<u>igtc</u> 广州海关技术中心

地址:中国广东省广州市天河区珠江新城花城大道66号B座 邮编Postcode: 510623 Add.: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, Guangdong, P.R.C. 电话Tel: 020-22131000 邮箱Email: ppdc@iqtenet.cn 网址Website: https://www.iqtenet.cn District, Guangdong, P.R.C.

UN38.3 报告 UN38.3 Test Report

样品名称: 可充电锂电池模块

Sample Name: Rechargeable Li-ion Battery Module

委托单位:

广州三晶电气股份有限公司

Applicant:

Guangzhou Sanjing Electric Co., Ltd.





5TFBZPN282

1. 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. 未经鉴发机构书面同意,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.

TER

广州海关技术中心



GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

iqtc

检测证书 TEST REPORT

	IESI REPU			
样品名称 Sample Name	可充电锂电池模块 Rechargeable Li-ion Battery Module	NGTHOUS	GUANO	0-
型号 Model	BU2-5.3-HV3 Premium	GUP"	CENT	a and a start
委托单位 Applicant	广州三晶电气股份有限公司 Guangzhou Sanjing Electric Co., Ltd.	, CEIM	.0100	ALEC'
委托单位地址 Applicant Address	中国广东广州高新技术产业开发区科 No. 9, Lizhishan Road, Science City, G		Zone, Guangdong,	P.R.China
生产单位 Manufacture	广州三晶电气股份有限公司 Guangzhou Sanjing Electric Co., Ltd.	S. BDI	CUST.	atho
生产单位地址 Manufacture Address	中国广东广州高新技术产业开发区科 No. 9, Lizhishan Road, Science City, G		Zone, Guangdong,	P.R.China
样品外观与性状 Appearance & Odor	白色金属外壳 White metal shell	0	WIER	00104
测试方法和判定标准 Test method and criterion	联合国《关于危险货物运输的建议书 UNITED NATIONS "Recommendation Manual of Tests and Criteria ST/SG/AG	ons on the TRANSP		
接样时间 Accepted date	2022-11-10	测试日期 Test date	检验检测专用 2022(11-10~20)	章 22-12-06
测试项目 Test items	高度模拟、温度试验、振动、冲击、 Altitude simulation, Thermal test, Vibra Forced discharge.	外部短路、挤压、主 ation, Shock, External	过度充 ^{46°} 。 <mark></mark> 編制 short circuit, Cru	文电。 sh, Overcharge
结论 Conclusion	经测试,该样品符合联合国《关 ST/SG/AC.10/11/Rev.7,38.3标准要求 The sample has passed the test item TRANSPORT OF DANGEROUS ST/SG/AC.10/11/Rev.7,38.3.	き。 ns of UNITED NATI	ONS "Recomme	和标准手册》 ndations on th and Criteri
备注 Remark	1.随附 UN38.3 试验概要(编号: 01 Attached with UN38.3 test summary			
批准 Approver: 下本 ¥	市核 Checker: ジネルの	主 主 Ap	b praiser: }	民住

. 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.

广州海关技术中心 🗰



GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

电池组信息:

iqtc

The batteries information:

电池类型 Battery type	锂离子电池组 Lithium ion batteries	标称电压 Nominal Voltage	102.4V
额定容量 Rated Capacity	52 Ah	总能量 Total Energy	5324Wh
充电限制电压 Limited Charge Voltage	115.2V	标准充电电流 Standard Charge Current	10.4A
最大充电电流 Maximum Charge Current	52A	充电截止电流 Charge Cut-off Current	2A CAT
标准放电电流 Standard discharge Current	10.4A	最大放电电流 Maximum Discharge Current	52A
电芯数量 Cell Quantity	32 PCS	电芯型号 Cell Model	D0C24A
电芯容量 Cell Capacity	52Ah	电芯生产单位 Manufacturer of cell	宁德新能源科技有限公司 Ningde Amperex Technology limited

1. 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. 未经鉴发机构书面问意,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.

广州海关技术中心 GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

iqtc

地址:中国广东省广州市天河区珠江新城花城大道66号B座 邮编Postcode: 510623 Add.: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, Guangdong, P.R.C. 电话Tel: 020-22131000 邮箱Email: ppdc@iqtcnet.cn 网址Website: https://www.iqtcnet.cn 因让Website: https://www.iqtcnet.cn 因让Website: https://www.iqtcnet.cn 因此 average average

