

检测报告

TEST REPORT

产品名称

高压储能模块

Product name

High Voltage Energy Storage Module

型号 Model

MID-HV5

委托单位

/

Commissioned by

Midcosta s.r.o.

检测类别

委托测试

Detection category

Commission Test

Shenzhen Tiansu Calibration and Testing Co.,Ltd

深圳天溯计量检测股份有限公司

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检测报告
TEST REPORT

委托单位.....	/
Commissioned by.....	Midcosta s.r.o.
委托单位地址.....	/
Commissioned address.....	Priemyselná 8E,91701 Trnava, Slovakia
制造单位.....	深圳市泽塔电源系统有限公司
Manufacturer by.....	Shenzhen zetara power system Co.,LTD
制造单位地址.....	深圳市龙岗区园山街道安良社区油田路28号启梦智慧园A1栋301
Manufacturer address.....	Room 301, Building A1, No.28, Oilfield Road, Anliang Community, Yuanshan Street, Longgang District, Shenzhen,China
检测实验室.....	深圳天溯计量检测股份有限公司
Testing laboratory.....	Shenzhen Tiansu Calibration and Testing Co.,Ltd.
实验室地址.....	深圳市龙岗区宝龙街道宝龙社区锦龙大道2号1栋1层-6层、4栋1层-5层、2栋1层-2层
Laboratory address.....	1st to 6th floors of Building1, 1st to 5th floors of Building 4, and 1st to 2nd floors of Building 2, No. 2 Jinlong Avenue, Baolong Community, Baolong Street, Longgang District, Shenzhen.
测试依据.....	IEC 60529-2013
Test standard.....	IEC 60529-2013

样品信息 Sample information

产品名称 Product name.....	高压储能模块 High Voltage Energy Storage Module
型号规格 Model.....	MID-HV5
尺寸大小 Dimension.....	(674*420*170)mm
电压范围 Voltage range.....	350~435V
额定容量 Rated Capacity.....	100Ah
样品数量 Product Quantity.....	1PCS

测试结果判定

Test result Conclusion:

- 不适用.....	N/A
- 通过.....	Pass
- 失败.....	Fail

测试开始日期

Test Start Date..... Dec 5, 2024

测试完成日期

Test Completion Date..... Dec 6, 2024

结论 Conclusion:

由Midcosta s.r.o.提供的样品, 进行IEC 60529-2013中IP6X和IPX5的测试, 测试结果符合IEC 60529-2013中13.4和14.2.5的相关要求。

The sample provided by Midcosta s.r.o. was tested for IP6X and IPX5 in accordance with IEC 60529-2013, and the test results met the relevant requirements specified in sections 13.4 and 14.2.5 of IEC 60529-2013.

报告专用章:

Report Seal:

生效日期: 2024 年 12 月 17 日

Date of issue: Dec 17, 2024

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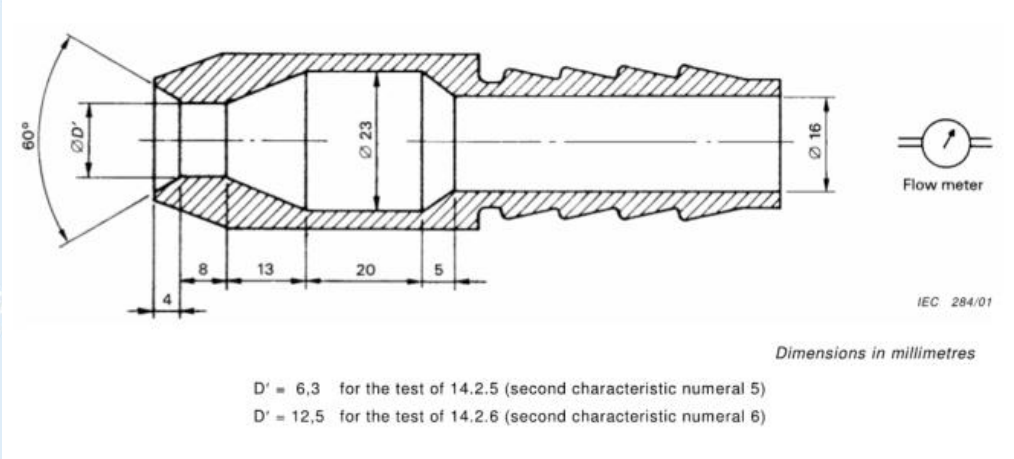
1. 测试信息 Test Information

序号 No.	测试项目 Test item	样品编号 Sample No.	测试结果描述 Test result description	符合性判定 Conclusion
1	IPX5	#1	外壳内部没有进水 No water enter the sample	P
2	IP6X	#1	外壳内部没有灰尘沉积 There is no dust inside the sample	P

