



**瑞声科技**  
AAC TECHNOLOGIES

**APPROVAL SHEET  
FOR  
DYNAMIC MINIATURE  
SPEAKER**

CUSTOMER: \_\_\_\_\_

AAC P/N: \_\_\_\_\_



CUSTOMER: \_\_\_\_\_

CUSTOMER	APPROVER	CHECKER

**AAC ACOUSTIC TECHNOLOGIES HOLDINGS INC.**

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REV: V4

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# Product Specification

P/N SPS1115G-J-02-02

Keywords: Dynamic Speaker, 8 Ohms, 11x15x2.5mm, Contact Spring, GP Compliant

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Date	Issue	Detail changes
Oct/24/2018	V1	Preliminary Version
Apr/1/2019	V2	
Jun/24/2019	V3	
Aug/5/2019	V4	



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### 1. Scope

This document contains required environmental, electrical, acoustic, mechanical, package and reliability test requirements.

### 2. Environmental Requirement

The transducer including all components and solder joints must be free from lead (Pb) and other banned or restricted substances according to customer's requirements.

### 3. Electrical Requirements

3.1.1 Rated Impedance 8±10% ohms @2kHz, 2.83Vrms input  
(in 1cc box)

3.1.2 DC Resistance 7.2±0.5 ohms

3.2 Rated Noise Power AAC 1.0 Watts/2.83Vrms  
2019.8.1 (in 1cc box)

3.3 Short Term Maximum Power 受控 1.5 Watts/3.46Vrms  
(in 1cc box)

### 4. Polarity Requirements

#### 4.1 Polarity

When a DC source's "+" polarity is attached to speaker's "+" polarity, "-" polarity is attached speaker's "-" polarity, the membrane will move forward.

### 5. Acoustical Requirements

5.1 Sound Pressure Level 95±2dB at 2.83Vrms/10cm ,2kHz  
in 1cc box /on baffle

5.2 Bass Resonance Frequency  
Frequency Response 870 ± 10% Hz at 2.83Vrms input  
(In 1cc box)

5.3 Rated Frequency Range 500 - 20kHz  
Frequency Response See Figure 1, Table 1

5.4 THD See Figure 2, Table 2

5.5 Typical TS parameters

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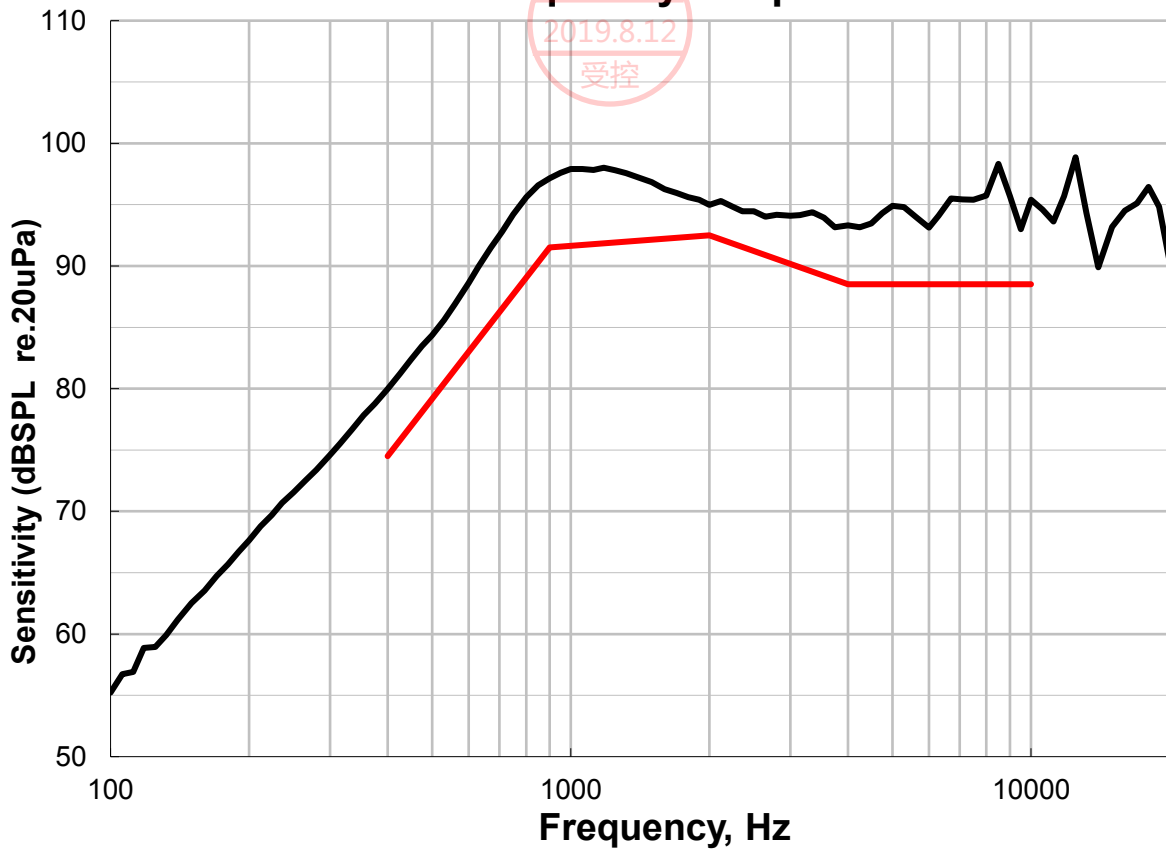
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Table 1 Limit Data for Frequency Response

