



# **UN38.3 TEST REPORT**

WTX24D06142752B001 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......

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

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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

二次锂离子电池组 产品名称/ Product Name...

Rechargeable Li-ion Battery Pack

型号/ Model No. ..... EF-DL-E10-4

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..... 2024-07-12 to 2024-07-24

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:

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产品一般信息 General product information:	the many many and any and any
产品分类 Classification	二次锂离子电池组 Rechargeable Li-ion Battery Pack
型号 Model	EF-DL-E10-4
额定值 Ratings:	51.2V, 20Ah, 1024Wh
商标 Trade mark	TEX 1 STEET WITE MUTE MUTE MUTE MUTE MUTE MUTE MUTE
标准充电电流 Standard charge current:	10A
最大充电电压 Max. charge voltage:	58.4V
最大充电电流 Max. charge current:	24A (************************************
标准放电电流 Standard discharge current:	10A
最大放电电流 Max. discharge current:	48A
放电截止电压 Discharge cut-off voltage:	32V of the title neither with the
尺寸 Dimension	Approx. 398.0mm×194.0mm×193.0mm
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	se 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:	ar an an a the

由深圳市正浩智造科技有限公司送检的二次锂离子电池组,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 Rechargeable Li-ion Battery Pack submitted by EcoFlow Innovation ltd. 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#~B04#	第1个充放电周期,完全充电状态 At first cycle, in fully charged states
MULTER 11/15	B05#~B08#	第 25 个充放电周期,完全充电状态 After 25 cycles ending in fully charged states
TEX WALTER WALTER VI	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
T6 T6	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
11 12 12 15 15 15 15 15 15 15 15 15 15 15 15 15	B09#~B12#	第1个充放电周期,完全充电状态 At first cycle, in fully charged states
united T7.16 vali	B13#~B16#	第 25 个充放电周期,完全充电状态 After 25 cycles ending in fully charged states
nifet white white	C11#-C20#	第1个充放电周期完全放电状态 At first cycle in fully discharged states
TEL STEEL WITER OF	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:

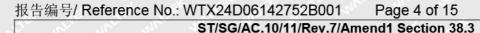
Throughout this report, point is used as the decimal separator

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

Subcontracted test condition: N/A

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条款 Clause	测试要求 Requirement-Test		结果评判 Result-Remark	结论 Verdic
Oldusc	requirement rest	at the allet me	Tresuit Tremain	VCIGIO
38.3.4	程序 /Procedure	i. Mr. 24, 24,	A A A	, P
Mair VIII Tex site	小型电池或电池组必须按顺序 /Test T.1 to T.5 are conducted cell or battery.		White white white	P
EX MALIEX	试验 T.6 和 T.8 应使用未另外试验过的电池或电池 组/Test T.6 and T.8 are conducted using not otherwise tested cells or batteries.		tet sitet mitet mi	et P
WALTEK 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	A MULTER WHITE	N/A
质量损失 Mass loss	用以下测试步骤 Following procedure is provided	di multek multek multek	MATTER WALTE WALTE	P
	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 sha mass loss"	M2 是试验后的质量。 间的数值,即为"无质 ) ne test and M2 is the s loss does not exceed	EX WILLER WHITER WHITER WHITER WHITER	H WALTER WALTER
at at	电芯或电池质量 M	质量损失限制		J.
	Mass M of cell or battery	Mass loss limit	The STATE STATE STATE	
	M<1g 1g≤M≤75g	0.5%	11/2 21/2	
	M≥75g	0.1%	at let the the	
38.3.4.1	试验 T.1: 高度模拟 /Test T.1		Mr. Mr. Aug.	Р
38.3.4.1.1	目的/Purpose	. L ct ct	THE LIFE ALTH	P
SEX TEN	本试验模拟在低压条件下的空 air transport under low-pressure		The set set	JEH
38.3.4.1.2	试验程序/Test procedure	ALTER METER MALTE	ur, aug aug an	Р
t with	存储气压/Stored at a pressure	711. 22.	11.6 kPa	<u> </u>
20.	环境温度/Ambient temperature	e (20 ± 5°C)	23.8°C	27
LITER	存储时间/Stored times( ≥ 6 ho	ours)	6 hours	CLEE
38.3.4.1.3	要求/Requirement	TER INTER WITE WITE	Mr. Mr. Mr.	Р
LIFET WALF	无渗漏、无排气、无解体、为每个试验电芯或电池在试验后在进行这一试验前电压的 90% 完全放电状态的试验电池和电 venting, no disassembly, no rup open circuit voltage of each tes	后的开路电压不小于其 %,电压的要求不适用于 且池组 / No leakage, no bture and no fire and the	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	MITER OF

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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

rupture and no fire.

