

# 「东出入境检验检疫局检验检疫技术中心 GUANGDONG INSPECTION AND QUARANTINE TECHNOLOGY CENTER





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### JS51ZXLFDG

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2019-01-03 Date: Page:

## UN38.3 报告 **UN38.3 Test Report**

样品名称: 锂离子充电电池组

Sample Name: Lithium ion batteries

委托单位: 台州中能摩登电动车科技有限公司

TAIZHOU ZNEN MODERN EV **Applicant:** CO., LTD

东检验检疫技术中心

Guangdong Inspection and Quarantine Technology Center



GUANGDONG INSPECTION AND QUARANTINE TECHNOLOGY CENTER







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## TEST REPORT

样品名称	锂离子充	E电电池组	-C - C	-C 100 -C	100
Sample Name	Lithium i	on batteries			
型号 Model	31500-M	D28-B201	NO. HOLD	18/ 18/5/ 18/	Idic.
委托单位	台州中能	摩登电动车科技有限公司	9 29	Y ASY WY AS	y 9
Applicant	TAIZHO	U ZNEN MODERN EV TECH	H CO., LTD		18
委托单位地址	中国浙江	台州湾循环经济开发区海秀	路 99 号 6-1 幢		
Applicant Address	BUILDIN	NG 6-1,NO.99,HAIXIU ROAL	TAIZHOU CIT	Y,ZHEJIANG PROVINCE	7
生产单位	1 100	工业有限公司			
Manufacture		SHAN FORSEE POWER IND			, ' w
生产单位地址		山市小榄镇工业区工业大道			
Manufacture Address	39 middle	industrial main road,xiaolan i	ndustrial zone,zh		-G"
标称电压 Nominal Voltage	60V	额定容量 Rated Capacity	20.8Ah	充电限制电压 Limited Charge Voltage	65.6V
标准充电电流 Standard Charge Current	4.0A	最大充电电流 Maximum Charge Current	10A	截止电流 Cut Off Current	500mA
标准放电电流 Standard discharge Current	4.0A	最大放电电流 Maximum Discharge Current	20A	放电截止电压 Discharge Cut-off Voltage	48V
电池中的电芯数量 Cell Number In Each Battery	128 PCS	电芯型号 Cell Model	LGEBM261865	电芯容量 Cell Capacity	2600mAh
电芯生产单位 Manufacturer of cell	die	.87	LG	Still	, di
测试方法和判定标准 Test method and criterion	38.3 UNITED	关于危险货物运输的建议书 NATIONS "Recommendation of Tests and Criteria ST/SG/AC	ns on the TRAN	SPORT OF DANGEROUS	
接样时间 Accepted date	198	2018-12-08	测试日期 Test date	2018-12-08-2019-0	01-03
测试项目 Test items		l、温度试验、振动、冲击、 imulation, Thermal test, Vibra scharge.			vercharge
(A) (A)		该样品符合联合国《关	于危险货物运车	渝的建议书 试验和标	准手册》
结论	ST/SG/A	C.10/11/Rev.6/Amend.1, 38.3	标准要求。	JATONS Recommendan	9
Conclusion	TRANSP	ORT OF DANGEROUS	GOODS",	Manual of Test and	
Conclusion	TRANSP ST/SG/A		GOODS",	Manual of Test and	

批准

Approver:

审核

Checker:

Appraiser:









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序号 No.	测试项目名称 Name of test	标准要求或标准条款号 Stand requirement or the clause number of standard	测试结果 Test result	本项结论 Test conclusion	备注 Remark
1 9	高空模拟 Altitude simulation	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.1 Test T.1	a	合格 Passed	4/1
2	温度循环 Thermal test	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.2 Test T.2	a	合格 Passed	
3	振动 Vibration	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.3 Test T.3	a	合格 Passed	4
4	冲击 Shock	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.4 Test T.4	a	合格 Passed	//
5	外部短路 External short circuit	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.5 Test T.5	a	合格 Passed	1
6	撞击 Impact	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.6 Test T.6	a	合格 Passed	4/1
7	过度充电 Overcharge	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.7 Test T.7	a	合格 Passed	
8	强制放电 Forced discharge	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteri ST/SG/AC.10/11/Rev.6/Amend.1, 38.3 试验T.8 Test T.8	a	合格 Passed	4/1
Test	测试环境 environment condition	环境温度:20℃-25℃;5 Ambient temperature: 20℃-25℃,			- Idig
9	分包测试情况	测试项目 Test items		NE STE	IGIC .
ALC:	Subcontracted test condition	分包实验室 Subcontracted Laboratory Address		邮编 Post code 电话 Tel	/

