



UN38.3 TEST REPORT

WTX24D06142750B001 报告编号/ Reference No.... :

深圳市正浩智造科技有限公司

委托方/ Applicant..... EcoFlow Innovation Itd.

深圳市宝安区福海街道展城社区福园一路润恒工业厂区 1#厂房

地址/ Address..... RM 101, Plant #1, Runheng Industrial Zone, Fuyuanyi Road,

Zhancheng Community, Fuhai Street, Bao'an District, Shenzhen City,

Guangdong Province, P.R.China

深圳市正浩智造科技有限公司 制造商/ Manufacturer......

EcoFlow Innovation Itd.

深圳市宝安区福海街道展城社区福园一路润恒工业厂区 1#厂房

地址/ Address..... RM 101, Plant #1, Runheng Industrial Zone, Fuyuanyi Road,

Zhancheng Community, Fuhai Street, Bao'an District, Shenzhen City,

Guangdong Province, P.R.China

珠海鹏远储能科技有限公司 工厂/ Factory.....

Zhuhai Pengyuan Energy Storage Technology Co., Ltd

珠海市金湾区红旗镇创兴中路 22 号厂房(一)、厂房(二)

地址/ Address..... Factory Building (1), Factory Building (2), No.22 Chuangxing Middle

Road, Hongqi Town, Jinwan District, Zhuhai

移动储能站 产品名称/ Product Name...

Portable Power Station

型号/ Model No. EF-DL-H10-4

联合国《试验和标准手册》第7版修订1,第38.3章 测试规范/ Test

Section 38.3 Recommendations-Manual of Tests and Criteria Seventh specification.....

revised edition Amendment 1

ST/SG/AC.10/11/Rev.7/Amend1 Section 38.3

收样日期/ Date of Receipt

sample.....

2024-06-25

检测日期/ Date of Test......

2024-07-01 to 2024-07-12

签发日期/ Date of Issue....

2024-07-25

所提供的样品符合以上测试标准

检测结果/ Test Result.......

The submitted samples comply with the above standards

报告制作 Prepared By:

深圳沃特检验集团有限公司 Waltek Testing Group Co., Ltd.

地址:广东省东莞市厚街镇莞太路厚街段77号

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主检 Tested by:

审核 Reviewed by:

批准 Approved by

庄连发 Flame Zhuang

甄锦炎 Jason Zhen

秦林伟 Deval Qin



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| 产品一般信息 General product information: | white with the way and the the |
|--|---|
| 产品分类 Classification: | 移动储能站 Portable Power Station |
| 型号 Model | EF-DL-H10-4 |
| 额定值 Ratings: | 51.2V, 20Ah, 1024Wh |
| 商标 Trade mark | 4 TITES WITE WITE WHITE MILL MILL MILL MILL |
| 标准充电电流 Standard charge current: | 5A LA LA LA LA LA |
| 最大充电电压 Max. charge voltage: | 60V 101 101 101 101 101 |
| 最大充电电流 Max. charge current: | 15A 16t 11th mill mell mell |
| 标准放电电流 Standard discharge current: | 2.4A |
| 最大放电电流 Max. discharge current: | 10A |
| 放电截止电压 Discharge cut-off voltage: | - TEX ITEX STEEL WITHER WATER WHITE WATER |
| 尺寸 Dimension: | Approx. 408.1mm×284.6mm×195.2mm |
| 电芯型号 Cell model | IFR40135_20Ah_TC |
| 电芯额定容量 Cell rated capacity: | 20Ah |
| 电芯个数 Cells number: | 16Pcs, 16S1P |
| 报告中可能用到的结论标识 Possible test case | verdicts: |
| 测试项目不适用该产品 test case does not apply to the test object: | 不适用 N/A |
| 测试项目符合标准的要求 test object does meet the requirement | 合格 P(ass) |
| 测试项目不符合标准的要求 test object does not meet the requirement | 不合格 F(ail) |
| 测试结论 Test conclusion: | Mr. Mr. Sh. A. St. |

由深圳市正浩智造科技有限公司送检的移动储能站,根据联合国《试验和标准手册》第7版修订1第38.3章进行测试,测试项目见下页表格,测试结果符合标准相关要求。

The Portable Power Station submitted by EcoFlow Innovation Itd. are tested according to Section 38.3 Recommendations-Manual of Tests and Criteria Seventh revised edition Amendment 1 (ST/SG/AC.10/11/Rev.7/Amend1 Section 38.3). Test items see table of next page. The test results comply with the relevant requirement of the standard.



