SPECIFICATION FOR APPROVAL
Dual Mode Speaker

Part Number	**OWDM-1936W-8B**
Note	**This item is in compliance with the following requirements:** **1. RoHS directive** **2. REACH**
Customer P/N	

		Prepared	Checked	Approved
Ole Wolff	**Signature / Date**	**2019.08.22**		**Ryan Li** 2019.08.26

		Confirmation
Customer	**Signature / Date**	

Revision Notes:

Date	Rev.	Description of Revision
2018.10.10	**00**	**Initial release**
2019.08.22	**01**	**Update the FR mask on P8**

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1. SCOPE

THIS SPECIFICATION IS APPLIED FOR A DYNAMIC SPEAKER FOR A MOBLUE PHONE OR SIMILAR HAND HELD APPLICATION.

2. TEST CONDITIONS

TEMPERATURE : 18°C ~ 22°C
HUMIDITY : 65% +/-5% (R.H.)
ATMOSPHERE : 860 ~ 1060 hPa

3. GENERAL REQUIREMENTS

OPERATING TEMPERATURE RANGE : -20° C ~ 65° C
STORAGE TEMPERATUR RANGE : -40° C ~ 80° C

4. MECANICAL LAYOUT & DIMENSIONS

DIMENSIONS : SHOWN IN FIGURE.5.
NET WEIGHT : 2.7 ±0.2g

5. ELECTRICAL AND ACOUSTICAL CHARACTERISTICS FOR DYNAMIC SPEAKER&RECEIVER

1	IMPEDANCE	8Ω ± 15% AT 2kHz
2	SOUND PRESSURE LEVEL	**SPEAKER**:93dB±3 dB 0.1W,0.1M AT AVE 0.8K 1.0K 1.2K 1.5K 0.89V (0dB=20.0 μ Pa/V) MEASUREMENT AS SHOWN IN FIGURE.4 115dB±3dB 0.5W,0.01M AT AVE 0.8K,1.0K,1.2K,1.5K 2V(0dB=20.0 μ Pa/V) MEASUREMENT AS SHOWN IN FIGURE.6 **RECEIVER**: 126dB±3dB AT 1KHz 100mV IEC318 COUPLER (0dB=20.0 μ Pa/V)
3	FREQUENCY RESPONSE	F0～8KHz.
4	RESONANCE FREQUENCY	650Hz ± 20% AT 2.0V
5	TOTAL HARMONIC DISTORTION (THD)	5% MAX AT 2000Hz
6	RATED INPUT POWER	NOMINAL 0.5W MAXIMUM 0.8W

6. ELECTRIC-ACOUTICAL CHARACTERISTICS FOR RECEIVER UNIT

7	MAGNET GRADE:	4000 GAUSS±10%
8	OPERATION	MUST BE NORMAL AT A PROGRAM SOURCE 0.5W
9	POLARITY	WHEN A POSITIVE D.C VOLTAGE IS APPLIDE TO THE (+) TERMINAL,THE DIAPHRAGM SHOULD MOVE TO THE FRONT
10	BUZZ&RATTLE	DYNAMIC SPEAKER MUST BE FREE AUDIBLE NISE AT 2.0V,SINE WAVE BETWEEN 300Hz AND 3.4KHz FREQUENCY RANGE.
11	FREQUENCY RESPONSE CURVE	**SPEAKER**: FIGURE.5 AND FIGURE.8 **RECEIVER:** FIGURE.3

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7. QUALIFICATION TESTS

AFTER TEST
SPEAKER MODE : SENSITIVITY DIFFERENCE AT 0.8K, 1.0K, 1.2K, 1.5KHz SHALL BE WITHIN ±3 dB FROM INITIAL VALUE.
RECEIVER MODE : SENSITIVITY DIFFERENCE AT 1.0KHz SHALL BE WITHIN ±3 dB FROM INITIAL VALUE.