Freq.	Limit
400	74.5
900	91.5
2000	92.5
4000	88.5
10000	88.5

Figure 1 Typical Frequency Response Curve

### Frequency Response



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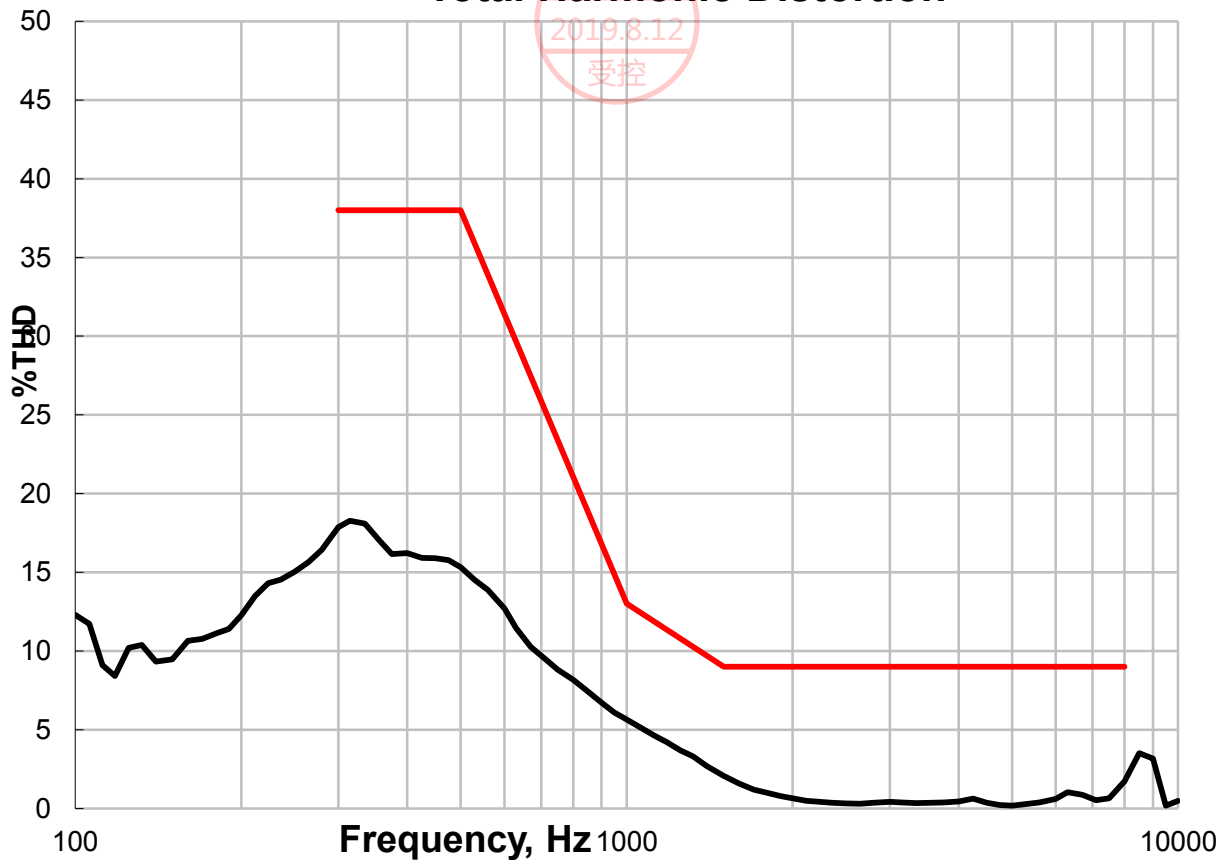
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Table 2 Limit Data for THD