<sup>1.</sup> 本报告结果仅对测试样品负责。The results in this report are relevant only to the sample(s) tested. 2. 未经签发机构书面同意,不得部分引述或复制本报告。Without written permission of IQTC, this report shall not be quoted or reproduced except in full.



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序号 No.	附表 1 Appendix 1					高空模拟 Altitude simulation		
标准要求 Requirement of Standard	池组应无重量 在试验后的开 组除外)。 Test cells and b temperature 20 venting, no dis-	池组在压力等损失、无渗漏路电压不少于 atteries shall be ±5℃. Cells and assembly, no rusting is not less atting to voltage	、无排气、无的 其在进行这一句 e stored at a pred l batteries meet upture and no fir than 90% of its	解体、无破裂 试验前电压的 essure of 11.6kl this requirement re and if the oper voltage immed	和无燃烧,并 90%(完全放 Pa or less for a nt if there is no en circuit volta diately prior to	且每个试验电 电状态的试验 t least six hours o mass loss, no age of each test this procedure	池或电池组 电池或电池 s at ambient leakage, no cell or . The	
样品状态 Sample status	b1#~b4#: first b5#~b8#: 第二	一个循环完全为 cycle in fully cl 二十五个循环分 25 cycles endir	narged states; E全充电的电池			Mic Alic	NE WE	
	测试前 Before		测试后	测试后 After		剩余电压		
样品编号 Sample No.	电池质量 m <sub>1</sub> (kg)	开路电压 v <sub>1</sub> (v)	电池质量 m <sub>2</sub> (kg)	开路电压 v <sub>2</sub> (v)	质量损失 Mass loss (%)	Residual OCV(%)	测试结果 Test result	
b1#	10.296	65.3	10.296	65.3	0.00	100.00	O	
b2#	10.290	65.3	10.290	65.3	0.00	100.00	O	
b3#	10.284	65.3	10.284	65.3	0.00	100.00	О	
b4#	10.280	65.4	10.280	65.3	0.00	99.85	О	
b5#	10.278	65.3	10.278	65.3	0.00	100.00	О	
b6#	10.282	65.3	10.282	65.3	0.00	100.00	O	
b7#	10.272	65.3	10.272	65.3	0.00	100.00	O	
b8#	10.278	65.3	10.278	65.3	0.00	100.00	0	

V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、 无解体、无破裂、无起火。 Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire.

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序号 No.		表 2 ndix 2		测试项目名称 Name of test			温度循环 Thermal test		
标准要求 Requirement of Standard	下存放至少 6h	L。两个极端试在环境温度 20 、无破裂和无 验前电压的 90 and batteries a ed by storage for interval between es, after which 0±5℃). Cells and disassembly, no string is not less	n%(完全放电2 re to be stored for at least 6 hou en test temperate all test cells and nd batteries mee or rupture and no than 90% of its	最大时间间隔 h. 试验电池或 计态的试验电 or at least 6 hours at a test tem ure extremes is d batteries are to this requirem of fire and if the voltage immed	为 30min。重或电池组应无电池组在试验池或电池组的。 他或电池组的。 他或电池组的。 burs at a test tenperature equals 30 minutes. It to be stored for the is open circuit veliately prior to	复 10 次,再注重量损失、列重量损失、列后的开路电压分)。 mperature equato -40±2℃. This procedure r 24 hours at a no mass loss, soltage of each this procedure	将所有试验 E添漏、无 E不少于其 al to The is to be mbient no leakage, test cell or e. The		
样品状态 Sample status	b1#~b4#:第一 b1#~b4#: 第二 b5#~b8#:第二 b5#~b8#: after	cycle in fully ch 二十五个循环完	narged states; E全充电的电池		S. INS. INS.	Age Age	ic late a		
+Y 口 /è 口	测试前 Before		测试后 After		质量损失	剩余电压	NELL BALLET		
样品编号 Sample No.	电池质量 m <sub>l</sub> (kg)	开路电压 v <sub>1</sub> (v)	电池质量 m <sub>2</sub> (kg)	开路电压 v <sub>2</sub> (v)	Mass loss (%)	Residual OCV(%)	测试结果 Test result		
					C	250			
b1#	10.296	65.3	10.294	65.0	0.02	99.54	0		
b1# b2#	7	65.3 65.3	10.294 10.288	- V	0.02	99.54 99.54	0		
9 .c. Y	10.296	The second	W.C.	65.0	V 49	, V	7		
b2#	10.296	65.3	10.288	65.0	0.02	99.54	О		
b2# b3#	10.296 10.290 10.284	65.3 65.3	10.288	65.0 65.0 65.1	0.02	99.54	0		
b2# b3# b4#	10.296 10.290 10.284 10.280	65.3 65.3	10.288 10.282 10.278	65.0 65.0 65.1 65.0	0.02 0.02 0.02	99.54 99.69 99.54	0 0		
b2# b3# b4# b5#	10.296 10.290 10.284 10.280 10.278	65.3 65.3 65.3	10.288 10.282 10.278 10.276	65.0 65.1 65.0 65.0	0.02 0.02 0.02 0.02	99.54 99.69 99.54 99.54	0 0 0		