LOAD TEST
INPUT SIGNAL : WHITE NOISE
INPUT POWER : 0.5W
DURATION : 96 HOURS

HIGH TEMPERATUER TEST
HIGH TEMPERATURE : 80°±2°C
DUATION : 96 HOURS

LOW TEMPERATURE TEST
LOW TEMPERATURE : -40°±2°C
DUATION : 96 HOURS

HUMIDITY TEST
TEMPERATURE : 40°±2°C
HUMIDITY : 90~95%
DUATION : 96 HOURS

VIBRATION TEST
VIBRATION : 10-55Hz/MIN
AMPLITUDE : 1.5MM
DURATION : 3 HR IN EACH OF 3 AXES

DROP TEST
HEIGHT : 1.2M
DROP FACE : CONCRETE FLOOR
DURATION : 6 TIMES

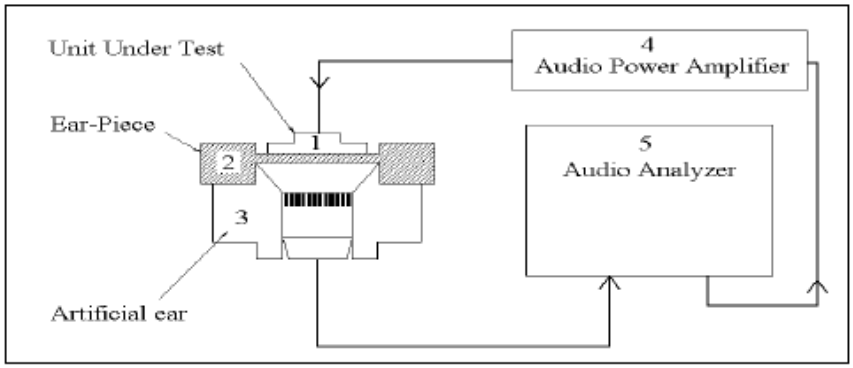
TPERATURE CYCLE TESTEM
TEMPERATURE : -40°±2°C(HRM.40%)↔+80°±2°C
DURATION : 2 HR 30MIN 2 HR(1CYCLE)
CYCLES : 10CYCLES

8.INSULATION TESTS

1	**WITHSTAND VOLTAGE**	AC 100V FOR 1MIN. BETWEEN THE TERMINAL AND THE PLASTIC CASE HOUSING.
2	**INSULATION RESISTANCE**	1M OHM AT DC 200V BETWEEN THE TERMINAL AND THE PLASTIC CASE HOUSING.

