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Specification

規格書

品名 (Product Name)	揚聲器 (Speaker)
料號 (Model No.)	P2514KCG04L-16

Revision History			
Version	Date	Description	Author
00	2022/12/06	Released	DSY
01	2023/03/07	增加box曲線	DSY

核準 (Approval)	Godfrey Kao	2023/03/07
審查 (Check)	Fortune	2023/03/07
設計 (Designer)	ZWH	2023/03/07
制作 (Author)	DSY	2023/03/07



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1.	MODEL:	P2514KCG04L-16
2.	Dimension & Weight	Outer Diameter 25* 14 mm
		Height 4.5 mm Weight 2.4 Grams
3.	Magnet	Materials NdFeB(1pcs)
4.	Resistance	4 Ω $\pm$ 15 %
5.	Power Rating	Normal 2.0 Watts Maximum 2.5 Watts in Sine Wave
		Normal 2.0 Watts Maximum 2.5 Watts in 4cc box
6.	Resonant Frequency	450 $\pm$ 20 % Hz.
		750 $\pm$ 20 % Hz. in 4cc box
7.	Output Sound Pressure Level (S.P.L.)	97 $\pm$ 3 db 2.0 Watt $\cdot$ 0.1 Meter on baffle
		94 $\pm$ 3 db 2.0 Watt $\cdot$ 0.1 Meter in 4cc box in free air
		Average at 800 Hz , 1000 Hz , 1200 Hz , 1500 Hz.
8.	Frequency Range	Fo $\sim$ 20K Hz. Average SPL – 10 db.
9.	Distortion	5 % Maximum At 1000 Hz. 2.0 Watt $\cdot$ 0.1 Meter on baffle
10.	Abnormal Sound test	Must be Normal Tested By 2.83 Volts. Sine Wave
11.	Load Test	Pink noise with HPF 2.83 Volts (RMS.) 96 hours
12.	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

13.	High Temperature	+ 60 $\pm$ 2 °C Humidity Random for 96 Hours. (GB2423.2-81)
14.	Low Temperature	– 25 $\pm$ 2 °C Humidity Random for 96 Hours. (GB2423.1-81)
15.	Humidity	+ 40 $\pm$ 2 °C Relative Humidity (RH) 90 ~ 95 % 96 Hours. (GB5170.18-87)
16.	Vibration	Frequency 30 $\pm$ 15 Hz, Amplitude 1.5 mm for 3 Hours. (GB11606.8-89)
17.	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 $\pm$ 3 db from pre-test Measurement, and meet above spec. item 6. 7. 8. 9. 10.

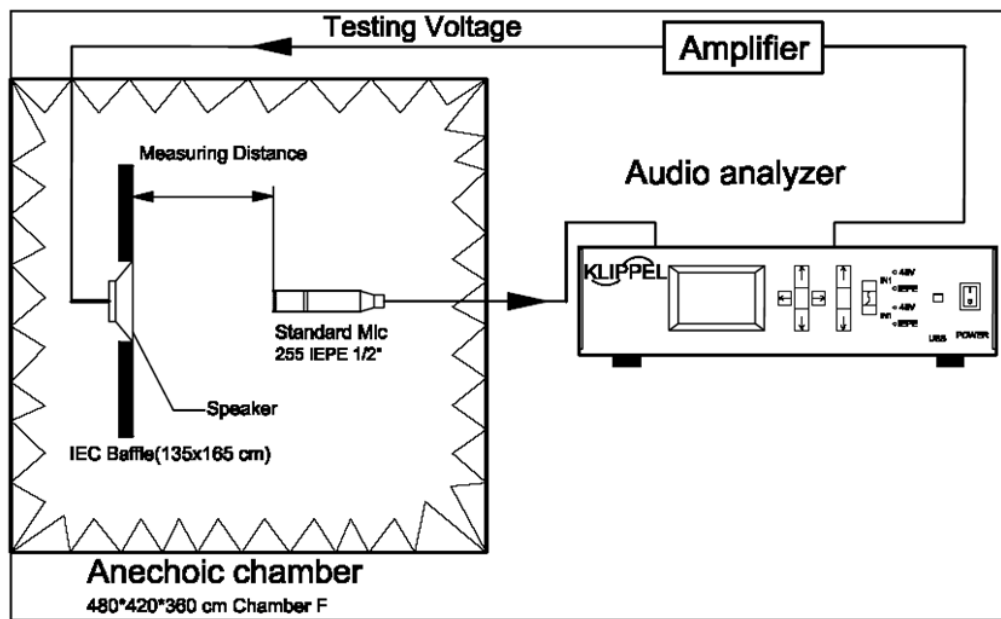
18.	Temperature Cycle test	– 25 ~ + 60 °C 4 Cycles Temperature tests. (GB5170.18-87)
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After test leave speakers at room temperature for 1 hour, SPL shall not deviate by $\pm$ 3 db from pre-test Measurement, and meet above spec. item 6. 7. 8. 9. 10.

