



soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1504-16



Release | Revision: D/2018

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Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

93±3dB SPL @0.8, 1.0, 1.5 and 2.0KHz in average (0dB SPL=20µPa)
Measuring Condition: 0.5W (Sine wave) 10cm measured with baffler shown in Fig.1.

Frequency Response Curve

As shown in Figure 2

Response Frequency

1000±20%Hz @ 1V. (Without Baffler)

Input Power (Nominal and Maximum)

Rated Noise Power 0.5W

Short Term Max Power: 0.8W must be normal at a white noise (1W, FO ~ 20KHz) for one minute

Operation Test

Must be free audible noise (buzzes and rattles)

(3K ~ 5KHz frequency range, input level up to 2.0 Vrms)

Distortion

Less than 10% @1KHz, 0.1M, 0.5W frequency range, input level up to 2.0Vrms

General Specifications

Operating Temperature Range

-20°C~+60°C

Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

AC Impedance

8±15%Ω (@2KHz 1V) without baffler

Dimension

Ø15.0x5.7mm + WIRE (35mm) UL1571/AWG28# + Connector equ. to JST XHP-2 (2P=2.5mm)

IP Level

IP50



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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 $+60\pm 2^\circ\text{C}$

Duration 96 hours

Low Temperature Test

Low Temperature $-20\pm 2^\circ\text{C}$

Duration 96 hours

Heat Shock Test

High Temperature $+60\pm 2^\circ\text{C}$

Low Temperature $-20\pm 2^\circ\text{C}$

Changeover Time < 30 seconds

Duration 1 hour

Cycle 100

Humidity Test

Temperature $+ 40\pm 2^\circ\text{C}$

Relative Humidity 90%~95%

Duration 96 hours

Temperature Cycle Test

Temperature -20°C $+60^\circ\text{C}$

Duration 45 minutes 45 minutes

Temperature gradient $1\sim 3^\circ\text{C}/\text{min}$

Cycle 25

Drop Test

Mounted with dummy set mass 100 g

Height 1.5 m

Cycle 6 (1 each plain) onto the concrete board

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 to 1060mbar

Standard Test Fixture

Input Power 0.5W

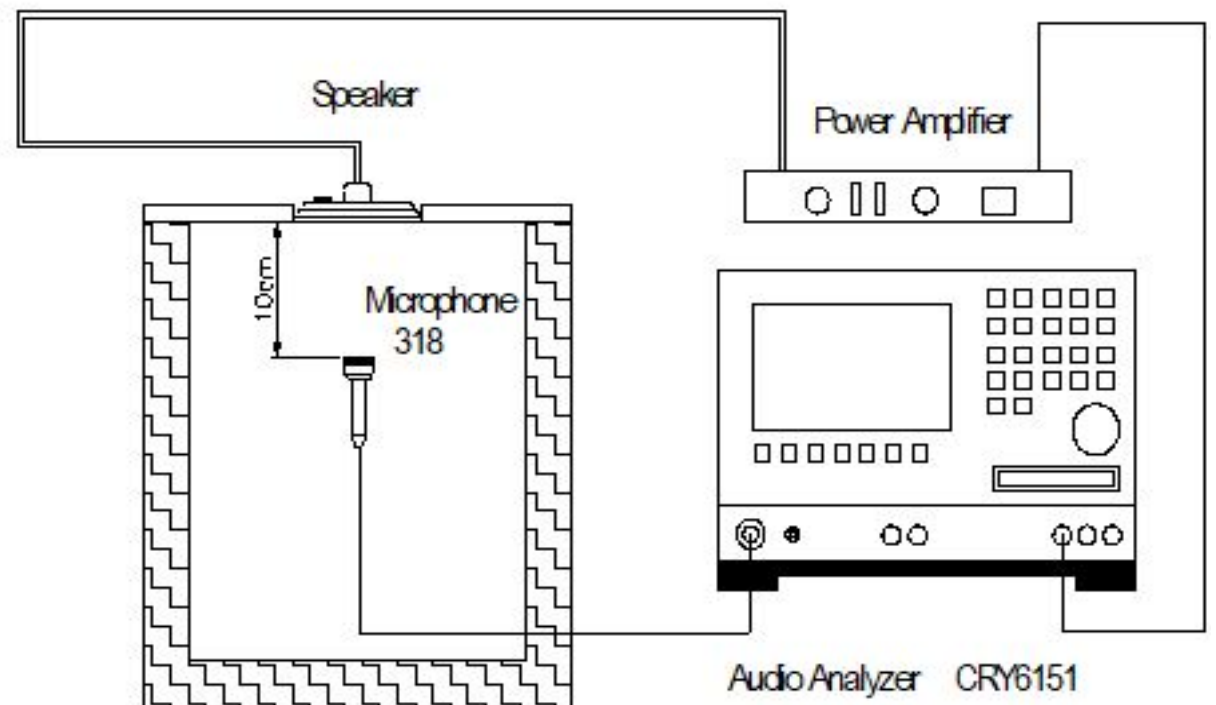
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

