

TEST REPORT

On Behalf of

Prepared For :	Shenzhen Disanfang Supply Chain Co.,Ltd Room2016,Jiangnan Times buidiang,Banxiegang Avenue,Longgang District,Shenzhen City
Trade Mark :	Bogist , Voltago
Product Name :	Electric Scooter
Model(s) :	M5 Pro, M5 Pro-1, M5 Pro-2, M5 Pro-3, M5 Pro-4, M5 Pro-5
Prepared By:	Shenzhen ZTS Testing Service Co., Ltd. 808, Building 1, 7th Industrial Zone, Yulv Community, Yutang Steret, Guangming District, Shenzhen, Guangdong, China Tel: 400-8788-298 Web: www.zts-test.com Email: zts@zts-test.com
Test Date:	Oct. 08, 2021- Oct. 18, 2021
Date of Report:	Oct. 18, 2021
Report No. :	ZTS21101805URS

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen ZTS Testing Service Co., Ltd.



	TEST REPORT
a 112 125 125 126 127 125 125 125 125 125 125 125 125 125 125	UL ANSI/CAN/UL 2272
Standard for Ele	ectrical Systems for Personal E-Mobility Devices
Reference No:	ZTS21101805URS
Date of issue:	Oct. 18, 2021
Testing laboratory	
Name:	Shenzhen ZTS Testing Service Co., Ltd.
Address:	808, Building 1, 7th Industrial Zone, Yulv Community, Yutang Street, Guangming District, Shenzhen, Guangdong, China
Testing location:	Same as above
Client	resting 15
Name:	Shenzhen Disanfang Supply Chain Co.,Ltd
Address:	Room2016, Jiangnan Times buidiang, Banxiegang Avenue, Longgang District, Shenzhen City
Test specification	
Standard:	UL ANSI/CAN/UL 2272
Test procedure:	1 to reacting 15
Non-standard test method:	N/A
Test item	
Description::	Electric Scooter
Trademark:	Bogist , Voltago
Model and/or type reference:	M5 Pro
	Shenzhen Disanfang Supply Chain Co.,Ltd Room2016,Jiangnan Times buidiang,Banxiegang Avenue,Longgang District,Shenzhen City
Test Result:	Please refer to next page(s) for details.



Testing procedure and tes	ting location	1. 1917 - 1927 - 1928 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 1929 - 192 1929 -
Laboratory name	: Shenzhen ZTS Testing Se	rvice Co., Ltd.
Testing location/address:	Me. 1966. Thur Ne. 2066. Dir. Ne. 2566. Dr	strial Zone, Yulv Community, Yutang Street, nzhen, Guangdong, China
Testing Iprocedure	: TL 🔀 RMT 🗌 SMT	
Tested By (Test Engineer)	: Jeffrey Wang Je	Greg Wang Vesting Service
Reviewed By (Supervisor)	: Tony Mo 70 n	freg Wany resting Service G. ZTS Lt. ZMax Approved *
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d - 175 cest ine 1	state TS test into TS test into TS estima TS test into TS test into TS estima TS test into TS test into TS test into TS test into TS test into TS test into TS test into TS test into TS test into TS test into TS test into TS	2 (10 ⁶) (15) (16) (15) (16) (15) (15) (16) (16) (16) (16) (16) (16) (16) (16
POSSIBLE TEST CASE V		12 10° 10° 10° 10° 10° 10° 10° 10° 10° 10°
	ne test object	N (N/A)
	quirement	
	e requirement	
TESTING:		
		Oct. 08, 2021
	ts:	Oct. 08, 2021- Oct. 18, 2021



