



soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-2305L



Release | Revision: B/2021

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Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

89±3dB SPL @0.5 Watt, 10cm
Average at 0.8, 1.0, 1.2 & 1.5KHz

Measuring Condition: 0.5W (Sine wave) 10cm measured with baffle, as shown in Figure 1

Frequency Response Curve

As shown in Figure 2

Frequency Range

F0 ~ 20.0KHz

Response Frequency

750±20%Hz at 1.0V

Input Power (Nominal and Maximum)

Rated Noise Power: 0.5 Watt

Short Term Max Power: 0.8 Watt

Operation Test

Result must be normal when tested at 2.0 Volts

Total Harmonic Distortion

10% Max @2.0KHz, 0.5 Watt, 0.1 Meter

Polarity

Diaphragm shall move forward when a positive DC current is applied to the “+” or ‘marked’ Terminal.

General Specifications

Operating Temperature Range

-30°C ~ +60°C

Storage Temperature Range

-40°C ~ +80°C

Standard Test Conditions

Temperature 15°C ~ 35°C

Relative Humidity 45% ~ 85% (RH)

Voice Coil Impedance

DC: 8±15%Ω

Dimension

Ø23.0 x H5.0mm
Wire 70mm (UL1571 / AWG30#)

IP Level

No Rating



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Reliability Tests

The sound pressure as specified shall neither deviate more than $\pm 3\text{dB}$ from the initial value, nor have any significant damage after any of following testing.

High Temperature Test

High Temperature	$+80\pm 2^\circ\text{C}$
Duration	96 hours

Low Temperature Test

Low Temperature	$-40\pm 2^\circ\text{C}$
Duration	96 hours

Heat Shock Test

High Temperature	$+80\pm 2^\circ\text{C}$
Low Temperature	$-40\pm 2^\circ\text{C}$
Changeover Time	<30 seconds
Duration	1 hour
Number of Cycles	10

Humidity Test

Temperature	$+40\pm 2^\circ\text{C}$
Relative Humidity	90% ~ 95%
Duration	48 hours

Temperature Cycle Test

Temperature	-40°C	$+80^\circ\text{C}$
Duration	45 minutes	45 minutes
Temperature gradient	1 ~ $3^\circ\text{C}/\text{min}$	
Number of Cycles	25	

Drop Test

The speaker is mounted onto the dummy assembly, placed in a standard cardboard box and then dropped onto a concrete board.

Height	0.75 m
Number of Cycles	6

Load Test

Speaker mode: White noise (EIA filter) for 96 hours @0.5W input power



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Measuring Method (Speaker Mode)

Standard Test Condition

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860mbar ~ 1060mbar

Standard Test Fixture

Input Power 0.5W / 2.0V

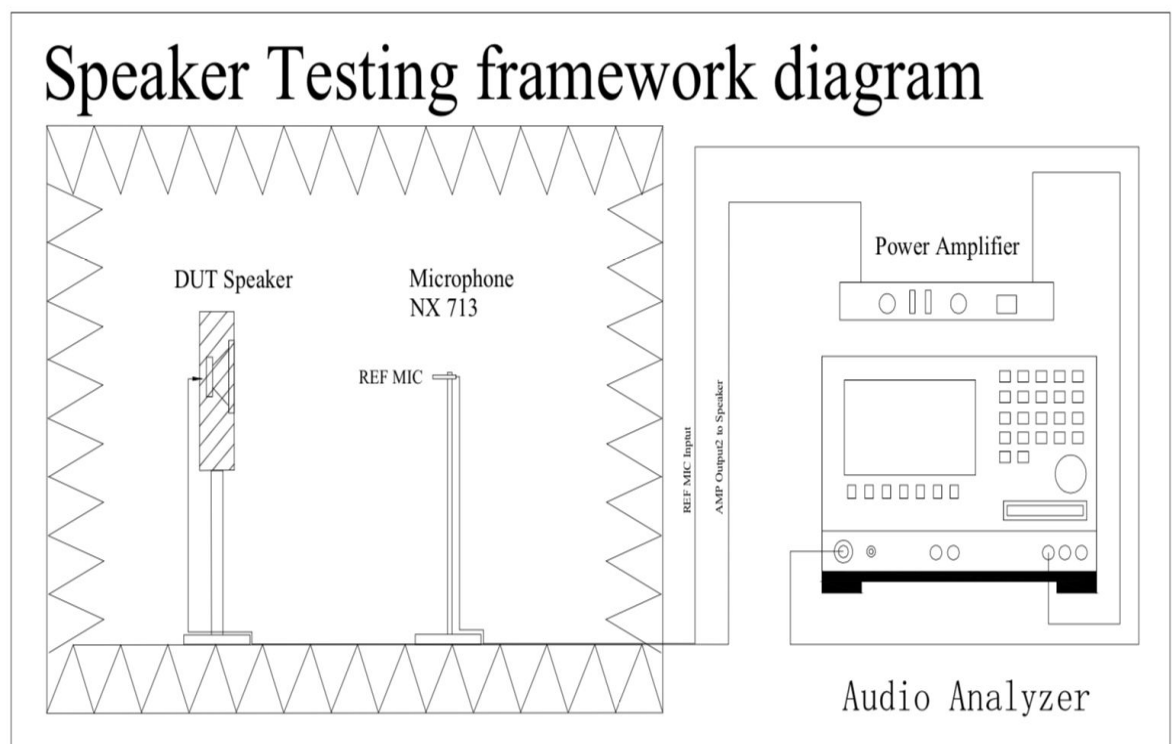
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

