



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1511-3



Release | Revision: D/2021

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

91±3dB SPL @0.7 Watt, 10cm  
Average at 1.0KHz in 1cc Box

Measuring Condition: 0.7W (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

950±20%Hz at 1.0V in 1cc Box

### Input Power (Nominal and Maximum)

Rated Noise Power: 0.7 Watt

Short Term Max Power: 1.0 Watt

### Operation Test

Result must be normal when tested at 2.37 Volts in 1cc Box

### Total Harmonic Distortion

10% Max @1.0KHz, 0.1 Meter, 0.7 Watt in 1cc Box

### Polarity

Diaphragm shall move forward when a positive DC current is applied to the "+" or 'marked' Terminal.

## General Specifications

### Operating Temperature Range

-20°C ~ +60°C

### Storage Temperature Range

-30°C ~ +70°C

### Standard Test Conditions

Temperature 15°C ~ 35°C

Relative Humidity 45% ~ 85% (RH)

### Voice Coil Impedance

DC: 8±15%Ω

### Dimension

15.0 x 11.0 x H3.0mm

### 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  $+70\pm 2^\circ\text{C}$   
Duration 96 hours

### Low Temperature Test

Low Temperature  $-30\pm 2^\circ\text{C}$   
Duration 96 hours

### Heat Shock Test

High Temperature  $+70\pm 2^\circ\text{C}$   
Low Temperature  $-30\pm 2^\circ\text{C}$   
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  $-30^\circ\text{C}$   $+70^\circ\text{C}$   
Duration 45 minutes 45 minutes  
Temperature gradient  $1 \sim 3^\circ\text{C}/\text{min}$   
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 @0.7W 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 0.7W / 2.37V

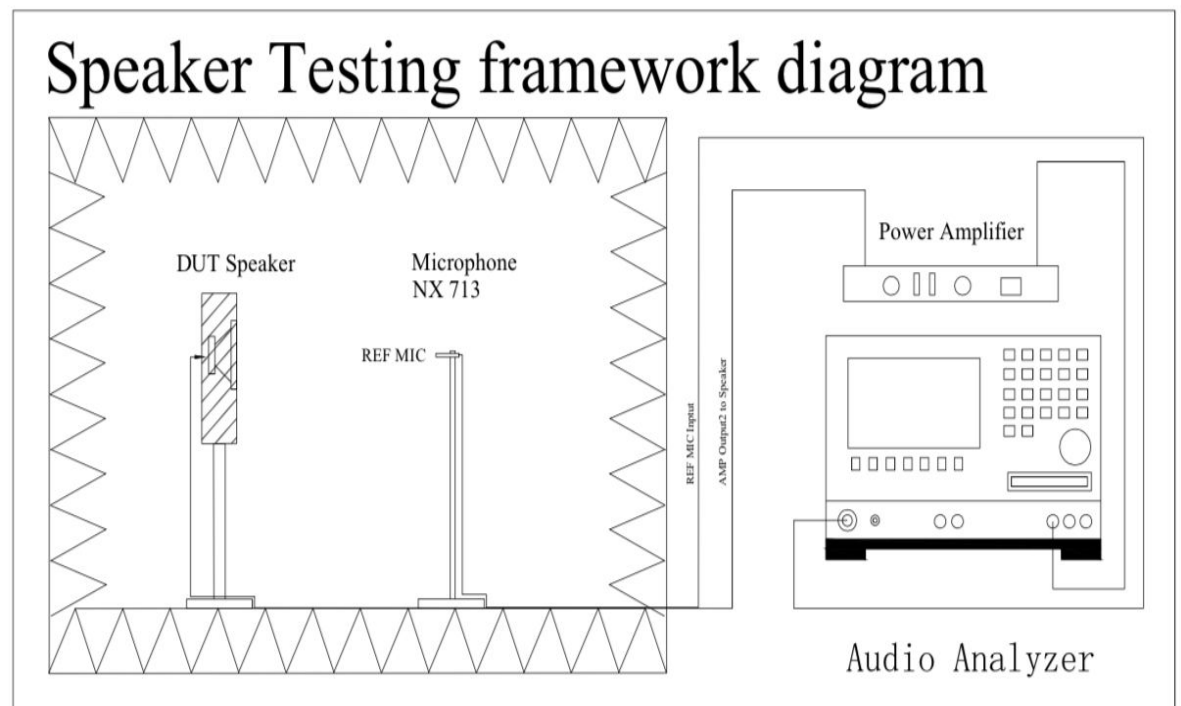
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