M/

序号 No.	测试项目名称 Name of test	标准要求或标: Stand requirement or the standar	e clause number of	测试结果 Test result	本项结论 Test conclusion	备注 Remark
1	高度模拟 Altitude simulation	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.1 Test T.1	nual of Tests and	见附表 1 See Appendix 1	合格 Passed	CHNOL
2	温度试验 Thermal test	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.2 Test T.2	nual of Tests and	见附表 2 See Appendix 2	合格 Passed	1
3	振动 Vibration	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.3 Test T.3	nual of Tests and	见附表 3 See Appendix 3	合格 Passed	STHOP
4) 01/5 0	冲击 Shock	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.4 Test T.4	nual of Tests and	见附表 4 See Appendix 4	合格 Passed	bol ophili
5	外部短路 External short circuit	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.5 Test T.5	nual of Tests and	见附表 5 See Appendix 5	合格 Passed	TOMSDIE
6	挤压 Crush	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.6 Test T.6	nual of Tests and	见附表 6 See Appendix 6	合格 Passed	1
27	过度充电 Overcharge	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.7 Test T.7	nual of Tests and	见附表 7 See Appendix 7	合格 Passed	8 1
851	强制放电 Forced discharge	联合国《关于危险货物运 和标准手册》UN Ma Criteria ST/SG/AC.10/11 T.8 Test T.8	nual of Tests and	见附表 8 See Appendix 8	合格 Passed	RECTIC
Test er	测试环境 nvironment condition		度:20℃-25℃;环 rature: 20℃-25℃, A			GIN

. 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. 1. 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.

		ue, Zhujiang Xinch	Postcode: 510623 neng, Tianhe Disti 列址Website: https	rict, Guangzhou, (Date: 2022	2200003366 2-12-09 of 14
序号 No.		附表 1 opendix 1	ISTON	测试项目名利 Name of test		高度模打 Altitude simu	
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 temperature 20 venting, no dis battery after te	池组在压力等 损失、无渗漏 路电压不少于 batteries shall be 0±5℃. Cells and sassembly, no ru esting is not less	、无排气、无加 其在进行这一前 e stored at a pre l batteries meet pture and no fin than 90% of its	解体、无破裂; 式验前电压的 ssure of 11.6kl this requirement e and if the oper voltage immed	和无燃烧,并且 90%(完全放电 Pa or less for at l nt if there is no r en circuit voltag diately prior to th	1每个试验电》 包状态的试验自 least six hours mass loss, no le e of each test c his procedure.	也或电池组 电池或电池 at ambient eakage, no cell or
	requirement re	elating to voltage	e is not applicat	le to test cells	and batteries at t	fully discharge	
样品状态 Sample status	b1#~b2#: 第 b1#~b2#: fir b3#~b4#: 第	一个循环完全充 st cycle in fully 二十五个循环完 ter 25 cycles end	E电的电池; charged states; E全充电的电池	in Jolstonis	and batteries at 1	fully discharge	
Sample status	b1#~b2#: 第 b1#~b2#: fir b3#~b4#: 第 b3#~b4#: aft	一个循环完全充 st cycle in fully 二十五个循环完	E电的电池; charged states; E全充电的电池 ling in fully cha	in Jolstonis	GUANGTHOUC	JSTO GUR	d states.
Sample status 样品编号	b1#~b2#: 第 b1#~b2#: fir b3#~b4#: 第 b3#~b4#: aft	一个循环完全充 rst cycle in fully 二十五个循环完 ter 25 cycles end	E电的电池; charged states; E全充电的电池 ling in fully cha	rged states.	md batteries at f	fully discharge 剩余电压 Residual OCV(%)	
Sample status 样品编号	b1#~b2#: 第 b1#~b2#: fir b3#~b4#: 第 b3#~b4#: aff 测试前 电池质量	一个循环完全充 rst cycle in fully 二十五个循环完 ter 25 cycles end Before 开路电压	E电的电池; charged states; E全充电的电池 ling in fully cha 测试后 电池质量	rged states. T After 开路电压	质量损失 Mass loss	剩余电压 Residual	d states. 测试结果
Sample status 样品编号 Sample No.	b1#~b2#: 第 b1#~b2#: fir b3#~b4#: 第 b3#~b4#: afi 测试前 电池质量 m _l (kg)	一个循环完全充 est cycle in fully 二十五个循环完 ter 25 cycles end Before 开路电压 v ₁ (V)	E电的电池; charged states; E全充电的电池 ling in fully cha 测试后 电池质量 m ₂ (kg)	rged states. F After 开路电压 v2(V)	质量损失 Mass loss (%)	剩余电压 Residual OCV(%)	od states. 测试结果 Test result
Sample status 样品编号 Sample No. b1#	b1#~b2#: 第 b1#~b2#: fir b3#~b4#: 第 b3#~b4#: aft 测试前 电池质量 m ₁ (kg) 50.858	一个循环完全充 rst cycle in fully 二十五个循环完 ter 25 cycles end Before 开路电压 v1(V) 105.6	E电的电池; charged states; E全充电的电池 ling in fully cha 测试后 电池质量 m ₂ (kg) 50.858	rged states. f After 开路电压 v ₂ (V) 105.6	质量损失 Mass loss (%) 0.00	剩余电压 Residual OCV(%) 100.00	d states. 测试结果 Test result 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.