The data see Table 1



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条款 Clause	测试要求 Requirement-Test	结果评判 Result-Remark	结论 Verdict
Clause	requirement rest	rtesuit-rtemark	Verdic
LET .	fully discharged states.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LEX.
38.3.4.2	试验 T.2 温度试验/ Test T.2: Thermal Test	WHITE WHITE WHITE	an P
38.3.4.2.1	目的/Purpose	at the self-	Р
EX WILLEY	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.	TEK WATER WATER WATER	EK WILL WILL TEK
38.3.4.2.2	试验程序/Test procedure	MITE WITH WILL	JUP.
LIEK MI	试验温度和存储时间/ Test temperature and stored hours	1) 72±2°C, ≥6h 2) -40±2°C, ≥6h	NITE .
TEK WITEK	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.	otek Tek Tek
unciest un	测试时间/ Test times	重复 10 次/Repeated 10 times	- 10 P
	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 24.1°C	WILL .
EX WILLEX	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	The milit mility and	FEET PLU
38.3.4.2.3	要求/Requirement	at the the	Р
MITER WATER	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	and the same of th
20.2.4.2	147A 0 HESH (T 4 T. 0 NC)	Mile Will Will	211/2
38.3.4.3	试验 3 振动 /Test T.3: Vibration	1 4 4	Р
38.3.4.3.1	目的/ Purpose	Willy Will While	West B
	- 「大 : エルス # 百 # 1 : - だら : T + P + T + B + H - E + / T L : - 44 - : ・ J - 4		

38.3.4.3	试验 3 振动 /Test T.3: Vibration	m. m. m.	Р
38.3.4.3.1	目的/ Purpose	TEN TEN TIER	P. O
THE SEX	本试验模拟运输过程中的振动/This test simulates vibration during transport.	me in the	TEX
38.3.4.3.2	测试程序/ Test procedure	THE MULT MULT M	Р
MUNITER W	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	ex miles miles miles	MALTER MP

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条款 Clause	测试要求 Requirement-Test	结果评判 Result-Remark	结论 Verdict
	faithfully transmit the vibration.	4 4 4	Let
unci uni Lifex unite	振动应以正弦波形振动,频率在 7Hz 和 200Hz 之间 摆动再回到 7Hz 的对数扫频为时 15min / The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7Hz and 200Hz and back to 7Hz traversed in 15minutes.	White Marie Mariet	MA PULL
Whitek Wh	从 7HZ 开始保持 1 g <sub>n</sub> 的最大加速度直到频率达到 18HZ,然后将振幅保持在 0.8mm(总偏移 1.6mm)并增 加频率直到最大加速度达到 8 g <sub>n</sub> (频率约为 50HZ)。 将最大加速度保持在 8 g <sub>n</sub> 直到频率增加到 200HZ /From 7 Hz to a peak acceleration of 1 g <sub>n</sub> is maintained until 18Hz is reached. The amplitude is then maintained at 0.8mm (1.6mm total excursion) and the frequency increased until a peak acceleration of 8 g <sub>n</sub> occurs (approximately 50 Hz). A peak acceleration of 8 g <sub>n</sub> is then maintained until the frequency is increased to 200 Hz		WALTER WALTER WALTER WALTER WALTER WALTER
unitek un	振动须对三个互相垂直的电池安装方位的每一方向 都重复进行 12 次,总共 3 小时。其中一个方向必须 与端面垂直/This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face.	antiet united united	WITH STEEL
38.3.4.3.3	要求/ Requirement	24, 20, 2	Р
Whitek Whitek	试验中和试验后无渗漏、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第三个垂直安装方位上的试验后的立即测得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 during the test and after the test and the open circuit voltage of each test cell or battery directly after testing in its third perpendicular mounting position 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 3/ No leakage, no venting, no disassembly, no rupture and no fire during the test .The data see Table 3	TE WALTER  WAL
20.2.4.4	2+70 4 24 + 1 T - 4 T 4 Ch - 1	7/1, 7/1, 7,	
38.3.4.4	试验 4 冲击/ Test T.4: Shock	- Light Step Miles	P
38.3.4.4.1	目的/ Purpose	211. 211. 22.	Р

