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Specification

規 格 書

品名 (Product Name)	揚聲器 (Speaker)
料號 (Model No.)	P1609KFG04K-025-2

Revision History			
Version	**Date**	**Description**	**Author**
00	2023/03/17	Released	DSY

核準 (Approval)	Godfrey Kao	2023/03/17
審查 (Check)	Fortune	2023/03/17
設計（Designer）	WEH	2023/03/17
制作 (Author)	DSY	2023/03/17

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1.	**MODEL:**	**P1609KFG04K-025-2**
2	type:	Composite
3	Dimension & Weight &Type	Outer Diameter **16 * 9** mm
		Height **2.5** mm Weight 1.2 Grams
4	Magnet	Materials NdFeB (1pcs)
5.	Resistance	**4** Ω ± 15 %
6.	Power Rating	Normal **2.0** Watts Maximum **2.5** Watts Sine Wave in 0.3cc box
7.	Resonant Frequency	**1700** ± 20 % Hz in **0.3**cc box
8.	Output Sound Pressure Level (S.P.L.)	**75** ± 3 db 1.0 Watt・0.5 Meter in 0.3cc box in free air
		89 ± 3 db 1.0 Watt・0.1 Meter in 0.3cc box in free air
		92 ± 3 db 2.0 Watt・0.1 Meter in 0.3cc box in free air
		Average at 2000 Hz , 3000 Hz, 4000 Hz, 5000 Hz.
9.	Frequency Range	Fo ~ 20K Hz. Average SPL – 10 db. in 0.3cc box
10.	Distortion	5 % Maximum At 1000 Hz. 2.0 Watt・0.1 Meter in 0.3cc box in free air
11	Abnormal Sound test	Must be Normal Tested By 2.83 Volts. Sine Wave in 0.3cc box
12	Load Test	Pink noise with HPF 2.83 Volts. (RMS.) 96 Hours. in 0.3cc box
13	Polarity	Diaphragm shall move Forward while Apply a Positive DC Signal to the " + " or " Marked " Terminal.
Above Measuring condition under temperature : 15~35℃ R.H. 25 ~75%. According to standard GB/T12060.5-2011		

Mechanical and vibration test

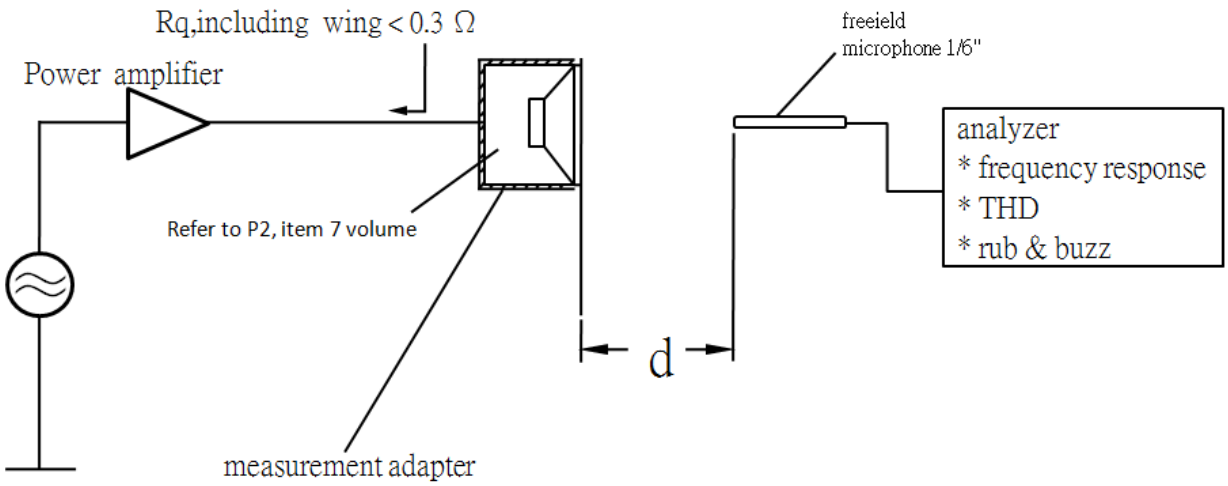
14	High Temperature	+ 60 ± 2 °C Humidity Random for 96 Hours. (GB2423.2-81)
15	Low Temperature	– 25 ± 2 °C Humidity Random for 96 Hours. (GB2423.1-81)
16	Humidity	+ 40 ± 2 °C Relative Humidity (RH) 90 ~ 95 % 96 Hours. (GB5170.18-87)
17	Vibration	Frequency 30 ± 15 Hz, Amplitude 1.5 mm for 3 Hours. (GB11606.8-89)
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)
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/T12060.5-2011
   1.1 Except other specified, measuring are under Temperature 15~35℃ 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