1. 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. 未经鉴发机构书面同意,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.

gtc J	- 州 海)	↓ 技 木 □		
GI	JANGZHOU CUSTOMS D	USTRICT TECHNOLOG	Y CENTER	Keim Testing CNASL2322
100	Huacheng Avenue, Zhujiang Xin	编Postcode: 510623 cheng, Tianhe District, Guangz 网址Website: https://www.iqter	Date	Co
CHANNEL CHANNEL	EF JOSTOF	TECHNOL STRUCT	and the second sec	
序号 No.	附表 2 Appendix 2	测试项目 Name of	C.S.	温度试验 ermal test
EC. ME	下存放至少 12h。两个极:	端试验温度之间的最大时	序放至少 12h,接着在试验 间间隔为 30min。重复 10 验电池或电池组应无重量	次,再将所有试

标准要求 Requirement of Standard 无 推气、无解体、无破裂和无燃烧,并且每个试验电池或电池或电池组除外)。 Test large cells and batteries are to be stored for at least 12 hours at a test temperature equal to $72\pm 2^{\circ}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}$). Cells and batteries meet this requirement if there is no mass loss, no leakage, no venting, no disassembly, no rupture and no fire and if 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.

样品状态 Sample
status

b1#~b2#: 第一个循环完全充电的电池; b1#~b2#: first cycle in fully charged states; b3#~b4#: 第二十五个循环完全充电的电池。

b3#~b4#: after 25 cycles ending in fully charged states.

	0	. 0-1		147	-	1	
	测试前	Before	测试后	After	质量损失	剩余电压	H
样品编号 Sample No.	电池质量 m _l (kg)	开路电压 v1(V)	电池质量 m ₂ (kg)	开路电压 v2(V)	Mass loss (%)	Residual OCV(%)	测试结果 Test result
b1#	50.858	105.6	50.858	105.5	0.00	99.91	0
b2#	50.626	105.7	50.626	105.6	0.00	99.91	0
b3#	50.528	105.8	50.528	105.6	0.00	99.81	0
b4#	50.690	105.7	50.690	105.6	0.00	99.91	QECH

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.

1. 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

近この GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER 地址: 中国广东省广州市天河区珠江新城花城大道66号B座 邮编Postcode: 510623 Add.: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, Guangdong, P.R.C. 电话Tel: 020-2213100 邮箱Email: ppdc@iqtenet.en 网址Website: https://www.iqtenet.en

