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# SPECIFICATION FOR APPROVAL

## Speaker

Part Number	OWS-4021TA-4
Note	This item was compliance with the following requirements: 1. RoHS directive 2. REACH
Customer P/N	


Ole Wolff	Signature / Date	Prepared	Checked	Approved
		YanRui 2020.2.6		

Customer	Signature / Date	Confirmation		

### REVISION NOTES:

Date	Rev.	Description of Revision
2020.2.6	00	Initial Release

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## 1. SCOPE

THIS SPECIFICATION IS APPLIED FOR A DYNAMIC SPEAKER.

## 2. TEST CONDITIONS

TEMPERATURE : 15 °C ~ 35 °C

HUMIDITY : 45%~85% (R.H.)

ATMOSPHERE : 860 ~ 1060 hPa

## 3. GENERAL REQUIREMENTS

OPERATING TEMPERATURE RANGE: -20 °C ~ 60 °C

STORAGE TEMPERATURE RANGE: -20 °C ~ 60 °C

## 4. MECHANICAL LAYOUT & DIMENSIONS


DIMENSIONS : SHOWN IN FIGURE.4

NET WEIGHT: approx 28g

## 5. ELECTRICAL AND ACOUSTICAL CHARACTERISTICS

1	IMPEDANCE	$4 \pm 15\% \Omega$
2	SOUND PRESSURE LEVEL	$85 \pm 3\text{dB}$ 1W/0.5m at (AVG 0.8,1.0,1.6,2.0)KHz baffleboard (IEC), MEASUREMENT AS SHOWN IN FIGURE.1
3	FREQUENCY RESPONSE CURVE	SHOW IN FIGURE 2
4	RESONANCE FREQUENCY	$180 \pm 20\%$ Hz in free air at 1.0Vrms
5	TOTAL HARMONIC DISTORTION (THD)	SHOW IN FIGURE 3 < 5% at 1KHz
6	BUZZ & RATTLE	DYNAMIC SPEAKER MUST BE FREE AUDIBLE NOISE AT 3.46Vrms, SINE WAVE BETWEEN 20Hz AND 2KHz FREQUENCY RANGE.
7	INPUT POWER	(Nom./Max.): 3 W / 5W

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## 6. RELIABILITY TEST REQUIREMENTS.

After any following tests the S.P.L should not deviate more than  $\pm 3\text{dB}$  from initial value.

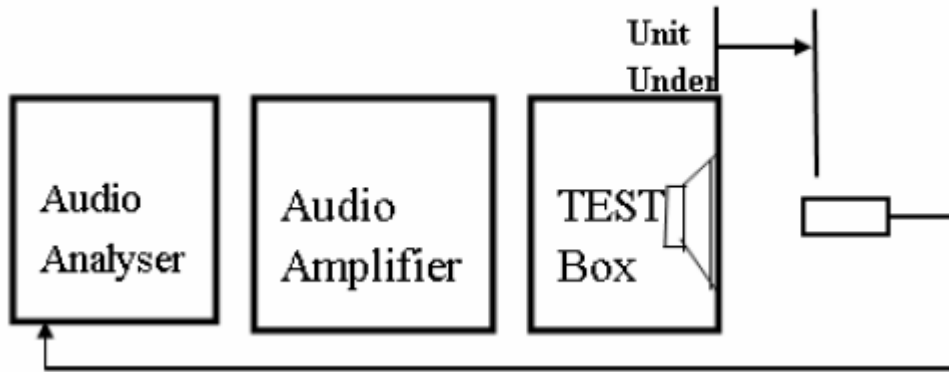
No.	ITEMS	TEST CONDITION
1.	High temp. Test	Temperature: $+60\text{ }^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Duration: 96 hours
2.	Low temp. Test	Temperature: $-20\text{ }^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Duration: 96 hours
3.	Humidity Test	Temperature: $+40\text{ }^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Relative Humidity: 90-95% RH Duration: 96 hours (recovery 6 hours)
4.	Thermal cycle test.	Low temperature: $-25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , temperature: $+60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , cycle: 1 hour/cycle each, and then keep 4 cycles in a room.
5.	Vibration Test	Frequency: 10 ~ 55 ~ 10Hz Oct/min Amplitude: 1.5mm Duration: 2hours in each 3axes
6.	Drop Test	Free drop from 60cm height to a board of 20mm thick one point ,three corners ,six sides. 1 times each, total 10 times.
7.	Load test	Input power: 3W, Pink noise 96hours .
8.	Terminal Strength	Load: 1.0 Kg Duration: 15sec.(Shall be normal)