Freq.	Limit
300	38
500	38
1000	13
1500	9
8000	9

Figure 2 Typical THD Curve

### Total Harmonic Distortion



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Table 3 Typical TS parameters(for reference only)

fs (Hz)	515.00
Re(DC), Ohms	7.20
Qms	3.25
Qes	3.10
Qts	1.60
Mms(mg)	59.00
Cms(um/N)	1625.00
Vas(cc)	3.00
Bl(T.m)	0.70
Sd(cm^2)	1.15
Sensitivity(dB) 1w/1m	75
fbox(Hz)	870
Xpp(mm)	0.6
Tmax (°C)	100.00
Tcoef(1/K)	0.0034


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## 6. Test Climatic Condition

Ambient temperature: 21°C - 25°C, preferably at 23°C

Relative humidity: 25% to 75%

Air pressure : 86kPa - 106kPa

Refer to IEC 268-1

## 7. Test Method

### 7.1 SPL and Frequency Response Curve

Be free-field microphone and placed at specified distance from DUT, on axis.

The drive power is rated power, and swept sine-wave range is 100Hz to 20kHz with a R40 of test sequence.

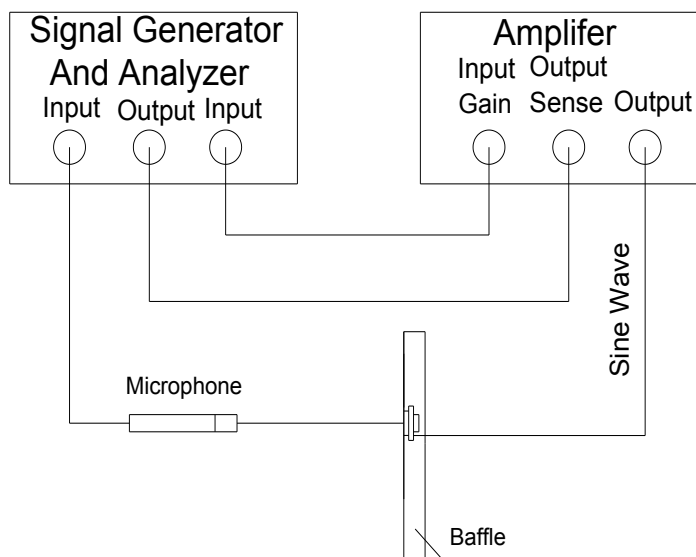
### 7.2 THD

Tested per Section 7.1 and driven at rated power, sweep at specified frequency range with R40 test sequence.

2019.8.12

受控

Figure 4 Test setup  
Speaker Measurement Circuit



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## 8. General Requirements

- 8.1 Operating Temperature Range -20°C to +70°C without loss of function
- 8.2 Storage Temperature Range -40°C to +85°C without loss of function

## 9. General Reliability (in 1cc box)

Immediately after reliability test, the samples shall be stored under climatic conditions such as normally exist in ordinary rooms or laboratories. Unless otherwise noted, the recovery period shall be 4 hours at least before performance testing.

After reliability test, all samples must meet the requirements specified in section 3&4.

### 9.1 Temperature Shock: 12 samples

-40°C / +85°C 10 cycles. 30 minutes at each temperature. 20 - 30 seconds transition time. Refer to IEC 68-2-14 AAC

2019.8.12

### 9.2 Static Humidity Test : 12 samples 受控

Soak samples to +60°C with 90% relative humidity for continuous period of 96 hours. Refer to IEC 68-2-67

### 9.3 Drop Test : 12 samples

DUTs shall be mounted in a 150g fixture, drop samples 1.5m three times in each direction, total 18 times.

### 9.4 Operating Life: 12 samples

DUTs shall be tested under each specified climatic condition (per section 7) for a continuous period of 100 hours at a rated noise power. Input shall be pink noise signal (IEC 268-1) with a peak to r.m.s ratio of 1.8 to 2.2 in 20-20KHz Refer to IEC 268-5.