序号 No.		附表 3 pendix 3	STOME	测试项目名称 Name of test	SUSTO IN	振动 Vibrat	
标准要求 Requirement of Standard	1gn的最大加速速度动到 2gn(的电达或电池 损失、无渗漏 电压不少于其 The large Cells distorting the c sinusoidal wav until 18Hz is re frequency increased of 2gn is then m times for a tota of the direction	电池组直接安装 速度,直到 18Hz。 频率约为 25Hz 组安装方向的4 无排气、无解 在进行这一试明 s and batteries ar eells in such a ma eform with a log eached. The amp eased until a pea naintained until l of 3 hours for ease us of vibration m	o 然后将振幅 ().将最大加速度 每个方向重复 译体、无破裂和 险前电压的 90 re firmly secure anner as to faith garithmic sweep olitude is then n k acceleration of the frequency is each of three m ust be perpendi	保持在 0.8mm(更保持在 2gn 直 进行 12 次, 一 元燃烧, 并且 % (完全放电: d to the platfor fully transmit o from 7Hz to a haintained at 0. of 2gn occurs (a s increased to 2 utually perpendicular to the ter	总偏移 1.6mr 到频率增加到 共振动 3h。 动物。 标本的试验电池 大态的试验电池 m of the vibration. peak accelera 8mm (1.6mm pproximately 00Hz. This cy dicular mounti minal face. Ce	n),并增加频率 到 200Hz。对三 式验电池或电洗 也或电池组在话 池或电池组在话 就可 machine w The vibration sl tion of 1g _n is n total excursion 25Hz). A peak cle shall be rep ng positions of	直到最大力 三个互相垂 也组应无重 式验后的开 (外)。 vithout hall be a naintained) and the acceleration peated 12 the cell. Or s meet this
ONS DISTRICT	if the open circ immediately pr	tuite is no mass suit voltage of ea for to this proce t fully discharged	ch test cell or b dure. The requi	attery after test	ting is not less	than 90% of its	s voltage
样品状态 Sample status	if the open circ immediately pi and batteries at b1#~b2#: 第一 b1#~b2#: firs b3#~b4#: 第二	uit voltage of earior to this proce	ch test cell or b dure. The requi d states. 电的电池; charged states; 全充电的电池	attery after test rement relating	ting is not less	than 90% of its	s voltage
Sample status	if the open circ immediately pi and batteries at b1#~b2#: 第一 b1#~b2#: firs b3#~b4#: 第二	wit voltage of ea rior to this proce t fully discharged 一个循环完全充 st cycle in fully c 二十五个循环完 er 25 cycles end	ch test cell or b dure. The requi d states. 电的电池; charged states; 全充电的电池 ing in fully cha	attery after test rement relating	ting is not less to voltage is r	than 90% of its not applicable t	s voltage to test cells
Sample status 样品编号	if the open circ immediately pr and batteries at b1#~b2#: 第- b1#~b2#: firs b3#~b4#: 第二 b3#~b4#: aft	wit voltage of ea rior to this proce t fully discharged 一个循环完全充 st cycle in fully c 二十五个循环完 er 25 cycles end	ch test cell or b dure. The requi d states. 电的电池; charged states; 全充电的电池 ing in fully cha	extery after test rement relating ged states.	ting is not less	than 90% of its	s voltage to test cells 则试结界
Sample status 样品编号	if the open circ immediately pr and batteries at b1#~b2#: 第- b1#~b2#: firs b3#~b4#: 第二 b3#~b4#: aft 测试前 电池质量	wit voltage of ea rior to this proce t fully discharged 一个循环完全充 st cycle in fully of 二十五个循环完 er 25 cycles end Before 开路电压	ch test cell or b dure. The requi d states. 电的电池; charged states; 全充电的电池 ing in fully cha 则试后 电池质量	attery after test rement relating rged states. After 开路电压	ting is not less to voltage is n 质量损失 Mass loss	than 90% of its not applicable t 剩余电压 Residual	s voltage to test cells 则试结界
Sample status 样品编号 Sample No.	if the open circl immediately pr and batteries at b1#~b2#: 第- b1#~b2#: firs b3#~b4#: 第二 b3#~b4#: aft 测试前 电池质量 m ₁ (kg)	wiit voltage of ea rior to this proce t fully discharged 一个循环完全充 st cycle in fully of 二十五个循环完 er 25 cycles end Before 开路电压 v1(V)	ch test cell or b dure. The requi d states. 电的电池; charged states; 全充电的电池 ing in fully cha 测试后 电池质量 m ₂ (kg)	orged states. 开路电压 v2(V)	ting is not less to voltage is n 质量损失 Mass loss (%)	than 90% of its not applicable t 剩余电压 Residual OCV(%)	s voltage to test cells 则试结身 Test resu
Sample status 样品编号 Sample No. b1#	if the open circ immediately pr and batteries at b1#~b2#: 第- b1#~b2#: firs b3#~b4#: 第二 b3#~b4#: aft 测试前 电池质量 m1(kg) 50.858	wit voltage of ea rior to this proce t fully discharged 一个循环完全充 st cycle in fully of 二十五个循环完 er 25 cycles end Before 开路电压 v1(V) 105.5	ch test cell or b dure. The requi d states. 电的电池; charged states; 全充电的电池 ing in fully cha 则试后 电池质量 m ₂ (kg) 50.858	oattery after test rement relating rged states. 在After 开路电压 v2(V) 105.4	ting is not less to voltage is n 质量损失 Mass loss (%) 0.00	than 90% of its not applicable t 剩余电压 Residual OCV(%) 99.91	s voltage to test cells 测试结果 Test resul

注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-尤泄漏、尤排气、 尤解体、尤破裂、尤起火。 Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire.

1. 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. 未经鉴发机构书面同意,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.