9. MEASUREMENT METHOD FOR RECEIVER UNIT (FIGURE. 1)

MEASUREMENT CIRCUIT OF IEC 318

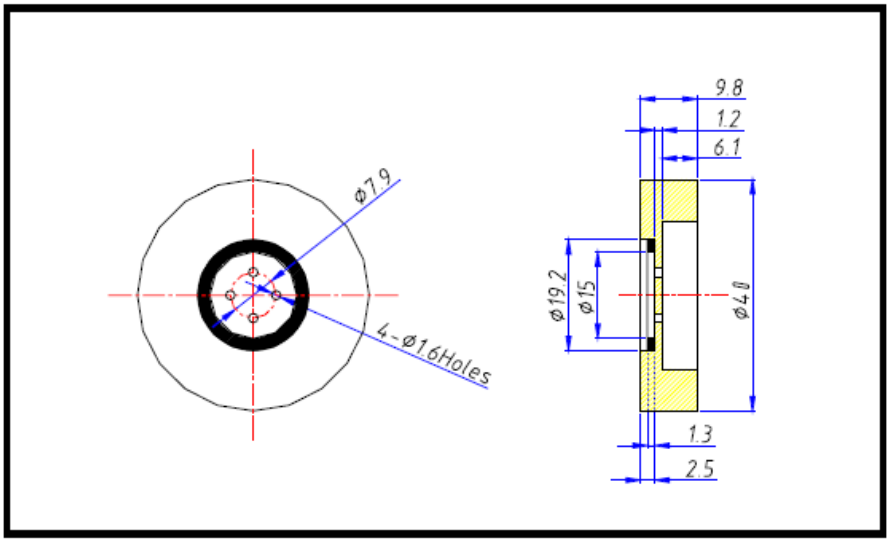


MEASURING EQUIPMENT

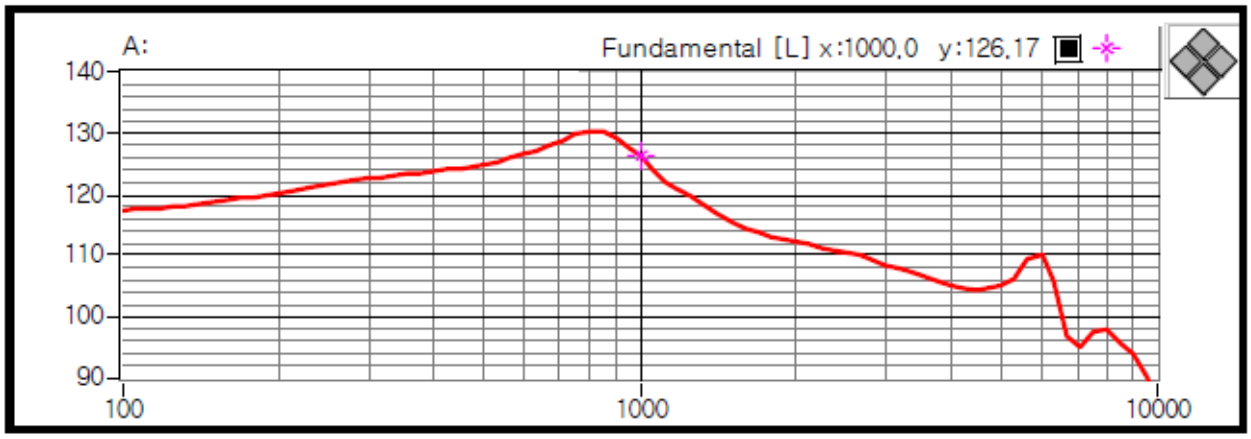
NO	EQUIPMENT	REMARKS
1.	UNIT UNDER TEST	RECEIVER
2.	EAR-PIECE (RECOMMENDED)	AS SHOWN IN FIGURE 2
3.	ARTIFICIAL EAR	IEC 318
4.	AUDIO POWER AMPLIFIER	CRATE AUDIO SPA300
5.	AUDIO ANALYZER	LISTEN SOUNCHECK

