

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

Product	WATERPROOF TYPE SPEAKER
Part No.	HDK-151108ZA-6 (RoHS)
Customer Approval	

Approved By	Checked By	Made By
王台平 JUN-08-2021	曹丽萍 JUN-08-2021	LILY JUN-08-2021

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

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EDITION:1.1

1. Specification
HDK-151108ZA-6 (RoHS)

ITEM		SPECIFICATIONS
01	Type	Dynamic speaker
02	Dimension	External diameter 15*11 mm
03	Rated Input Power	1.0W In 1cc Box
04	Max. Input Power	1.2W In 1cc Box
05	Impedance	8 ohm \pm 15% at 2KHz.
06	Resonance Frequency (Fo)	950Hz \pm 15% (in 1cc box)
07	Sensitivity (S.P.L.)	95 \pm 3db @2.83Vrms/10cm at 2kHz
08	Dustproof and Waterproof	IP68 (30 minutes 2 meters)
09	Frequency Range	Fo – 20KHz
10	Total Harmonics Distortion	Max 5% at FO-10 KHz, 1W.
11	Weight	1.5g \pm 20%g
12	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.
13	Operation Test	Must be normal at program source – 1.0W
14	Buzz, Rattle, etc.	Must be normal at sine wave 0.89Vrms (in free air) /2.83Vrms(in 1.0cc box) from 300~3400Hz
15	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.
16	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
17	Temperature	Operating temperature: -20℃ to +70℃ Storage temperature: -40℃ to +85℃

2-1. Test Condition

Standard

Temperature : 15 ~ 35°C

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

Basic

Temperature : 20±3°C

Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

2-2. Standard Test Fixture

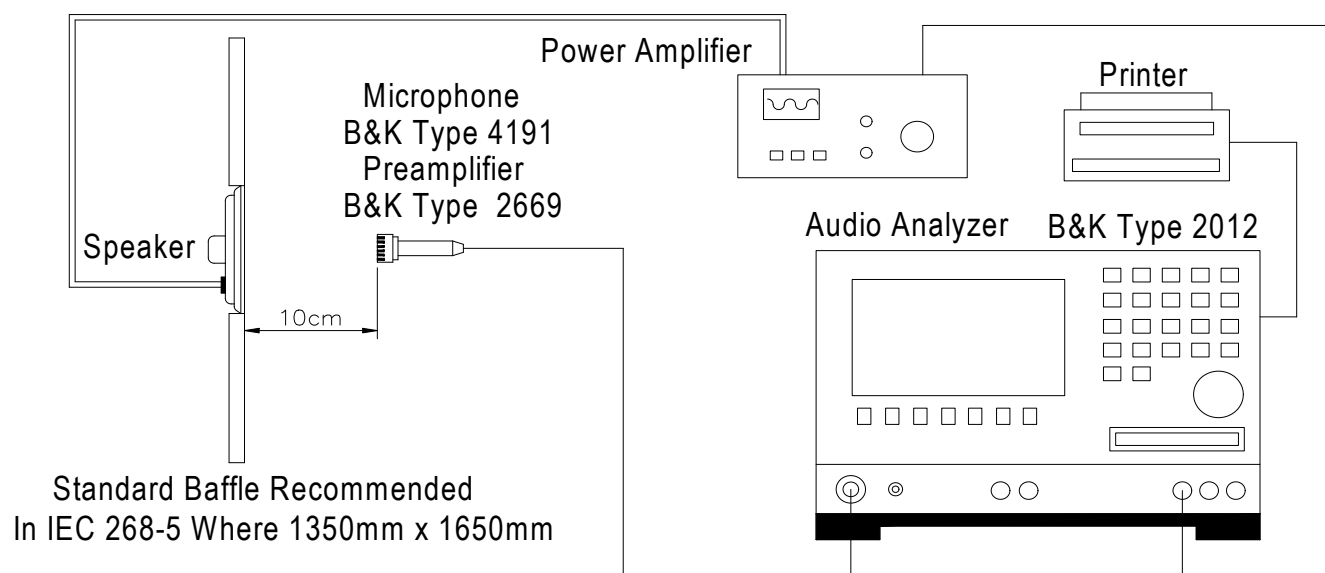
1. Input Power : 1.0W (2.83V)

