



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-4510-1



Release | Revision: D/2018

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## Speaker Electroacoustic Characteristics

### Sound Pressure Level

82±3dB SPL @0.6, 0.8, 1.0 and 1.2KHz on average (0dB SPL=20µPa)  
Measuring condition: 1W (Sine wave) 10cm measured with baffle shown in Fig 1

### Frequency Response Curve

As shown in Figure 2

### Frequency Range

F0 Hz ~ 6KHz

### Response Frequency

700±20%Hz

### Input Power (Nominal and Maximum)

Rated Noise Power: 0.3W (in 1cc box)

Short Term Maximum Power: 3.0W must be normal at a white noise (1W,F0-20KHz) for one minute

### Buzzer and Rattles

Should not be audible at 2.83 V sine wave between F0 ~ 20KHz

### Polarity

When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.

### Distortion

Less than 10% @1KHz, 0.1M, 1.0W, frequency range, input level up to 4.0 Vrms

## General Specifications

### Operating Temperature Range

-30°C~+70°C

### Storage Temperature Range

-40°C~+85°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### Impedance

16±15%Ω

### Weight

15.5±8%

### Dimension

45.0 x 10.0mm

### IP Level

IP50



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## Reliability Tests

After these test, the change of S.P.L shall be within  $\pm 3$  dB

### High Temperature Test

High Temperature  $+70\pm 3^{\circ}\text{C}$

Duration 96 hours

### Low Temperature Test

Low Temperature  $-30\pm 3^{\circ}\text{C}$

Duration 96 hours

### Humidity Test

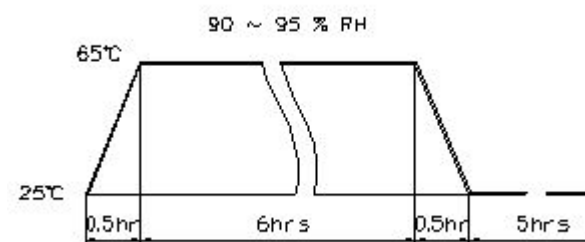
Temperature  $+30\pm 3^{\circ}\text{C}$

Relative Humidity 92%~95%

Duration 96 hours

### Temperature/Humidity Cycle Test

The part will be subjected 5 cycles. One cycle shall be 6 hours and consist of



### Drop Test

Drop the speakers contained in normal box onto the board 40mm thick 10 times from the height of 75cm.

### Vibration Test

10Hz ~ 55Hz ~ 10Hz sine-wave sweep 15min. 5G (constant) X,Y, Z 3 direction, 2 hours each, a total 6 hours.

### Load Test

Rated Power White-Noise is applied for 96 hours at room temperature.



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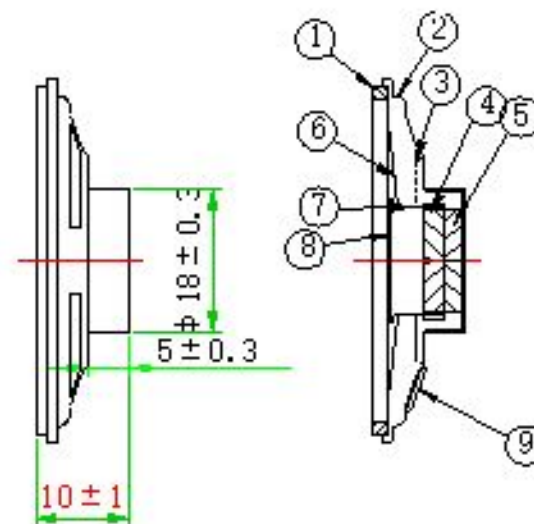
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## Dimensions

Tolerance:  $\pm 0.5$  (unit: mm)



No.	Part Name	Material	Quantity
1	Gasket	Paper	1
2	Frame	SPCC	1
3	Damper	Cloth	1
4	Plate	SPCC	1
5	Magnet	Nd Fe B	1
6	Cone	PET	1
7	Voice coil	PL+Cu	1
8	Dust cap	PET	1
9	Terminals	Paper + steel	1