Standard Test Condition of Speaker (Fig. 1)





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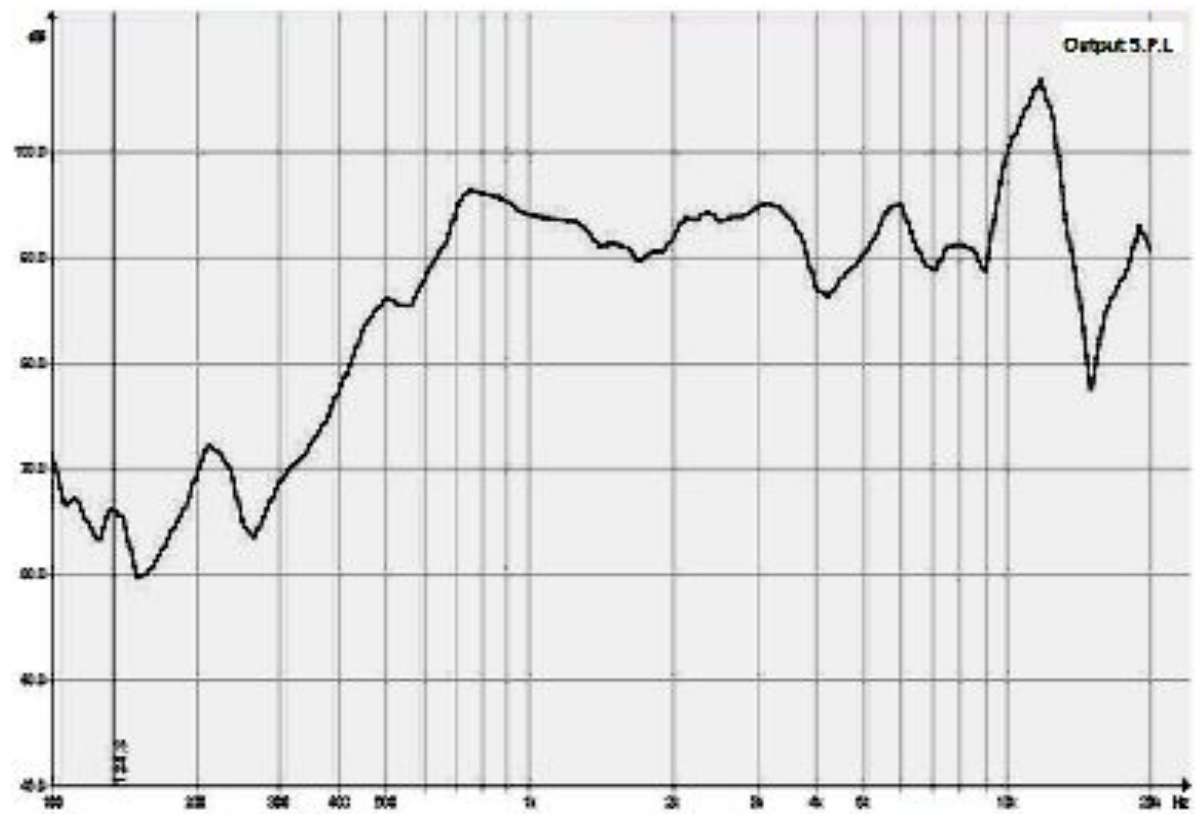
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Frequency Response Curve (Fig. 2)