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| 测试项目 Test item | 样品编号 Sample No. | 样品状态 Samples' State |
|---|--------------------|---|
| T1~T5 | B01#~B02# | 第1个充放电周期,完全充电状态 At first cycle, in fully charged states |
| MILITER TIPO | B03#~B04# | 第 25 个充放电周期,完全充电状态 After 25 cycles ending in fully charged states |
| TE WILLIER WILLIAM | C01#-C05# | 第 1 个充放电周期 50%设计额定容量状态 At first cycle at 50% of the design rated capacity |
| Et Steit Steit 101 | C06#-C10# | 第 25 个充放电周期 50%设计额定容量状态 After 25 cycle at 50% of the design rated capacity |
| 111 - 121 - 151 - | B05#~B06# | 第1个充放电周期,完全充电状态 At first cycle, in fully charged states |
| white T7.16 whi | B07#~B08# | 第 25 个充放电周期,完全充电状态 After 25 cycles ending in fully charged states |
| nifet unife unife | C11#-C20# | 第1个充放电周期完全放电状态 At first cycle in fully discharged states |
| TEL STEE WITEL | C21#-C30# | 第 25 个充放电周期完全放电状态 After 25 cycles ending in fully discharged states |

备注:

本报告中以点号代替小数点

测试环境条件,环境温度 20°C-25°C,环境湿度: 45%-75%

分包测试: 不适用

Remarks:

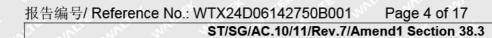
Throughout this report, point is used as the decimal separator

Test environment condition, ambient temperature 20°C-25°C, ambient humidity 45%-75%

Subcontracted test condition: N/A

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The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver. If the report is not stamped with the accreditation recognized seal, it will only be used for scientific research, education, and internal quality control activities, and is not used for the purpose of issuing supporting data to the society.



| 条款 Clause | 测试要求 Requirement-Test | Weign and an a | 结果评判 Result-Remark | 结论 Verdict |
|----------------------|--|---|---|-------------------------|
| 38.3.4 | 程序 /Procedure | ite min me me | A A A | P |
| nni vin Tex att | 小型电池或电池组必须按顺序 /Test T.1 to T.5 are conducted cell or battery. | 5 - 1 / V ' ' ' V V ' ' ' ' ' ' ' ' ' ' ' ' ' | White white white | Р |
| | 试验 T.6 和 T.8 应使用未另外 组/Test T.6 and T.8 are conductested cells or batteries. | | they write and a | et P |
| MALTEK W | 试验 7 使用原先在试验 T.1 至 坏电池进行/Test T.7 conducte batteries previously used in Tes purposes of testing on cycled b | d using undamaged sts T.1 to T.5 for | et multer multer | N/A |
| 质量损失 Mass loss | 用以下测试步骤 Following procedure is provided | d: Whitek whitek whitek | White white white | Р |
| Junited Junited | 质量损失(%)=(M1-M2)/M 此式中 M1 是试验前的质量, 如果质量损失不超过下表所列 量损失" Mass loss(%)=(M1-M2)/M1*100 Where M1 is the mass before the mass after the test. When mass the values in below table, it shamass loss" | M2 是试验后的质量。 列的数值,即为"无质 D he test and M2 is the s loss does not exceed all be considered as "no | PLIE WALTER WALTER WALTER | A JUNITER OF THE STREET |
| | 电芯或电池质量 M Mass M of cell or battery M<1g 1g≤M≤75g M≥75g | 质量损失限制 Mass loss limit 0.5% 0.2% 0.1% | it while while whi | SEK WALT WALTER |
| 38.3.4.1 | 试验 T.1: 高度模拟 /Test T.1 | | The The The | Р |
| 38.3.4.1.1 | 目的/Purpose | 1 1 | Alt fet stet | P |
| TEX LIE | 本试验模拟在低压条件下的图 | | and and and | CIEH |
| 38.3.4.1.2 | 试验程序/Test procedure | ALTER MITER MITE | her are an an | Р |
| A TIEN | 存储气压/Stored at a pressure | | 11.6 kPa | <u> </u> |
| an . | 环境温度/Ambient temperature | e (20 ± 5°C) | 23.6°C | 27 |
| Clark C | 存储时间/Stored times(≥ 6 ho | ours) | 6 hours | - L-E-F |
| 38.3.4.1.3 | 要求/Requirement | TER STEE WITE SINT | The she sh | Р |
| TEL WALTER | 无渗漏、无排气、无解体、更每个试验电芯或电池在试验原在进行这一试验前电压的 900 完全放电状态的试验电池和电 venting, no disassembly, no rup open circuit voltage of each test testing is not less than 90% of i prior to this procedure. The requoltage is not applicable to test fully discharged states. | 后的开路电压不小于其 %,电压的要求不适用于 电池组 / No leakage, no oture and no fire and the it cell or battery after its voltage immediately uirement relating to | 无渗漏、无排气、无解体、无破裂和无起火,数据见表 1 / No leakage, no venting, no disassembly, no rupture and no fire. The data see Table 1 | MIF WALLER |