Standard: <u>ANSI/CAN/UL 2</u>	272-2016	100 1/2 100 100 100 112 100 112 1100 112 105 105 105 105 105 105 105	5 restine 125 restine 125 restine 125 restine
Report No.:	ZTS21101805URS	Client:	Shenzhen Disanfang Supply Chain Co.,Ltd
Product:	Electric Scooter	Rated input	AC 90-240V 50/60Hz
Protection class	ethon 115 resting 115 resting	Rated output	DC54.6V, 2A
Application Date	Oct. 08, 2021	Protection against moisture:	Min. IP44
Requested Date	Oct. 18, 2021	Construction:	With battery
Re-test	stine IS reactine IS reactine	Operation mode	Continous
Full-test		Weight:	<3kg
Model/ type reference:	M5 Pro	Sample No.	1#, 2#, 3#
Should the heating test be done in heating oven?	□ Yes □C		
Altitude during operation (m)	□ Up to 2000	the the transformer of the trans	
Altitude of test laboratory (m)	□ below 2000 ⊠ No	5 (c ³) (n ⁶ (15) (c ⁴) (n ⁶ (15) (c ⁴) 15 (c ⁵) (n ⁶ (15) (c ⁴) (n ⁶ (15) (c ⁴) 15 (c ⁵) (n ⁶ (15) (c ⁴) (n ⁶ (15) (c ⁴) 15 (c ⁵) (n ⁶ (15) (c ⁴) (n ⁶ (15	$ \begin{array}{c} 100 & 105 & test & tub & 105 & test & tub & 105 & test & tub & 105 \\ estimb & 105 & test & tub & 105 & test & tub & 105 & test & tub & 105 \\ estimb & 105 & test & tub & 105 & test & tub & 105 & test & tub & 105 \\ estimb & 105 & test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & 105 & test & tub & 105 & test & tub & 105 \\ test & tub & 105 & test & tub & tub$
Other information:	A NEW YORK AND	48V 13Ah, With over charge and temperature protectio	protection, Over discharge protection, n.

Oct. 08, 2021	Lab Finish Date	Oct. 18, 2021
25.2	Relative Humidity, %	49.4
	,	,



SHENZHEN ZTS TESTING SERVICE CO., LTD. NO.: ZTS21101805URS

No.1	<u>Clause(s)</u>	Test(s)	<u>Remark</u>	<u>Commer</u>
15 (est	6	Non-Metallic Materials	UL 746	Pass
	es ine ITS Test		RTI>80℃	Ins 115 Testin
	S Testing 25 Tes		V-1, UL94	sting 115 res
2	7	Metallic Parts Resistance to Corrosion	Paint	Pass
3	8	Enclosures	No Opening	Pass
	ter ine 15 tes in	6 10 70° 10° 10° 10° 10° 10° 10° 10° 10° 10° 1	Min. IP44	us 115 Testin
4	9	Wiring and Terminals	Non-replaceable batteries	Pass
LIS Costin	15 185 185 110 17	5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	No Terminals outside	10 Test ing 11
100 5 15 105 100 5 15 105	10	Chargers	5° (108° 115° 108° 108° 115° 108° (108° 15° (108° 115° 108° 108° 115° 108° (10° 15° (108° 115° 108° (108° 115° 108° (10°	Pass
6	11	Fuses	No fuse in scooter	N/A
7	12	Lighting	LTS resting LTS resting LTS T	Pass
8	13	Electrical Spacings and Separation of Circuits	ne 15 restine 15 restine 15 ine 15 restine 15 restine 15 ine 15 restine 15 restine 15	Pass
9	14	Insulation Levels and Protective Grounding	No earth	N/A
10	15	Protective Circuits and Safety Analysis	IEC 60812	Pass
	15 restine ris		IEC61025	Testine LIS
Int LIS Test	the The Lestine	15 reactions 15 re	UL 991	The Testing
11	16	Cells	UL 2580	Pass
12	17	Motors	UL 1004-1	Pass
13	18	Manufacturing and Production Line Testing	" D- TC" (110 D- TC") 116 TC TC"(110 D- TC") 116 TC TC") 116 TC TC" 116 TC	N/A
14	19	PERFORMANCE	estimation 15 resting 15 resting	Pass
15	20	Tolerances	5 resting 15 resting 15 res	Pass
16	21	Post Test Cycle	The rest ine The rest ine The	Pass
17	22	Results Criteria	ine Its restring Its restring to	Pass
18	23	Overcharge Test	See the table	Pass
19	24	Short Circuit Test	See the table	Pass
20	25	Over discharge Test	See the table	Pass
21	26	Temperature Test	See the table	Pass
22	27	Imbalanced Charging Test	See the table	Pass
23	28	Dielectric Voltage Withstand Test	See the table	Pass
24	29	Isolation Resistance Test	See the table	Pass
25	30	Vibration Test	See the table	Pass
26	31	Shock Test	See the table	Pass
27	32	Crush Test	See the table	Pass
28	33	Drop Test	See the table	Pass
29	34	Mold Stress Relief Test	See the table	Pass
30	35	Motor Overload Test	See the table	Pass



