



soberton inc.

# NB SPEAKER

## Acoustic Product Specification

Product Number: WSPM-3709NW



Release | Revision: A/2021

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## General Specifications

### Sound Pressure Level

100±3dB SPL @1.5 Watt at 10 cm  
Average at 2.0, 3.0, 4.0 & 5.0KHz

### Resonance Frequency

1350±20%Hz @1V

### Response Range

F0~20.0KHz

### Input Power (Nominal/ Maximum)

Rated Noise Power: 1.5 Watt

Short Term Max Power: 2.0 Watt

### Voice Coil Impedance

DC: 8±15%Ω

### Distortion

10% Max. at 1.0KHz, 1.5 Watt, 0.1 Meter

### Abnormal Sound Test

Result must be normal when tested at 3.46 Volts in free air.

### Polarity

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

### Operating Temperature

-30°C ~ +70°C

### Storage Temperature

-40°C ~ +80°C

### Dimension

Ø37.0 x H9.0mm  
Wire: 30mm (UL1571 / AWG30#)  
Connector: JST SHR-02V-S-B, 2P = 1.25mm

### IP Level

IP67



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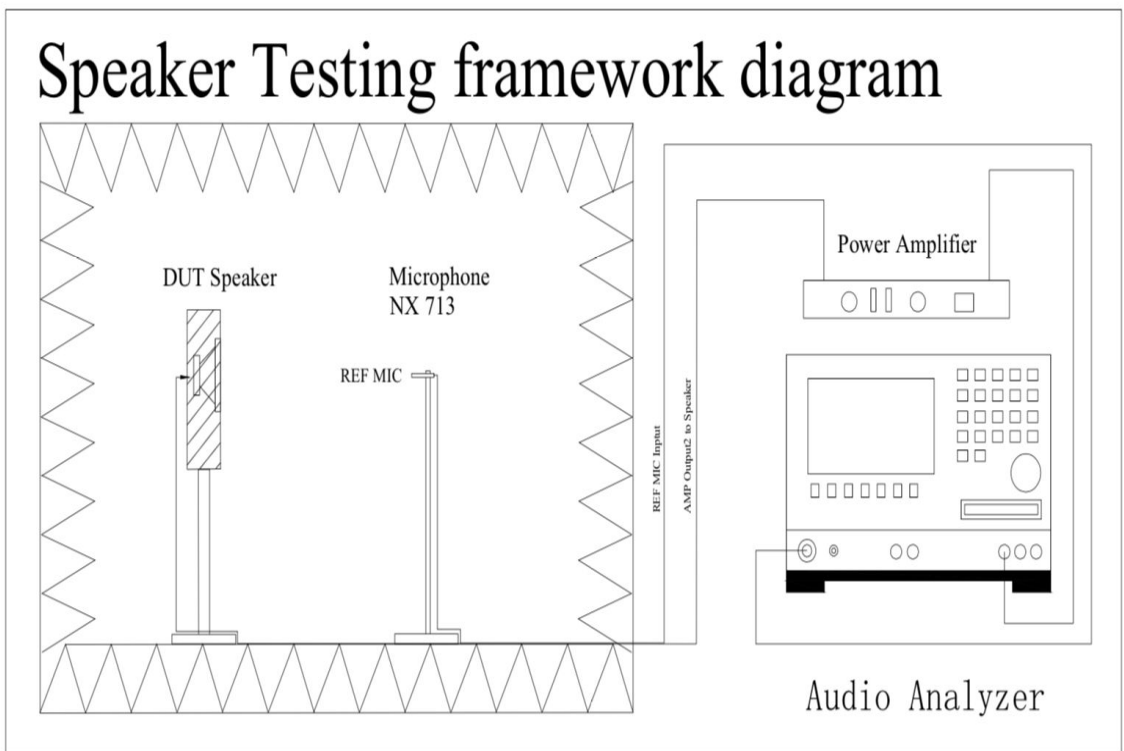
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## Standard Test Condition of Speaker



## Measuring Method (Speaker Mode)

### Standard Test Condition

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860 ~ 1060 mbar

### Standard Test Fixture

Input power: 1.5W / 3.46V

Zero level: -dB

Mode: TSR

Potentiometer Range: 50dB

Sweep time: 0.5sec



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## Reliability Tests

The sound pressure as specified will 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 | 100                      |

### Humidity Test

|                   |                          |
|-------------------|--------------------------|
| Temperature       | $+40\pm 2^\circ\text{C}$ |
| Relative Humidity | 90% ~ 95%                |
| Duration          | 96 hours                 |

### Temperature Cycle Test

|                      |                                 |                     |
|----------------------|---------------------------------|---------------------|
| Temperature          | $-40^\circ\text{C}$             | $+80^\circ\text{C}$ |
| 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:           | 0.75m |
| Number of Cycles: | 6     |

