

**TEST REPORT**

Report No.: HHD0021A/2016  
Page: 1 of 8  
Date: February 9, 2017

ALLTEK MARINE ELECTRONICS CORP.  
14F-2, NO.237, SEC. 1, DATONG RD., XIZHI DISTRICT,  
NEW TAIPEI CITY, TAIWAN

The following merchandise was submitted and identified by the vendor as:

Product Description: GPS Antenna  
Style/ Item No.: GA-22/ No.1  
Manufacturer/ Vendor: Alltek Marine Electronics Corp.  
Country of Origin: Taiwan  
Quantity: Total 1 set  
Testing Period: Dec. 4, 2016 to Jan. 3, 2017

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required: (According to client's test specification, please see following sheets in detail.)  
1. Vibration Test

Test Results: -PLEASE SEE ATTACHED SHEETS-

Signed for and on behalf of  
SGS TAIWAN Ltd.



Winson Tseng  
Asst. Manager

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**TEST REPORT**

Report No.: HHD0021A/2016

Page: 2 of 8

**1. Vibration Test:****Test Equipment:**

Name	Brand	Model	Serial No.
Vibration Test System	King Design	EM-800F2K-50N120	RU104080389
Controller	Dactron	LASER	7110357
Control Accelerometer	PCB	353B34	139174
Accelerometer	PCB	356A24/NC	162319

**Lab Environmental Conditions:**Ambient temperature: (25 ± 3) °CAmbient humidity: (55 ± 20) % RH**Test Method/ Specification:****1. Resonance Search:**Test method: Refer to IEC 60945 Edition 4.0: 2002, section 8.7 Vibration Test and client requestsSample condition: OperatingWave form: SinusoidalFrequency: (2~100) Hz

Frequency (Hz)	Displacement: D <sub>p-p</sub> (mm)	Velocity (m/s)	Acceleration (m/s <sup>2</sup> )
2	2	-	-
13.2	2	-	7
100	-	-	7

Sweep Rate: 0.5 octaves/ minuteDirection: X, Y, Z axesTest duration: 1 sweep cycle

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**TEST REPORT**

Report No.: HHD0021A/2016

Page: 3 of 8

Test Method/ Specification--Continued:**2. Dwell Vibration test:**

Test method: Refer to IEC 6945 Edition 4.0: 2002 Dwell Vibration test and client requests

Sample condition: Operating

Frequency: Frequency of major peaks where the magnitude ratio  $\geq 5$  (if it appears) during Resonance Search in each direction. If no resonance frequency found, dwell at 30 Hz.

Acceleration: Same condition as specified in resonance search.

Dwell: 2 hours/ peak

Requirement: Functional check shall be carried out at least once during each endurance test period and once before the end of each endurance test period.

- Examine the appearance of specimen(s) by visual check and perform functional check during and after test.
- Functional check: Examine whether the GPS 3D fixed or not.

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**TEST REPORT**

Report No.: HHD0021A/2016

Page: 4 of 8

Specimen:

Style/ Item No.: GA-22/ No.1  
 Quantity: Total 1 set

Test Result:

## 1. Resonance Search Result:

Style/ Item No.	Test Item		Major Resonance Frequency Unit: Hz
	X axis	Y axis	
GA-22/ No.1	X axis	No resonance found	
	Y axis	No resonance found	
	Z axis	No resonance found	

## 2. Examination of product (Appearance check and functional check):

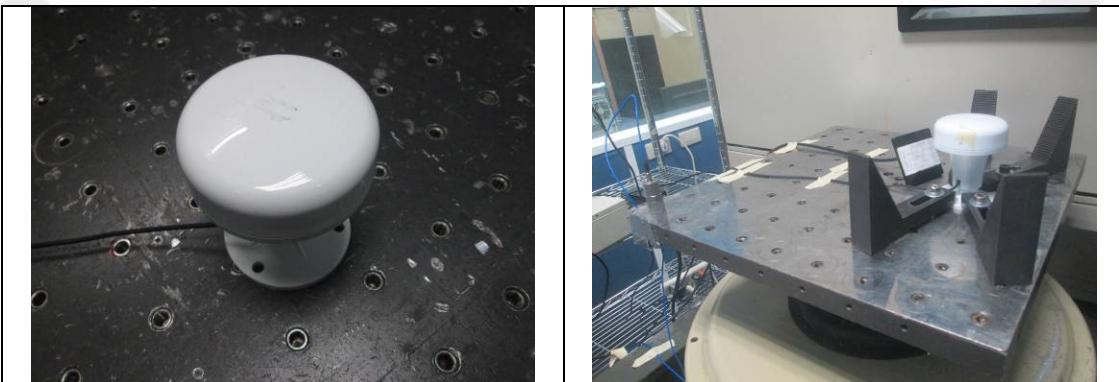
Style/ Item No.	Check Item	Appearance check (Visual check)	Functional Check
GA-22/ No.1		No visible damage	Normal