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31	36	Motor Locked Rotor	See the table	Pass
32	37	Strain Relief Tests	See the table	Pass
33	38	Water Exposure Tests	See the table	Pass
34	39	Thermal Cycling Test	See the table	Pass
35	40	Label Permanence Test	See the table	Pass
36	41	MARKINGS	See the table	Pass
37	42	INSTRUCTIONS	See the table	Pass



Protection of Users – Accessibility of Terminals (9)

9	Accessibility pro	obe			Pass
Location	Dimension of opening	Tester	Observations	Pass	Fail
Opening	No opening	Articulate probe	Can't touch Live parts and dangerous moving parts	V	

Spacings (13)

13 Electrical Spa	cings					Pass
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
opposite polarity of battery	15 Testing IT	48	1.6	>3.0	1.6	>3.0
Input to Enclosure	104 LIS Test ins	The Testing	15 rest int It's re	SUNE TIS TEE	the LTS restine The	5 TESTING 175 TE
Primary component to accessible enclosure (RI)	C ION ITS TRAC	ing 175 rest	4 175 17 <u>0 -</u> 106 175 1 <u>00 -</u> 106 175 1 <u>00 -</u> 108 1 <u>00 -</u> 1	Testing IS Testing IS S Testing IS	resting LS resting resting LS resting resting LS resting resting LS resting	115 (est ing 115 115 (est ing 115 116 (15 (est ing 1 116 (15 (est ing 1
Primary trace to secondary trace under transformer (T1) (RI)	5 Test 100 115 1 Test 100 115 1 Test 100 115 1 Test 100 116 1 Test 100 116 1 Test 100	testine testine testine to testine to testine to testine	55 108 1/2		15 res 16 15 r 15 res 16 15 r 15 res 16 15 16 15 res 16 15 16 15 res 16 15	1118 112 128 118 51 118 112 128 118 128 118 115 128 115 128 118 115 128 128 128 128 118 115 128 128 128 128 128 128 128 128 128 128 128
Primary winding to secondary winding of transformer (T1) (RI)		the LTS <u>r</u> est in the LTS rest in the LTS rest the LTS rest stine LTS rest stine LTS rest	115 125 <u>1</u> 08 115 18 115 1251 18 115 1251 108 115 1251 108 115 1251 108 115 1251 108 115 1251 108 115	esting fest	2 10 10 10 10 10 10 10 10 10 10 10 10 10	15 10 ²⁵ 10 ⁴ 15 15 10 ²⁵ 10 ⁴ 15 15 10 ²⁵ 10 ⁴ 10 ⁸ 15 15 10 ² 10 ⁴ 10 ⁴ 1 10 ⁶ 15 10 ⁵ 10 ⁴ 10 ⁴
Supplementary information	1.27 CON 1177	1 <u>27 368 187 81</u>	<u>P. 108.405.467.108</u>	1177 - KE7 (108 - 1		.40 <u>% 432 -567 40%</u>
Note(s):	The resting	LTS Vestime L	5 resting TS rest	ting US lest	ing TS Test ing TS	Testing The Tes



Overcharge Test (23)

Model	OCV at start of test, (Vdc)	Constant charging current (A)	Maximum outer casing temperature(°C)	Results
battery	30	6	39.7	P
testing 15 resting 15	5 Testing IS resting IS	esting The Lesting The Lest	est up 12 resting 12 resting 12	Les ting 12 Les ting
TS resting TS resting	The rest into the rest into the	to testing its testing its	Testing 115 resting 115 resting	15 resting 15 rest
 NE: No Explosion NL: No Leakage NR: No Rupture NS: No Electric show 				
- Fire: the emission c	of flames from a cell or l	pattery.		
- Explosion: failure th forcibly expelled.	at occurs when a cell co	ontainer or battery case	opens violently and major co	mponents are
- Leakage: visible esc	ane of liquid electrolyte	e Others (please expla	(n) rest ins 10 rest ins 10 rest in	

