



**APPROVAL SHEET
FOR
DYNAMIC MINIATURE
SPEAKER**

CUSTOMER: _____

AAC P/N: DMSP0913AJ-10-G

CUSTOMER P/N: _____

CUSTOMER	APPROVER	CHECKER

AAC ACOUSTIC TECHNOLOGIES HOLDINGS INC.

**Add: AAC Technology Building, NO.18., Xixi Road, North Hi-Tech
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Product Specification

P/N

DMSP 0913AJ-10-G

Keywords: Dynamic Speaker, 8 Ohms, 9.6x13.6x2.9mm, Leaf Spring Contact, GP Compliant

NO. SP_S_0913_AJ-00005

Issue: X1

Revision Date:

May 26,2009

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Date	Issue	Detail changes
May 26,2009	X1	Preliminary

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<div>1. Scope</div> <div>This document contains required environmental, electrical, acoustic, mechanical, package and reliability test requirements.</div> <div>2. Environmental Requirement</div> <div>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.</div> <div>3. Electrical Requirments</div> <table><tr><td>3.1.1 Rated Impedance</td><td>8±15% ohms @2kHz, 1Vrms input</td></tr><tr><td>3.1.2 DC Resistance</td><td>7.2±10% ohms</td></tr><tr><td>3.2 Rated Noise Power (in 1cc box)</td><td>0.3 Watts</td></tr><tr><td>3.3 Short Term Maximum Power (in 1cc box)</td><td>0.8 Watt</td></tr></table> <div>4. Acoustical Requirments</div> <table><tr><td>4.1 Sound Pressure Level in 1cc box</td><td>82±2dB @1Vrms/10cm at 2kHz</td></tr><tr><td>4.2 Bass Resonance Frequency</td><td></td></tr><tr><td>4.2.1 Resonance frequency in free air</td><td>520±120Hz</td></tr><tr><td>4.2.2 Resonance frequency in 1cc box</td><td>800±100Hz</td></tr><tr><td>4.3 Rated Frequency Range</td><td>500 - 10kHz</td></tr><tr><td>Frequency Response in 1cc box</td><td>See Figure 1</td></tr><tr><td>4.4 THD in 1cc box</td><td><15% 700Hz,<8% 1000Hz 1Vrms input <4% from 3K-10KHz, 1Vrms input</td></tr><tr><td>4.5 Rub & Buzz</td><td></td></tr><tr><td colspan="2">A sine sweep among rated frequency range at rated power(in 1cc box) will not result in any buzzing or extraneous sound.