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 $\pm$ 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

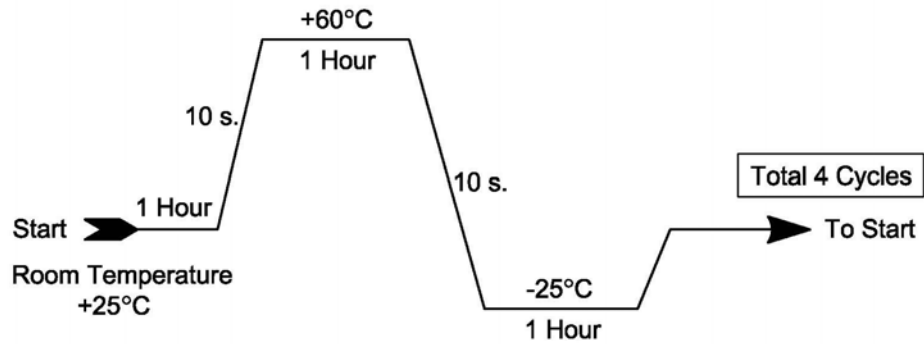
After exposure the speaker in the + 60 $\pm$ 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by $\pm$ 3 db, and resonant frequency should not deviate by $\pm$ 50 Hz, compare with pre-test measurement.

3.2 Low Temperature: GB2423.1-81

After exposure the speaker in the -25 $\pm$ 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by $\pm$ 3 db, and resonant frequency should not deviate by $\pm$ 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 $\pm$ 3 db, and resonant frequency should not deviate by $\pm$ 80 Hz, compare with pre-test measurement.



3.4 Humidity: GB5170.18-87

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

3.5 Vibration: GB11606.8-89

Frequency $30\pm 15\text{ Hz}$, Amplitude 1.5 mm for 3 Hours. After test, SPL shall not deviate by $\pm 3\text{ db}$ from pre-test measurement,

3.6 Load test: GB/T 9396-1996

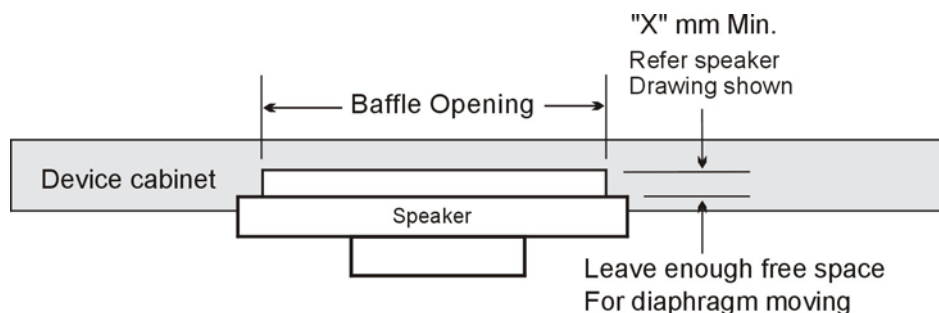
Speaker should not fail after apply 20 ~ 20K Hz Pink noise with HPF rated power input (RMS), 96 hours. After test, SPL shall not deviate by $\pm 3\text{ db}$ from pre-test measurement,

3.7 Drop test: GB2423. 8-81

75 cm free falling on concrete floor, 10 times. After test, SPL shall not deviate by $\pm 3\text{ db}$ 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.