注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、 无解体、无破裂、无起火。 Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire.

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附表3

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测试项目名称

### JS51ZXLFDG

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振动

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No.	Ap	pendix 3	7	Name of test	137	Vibrat	uon
标准要求 Requirement of Standard	1gn的最大加速速度达到 2gn(的电池或电池损失、无渗漏电压不少于其The large Cells distorting the c sinusoidal wavuntil 18Hz is refrequency increof 2gn is then n times for a tota of the direction requirement if if the open circ immediately pr	歷度,直到 18Hz. 频率约为 25Hz 组安装方向的名 、无排气、无解 在进行这一试验 and batteries ar ells in such a ma eform with a log eached. The amp eased until a pea naintained until l of 3 hours for s of vibration mass uit voltage of ea	e 或通过夹具多。然后将振幅仍然后将振幅仍然后将振幅仍然一个方向重复进程体、无破裂和险前电压的 90% re firmly secured anner as to faith garithmic sweep olitude is then mak acceleration of the frequency is each of three must be perpendicularly be detected of the fedure. The required states	R持在 0. 8mm( 定保持在 2gn 直 行 12 次,一 无燃烧,并且 6(完全放电: I to the platfor fully transmit of from 7Hz to a aintained at 0. f 2gn occurs (a increased to 2 utually perpendent cular to the ter e, no venting, nattery after tes	总偏移 1.6mm 直到频率增加 共振动 3h。 i 上每个试验电池 状态的试验电 状态的试验电 the vibration. 'a peak accelera 8mm (1.6mm approximately 200Hz. This cy dicular mounti rminal face. Ce no disassembly ting is not less	n),并增加频率到 200Hz。对 3 式验电池或电池或电池组在记池或电池组在记池或电池组图 tion machine wation of 1gn is retotal excursion 25Hz). A peak ycle shall be reping positions of ells and batteries, no rupture and than 90% of its shan 90% of its and stars.	医直到最大加三个互相垂直 他组应无重量 试验后的开路 (就验后的开路 (shall be a maintained a) and the cacceleration peated 12 f the cell. Onces meet this and no fire and ts voltage
-9/	7/ 14/	一个循环完全充	电的电池;	AC.	With The	No. of the last	es d
样品状态 Sample status	b1#~b4#: first (b5#~b8#: 第二		arged states; 全充电的电池 g in fully charge				
Sample status	b1#~b4#: first (b5#~b8#: 第二	二十五个循环完 25 cycles endin	全充电的电池	ed states.	质量损失	—————————————————————————————————————	W17-14-1-11
Sample status 样品编号	b1#~b4#: first (b5#~b8#: 第二 b5#~b8#: 第二	二十五个循环完 25 cycles endin	全充电的电池 g in fully charge	ed states.	质量损失 Mass loss (%)	剩余电压 Residual OCV(%)	4,70,30