</td></tr></table> <div>5. Polarity Requirments</div> <table><tr><td>5.1 Polarity</td><td></td></tr><tr><td colspan="2">When a DC source s "+" polarity is attached to speaker's "+" polarity, "-" polarity is attached speaker's "-" polarity, the membrane will move forward.</td></tr><tr><td>5.2 Magnetic Polarity</td><td>Top of the magnet is the north pole.</td></tr></table>						3.1.1 Rated Impedance	8±15% ohms @2kHz, 1Vrms input	3.1.2 DC Resistance	7.2±10% ohms	3.2 Rated Noise Power (in 1cc box)	0.3 Watts	3.3 Short Term Maximum Power (in 1cc box)	0.8 Watt	4.1 Sound Pressure Level in 1cc box	82±2dB @1Vrms/10cm at 2kHz	4.2 Bass Resonance Frequency		4.2.1 Resonance frequency in free air	520±120Hz	4.2.2 Resonance frequency in 1cc box	800±100Hz	4.3 Rated Frequency Range	500 - 10kHz	Frequency Response in 1cc box	See Figure 1	4.4 THD in 1cc box	<15% 700Hz,<8% 1000Hz 1Vrms input <4% from 3K-10KHz, 1Vrms input	4.5 Rub & Buzz		A sine sweep among rated frequency range at rated power(in 1cc box) will not result in any buzzing or extraneous sound.		5.1 Polarity		When a DC source s "+" polarity is attached to speaker's "+" polarity, "-" polarity is attached speaker's "-" polarity, the membrane will move forward.		5.2 Magnetic Polarity	Top of the magnet is the north pole.
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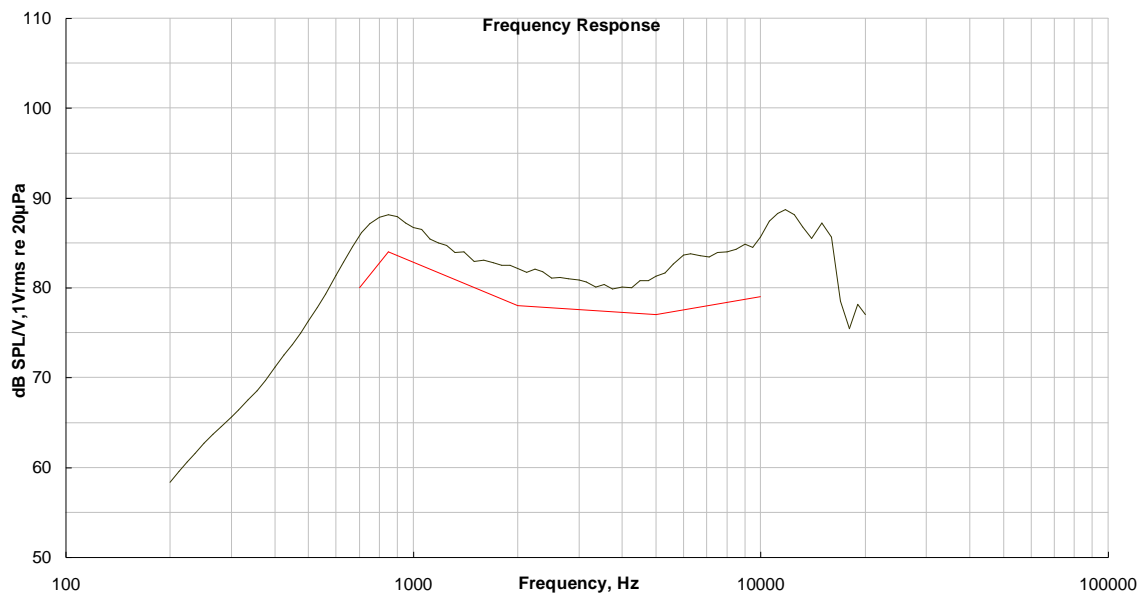
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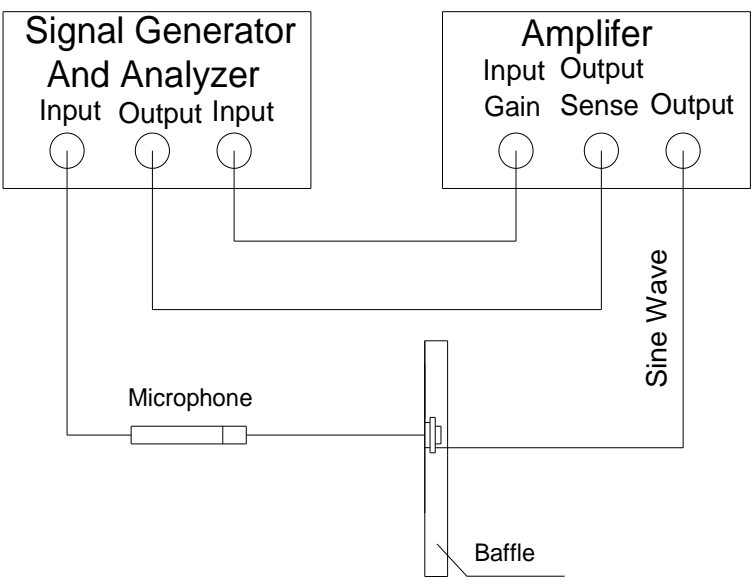
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FREQ	LOWER LIMIT	FREQ	UPPER LIMIT
700	80	-	-
850	84	-	-
2000	78	-	-
5000	77	-	-
10000	79	-	-