## Standard Test Condition of Speaker (Fig. 1)





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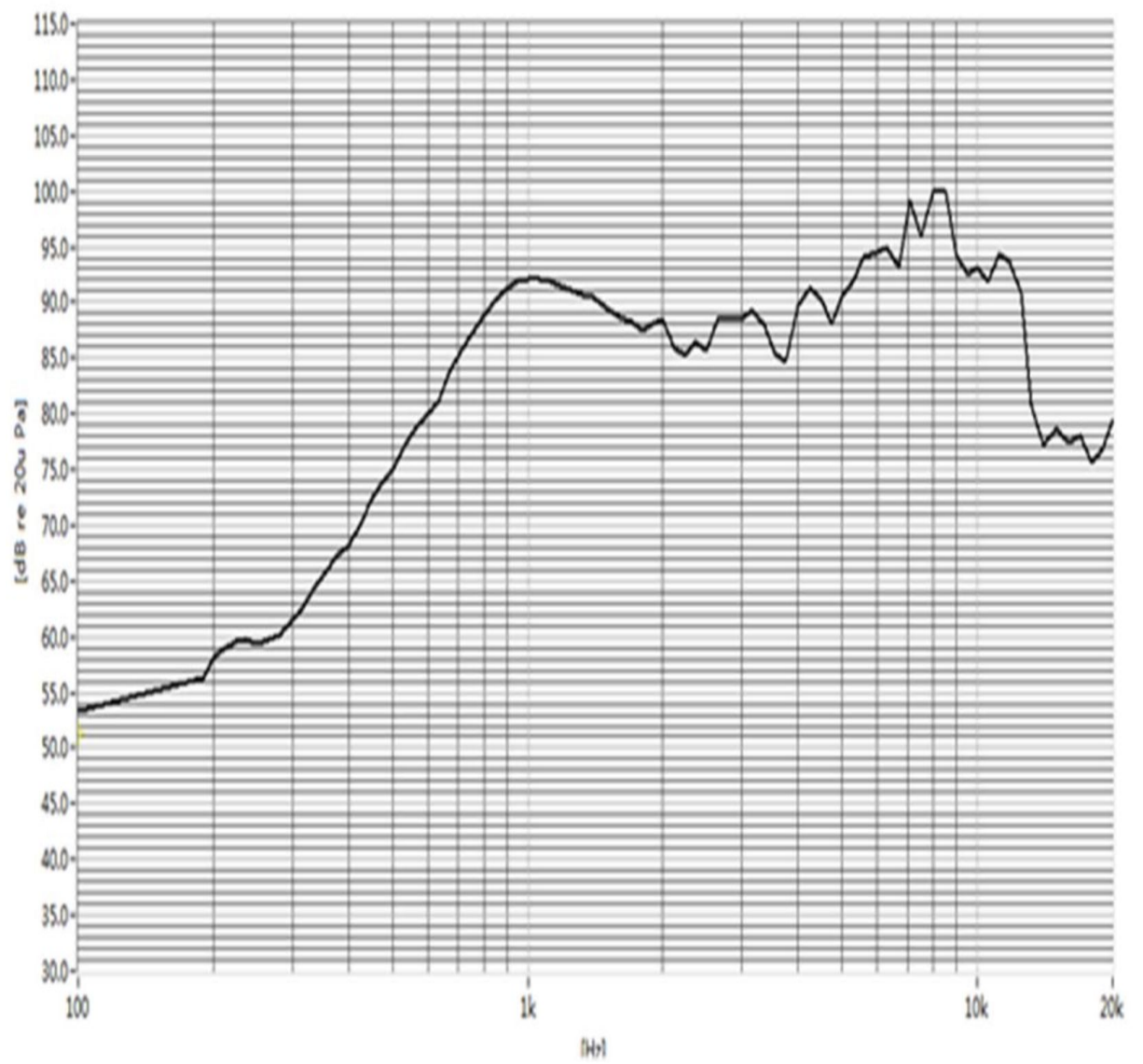
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### Frequency Response Curve (Fig. 2)

