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SPECIFICATION FOR APPROVAL

Omni-Directional Microphone

Part Number	OWMO-4015TA-39-ANC114
Note	This item is in compliance with the following requirements: 1. RoHS directive 2. REACH
Customer P/N	

Ole Wolff	Signature / Date	Prepared	Checked	Approved
		Yongfu Zhao 2023.4.29	Song Wang 2023.4.29	

Customer	Signature / Date	Confirmation

REVISION NOTES:

Date	Rev.	Description of Revision
20230429	00	Initial Release

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1. SCOPE

THIS SPECIFICATION IS APPLIED TO OLE WOLFF OMNI-DIRECTION MICROPHONE UNIT, MODEL NO.: **OWMO-4015TA-39-ANC114**

2. TEST CONDITION

	Standard Test Condition	Judgment Test Condition
Temperature	5~35°C	20±2°C
Rel. humidity	45~85%(RH)	60~70%(RH)
Pressure	86~106KPa	86~106KPa

3. GENERAL REQUIREMENT

OPERATING TEMPERATURE RANGE: -25°C ~ +70°C

STORAGE TEMPERATURE RANGE: -25°C ~ +70°C

3.1 A good package will help Mic. on using normal transportation. Please pay more attention to prevent humid, shake, sunlight and heavy press.

3.2 The full packed Mic. Should be store at warehouse in -25°C ~ +70°C, and the relative humidity ≤85%. The warehouse must keep constant temperature, without acid or any other poisonous gas, and not caused any influence from strong magnetic field.

4. DIMENSIONS AND MECHANICAL LAYOUT

DIMENSIONS: AS SHOWN IN FIGURE 3

5. ELECTRICAL SPECIFICATION ($V_s = 2.0V$ $R_L = 2.2K\Omega$; $BW = 50Hz \sim 20KHz$ $TEMP = 20 \pm 2^\circ C$, Room Humidity = 65±5%)

No.	Item	Specification
1	Directional Characteristic :	Omni-Directional
2	Sensitivity :	-39±3 dB (f=1KHz, S.P.L=1Pa, 0dB=1V/Pa)
3	Output Impedance :	Less than 2.2KΩ at f=1KHz
4	Current Consumption :	Max.500μA (VS=2 V RL=2.2KΩ)
5	S/N Ratio :	Center 67dB S:(f=1KHz,S.P.L=1Pa) N:(A- curve)
6	Decreasing Voltage	Within -3dB at Vs=2.0V to 1.5V
8	Operating Voltage :	Typ. 2V, Min:1.0V , Max 10V
9	Maximum input S.P.L	94dB (at 1KHz) and THD<1%
10	Phase	30HZ ± 10°
11	Acoustic Overload Point	10% THD @1kHzS=Typ Max128dB

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6. RELIABILITY TEST

- After test All tests are to be carried out on the same test batch in the order listed. The sensitivity to be within $\pm 3\text{dB}$ of initial sensitivity after 3 hours of conditioning at 20°C .
- High Temperature Test Temperature: $+70\pm 3^\circ\text{C}$ Duration: 96 hours
- Low Temperature Test Temperature: $-25\pm 3^\circ\text{C}$ Duration: 96 hours
- Temperature cycle Test Temperature: $-25\pm 3^\circ\text{C}$ → $20\pm 3^\circ\text{C}$ → $+70\pm 3^\circ\text{C}$ → $20\pm 3^\circ\text{C}$ Duration: 30min 10min 30min 10min Cycle: 5 cycles
- Humidity Test Temperature: $+60\pm 3^\circ\text{C}$ Relative Humidity: $95\pm 3\%(\text{RH})$ Duration: 96 hours
- Drop Test (put into its package) Height: 1 m Drop face: concrete surface Direction: 3 edge and 6 faces of the packaging
- Vibration Test Input Power: 55Hz Amplitude: 1.52mm Duration: 2 hours at three axis(x,y,z)
- Temperature Shock Test Temperature: $+70\pm 3^\circ\text{C}$ Duration: 30min Cycle: 32 cycles (change time: 20s ec)

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7. MECHANICAL CHARACTERISTICS