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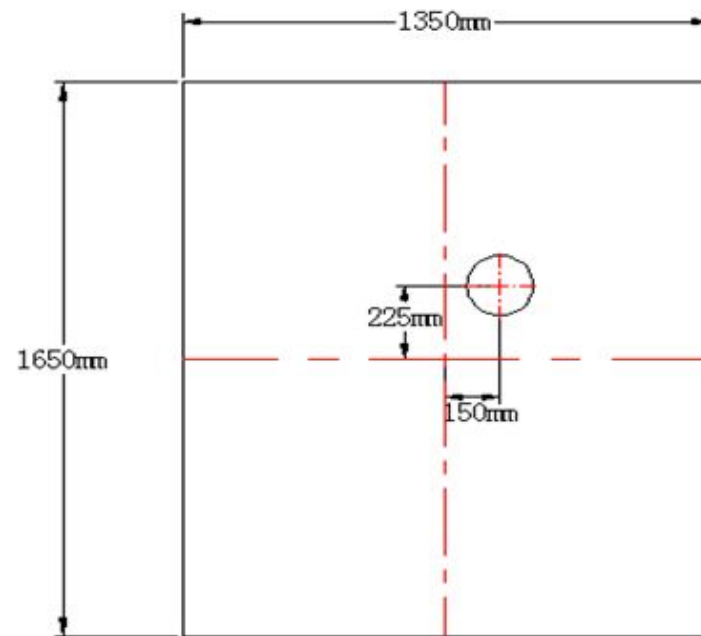
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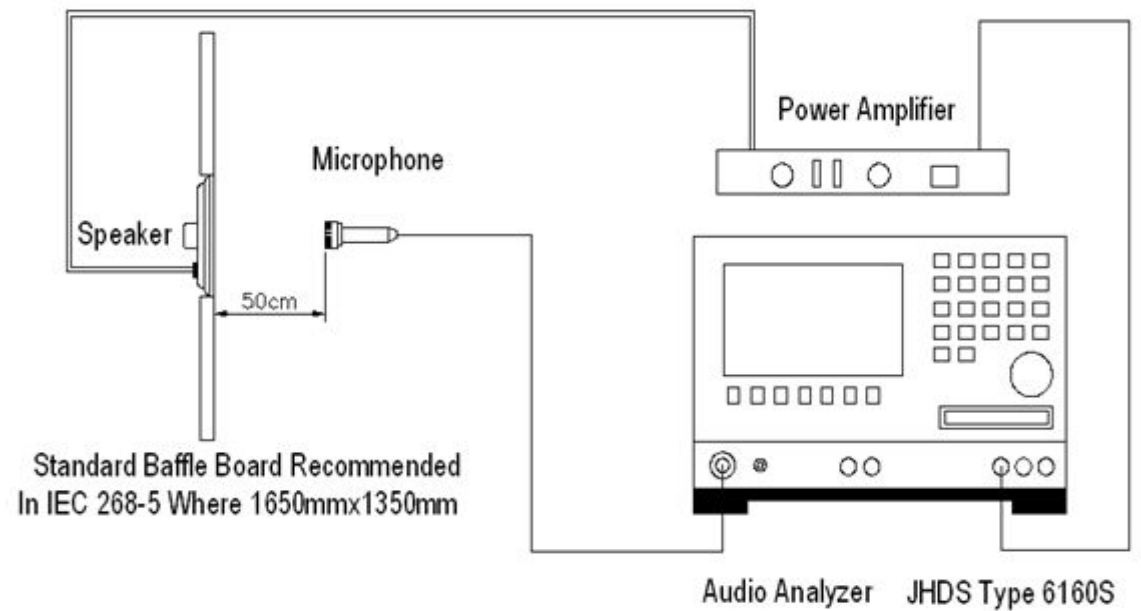
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## Measuring Method (Fig.1)



## Block Diagram For Measurement Method

### Standard test condition of speaker





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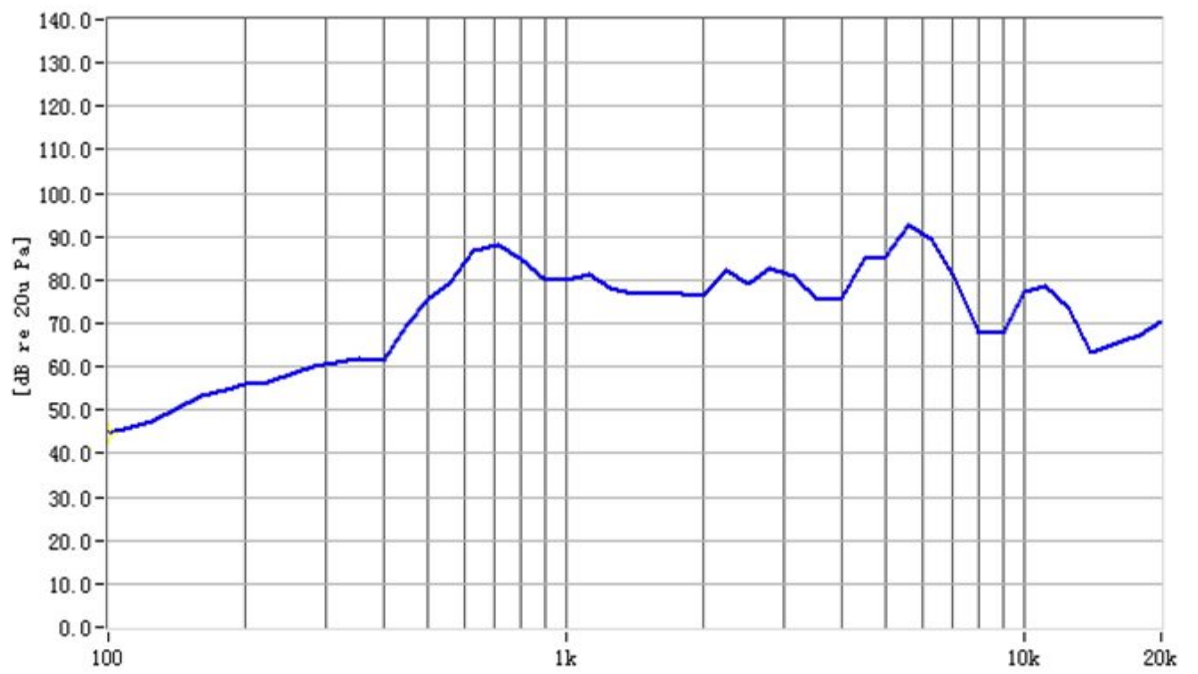
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## Frequency Response Curve (Fig. 2)