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## 7. ELECTRICAL CHARACTERISTICS MEASUREMENT (FIGURE.1)


### MEASUREMENT CIRCUIT FOR DYNAMIC SPEAKER



### MEASURING EQUIPMENT

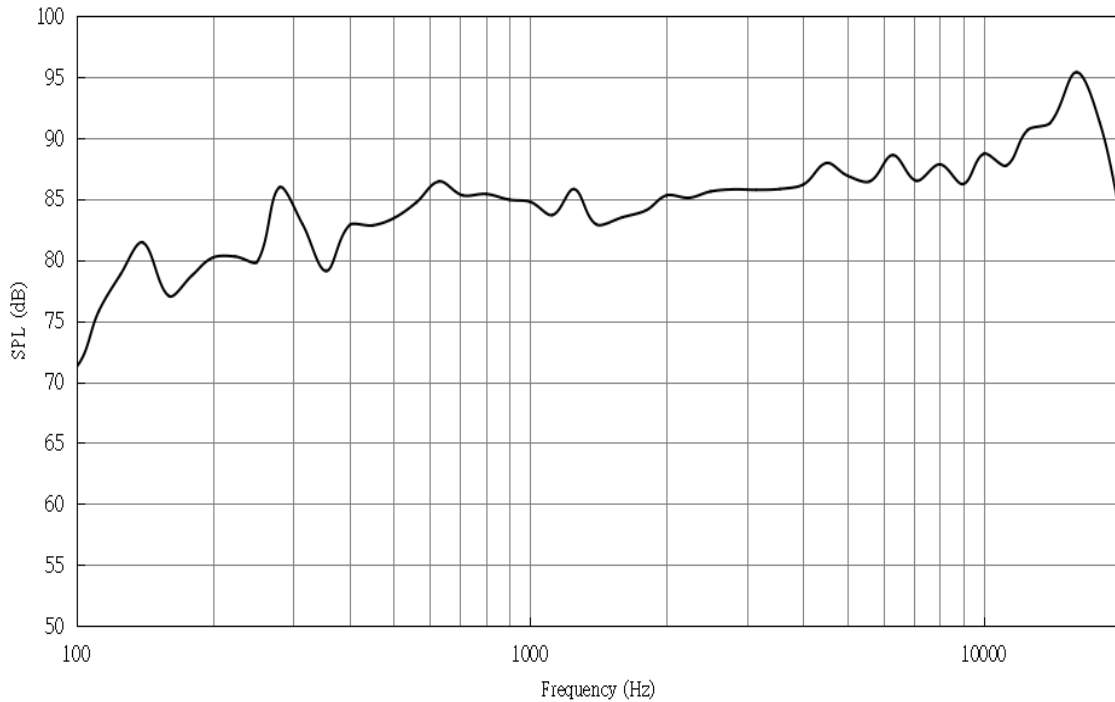
NO	EQUIPMENT	REMARKS
1.0	UNIT UNDER TEST	SPEAKER
2.0	TEST BOX	OLE WOLFF STANDARD BOX
3.0	AUDIO POWER AMPLIFIER	CRATE AUDIO SPA300
4.0	ANALYZER	LISTEN SOUNDCHECK