t:中国广东省广州ī	GUANGZHOU 市天河区珠江新城花城 36 Huacheng Aven	ue, Zhujiang Xinche	STRICT TECH	HNOLOGY CE 3 rict, Guangzhou, G	INTER 19000012 Guangdong, P.R.C.	Date: 2022	2200003366-1(2-12-09 ff 14
序号 No.	A	附表 4 ppendix 4	TOW.	测试项目名 Name of te		冲 i Sho	
标准要求 Requirement of Standard	g _n =√(30000 / 其正负极各冲 解体、无破裂 验前电压的 9 Test cells and support all mo shock of peak milliseconds. by three shock or battery for a leakage, no ve cell or battery requirement re states.(NOTE	<u>b</u> 组用坚硬支架装 mass) 中较小者 中击3次,共冲行 和无燃烧,并且 00% (完全放电: batteries shall be ounting surfaces of acceleration of 5 Each cell or batter as in the negative a total of 18 shoc enting, no disasse: after testing is no elating to voltage : Mass is express	的正弦波冲击 击 18 次。各试 每个试验电池 求态的试验电 secured to the of each test batt fog _n or accelera ery shall be sub direction of the ks. Cells and be mbly, no ruptur ot less than 90% is not applicab s in kilograms)	,脉冲持续时 影 电池或电池 或 电池组在试 池 或 电池组保 testing machine tery. Each Large tion (g _n) = $\sqrt{(30)}$ jected to three s ree mutually pe atteries meet th re and no fire an % of its voltage	间 11ms, 按三, 组应无重量损; 验后的开路电, 外)。 e by means of a <u>e batteries shall</u> 0000 / <i>mass</i>) an shocks in the por erpendicular mou is requirement in nd if the open ci immediately pri	个相互垂直的 失、无渗漏、 压不少于其在 rigid mount w be subjected to ad pulse duration sitive direction unting position f there is no m ircuit voltage c ior to this proc	轴向分别对 无排气、无 进行这一试 hich will o a half-sine on of 11 n followed as of the cell ass loss, no of each test redure. The
样品状态 Sample status	b1#~b2#: fin b3#~b4#: 第	一个循环完全充 rst cycle in fully c 二十五个循环完 ter 25 cycles endi	charged states; 全充电的电池		. CHAOLOGY CT	RIGTTECHNC	NS DISTRIC
样品编号	测试前	J Before	测试厅	f After	质量损失	剩余电压	测试结果
Sample No.	电池质量 m _l (kg)	开路电压 V1(V)	电池质量 m ₂ (kg)	开路电压 V2(V)	Mass loss (%)	Residual OCV(%)	Test result
b1#	50.858	105.4	50.858	105.4	0.00	100.00	Ø 0
b2#	50.626	105.6	50.626	105.6	0.00	100.00	0
021				1			CX1
b3#	50.528	105.6	50.528	105.5	0.00	99.91	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.

1. 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. 未经鉴发机构书面同意,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.

: Tower B, No.66 Tel: 020-22131000	デ河区珠江新城花城大道66年 Huacheng Avenue, Zhu 邮箱Email: ppdc@iqt	jiang Xincheng, Ti	de: 510623 anhe District, Gua site: https://www.i		Date:	01112200003366- 2022-12-09 9 of 14
					S) U.	JSTO.
序号 No.	附表 5 Appendi	and the second sec		目名称 of test		^{形短路} short circuit
标准要求 Requirement of Standard	6h 内应无解体、无 The cell or battery t reaches 57±4℃ and external resistance o least one hour after battery must be obso this requirement if t rupture and no fire o	to be tested shall d then the cell or of less than 0.1 of the cell or batter erved for a furth their external ten	be temperature battery shall be ohm at 57 ± 4 °C. 7 cy external case er six hours for perature does n	subjected to a shore This short circuit contemperature has return the test to be conclu	rt circuit condi ondition is cont urned to 57 ±4° uded. Cells and	tion with a total tinued for at C. The cell or I batteries meet
5	h1#~b2#・ 第一个彳	盾环完全充电的	1申池:	USTO - UST		GUAN
样品状态	b1#~b2#:第一个很 b1#~b2#:first cyc b3#~b4#:第二十3 b3#~b4#:after 25	cle in fully charg	ed states; 电的电池。	tates.	OU CHIER	GUAND CENTES
样品状态	b1#~b2#: first cyc b3#~b4#: 第二十3 b3#~b4#: after 25 样品表	cle in fully charg 五个循环完全充	ed states; 电的电池。 n fully charged s	tates. 测试结果 Test result	Contraction of the	译注 Remark
样品状态 Sample status 样品编号	b1#~b2#: first cyc b3#~b4#: 第二十3 b3#~b4#: after 25 样品表	cle in fully charg 五个循环完全充 5 cycles ending in 表面最高温度	ed states; 电的电池。 n fully charged s	测试结果	CENTER CENTER DISTRICT	备注 Remark
样品状态 Sample status 样品编号 Sample No.	b1#~b2#: first cyc b3#~b4#: 第二十3 b3#~b4#: after 25 样品表	cle in fully charg 五个循环完全充 cycles ending in 表面最高温度 nal Temperature(ed states; 电的电池。 n fully charged s	测试结果 Test result	CENTER CENTER DEDETRE	A注 Remark
样品状态 Sample status 样品编号 Sample No. b1#	b1#~b2#: first cyc b3#~b4#: 第二十3 b3#~b4#: after 25 样品表	cle in fully charg 五个循环完全充 5 cycles ending in 表面最高温度 nal Temperature(55.8	ed states; 电的电池。 n fully charged s	测试结果 Test result O	ocentres ocentres oneonstres oneonstres over	▲注 Remark
样品状态 Sample status 样品编号 Sample No. b1# b2#	b1#~b2#: first cyc b3#~b4#: 第二十3 b3#~b4#: after 25 样品表	cle in fully charg 五个循环完全充 5 cycles ending in 表面最高温度 nal Temperature(55.8 56.0	ed states; 电的电池。 n fully charged s	测试结果 Test result O O	ou center photospecture photospecture cuance	▲注 Remark / / /

1. 春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. 未经鉴发机构书面同意,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.