38.3.4.4	试验 4 冲击/ Test T.4: Shock		Р
38.3.4.4.1	目的/ Purpose	Muri Mur Muri	20 P
JALIEK WALT	本试验评估电池和电池组抵抗累计冲击的耐受程度 /This test assesses the robustness of cells and batteries against cumulative shocks	UNITER MULTER MULTER	in <sup>liter</sup> uni
38.3.4.4.2	测试程序 /Test procedure	LET THE LIFE OF	Politi
# WILLER W	试验电池和电池组用坚硬的支架固定在试验装置上,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 all mounting surfaces of each test battery.	et and white while	NP P

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<del></del> 条款	测试要求	THE THE STATE WITH SHIP WI	结果评判	结论	
Clause	Requiremen	nt-Test	Result-Remark	Verdic	
20, 1		a sk sk str str	The Mr. M.	10,	
	电池经受岭	峰值加速度 150 gn和脉冲持续时间 6ms 的	A A A	LEX	
		中击/Each cell shall be subjected to a half-	meter ancie was	M P	
		of peak acceleration of 150 g <sub>n</sub> and pulse 6milliseconds.	10. 1	.+	
4 N N		emiliseconds.  E峰值加速度 50 gn和脉冲持续时间 11ms	THE THE REPORT OF	STE WI	
	100	p冲击/Alternatively, large cells may be	We the the		
		o a half-sine shock of peak acceleration of	LET LET LET NO	N/A	
20, .		ulse duration of 11 milliseconds.	in mer me		
	每个电池需	<b>后经受半正弦波冲击的峰值加速度取决于</b>	L of the	TEN	
	电池的质量	量。小型电池组的脉冲持续时间为 6ms,大	intite with with	Mur	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	y 11ms。以下提供的公式用来计算适合的	The state of the s	et	
		印速度/Each battery shall be subjected to a	LIER WILLIAM WILL	N P	
		ock of peak acceleration depending on the	24, 24, 24,	, de	
		battery. The pulse duration shall be 6 s for small batteries and 11 milliseconds for	LET TEX STEEL OF	TEN IN	
		ies. The formulas below are provide to	in mer mer in	20.	
	calculate th	e appropriate minimum peak accelerations.		* 5	
	Battery	Minimum peak acceleration Pulse duration	in white with whi	- che	
	1000	150 g <sub>n</sub> or result of formula	4 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	Small	100850	RLIET WILL WALL	MILL	
	batteries	Acceleration( $g_n$ )= $\sqrt{\frac{1000000}{\text{mass}^2}}$ ) 6ms	211	P	
	10,000	Whicheve is smaller	LIFE OUTE	MITE W	
	N Y A Y	50 g <sub>n</sub> or result of formula	Sup. In. 1		
	Large batteries	Acceleration( $g_n$ )= $\int_{-\infty}^{\infty} \left(\frac{30000}{mases^2}\right)$ 11ms	The Lift of	TEN OLI	
	Datteries	Whichever is smaller	is mir mer me	20	
THE STATE OF THE S	每个电池和	中电池组在三个互相垂直的安装方位的正	a at all di	- 56	
	方向经受三	三次冲击,接着反方向经受三次冲击,总	White while while	ane.	
	共经受 18	次冲击/Each cell or battery shall be	1 1	4	
		three shocks in the positive direction and	SLIE MITE WALL	Mr. P	
		ocks in the negative direction in each of three rpendicular mounting positions of the cell or	24. 20.	+	
		a total of 18 shocks.	TEX STER OUTER ST	Life W	
38.3.4.4.3	要求/Requi		E. M. M. 2.	Р	
OUTE	无渗漏、无	<b>E排气、无解体、无破裂和无起火,并且</b>	CEX CLEX SUITE OUT	anti'i	
		巴芯或电池在试验后的开路电压不小于其		7	
	在进行这一	一试验前电压的 90%,电压的要求不适用	解体、无破裂和无起	LIER	
		包状态的试验电池和电池组/No leakage, no	火,数据见表 4 /No	201	
		disassembly, no rupture and no fire and the	leakage, no venting,	Р	
		voltage of each test cell or battery after ot less than 90% of its voltage immediately	no disassembly, no	W. 11	
		procedure. The requirement relating to	rupture and no fire. The data see Table 4	at	
	voltage is n	ot applicable to test cells and batteries at	The data see Table 4	ie "NV	
	fully dischar	rged states.	- 44 M		