Short Circuit Test (24)

Model	Ambient, (°C)	OCV at start of test, (Vdc)	Resistance of circuit, (mW)	Maximum case temperature rise ΔT , (C)	Results
battery	24.9	46.99	<20mW	6.9	P
5 105 15 15 15 608 15 estime 15 15 18 15 15 106 15 15 18 15 15 10 10 15 15 10 10 10	1995 108 115 1995 108 115 1995 108 115 1995 108 115 5 1995 108 115 1995 108 115	Testing 25 Testing Testing 25 Testing Testing 55 Testing 5 Testing 75 Testing	5 765 108 115 765 108 15 765 108 115 765 108 15 765 108 115 765 108 15 765 108 115 765 108	1 1 5 7 5 1 1 1 1 1 1 1 5 7 5 5 1 1 1 1	115 105 106 11 8 115 105 106 11 115 105 105 106 11 115 105 105 106
 NF: No Fire NE: No Explosion NL: No Leakage NR: No Rupture NS: No Electric sho 	ock bazard				
	of flames from a cell	or battery.			
	that occurs when a ce	15 105 TUE 115 105 TI	ery case opens violer	ntly and major compo	onents are



Over discharge Test (25)

Model	OCV at start of test, (Vdc)	Constant discharging current (A)	Maximum outer casing temperature(°C)	Results
battery	47.5	60	48.2	• P
Chine Line lessin	ns 1 restine 15 restine 16 re	esting 115 resting 115 resting	To rescue Its rescue Its rest	to the The Line The The The
Test tue Ins Tes	Scing 115 100 100 115 100 115	Tes and the testing the testing	15 Testine 115 Testine 115 Pe	te ding The Les dup Th
- NE: No Exp	losion			
- NL: No Leal - NR: No Rup	kage oture			
- NL: No Leal - NR: No Rup - NS: No Elec	kage oture ctric shock hazard	nr hatterv		
- NL: No Leal - NR: No Rup - NS: No Elec - Fire: the en	kage oture ctric shock hazard nission of flames from a cell c failure that occurs when a cell	stime the reaction the reaction the	pens violently and major col	mponents are



Temperature Test (26)

Method:

EUT primary is U=Un, F=Fn, operated under normal max. load.

Temperatures of parts are measured by thermal couplers, windings are measured by resistance change method.

Measuring place shall be a point close to the heat

source. The test is continued until thermal stable.

Voltage is changed lower or higher tolerance without rest of time.

Result:

26 TA	BLE: Thermal requirem	nents,								Pass
Survey of Su	pply voltage (V)		Test In	AC2	40V	Test tons LTS	Test int	The test	1 18 11 <u>5</u> 70	
Ar	nbient Tmin (\Box C)		12: 10 3	24	4.5	LIS Testing I		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	erst une 175	
Ar	nbient Tmax (🖸)		15	24	4.9	ne 1. tesche	La re	1100 1100 1100	Testing Testing	
M	ax. load	tine 215 Tes	stime 1.5 estime 1.5 restime 1.5		arge tery	104 115 105 105	Supering Line	Testing Testing	1 15 10 10 10	
Μ	odel	Lest Tue The	Testin	12	Testing Is	Tes ins 175	Les Tupp	19 <u>78</u>	ALTER TO	
Maximum meas	sured temperature T of	part/at::				Т (Ц	C)			Allowed Tmax (□C)
Enclosure of Ada	aptor	esting The Le	estine 1	4	5.3	115 Te	C 100 1	5 rest in	\$ 15 1005	70
PCB near IC			Test in	4	0.4	Testine 212	Leering	NP (C)	116 172 TE	105
Internal wire	a Ins resting Ins resting I	15 Test Ing	The Te st	3.	7.8	TS Testing I	19 test	198 175 1 198 175	Trains IN	55
Capacitor	LINE LITS TESTINE LITS TESTIN	RE THE TEST	18 275 P	5	5.6	ne LE Reetin	1 1 1	entine li	105 105 108	80
Connector	estine The restine The rest	tue Tre Les	sting T	4	7.1	this I've	Clus Lis	Test Ind	Land Contract	70
Battery	Testing IN Testing IN T	learling 112	Tes cin	2	1.2	Test the Martin	leet ins	The tenst	20 112 10	60
Enclosure of bat	ttery	S Testine LT	5 105 N	2	7.1	TS TESTING US	5 105 10	8 175 70 19 1 9 7	es Clus - Lip	70
Testing 15 Testi	ne 115 rescine 15 restine	215 Test Ins	15 15 10 T	esting	The rest in	15 Testing	15 125	sting The	est ins l	15 Test Ing T
Supplementary	information:	Inthe Tis Test	108 275	Test	INE LTS Test	UNE TE TEST	108 275	Test ins	The rest in	6 The rest in
Temperature T o	of winding:	t1 (°C)	R1 ([])	t2 (°C)	R2 (□)	Т (🗆	'	llowed	Insulatio n class
en ins 215 testing	The reaction The reaction I	to Tes the 1	S Territ	ing 27	S TESTINE 1	S Territor I	S Test	11 11 12 Te	estime The	lestim 1/2
Testine LIS rest	IN LTS TESTING THE TESTING	The resting	15 10	er ing	The rest ins	The rest ind	15 125	stime 215	Test ing I	S Testing 7
Supplementary	v information:	INA LE LEAL	TUR TIP	Testi	und its rest	500 115 10 X281	108 110 1	rest ins 1	ins reaction	115 resum

- NF: No Fire

- NE: No Explosion

- NL: No Leakage

- NR: No Rupture
- NS: No Electric shock hazard

- Fire: the emission of flames from a cell or battery.

- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.



Temperature Test (26)

Result:

26	TABLE: Thermal requ	irements,							Pass
cine LIS re- estine LIS re- estine LIS re- restine LIS	Supply voltage (V)	115 (201) 115 (201) 116 (201)	is Tes line 1	er by ^E ull ttery	5 Test Due 15 5 Test Due 15 15 Test Due 17 15 Test Due 1 15 Test Due 16 15 Test Due 16	Testing Testing C Testing C Testing	15 1-50 16 165 6 16 165 6 16 15	the C <u>rs</u> the TTS time TTS time TTS	
5 105 108 1)	Ambient Tmin (CC)	Verting 112 Legelus		4.6	Ing La Testin	NA NO	cins 115	Testins	
The Les in	Ambient Tmax (CC)	Leading The dea	: 2	4.9	time the res	Sum The	testins	10 10 11	
10/ 175 725	Max. load	15 105 105 15 15	Max	. load	Test the 175	restine 1	10 100 100	100 100 100 100 100 100 100 100	
Model			S Tes UNA D	S Test In 1	17 7 <u>251</u> 118 17	6 7 <u>29</u> 60	110-10	108 175	
Maximum measured temperature T of part/at::			<u>, , , , , , , , , , , , , , , , , , , </u>	Т (ЦС	C)			Allowed Tmax (□C)	
Enclosure	e of Adaptor	The rest me The	Test In 215	Test ine 70	Test the LTP of	resting 1	10 - 10 - 11 10 - 10 - 11	10-10-10-10-10-10-10-10-10-10-10-10-10-1	70
PCB near IC		10 Tes (10% 4	2.3	The Test Line In	12 10 5 1 10	115 (es	CIUR LIS	105	
Internal v	vire	stime its restime	3	8.2	10 275 resting	LTS TE	108 175	1251 108 1	55
Capacitor	The resting The resting The	Testing The Lest	ning 1 Ste 5	4.5	tins 115 Test	108 116 1	2517111 [1]	C Testin	80
Connecto	ne Lis rescine Lis rescine L	15 Testing 15 Te	les line Line The	Contrast 1	Testing ITS To	Caller Lang	105 105 LIN	12 - 103	70
Battery	real in the real in the real in	15 Test int 115	S Test int 12	5.6	15 Tes 108 175	100,100	UP res	108 275 1	60
Enclosure	e of battery	sting 12 Lesting	3	3.1	E TTS TESTING	The Seel	108 116 1 108 116	escing LT	70
Winding	of Motor	resting ITS Test	5	7.2	(Int ITS Test	15 115 Ve	SLING 27	Test ins	70
Enclosure	e of Motor	S Test ine LIS Tes	st int 15 5	2.3	esting LIS Te	Clus 212	Testing	Lis rest	90
Suppleme	entary information:	115 105 105 108	Test ine 175	Testing Th	S TRUTTING TR	Test cing T	15 Teat	ing the Le	esting The Le
Temperat	ture T of winding:	t1 (°C)	R1 (□)	t2 (°C)	R2 (□)	T ([[C]	,	lowed _{ax} (□C)	Insulatio n class
Testing 1	115 Test 106 115 Test 108 115	rest of 15 rest	105 175 Test	115 105 105	INE ITS TEST	18 215 10	11 2 1 1 2 1 1 2 5 1 1 2 5 1 2	5 resting	115 TOSLING
10 (es (m 10))))))))))))))))))))))))))))))))))))			time 112 Tes	sing The Le	a chung The Les	ine 12	La Tup	Part Sol	ne The Teast