2. 测试设备清单 Test Equipment List

序号 No.	设备编号 Equipment No.	设备名称 Equipment name	设备型号 Equipment model	校准日期 Calibration date	校准有效期 Calibration validity
1	TS-SB-27849	IPX1-X7防水等级试验机 IPX1-X7waterproof testing machine	GT1310	2024/1/16	2025/1/15
2	TS-SB-27848	沙尘试验箱 Sand and Dust Test Chamber	GB1321	2023/9/28	2024/9/27

3. 测试项目 Test Item

测试项目 Test item	14.2.5 IPX5 Test	P
测试方法 Test condition	<p>用图 1 所示标准试验喷嘴在所有可能的方向向被试外壳喷水。 The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in figure 1.</p> <p>要求的试验条件如下： The conditions to be observed are as follows:</p> <ul style="list-style-type: none"> a) 喷嘴内径：6.3mm； - internal diameter of the nozzle: 6,3 mm; b) 水流量：(12.5±0.625)L/min； - delivery rate: 12,5 l/min ± 5 %; c) 水压：按规定水流量调节； - water pressure: to be adjusted to achieve the specified delivery rate; d) 主水流的核心部分：离喷嘴 2.5m 处直径约为 40mm 的圆； - core of the substantial stream: circle of approximately 40 mm diameter at 2,5 m distance from nozzle; e) 外壳表面每平方米喷水时间：约 1min； - test duration per square metre of enclosure surface area likely to be sprayed:1 min; f) 试验时间：最少 3min； - minimum test duration:3 min; g) 喷嘴至外壳表面距离：2.5 m~3m。 - distance from nozzle to enclosure surface: between 2,5 m and 3 m. <p style="text-align: center;">图 1/Figure 1</p>  <p style="text-align: center;">Dimensions in millimetres</p> <p style="text-align: center;">D' = 6,3 for the test of 14.2.5 (second characteristic numeral 5) D' = 12,5 for the test of 14.2.6 (second characteristic numeral 6)</p>	

判定标准
Acceptance
criteria

检查外壳是否进水，如果进水，应不足以影响设备的正常操作或破坏安全性；水不积聚在可能导致沿爬电距离引起漏电起痕的绝缘部件上；水不进入带电部件，或进入不允许在潮湿状态下运行的绕组；水不积聚在电缆头附近或进入电缆。

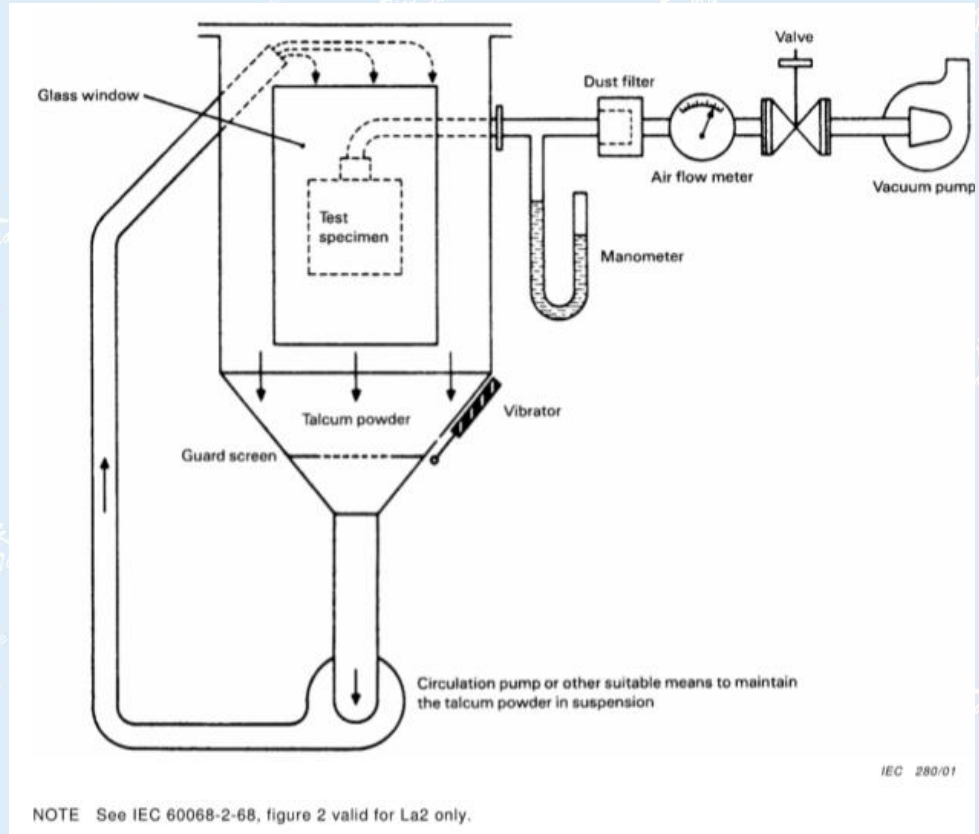
The enclosure shall be inspected for ingress of water. In general, if any water has entered, it shall not:

- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

测试项目 Test item	13.4 IP6X Test	P
测试方法 Test condition	<p>试验应在防尘箱中进行，其基本原理如图 2 所示。密试验箱内的粉末循环泵可用能使滑石粉悬浮的其他方法代替。滑石粉应用金属方孔筛滤过。金属丝直径 50μm，筛孔尺寸为 75μm。滑石粉用量为每立方米试验箱容积 2kg，使用次数不得超过 20 次。</p> <p>The test is made using a dust chamber incorporating the basic principles shown in figure 1 whereby the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber. The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is 50um and the nominal width of a gap between wires 75um. The amount of talcum powder to be used is 2 kg per cubic metre of the test chamber volume. It shall not have been used for more than 20 tests.</p> <p>对于第一种类型的外壳： Category 1 enclosures:</p> <p>被试外壳放在试验箱内，壳内压力用真空泵保持低于大气压。抽气孔应连到专为试验设置的孔上。如果专门的产品标准没有规定，这个孔应设在紧易损部件的位置。</p> <p>The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump. The suction connection shall be made to a hole specially provided for this test. If not otherwise specified in the relevant product standard, this hole shall be in the vicinity of the vulnerable parts.</p> <p>如果不能设置专门的孔，抽气管应连在电缆入口上。如还有其他的孔(如更多的电缆人口或泄水孔)，这些孔应保持正常使用状态。</p> <p>If it is impracticable to make a special hole, the suction connection shall be made to the cable inlet hole. If there are other holes (for example, more cable inlet holes or drain-holes) these shall be treated as intended for normal use on site.</p> <p>试验目的是利用压差把箱内空气抽入被试设备内，抽气量为 80 倍被试外壳容积，抽气速度每小时不超过 60 倍外壳容积。任何情况下压差不得超过 2kPa(20mbar)，如图 2 中压力表所显示。</p> <p>The object of the test is to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour. In no event shall the depression exceed 2 kPa (20 mbar) on the manometer shown in figure 2.</p> <p>如抽气速度为每小时 40~60 倍外壳容积，则试验进行 2h。</p> <p>If an extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2 h.</p> <p>如最大压差为 2kPa(20mbar)，而抽气速度低于每小时 40 倍外壳容积，应续抽满 80 倍容积或抽满 8h 后，试验才可停止。</p> <p>If, with a maximum depression of 2 kPa (20 mbar), the extraction rate is less than</p>	

40 volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8 h has elapsed.

图 2/Figure 2

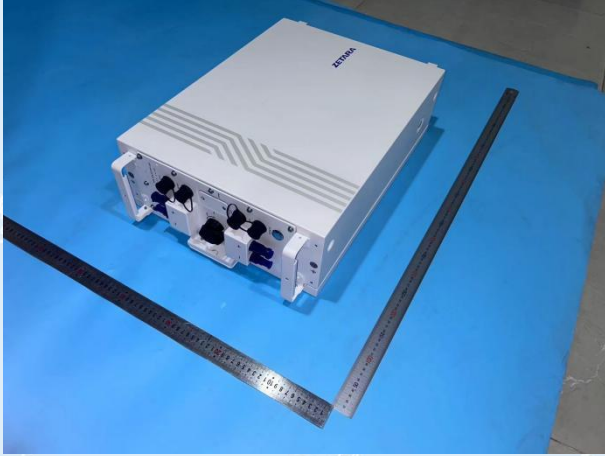


判定标准
Acceptance
criteria

试验后壳内无明显的灰尘沉积,即认为试验合格。
The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.

