

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:	HDS-103208
FUNCTION. 产品功能	SPEAKER
SPEC. NO. 规格书号:	DSS037-2016

Drawn by 制作	Checked by 审核	Approved by 批准	Customer approved 客户承认
Lily 2016-03-12	曹丽萍 2016-03-12	王台平 2016-03-12	

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
	2015-12-08	First Issue	Lily 2015-12-08	王台平 2015-12-08
增加 limit 分档框	2016-03-12	Second Issue	Lily 2016-03-12	王台平 2016-03-12

2. Characteristics

2.1 Electrical and Mechanical Characteristics

2.2. MEASURING METHOD

Test Condition

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 10 mm	
03	Rated Input Power	5mW (Long Time)	
04	Max. Input Power	8mW for 1 minute	
05	Impedance	32 $\pm$ 15% ohm	
06	Resonance Frequency (Fo)	500Hz $\pm$ 20%	
07	Sensitivity (S.P.L.)	112dB $\pm$ 3 dB	at 1.0mW (179mV) / 1.0KHz.
08	Frequency Range	F0 - 20KHz input 179mV	
09	Total Harmonics Distortion	300Hz~3400Hz THD<5% input 179mV	
10	Voice Coil	Diameter Φ 5.7mm	
11	Magnet	Rare earth permanent (Nd-Fe-B) magnet Φ 5.0*1.0 mm	
12	Weight	0.9g $\pm$ 0.1g	
13	Buzz, Rattle, etc.	Should not be audible at 5mW(0.4V) sine Wave between 100Hz to 10KHz	
14	Temperature	Operating temperature: -20°C to +60°C Storage temperature: -30°C to +70°C	

A. STANDARD

Temperature : 15 ~ 35°C

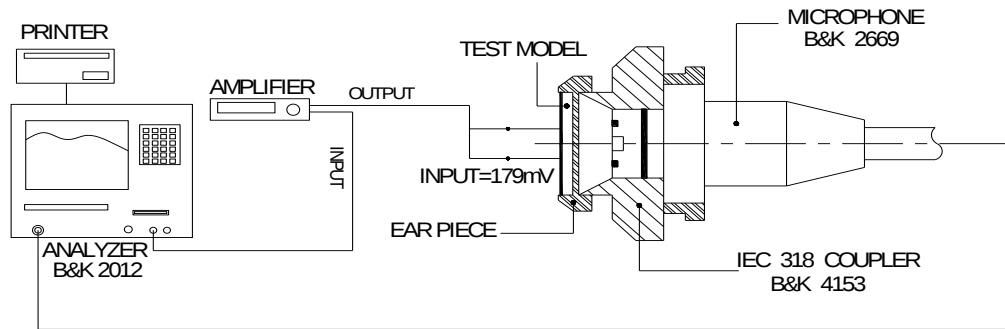
Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