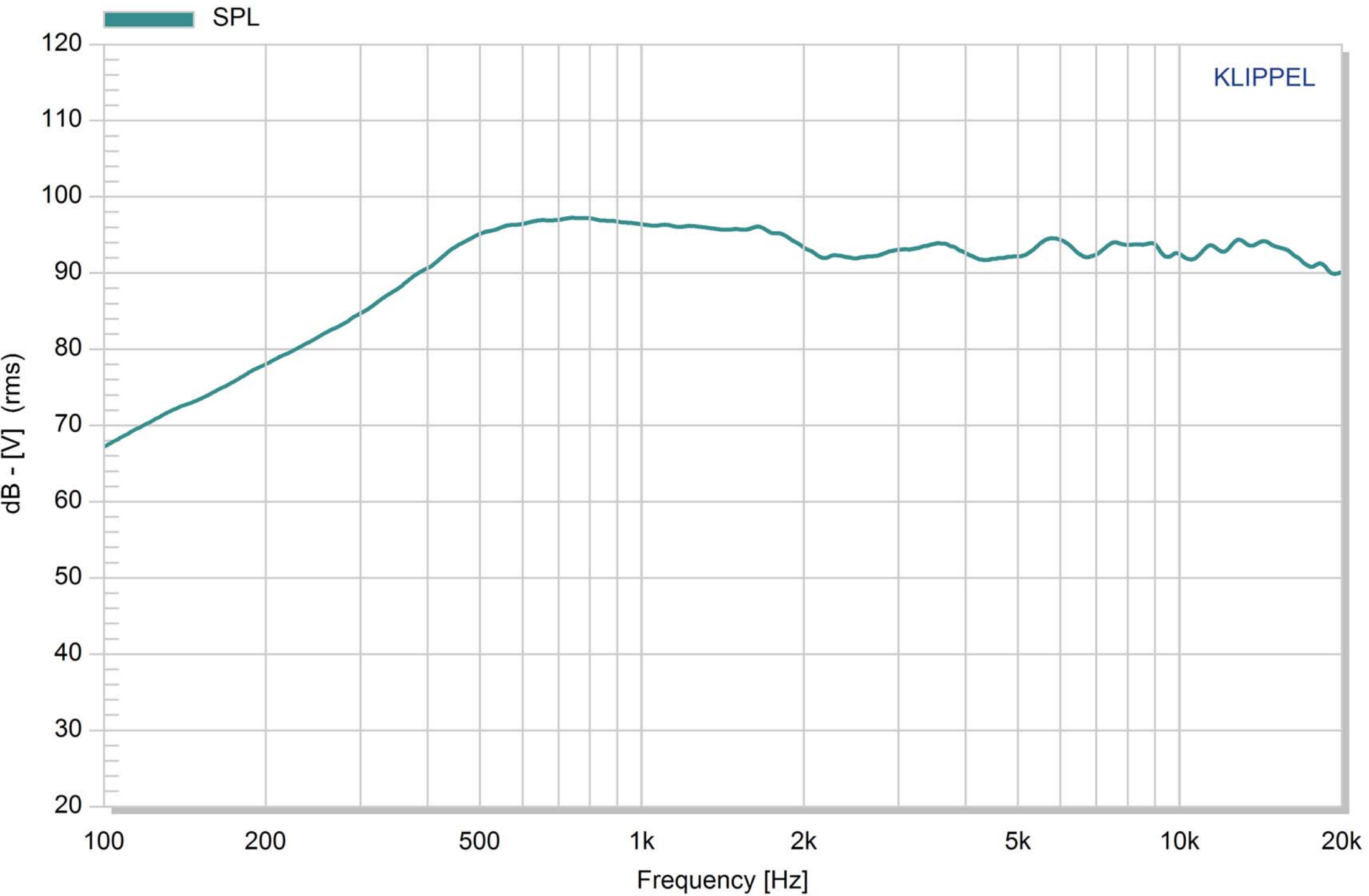
5.3 The rated noise power.

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.