Sample status 样品编号	b1#~b4#: first b5#~b8#: 第二 b5#~b8#: 第二 测试前 电池质量	二十五个循环完 25 cycles endin Before 开路电压	全充电的电池 g in fully charge 测试后 电池质量	After 开路电压	Mass loss	Residual	测试结果 Test result O
Sample status 样品编号 Sample No.	b1#~b4#: first ob5#~b8#: 第二 b5#~b8#: 第二 b5#~b8#: after 测试前 电池质量 m <sub>1</sub> (kg)	二十五个循环完 25 cycles endin Before 开路电压 v <sub>1</sub> (v)	全充电的电池 g in fully charge 测试后 电池质量 m <sub>2</sub> (kg)	ed states.  After  开路电压  v2(v)	Mass loss (%)	Residual OCV(%)	Test result
Sample status 样品编号 Sample No.	b1#~b4#: first ob5#~b8#: 第三 b5#~b8#: 第三 b5#~b8#: after 测试前 电池质量 m <sub>1</sub> (kg)	十五个循环完 25 cycles endin Before 开路电压 v <sub>1</sub> (v) 65.0	全充电的电池 g in fully charge 测试后 电池质量 m <sub>2</sub> (kg) 10.294	After  开路电压 v2(v)  65.0	Mass loss (%) 0.00	Residual OCV(%) 100.00	Test result
Sample status 样品编号 Sample No. b1#	b1#~b4#: first ob5#~b8#: 第二 b5#~b8#: 第二 b5#~b8#: after 测试前 电池质量 m <sub>1</sub> (kg) 10.294	H五个循环完 25 cycles endin Before 开路电压 v <sub>1</sub> (v) 65.0	全充电的电池 g in fully charge 测试后 电池质量 m <sub>2</sub> (kg) 10.294	ed states.  After  开路电压 v2(v)  65.0  65.0	Mass loss (%) 0.00 0.00	Residual OCV(%) 100.00 100.00	O O
Sample status 样品编号 Sample No. b1# b2# b3#	b1#~b4#: first b5#~b8#: 第三 b5#~b8#: 第三 b5#~b8#: after 测试前 电池质量 m <sub>1</sub> (kg) 10.294 10.288	+五个循环完 25 cycles endin Before 开路电压 v1(v) 65.0 65.0	全充电的电池 g in fully charge 测试后 电池质量 m <sub>2</sub> (kg) 10.294 10.288	After  开路电压 v2(v)  65.0  65.0	Mass loss (%)  0.00  0.00  0.00	Residual OCV(%) 100.00 100.00 99.85	O O O
Sample status 样品编号 Sample No. b1# b2# b3# b4#	b1#~b4#: first b5#~b8#: 第二 b5#~b8#: 第二 b5#~b8#: after 测试前 电池质量 m <sub>1</sub> (kg) 10.294 10.288 10.282	十五个循环完 25 cycles endin Before	全充电的电池 g in fully charge 测试后 电池质量 m <sub>2</sub> (kg) 10.294 10.288 10.282	ed states.  After  开路电压 v2(v)  65.0  65.0  65.0	Mass loss (%)  0.00  0.00  0.00  0.00	Residual OCV(%) 100.00 100.00 99.85 100.00	O O O O
Sample status 样品编号 Sample No. b1# b2# b3# b4# b5#	b1#~b4#: first ob5#~b8#: 第二 b5#~b8#: 第二 b5#~b8#: after 测试前 电池质量 m1(kg) 10.294 10.288 10.282 10.278	二十五个循环完 25 cycles endin Before 开路电压 v1(v) 65.0 65.0 65.1 65.0	全充电的电池 g in fully charge 测试后 电池质量 m <sub>2</sub> (kg) 10.294 10.288 10.282 10.278	After  开路电压 v2(v) 65.0 65.0 65.0 65.0	Mass loss (%)  0.00  0.00  0.00  0.00  0.00	Residual OCV(%)  100.00  100.00  99.85  100.00  100.00	O O O O

Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire.