### 9.5 Short Term Maximum Power : 10 samples

DUTs shall be tested under each specified climatic condition (per section 7). Input shall be pink noise signal (per IEC 268-1) with crest factor of 1.8 to 2.2 in 20-20KHz. And the signal will be 1 second on, 59 seconds off, total 60 cycles. Refer to IEC 268-5.

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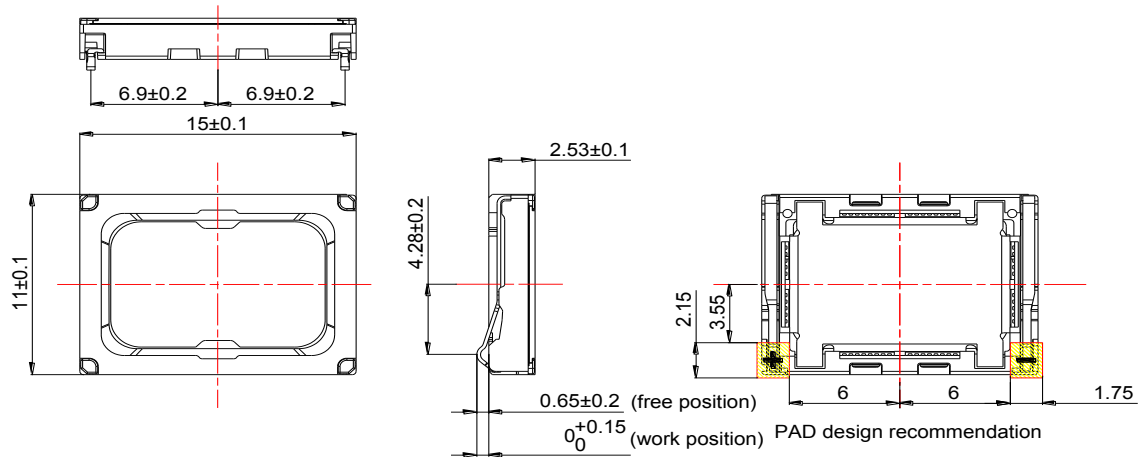
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## 10. Mechanical Layout and Dimensions

### 10.1 Mechanical Layout for Speaker Unit



1. Unit:mm

2.Tolerance general unless otherwise noted:  $\pm 0.1$ mm

contact force in working position(to the surface of the yoke):  $0.7N \leq F \leq 1.3N$

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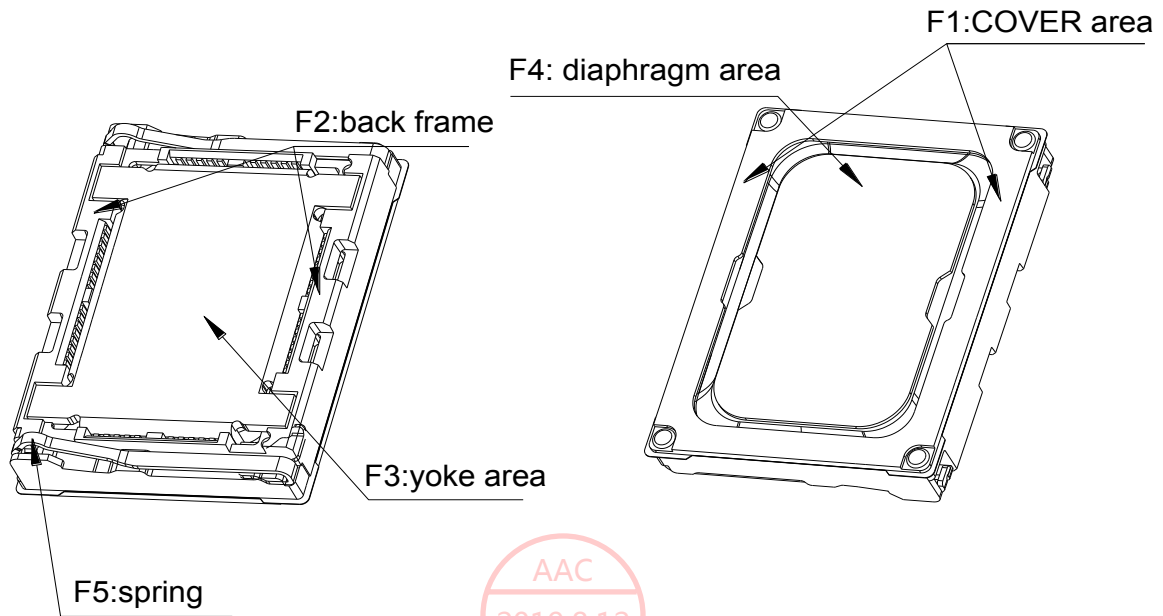
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### 10.2 Permitted Force to Speaker