10. STANADRD EAR PIECE (FIGURE. 2)

Unit:mm

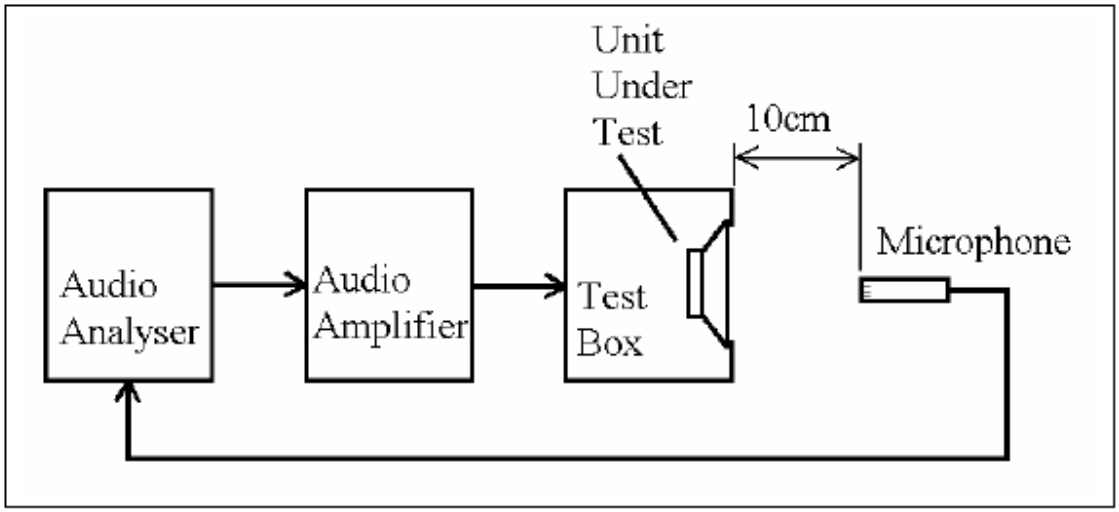


11. FREQUENCY RESPONSE (FIGURE. 3)



12. MEASUREMENT METHOD FOR DYNAMIC SPEAKER (FIGURE. 4)

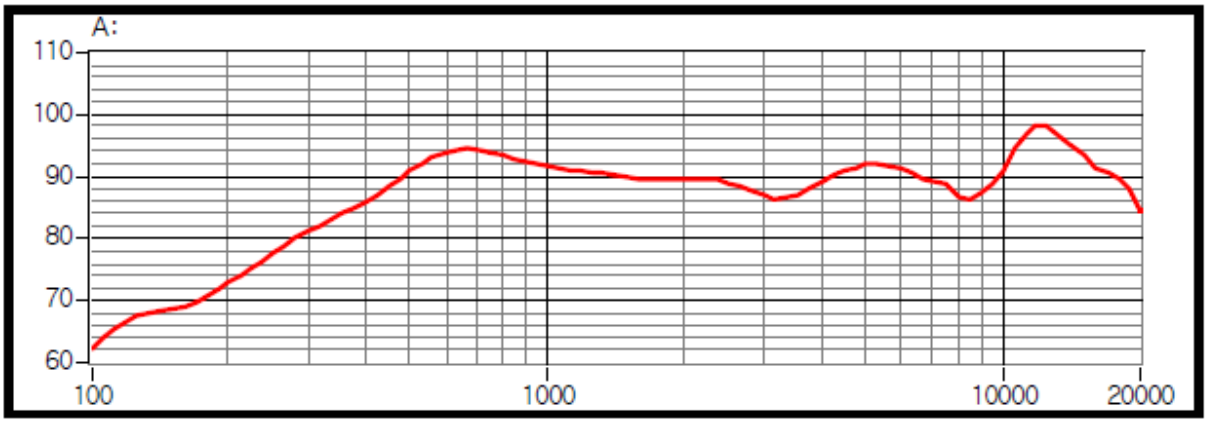
MEASUREMENT CIRCUIT FOR DYNAMIC SPEAKER



MEASURING EQUIPMENT

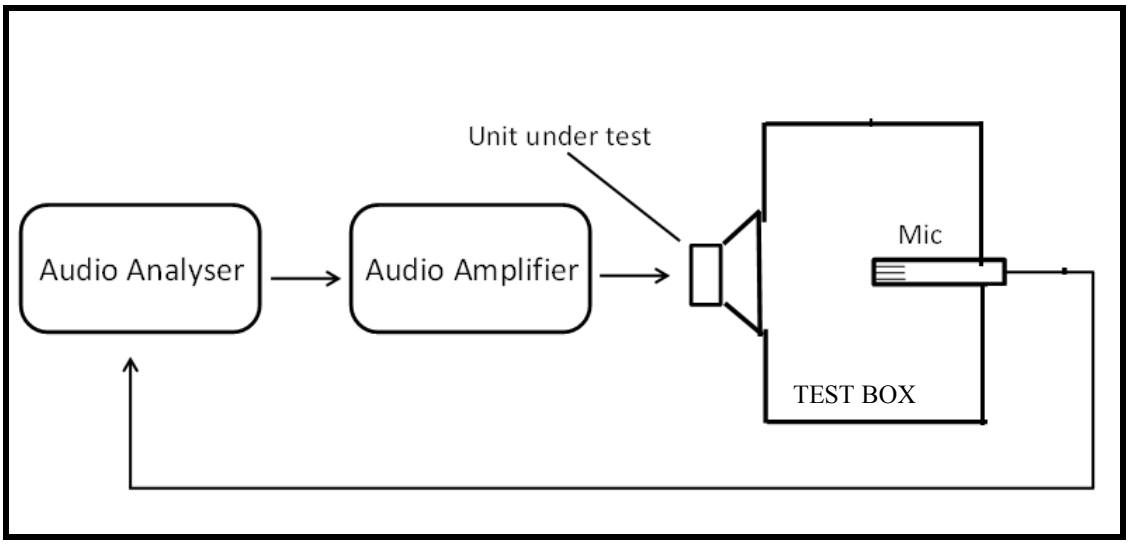
NO	EQUIPMENT	REMARKS
1.0	UNIT UNDER TEST	SPEAKER
2.0	TEST BOX	10CM×10CM×10CM(1000CC)BOX
3.0	AUDIO POWER AMPLIFIER	CRATE AUDIO SPA300
4.0	ANALYZER	LISTEN SOUNDCHECK