Standard Test Condition of Speaker (Fig. 1)





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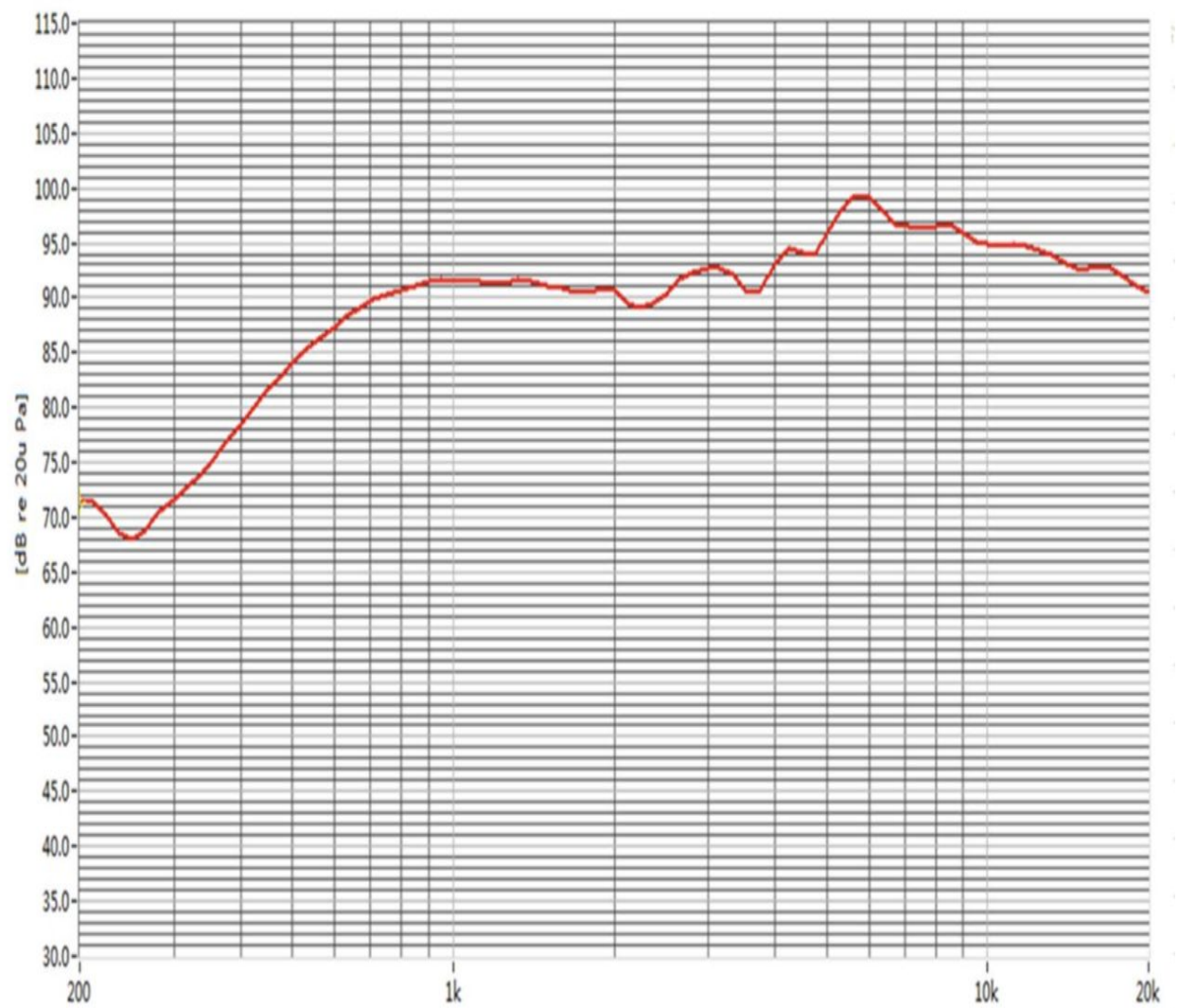
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Frequency Response Curve (Fig. 2)