- NF: No Fire

- NE: No Explosion

- NL: No Leakage
- NR: No Rupture

- NS: No Electric shock hazard

- Fire: the emission of flames from a cell or battery.

- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.



Imbalanced Charging Test (27)

Model	OCV at start of test, (Vdc)	OCV at charge end by adaptor, (Vdc)	Results
Battery	35.5	54	P 1
$\frac{10^{-1} (10^{-1} $	- 1 col (10 1.5 (col) (10 1.5 (col) (10 1.5) 5 col (10 1.5) col (10 1.5) col (10 1.5) 15 col (10 1.5) col (10 1.5) col (10 1.5) 15 col (10 1.5) col (10 1.5) col (10 1.5) 15 col (10 1.5) col (10 1.5) col (10 1.5) 15 col (10 1.5) col (10 1.5) col (10 1.5) 15 col (10 1.5) col		108 115 105 108 25(108 115 105 105 108 115 105 105 108 115 105 105
E TE Testine TE Testin	a 115 restine 115 restine 115 restine	The section is the reaction is the reaction is the section of the section is the	S Terst Ling LIS TE
Remark:54V<54.6V			
Supplementary infor	mation:		
- NF: No Fire			
- NE: No Explosion			
- NL: No Leakage			
- NR: No Rupture			
- MR. NO Nupture			
Southing the Level of the	ck hazard		
- NS: No Electric sho	ck hazard of flames from a cell or battery.		
 NS: No Electric sho Fire: the emission of 	of flames from a cell or battery. ilure that occurs when a cell contair	ner or battery case opens violently and major	components

Dielectric Voltage-Withstand Test (28)

Method:

The test is made while the EUT is still in well-heated condition

Make sure the power switch of the EUT is in ON position.

Thin material can be tested in room temperature.

The test voltage is a.c. of 50 or 60 Hz or d.c. voltage equal to peak value of the a.c. voltage.

Test voltage is applied gradually raised from zero to the specified voltage and held at that value for 60s. Insulation breakdown is: Current flows through the insulation rapidly increases in an uncontrolled manner; that is the insulation does not restrict the flow of the current.

Corona discharge or a single momentary flashover is not regarded as insulation breakdown.

A test incorporating reinforced insulation and lower grades insulation (BI, SI), care is taken not to overstress BI or SI.

Where capacitors (X or Y capacitors) are across the insulation, d.c. voltage is recommended for the test. Discharge resistors shall be disconnected before testing.

Result:

28	Electric strength test		Pass
Test vol	tage applied between:	Test voltage (V)	Breakdown
input ar	nd enclosure	AC1480 60Hz	No
Input ar	nd output	AC1480 60Hz	No



Isolation Resistance Test (29)

Method:

The test is made while the EUT is still in well-heated condition Make sure the power switch of the EUT is in ON position. Thin material can be tested in room temperature. The test voltage is d.c. 500 voltage

Test voltage is applied gradually raised from zero to the specified voltage and held at that value for 60s.