13. FREQUENCY RESPONSE (FIGURE. 5)



14. MEASUREMENT METHOD FOR DYNAMIC SPEAKER (FIGURE. 6)

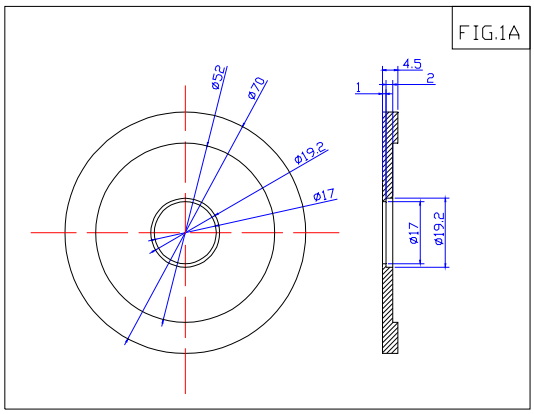
MEASUREMENT CIRCUIT FOR DYNAMIC SPEAKER

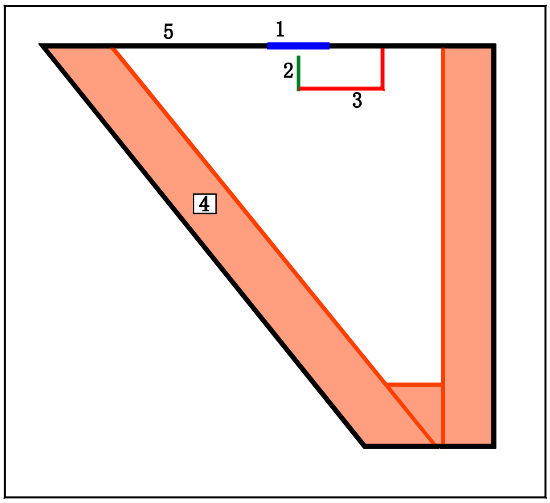


MEASURING EQUIPMENT

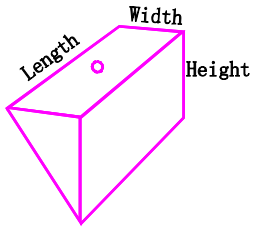
NO	EQUIPMENT	REMARKS
1.0	UNIT UNDER TEST	SPEAKER
2.0	TEST BOX	OLE WOLFF STANDARD BOX
3.0	AUDIO POWER AMPLIFIER	CRATE AUDIO SPA300
4.0	ANALYZER	LISTEN SOUNDCHECK

15.TEST BOX：OW-BOX(FIGURE.7)