38.3.4.5	试验 5 外部短路 /Test T.5: External Short Circuit	Intil Mail WP
38.3.4.5.1	目的/ Purpose	P



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条款 Clause	测试要求 Requirement-Test	结果评判 Result-Remark	结论 Verdict
49. 4	A State of the state of	are the man	20,
WILLER WAL	本试验模拟外部短路/This test simulates an external short circuit.	TER STER WITER	MILLEY.
38.3.4.5.2	试验程序 /Test procedure	14, 14, 24	Р
EX WALTER WALT WALTER W	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.	NITE WILLEY WILL	EK WALTER WALT WALTER W
White v	在 57±4°C 温度下,电池和电池组需经受外部电阻 0.10hm 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 united united unit	WALTE P NITER
STEX WILLS	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.	The military of the same of th	ALTEK W SEK PALI WALTER
38.3.4.5.3	要求/ Requirement	at at at	P
TER 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.	ETE ON
20.2.4.6	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	A 14 14	
38.3.4.6	试验 6 撞击/挤压 Test T.6: Impact / Crush	write with white	IV PN
38.3.4.6.1	目的 /Purpose		P
	本试验模拟撞击或挤压等可能造成内部短路的机械	Liter Will Will WA	. The

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circuit.

38.3.4.6.2

性破坏/These tests simulate mechanical abuse from an impact or crush that may result in an internal short

试验程序-撞击(适用于直径不小于18毫米的圆柱形

Р



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条款	测试要求	结果评判	结论
Clause	Requirement-Test	Result-Remark	Verdic
20, 1	of the state of th	are me m	10.
	电池)/Test procedure – Impact (applicable to	1 1 1	
مادي عام	cylindrical cells not less than 18.0 mm in diameter)	LIET SLIV MIX	aler.
	将式样电池或元件电池放在平坦光滑的表面上。一	24, 24, 2	
	根 316 型不锈钢棒横放在试样中心,钢棒直径 15.8	at let let	
	mm±0.1mm,长度至少 6cm,或电池最长端的尺度,	intit with which wi	
	取二者之长者。将一块 9.1 kg±0.1kg 的重锤从		
	61±2.5cm 高处跌落到钢棒和试样交叉处,使用一个	TEX SITES RITE ON	
	几乎没有摩擦的,对落体重锤阻力最小的垂直轨道	211 24 24 24	
	或管道加以控制。垂直管道或管道用于引导落锤沿	e at at all	
		MILL WILL WILL	
	与水平支撑表面呈 90° 落下/The test sample cell or component cell is to be placed on a flat smooth surface.	20.	P
	A 15.8 mm ± 0.1mm diameter, at least 6 cm long, or the	THE THE STEEL	THE P
	longest dimension of the cell, whichever is greater, Type	mer me me	
	316 stainless steel bar is to be placed across the centre	L A LET	
	of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped	lifer with white wh	
	from a height of 61 ± 2.5 cm at the intersection of the		
	bar and sample in a controlled manner using a near	at all all is	
	frictionless, vertical sliding track or channel with minimal	when the the	
	drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	degrees from the horizontal supporting surface.	THE SITE OF THE	
	接受撞击的试样,纵轴应与平坦表面平行并与横放	<u> </u>	
	在试样中心的直径 15.8 mm±0.1mm 弯曲表面的纵轴	A At Alt	
	垂直;每一个试样只经受一次撞击/The test sample is	anti ant a	
	to be impacted with its longitudinal axis parallel to the		of Po
	flat surface and perpendicular to the longitudinal axis of	The Country of the Miles	
	the 15.8 mm ± 0.1mm diameter curved surface lying	r. mr. m. m.	
	across the centre of the test sample. Each sample is to	L A A A	
3 M	be subjected to only a single impact.	atte with with	ar.
	试验程序-挤压(适用于棱柱形、袋装、硬币/纽扣电	10, 1	
38.3.4.6.3	芯和直径小于18mm的圆柱形电池)/Test Procedure –	TEX SEX SIE	N/A
30.0. 1.0.0	Crush (applicable to prismatic, pouch, coin/button cells	wir. Mr. Mr.	33 1477
A 16	and cylindrical cells less than 18.0 mm in diameter)		_t+
	将电池或元件电池放在两个平面之间挤压,挤压力	LITER WITE WITE W	
	度逐渐加大,在第一个接触点上的速度大约	. 14 14	
	1.5cm/s。挤压持续进行,直到出现三种情况之一:	at at the	
	A cell or component cell is to be crushed between two	The Mer My	N/A
	flat surfaces. The crushing is to be gradual with a speed		
	of approximately 1.5 cm/s at the first point of contact.	LIER WITE WITE	
	The crushing is to be continued until the first of the three options below is reached.	24, 24, 25	
15th 10	施加的力量达到 13 kN ± 0.78kN	_ 1	00
	The applied force reaches 13 kN ± 0.78 kN;	☐ Reach this condition	N/A
.t .d	电池的电压下降至少 100mV		A.
	电视的电压下降至少 100mV The voltage of the cell drops by at least 100 mV;	☐ Reach this condition	N/A
70,	电池变形达原始厚度的 50%或以上/The cell is	1 24c 211 211	0,,
	电视文形应原始序度的 50%或以上/ The cell is deformed by 50% or more of its original thickness.	☐ Reach this condition	N/A
41,5	每个测试的电池或元件电池只做一次挤压试验/Each	The state of the s	21/2
	每个侧域的电池或几件电池只做一次价压试验/Each test cell or component cell is to be subjected to one	20, 20,	N/A