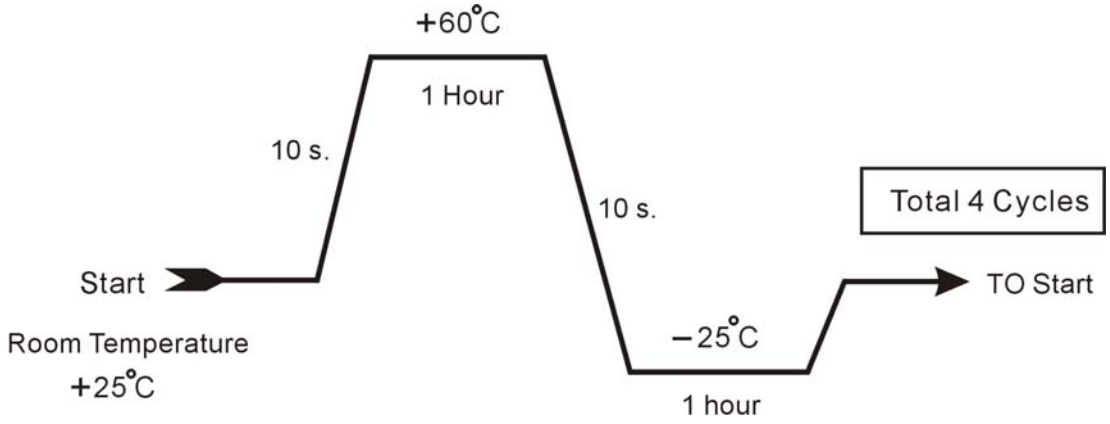
After exposure the speaker in the + 60 ± 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by ± 3 db, and resonant frequency should not deviate by ± 50 Hz, compare with pre-test measurement.

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/T12060.5-2011

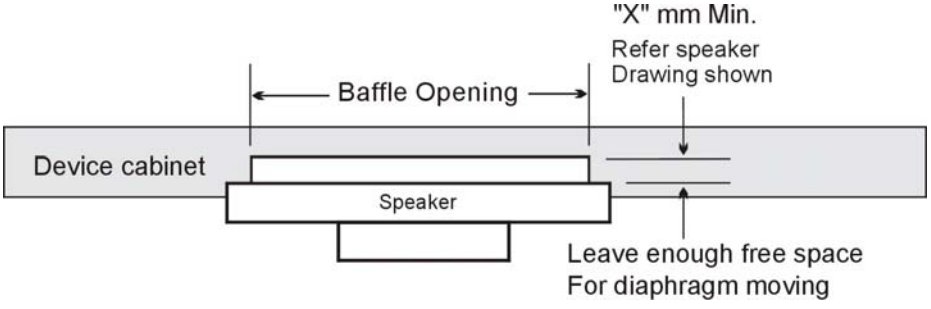
Speaker should not fail after apply 20 ~ 20K Hz Pink noise with HPF rated power input (RMS), 96 hours. After test, SPL shall not deviate by ±3 db from pre-test measurement,

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/T12060.5-2011 and IEC 60268-5:2007 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.