2. Zero Level : -dB

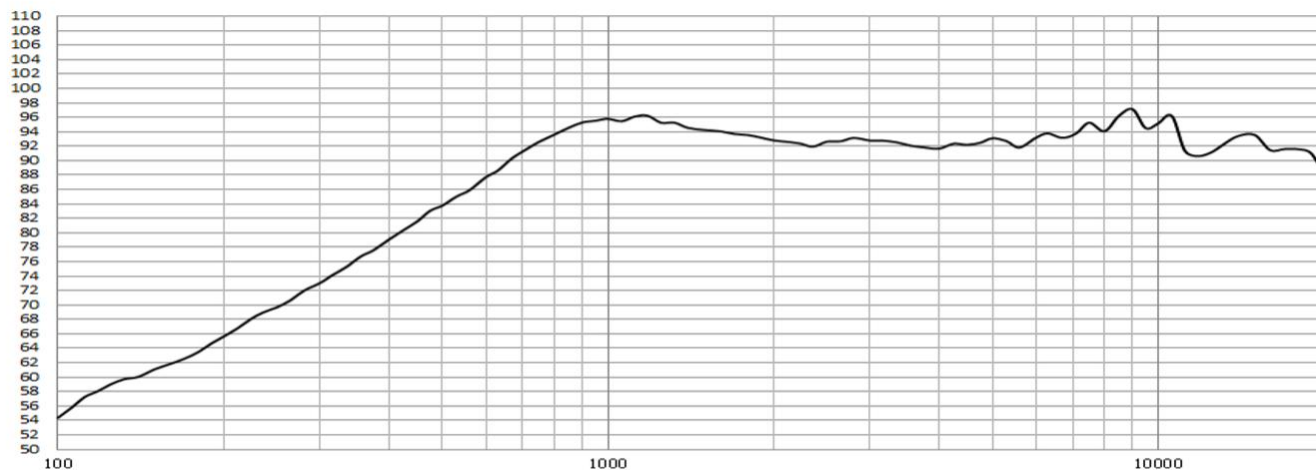
3. Mode : SPEAKER

4. potentiometer Range : 50dB

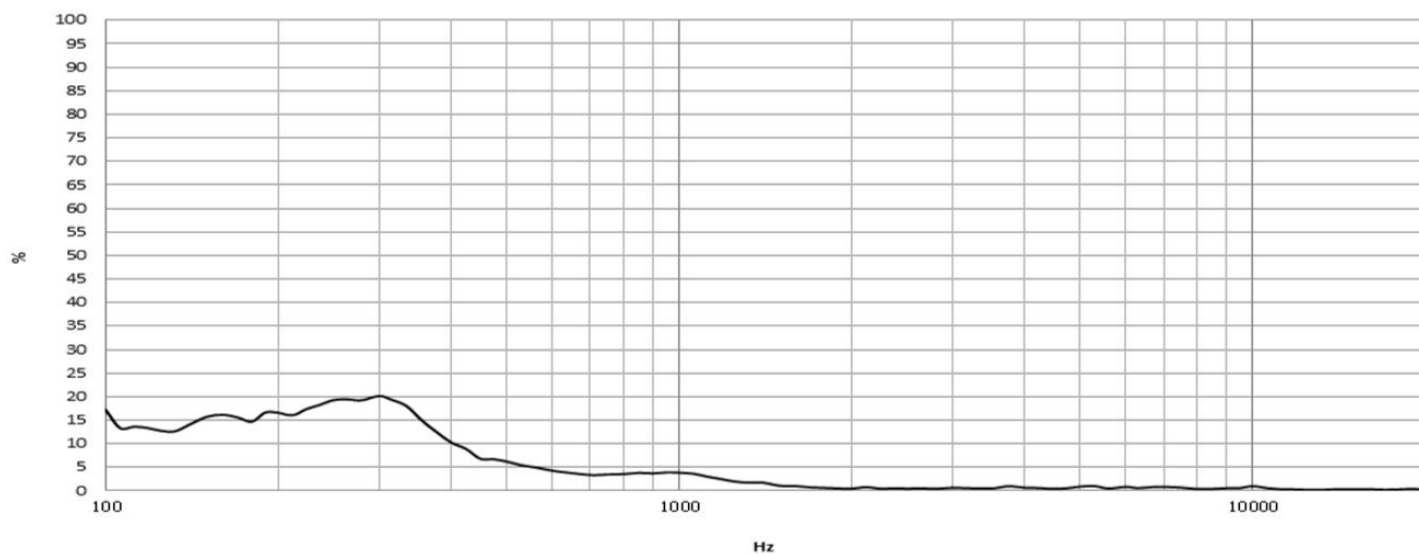
5. Sweep Time : 0.5sec



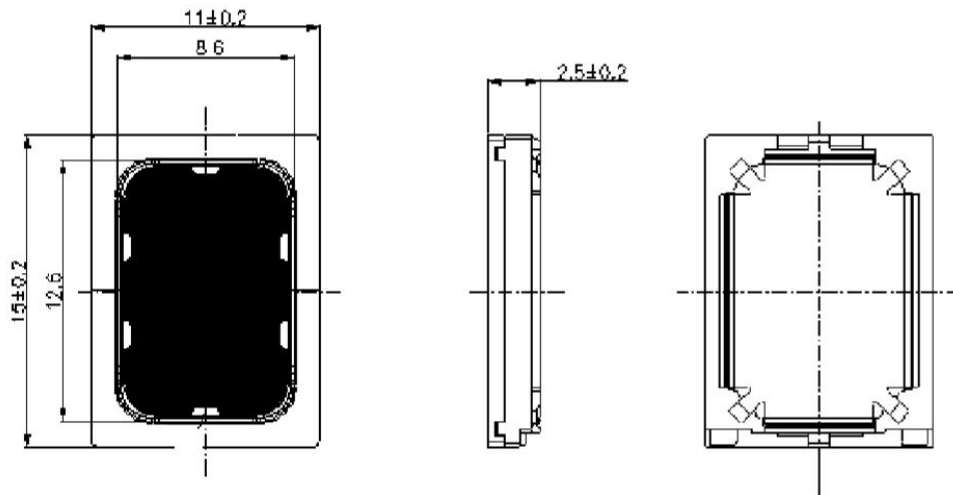
2.3 Frequency Response Curve



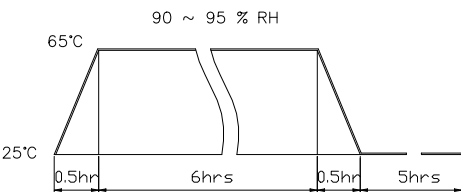
Total Harmonic Distortion Frequency Response



3.Dimension

REV NO.	REVISION NOTE	APPROVAL	DATE																																				
																																							
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>PART NO.</th> <th>PART NAME</th> <th>Q'TY</th> <th>MATERIAL</th> <th>REMARK</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>Front Cover</td> <td>1</td> <td>PPA</td> <td></td> </tr> <tr> <td>5</td> <td>Magnet</td> <td>1</td> <td>Nd-FeB</td> <td></td> </tr> <tr> <td>4</td> <td>Voice coil</td> <td>1</td> <td>COPPER WIRE</td> <td></td> </tr> <tr> <td>3</td> <td>Diaphragm</td> <td>1</td> <td>PEEK</td> <td></td> </tr> <tr> <td>2</td> <td>Yoke</td> <td>1</td> <td>SPCC</td> <td></td> </tr> <tr> <td>1</td> <td>Frame + terminal</td> <td>1</td> <td>PPA+SUS</td> <td></td> </tr> </tbody> </table> <p style="text-align: center; margin-top: 10px;">The material must be meet to ROHS</p>					PART NO.	PART NAME	Q'TY	MATERIAL	REMARK	6	Front Cover	1	PPA		5	Magnet	1	Nd-FeB		4	Voice coil	1	COPPER WIRE		3	Diaphragm	1	PEEK		2	Yoke	1	SPCC		1	Frame + terminal	1	PPA+SUS	
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TITLE: DYNAMIC SPEAKER		DRAWN: Lily 2021/06/08		SCALE: 2/1 SHEET: 1 OF 1																																			
PART NO. HDK-151108ZA-6		DESIGNED: R&D OF D.S.		UNITS: mm																																			
DWG NO. DSE-4749		CHECKED: Emily		TOLERANCE ± 0.2																																			
		APPROVAL: Eric		UNLESS OTHERWISE SPECIFIED:																																			
		MATERIAL: PBT		ONE PLACE DECIMAL ± *** TWO PLACE DECIMAL ± *** THREE PLACE DECIMAL ± ***																																			
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 10px;">DS</div> <div>DRAGONSTATE ELECTRONIC CORPORATION</div> </div>																																							

4. Reliability tests

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 85% 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: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, temperature: $+80^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 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 Pink 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.
12	Protection against liquids	Protected against 30 minutes of immersion under 1M pressure

5.Packing