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附表 4

Postcode:510623

测试项目名称

### JS51ZXLFDG

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No.	Ap	pendix 4	19	Name of te	est	Sho	ck
标准要求 Requirement of Standard	g <sub>n</sub> =√(30000 / m 其正负极各冲 解体、无破裂和 验前电压的 90 Test cells and b support all mou shock of peak a milliseconds. E by three shocks or battery for a leakage, no ven cell or battery a	中较小者 击 3 次,共冲 和无燃烧,并且 %(完全放电 atteries shall be inting surfaces cceleration of s ach cell or batt in the negative total of 18 shoot ting, no disasse fter testing is n ating to voltage	紧固在试验装置的正弦波冲击,击 18 次。各试量每个试验电池状态的试验电池。状态的试验电路。 secured to the of each test batt 50gn or acceleratery shall be subjected in cks. Cells and batter bear bear bear bear bear bear bear be	,脉冲持续时 验电池或电池 或电池组在试 池或电池组除 testing machin ery. Each Larg tion $(g_n) = \sqrt{30}$ jected to three s ree mutually per atteries meet the re and no fire a 6 of its voltage	间 11ms,接三组应无重量损益后的开路电外)。 e by means of a e batteries shall $0000 / mass$ ashocks in the popendicular modis requirement and if the open commediately propertions of the popen commediately propertions.	个相互垂直的 失、无渗漏、 压不少于其在 a rigid mount we be subjected to nd pulse durationsitive direction bunting position if there is no medirecuit voltage of ior to this procession.	轴向分别对 无排气、无 进行这一记 which will o a half-sine on of 11 in followed as of the cell mass loss, no of each test redure. The
样品状态 Sample status		cycle in fully ch 二十五个循环完				Tale Ale	e die
In the second	测试前	测试后	测试后 After 质量损失		剩余电压	Karla Baller	
134 U 754 U	.0 19		7 3/		质量损失	刺余电压	250 LA 74 EE
样品编号 Sample No.	电池质量 m <sub>l</sub> (kg)	开路电压 v <sub>1</sub> (v)	电池质量 m <sub>2</sub> (kg)	开路电压 v <sub>2</sub> (v)	质量损失 Mass loss (%)	剩余电压 Residual OCV(%)	
		27			Mass loss	Residual	测试结果 Test resul O
Sample No.	m <sub>1</sub> (kg)	v <sub>1</sub> (v)	m <sub>2</sub> (kg)	v <sub>2</sub> (v)	Mass loss (%)	Residual OCV(%)	Test resul
Sample No.	m <sub>1</sub> (kg)	v <sub>1</sub> (v) 65.0	m <sub>2</sub> (kg) 10.294	v <sub>2</sub> (v) 65.0	Mass loss (%) 0.00	Residual OCV(%)	Test resul
b1#	m <sub>1</sub> (kg) 10.294 10.288	v <sub>1</sub> (v) 65.0 65.0	m <sub>2</sub> (kg) 10.294 10.288	v <sub>2</sub> (v) 65.0 65.0	Mass loss (%)  0.00  0.00	Residual OCV(%)  100.00  100.00	O O
b1# b2# b3#	m <sub>1</sub> (kg) 10.294 10.288 10.282	65.0 65.0 65.0	m <sub>2</sub> (kg) 10.294 10.288 10.282	v <sub>2</sub> (v) 65.0 65.0 65.0	Mass loss (%)  0.00  0.00  0.00	Residual OCV(%)  100.00  100.00  100.00	O O O
b1# b2# b3# b4#	m <sub>1</sub> (kg)  10.294  10.288  10.282  10.278	65.0 65.0 65.0 65.0	m <sub>2</sub> (kg) 10.294 10.288 10.282 10.278	v <sub>2</sub> (v) 65.0 65.0 65.0	Mass loss (%)  0.00  0.00  0.00  0.00	Residual OCV(%)  100.00  100.00  100.00  100.00	O O O
b1# b2# b3# b4# b5#	m <sub>1</sub> (kg) 10.294 10.288 10.282 10.278 10.276	v <sub>1</sub> (v) 65.0 65.0 65.0 65.0 65.0	m <sub>2</sub> (kg) 10.294 10.288 10.282 10.278 10.276	v <sub>2</sub> (v) 65.0 65.0 65.0 65.0 65.0	Mass loss (%)  0.00  0.00  0.00  0.00  0.00	Residual OCV(%)  100.00  100.00  100.00  100.00  100.00	O O O O

注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、 无解体、无破裂、无起火。 Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire.