Insulation resistance R between:	R (MΩ)	Required R (Ω)
DC input and enclosure	>100 MΩ	50000Ω
L/N and enclosure	>100 MΩ	50000Ω
L/N and output	>100 MΩ	50000Ω

Vibration test (30)

Model	OCV at start of test, (Vdc)	Test frequency (Hz)	Vibration time (h)	Results
Battery	47.1	7Hz~200Hz~7Hz	15 min	Pro resting 155 res
Battery	46.8	7Hz~200Hz~7Hz	15 min	Test Parts Test ind Its
Battery	47.3	7Hz~200Hz~7Hz	15 min	Pine 15 resulting
Supplementary i - NF: No Fire				



Shock Test (31)

Model	OCV at start of test, (Vdc)	Acceleration (gn)	Number of shocks per half axis	Results
electric scooter	47.1	50gn	the test the the to to a the the test in	The Test Pie The
electric scooter	46.8	50gn	int in restille The Bestine The rest	W TIS TE PINE IN
electric scooter	47.3	50gn	1 10 10 10 10 10 10 10 10 10 10 10 10 10	Ins ITS TP LING
31 TABLE:	Charging Test by adapte		resting 15	P
Model	OCV at start of test,	(Vdc) OCV a	at charge end by adaptor, (Vdc)	Results
Battery	28.3	na 112 restina 112 restin	47.5	P
est ink 115 (1884) ink 175 7 est ink 175 (1894) ink 175 5 (1994) ink 175 (1994) ink 175 5 (1994) ink 175 (1994) ink 15 (1994) ink 175 (1994) ink	les (no 15 tes (no 15 tes) res (no 15 tes) 5 tes (no 15 tes) 15 tes (no 15 tes)	- 1,116 1/5 1/6° 1,16 1/5 1/6° - 1,176 1/5 1/6° 1/76 1/5 1/6° - 1,176 1/6° 1/5° 1/6° 1/6° 1/5° - 1/6° 1,176 1/5° 1/6° 1/16° 1/5° - 1/6° 1,176 1/5° 1/6° 1/16° 1/5°	100 105 105 106 106 105 106 105 108 100 108 105 108 100 108 105 108 100 108 10	ine 12 restine the the 15 restine strue 15 restine restine 15 resti
Remark:47.5V<48V		$ \begin{array}{c} (5) \\ (5) \\ (7) $	5 (23) (100) (5 (23) (100) (5 (23) (100) 15 (23) (100) (5 (23) (100) (5 (23) (100) 15 (23) (100) (5 (23) (100) (5 (23) (100) 15 (23) (100) (5 (23) (100) (100) 15 (23) (100) (100) (100) (100) 15 (23) (100) (100) (100) (100) (100) 15 (23) (100) (100	5 1054 (118 115 10 5 1054 (118 115 10 15 1054 (118 115 15 1054 (118 115 15 1054 (118 115 15 1054 (118 115
Supplementary infor	mation:			
- NF: No Fire				
- NF: No Fire - NE: No Explosion - NL: No Leakage				

- NS: No Electric shock hazard

- Fire: the emission of flames from a cell or battery.

- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.

- Leakage: visible escape of liquid electrolyte.- Others (please explain)

Crush Test (32)

32	TABLE: force test	Pass		
	Test condition	Result		
14700 N for	ce applied DUT	NF, NE, NL, NR, NS.		
1947 - 21 400 - 21 400 - 21 400 - 21 400 - 21 400 - 21 - 21 - 21 - 21 - 21 - 21 - 21 -		Damaged the DUT.		
Supplemen	ntary information:	2) - 22 and 20 and		
- NF: No Fire	ne 115 restine 115 restine 115 restine			
- NE: No Exp	blosion			
- NL: No Lea	kage			
- NR: No Rup	pture			
- NS: No Eleo	ctric shock hazard			
- Fire: the er	mission of flames from a cell or batt	ery.		
- Expl are forcibly o		Il container or battery case opens violently and major components		
1. Testins	isible escape of liquid electrolyte C	Others (please sympton)		



Drop Test (33)