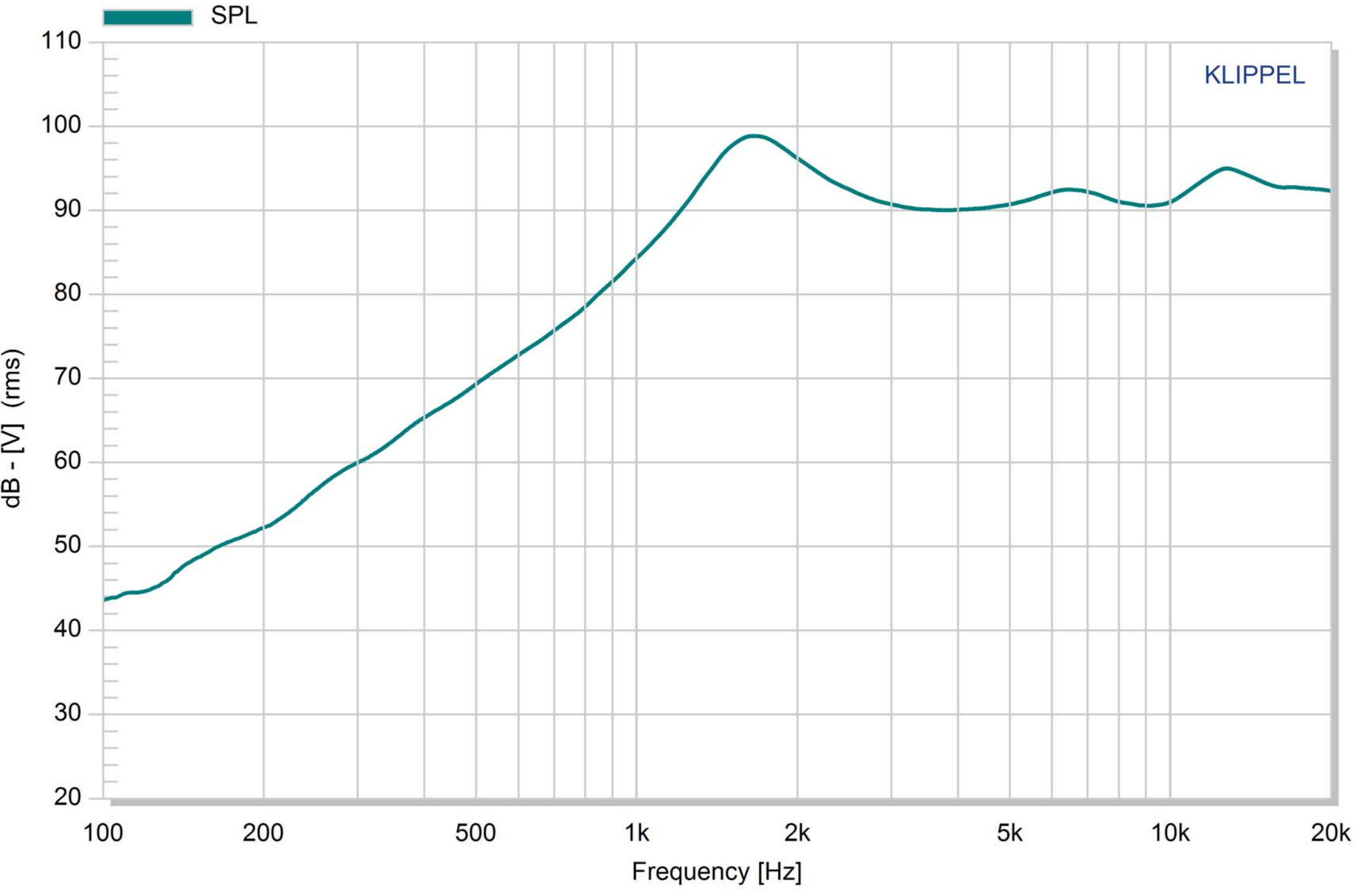
The rated sine power is corresponding with the rated sine voltage, its definition is U_s^2/R, Us indicates the rated sin voltage, R indicates the rated impedance.