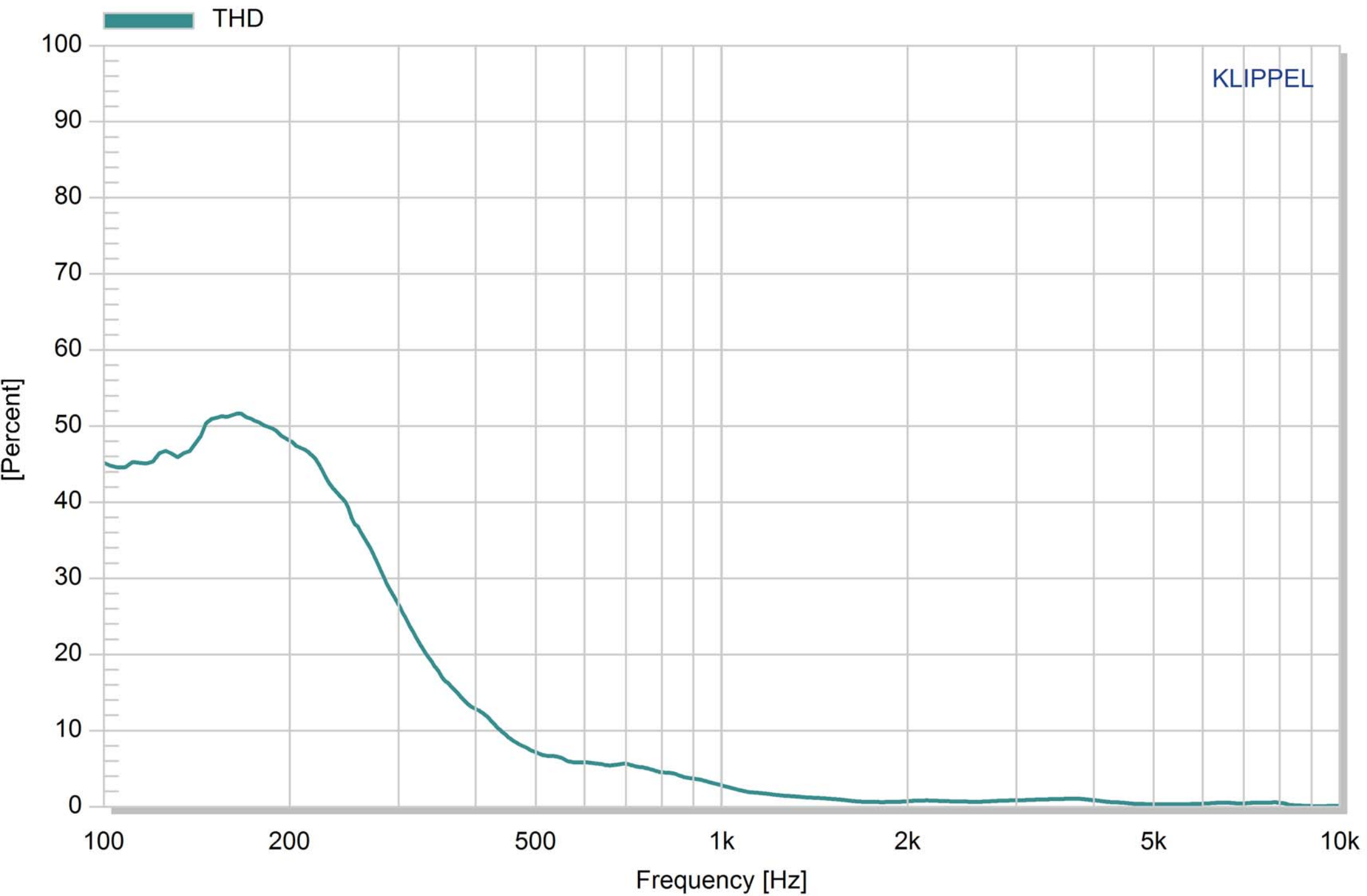
P2514KCG04L-16

2W/0.1M on baffle



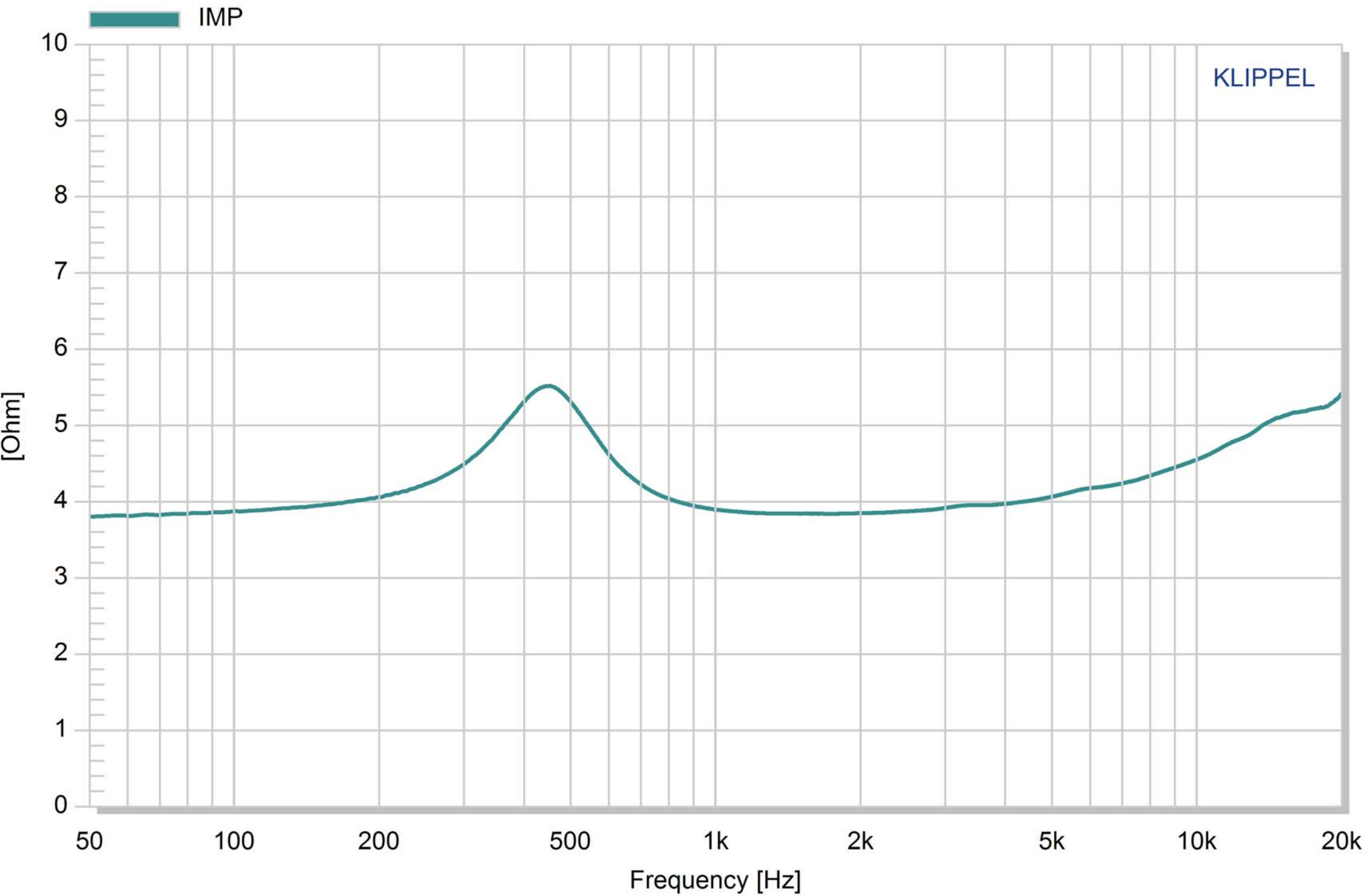
P2514KCG04L-16

2W/0.1M on baffle



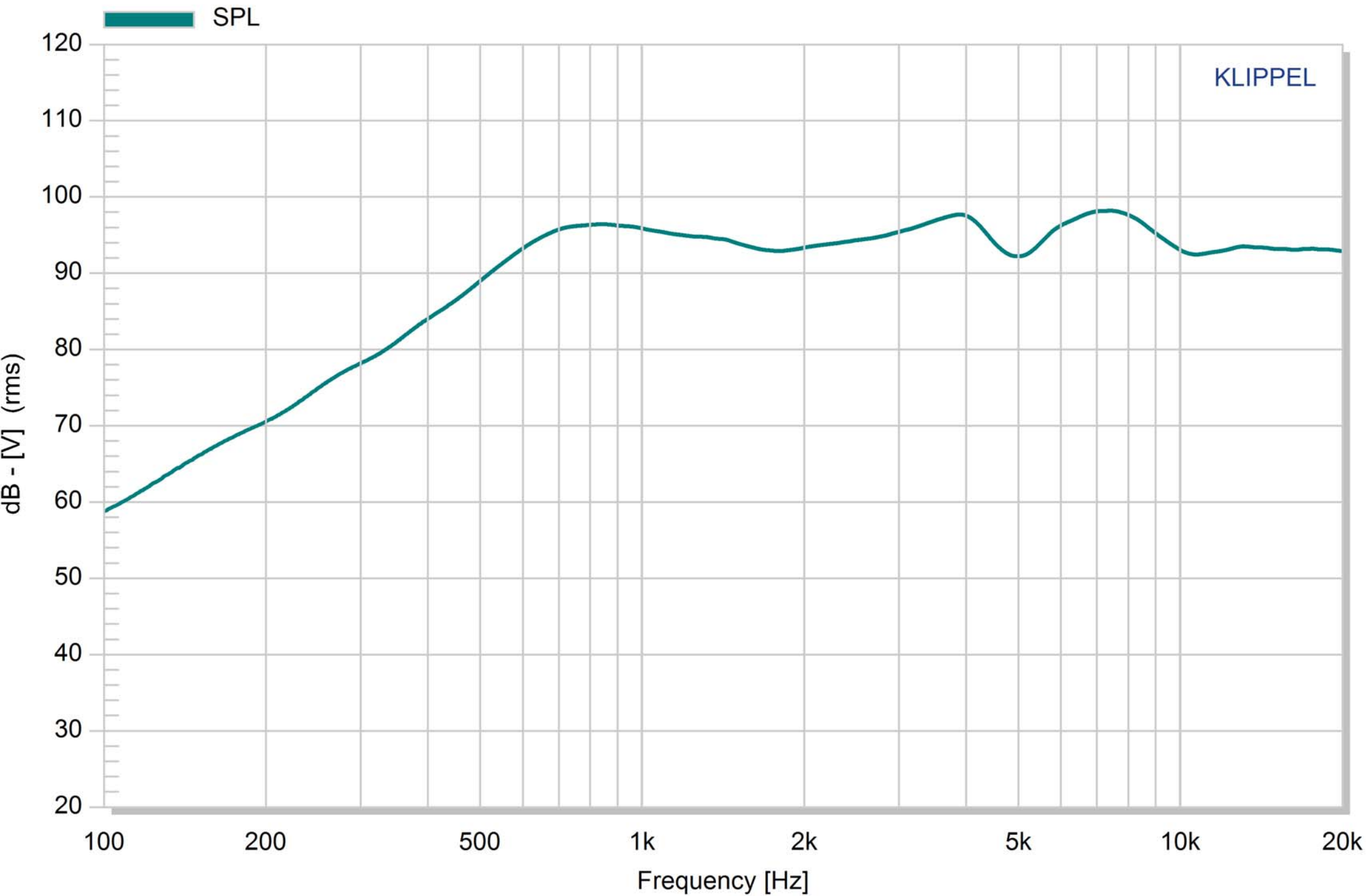
P2514KCG04L-16