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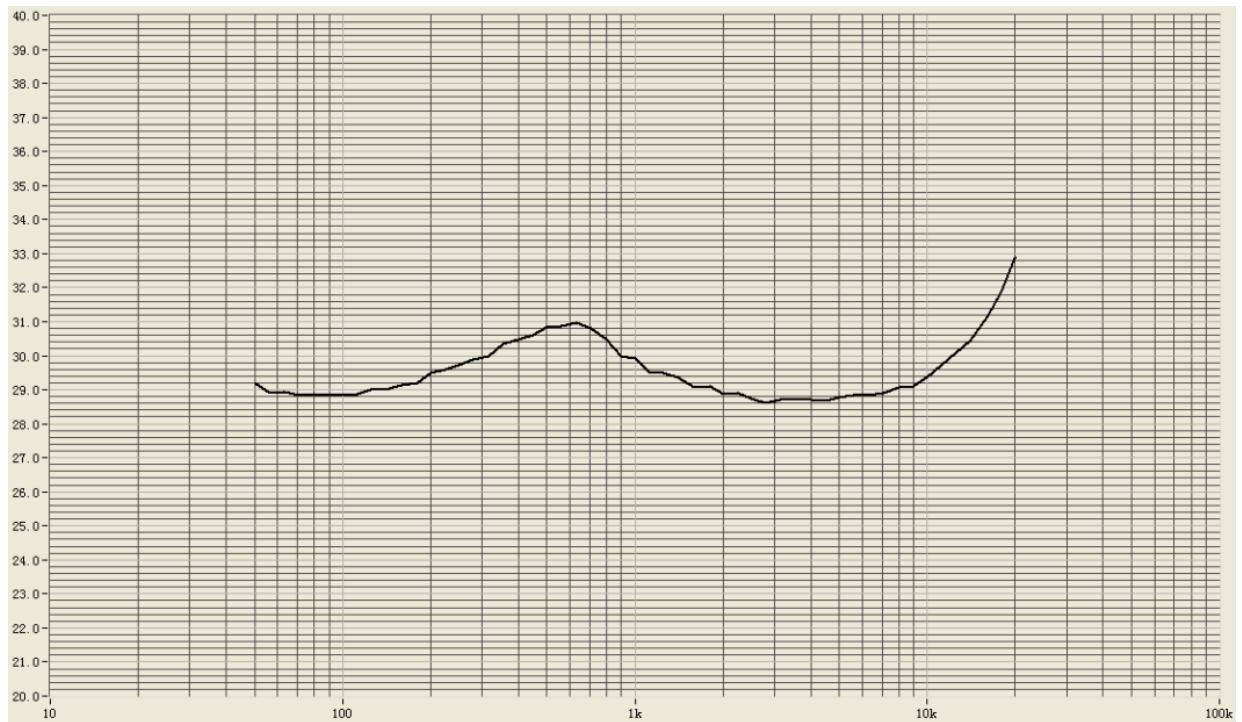
2-3. Standard Test Fixture

