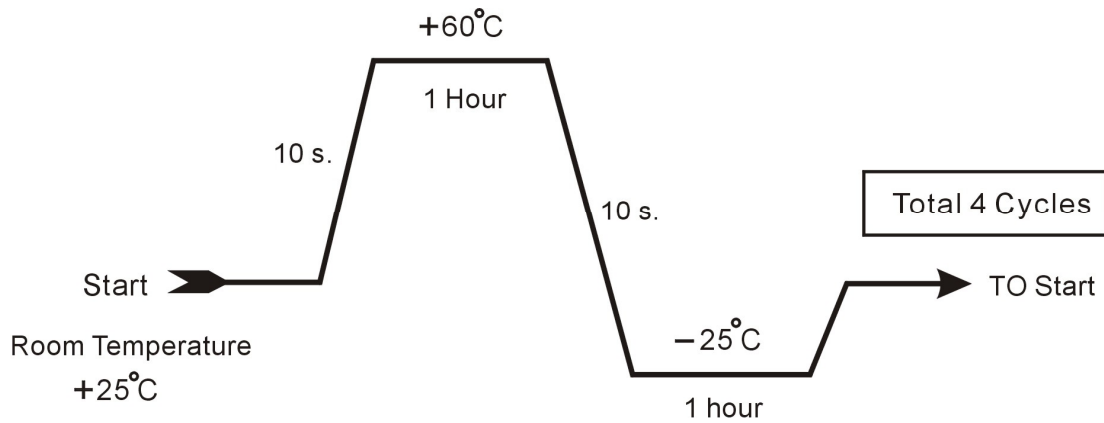
After exposure the speaker in the + 60 ± 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by ± 3 db, and resonant frequency should not deviate by ± 50 Hz, compare with pre-test measurement.

#### 3.2 Low Temperature: GB2423.1-81

After exposure the speaker in the -25 ± 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by ± 3 db, and resonant frequency should not deviate by ± 50 Hz, compare with pre-test measurement.

#### 3.3 Temperature cycle: GB5170.18-87

After exposure the speaker in the chamber, temperature cycle setting as below shows, SPL should not deviate by ± 4 db, and resonant frequency should not deviate by ± 80 Hz, compare with pre-test measurement.



### 3.4 Humidity: GB5170.18-87

After exposure the speaker in the + 40±2 °C, relative humidity 90% ~ 95% chamber for 96 hours, then leave the speaker at room temperature for 6 hours, the SPL should not deviate by ±3 db, and resonant frequency should not deviate by ±50 Hz, compare with pre-test measurement.

### 3.5 Vibration: GB11606.8-89

Frequency 30±15 Hz, Amplitude 1.5 mm for 3 Hours. After test, SPL shall not deviate by ±3 db from pre-test measurement,

### 3.6 Load test: GB/T 9396-1996

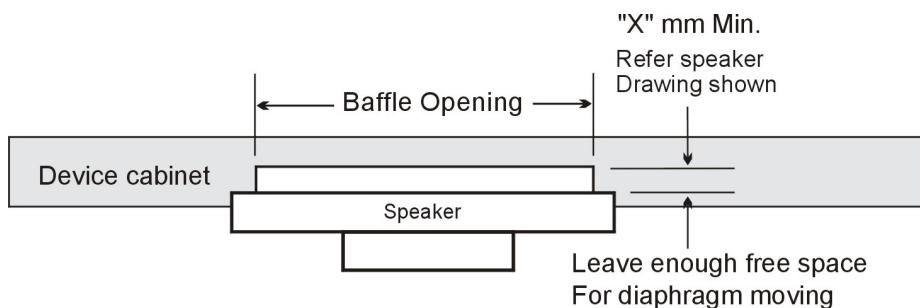
Speaker should not fail after apply 20 ~ 20K Hz Pink noise with HPF rated power input (RMS), 96 hours. After test, SPL shall not deviate by ±3 db from pre-test measurement,

### 3.7 Drop test: GB2423. 8-81

75 cm free falling on concrete floor, 10 times. After test, SPL shall not deviate by ±3 db from pre-test measurement,

## 4. Mounting precaution

In order to keep speaker work normally, there shall leave enough free space for diaphragm moving, minimum distance required is marked in speaker mechanical drawing.



## 5. Measuring & standard referenced

Abstract from GB/T 9396-1996 and IEC 268-5:1989 methods of measurement for main characteristics of loud speakers.

### 5.1 Rated sine voltage.

It is stipulated by manufacturer, sine signal voltage that make speaker work continuously in rated frequency range, but the speaker wouldn't be damaged heartily or mechanically.