1V



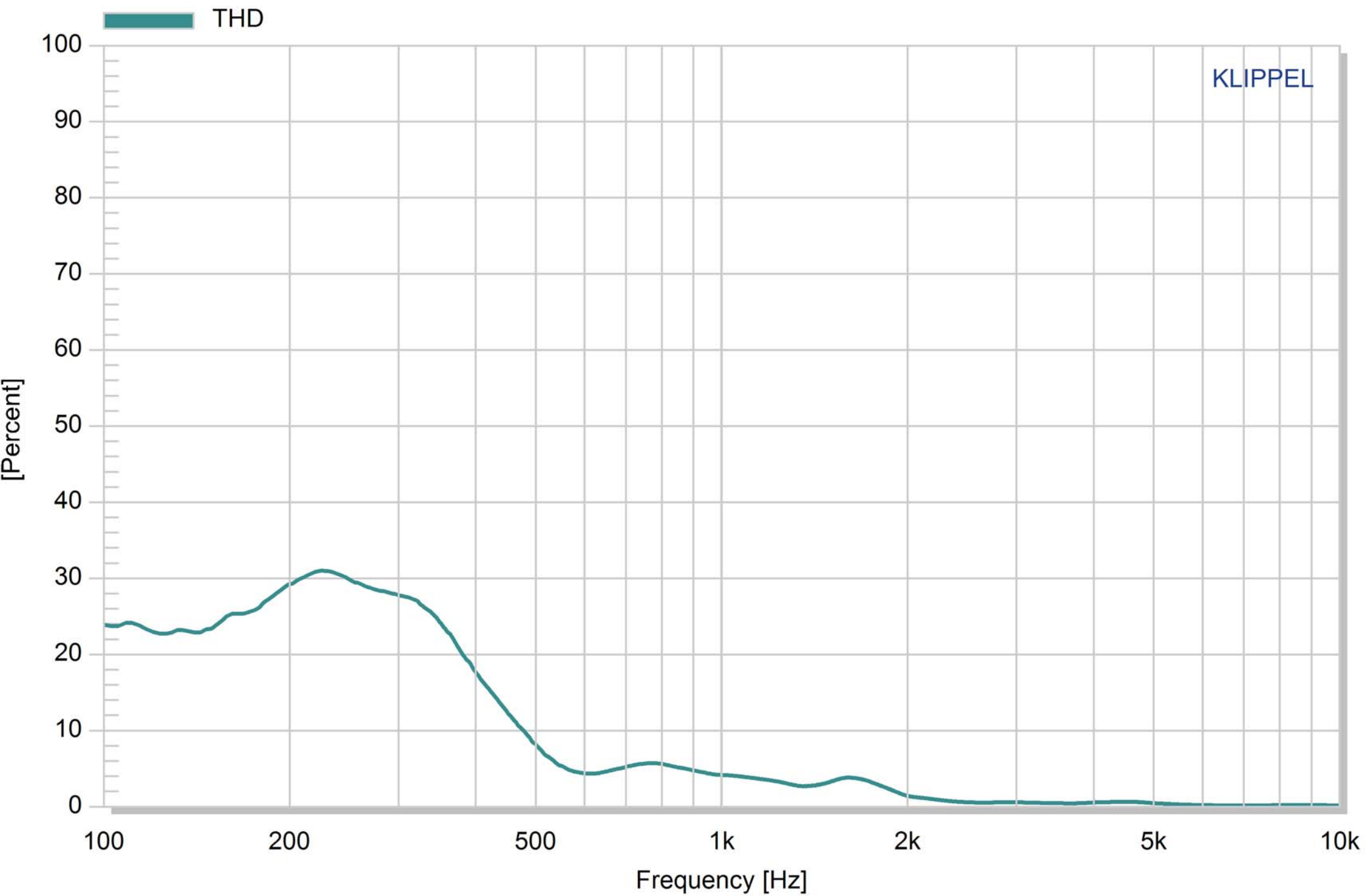
P2514KCG04L-16

2W/0.1M in 4cc box in free air



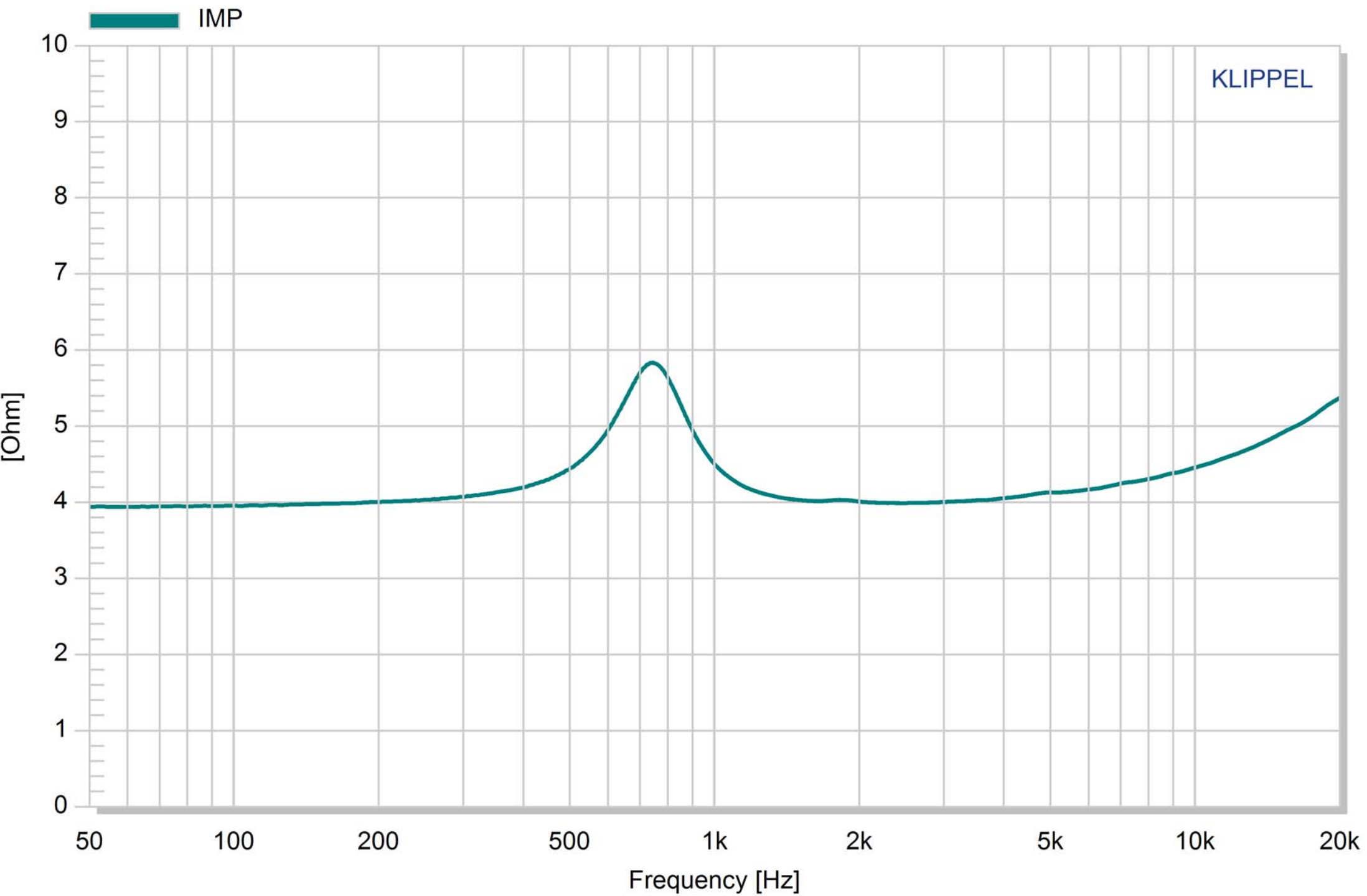
P2514KCG04L-16

2W/0.1M in 4cc box in free air



P2514KCG04L-16

1V in 4cc box