### Load Test

White Noise (EIA filter) for 96 hours @1.5W input power



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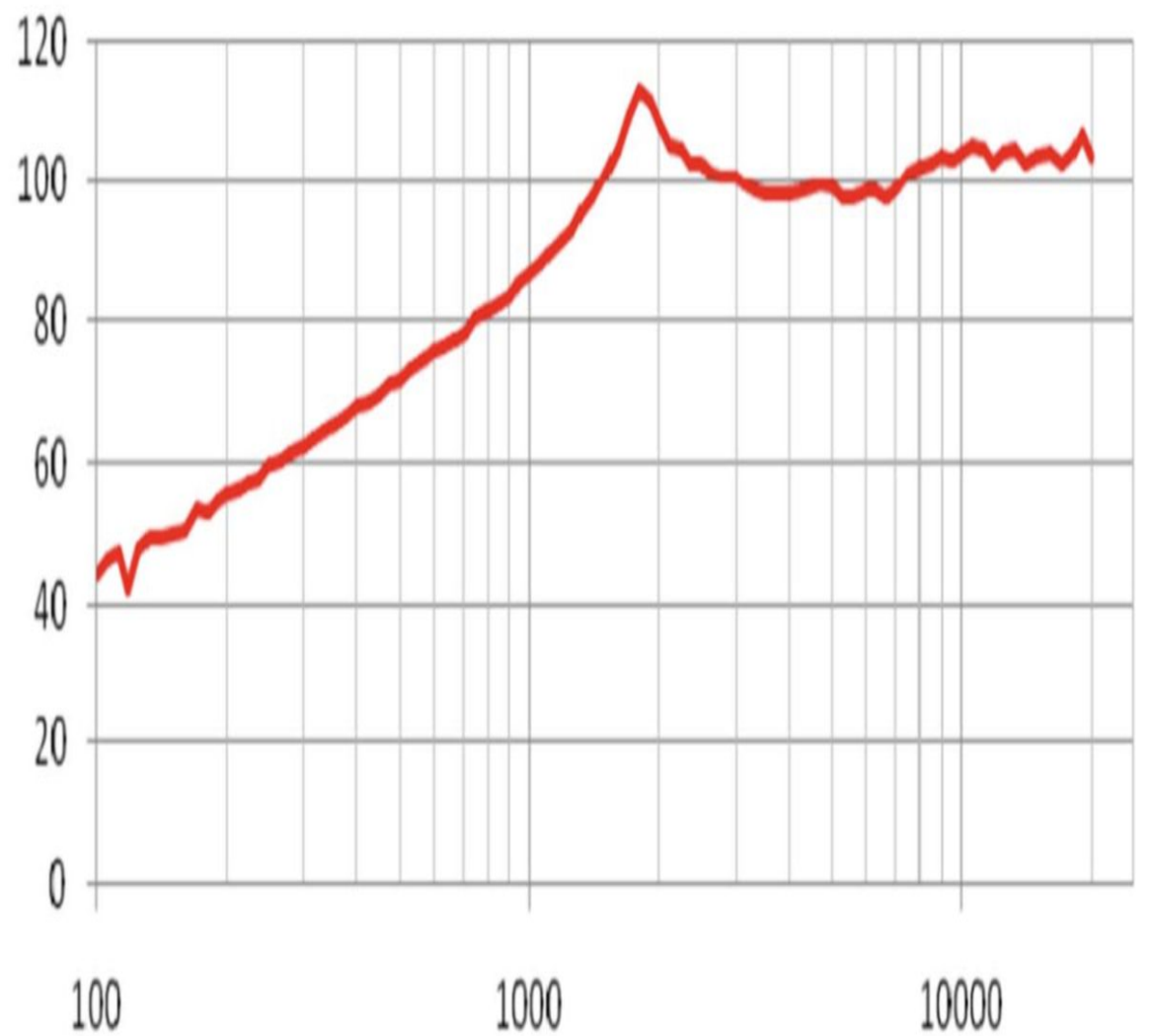
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## Frequency Response Curve