N.

GUANGTHOUCUSTON

孙 海关技术 J_on **GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER**

iqtc

地址:中国广东省广州市天河区珠江新城花城大道66号B座 邮编Postcode: 510623 01112200003366-1(E) No: Add.: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, Guangdong, P.R.C. 2022-12-09 Date: 电话Tel: 020-22131000 邮箱Email: ppdc@iqtcnet.cn 网址Website: https://www.iqtcnet.cn Page: 10 of 14

中小

M/

序号 No.	N. N	6.1	U C	AN IN	and and a	.0	
	附表 (Appendi		10th	测试项目 Name of		挤压 Crush	
or .	A				3mm 的圆柱形电池		
	将电池或元件电池;					安触点上的	速度大
ON	为 1.5cm/s。挤压持			下三种情况之	一即解除压力:		
	(a)施加的力量达到						
	(b)电池的电压下降						
	(c)电池变形量达原	始厚度的5	0%或以上				
	棱柱形或袋装电池	应从最宽的	一面施压。	纽扣/硬币电:	池应从其平坦表面加	施压。圆柱形	(电池应
	与纵轴垂直的方向;	施压。每个	电池只做-	-次挤压试验。	R		
标准要求	试验电池或电池组	的组成电芯	外部温度>	下超过170℃,	并且在试验过程中	和试验后6	小时内
你准安求 Requirement	无解体、无破裂、	无起火。					
of Standard	Crush (applicable to						
	diameter): A cell or						
	gradual with a speed					e crushing is	to be
	continued until the fi (a)The applied force				ied.		
	(b)The voltage of the						
	(c)The cell is deform				ckness.		
	Once the maximum						re, or the
AN	cell is deformed by a						
	Each test cell or com this requirement if the						
	no fire during the tes					/ 15 110 u15d550	mory an
				$u_{1}e_{1}$ $u_{1}e_{3}$ $u_{2}e_{3}$			
		0	<u> </u>		OMS	500	2
样品状态。	C1#~C5#: 第一个行 C1#~C5#: first cyc	循环 50%的	额定容量的	的电芯。	of cell.	THOUCH	
	C1#~C5#: 第一个行 C1#~C5#: first cyc C6#~C10#: 第二十	循环 50%的 cle at 50% o 五个循环 5	额定容量的 f the design 50%的额定	b电芯。 rated capacity 容量的电芯。		NGTHOUCU	2
样品状态 Sample status	C1#~C5#: 第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2	循环 50%的 cle at 50% o 五个循环 5 5 cycles at 5	额定容量的 f the design 50%的额定	b电芯。 rated capacity 容量的电芯。		URAGEHOUCU	2
Sample status	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2 样品表面最高温度	循环 50%的 cle at 50% o 五个循环 5 5 cycles at 5	额定容量的 f the design 50%的额定 50% of the	的电芯。 rated capacity 容量的电芯。 lesign rated ca	pacity of cell. 样品表面最高温度	测试结果	各注
Sample status 样品编号	C1#~C5#:第一个行 C1#~C5#:first cyc C6#~C10#:第二十 C6#~C10#:after 2 样品表面最高温度 Max External	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果	额定容量的 f the design 50%的额定 50% of the 备注	b电芯。 rated capacity 容量的电芯。 lesign rated ca 样品编号	pacity of cell. 样品表面最高温度 Max External	测试结朱	备注 Remar
Sample status	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2 样品表面最高温度	循环 50%的 cle at 50% o 五个循环 5 5 cycles at 5	额定容量的 f the design 50%的额定 50% of the 备注	的电芯。 rated capacity 容量的电芯。 lesign rated ca	pacity of cell. 样品表面最高温度	测试结果 Test result	
ample status 样品编号	C1#~C5#:第一个行 C1#~C5#:first cyc C6#~C10#:第二十 C6#~C10#:after 2 样品表面最高温度 Max External	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果	额定容量的 f the design 50%的额定 50% of the 备注	b电芯。 rated capacity 容量的电芯。 lesign rated ca 样品编号	pacity of cell. 样品表面最高温度 Max External	测试结朱	
Sample status 样品编号 Sample No.	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#:第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃)	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	的电芯。 rated capacity 容量的电芯。 design rated ca 样品编号 Sample No.	pacity of cell. 样品表面最高温度 Max External Temperature(℃)	测试结来 Test result	
ample status 样品编号 Sample No.	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#:第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃)	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	的电芯。 rated capacity 容量的电芯。 design rated ca 样品编号 Sample No.	pacity of cell. 样品表面最高温度 Max External Temperature(℃)	测试结来 Test result	
ample status 样品编号 Sample No. C1#	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃) 23.4	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result O	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	的电芯。 rated capacity 容量的电芯。 design rated ca 样品编号 Sample No. C6#	pacity of cell. 样品表面最高温度 Max External Temperature(℃) 23.1	测试结来 Test result O	
ample status 样品编号 Sample No. C1#	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃) 23.4	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result O	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	的电芯。 rated capacity 容量的电芯。 design rated ca 样品编号 Sample No. C6#	pacity of cell. 样品表面最高温度 Max External Temperature(℃) 23.1	测试结来 Test result O	
ample status 样品编号 Sample No. C1# C2#	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃) 23.4 22.7	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result O	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	的电芯。 rated capacity 容量的电芯。 lesign rated ca 样品编号 Sample No. C6# C7#	pacity of cell. 样品表面最高温度 Max External Temperature(℃) 23.1 23.5	测试结来 Test result O O	
Ample status 样品编号 Sample No. C1# C2#	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#: 第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃) 23.4 22.7	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result O	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	的电芯。 rated capacity 容量的电芯。 lesign rated ca 样品编号 Sample No. C6# C7#	pacity of cell. 样品表面最高温度 Max External Temperature(℃) 23.1 23.5	测试结来 Test result O O	
Sample status 样品编号 Sample No. C1# C2# C3#	C1#~C5#:第一个行 C1#~C5#: first cyc C6#~C10#:第二十 C6#~C10#: after 2 样品表面最高温度 Max External Temperature(℃) 23.4 22.7 23.3	盾环 50%的 cle at 50% o 五个循环 5 5 cycles at 5 测试结果 Test result O O	额定容量的 f the design 50% 的 额定 50% of the 备注 Remark	b电芯。 rated capacity 容量的电芯。 design rated ca 样品编号 Sample No. C6# C7# C8#	pacity of cell. 样品表面最高温度 Max External Temperature(℃) 23.1 23.5 22.4	测试结来 Test result O O	