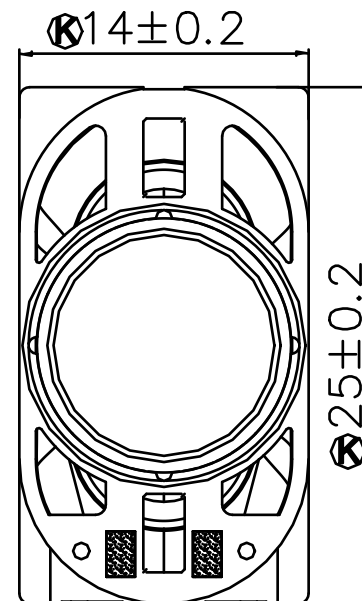
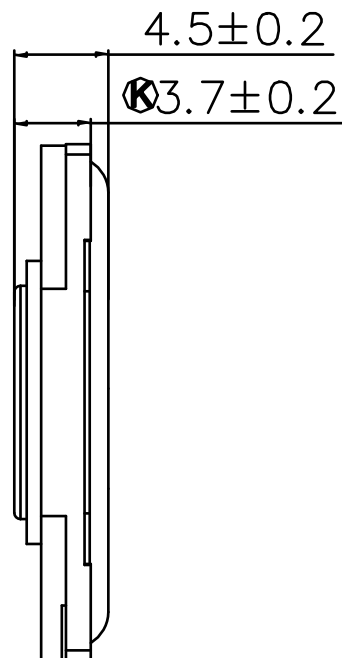
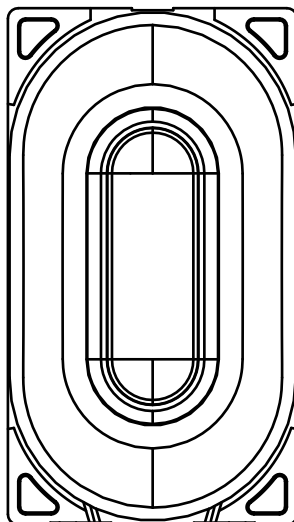
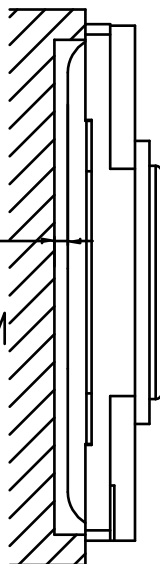


NOTE:

1. 加工要求:
2. 表面處理:
3. 制程重點:
4. 檢驗重點:

不准使用錫利
電子禁止使用的
環境管理物質

AT LEAST
0.9mm
FOR
DIAPHRAGM
MOVING



TOL				✓	
RANGE					
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: HF

CUSTOMER PN:

VECO PN:

DATE: 2022/12/01

MATERIAL:

COLOUR:

ITEM	YY/MM/DD	CONTENTS OF CHANGE	SPONSOR

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錫利電子

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Title: P2514KCG04L-16

Unit: mm

VER: 01

Appr.:



Scale: 1:1

CHK.:

Dwg.: ZWH