Test condition: 1.5W/0.1M





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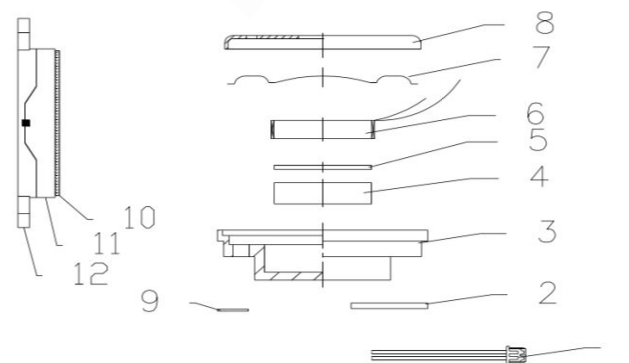
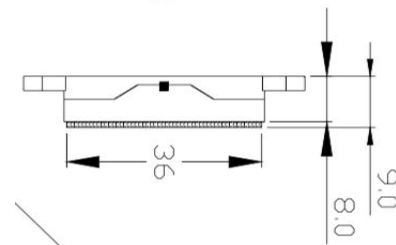
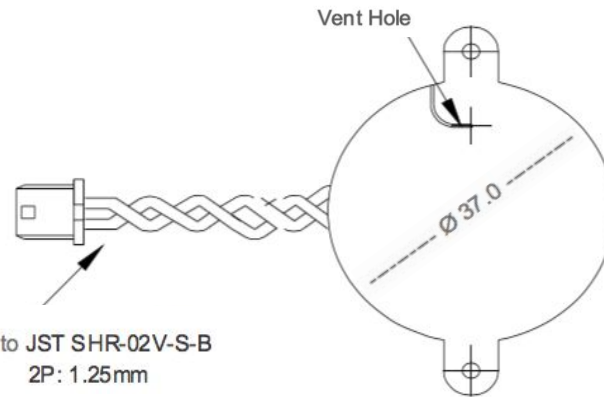
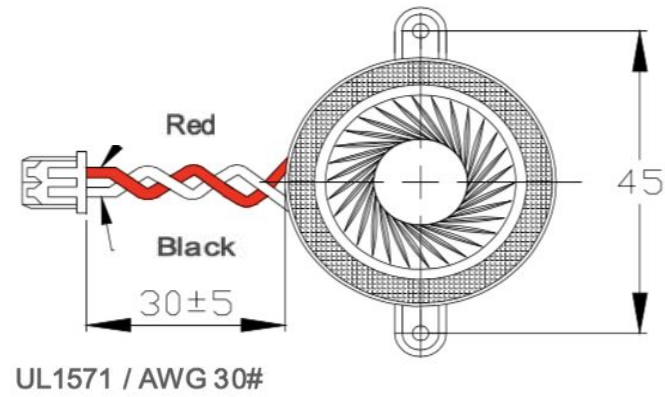
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## Dimensions

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



| No. | Part Name                | Material  | Qty |
|-----|--------------------------|---|-----|
| 1   | Wire (30mm)<br>Connector | UL 1571 / AWG 30#<br>Equivalent to JST SHR-02V-S-B, 2P=1.25mm | 2   |
| 2   | Silk Screen              | Pu + Paper  | 1   |
| 3   | Frame                    | SPCC  | 1   |
| 4   | Magnet                   | Nd Fe B   | 1   |
| 5   | Plate                    | SPCC  | 1   |
| 6   | Voice Coil               | Cu  | 1   |
| 7   | Diaphragm                | PET   | 1   |
| 8   | Cap                      | ABS   | 1   |
| 9   | Gasket                   | FR-4  | 1   |
| 10  | Silicone Sleeve          | Rubber  | 1   |
| 11  | Cover                    | ABS   | 1   |
| 12  | Lower Lid                | ABS   | 1   |



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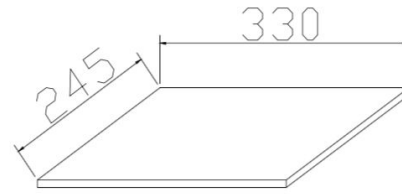
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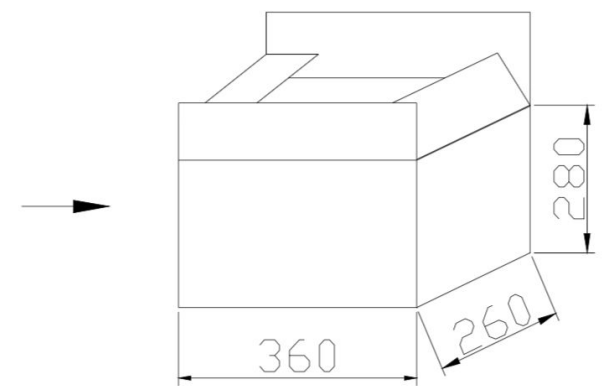
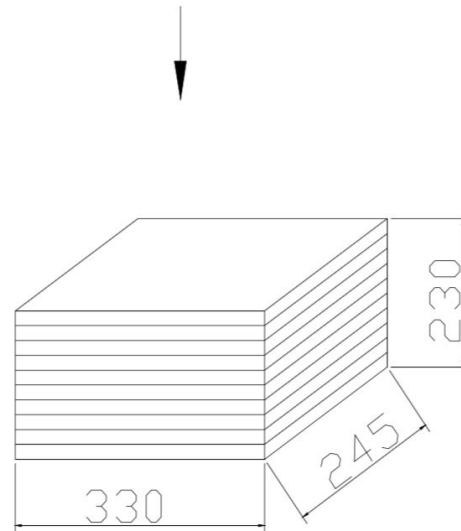
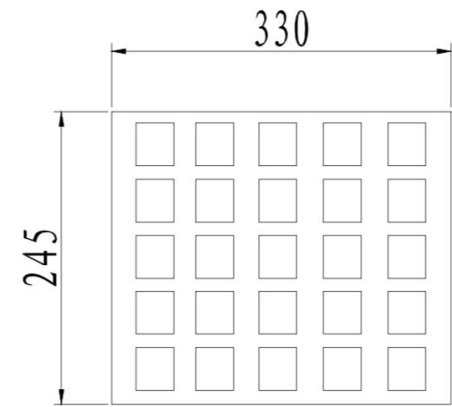
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## Packing

25PCSx12=300PCS



TRAY 25PCS



## Packing Information

Per Tray: 25 pcs

Per Carton: 5 trays

Per Carton: 300 pcs

Carton Size: 360 x 260 x 280mm