深圳沃特检验集团有限公司 Waltek Testing Group Co., Ltd. http://www.waltek.com.cn



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| A 1-1 | MILL AT 45 | | |
|---------------|---|--|--------------|
| 条款 Clause | 测试要求 Requirement-Test | 结果评判 Result-Remark | 结论 Verdic |
| 38.3.4.2 | 试验 T.2 温度试验/ Test T.2: Thermal Test | an an an | P |
| 38.3.4.2.1 | 目的/Purpose | The Marie Marie | u P |
| EX WALTER | 本试验评估电池和电池组的密封完善性和内部电连接,试验是利用迅速和极端的温度变化进行/This test assesses cell and battery seal integrity and internal electrical connections. The test is conducted using rapid and extreme temperature changes. | NIET WHIEL WHIEL W | PLIFEK WIT |
| 38.3.4.2.2 | 试验程序/Test procedure | | P |
| MULTE M | 试验温度和存储时间/ Test temperature and stored hours | 1) 72±2°C, ≥6h 2) -40±2°C, ≥6h | Anr. |
| neifek wher | 两个极端试验温度的最大间隔时间/The maximum time interval | 极端温度之间间隔时 间≤30min /Between test temperature extremes is ≤30 minutes. | unite v |
| | 测试时间/ Test times | 重复 10 次/Repeated 10 times | ek wete |
| | 所有电池和电池组在环境温度(20±5°C)下存放 24 小时/After which all test cells and batteries are to be stored for 24 hours at ambient temperature (20±5°C). | 环境温度/Ambient temperature 23.6°C | WALLEY. |
| EX STEX | 对于大型电池和电池组,暴露于极端试验温度的时间至少应为 12 小时/For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours | united united a | PWI PWI |
| 38.3.4.2.3 | 要求/Requirement | in me me | Р |
| WALTER WALTER | 无渗漏、无排气、无解体、无破裂和无起火,并且每个试验电芯或电池在试验后的开路电压不小于其在进行这一试验前电压的90%,电压的要求不适用于完全放电状态的试验电池和电池组 / No leakage, no venting, no disassembly, no rupture and no fire and the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states. | 无渗漏、无排气、无解体、无破裂和无起火;数据见表 2/ No leakage, no venting, no disassembly, no rupture and no fire. The data see Table 2 | MALIER WAS |
| 38.3.4.3 | 试验 3 振动 /Test T.3: Vibration | - A A A | P |
| - (1) (1) | | WITE WILL WALL | 411. |
| 38.3.4.3.1 | 目的/ Purpose | | Р |

| 38.3.4.3 | 试验 3 振动 /Test T.3: Vibration | t TEK TEK NITE | P |
|------------|---|-----------------------|-------------|
| 38.3.4.3.1 | 目的/ Purpose | m m | Р |
| INLIE WALT | 本试验模拟运输过程中的振动/This test simulates vibration during transport. | UNLIER WHITER WHITER | mitter uni |
| 38.3.4.3.2 | 测试程序/ Test procedure | it at alt. | CONT P CONT |
| WUTEK M | 电池和电池组以不使电芯变形且能正确地传播振动的方式紧固在振动机平面上/Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. | ex muttex muttex muti | P Et |
| West Mer | 振动应以正弦波形振动,频率在 7Hz 和 200Hz 之间 | SITE WITE WITE | W. B. M |



