



Reliability Laboratory

# TEST REPORT

Report No.: HCN0171/2009  
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Date: January 5, 2010

CHINMORE INDUSTRY CO., LTD.  
NO.11, ALLEY 78, LANE 379, JUNGHUA RD.,  
SHULIN CITY, TAIPEI HSIEN,  
TAIWAN, R.O.C.

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

Product Description: GPS Antenna  
Style/ Item No.: GPS01/ No. 1, No.2  
Quantity: Total 2 pieces  
Testing Period: Dec. 29, 2009 to Dec. 31, 2009

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.)

Test for Degrees of Protection Provided by Enclosures

IP Code	IP67
<b>First characteristic numeral</b>	Degrees of protection against access to hazardous parts and against solid foreign objects
<b>Second characteristic numeral</b>	Degrees of protection against ingress of water

Test Results: – PLEASE SEE ATTACHED SHEETS –

Terence Hsieh  
Manager - Operation

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## Test for Degrees of Protection Provided by Enclosures:

### Test Equipment:

Name	Brand	Model	Serial No.
1.0 mm Test Wire Probe	ED&D	TRP-02	B0050180
Digital Force Gauge	ALGOL	HF-50	HF-106764
Dust Tester	T-MACHINE	TMJ-9723C	T-23-050411
IPX7/IPX8 Immersion Tank	Self-made	SGS-ETR-0201	000001

### Lab Environmental Conditions:

Ambient temperature: 25±3°C

Relative humidity: 55±20%RH

### Test Method/ Specification:

Test method: According to IEC 60529 Edition 2.1: 2001-02--IP67

#### **1. Test for protection against access to hazardous parts:**

Test method: IEC 60529 Edition 2.1: 2001-02--IP6X

The test wire with 1.0 mm in diameter and 100 mm long is pushed against or inserted through any openings of the enclosure with the force specified in Table 6 in IEC 60529 Edition 2.1: 2001-02. Examine whether the test wire touches the hazardous live parts inside the enclosure or not.

Test force: 1 N±10 %

#### **2. Test for protection against solid foreign objects:**

Test method: IEC 60529 Edition 2.1: 2001-02--IP6X (Dust test)

Type of dust: Talcum powder

The amount of dust: 2 kg

The chamber size: 1 m<sup>3</sup>

The maximum depression: -20 mbar

Test duration: 8 hours

- Examine the protection against ingress of dust of specimen after this test.

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Test Method/ Specification--Continued:

**3. Test for protection against water:**

Test method: IEC 60529 Edition 2.1: 2001-02--IPX7

Test means: Completely immerse the specimen in water in its service position as specified by client.

Test condition: See below items marked “●”,

●	The lowest point of enclosures with a height less than 850 mm is located 1000 mm below the surface of the water
	The highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water

Test duration: 30 minutes

Test device: As shown in photo 6, 7

- Examine the protection against ingress water of specimen after this test.

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**Specimen:**

Style/ Item No.: GPS01/ No. 1, No.2

Quantity: total 2 pieces

**Test Result:**

A. Degrees of protection against access to hazardous parts and against solid foreign objects (IP6X)

A-1 Test for protection against access to hazardous parts (IP6X)

Test Result		
Check Item		Style/Item No.
		GPS01/ No. 1
1	Does the test wire penetrate any openings of the enclosure?	No
2	(followed check item 1) If the test wire penetrates any openings of the enclosure, does the test wire touch any hazardous live parts or any hazardous mechanical parts?	N/A
3	(followed check item 2) Does adequate clearance be kept between the test wire and hazardous live parts or hazardous mechanical parts?	N/A

Note 1: N/A means "Not Applicable".

Note 2: The check items in this test report for inspecting the degree of protection provided by enclosures are reference to the requirements specified in IEC 60529 Edition 2.1: 2001-02 and in accordance with the acceptance conditions specified by client.