<sup>1.</sup> 本报告结果仅对测试样品负责。The results in this report are relevant only to the sample(s) tested. 2. 未经签发机构书面同意,不得部分引述或复制本报告。Without written permission of IQTC, this report shall not be quoted or reproduced except in full.



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### JS51ZXLFDG

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序号 No.		试项目名称 Name of test	外部短路 External short circuit
标准要求 Requirement o Standard	待试验电池或电池组的外壳温度稳定在 57±小于 0.1Ω 的短路条件,当电池或电池组外壳再观察电池或电池组 6h 才结束试验。电池或6h 内应无解体、无破裂和无燃烧。The cell or battery to be tested shall be tempera freaches 57±4℃ and then the cell or battery shatexternal resistance of less than 0.1 ohm at 57±4 least one hour after the cell or battery external content battery must be observed for a further six hours this requirement if their external temperature do rupture and no fire within six hours of this test.	売温度回到 57±4℃后继线电池组的外壳温度应不 就电池组的外壳温度应不 all be subjected to a short ↓℃. This short circuit con case temperature has return for the test to be concluded ones not exceed 170℃ and	读至少 1h,然后短路断开 下超过 170℃,并且试验后 external case temperature circuit condition with a tota dition is continued for at rned to 57±4℃. The cell or led. Cells and batteries meet
样品状态 Sample status	b1#~b4#:第一个循环完全充电的电池; b1#~b4#: first cycle in fully charged states; b5#~b8#:第二十五个循环完全充电的电池。 b5#~b8#: after 25 cycles ending in fully charge		in the late late
样品编号 Sample No.	样品表面最高温度 Max External Temperature(℃)	测试结果 Test result	备注 Remark
b1#	57.3	0	The state of the s
	0 9 0	0/ //	. 07
b2#	56.6	0	
b2# b3#	56.6	0	
- KIE		10 10 10 10 10 10 10 10 10 10 10 10 10 1	
b3#	56.4	O	
b3# b4#	56.4	0	
b3# b4# b5#	56.4 56.3 56.8	0 0	

D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。



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序号 No.	附表( Appendi		INC.	测试项目 Name of		撞击 Impac	L 1015
4- <del>11.</del> 44 -1	直径(15.8±0.1)至 ±0.1)千克的重锤的、对落体重锤阻 表面支撑表面呈 90 接受撞击的试样, 的纵轴垂直,每个	池放在平坦 毫米,长61±2 人人最不下。 人人最落应, 人人, 人, 人, 人, 人, 人, 人, 人, 人, 人, 人, 人, 人	光滑的表面至少 6 厘米 5 )厘米 高直轨道或管 坦表面平行一次撞击。	面上,一根 31 代,或电池最长 所处跌落到钢棒 管道加以控制 计与横放在	6型不锈钢棒横放在 长端的尺度,取二者 奉和试样交叉处。使 ,垂直轨道或管道用 试中心的直径(15.8 并且在试验过程中	之长者,用 用一个几乎 于引导落锤 ±0.1)毫米	一块(9.1 没有摩擦 沿与水平 弯曲表面
标准要求 Requirement of Standard	Impact(applicable to Test procedure – Imcell or component co 6 cm long, or the lon be placed across the ± 2.5 cm at the intervertical sliding track used to guide the fa The test sample is perpendicular to the the center of the test Cells and compone	o cylindrical apact (appliced list to be progest dimensional center of the cresction of corchannel alling mass as to be imple longitudinal sample. Eacent cells mee	able to cylillaced on a fision of the ce sample. At the bar and with minimulated with axis of the ch sample is this require	findrical cells g flat smooth sur- cell, whichever $49.1 \text{ kg} \pm 0.1 \text{ l}$ I sample in a smal drag on the cented 90 degration its longitude to 15.8 mm $\pm 0$ is to be subjected the ement if their	in diameter): greater than 20 mm in rface. A 15.8 mm ±0. r is greater, Type 316 kg mass is to be dropp controlled manner us: e falling mass. The ver- rees from the horizon inal axis parallel to 0.1 mm diameter curve ed to only a single imp external temperature test and within six ho	Imm diamer stainless steed from a hear from a near front from a heartical track tal supporting the flat sued surface lypact.	ter, at leas el bar is to eight of 61 rictionless or channel ng surface urface and ring across
样品状态 Sample status	C1#~C5#:第一个 C1#~C5#: first cycle C6#~C10#:第二十 C6#~C10#: after 25	e at 50% of t 一五个循环 5	the design r 50%的额定	ated capacity o 容量的电芯。			
样品编号 Sample No.	样品表面最高温度 Max External Temperature(℃)		备注	样品编号 Sample No.	样品表面最高温度 Max External Temperature(℃)	测试结果 Test result	备注 Remark
C1#	103.7	0	9/1	C6#	103.3	0	4/1
C2#	95.3	0		C7#	98.5	О	SV.
C3#	97.5	О		C8#	96.2	0	
C4#	101.5	O		C0#	94.8		7 2
C4#	407		-0	C9#	94.0	0	1 %