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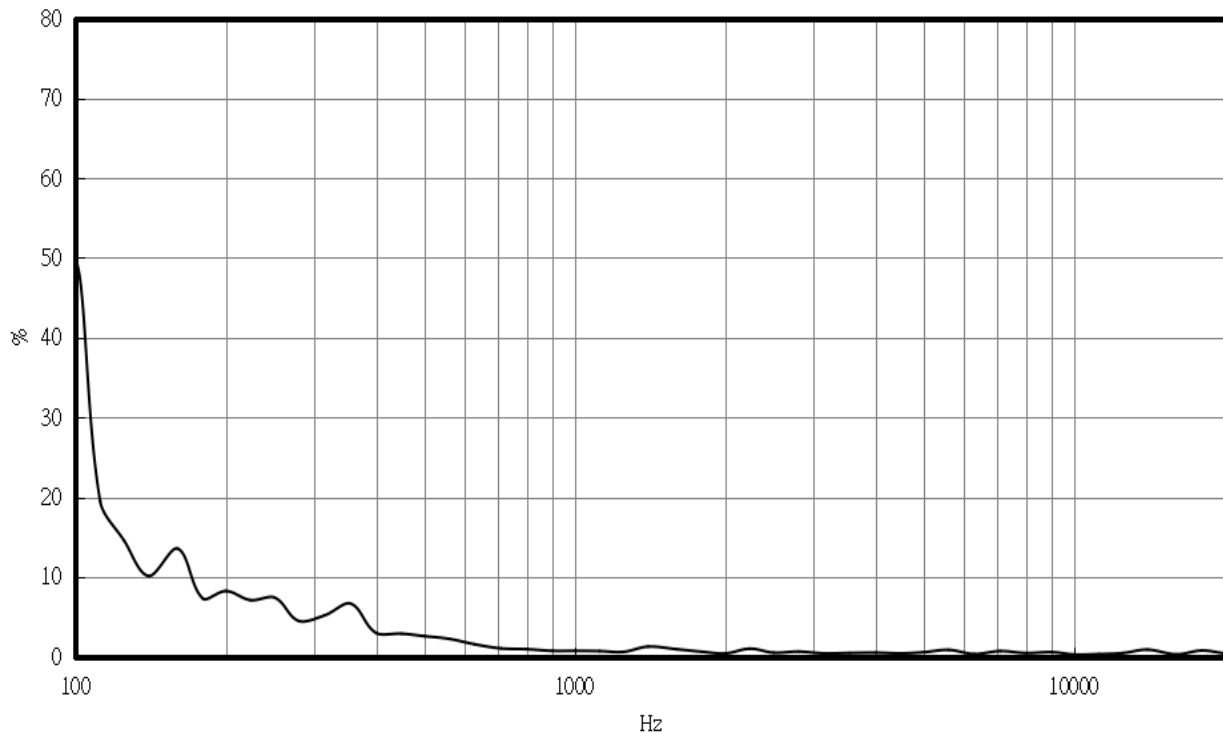
## 8. STANDARD FREQUENCY RESPONSE CURVE(FIGURE.2)