A-2 Test for protection against solid foreign objects (IP6X)

Test Result		
Check Item		Style/Item No.
		GPS01/ No. 1
1	Does any dust deposit inside the enclosure at the end of the test?	No

Note 1: N/A means "Not Applicable".

Note 2: The check items in this test report for inspecting the degree of protection provided by enclosures are reference to the requirements specified in IEC 60529 Edition 2.1: 2001-02 and in accordance with the acceptance conditions specified by client.

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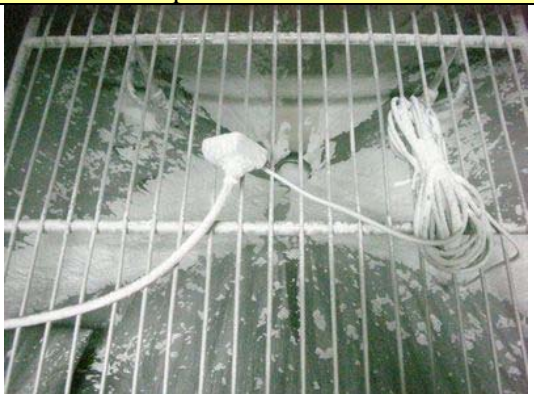
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Test Result--Continued:

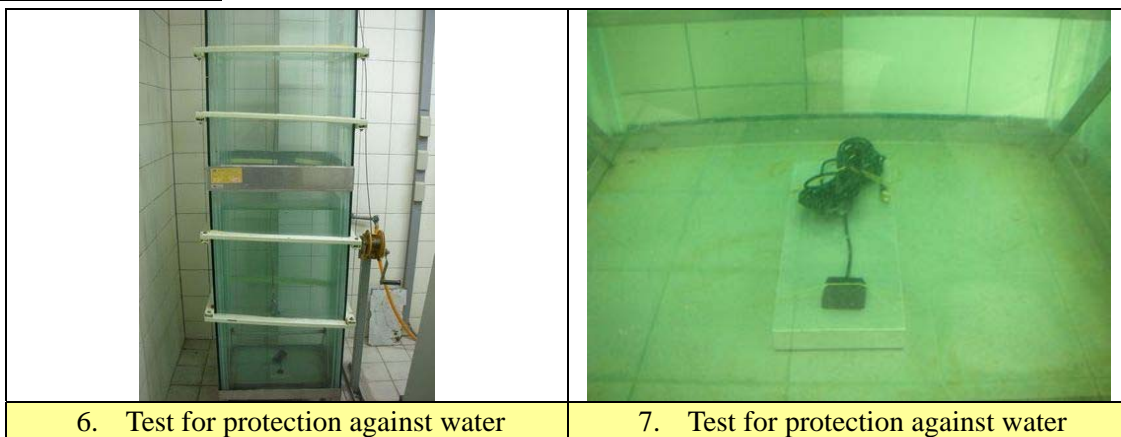
B. Degree of protection against ingress of water (IPX7)

Test Result		
Check Item		Style/ Item No.
		GPS01/ No. 2
1	Provide protection against ingress water?	Yes
2	(followed check item 1) If any water has entered, does the water accumulate near the cable end or live parts?	N/A
<p>Note 1: N/A means "Not Applicable".</p> <p>Note 2: The check items in this test report for inspecting the degree of protection provided by enclosures are reference to the requirements specified in IEC 60529 Edition 2.1: 2001-02 and in accordance with the acceptance conditions specified by client.</p>		

Test Photos:

	
<p>1. Appearance of specimen (GPS01)</p>	
	
<p>2. Test for protection against access to hazardous parts</p>	<p>3. Test for protection against access to hazardous parts</p>
	
<p>4. Test for protection against solid foreign objects (Dust test)</p>	<p>5. Test for protection against solid foreign objects (Dust test)</p>

Test Photos--Continued:



— — — **The End of Test Report** — — —