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| 条款 | 测试要求 | 结果评判 | 结论 |
|-----------------|--|--|---------|
| Clause | Requirement-Test | Result-Remark | Verdict |
| 20, 1 | the state of the state of the state of | any my mi | |
| | 摆动再回到 7Hz 的对数扫频为时 15min / The | at at at | TEX |
| | vibration shall be a sinusoidal waveform with a logarithmic sweep between 7Hz and 200Hz and back to | intit with with | in. |
| | 7Hz traversed in 15minutes. | The state of | iet. |
| The same | 从 7HZ 开始保持 1 gn 的最大加速度直到频率达到 | alter out of white of | 100 |
| | 18HZ,然后将振幅保持在 0.8mm(总偏移 1.6mm)并增 | 1. 10. 1. | d. |
| | 加频率直到最大加速度达到 8 gn (频率约为 50HZ)。 | LET TEX TEXT | ET INLI |
| | 将最大加速度保持在 8 gn 直到频率增加到 200HZ | in the the | 20. |
| | /From 7 Hz to a peak acceleration of 1 g _n is maintained | e at at at | P |
| | until 18Hz is reached. The amplitude is then maintained | mitte white whi | 2112 |
| | at 0.8mm (1.6mm total excursion) and the frequency | 20. 0 | - |
| | increased until a peak acceleration of 8 g _n occurs (approximately 50 Hz). A peak acceleration of 8 g _n is | TEX LIER WITE | JALTE V |
| | then maintained until the frequency is increased to 200 | The Mr. In . | |
| Car State | Hz | at at all | 36th |
| | 振动须对三个互相垂直的电池安装方位的每一方向 | intermete were in | 201 |
| | 都重复进行12次,总共3小时。其中一个方向必须 | 1 1 1 1 | * 4 |
| | 与端面垂直/This cycle shall be repeated 12 times for a | er with with whi | P |
| | total of 3 hours for each of three mutually perpendicular | 10, 20, | ,÷ |
| | mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. | - THE LIER LIER | MITTE |
| 38.3.4.3.3 | 要求/ Requirement | The Things of | Р |
| المالية المالية | 试验中和试验后无渗漏、无排气、无解体、无破裂 | The state of | LITE A |
| | 和无起火,并且每个试验电芯或电池在第三个垂直 | They ame a | |
| | 安装方位上的试验后的立即测得开路电压不小于其 | 无渗漏、无排气、无 | CENT S |
| | 在进行这一试验前电压的 90%,电压的要求不适用于 | 解体、无破裂和无起 | MULL |
| | 完全放电状态的试验电池和电池组/No leakage, no | 火,数据见表 3/ No | الن ا |
| | venting, no disassembly, no rupture and no fire during | leakage, no venting, | Р |
| | the test and after the test and the open circuit voltage of | no disassembly, no | |
| | each test cell or battery directly after testing in its third | rupture and no fire during the test .The | TEX |
| | perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure. The | data see Table 3 | sign 1 |
| | requirement relating to voltage is not applicable to test | The state of the s | 164 |
| in all the | cells and batteries at fully discharged states. | CIER OLIVE ONLIVE ON | ice an |
| 38.3.4.4 | 试验 4 冲击/ Test T.4: Shock | | - DA |
| | | THE REPORT OF THE PARTY | P |
| 38.3.4.4.1 | 目的/ Purpose | 2. | Р |
| | 本试验评估电池和电池组抵抗累计冲击的耐受程度 | - ITER STEE WITE | WELL |
| | /This test assesses the robustness of cells and batteries against cumulative shocks | 14. 24. 25. | |
| 38.3.4.4.2 | 测试程序 /Test procedure | LET LET LET | Р |
| | 试验电池和电池组用坚硬的支架固定在试验装置 | Mr. Mr. Mr. | 11. 3 |
| | M 型 电 1 图 1 图 1 图 1 图 2 图 2 图 2 图 2 图 2 图 2 图 | | .04 |

all mounting surfaces of each test battery.

上,支架支撑着每个试验电池的所有安装面/Test

cells and batteries shall be secured to the testing machine by means of a rigid mount which will support

Ρ



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| | | ST/SG/AC.10/11/Rev.7/Amend1 Section | n 38.3 | |
|-----------------------|--|---|--|---|
| 条款 | 测试要求 | THE LITER MALE WALL WALL AND | 结果评判 | 结论 |
| Clause | Requiremen | nt-Test | Result-Remark | Verdict |
| unlies uni | 半正弦波冲 sine shock | 峰值加速度 150 g _n 和脉冲持续时间 6ms 的 中击/Each cell shall be subjected to a half- of peak acceleration of 150 g _n and pulse | MUTTER MUTTER MUTTER | N/A |
| TER WHITE H WALTER | 大电池经受 的半正弦波 subjected to | 6milliseconds. E峰值加速度 50 g _n 和脉冲持续时间 11ms 设冲击/Alternatively, large cells may be o a half-sine shock of peak acceleration of ulse duration of 11 milliseconds. | MILLER MULTER MULTER MULTER | EX PL |
| Whitek Whitek | 每个电池需电池的质量型电池组为最小峰值加half-sine shmass of the millisecond large batter | 是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个 | MALIER WALTER WALTER | MITER MITER MITER MITER MITER |
| | Small batteries Large batteries | Minimum peak acceleration 150 g _n or result of formula Acceleration(g_n)= $\sqrt{\frac{100850}{mass^n}}$ 6ms Whicheve is smaller 50 g _n or result of formula Acceleration(g_n)= $\sqrt{\frac{30000}{mass^n}}$ 11ms Whichever is smaller | The mark whitek whitek whitek | WALTER WALTER |
| Whitek Whi | 方向经受三 共经受 18 subjected to to three sho mutually pe | 中电池组在三个互相垂直的安装方位的正 三次冲击,接着反方向经受三次冲击,总 次冲击/Each cell or battery shall be three shocks in the positive direction and pocks in the negative direction in each of three rependicular mounting positions of the cell or a total of 18 shocks. | AND TEX WHITE WHITE WHITE WHITE TEX HITEX | unife unife |
| 38.3.4.4.3 | 要求/Requi | rement that will will will will will will will wil | 10 10 10 10 10 10 10 10 10 10 10 10 10 1 | Р |
| WALTER WALTER | 每个试验电 在进行这一 于完全放电 venting, no open circuit testing is no prior to this | E排气、无解体、无破裂和无起火,并且 已芯或电池在试验后的开路电压不小于其一试验前电压的 90%,电压的要求不适用 巴状态的试验电池和电池组/No leakage, no disassembly, no rupture and no fire and the voltage of each test cell or battery after of less than 90% of its voltage immediately procedure. The requirement relating to ot applicable to test cells and batteries at | 无渗漏、无排气、无解体、无破裂和无起火,数据见表 4 /No leakage, no venting, no disassembly, no rupture and no fire. The data see Table 4 | White was |