3.46Vrms /0.5m




## 9. STANDARD THD CURVE (FIGURE.3)

3.46Vrms /0.5m



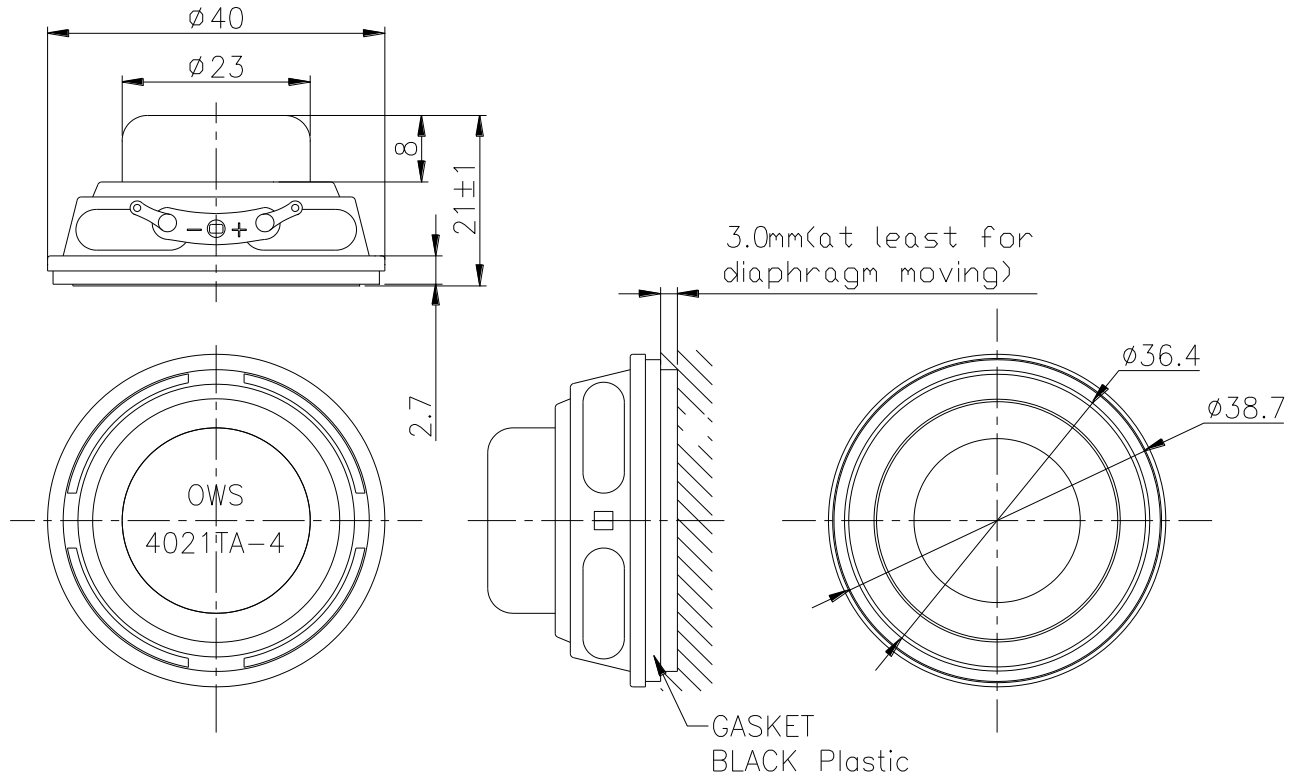
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## 10. OUTVIEW (FIGURE.4)

Unless otherwise specified, tolerance:  $\pm 0.5$  (unit: mm)

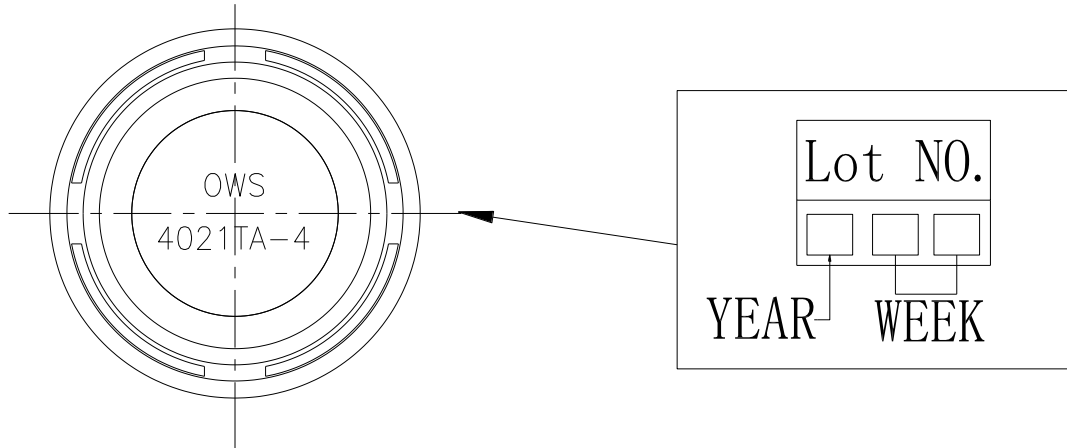
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**MARKING(FIGURE.5)**



