

**MESSRS****SPECIFICATION FOR APPROVAL****承 認 书**

Product	DYNAMIC SPEAKER
Part No.	HDK-151108ZA-4C2 (RoHS)
Customer	
Customer Part No.	

Approved By	Checked By	Made By
王台平 JUN-01-2015	曹丽萍 JUN-01-2015	LILY JUN-01-2015

**常 州 华 龙 电 子 有 限 公 司****DRAGONSTATE ELECTRONIC CORPORATION**

中国江苏省常州市新区电子园新四路 36 号

Tel: +86-519-85110078. 86-519-85106698, Fax: +86-519-85101081

EDITION:1.1

## 1. SPECIFICATION

HDK-151108ZA-4C2 (RoHS)

ITEM		SPECIFICATIONS
01	Type	Dynamic speaker
02	Dimension	External diameter 15*11 mm
03	Rated Input Power	0.5W In 1cc Box
04	Max. Input Power	1.0W In 1cc Box For 1 Minute
05	Impedance	8 ohm $\pm$ 15% at 2KHz.
06	Resonance Frequency (Fo)	500Hz $\pm$ 20% (in free air)
	Resonance Frequency (Fo)	850Hz $\pm$ 20% (in 1cc air)
07	Sensitivity (S.P.L.)	87 $\pm$ 3 dB /0.5W/0.1m at 2.0KHz
08	Frequency Range	Fo - 20KHz
09	Total Harmonics Distortion	Max 10% at 1 KHz, 0.5W.
10	Voice Coil	10.9*6.9*1.2/mm
11	Magnet	10.6*6.6*1.2 (Nd-Fe-B) /mm
12	Weight	2.6g $\pm$ 5%g
13	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.
14	Operation Test	Must be normal at program source - 0.5W
15	Buzz, Rattle, etc.	Must be normal at sine wave 0.89Vrms (in free air) /2.0Vrms (in 1.0cc box) from 200~3400Hz
16	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.
17	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
18	Temperature	Operating temperature: -20°C to +70°C Storage temperature: -20°C to +70°C

## 2. Test Condition

### 2.1 STANDARD

Temperature : 15 ~ 35°C

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

### 2.2 BASIC

Temperature : 20±3°C

Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

### Standard Test Fixture

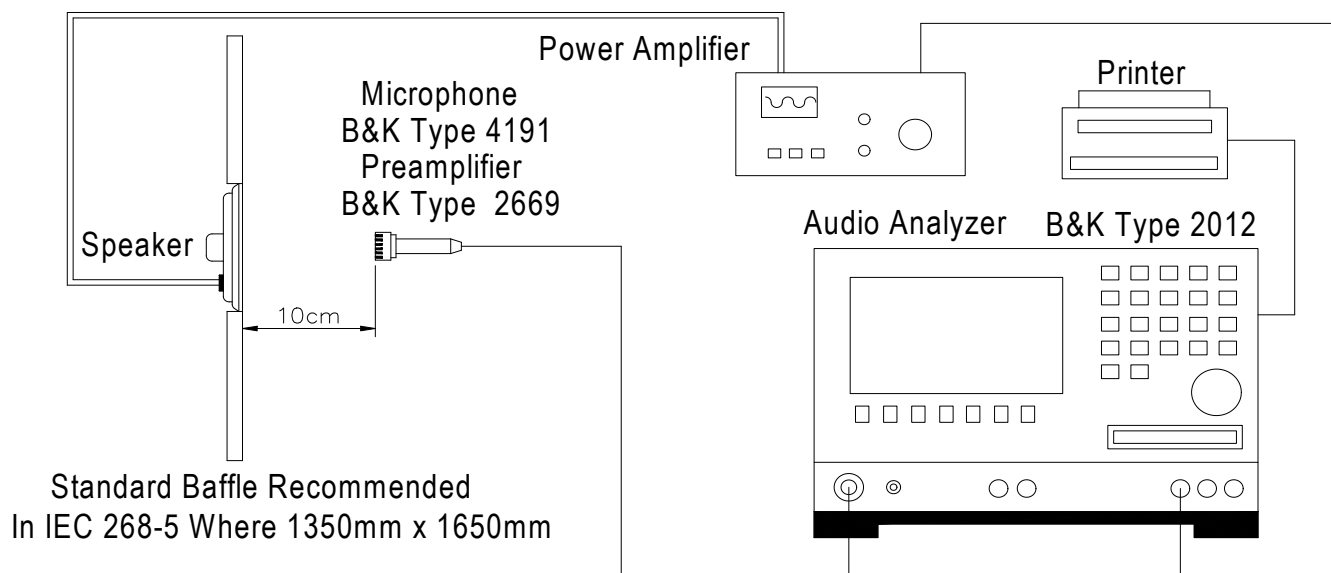
1. Input Power : 0.5W ( 2.0V )