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## TEST REPORT

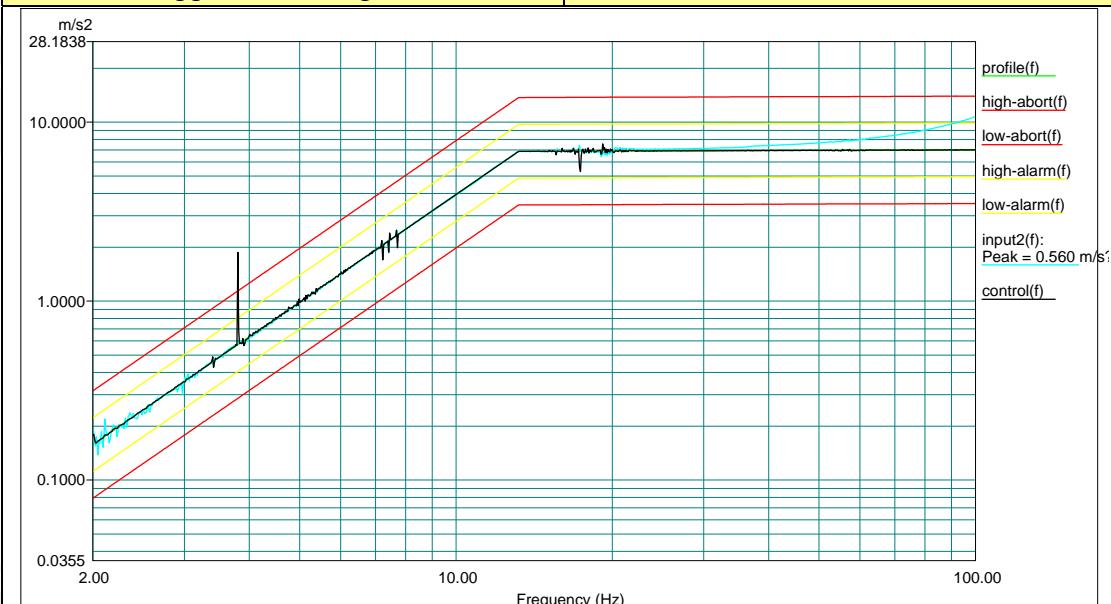
Report No.: HHD0021A/2016

Page: 5 of 8

**Test Photos:**

1. Appearance of specimen

2. Vibration Test



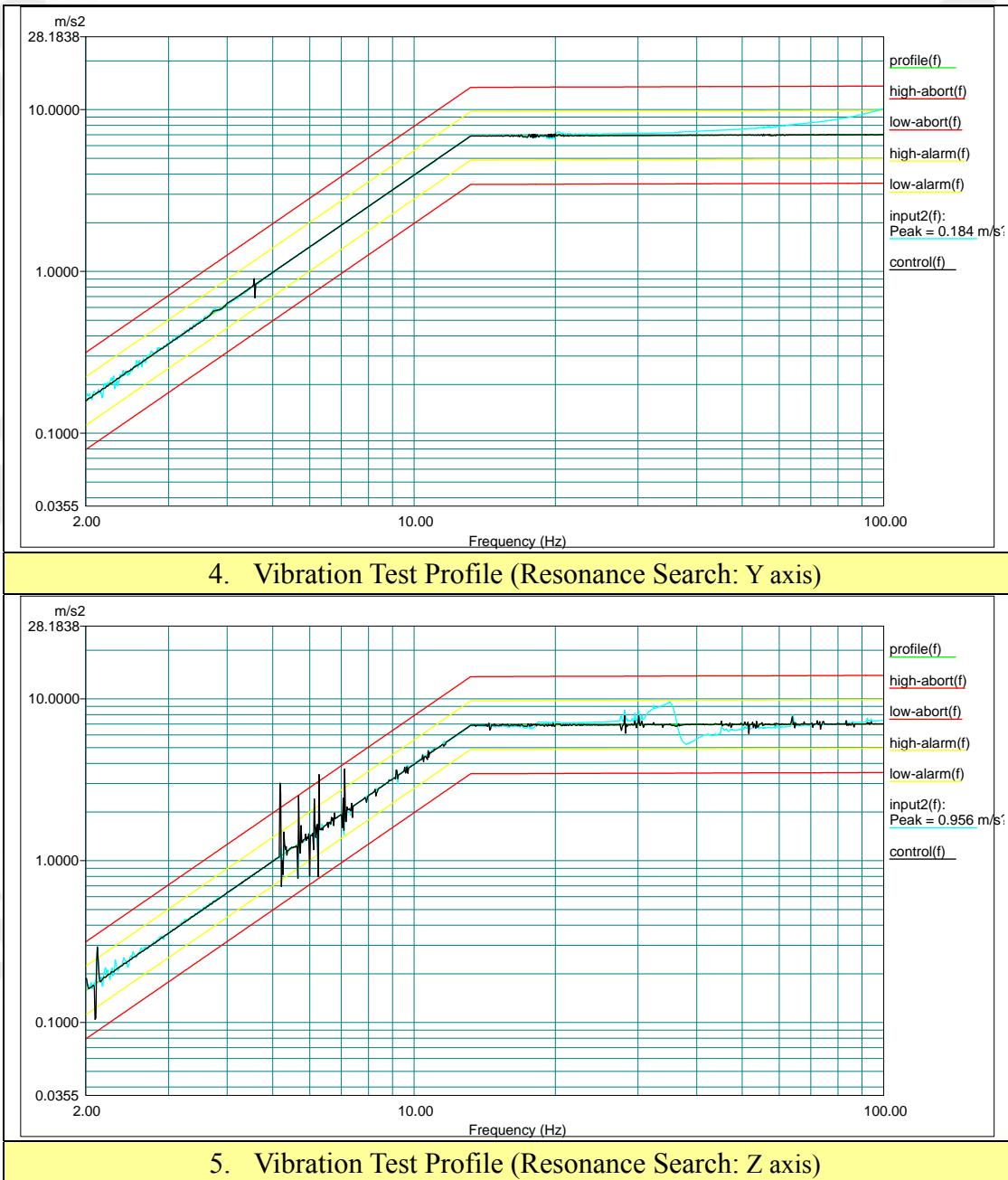