5.3 The rated noise power.

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

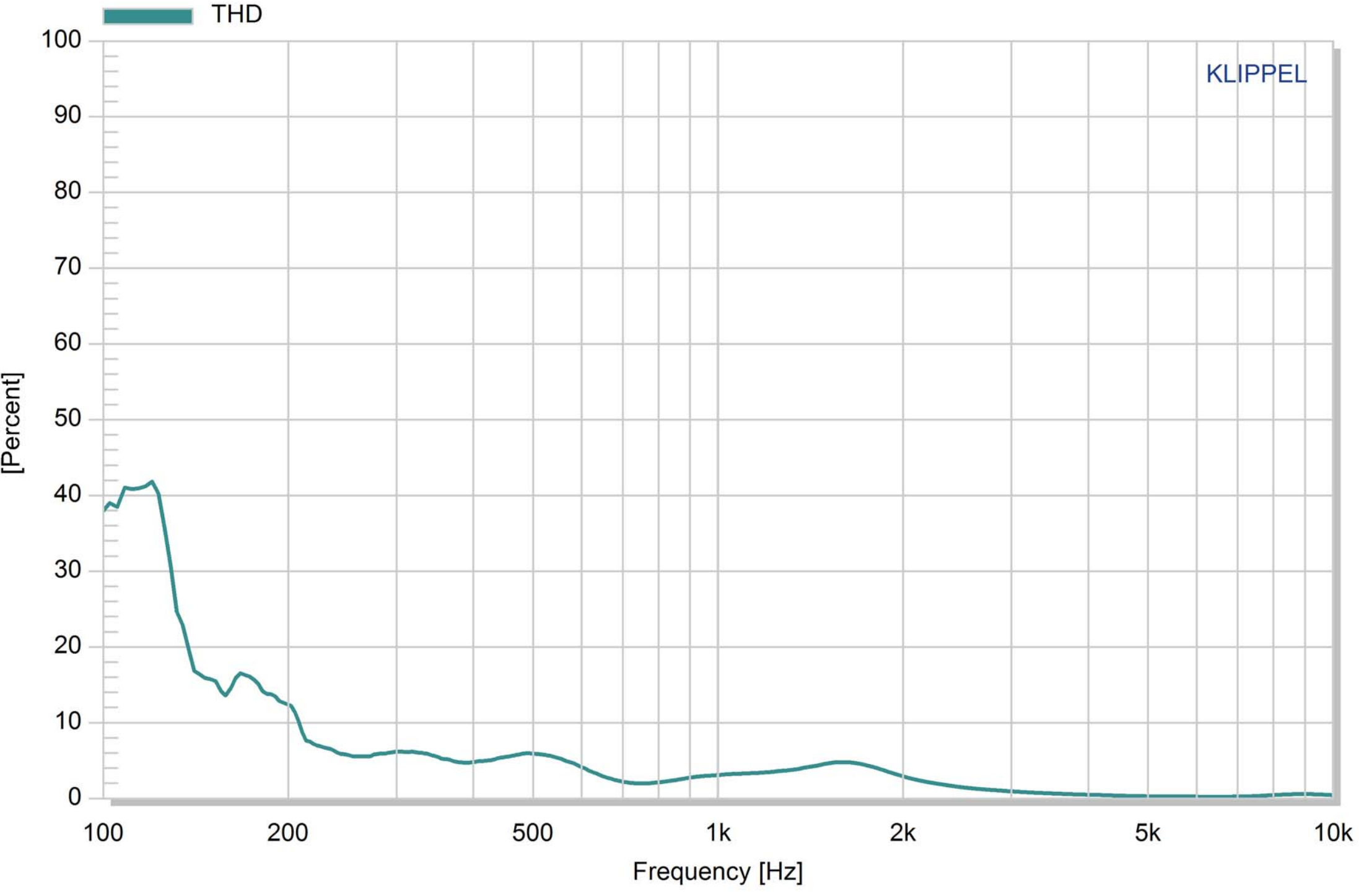
P1609KFG04K-025-2

2W/0.1M in 0.3cc box in free air



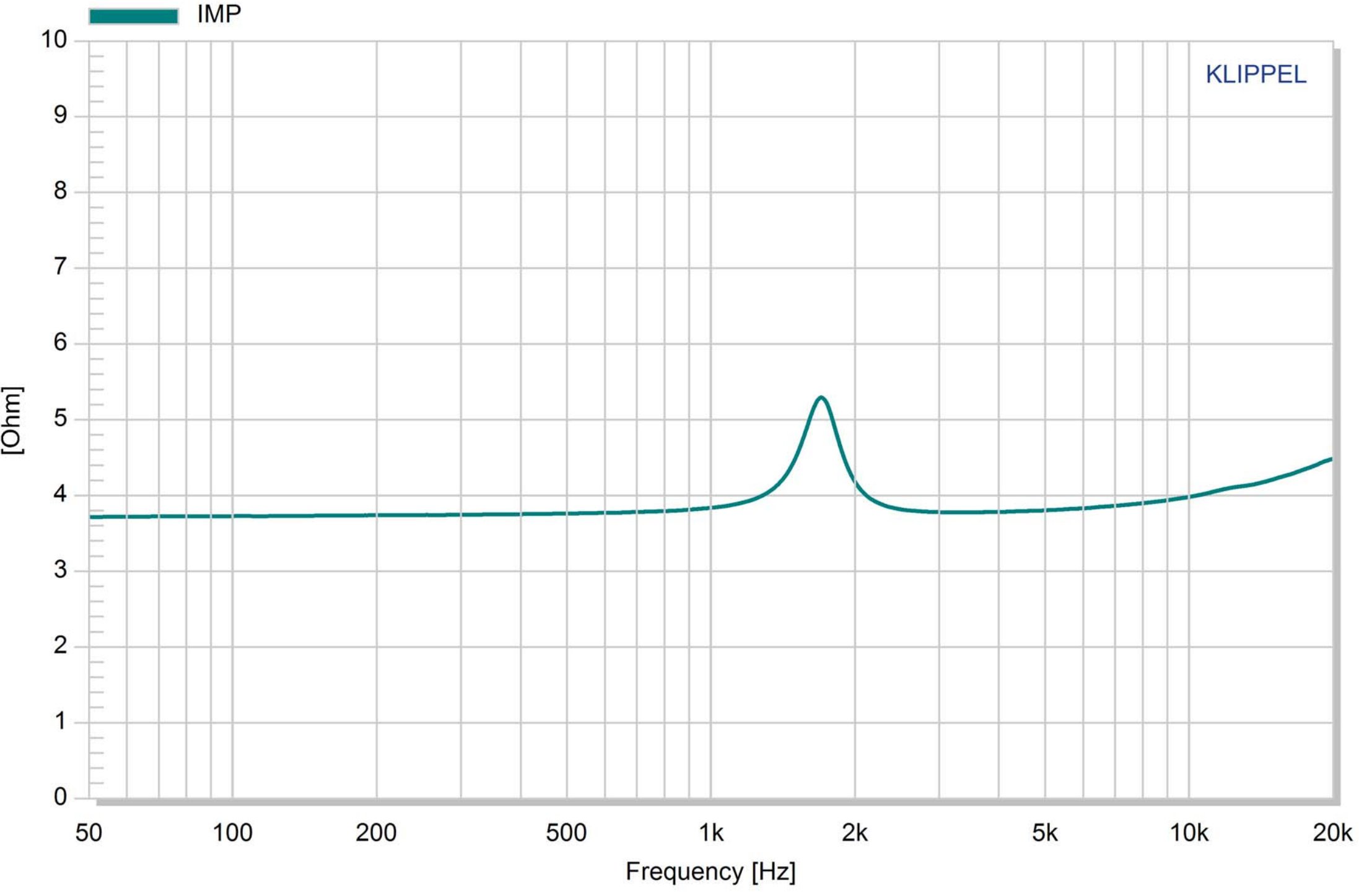
P1609KFG04K-025-2