2. Zero Level : -dB

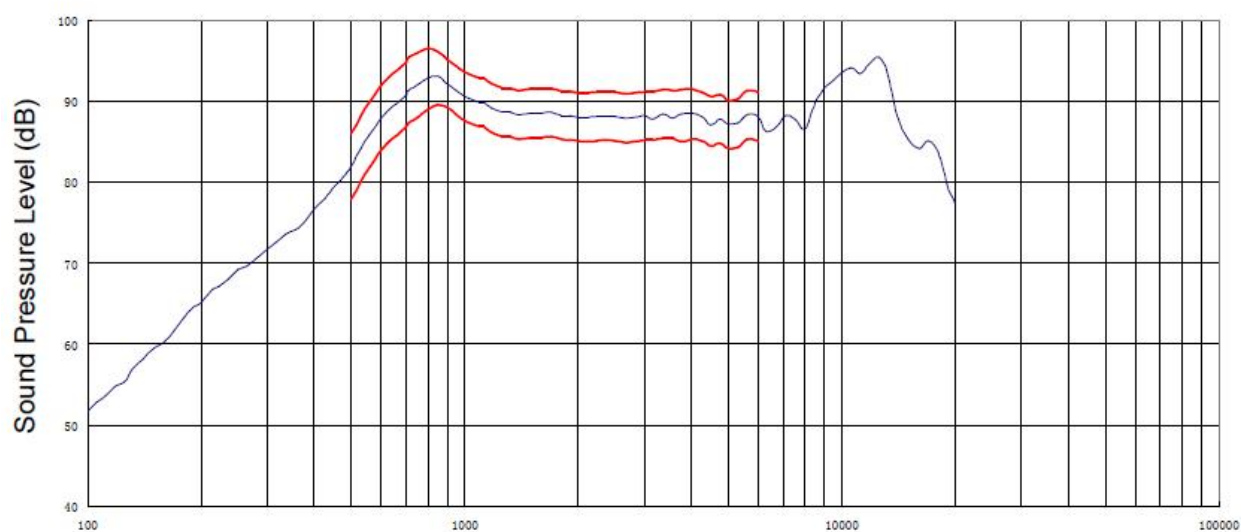
3. Mode : SPEAKER

4. potentiometer Range : 50dB

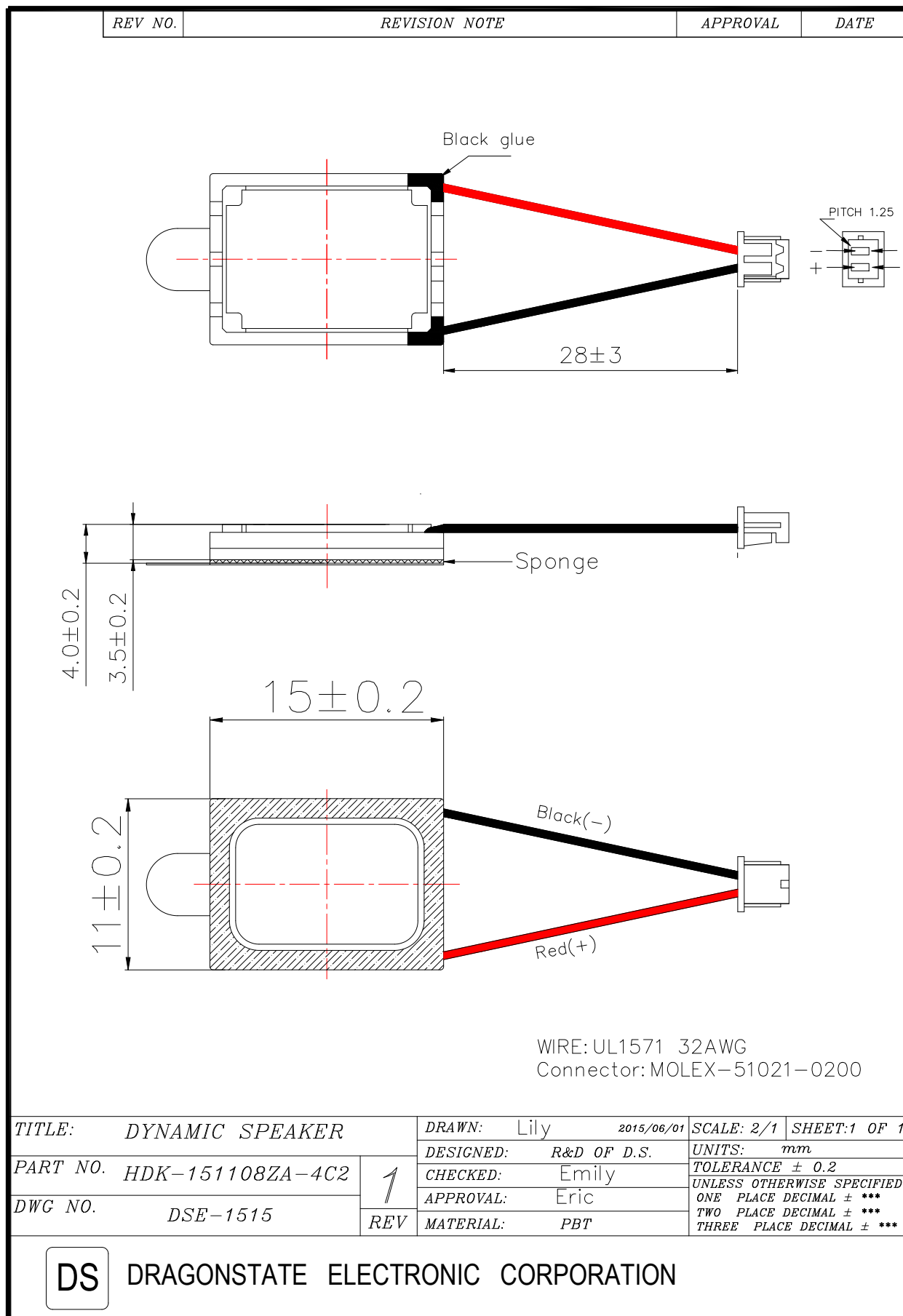
5. Sweep Time : 0.5sec

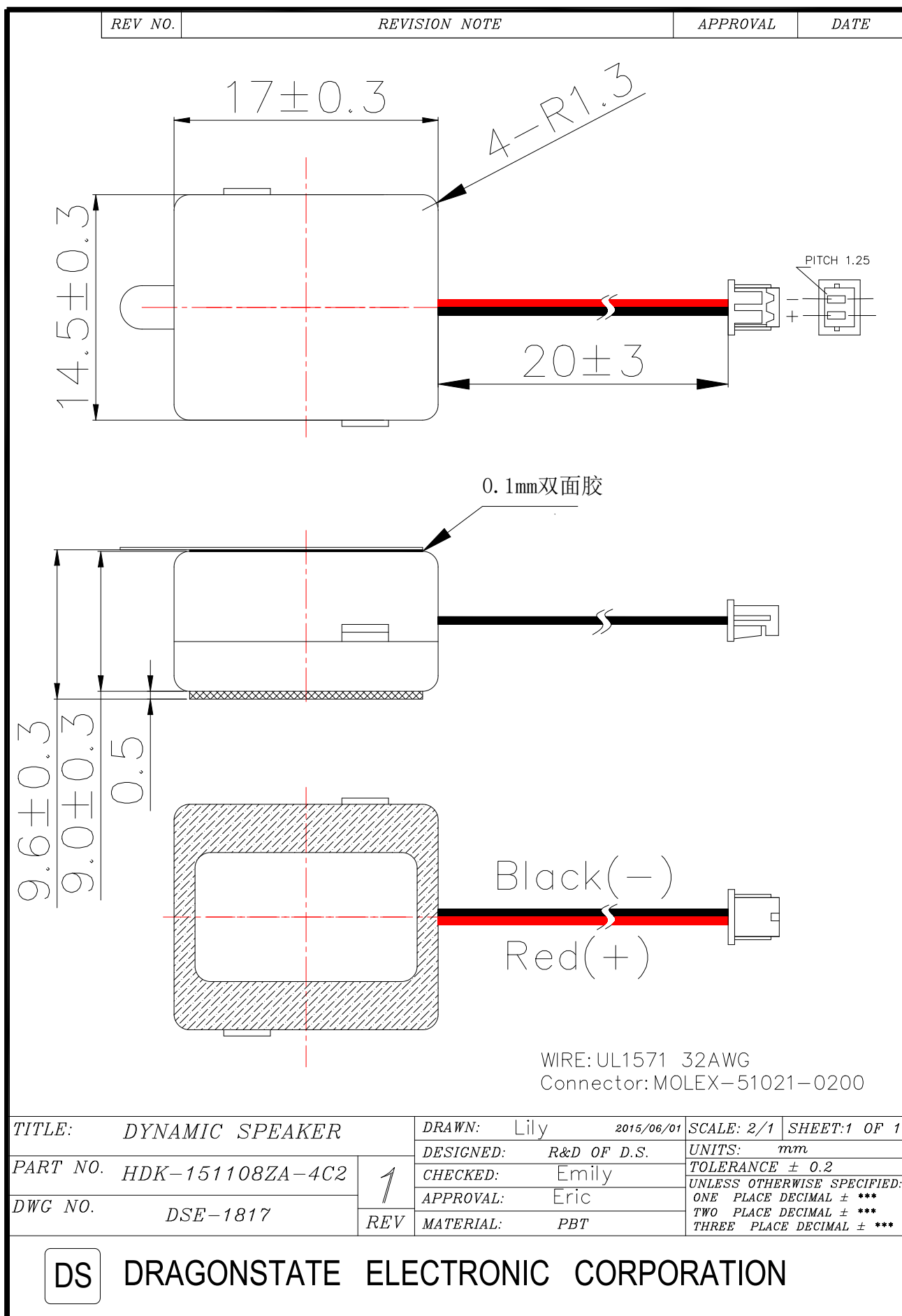


## 2.3 Frequency Response Curve

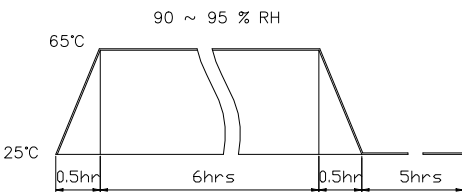


### 3. Dimension





#### 4.RELIABILITY TESTS

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+70^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-20^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity test	Keep 96 hours at $+40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ relative humidity 95% and leave 3 hours in normal temperature and then checked.
04	Temp./Humidity cycle	<p>The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of;</p> 
05	Thermal cycle test.	Low temperature: $-30^{\circ}\text{C}\pm 3^{\circ}\text{C}$ , temperature: $+70^{\circ}\text{C}\pm 3^{\circ}\text{C}$ , cycle: 1 hour/cycle each, and then keep 5 cycles in a room.
06	Vibration	10~200~10Hz sin-wave sweep 15min. 5G(constant) X,Y, Z 3 direction. 2 hours each, total 6 hours.
07	Free drop test	Free drop from 100cm height to the concrete floor X, y, z 6 direction. 1 times each, total 6 times.
08	Rated Power test	Rated Power white noise is applied for 96 hours (in Pink noise in 1cc box)
09	Max Power test	Max power 1 min on – 2 min off 10 cycles.