Test Condition: 0.5W /0.1M





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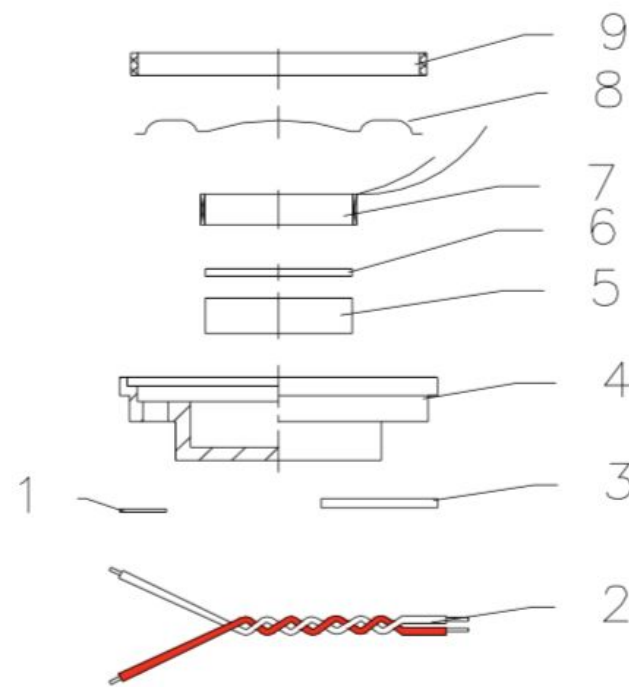
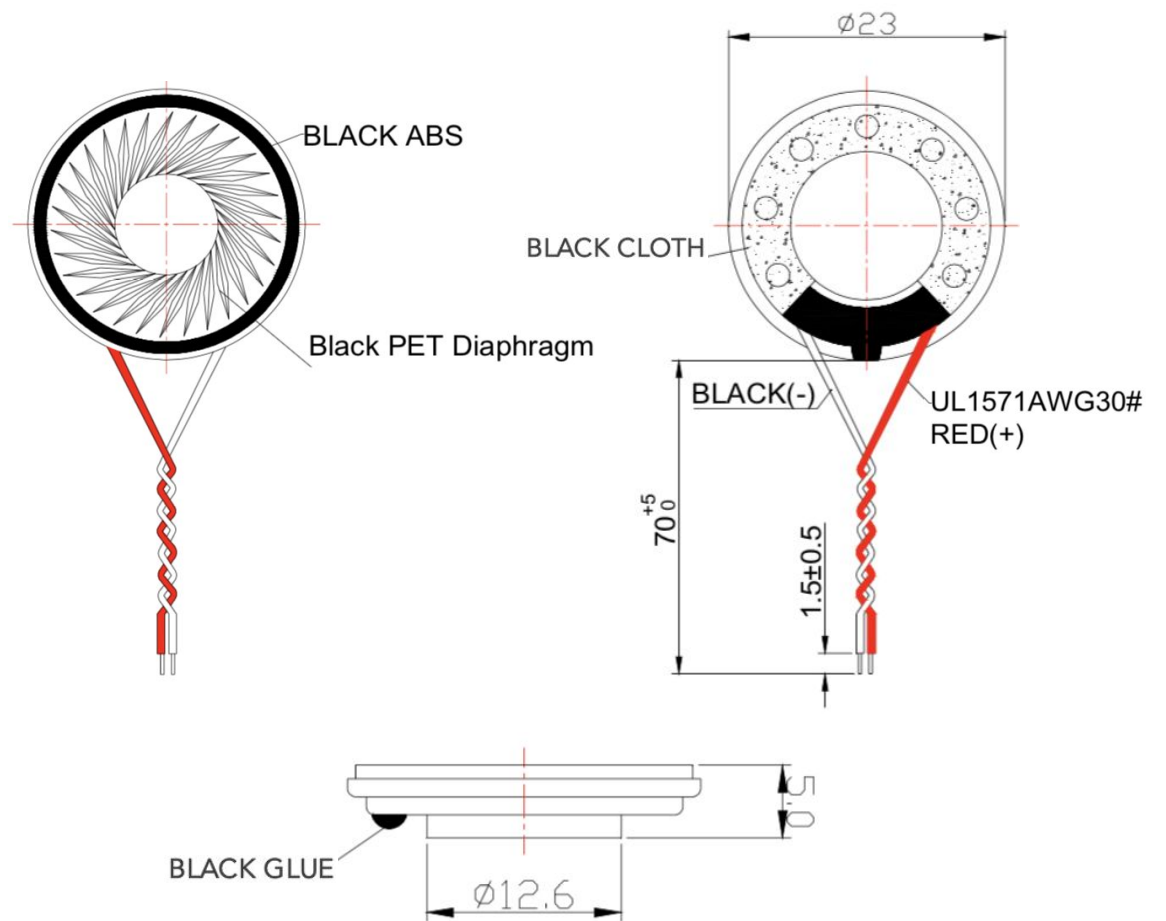
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Dimensions

