

# 常州华龙电子有限公司

## SPECIFICATION FOR APPROVAL

### 规格承认书

Customer 客户:	
Customer Part No. 客户型号:	
PART NO. 产品型号:	HDK-1008RA-5W19
FUNCTION. 产品功能	<b>SPEAKER</b>
SPEC. NO. 规格书号:	

Drawn by 制作	Checked by 审核	Approved by 批准	Customer approved 客户承认
Lily 2016-09-05	曹丽萍 2016-09-05	王台平 2016-09-05	

Our products meet the latest RoHS compliance  
 我司生产产品均符合欧盟 RoHS 最新要求



ISO 9001 Certified

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**Approval 承認內容:**

1. History change record 变更记录
2. Characteristics 技术参数
3. Typical Frequency Response Curve 频率曲线
4. Dimension 外观尺寸
5. Reliability Test 可靠性测试
6. Packing 包裝

## 1. History change record

Change Items	Date	Note	Drawn by	Checked by
	2016-09-05		Lily	王台平 2016-09-05

## 2. Characteristics

### 2.1 Electrical and Mechanical Characteristics

#### 2.2. MEASURING METHOD

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 10 mm	
03	Rated Input Power	0.3W (Long Time)	
04	Max. Input Power	0.5W for 1 minute	
05	Impedance	8 ohm $\pm$ 15% at 1500Hz.	
06	Resonance Frequency (Fo)	1000Hz $\pm$ 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	88dB (0.1W / 0.1m) $\pm$ 3 dB	atAVE1.0K, 1.2K, 1.5K, 2.0KHz.
		92dB (0.3W / 0.1m) $\pm$ 3 dB	
08	Frequency Range	Fo - 6KHz	
09	Total Harmonics Distortion	Max 8 % at 1 KHz, 0.3W.	
10	Voice Coil	Diameter 5.7mm	
11	Magnet	Rare earth permanent (Nd-Fe-B) magnet $\Phi$ 5.2 x0.8mm	
12	Weight	0.6g $\pm$ 0.3g	
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 - 0.3W	
15	Buzz, Rattle, etc.	Should not be audible at 1.55V sine Wave between Fo to 20KHz	
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 +60°C	
		Storage temperature: -30°C to +70°C	