Test Condition: 0.7W /0.1M





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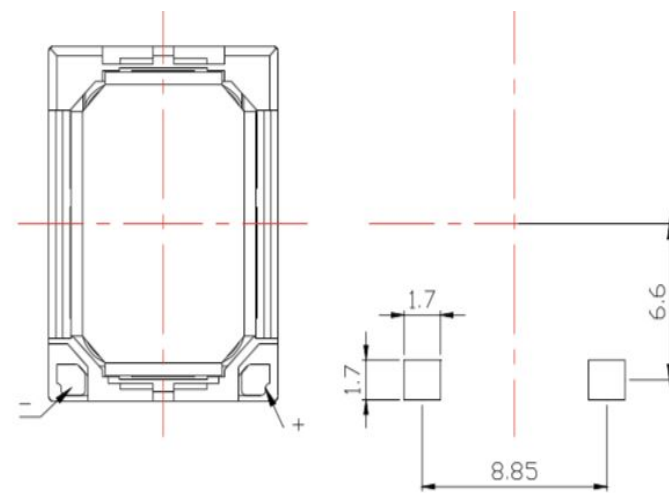
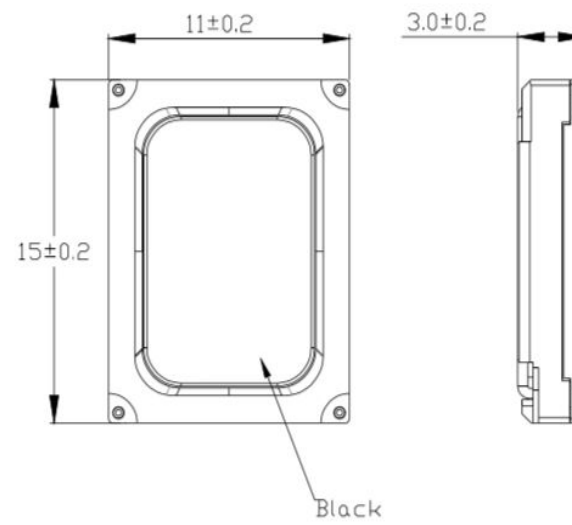
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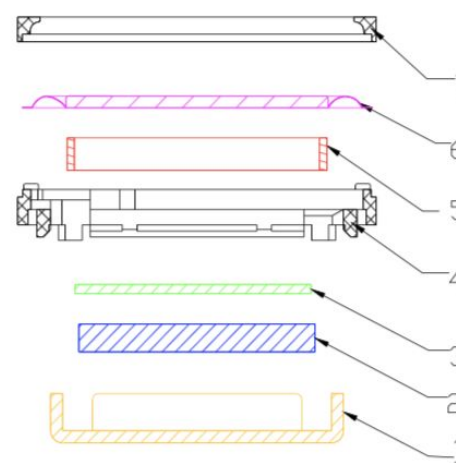
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## Dimensions

Tolerance:  $\pm 0.2$  (unit: mm)



## Pad Layout



No.	Part Name	Material	Quantity
1	Yoke	Iron	1
2	Magnet	Nd Fe B	1
3	Plate	Iron	1
4	Frame	PPA	1
5	Voice Coil	Copper	1
6	Diaphragm	PEEK	1
7	Cap	PPA	1