| 38.3.4.5 | 试验 5 外部短路 /Test T.5: External Short Circuit | LIER JALIE WALL WE |
|------------|---|-------------------------|
| 38.3.4.5.1 | 目的/ Purpose | P P |
| With Mur | 本试验模拟外部短路/This test simulates an external | MALL WALL WALL ON !- WI |



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| in whi | ST/SG/AC.10/11/Rev.7/A | mend1 Section 38.3 | Vr. AVr |
|--------|------------------------|--------------------|---------|
| 条款 | 测试要求 | 结果评判 | 结论 |
| Clause | Requirement-Test | Result-Remark | Verdict |

| Clause | Requirement-Test | Result-Remark | veraic |
|--|--|--|---------------|
| 10, 1 | | in the same | n. |
| | short circuit. | * # # | |
| 38.3.4.5.2 | 试验程序 /Test procedure | until white white | N P |
| TEX WATE WATE | 电池和电池组加热一段时间,外壳稳定在温度 57±4°C下后开始测试。时间根据电池和电池组的尺寸和设计,评估和记录加热时间。如果不可评估此值,小型电池和电池组需至少暴露 6h,大型电池和电池组需 12h//The cell or battery to be tested shall be heated for a period of time necessary to reach a homogeneous stabilized temperature 57±4°C, measured on the external case. This period of time depends on the size and design of the cell or battery and should be assessed and documented. If this assessment is not feasible, the exposure time shall be at least 6 hours for small cells and small batteries, and 12 hours for large cells and large batteries. | ALTER WHITER WHI | |
| whitek w | 在 57±4°C 温度下,电池和电池组需经受外部电阻 0.1ohm 的短路试验/Then the cell or battery at 57±4°C shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm. | Et whilet while | P |
| untilet w | 电池和电池组外部壳体温度恢复到 57±4°C 后,短路需持续至少 1 小时,或大型电池组壳体温度值下降测试中最高温升值的一半,并且保持在这个值以下/This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4°C, or in the case of the large batteries, has decreased by half of the maximum temperature increase observed during the test and remains below that value. | MILIE WHITE MILES | MILIER WILLER |
| 38.3.4.5.3 | 要求/ Requirement | 10. 1 | P |
| TEX WALTER WALTER | 外壳温度不超过 170°C,并且在试验过程中及试验 后 6 小时内无解体、无破裂、无起火/Cells and batteries external temperature does not exceed 170°C and there is no disassembly, no rupture and no fire during the test and within six hours after this test. | 试验过程中及试验后 6小时内无解体、无 破裂、无起火,数据 见表 5 / No disassembly, no fire during the test and within six hours after this test. The data see Table 5. | P MILITER |

| 38.3.4.6 | 试验 6 撞击/挤压 Test T.6: Impact / Crush | at let let | .√°P |
|------------|---|--------------------|--------------------------|
| 38.3.4.6.1 | 目的 /Purpose | iver in in | Р |
| TER MUTER | 本试验模拟撞击或挤压等可能造成内部短路的机械性破坏/These tests simulate mechanical abuse from an impact or crush that may result in an internal short circuit. | TEK MUTEK MUTEK MU | TEK MU MULIK MULIK |
| 38.3.4.6.2 | 试验程序-撞击 (适用于直径不小于18毫米的圆柱形电池)/Test procedure – Impact (applicable to cylindrical cells not less than 18.0 mm in diameter) | WILL WILL WILLEY | WILL P |