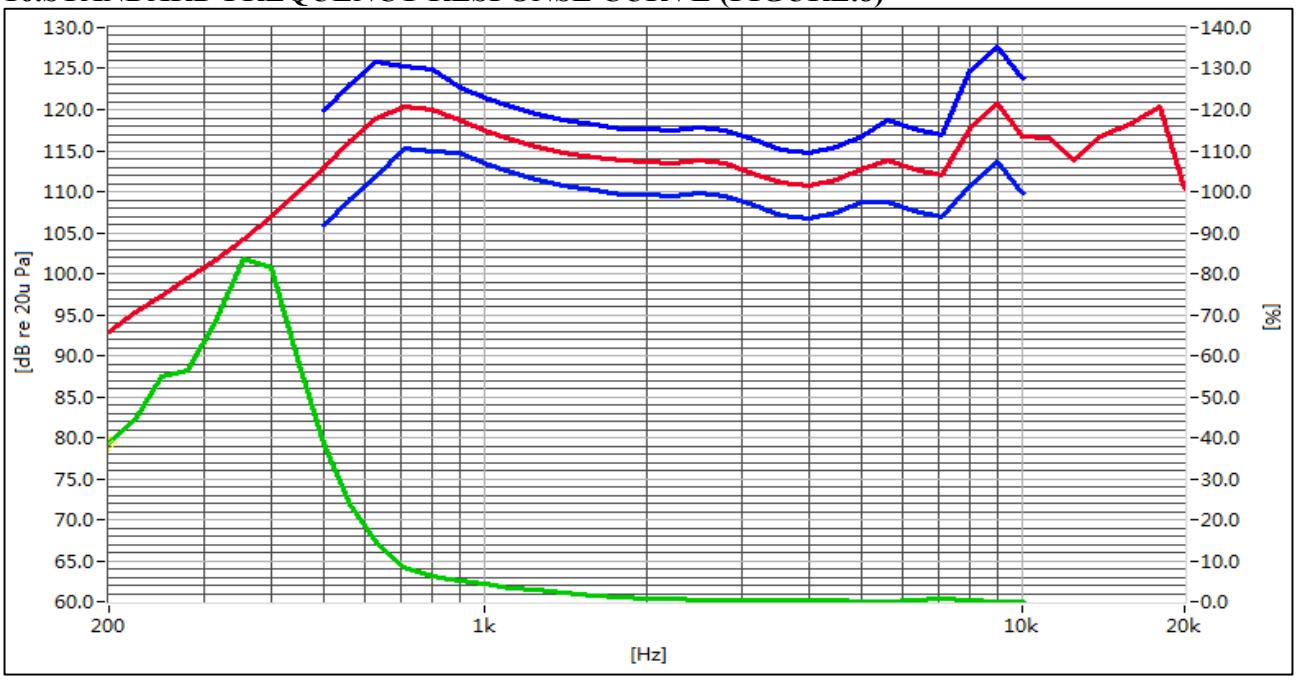


Dimension of test box
Length:97cm
Width:46cm
Height:68cm
Foam thickness:8cm
Wood wall are 1.8cm thickness.



NO.	EQUIPMENT	REMARKS
1	TEST JIG	FIG. 1A
2	MICROPHONE	½ INCH MICROPHONE
3	MICROPHIONE HOLDER	
4	DAMPING MATERIAL	FOAM RUBBER
5	BOX	WOOD
6	TEST DISTARCE MEASURED FROM FRONT OF SPEAKER FRAME TO FRONT OF TEST MICROPHONE	10mm

16.STANDARD FREQUENCY RESPONSE CURVE (FIGURE.8)



F&R Mask:

F. Point	500	…	630	…	800	…	5k	…	7.1k	…	10k	Hz
Upper Limit	+7	+7	+7	+5	+5	+4	+5	+6	+7	+7	+7	dB
Lower Limit	-7	-7	-7	-5	-5	-4	-5	-6	-7	-7	-7	dB

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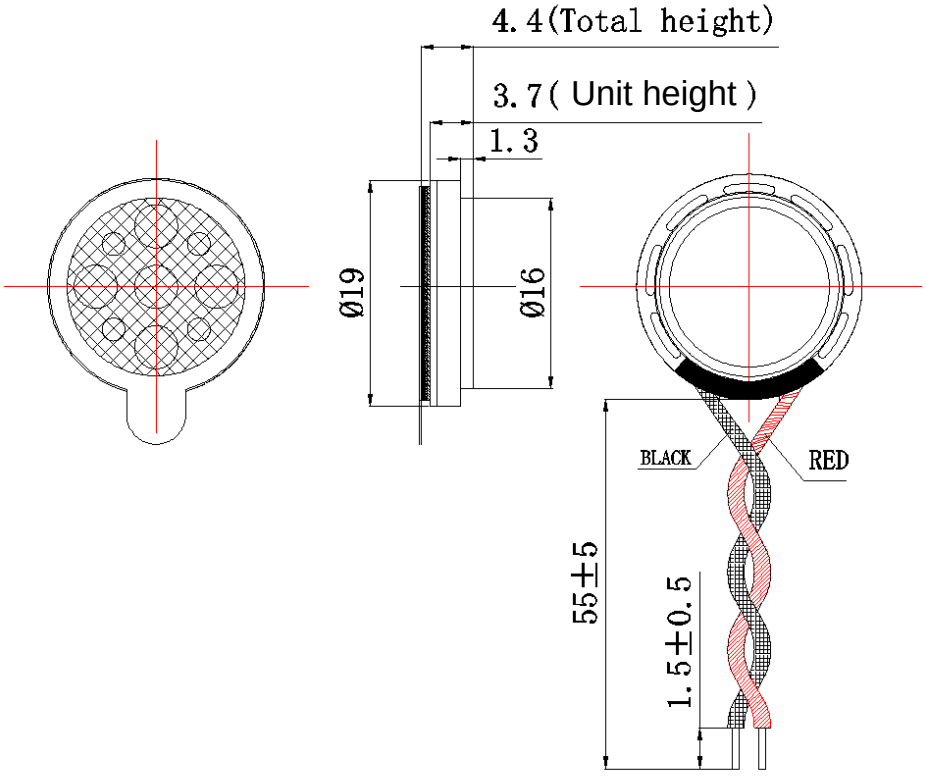
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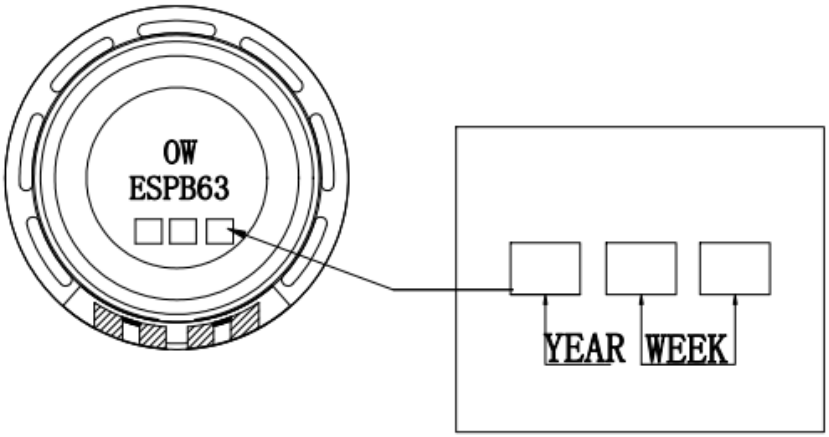
17. DIMENSION(FIGURE.9)