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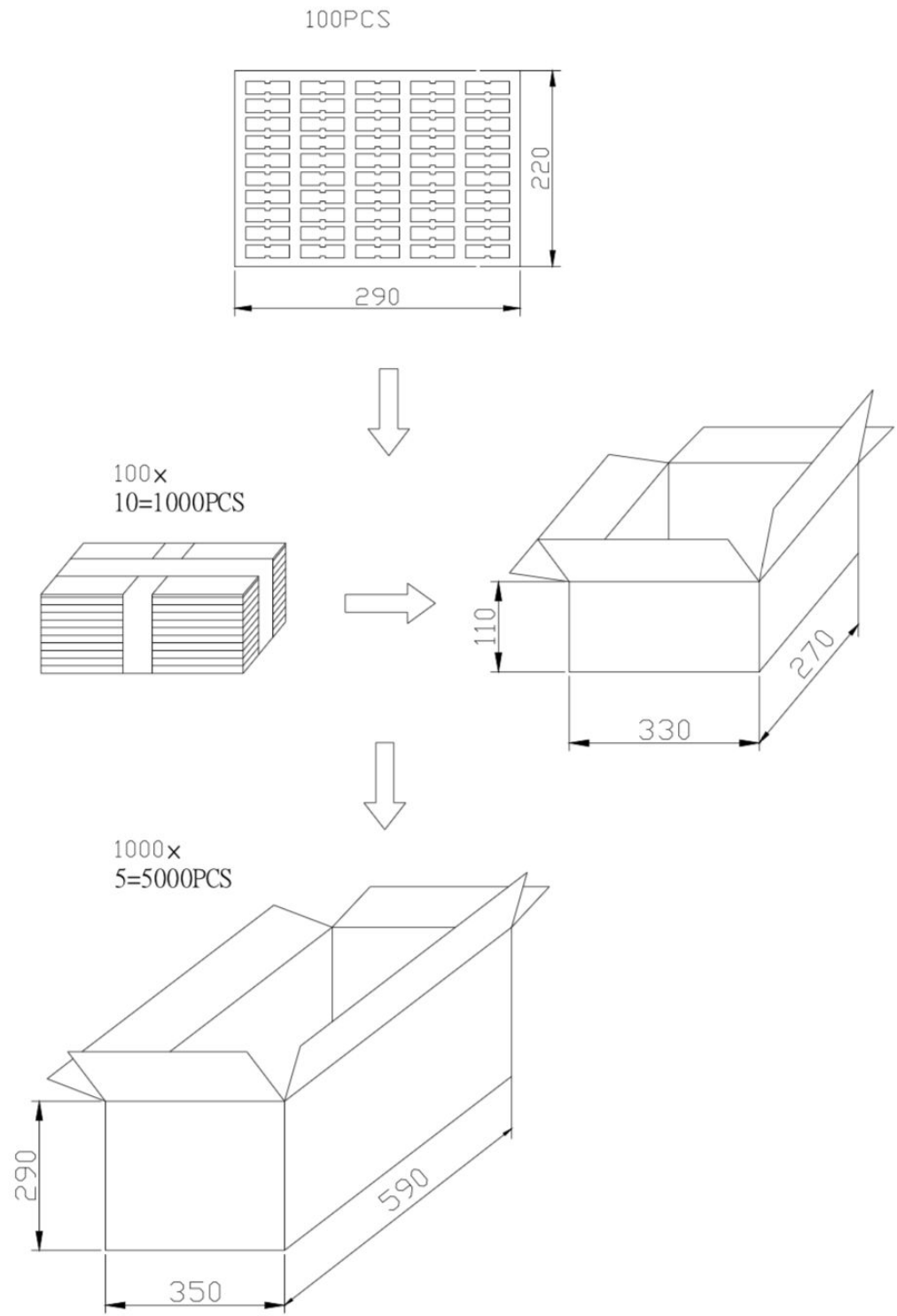
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## Packing



## Remarks

- Per Tray: 100 pcs
- Per Box : 1,000 pcs
- Per Carton: 5 Boxes
- Per Carton: 5,000 pcs
- Carton Size: 590 x 350 x 290mm