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| 条款 | 测试要求 | 结果评判 | 结论 |
|-------------|--|----------------------|---------------------|
| Clause | Requirement-Test | Result-Remark | Verdict |
| 200 | The state of the s | 11, 11, 11, | 400 |
| _/ <u>+</u> | 将式样电池或元件电池放在平坦光滑的表面上。一 | 1 2 1 | , et |
| | 根 316 型不锈钢棒横放在试样中心,钢棒直径 15.8 | THE SITE MITTE | |
| | mm±0.1mm,长度至少 6cm,或电池最长端的尺度, | 21/2 21/2 22 | |
| | 取二者之长者。将一块 9.1 kg±0.1kg 的重锤从 | at let let | |
| | 61±2.5cm 高处跌落到钢棒和试样交叉处,使用一个 | WITE WILL MULT OF | |
| | 几乎没有摩擦的,对落体重锤阻力最小的垂直轨道 | | |
| | | LEX SEX STER NO | |
| | 或管道加以控制。垂直管道或管道用于引导落锤沿 | 100 111 111 120 | |
| | 与水平支撑表面呈 90° 落下/The test sample cell or | L A A B | - 4 |
| | component cell is to be placed on a flat smooth surface. | MILL WILL WILL | A P |
| | A 15.8 mm ± 0.1mm diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type | 10, 0 | |
| | 316 stainless steel bar is to be placed across the centre | LEK SEK STEET | |
| | of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped | were the me | |
| | from a height of 61 ± 2.5 cm at the intersection of the | 4 1 | |
| | bar and sample in a controlled manner using a near | LIER RUTE WALL ON | |
| | frictionless, vertical sliding track or channel with minimal | 5 10 10 1 | |
| | drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 | at all the | |
| | degrees from the horizontal supporting surface. | when the the | |
| .15 | 接受撞击的试样,纵轴应与平坦表面平行并与横放 | 4 15 | 100 |
| | 在试样中心的直径 15.8 mm±0.1mm 弯曲表面的纵轴 | LIET OLIV | |
| | 垂直;每一个试样只经受一次撞击/The test sample is | 71/2, 20, 20, | |
| | to be impacted with its longitudinal axis parallel to the | A LET SET | T ⁽ⁱ⁾ P. |
| | flat surface and perpendicular to the longitudinal axis of | With Mrs. 1 | P P31 |
| | the 15.8 mm ± 0.1mm diameter curved surface lying | | |
| | across the centre of the test sample. Each sample is to | The Little Williams | |
| ~~ | be subjected to only a single impact. | - "Mr. "M. An. | |
| | 试验程序-挤压(适用于棱柱形、袋装、硬币/纽扣电 | at the tile | |
| 38.3.4.6.3 | 芯和直径小于18mm的圆柱形电池)/Test Procedure – | in the water water | N/A |
| A. | Crush (applicable to prismatic, pouch, coin/button cells | - L | J+ |
| - 10 m | and cylindrical cells less than 18.0 mm in diameter) | | |
| | 将电池或元件电池放在两个平面之间挤压, 挤压力 | The Mr. M. | |
| | 度逐渐加大,在第一个接触点上的速度大约 | L at at | |
| | 1.5cm/s。挤压持续进行,直到出现三种情况之一: | LITE INLIE WALL W | |
| | A cell or component cell is to be crushed between two | 1, 2, 2 | N/A |
| | flat surfaces. The crushing is to be gradual with a speed | CENT TEXT STEET SUT | |
| | of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three | Mur Mr. 20 | |
| | options below is reached. | the state of | |
| الد شمان | 施加的力量达到 13 kN ± 0.78kN | | 411 |
| | The applied force reaches 13 kN ± 0.78 kN; | Reach this condition | N/A |
| STEE IN | 电池的电压下降至少 100mV | | NI/A |
| | The voltage of the cell drops by at least 100 mV; | Reach this condition | N/A |
| et le | 电池变形达原始厚度的 50%或以上/The cell is | Door this and this | NI/A |
| | deformed by 50% or more of its original thickness. | Reach this condition | N/A |
| | 每个测试的电池或元件电池只做一次挤压试验/Each | - 2n, n, n, | (. |
| | test cell or component cell is to be subjected to one | at the title it | N/A |
| an . | crush only. | are were we | 201. |
| at the | 试验样品需观察 6 小时/The test samples shall be | 1 4 4 | N/A |
| | observed for a further 6h | THE LIVE ALL | |



| | ST/SG/AC.10/11/Rev.7/Amend1 Section | n 38.3 | |
|-----------------|---|--|---------------|
| 条款 Clause | 测试要求 Requirement-Test | 结果评判 Result-Remark | 结论 Verdict |
| mritek mri | 试验应使用之前未做过其他试验的电池或元件电池 进行/The test shall be conducted using test cells or component cells that have not previously been subjected to other tests. | MULTER WILLER | N/A |
| 38.3.4.6.4 | 要求/ Requirement | WILL MUT MUT M | Р |
| et whitet white | 外壳温度不超过 170°C,并且在试验过程中及试验后 6 小时内无解体、无破裂、无起火/Cells and component cells meet this requirement if their external temperature does not exceed 170°C and there is no disassembly and no fire during the test and within six hours after this test. | 在试验过程中及试验 后 6 小时内无解体、 无破裂、无起火;数据 见表 6 /No disassembly and no fire during the test and within six hours after this test. The data see Table 6 | WALTER OF |
| 38.3.4.7 | 试验 7 过度充电 /Test T.7: Overcharge | The mile with the | P |
| 38.3.4.7.1 | 目的 /Purpose | Et liet Niet wil | Р |
| Whitek Wh | 本试验评估可充电电池承受过度充电状况的能力 //This test evaluates the ability of a rechargeable battery to withstand an overcharge condition. | THE MITES MILIES | WALLEY. |
| 38.3.4.7.2 | 试验程序/Test procedure | | Р |
| ek itek | 充电电流是制造商建议的最大持续充电电流的两倍/ The charge current shall be twice the manufacturer's recommended maximum continuous charge current. | 15A×2=30A | Р |
| The same | 试验的最小电压如下: /The minimum voltage of the | the will ship the | 211 |