3. Vibration Test Profile (Resonance Search: X axis)

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**TEST REPORT**

Report No.: HHD0021A/2016

Page: 6 of 8

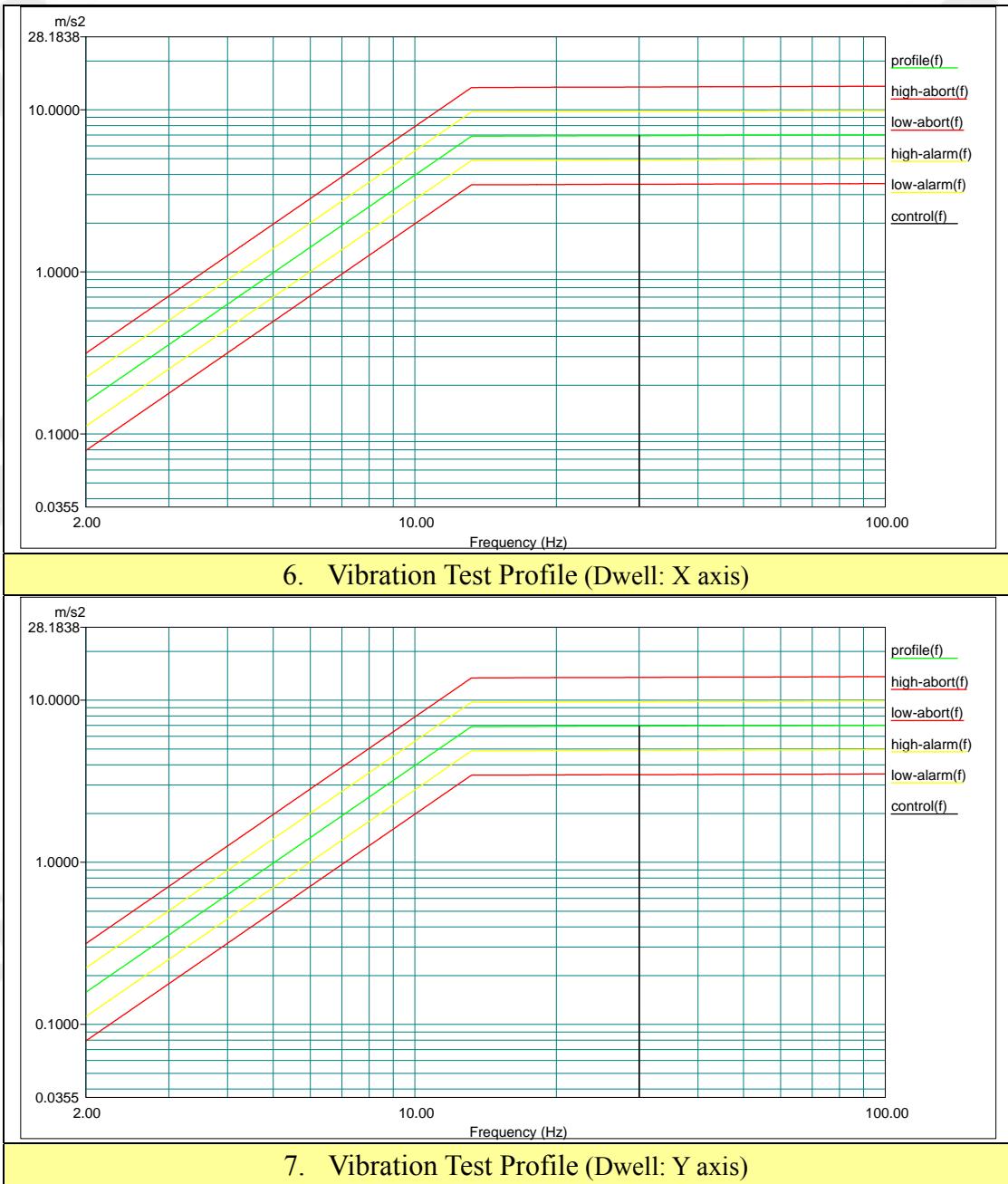
Test Photos--continued:

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**TEST REPORT**

Report No.: HHD0021A/2016

Page: 7 of 8

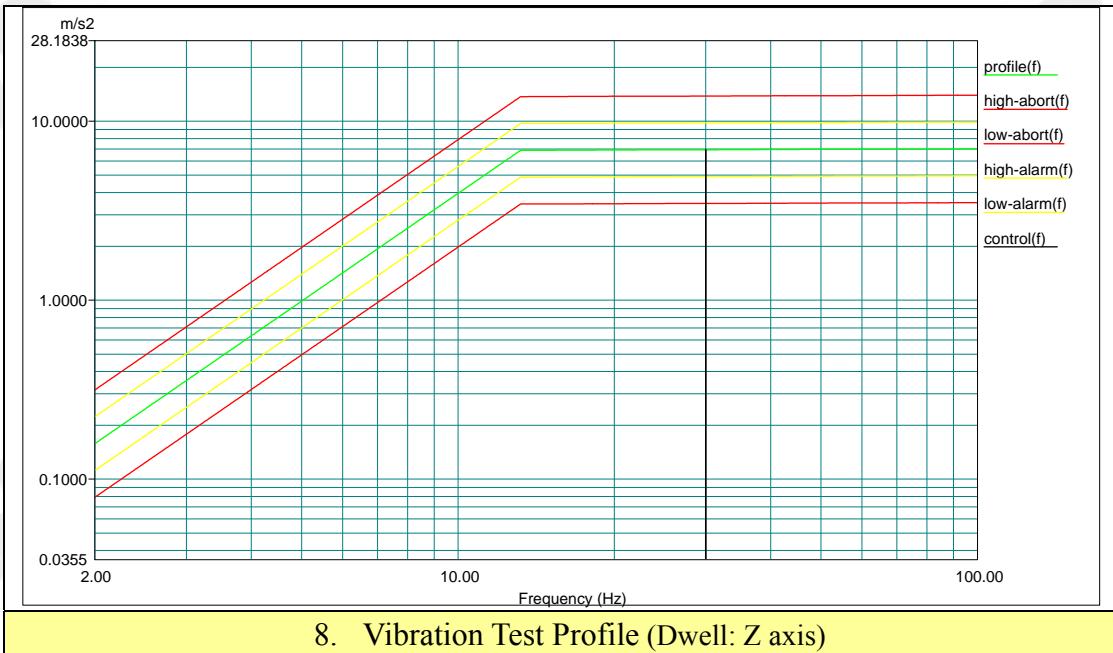
**Test Photos--continued:**

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**TEST REPORT**

Report No.: HHD0021A/2016

Page: 8 of 8

**Test Photos--continued:****— — —The End of Test Report — — —**

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