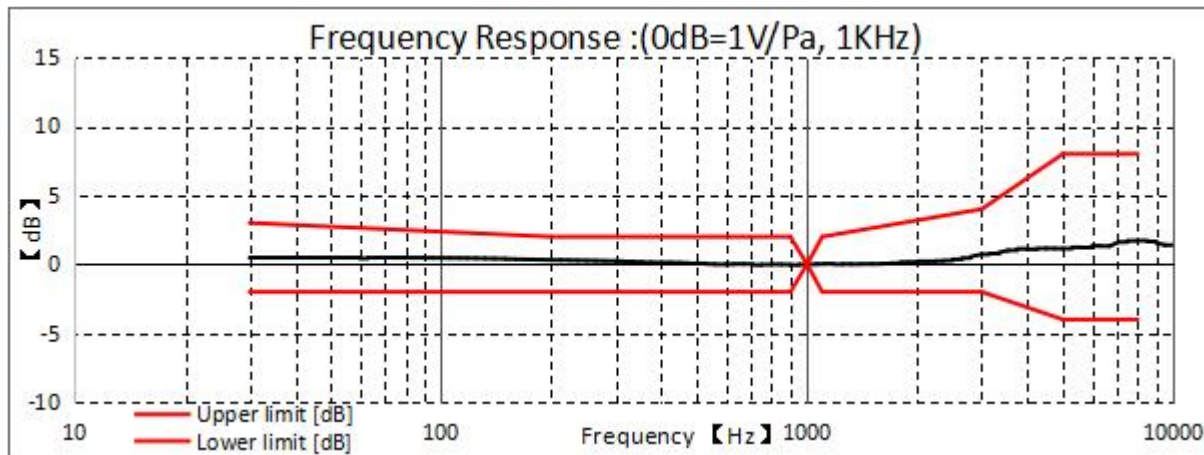
Soldering Heat Shock	To be no interference in operation after soldering Heat shock, temperature should not exceed 350°C±15°C and within 2 seconds.
Terminal Mechanical Strength	To be no interference in operation after pulled the terminal with 0.5 kg strength for 2 seconds.

8. CONCEPT OF UNIT

The difference between the unit “Pascal” and the unit “μbar” can be explained as follows. In order to calibrate the sensitivity of ECMs the sensitivity is manifested differently according to the unit “Pascal” or “μbar”. That is, the sensitivity will be increased by 20 dB when using of the unit “Pascal”.

Example: -60dB (0dB=1V/μbar)=-40dB(0dB=1V/Pa)

9. FREQUENCY RESPONSE CURVE (Figure 1)

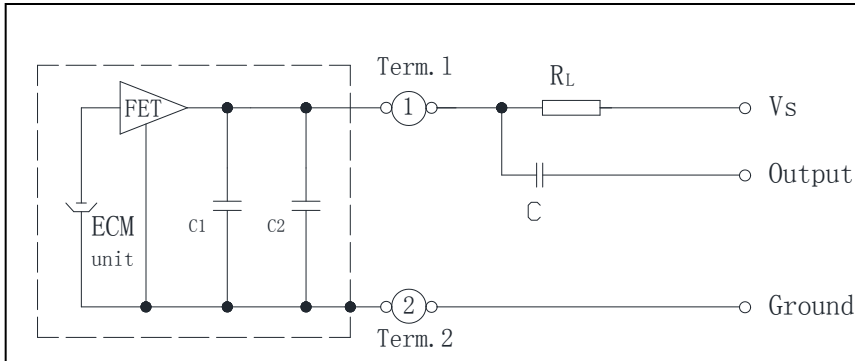


Frequency [Hz]	30	200	900	1000	1100	3000	5000	8000
Upper limit [dB]	3	2	2	0	2	4	8	8
Lower limit [dB]	-2	-2	-2	0	-2	-2	-4	-4