#### Test Condition

##### A. STANDARD

Temperature : 15 ~ 35°C

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

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##### B. BASIC

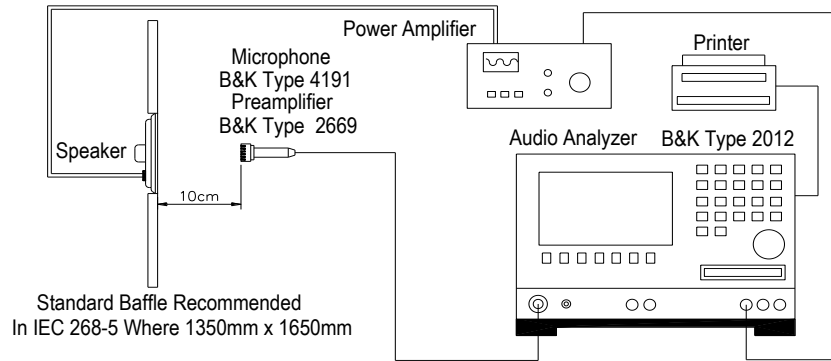
Temperature : 20 $\pm$ 3°C

Relative humidity : 60% ~ 70%,

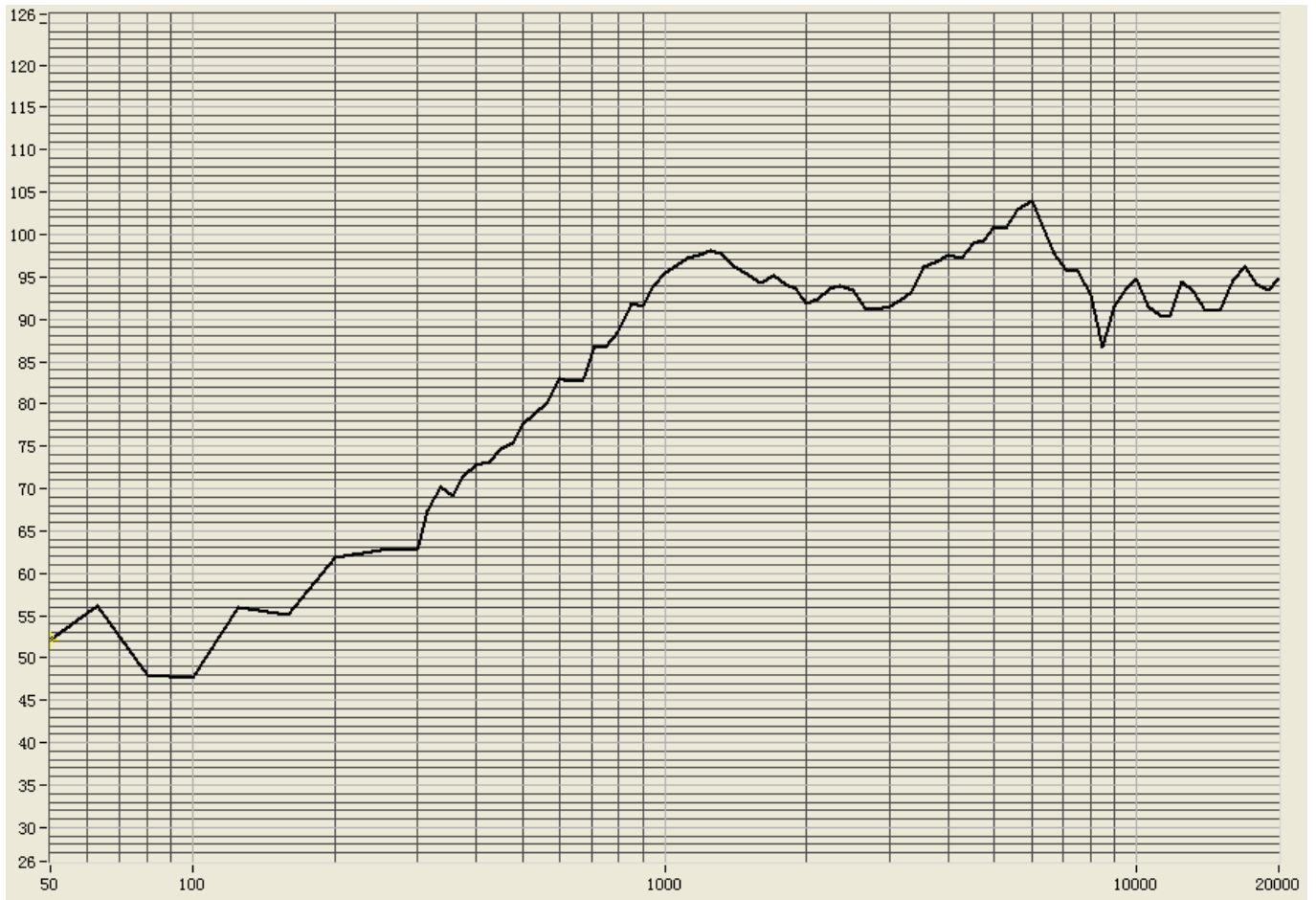
Atmospheric pressure : 860mbar to 1060mbar

C. Standard Test Fixture

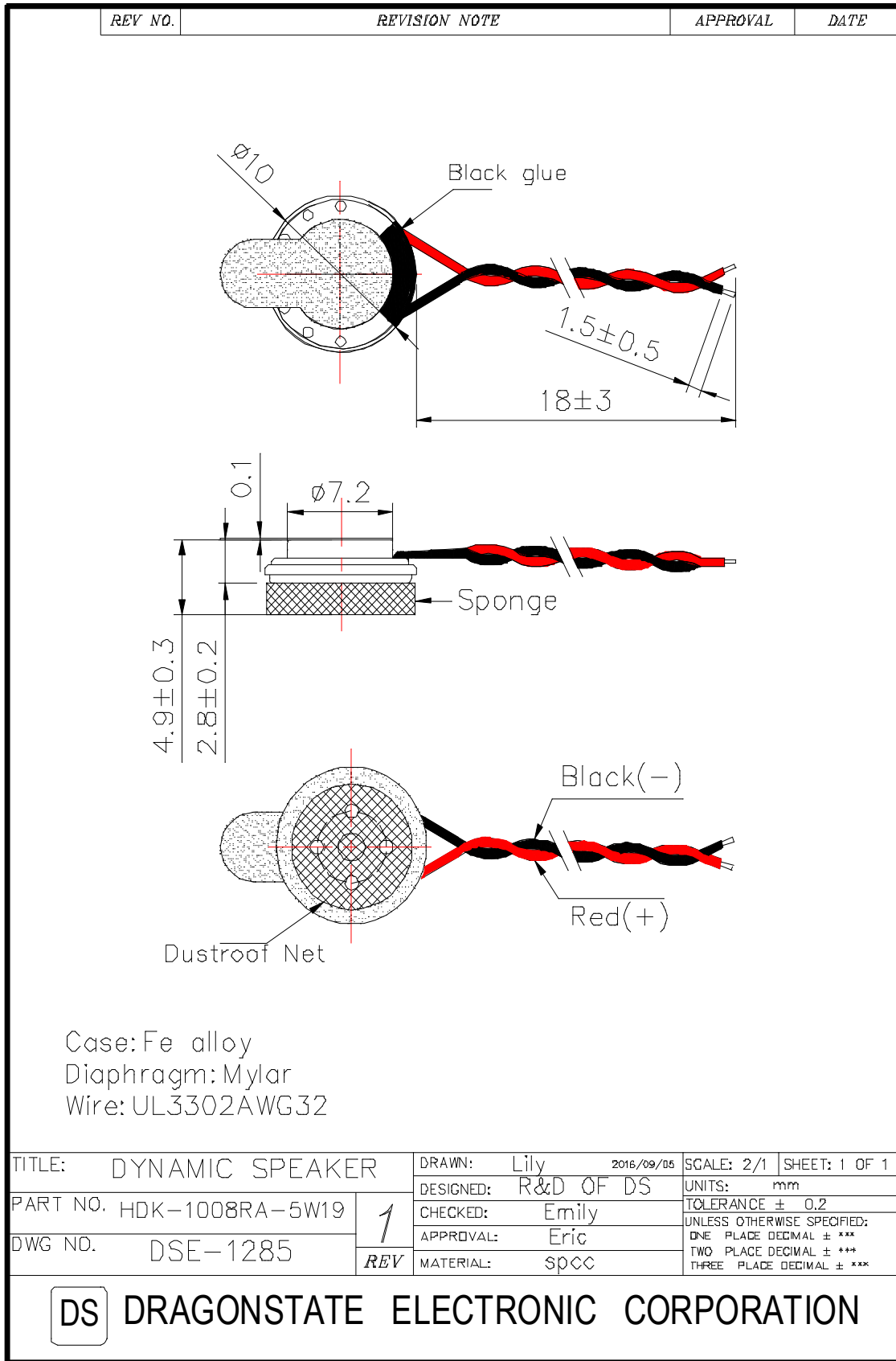
1. Input Power : 0.3W ( 1.55V )
2. Zero Level : -dB
3. Mode : SPEAKER
4. potentiometer Range : 50dB
5. Sweep Time : 0.5sec



