



Reliability Laboratory

## TEST REPORT

Report No.: HN80013/2011

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Date: August 30, 2011

GLACIALTECH INC.  
9FL, NO. 352, SEC. 2,  
JUNG SHAN RD., JUNG HE CITY,  
TAIPEI, TAIWAN

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

Product Description: LED Driver  
Style/ Item No.: GP-HS15P-24VZZZ/ No.1  
Quantity: Total 1 piece  
Testing Period: Aug. 23, 2011 to Aug. 26, 2011

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

Test Required: 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:

Conclusion
Submittals sample(s) comply with the requirement and acceptance conditions of IEC 60529 Edition 2.1: 2001-02 Degrees of Protection Provided by Enclosures -- IP67 The detailed description of test result, please see attached sheet(s).

Signed for and on behalf of  
SGS TAIWAN Ltd.

Terence Hsieh  
Department Manager

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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
Programmable DC Electronic Load	Chroma	63006	630060001756

Lab Environmental Conditions:Ambient temperature:  $25 \pm 3^{\circ}\text{C}$ Relative humidity:  $55 \pm 20\% \text{RH}$ 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  $\pm$  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 powderThe amount of dust: 2 kgThe chamber size: 1 m<sup>3</sup>The maximum depression: -20 mbarTest duration: 8 hours

- Examine the protection against ingress of dust of specimen(s) and perform functional check after this test.
- Functional check: Connect the specimen with rated power 110V<sub>AC</sub> then examine whether the DC voltage output function of specimen could be work normally or not.

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Test Method/ Specification--Continued:**3. Test for protection against water:**Test method: According to IEC 60529 Edition 2.1: 2001-02--IPX7Test 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 minutesTest device: As shown in photo 7, 8

- Examine the protection against ingress water of specimen(s) and perform functional check after this test.
- Functional check: Connect the specimen with rated power 110V<sub>AC</sub> then examine whether the DC voltage output function of specimen could be work normally or not.

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Specimen:Style/ Item No.: GP-HS15P-24VZZZ/ No.1Quantity: Total 1 pieceTest 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.
		GP-HS15P-24VZZZ/ 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.
		GP-HS15P-24VZZZ/ No.1
1	Does any dust deposit inside the enclosure?	No
2	Functional Check	Normal
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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## Test Result--Continued:

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

Test Result		
Check Item		Style/ Item No.
		GP-HS15P-24VZZZ/ No.1
1	Does any water enter the enclosure?	No
2	(followed check item 1) If any water has entered, does the water accumulate near the cable end or live parts?	N/A
2.1	(followed check item 2) Does the water be sufficient to interfere with the correct operation of the equipment or impair safety?	N/A
2.2	(followed check item 2.1) Does the water deposit on insulation parts where it could lead to tracking along the creepage distances?	N/A
2.3	(followed check item 2.2) Does the water reach live parts or windings not designed to operate when wet?	N/A
3	Functional Check	Normal

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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### Test Photos:

	
1. Appearance of specimen: GP-HS15P-24VZZZ	2. Functional Check
	
3. Test for protection against access to hazardous parts	4. Test for protection against access to hazardous parts
	
5. Test for protection against solid foreign objects (Dust test)	6. Test for protection against solid foreign objects (Dust test)


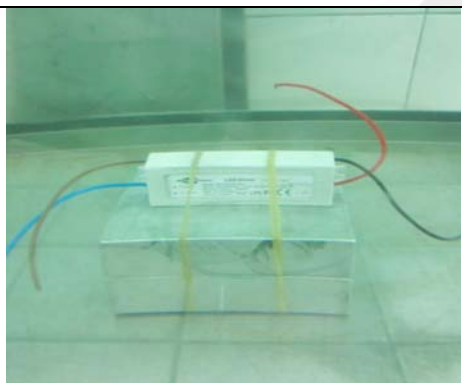
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### Test Photos--Continued:

	
7. Test for protection against water	8. Test for protection against water

— — — The End of Test Report — — —

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