The persist time of the voltage is 1 hour.

### 5.2 The rated sine power.

The rated sine power is corresponding with the rated sine voltage, its definition is  $U_s^2/R$ ,  $U_s$  indicates the rated sin voltage,  $R$  indicates the rated impedance.

### 5.3 The rated noise power.

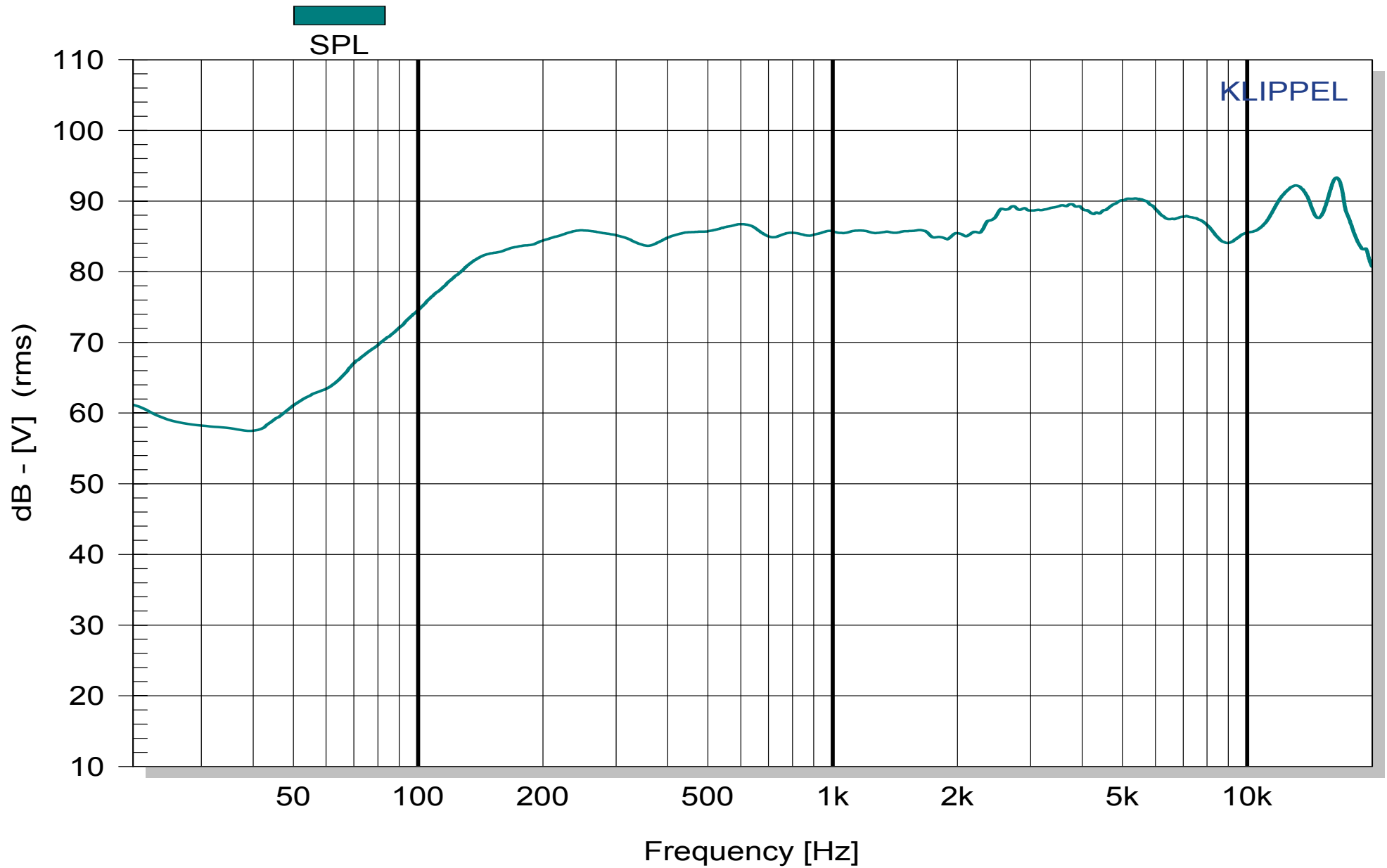
The rated noise power is corresponding with the rated noise voltage, its definition is  $U_n^2/R$ ,  $U_n$  indicates the rated noise voltage,  $R$  indicates the rated impedance.