Figure 1 Typical FR curve in 1cc back volume



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<p>6. Test Climatic Condition</p> <p>Ambient temperature: 15 - 35 , preferably at 20</p> <p>Relative humidity: 25% to 75%</p> <p>Air pressure : 86kPa - 106kPa</p> <p>Refer to IEC 268-1</p> <p>7. Test Method</p> <p>7.1 SPL and Frequency Response Curve</p> <p>The loudspeaker shall be mounted in baffle of 80cm x 100cm , the measuring microphone shall be free-field microphone and placed 10cm from DUT, on axis. The drive power is 1Vrms, and swept sine-wave range is 200Hz to 20kHz with a R40 of test sequence.</p> <p>7.2 THD</p> <p>Tested per Section 7.1 and driven at 1Vrms , sweep at specified frequency range with R40 test sequence.</p>			
<p style="text-align: center;">Figure 2 Test setup</p>			
<p style="text-align: center;">Speaker Measurement Circuit</p>  <p>The diagram illustrates the Speaker Measurement Circuit. It features two main electronic blocks: a 'Signal Generator And Analyzer' and an 'Amplifier'. The 'Signal Generator And Analyzer' block has three terminals: 'Input', 'Output', and 'Input'. The 'Amplifier' block has four terminals: 'Input', 'Output', 'Gain', and 'Sense Output'. A 'Microphone' is connected to the 'Input' terminal of the 'Signal Generator And Analyzer' block. The 'Output' terminal of the 'Signal Generator And Analyzer' block is connected to the 'Input' terminal of the 'Amplifier' block. The 'Gain' terminal of the 'Amplifier' block is connected to the 'Output' terminal of the 'Signal Generator And Analyzer' block. The 'Sense Output' terminal of the 'Amplifier' block is connected to the 'Input' terminal of the 'Signal Generator And Analyzer' block. A 'Sine Wave' signal is applied to the 'Input' terminal of the 'Amplifier' block. The 'Amplifier' block is connected to a 'Baffle' structure, which is represented by a vertical rectangle. The 'Microphone' is positioned in front of the 'Baffle' structure.</p>			
<p style="text-align: right;">AAC Confidential Information</p>			

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8. General Requirements				
8.1 Operating Temperature Range		-20 to +70	without loss of function	
8.2 Storage Temperature Range		-40 to +85	without loss of function	
9. General Reliability				
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 be meet the requirements specified in section 3 & 4.				
9.1 Temperature Shock:				
-40 / +85 10 cycles. 30 minutes at each temperature. 20 - 30 seconds transition time.				
Refer to IEC 68-2-14				
9.2 Static Humidity Test :				
Soak samples to +85°C with 85% relative humidity for continuous period of 168 hours.				
Refer to IEC 68-2-67				
9.3 Drop Test :				
DUTs shall be mounted in a 100g fixture, drop samples 1.5m three times in each direction, total 18 times.				
9.4 Operating Life:				
DUTs shall be tested under each specified climatic condition (per section 6) for a continuous period of 100 hours at a rated noise power. Input shall be simulated program signal (IEC 268-1) with a peak to r.m.s ratio of 1.8 to 2.2 in rated frequency range.				
Refer to IEC 268-5.				
9.5 Short Term Maximum Power :				
DUTs shall be tested under each specified climatic condition (per section 6), Input shall be simulated program signal (per IEC 268-1) with crest factor of 1.8 to 2.2 in rated frequency response for a period of 1 second. And the signal will be 1sec. On,59 sec. off, total 60 cycles.				
Refer to IEC 268-5.				
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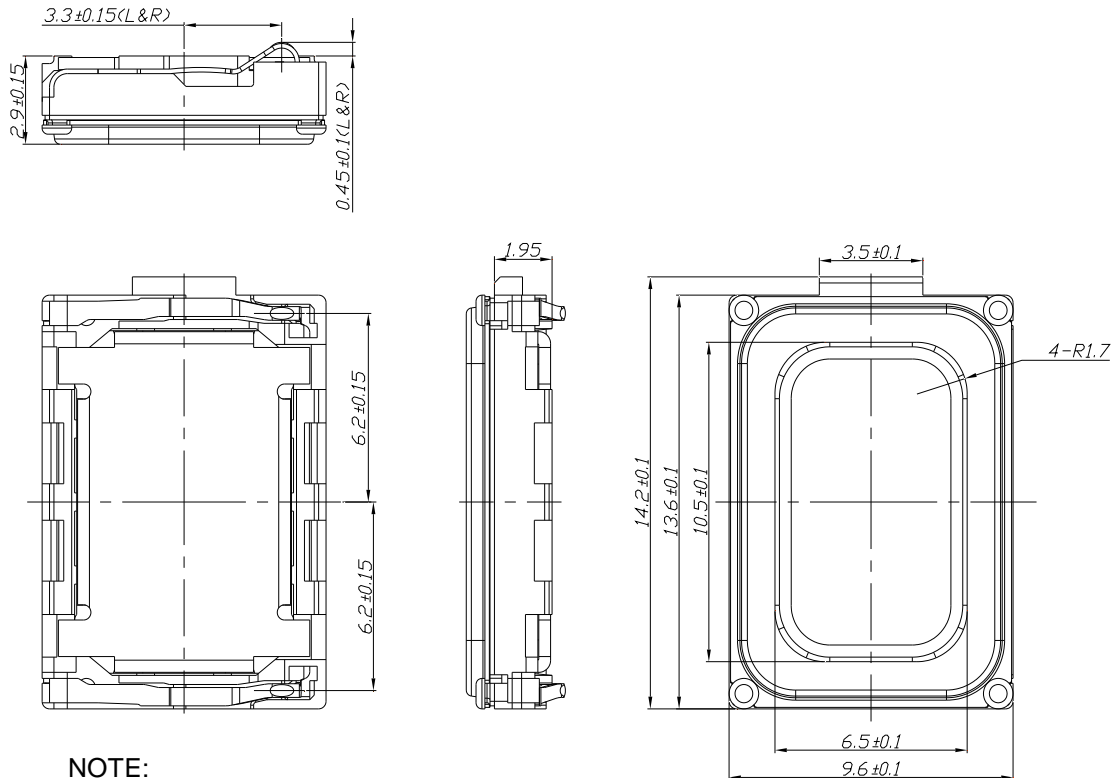
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10. Mechanical Layout and Dimensions