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. 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.

	000 邮箱Email: ppdc@id	qtcnet.cn 网址Website: I	District, Guangzhou, Guangdon https://www.iqtenet.cn	ng, P.R.C. No: 01112 Date: 2022- Page: 11 o	
序号 No.	附表 7 Appendix 7		则试项目名称 Name of test	过度充电 Overcharge	CURT
示准要求 equirement f Standard	倍或 22V 两者中的 (b)制造商建议的 可再充电电池组和 The charge current sl current. The minimum (a) When the manufa voltage of the test sha 22V. (b) When the manufa of the test shall be 1. Tests are to be con Rechargeable batteri days of the test.	较少者。 如充电电压大于 18V 既 在环境温度下试验 24 hall be twice the manuf m voltage of the test sh acturer's recommended hall be the lesser of two acturer's recommended 2 times the maximum of iducted at ambient ter ies meet this requirement	charge voltage is not more times the maximum charge charge voltage is more that	最大充电电压的 1.2 倍 应无解体和无燃烧。 aximum continuous cha e than 18V, the minimur ge voltage of the battery an 18V, the minimum vo of the test shall be 24	° rge n or oltage hours.
羊品状态 Sample status	b5#~b6#: first cycl b7#~b8#: 第二十五	f环完全充电的电池; le in fully charged state L个循环完全充电的电 cycles ending in fully c	池。		o ^G
		测试结果	ologit TECHING	备注 Remark	TOMST
羊品编号 ample No.	Alt-	Test result		S	
	excellater and	O O	of TRIC	STOWN , HOUCE	
ample No.	SCALER CALLER	. 0 ^G	USTONED TRIC THOUGH	STONIC / MARCHOUCE	
ample No. b5#	SCALER THE THE STAR	ologi est tech	OUSTONISO STRIC	STONE / UNICE	g- g-
ample No. b5# b6#	STONE DISTRICT TECHNOL		OUSTONISO STRIC	ER / CONTENT	2 22 23 21

1. 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. 未经鉴发机构书面同意,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.