No.	from	to	Max force
1	F1	F3	10N
2	F2	F1	10N
3	F4		0N
4	F5		0N

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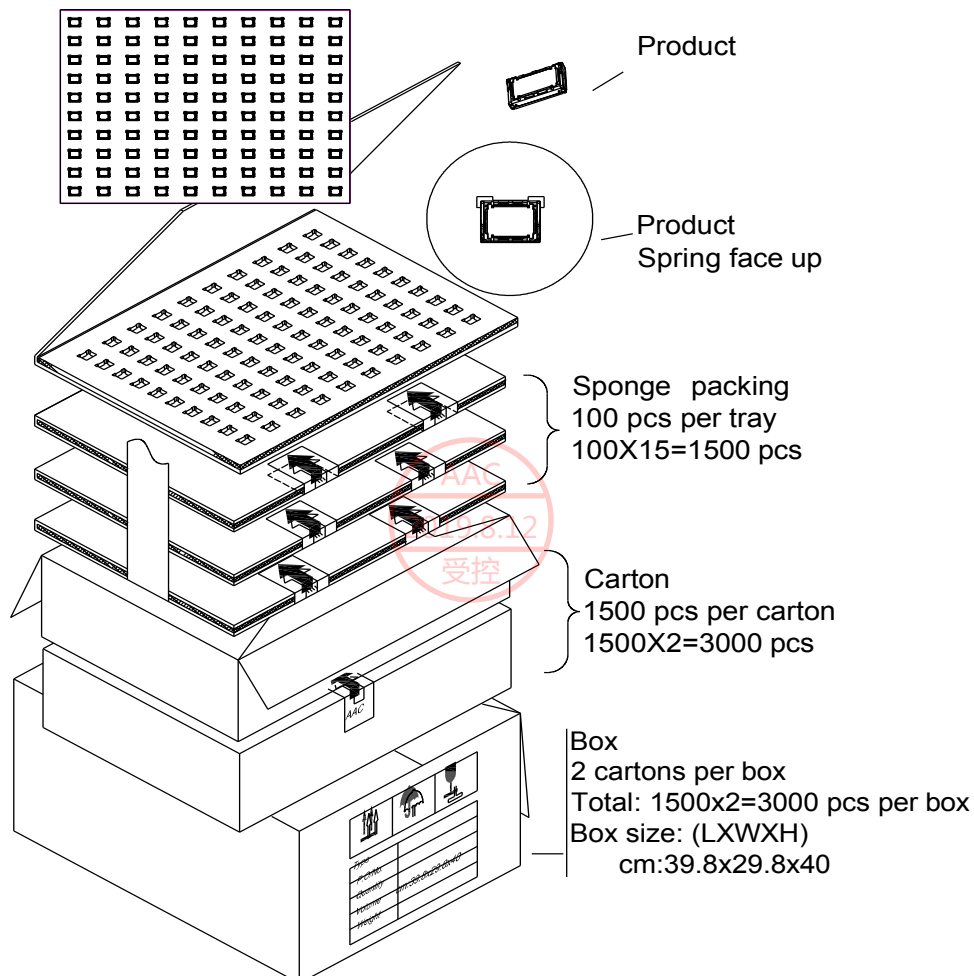
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11. Weight 1.3±0.3 g

12. Package



Transportation and storage:

1. Do not add heavy load on the package during shipping and storage.  
( stacking height  $\leq 2\text{m}$ , stacking weight  $\leq 70\text{ Kg}$  )
2. Do not add strong shock during shipping and moving.
3. Keep the package in the room with stable temperature and humidity.  
( T:  $+10\sim+30\text{ }^\circ\text{C}$ , H:  $20\%\sim 60\%$  )
4. The package shelf life is 12 month from the date of original purchase.
5. The package do not directly contact to ground and wall during storage.  
( Distance to ground  $\geq 10\text{cm}$ , to wall  $\geq 30\text{cm}$  )
6. Keep the product on the tray and do not strong shock when moving ,  
if not will damage to gasket 、 lead wire、 spring、 contact spring、 pad.
7. Keep the product away from hazardous substances  
( gas、 dust、 water、 food ).
8. Prohibit the vacuum packing of this product.

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