4. 测试照片 Test Photos:

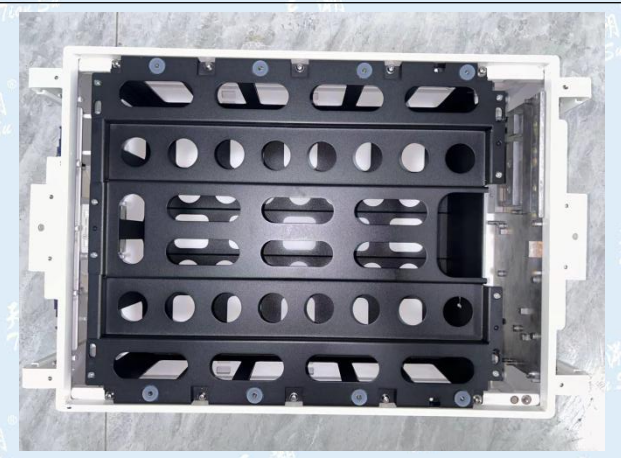
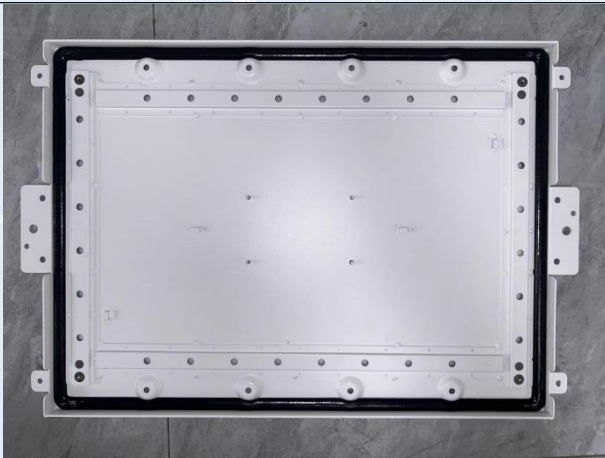
IPX5 测试照片 test photos



测试前 Before the test



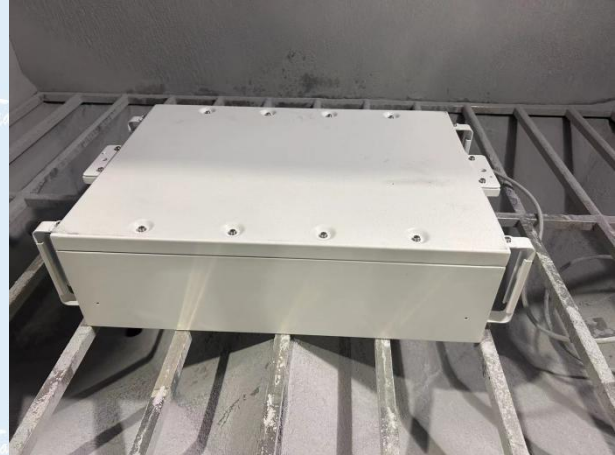
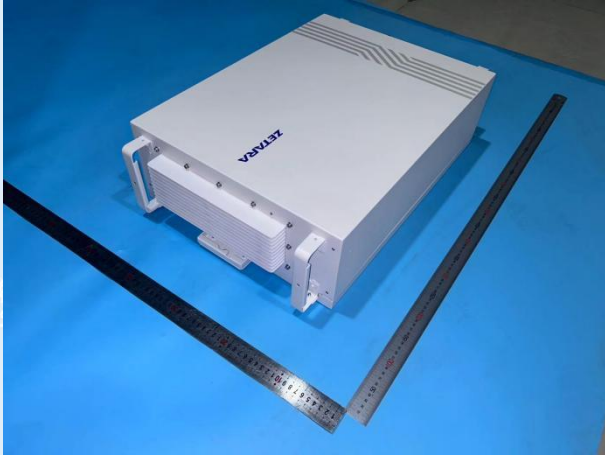
测试中 In the test



测试后 After the test

测试结果 Test result	外壳内部没有进水 No water enter the sample
结论 Conclusion	Pass

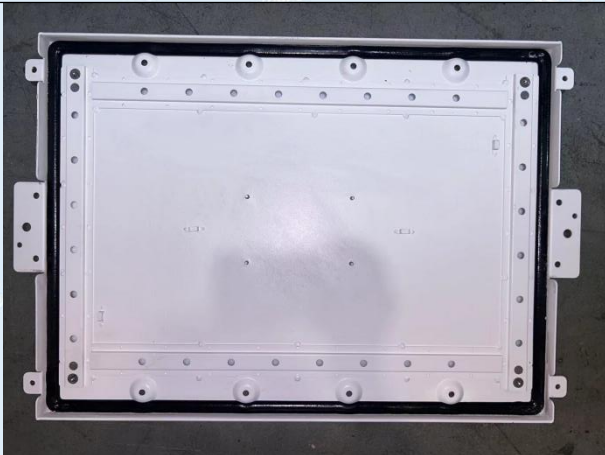
IP6X 测试照片 test photos



测试前 Before the test



测试中 In the test



测试后 After the test

测试结果 Test result

外壳内部没有灰尘沉积 There is no dust inside the sample

结论 Conclusion

Pass

声 明

STATEMENT

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