The swept sine-wave frequency response of a loudspeaker should ideally not deviate more than indicated.

XY Graph 6





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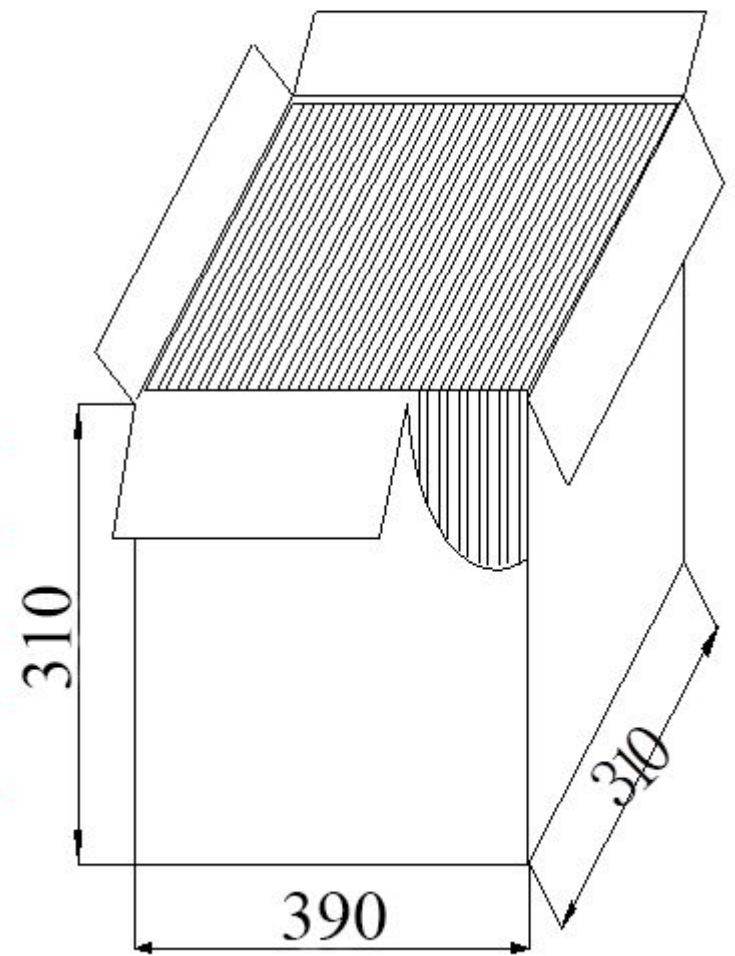
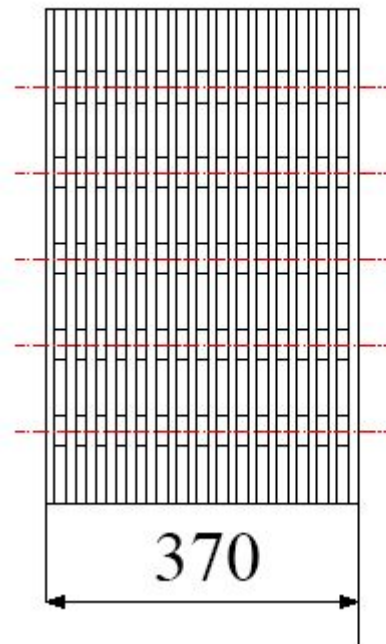
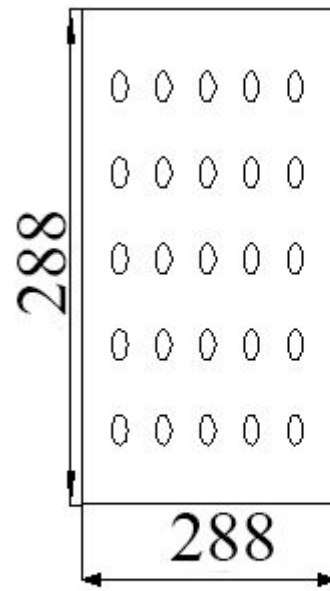
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## Packing



## Remark:

- 1.) Each clap board: 25pcs
- 2.) Each carton: 28pcs clap board
- 3.) Each carton: 700pcs/carton
- 4.) N.W: 9.8KG, G.W: 11.8KG
- 5.) Carton size: 390 x 310 x 310mm 1pcs