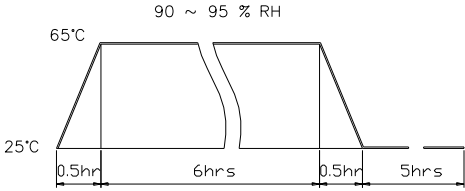
3. Frequency Response Curve



4. Dimension



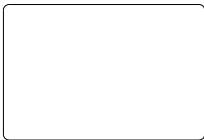
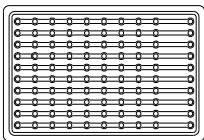
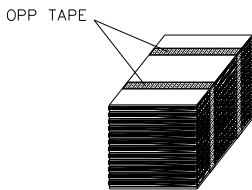
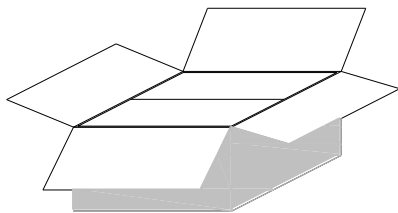

**5. Reliability test**

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 $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity test	Keep 96 hours at $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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	Fix drop test	Fix on jig. Then drop from 152cm height to the concrete floor X, y, z 6 direction. 5 times each, total 30 times.
08	Free drop test	Free drop from 100cm height to the concrete floor X, y, z 6 direction. 1 times each, total 6 times.
09	Rated Power test	Rated Power white noise is applied for 96 hours
10	Max Power test	Max power 1 min on - 2 min off 10 cycles.
11	Terminal strength test	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
<p>Criterion: After these test , the change of S.P.L shall be within <math>\pm 3</math> dB .</p>		

**SOLDERING CONDITION**

Recommend using constant branding iron in 30W, and in temperature range  $350^{\circ}\text{C}$ .  
Soldering time not over 2 seconds.

6. Packing

REV NO.	REVISION NOTE	APPROVAL	DATE
			
	Cover(350*240*10mm) Material: Pvc		
	↓		
			
	Box(350*240*10mm) 100pcs Material: Pvc		
			
	Middle(350*240*120mm) 1000pcs(10*100pcs) Material: Pvc		
	↓		
			
	Outer Box(490*360*350mm) 6000pcs(6*1000pcs) Material: Paper		
单位: mm			
TITLE: packing		DRAWN: Lily 2015/4/13	SCALE: 2:1 SHEET: 1 of 1
PART NO.		DESIGNED: R&D OF D.S.	UNITS: mm
DWG NO.		CHECKED: Emily	TOLERANCE
		APPROVAL: Eric	20~11 ± 0.3 10~5 ± 0.2
REV		MATERIAL: ***	<4 ± 0.1
 DRAGONSTATE ELECTRONIC CORPORATION			