Unit:mm

Tolerance:+/-0.2

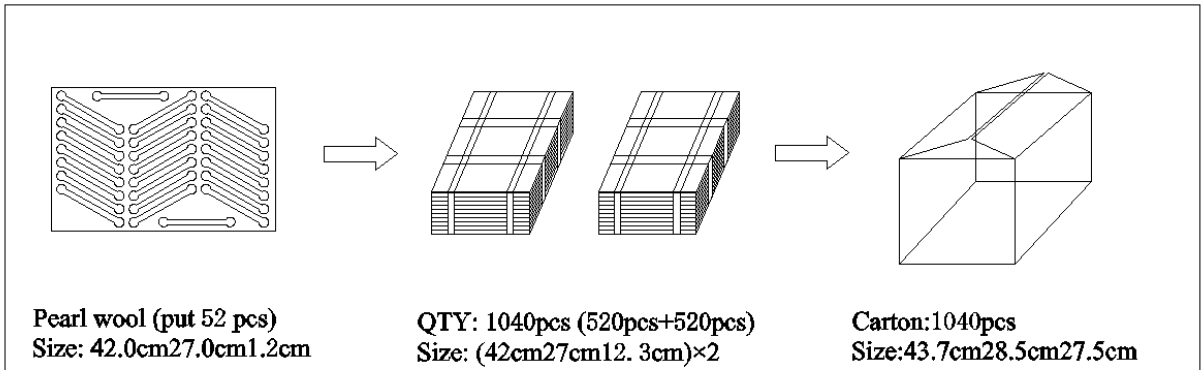


18.METHOD OF MARKING (FIGURE.10)



YEAR		WEEK	
year	marking	week	marking
2019	9	1	01
2020	0	2	02
2021	1	3	03
2022	2	4	04
2023	3	5	05
		⇩	⇩
		51	51
		52	52

19.PACKING METHOD(FIGURE 11)



Pearl wool (put 52 pcs)
Size: 42.0cm27.0cm1.2cm

QTY: 1040pcs (520pcs+520pcs)
Size: (42cm27cm12. 3cm)×2

Carton:1040pcs
Size:43.7cm28.5cm27.5cm

Packaging guide:
1. put 52pcs speaker in one piece of pearl wool
2. put packaging of pearl wool into carton with total 1040pcs speaker. sealed with scotch tape.
3. Stick label with model, QTY, weight etc....