



soberton inc.

WSP WATERPROOF SPEAKER

Acoustic Product Specification

Product Number: WSPH-1609S



Release | Revision: B/2018

CONTENTS

This document contains the technical specifications for the waterproof speaker unit.

Page 1

Speaker Electroacoustic Characteristics

General Specifications

Page 2

Reliability Tests

Page 3

Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

Page 4

Frequency Response Curve

Page 5

Dimensions

Page 6

Packing

Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

89±3dB SPL @0.8, 1.0, 1.2 and 1.5 KHz with 1cc back cavity average
Measuring Condition: 0.5W (Sine wave) 10cm measured with baffle as shown in Figure

Frequency Response Curve

As shown in Figure 2

Response Frequency

730±20%Hz @ 1V in free air
950±20%Hz @ 1V in 1cc closed box

Input Power (Nominal and Maximum)

Rated Noise Power 0.5W (in 1cc closed box)
Short Term Max Power 0.8W (in 1cc closed box)

Operation Test

Must be free audible noise (buzzes and rattles)
(300 ~ 5KHz frequency range, input level up to 2.0Vrms in 1cc box)

Distortion

Less than 10% @1KHz, 10cm, 0.5W

Polarity

When a positive DC current is applied, the Diaphragm will engage forward.
Current is a positive(+). The red wire is positive (+).

General Specifications

Temperature Range

Operating Temperature -20°C~+60°C
Storage Temperature -30°C ~ +70°C

Standard Test Conditions

Temperature 17°C ~ 25°C
Relative Humidity 45% ~ 80% (RH)

AC Impedance

8±15%Ω(@2KHz 1V) without baffle.

Dimension

16.0 x 9.0 x H3.8mm

IP Level

IP67



soberton inc.

WSP WATERPROOF SPEAKER

Acoustic Product Specification

Product Number: WSPH-1609S



Release | Revision: B/2018

CONTENTS

This document contains the technical specifications for the waterproof speaker unit.

Page 1

Speaker Electroacoustic Characteristics

General Specifications

Page 2

Reliability Tests

Page 3

Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

Page 4

Frequency Response Curve

Page 5

Dimensions

Page 6

Packing

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

Cycle 100

Humidity Test

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

Relative Humidity 90%~95%

Duration 96 hours

Temperature Cycle Test

Temperature -30°C $+70^\circ\text{C}$

Duration 45 minutes 45 minutes

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

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.
(in 1cc back cavity)



soberton inc.

WSP WATERPROOF SPEAKER

Acoustic Product Specification

Product Number: WSPH-1609S



Release | Revision: B/2018

CONTENTS

This document contains the technical specifications for the waterproof speaker unit.

Page 1

Speaker Electroacoustic Characteristics

General Specifications

Page 2

Reliability Tests

Page 3

Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

Page 4

Frequency Response Curve

Page 5

Dimensions

Page 6

Packing

Measuring Method (Speaker Mode)

Standard Test Condition

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 86KPa ~ 106KPa

Standard Test Fixture

Input Power 0.5W

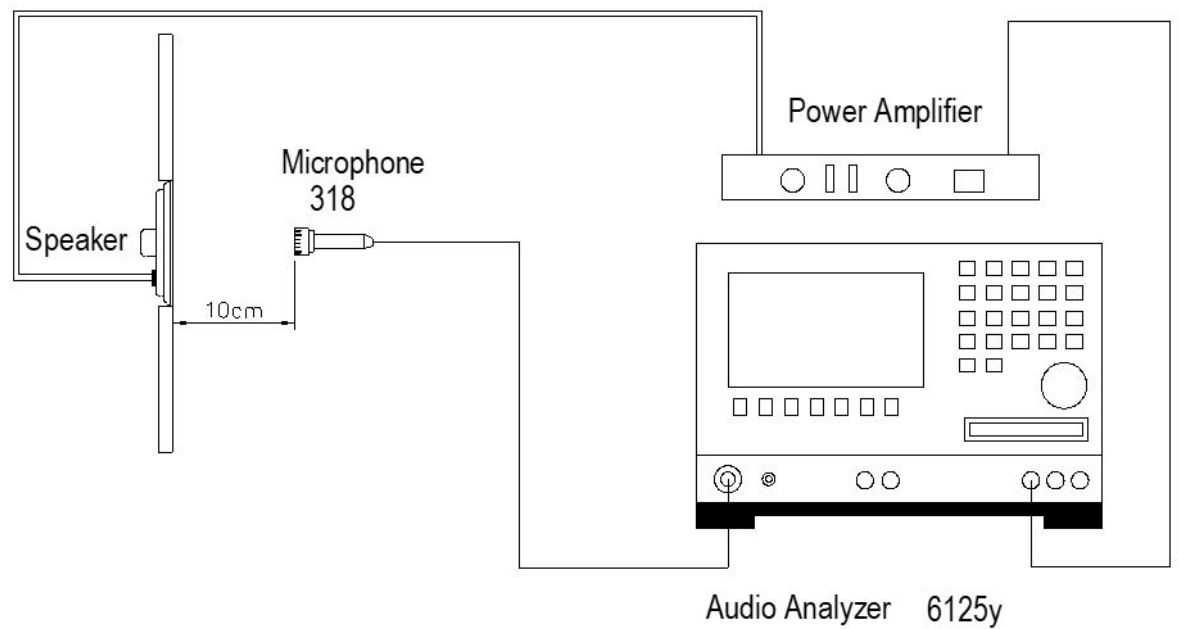
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