VECO Part NO:

**P50CUG04HXE-3-D3**

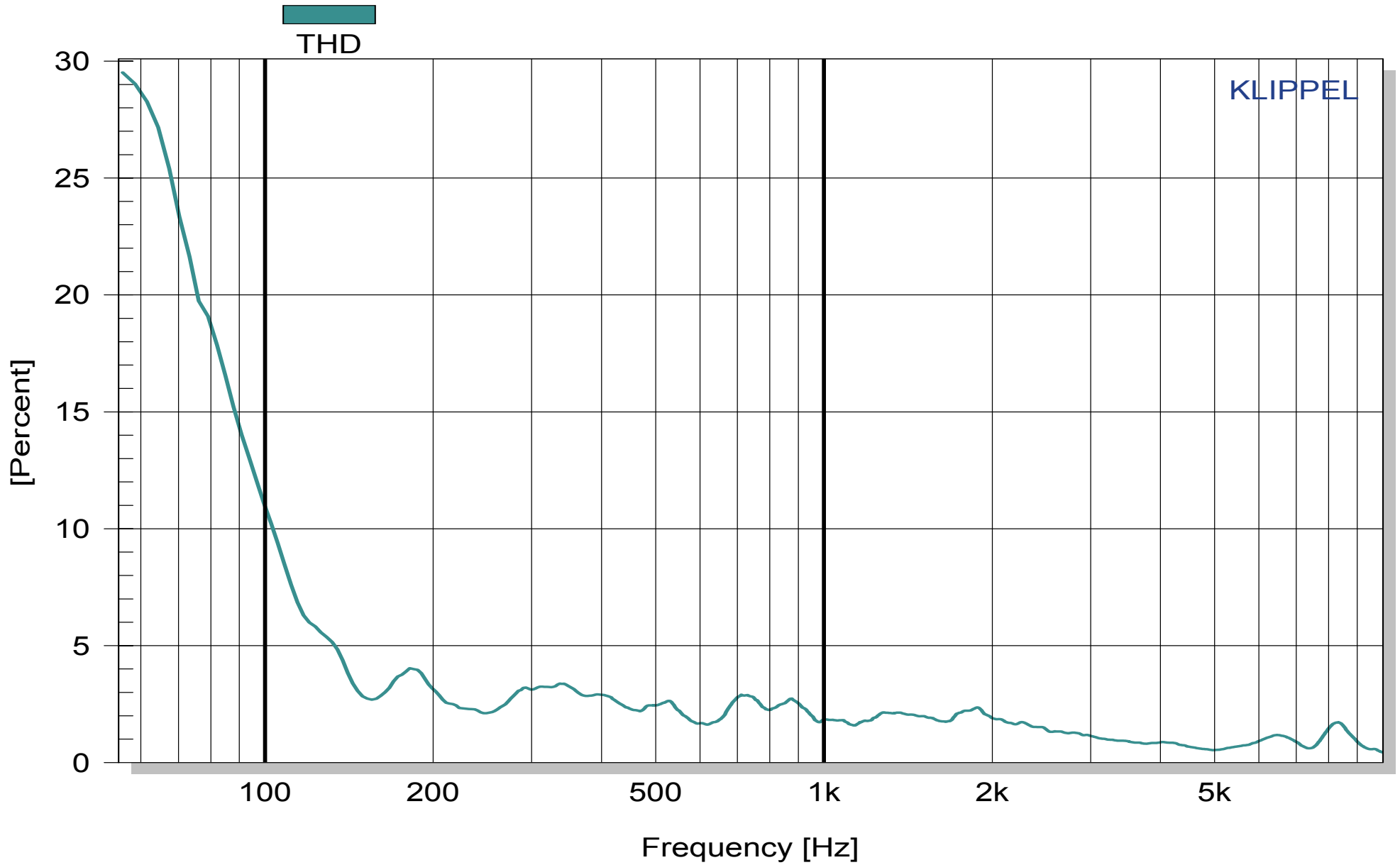
Measurement Condition:

**VOL : 2.0V[1.0W] DIS : 0.5 M**



VECO Part NO:  
Measurement Condition:

**P50CUG04HXE-3-D3**  
**VOL : 2.0V[1.0W] DIS : 0.5 M**

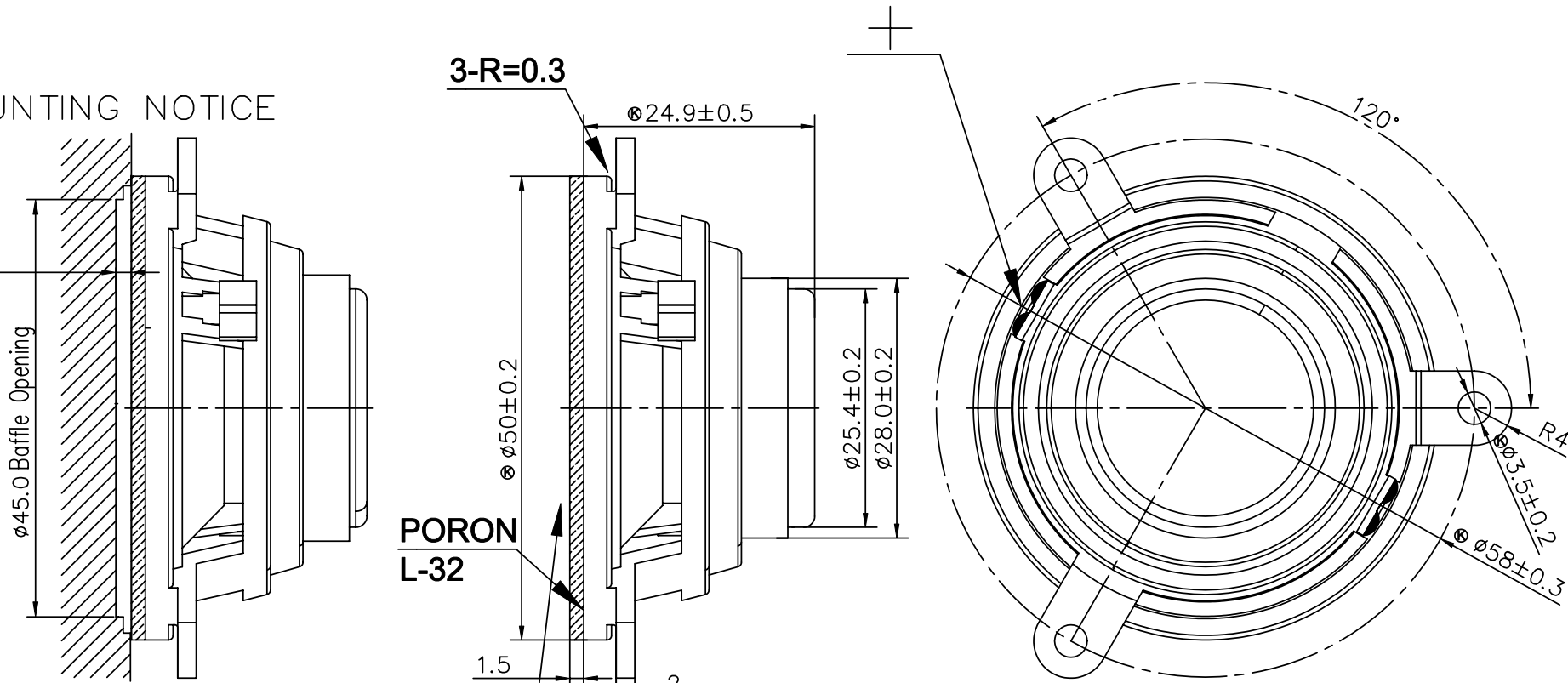


- NOTE:  
 1. 加工要求:  
 2. 表面處理:  
 3. 制程重點:  
 4. 檢驗重點:

不准使用鎳利  
 電子禁止使用的  
 環境管理物質

MOUNTING NOTICE

AT LEAST  
 2.5mm  
 FOR  
 DIAPHRAGM  
 MOVING



CAP is Black  
 Matt Aluminum

RANGE	TOL	∇			
0-8	±0.05	±0.1	±0.15	±0.2	±1
8-16	±0.1	±0.15	±0.2	±0.2	±2
16-24	±0.15	±0.2	±0.3	±0.3	±2
24-50	±0.2	±0.25	±0.3	±0.4	±3
50-100	±0.25	±0.3	±0.5	±0.5	±3
>100	±0.3	±0.4	±0.4	±0.8	±5

Ⓚ CRITICAL DIMENSIONS ENVIRONMENT REQUIREMENT:  
 COSTOMER PN: VECO PN:  
 DATE: 7/25/13 MATERIAL: COLOUR:

ITEM	YY/MM/DD	CONTENTS OF CHANGE	SPONSOR

Vanson Electronics (Nanhai) Co., Ltd.  
 鎂利電子  
 E-MAIL: foshan@veco.com.cn  
 TEL:+86-757-88536828 FAX:+86-757-88536826

Title: P50CUG04HXE-3-D3

Unit: mm VER: 00 Appr.: 高紅華  
 Scale: 1:1 CHK.: 曾憲財 Dwg.: 吳生