

Report No.: HHD0021A/2016

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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:

GPS Antenna Product Description:

Style/ Item No.: GA-22/ No.1

Alltek Marine Electronics Corp. Manufacturer/ Vendor:

Country of Origin: Taiwan

Total 1 set Quantity:

Dec. 4, 2016 to Jan. 3, 2017 **Testing Period:**

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

-PLEASE SEE ATTACHED SHEETS-Test Results:

> Signed for and on behalf of SGS TAIWAN Ltd.

Winson Tseng Asst. Manager

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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) °C Ambient humidity: $(55 \pm 20) \% RH$

Test Method/ Specification:

1. Resonance Search:

Test method: Refer to IEC 60945 Edition 4.0: 2002, section 8.7 Vibration Test and client

requests

Sample condition: Operating Wave form: Sinusoidal Frequency: $(2\sim100)$ Hz

Frequency	Displacement: D _{p-p}	Velocity	Acceleration
(Hz)	(mm)	(m/s)	(m/s^2)
2	2	-	
13.2	2		7
100	-		7

Sweep Rate: 0.5 octaves/ minute

Direction: X, Y, Z axes Test duration: 1 sweep cycle

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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 of major peaks where the magnitude ratio ≥ 5 (if it appears) Frequency:

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

Functional check shall be carried out at least once during each endurance Requirement:

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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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	No resonance found
GA-22/ No.1	Y axis	No resonance found
	Z axis	No resonance found

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

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

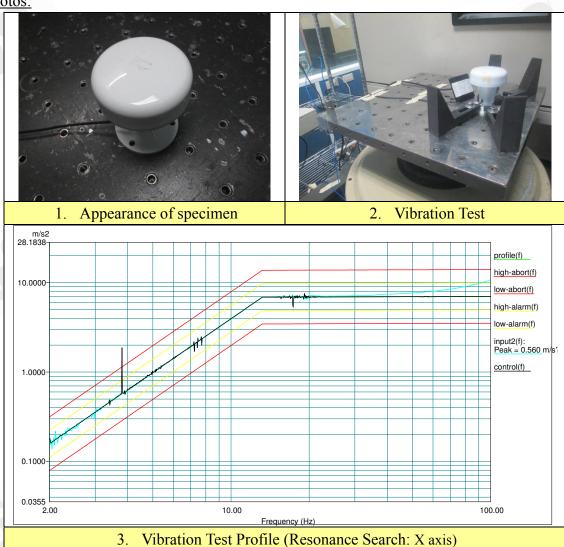
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Test Photos:



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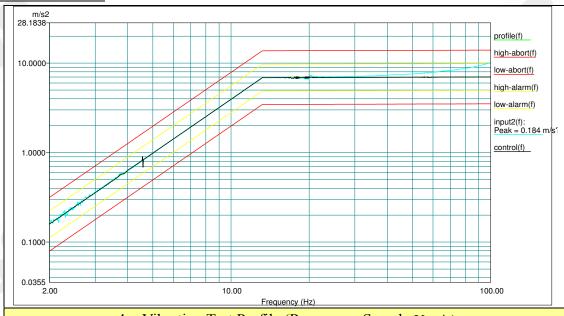
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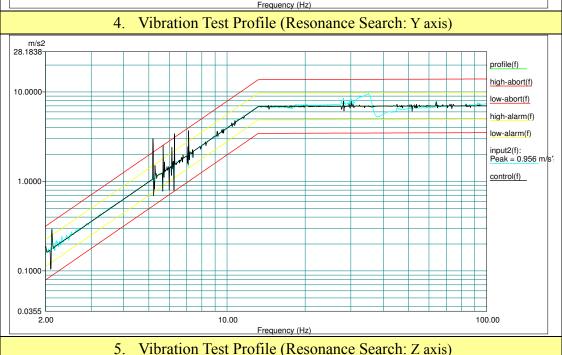


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Test Photos--continued:





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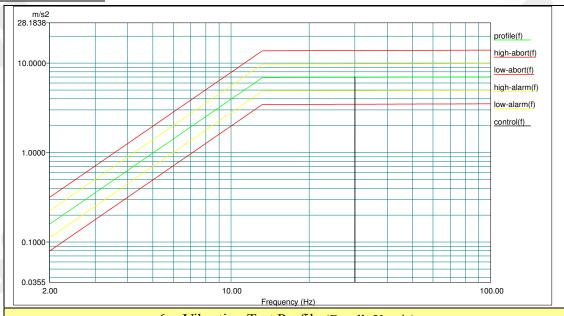
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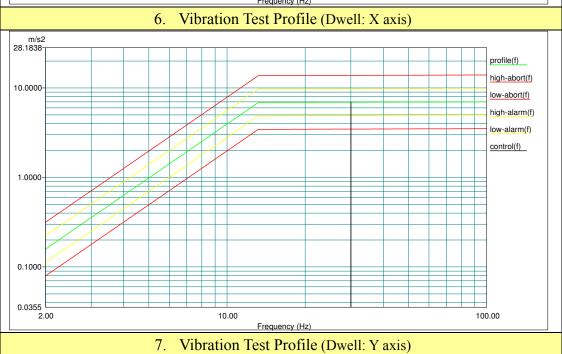


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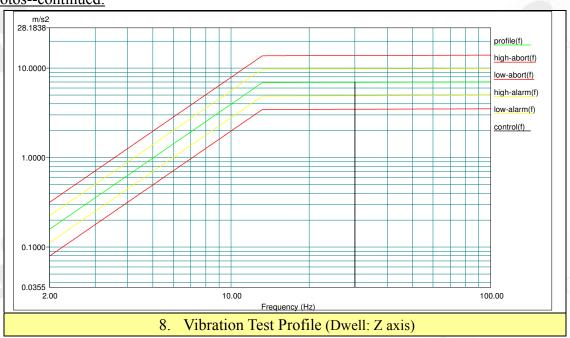
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-The End of Test Report -

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