Standard Test Condition of Speaker (Fig. 1)





soberton inc.

WSP WATERPROOF SPEAKER

Acoustic Product Specification

Product Number: WSPH-1609S



Release | Revision: B/2018

CONTENTS

This document contains the technical specifications for the waterproof speaker unit.

Page 1

Speaker Electroacoustic Characteristics

General Specifications

Page 2

Reliability Tests

Page 3

Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

Page 4

Frequency Response Curve

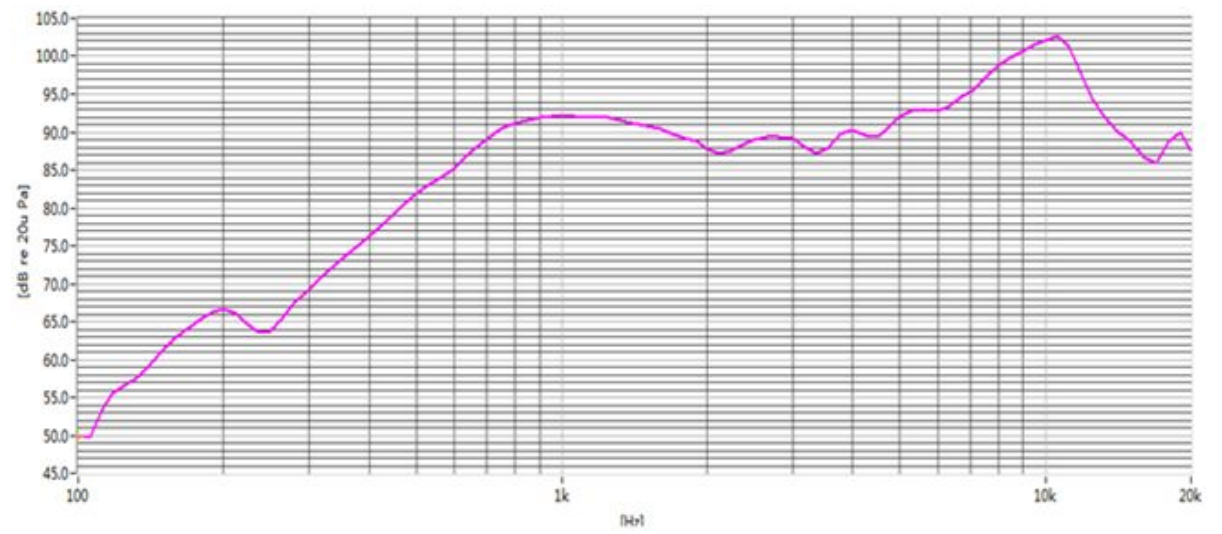
Page 5

Dimensions

Page 6

Packing

Frequency Response Curve (Fig. 2)





soberton inc.

WSP WATERPROOF SPEAKER

Acoustic Product Specification

Product Number: WSPH-1609S



Release | Revision: B/2018

CONTENTS

This document contains the technical specifications for the waterproof speaker unit.