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	ST/SG/AC.10/11/Rev.7/Amend1 Section	on 38.3	
条款 Clause	测试要求 Requirement-Test	结果评判 Result-Remark	结论 Verdict
The s	crush only.	The Market	All T
mr. m	试验样品需观察 6 小时/The test samples shall be observed for a further 6h	Autit Marie Auti	N/A
ETE WALTER	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.	united whited white w	N/A
38.3.4.6.4	要求/ Requirement	24	Р
MITEL MILIER TEK MILIER MILIER	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	WALLER WALLER

38.3.4.7	试验 7 过度充电 /Test T.7: Overcharge	- It let let	P
38.3.4.7.1	目的 /Purpose	Wer Aug Aug	Р
LIEK WALTE	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.	Whitek whitek	ALTEK -W
38.3.4.7.2	试验程序/Test procedure	The Till of	Р
MALTEX W	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.	24A×2=48A	P
MATER WATER	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.	MATER WATER WATER	N/A
MUTER MY	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 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.	70.08V	WILTER OF
TEX MALTER	试验环境温度/ Ambient temperature.	23.8℃	
	试验的进行时间/ The duration of the test.	24h	10 m
38.3.4.7.3	要求 /Requirement	. 11. 11. 1.	Р
White W	充电电池在试验过程中和试验后 7 天内无解体,无起火/Rechargeable battery is no disassembly and no fire during the test and 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7/No	P

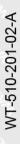
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	ST/SG/AC.10/11/Rev.7/Amend1 Section	n 38.3	
条款 Clause	测试要求 Requirement-Test	结果评判 Result-Remark	结论 Verdict
unitek uni itek naite	EX WHITE WHI	disassembly and no fire during the test within seven days after the test. The data see Table 7	Whitek
38.3.4.8	试验 8 强制放电 / Test 8: Forced discharge	Ver 24 24 2	Р
38.3.4.8.1	目的 Purpose	LET LET LET LE	P
WALTEK W	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.	t whitek whitek white	All Tally
38.3.4.8.2	试验程序/Test procedure	LET SET SET	P
TEX WILLEX	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.	ALTER MUTER MUTER AND	P
antiek antek	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).	Whitek whitek whitek	MALTER POP
38.3.4.8.3	要求/Requirement	It THE STEE WITE	Р
united white	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	antifet v



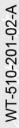




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Test data:

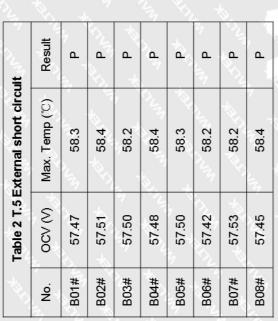
		_3,	<i>S</i>	1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		2	4		6
The state of the s		Resul t	Ъ	۵	Д	۵	Д	Д	а.	Ь
S. Ju	'n	Residua I OCV (%)	100.00	100.00	100.00	100.00	86.98	86.66	100.00	100.00
	T.4 Shock	Mass loss (%)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	T.4 (	300	57.47	57.51	57.50	57.48	57.50	57.42	57.53	57.45
	43	Mass (Kg)	9.797	9.796	9.801	9.799	9.797	9.801	9.795	9.795
\[\frac{1}{5}\]	12 Kg	Residu al OCV (%)	86.66	100.00	100.00	86.66	86.66	100.00	100:00	100.00
	T.3 Vibration	Mass loss (%)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	T.3 V	36	57.47	57.51	57.50	57.48	57.51	57.43	57.53	57.45
7	**; **.	Mass (Kg)	9.797	9.796	9.801	9.799	9.797	9.801	9.795	9.795
3, 3,	st.	Residual OCV (%)	98.88	98.92	98.95	28.87	98.90	98.81	06'86	98.83
3	T.2: Thermal Test	Mass loss( %)	0.000	0.021	0.010	0.000	0.010	0.000	0.021	0.010
		300	57.48	57.51	57.50	57.49	57.52	57.43	57.53	57.45
		Mass (Kg)	9.797	9.796	9.801	9.799	9.797	9.801	9.795	9.795
	ation	Residu al OCV (%)	99.91	98.66	99.93	99.93	99.88	99.91	99.88	99.93
4/2	T.1: Altitude Simulation	Mass loss (%)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	: Altitud	36	58.13	58.14	58.11	58.15	58.16	58.12	58.17	58.13
t	LI O	Mass (Kg)	9.797	9.798	9.802	9.799	9.798	9.801	9.797	9.796
4	Test before	3000	58.18	58.22	58.15	58.19	58.23	58.17	58.24	58.17
Table 1 T.1~T.4	Test k	Mass (Kg)	9.797	9.798	9.802	9.799	9.798	9.801	9.797	9.796
Table	*\ *\	No.	B01#	B02#	B03#	B04#	B05#	#90B	B07#	#80B#





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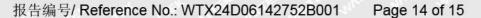
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												-
	Result	П	Ь	۵	а	Ь	Ь	Ь	Ы	P.A	Ф	
Table 3 T.6 Impact / Crush	Max. Temp(°ℂ)	24.2	24.3	24.1	24.2	24.3	24.2	24.1	24.2	24.3	24.1	
Table 3 T.(	OCV (V)	3.282	3.271	3.278	3.262	3.273	3.287	3.285	3.274	3.271	3.286	
ž,	No.	C01#	C02#	C03#	C04#	C05#	#900	#200	#800	#600	C10#	
			770	- 3	5	115				MA.		1

		Table 4 T.7 Overcharge	Overcha	rge	
	Max. Temp	Result	No.	Max. Temp (°C)	Result
#60B	23.8	۵	B13#	24.1	Ь
B10#	24.1	۵	B14#	23.8	200
B11#	23.9	۵	B15#	24.1	۵
B12#	23.8	Ь	B16#	23.9	۵

ない	Result	Ь	۵	<u>а</u>	Ь	<u>a</u>	<b>a</b>	<u>a</u>	_	۵	П
arge	ocv (v)	2.291	2.317	2.316	2.309	2.301	2.318	2.305	2.314	2.303	2.300
lable 5 1.6 Forced discrialge	No.	C21#	C22#	C23#	C24#	C25#	C26#	C27#	C28#	C29#	C30#
JIE DI LO FU	Result	Ь	۵	۵	b d	<u>а</u>	۵	۵	۵	- A	۵
3	ocv (v)	2.321	2.302	2.297	2.305	2.313	2.298	2.302	2.306	2.287	2.295
7	No.	C11#	C12#	C13#	C14#	512集	C16#	C17#	C18#	C1器	C20#





## **Photos**





Photo 2



Photo 3

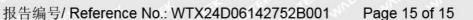




Photo 4

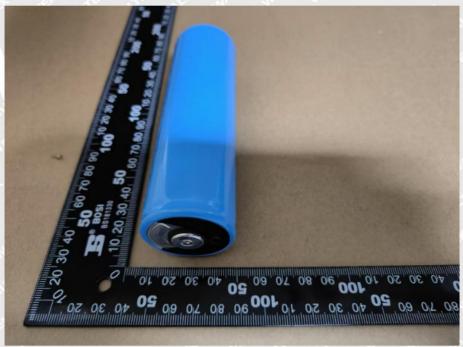


Photo 5

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