注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。



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序号 No.	附表 7 Appendix 7	测试项目名称 Name of test	过度充电 Overcharge	
标准要求 Requirement of Standard	(a) 制造商建议的充电电压倍或 22V 两者中的较少者。 (b) 制造商建议的充电电压可再充电电池组在环境温度The charge current shall be two current. The minimum voltage (a) When the manufacturer's revoltage of the test shall be the 22V. (b) When the manufacturer's reformed the test shall be 1.2 times the Tests are to be conducted at	ecommended charge voltage is no lesser of two times the maximum ecommended charge voltage is me	电压应是电池组最大充电 应是最大充电电压的 1. 天内应无解体和无燃烧。 ded maximum continuous t more than 18V, the min charge voltage of the bat ore than 18V, the minimu tion of the test shall be	包电压的说 2倍。 s charge imum tery or m voltage 24 hour
样品状态 Sample status	b1#~b4#:第一个循环完全充b1#~b4#: 第二个循环完全充b5#~b8#:第二十五个循环完b5#~b8#: 第二十五个循环完	narged states; E全充电的电池。	the file file file	in the state of th
样品编号 Sample No.	测试结身 Test resu		备注 Remark	ic Mic
b1#	0	The state of the s		io soic
b2#	0	The same of the		E A
b3#	W W W O	S. W. W. W.	AND THE STATE OF T	ç, le
b4#	0	the state of the s		Wig.
b5#	0	10 10 10 10 10 10 10 10 10 10 10 10 10 1		igit.
0 1 611	0	Y AS Y	9 69 L 9 6	S.
b6#	7 19 7 19	19 18		
b6# b7#	0			

注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。



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序号 No.	附表 8 Appendix	8	测试项目名 Name of t		强制放电 Forced discharge
标准要求 Requirement of Standard	定的最大放电电流的燃烧。 Each cell shall be for D.C. power supply at manufacturer. The sp appropriate size and r interval (in hours) equivalents	的条件下强制 ced discharge an initial curr ecified discharating in series ual to its rated	放电。原电池或可引d at ambient temperate rent equal to the maxinge current is to be old with the test cell. Eall capacity divided by	再充电电池在证 ture by connect mum discharge btained by conn ich cell shall be the initial test c	在起始电流等于制造商给式验后 7 天内应无解体和无ing it in series with a 12V ecurrent specified by the secting a resistive load of the forced discharged for a time turrent (in Ampere). Primary and no fire within seven days
样品状态 Sample status	C11#~C20#:第一个 C11#~C20#: first eye C21#~C30#:第二十 C21#~C30#: after 25	le in fully dis 五个循环完	charged states; 全放电的电芯。	The Party of	to late late to
样品编号 Sample No.	测试结果 Test result	备注 Remark	样品编号 Sample No.	测试结果 Test resul	7/ -53 - 7/
C11#	0	1 1 m	C21#	0	1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4
C12#	0	V. Y	C22#	0	
C13#	0	1	C23#	O	9 4 L
C14#	О	10	C24#	0	4 14
C15#	0	1	C25#	0 4	
C16#	0	1	C26#	O	5
C17#	O	19	C27#	O	9 3 1 9
C18#	O	1	C28#	0 %	/
C19#	O	Y	C29#	O	y y y
C20#	O	4/ 19/	C30#	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

R-破裂; F-起火; O-无解体、无破裂、无起火。



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### 样品图片 Photo of the sample

### 电池与电芯/Battery and Cell











\* \* \* \* \* \* \* \*

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