10.1 Mechanical Layout for Speaker Unit



NOTE:

GENERAL UNLESS OTHERWISE NOTED : ± 0.15 mm

Spring force inside working area : 0.25-1.2N

8	Dome plate	Adhesive+Foam+ Adhesive+PET	1		With black PET sheet
7	Leaf Springs	Stainless steel	2		
6	Magnet	NdFeB	1		
5	Cover	Stainless steel	1		
4	Voice Coil	Copper	1		
3	Yoke	Iron	1		
2	Diaphragm	Polymer	1		
1	Frame	PPA	1		
PART NO.	PART NAME	Material	Qty	TREATMENT	REMARK

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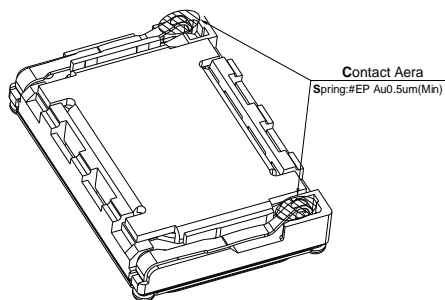
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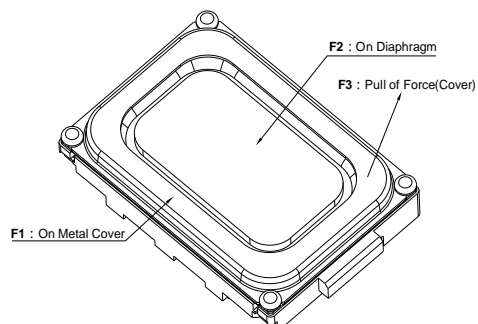
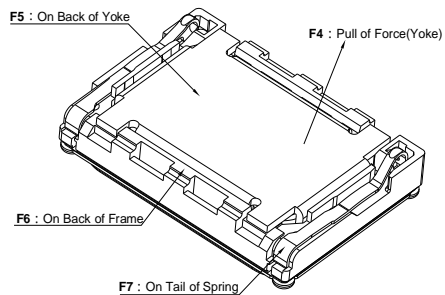
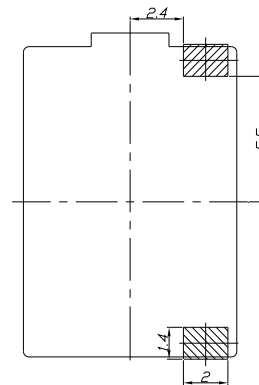
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10. 2 Permitted Force to Speaker




PWB Pad Layout
(Bottom View)



Max.permitted compression forces

No.	From	To	Maximum Permanent Force [N]	Maximum Handling Force [N]
1	F1	F5	10	20
2	F2		0	0
3	F5	F1	10	20
4	F6	F1	10	20
5	F3		5	10
6	F4		5	10
7	F7		0	0

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11. Weight1.1g±0.3g				
12. Package				
TBD				
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