Input signal : 179mV

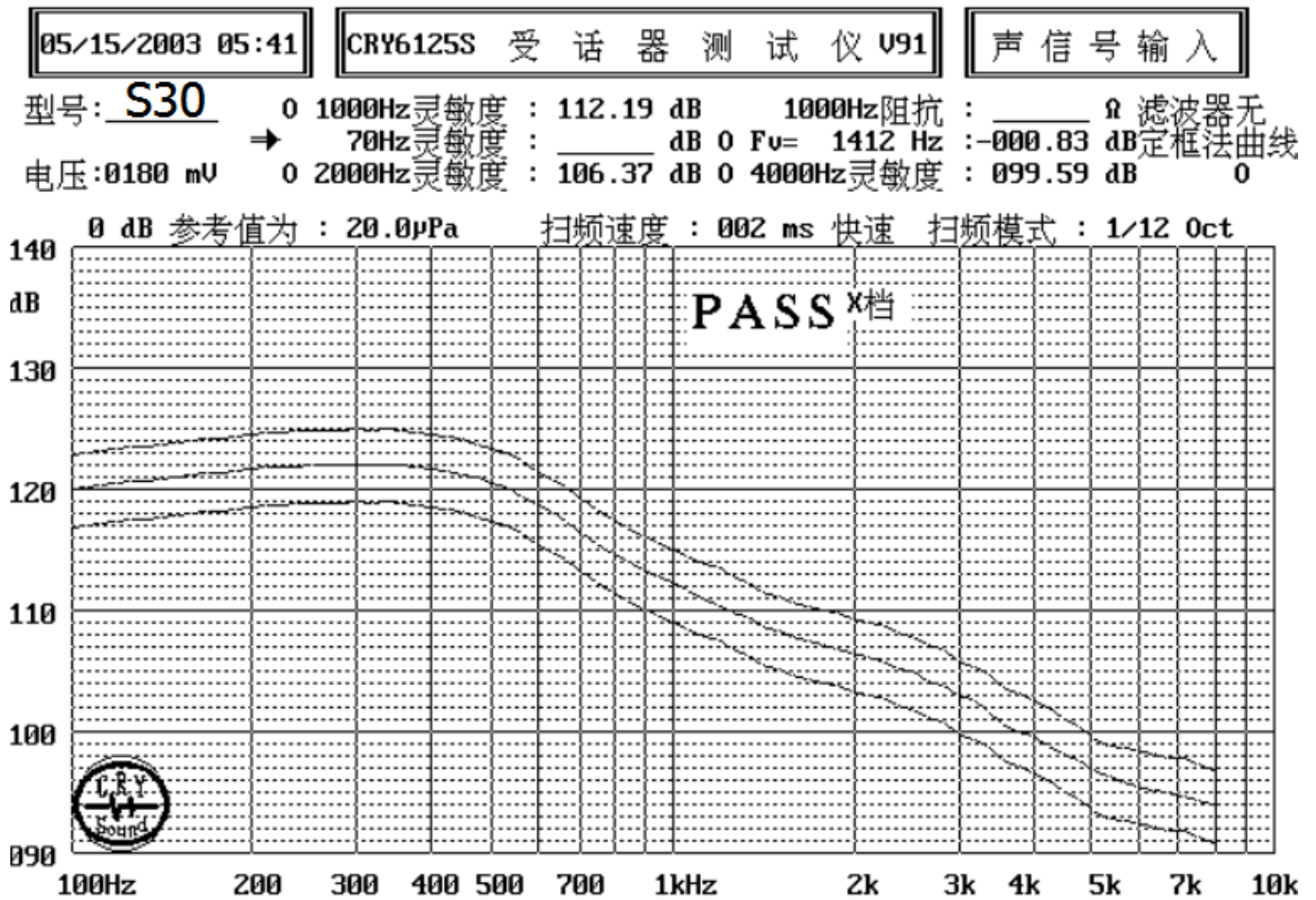


3. FrequencyResponse Curve

Impedance Curve



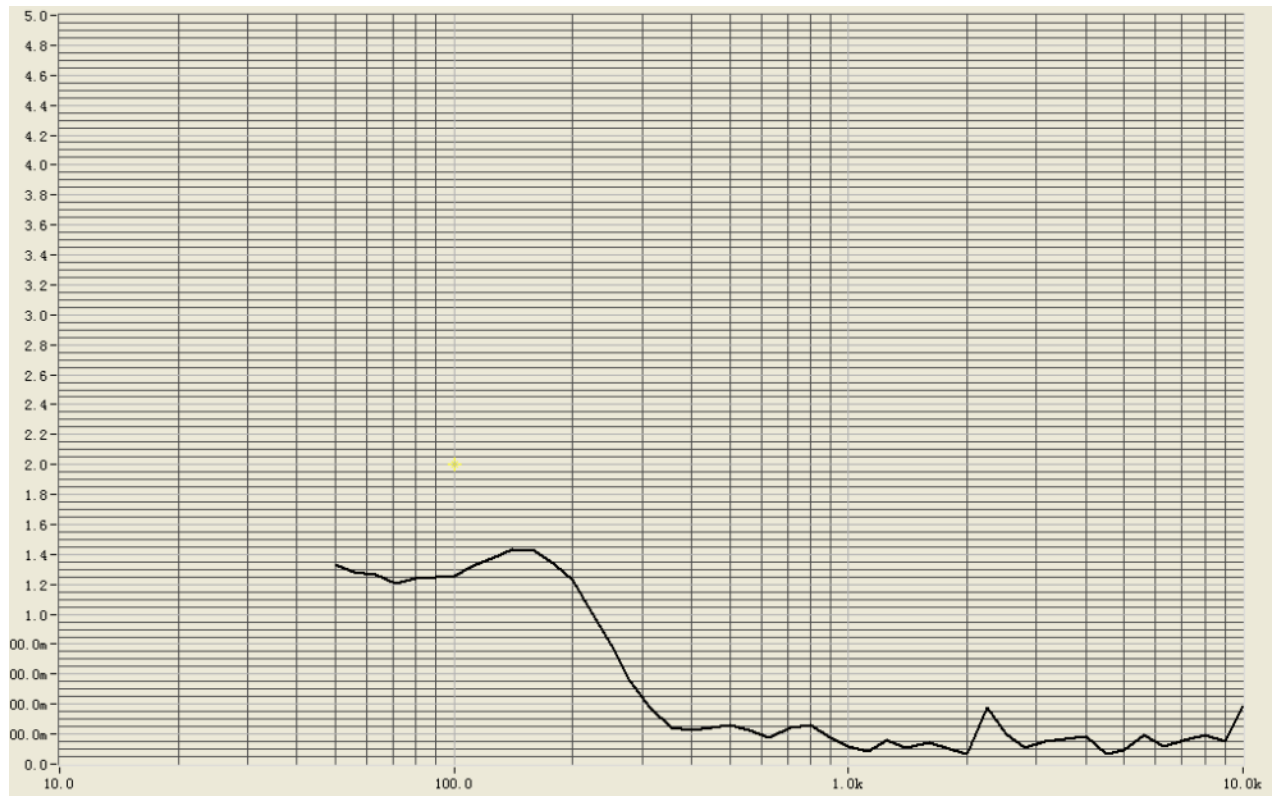
FrequencyResponse Curve



Frequency response mask (频响曲线框)

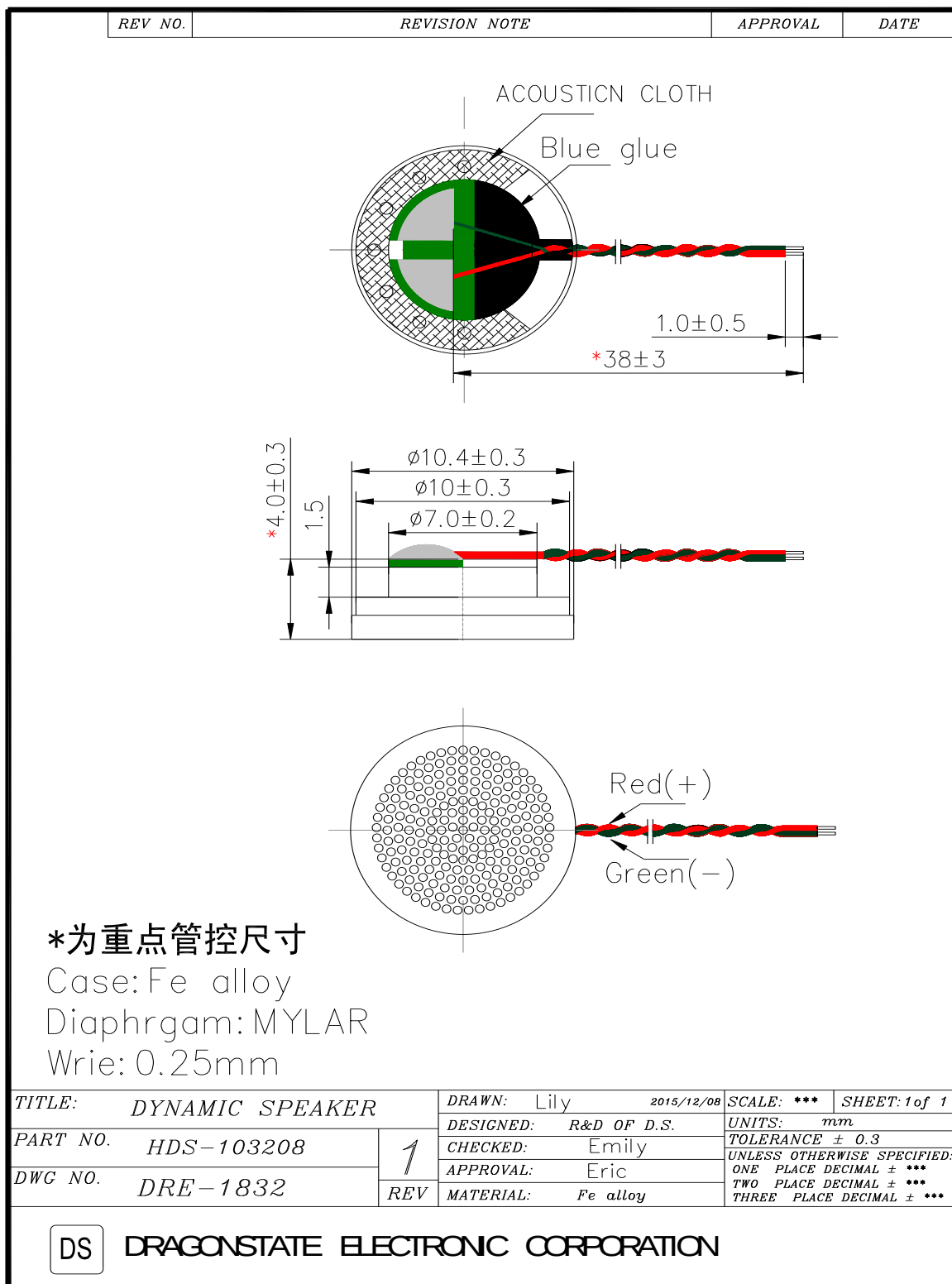
Frequency response mask (Hz)	Upper Limit (dB)	Frequency response mask (Hz)	Lower Limit (dB)	Remark		
100	123.0	100	117.0	檔位		
200	124.7	200	118.7			
300	125.0	300	119.0			
400	124.8	400	118.8			
500	123.5	500	117.5	A 檔: 100Hz: 120.0~123.0 dB	1K Hz: 112.0~115.0 dB	8K Hz: 93.8~96.8 dB
800	117.2	800	111.2	B 檔: 100Hz: 117.0~120.0 dB	1K Hz: 109.0~112.0 dB	8K Hz: 90.8~93.8 dB
1000	115.0	1000	109.0			
1500	111.5	1500	105.5			
2000	109.2	2000	103.2			
2500	107.8	2500	101.8			
3150	105.5	3150	99.5			
4000	102.7	4000	96.7			
5000	99.8	5000	93.8			
6000	98.5	6000	92.5			
7000	97.8	7000	91.8			
8000	90.8	8000	96.8			