试验的最小电压如下: /The minimum voltage of the test shall be as follows: a)制造商建议的充电电压不大于 18V 时,试验的最 小电压是电池组最大充电电压的两倍或 22V 两者中 N/A 的较小者/When the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. b) 制造商建议的充电电压大于 18V 时,试验的最小 电压应为最大充电电压的 1.2 倍/When the 72V Ρ manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. 试验环境温度/ Ambient temperature. 23.6℃ 试验的进行时间/ The duration of the test. 24h 38.3.4.7.3 要求 /Requirement Р 试验过程中和试验后 7天内无解体,无起 火;数据见表 7/ No 充电电池在试验过程中和试验后7天内无解体,无 disassembly and no Р 起火/Rechargeable battery is no disassembly and no fire during the test fire during the test and within seven days after the test. within seven days after the test. The data see Table 7



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| 条款 Clause | 测试要求 Requirement-Test | 结果评判 Result-Remark | 结论 Verdict |
|--|---|--|---------------|
| 38.3.4.8 | 试验 8 强制放电 / Test 8: Forced discharge | The state of the s | Р |
| 38.3.4.8.1 | 目的 Purpose | INLIE MILIE MILIE | JIP P |
| LIFE WHITE | 本试验评估原电池或充电电池承受强制放电状况的能力/ This test evaluates the ability of a primary or a rechargeable cell to withstand a forced discharge condition. | MILES WHITES WHITES W | EX S |
| 38.3.4.8.2 | 试验程序/Test procedure | ite until whit our | Р |
| | 每个电池应在环境温度下与 12V 直流电电源串联在 起始电流等于制造商给定的最大放电电流的条件强 | t still still south | |
| ntiek whi | 制放电/ Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12 V DC, power supply at an initial current equal to the maximum discharge current specified by the manufacturer. | While while while | P. |
| TEX WHITE WH | 将适当大小和额定值的电阻负荷与试验电池串联,计算得给定的放电电流。对每个电池进行强制放电,放电时间(小时)应等于其额定容量除以初始试验电流(安培)/ The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell, Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). | STEEL WHITE WHITEL WAS | P WALTER |
| 38.3.4.8.3 | 要求/Requirement | The Me a | Р |
| Whitek Whi | 原电池或充电电池在试验过程中和试验后 7 天内无解体,无起火/ Primary or rechargeable cells meet this requirement if there is no disassembly and no fire during the test within seven days after the test. | 试验过程中和试验后 7天内无解体,无起 火。数据见表 8 / No disassembly and no fire during the test within seven days after the test. The data see Table 8 | TEE WALL |



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| Tab | le1: Altit | ude simulation | | are are are | 70, 2, |
|------------------|------------|----------------|------------------|----------------------|-----------|
| Sam | ple No. | B01# | B02# | B03# | B04# |
| | m(Kg) | 12.902 | 12.904 | 12.899 | 12.901 |
| Before | V1(V) | 5.168 | 5.172 | 5.165 | 5.169 |
| ore | V2(V) | 5.088 | 5.087 | 5.085 | 5.092 |
| | V3(V) | 12.62 | 12.58 | 12.66 | 12.61 |
| انۍ | m(Kg) | 12.902 | 12.904 | 12.899 | 12.901 |
| After | V1(V) | 5.166 | 5.171 | 5.162 | 5.165 |
| ē | V2(V) | 5.086 | 5.086 | 5.084 | 5.092 |
| ill L | V3(V) | 12.61 | 12.58 | 12.65 | 12.61 |
| lass | loss(%) | 0.000 | 0.000 | 0.000 | 0.000 |
| Res | V1 | 99.96 | 99.98 | 99.94 | 99.92 |
| Residual OCV (%) | V2 | 99.96 | 99.98 | 99.98 | 100.00 |
| V (%) | V3 | 99.92 | 100.00 | 99.92 | 100.00 |
| o [™] R | esult | P P | - ITHE PATER AND | X whitek Parties was | PINLIFE O |

Table 2: Thermal test

| Sam | ple No. | B01# | B02# | B03# | B04# |
|-------|----------------|--------|--------|--------|--------|
| | m(Kg) | 12.902 | 12.904 | 12.899 | 12.901 |
| ≱ | V1(V) | 5.146 | 5.145 | 5.142 | 5.142 |
| After | V2(V) | 5.064 | 5.067 | 5.060 | 5.066 |
| | V3(V) | 12.52 | 12.46 | 12.55 | 12.50 |
| | ss loss (%) | 0.000 | 0.000 | 0.000 | 0.000 |