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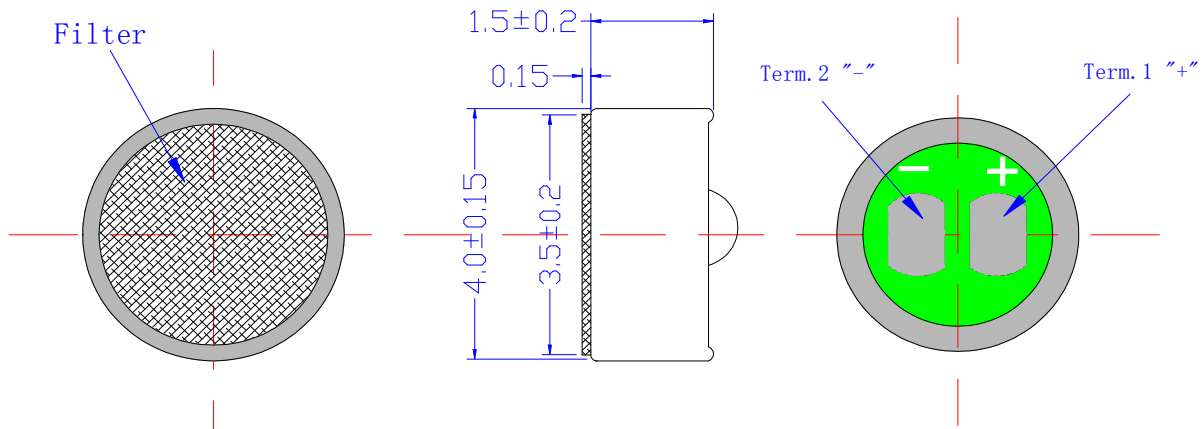
10. ELECTRICAL CIRCUIT (Figure 2)



RL=2.2K Ω (External resistor)
Vs=2.0V
C=1 μ F
C1=10pF
C2=33pF
Ta=20 \pm 2 $^{\circ}$ C
R.H=60 \pm 5%

11. APPEARANCE & DIMENSIONS (Figure 3)

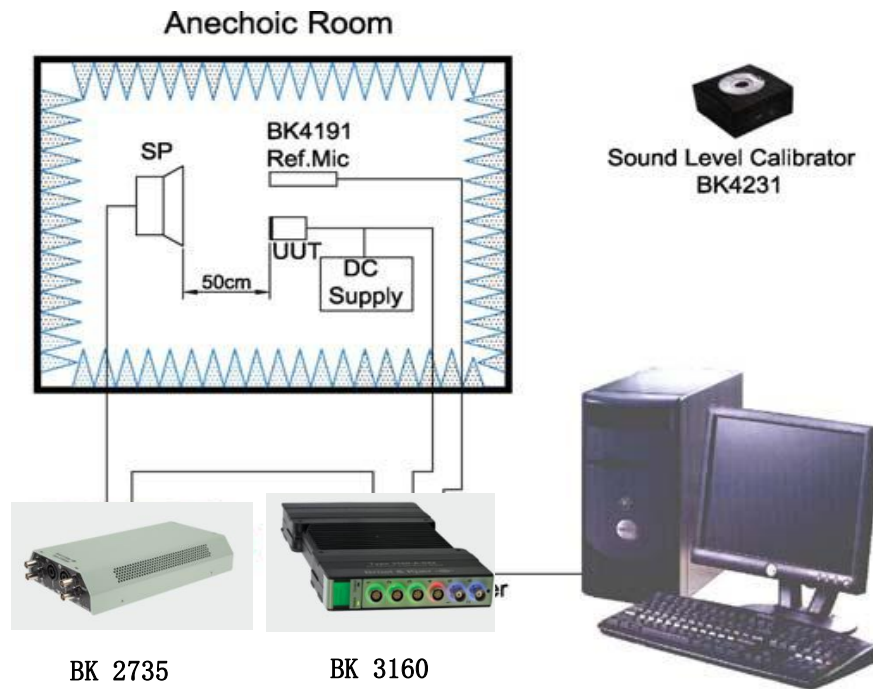
Unit: mm



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12. SENSITIVITY STANDARD TESTING (Figure 4)



- 12.1.1 Testing microphone with standard operating condition.
- 12.1.2 Put the microphone and standard microphone to face the sound output place (speaker), the distance from sound output to microphone & standard microphone is 50cm. And keep the center distance 5cm between each other to ensure the sound pressure change should be keep in +/- 1dB.
- 12.1.3 Keep the output sound pressure in +/- 1dB from speaker.(Tested by reference microphone)
- 12.1.4 The sensitivity of microphone is getting its output voltage when sound output keeps in 1000Hz & 1Pa.