THD Frequency Response Template

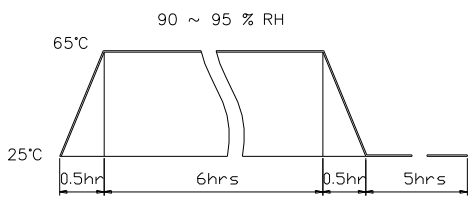


300	5
3400	5

4. Dimension



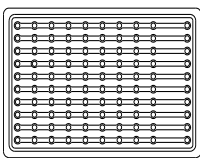
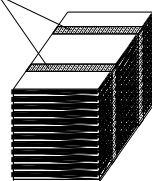
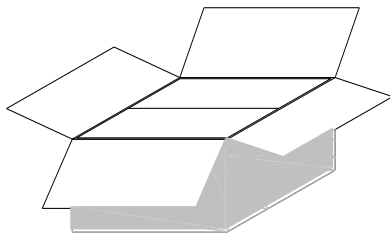
6. Reliability test

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	The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of; 
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.
Criterion: After these test , the change of S.P.L shall be within ± 3 dB .		

SOLDERING CONDITION

Recommend using constant branding iron in 30W, and in temperature range 350°C .
Soldering time not over 2 seconds.

7. 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) 8000pcs(8*1000pcs) Material: Paper 单位: mm			
TITLE: packing		DRAWN: Lily 2015/12/08	
PART NO.		DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
1		APPROVAL: Eric	
		MATERIAL: ***	
		SCALE: 2:1	
		SHEET: 1 of 1	
		UNITS: mm	
		TOLERANCE	
		20~11 ± 0.3	
		10~5 ± 0.2	
		<4 ± 0.1	
DS DRAGONSTATE ELECTRONIC CORPORATION			