Tolerance: ± 0.5 (unit: mm)



No.	Part Name	Material	Quantity
1	Silk Screen	Black Cloth	1
2	WIRE (70mm)	UL1571 / AWG30#	2
3	PCB	FR-4	1
4	Frame	SPCC	1
5	Magnet	Nd Fe B	1
6	Plate	SPCC	1
7	Voice Coil	Polyurethane Enamelled Wire	1
8	Diaphragm	PET	1
9	Gasket	Black ABS	1



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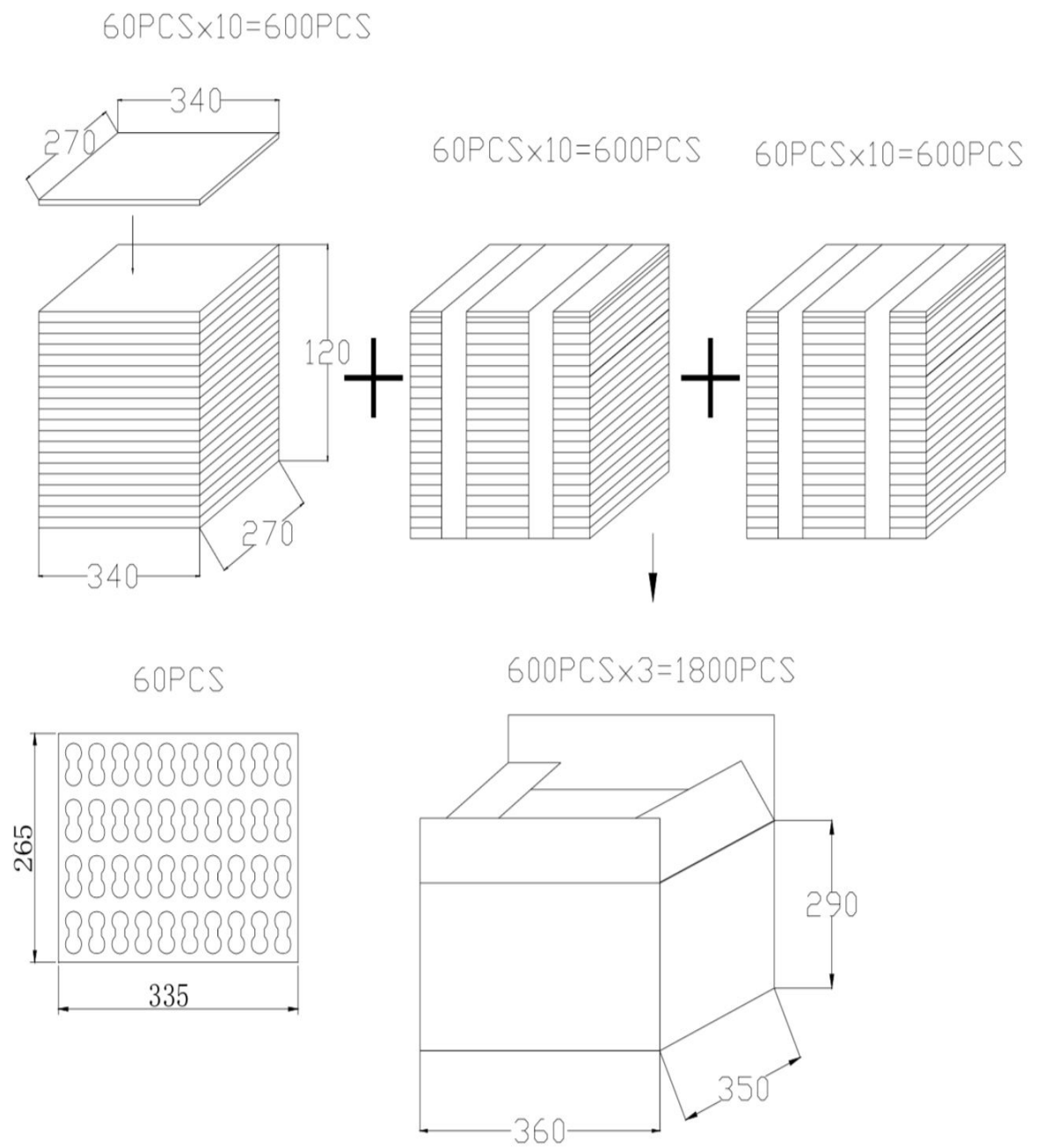
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Remarks

- Per Tray: 60 pcs
- Per Box: 600 pcs
- Per Carton: 3 Boxes
- Per Carton: 1,800 pcs
- Carton Size: 360 x 350 x 290mm