Page 1

Speaker Electroacoustic Characteristics

General Specifications

Page 2

Reliability Tests

Page 3

Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

Page 4

Frequency Response Curve

Page 5

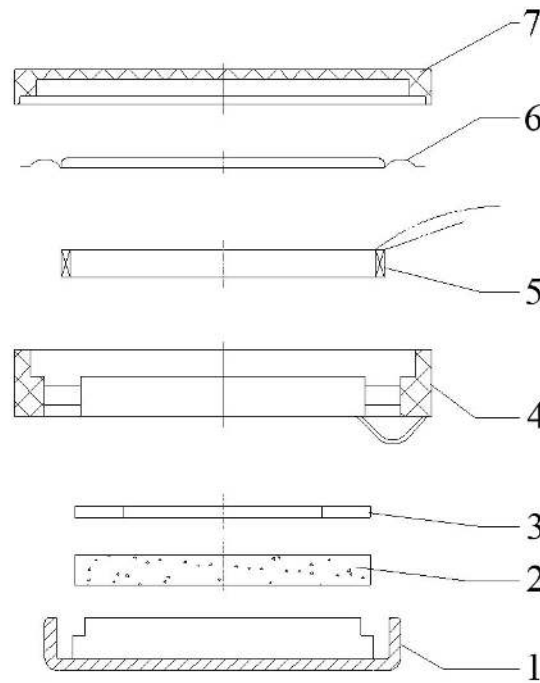
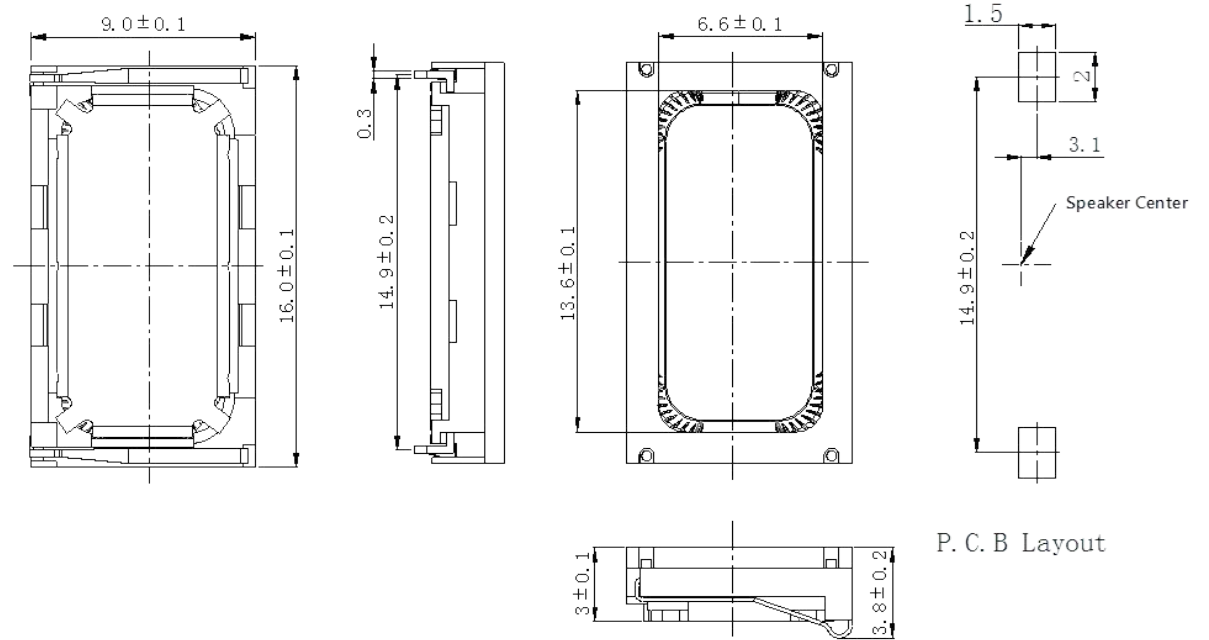
Dimensions

Page 6

Packing

Dimensions

Tolerance: ± 0.2 (unit: mm)



No.	Part Name	Material	Quantity
1	U Yoke	SPCC	1
2	Magnet	Nd Fe B	1
3	Plate	SPCC	1
4	Frame + PIN	PPA+SUS	1
5	Voice Coil	Copper Wire	1
6	Diaphragm	PEEK	1
7	Cap	PPA	1



soberton inc.

WSP WATERPROOF SPEAKER

Acoustic Product Specification

Product Number: WSPH-1609S



Release | Revision: B/2018

CONTENTS

This document contains the technical specifications for the waterproof speaker unit.

Page 1
Speaker Electroacoustic Characteristics

General Specifications

Page 2
Reliability Tests

Page 3
Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

Page 4
Frequency Response Curve

Page 5
Dimensions

Page 6
Packing

Packing