13. REGARDING THE SOLDERING OPERATION (Figure 5 & 6)

MIC is a kind of very sensitive components for temperature and static impacting because there is a FET and a vibrant diaphragm, and FET is destroyed by strong heat and static; Diaphragm is destroyed by strong heat. If the operation is unsuitable or protect bad during the soldering process, it will affect MIC function and even destroy, So pay attention the following request when soldering:

13.1 Solder temperature and time

- 13.1.1 Suggest Iron of constant temperature;
- 13.1.2 Suggest lead-free soldering temperature range $350^{\circ}\text{C} \pm 15^{\circ}\text{C}$ (external soldering temperature of Iron needle);
- 13.1.3 The tual temperature of the user is according to PCB layers and soldering way to adjust soldering temperature.
- 13.1.4 Idering skill: soldering time of single point is within 2 seconds; Don't continue soldering same mic (please repair soldering once badly after cooling it)
- 13.1.5 Belongs to normal phenomenon that the sensitivity of the microphone change 0.5dB to 1dB within stipulating soldering temperature and time range.
- 13.1.6 If soldering temperate of the mic increase and time prolong, Sensitivity will have a big change, and even destroy inner structure, performance.

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13.2 Soldering Quality

The soldering point can't leave sand hole or empty hole after soldering. (sand hole or empty hole will affect sensitivity and performance) , continuous soldering phenomena.

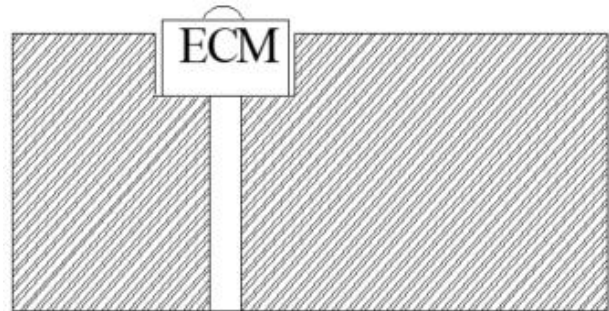
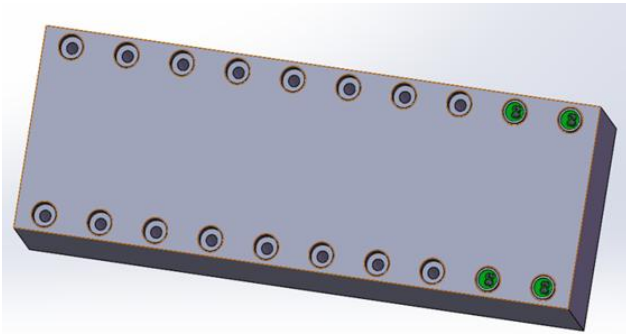
13.3 Static protecting

Electric iron, test machine work stand, soldering tool must effectively connect earth. The operator must wear ring of resisting static.

13.4 Heat scattered defending

13.4.1 Using heat scattered tool, Choose Al or Cooper, Please refer the following drawing.

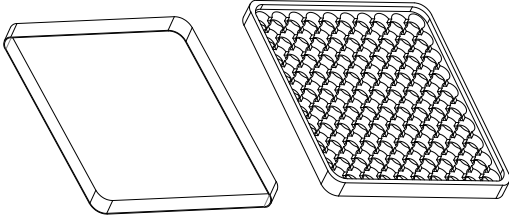
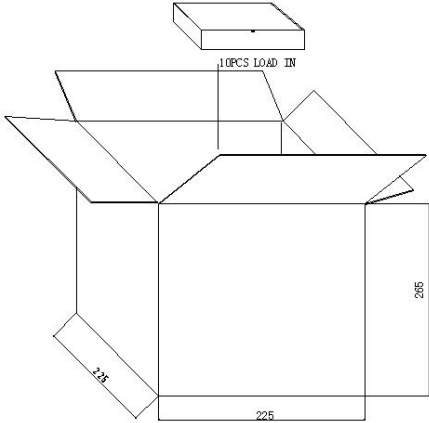
13.4.2 The heat scattered tool of user, whose shape need according to actual the position of soldering product and space to design or increase blow air tool for scattering heat.



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14. PACKAGE INFORMATION (Figure 7)

	Drawing	Qty (PCS)	SIZE(mm) L×W×H	Material
Small Package		100	84×84	PE (Anti-static)
Outer Package	<p>20 inner boxes</p>  <p>If the order quantity is less than 10000pcs, the smallest practical box will be used.</p>	10000	420*375*195	Paper

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