2W/0.1M in 0.3cc box in free air



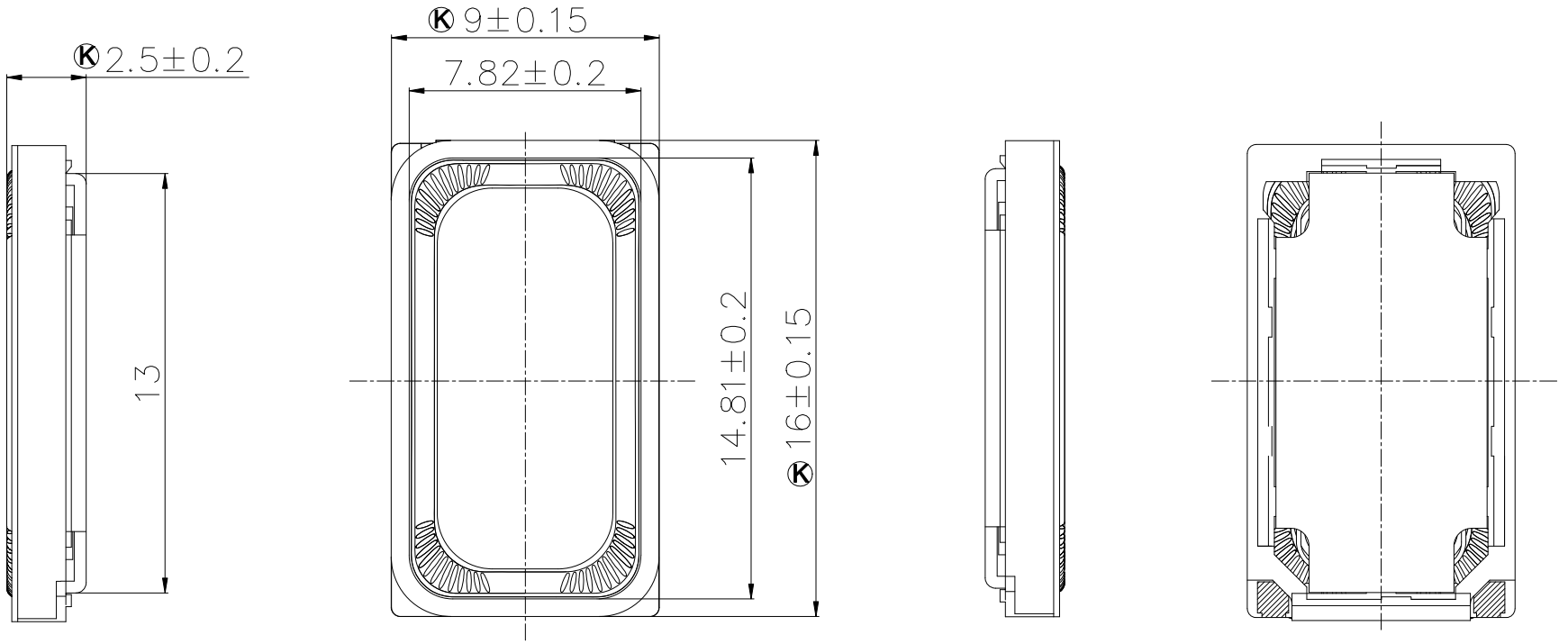
P1609KFG04K-025-2

1V in 0.3cc box



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

不准使用鉍利
電子禁止使用的
環境管理物質



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:
CUSTOMER PN: | VECO PN:
DATE: 2023/03/17 | MATERIAL: | COLOUR:

ITEM	YY/MM/DD	CONTENTS OF CHANGE	SPONSOR

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Title: P1609KFG04K-025-2

Unit: mm | VER: 00 | Appr.:
Scale: 1:1 | CHK.: | Dwg.: WEH