中国亡东省广州市					
	天河区珠江新城花城大道66号B/ Huacheng Avenue, Zhujian 0 邮箱Email: ppdc@iqten	ng Xincheng, Tianl		u, Guangdong, P.R.C.	No: 0111220000336 Date: 2022-12-09 Page: 12 of 14
J.	ARC NOCT	CECHINAL	RICT	MSDI	CUST .
序号 No.	附表 8 Appendix 8		测试项目名称 Name of test		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 fore D.C. power supply at manufacturer. The sp appropriate size and r interval (in hours) equ	り条件下强制放 ced discharged a an initial curren ecified discharge rating in series w ual to its rated ca	电。原电池或可早 t ambient temperat t equal to the maxi e current is to be of ith the test cell. Ea upacity divided by	手充电电池在试验后 ture by connecting it mum discharge curre otained by connecting ich cell shall be force the initial test curren	
样品状态 Sample status	C11#~C20#: 第一个循环完全放电的电芯; C11#~C20#: first cycle in fully discharged states; C21#~C30#: 第二十五个循环完全放电的电芯。 C21#~C30#: after 25 cycles in fully discharged states.				
-	0				
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 result	备注 Remark
			C.S.		
Sample No.	Test result		Sample No.	Test result	
Sample No.	Test result O		Sample No.	Test result O	
Sample No. C11# C12#	O O		Sample No. C21# C22#	Test result O O	
Sample No. C11# C12# C13#	Test result O O O O		Sample No. C21# C22# C23#	Test result O O O	
Sample No. C11# C12# C13# C14#	Test result O O O O O O		Sample No. C21# C22# C23# C24#	Test result O O O	
Sample No. C11# C12# C13# C14# C15#	Test result O O O O O O O O O		Sample No. C21# C22# C23# C24# C25#	Test result O O O O O	
Sample No. C11# C12# C13# C14# C15# C16#	Test result O O O O O O O O O O O O O O O O O O O		Sample No. C21# C22# C23# C24# C25# C26#	Test result O O O O O O	
Sample No. C11# C12# C13# C14# C15# C15# C16# C17#	Test result O O O O O O O O O O O O O O O O O O O		Sample No. C21# C22# C23# C24# C25# C26# C27#	Test result O O O O O O O	

Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire.

1. 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.

igtc 广州海关技术中心 GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER



地址:中国广东省广州市天河区珠江新城花城大道66号B座 邮编Postcode: 510623 01112200003366-1(E) No: Add.: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, Guangdong, P.R.C. Date: 2022-12-09 电话Tel: 020-22131000 邮箱Email: ppdc@iqtcnet.cn 网址Website: https://www.iqtcnet.cn Page: 13 of 14

样品图片 Photo of the sample 电池侧面外观 电池正面外观 Battery front appearance Battery side appearance 电芯 电池铭牌(含Wh) Cell Battery nameplate (With Wh) Guangzhou Sanjing Electric Co., Ltd. SA. **Rechargeable Li-ion Battery Module** Type: BU2-5.3-HV3 Premium Lithium-ion Battery Type 5.3kWh Total Energy 102.4Vdc Rated Voltage Voltage Range 89.6~115.2Vdc Max. charging Current 52Adc 52Adc Max. Discharging Current IP65 Ingress Protection Protective Class I Permitted Humidity 0~95% -20°C~50°C Charging Temperature **Discharging Temperature** -20°C~50°C *Do not subject the battery to any strong force. *Do not disassemble the battery. *Do not short circuit the battery. 电芯标签 *Do not place the battery near a heat source. *Do not soak the battery in water. Cell label *The battery cannot be disposed of with regular household trash and must be taken to an authorized hazardous waste recycling facility X X 166.4Wh S/N DOC24A 0219378A2530 P/C Importer MADE IN CHINA

1. 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. 未经鉴发机构书面同意,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.

广州海关技术中心(



GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

夁

地址:中国广东省广州市天河区珠江新城花城大道66号B座 邮编Postcode: 510623 Add.: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, Guangdong, P.R.C. 电话Tel: 020-22131000 邮箱Email: ppdc@iqtcnet.cn 网址Website: https://www.iqtcnet.cn Page: 14 of 14

朋

Statement

1.本报告无检测单位公章无效。

iqtc

The test report is invalid without the official stamp of IQTC.

2本报告无批准人、审核人及主检人签名无效。

The test report is invalid without the signatures of Approver, Checker and Appraiser. 3.本报告涂改无效。未经本实验室书面同意,不得部分地复制本报告。

The test report is invalid if altered. Nobody is allowed to photocopy or partly photocopy this report without written permission of IQTC.

4.客户必须如实提供样品及资料,并保证申报品名和样品以及运输货物相同,否则本检测单位不承担任何相关责任。

The client should provide samples and relevant data, at the same time, they should guarantee the consistence of the product's name they declared, the samples they provided and the goods to be transported. Otherwise we will not bear any relevant responsibilities.

5.对检测报告若有异议,应于收到报告之日起十五天内向检测单位提出。

Objection to the test report must be submitted to IQTC within 15 days 6.本报告仅对送检样品负责。

The test report is valid for the tested samples only.

7.检测地址:广东省广州市科学城南翔支路1号C102房(汽车与装备检测研究所科学城)

Test Address: Room C102, No.1 Nanxiangzhi Road, Science City, Guangzhou, Guangdong, China (Institute of Automobile and Equipment Testing in Science City)

电话(Tel): 020-38669019-811

电子邮箱(E-mail): battery@iqtcnet.cn

* * 报告结束 End of report * * *

1. 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. 未经答发机构书面同意。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