

TEST REPORT

Report No.: HCO0051/2020
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 Date: October 12, 2020

IO-POWER TECHNOLOGY CO., LTD.
 1F., NO. 100, JINZHU RD., NORTH DIST.,
 HSINCHU CITY, TAIWAN

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

Product Description: Outdoor aluminum alloy die-casting under cover , matched with 5.8GHz 18-20dBi Dual Polarization MIMO panel antenna upper cover to form all in one integrated antenna housing

Style/ Item No.: MBAP-RF1-PANFO-5M2001213 / No.1, No.2

Manufacturer/Vendor: IO-Power Technology Co., Ltd.

Country of Origin: Taiwan

Quantity: Total 2 pieces

Testing Period: Oct. 5, 2020 to Oct. 7, 2020

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 (IEC 60529 Edition 2.2: 2013)

IP Code	IP69
First characteristic numeral	Degrees of protection against access to hazardous parts and against solid foreign objects
Second characteristic numeral	Degrees of protection against ingress of water

Test Results:

Conclusion
Submittals sample(s) comply with the requirement and acceptance conditions of IEC 60529 Edition 2.2: 2013 Degrees of Protection Provided by Enclosures--IP69 The detailed description of test result, please see attached sheet(s).

Signed for and on behalf of
SGS TAIWAN Ltd.

Ivan Wang

Ivan Wang
 Team Leader

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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	L12470907
Digital Force Gauge	ALGOL	HF-50	HF-106764
Dust Tester	T-MACHINE	TMJ-9723S	T-23-110708
Water Splash Test Chamber	T-MACHINE	TMJ-9710A	T-10-120304

Lab Environmental Conditions:

Ambient temperature: (15 ~ 35)°C

Ambient humidity: (25 ~ 75) % RH

Test Location:

No.33, Wu Chyuan Road, New Taipei Industrial Park, WuKu District, New Taipei City, Taiwan

Test Method/ Specification:

Test method: IEC 60529 Edition 2.2: 2013--IP69

1. Test for protection against access to hazardous parts:

Test method: 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 designated force. 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: Dust test

Sample condition: Non-Operating

Category of enclosure : Category 1

Type of dust: Talcum powder

The amount of dust: 2 kg per cubic meter of the chamber volume

The maximum depression: < 20 mbar

Test duration: 8 hours

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

Test Method/ Specification--Continued:

3. Test for protection against water:

Sample condition:	<u>Non-Operating</u>
Water temperature:	<u>(80 ± 5) °C</u>
Water pressure:	<u>(8 ~ 10) MPa</u>
Table rotation speed:	<u>(5 ± 1) rpm</u>
Water flow rate:	<u>(14 ~ 16) L/min</u>
Reference point:	<u>0°, 30°, 60°, 90°</u>
Test duration:	<u>30 seconds/ position</u>

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

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Specimen:

Style/ Item No.: MBAP-RF1-PANFO-5M2001213 / 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.
	MBAP-RF1-PANFO-5M2001213 / 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 2.2: 2013 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.
	MBAP-RF1-PANFO-5M2001213/ No.1
1	Does any dust deposit inside the enclosure? 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 2.2: 2013 and in accordance with the acceptance conditions specified by client.	

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Test Result--Continued:



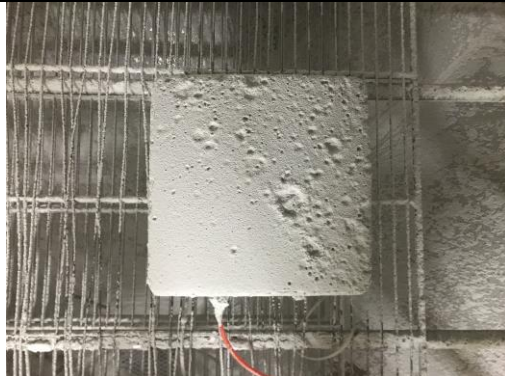

B. Degree of protection against ingress of water (IPX9)

Test Result		Style/ Item No.
Check Item		MBAP-RF1-PANFO-5M2001213/ No.2
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

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 2.2: 2013 and in accordance with the acceptance conditions specified by client.

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Test Photos:

	
<p>1. Appearance of specimen</p>	<p>2. Appearance of specimen</p>
	
<p>3. Test for protection against solid foreign objects (Dust test)</p>	<p>4. Test for protection against water</p>

— — — The End of Test Report — — —

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