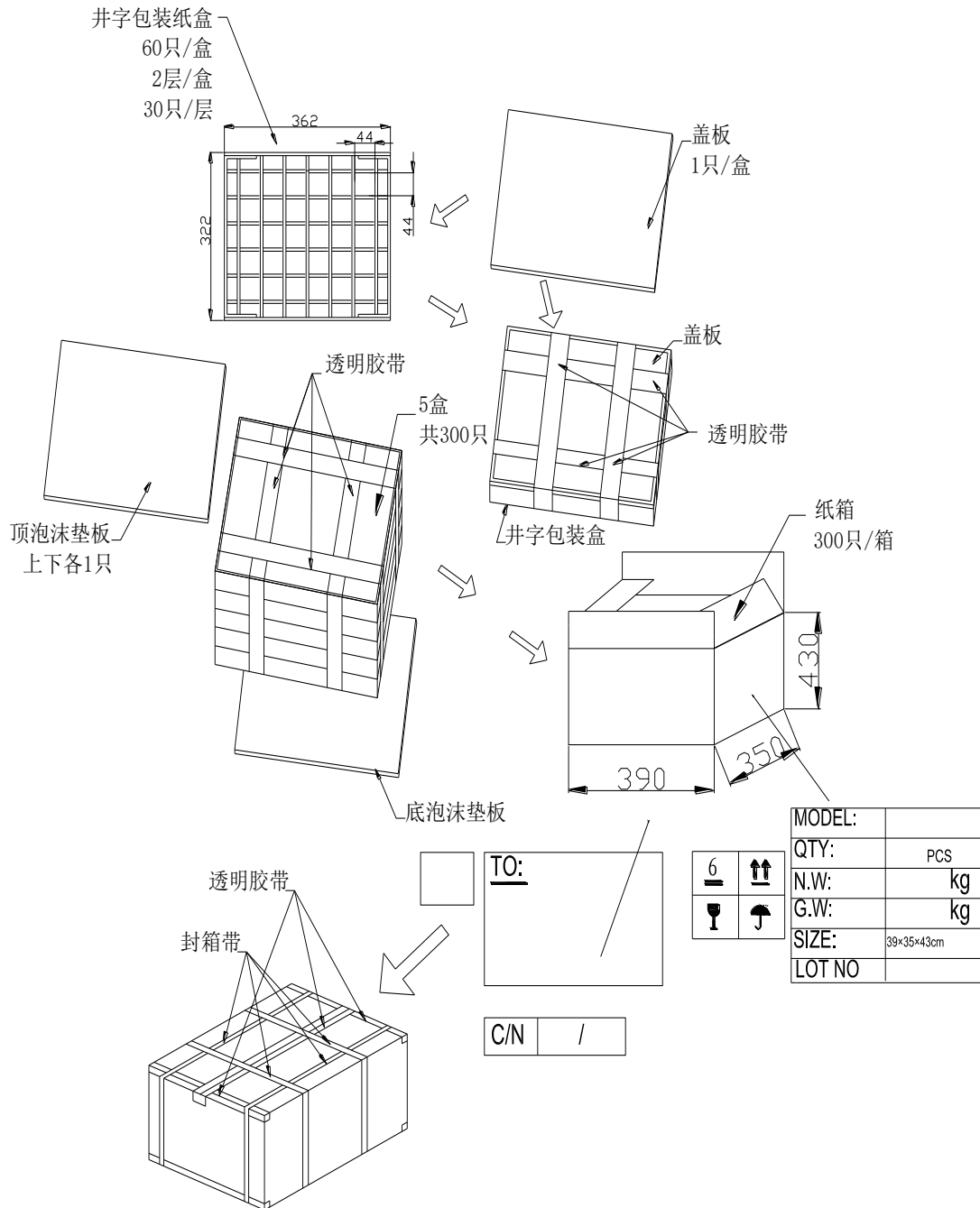
YEAR		WEEK	
year	marking	week	marking
2015	5	6	06
2016	6	↓	↓
2017	7		
2018	8		
		50	50
		51	51
		52	52
		53	53

↑

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## 12. PACKING(Figure.6)



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