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| Res | V1 | 99.61 | 99.50 | 99.61 | 99,55 |
|--------------|------|----------------------------|-------------------|--------------|---------------|
| Residual OCV | V2 | 99.57 | 99.63 | 99.53 | 99.49 |
| (%) | V3 | 99.29 | 99.05 | 99.21 | 99.13 |
| Res | sult | multiple multiple multiple | WALL WILL WILLIAM | THE MALE THE | MILIER WILLER |

Table 3: Vibration

| Sam | ple No. | B01# | B02# | B03# | B04# |
|------------------|----------------|--------|---------------|-----------------|-----------------|
| ار ماريز | m(Kg) | 12.902 | 12.904 | 12.899 | 12.901 |
| Af | V1(V) | 5.143 | 5.144 | 5.141 | 5.140 |
| After | V2(V) | 5.063 | 5.066 | 5.060 | 5.065 |
| 'nn' | V3(V) | 12.51 | 12.46 | 12.54 | 12.49 |
| | ss loss (%) | 0.000 | 0.000 | 0.000 miles | 0.000 |
| Res | V1 | 99.94 | 99.98 | 99.98 | 99.96 |
| Residual OCV (%) | V2 | 99.98 | 99.98 | 100.00 | 99.98 |
| / (%) | V3 | 99.92 | 100.00 | 99.92 | 99.92 |
| R | esult | P P | et Pret stret | MITEL NOTE WITE | miles upites un |



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| Samı | ple No. | B01# | B02# | B03# | B04# |
|------------------|--------------|--------|--------------------|---------------------|--------|
| | m(Kg) | 12.902 | 12.904 | 12.899 | 12.901 |
| A | V1(V) | 5.142 | 5.144 | 5.140 | 5.140 |
| After | V2(V) | 5.062 | 5.066 | 5.060 | 5.065 |
| EX | V3(V) | 12.51 | 12.45 | 12.53 | 12.49 |
| Mas | s loss %) | 0.000 | 0.000 | 0.000 | 0.000 |
| Res | V1 | 99.98 | 100.00 | 99.98 | 100.00 |
| Residual OCV (%) | V2 | 99.98 | 100.00 | 100.00 | 100.00 |
| V (%) | V3 | 100.00 | 99.92 | 99.92 | 100.00 |
| Re | esult | P P | at the Publish and | EX MITEX PURITER WA | PWILL. |





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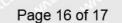
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| , 4 | Table 3 T. | Table 3 T.6 Impact / Grush | To the |
|------|------------|----------------------------|--------|
| No. | OCV (V) | Max. Temp(℃) | Result |
| C01# | 3.282 | 24.1 | ۵ |
| C02# | 3.271 | 24.2 | ۵ |
| C03# | 3.278 | 24.1 | ۵ |
| C04# | 3.262 | 24.1 | ۵ |
| C05# | 3.273 | 24.0 | ۵ |
| #900 | 3.287 | 24.0 | ۵ |
| #200 | 3.285 | 24.1 | ۵ |
| #800 | 3.274 | 24.2 | Ъ |
| #600 | 3.271 | 24.3 | Ь |
| C10# | 3.286 | 24.3 | ۵ |
| | | | |

| | Result | Ь | <u>а</u> |
|--|------------------|------|----------|
| eĥ. | Max. Temp (℃) | 24.0 | 24.1 |
| Table 4 T.7 Overcharge | No. | B07# | #80B |
| able 4 T.7 | Result | Ь | Ь |
| A. A | Max. Temp (℃) | 24.1 | 24.1 |
| | ė. | B05# | #90B |

| | C. La | Ta | Table 5 T.8 Forced discharge | orced disch | narge | |
|------|-------|---------|------------------------------|-------------|---------|------------|
| | No. | OCV (V) | Result | No. | OCV (V) | Result |
| 163 | C11# | 2.321 | ۵ | C21# | 2.291 | ۵ |
| | C13# | 2.305 | ۵ | C22# | 2.317 | ۵ |
| | C13# | 2.297 | ۵ | C23# | 2.316 | <u>a</u> |
| | C14# | 2.305 | Ь | C24# | 2.309 | ۵ |
| | 512 | 2.313 | △ | C25# | 2.301 | <u>a</u> . |
| 97 | 516 | 2.298 | ۵ | C26# | 2.318 | <u>a</u> |
| | C17# | 2.302 | ۵ | C27# | 2.305 | В |
| 145 | C18 | 2.306 | ۵ | C28# | 2.314 | ۵ |
| TO A | C13 | 2.287 | _ A | C29# | 2.303 | ۵ |
| | C20# | 2.295 | ۵ | C30# | 2.300 | ۵ |
| ď, | | | | | | |





Photos

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Photo 2



Photo 3









Photo 4



Photo 5

===== End of Report ======