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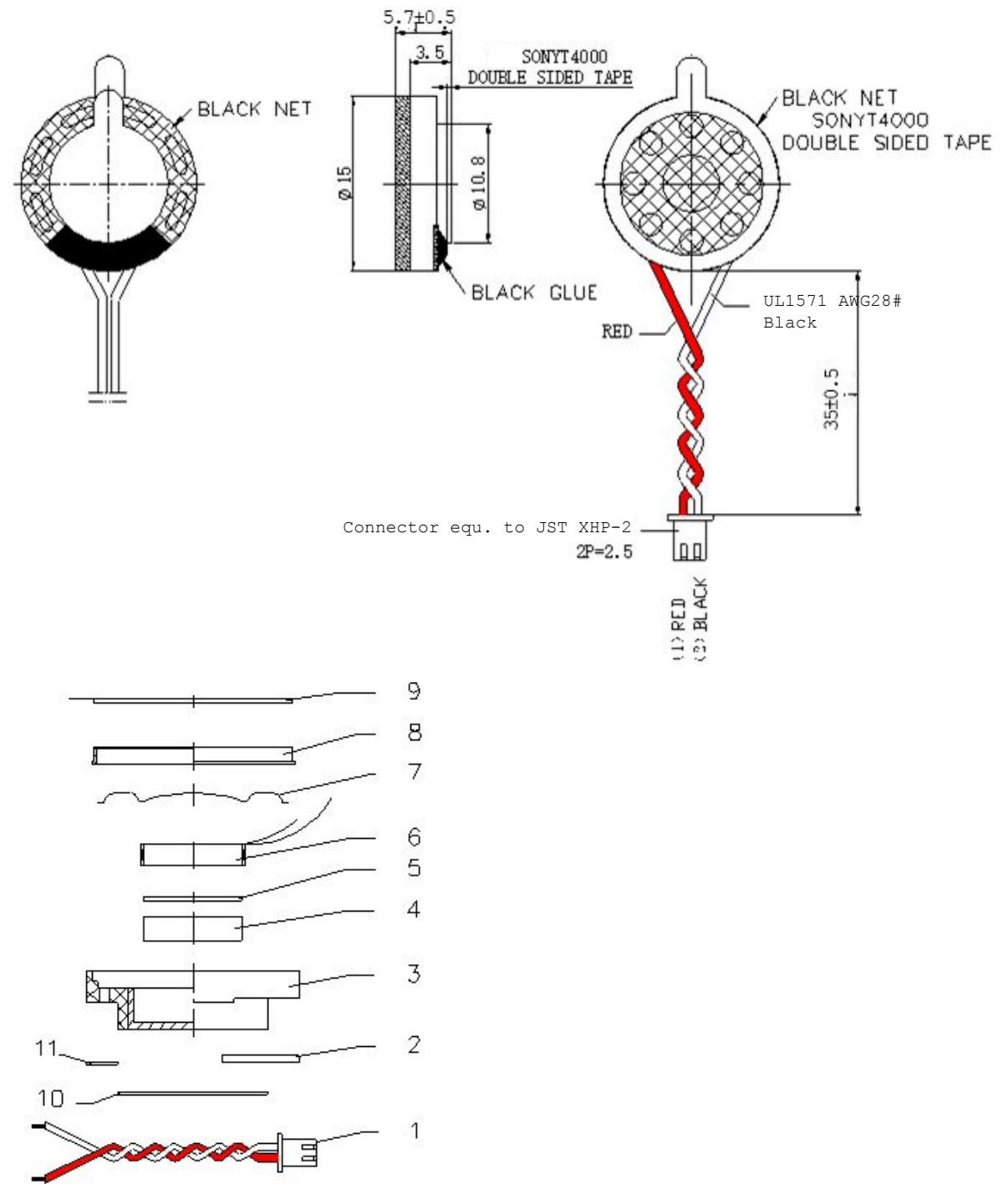
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Dimensions

Tolerance: ± 0.5 (unit: mm)



No.	Part Name	Material	Quantity
1	Wire Connector	UL1571/AWG28# equ. to JST XHP-2 (2P=2.5mm)	2 1
2	PCB	FR-4	1
3	Frame	PBT	1
4	Magnet	Nd Fe B-N42	1
5	Plate	SPCC	1
6	Voice Coil	Copper	1
7	Membrane	PEN	1
8	Cap	SUS304	1
9	Screen Gasket	Black Net	1
10	Gasket	SONY T4000 Double Sided Tape	1
11	Damping Net	Black Net	1



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