Model	OCV at start of test, (Vdc)	Cycles	Height (m)	Results
electric scooter	5 (est ins 15 (est ins 15 (est	Three times	1m	INS LIS PELINS LIS
electric scooter	15 resting 15 resting 15	Three times	1m	esting TP resting
electric scooter	no 115 resting 115 resting 15	Three times	1m	Pro rest
After 0 °C 3h	sting 15 resting 15 resting esting 15 resting 15 resting resting 15 resting 15 resting	The resting The resting The	200 108 115 100 108 115 100 105 100 100 100 100 100 100 100	15 Test Int 15 Tes 115 Test Int 15 Tes
electric scooter	5 (20 10 10 10 10 10 10 10 10 10 10 10 10 10	Three times	15 Test in 1m . 1m	ING THE TREAT
electric scooter	1 5 reaches 15 reaches 15 reaches 15 reaches 15 reaches 16 reaches	Three times	1m	Stink TP (Stink
electric scooter	10 15 125 108 15 125 108 15	Three times	1m	Test ins Pis Test in
supplementary info - NF: No Fire - NE: No Explosion - NL: No Leakage		$ \begin{array}{c} c & c & c & c & c & c & c & c & c & c$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	5

- Fire: the emission of flames from a cell or battery.

- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.



Mold Stress Relief Test (34)

Test part	Temperature ($^{\circ}\!\!\mathbb{C}$)	Duration (h)	Result
Enclosure	70	1h	Pass electrical strength
Oven temperature s	15 restine 15 restine	an the maximu	im temperature on the enclosure but not less than 70°C.
and the second second second second			
- NF: No Fire - NE: No Explosion			
- NF: No Fire - NE: No Explosion - NL: No Leakage - Fire: the emission o			er or battery case opens violently and major components

Result:

34	Electric strength test		Pass	
Test volta	ge applied between:	Test voltage (V)	Breakdown	
input and	lenclosure	AC1480 60Hz	No	
Input and output		AC1480 60Hz	No	
Make sur Thin mate The test v Test volta breakdow manner; t Corona di A test inco Where ca	s made while the EUT is still in well-heated conditio e the power switch of the EUT is in ON position. erial can be tested in room temperature. voltage is a.c. of 50 or 60 Hz or d.c. voltage equal t ge is applied gradually raised from zero to the spec vn is: Current flows through the insulation rapidly that is the insulation does not restrict the flow of t ischarge or a single momentary flashover is not re orporating reinforced insulation and lower grades i pacitors (X or Y capacitors) are across the insulation e resistors shall be disconnected before testing.	o peak value of the a.c. voltage. ified voltage and held at that value for increases in an uncontrolled he current. garded as insulation breakdown. nsulation (BI, SI), care is taken not to o	verstress BI or SI.	

34 TABLE: Insulation resistance measurements	Tes ins Ins resting Ins rest	Pass	
Insulation resistance R between:	R (MΩ)	Required R (Ω)	
DC input and enclosure	>100 MΩ	50000Ω	
L/N and enclosure	>100 MΩ	50000Ω	
L/N and output	>100 MΩ	50000Ω	
Method: The test is made while the EUT is still in well-heated condition Make the power switch of the EUT is in ON position. Thin material can be tested in room temperature. The test voltage is d.c. 500 voltage	sure	2 m 15 C cet (10 10 10 est m 15 C cet (10 10 10 15 C cet (10 15 5 C cet (10 15 cet) (10 15 5 C cet (10 15 cet) (10 15 15 C cet (10 15 cet) (10 15 15 C cet (10 15 cet) (10 15 15 C cet) (10 15 cet) (10 15 cet) (10 15 15 C cet) (10 15 cet) (10 15 cet) (10 15 15 C cet) (10 15 cet) (10 15 cet) (10 15 15 C cet) (10 15	

Test voltage is applied gradually raised from zero to the specified voltage and held at that value for 60s.



Motor Overload Test (35)

35 Abnormal Operations and Fault Conditions Te			St. 12 10 10 10	Pass
Requirement	quirement			Remarks
During the tes	ES 100 100 105 105 105 105 105 105 105 105	The The rest in The rest in the rest in the rest in the the	Testing Ins Testing	Ins ITS Testing ITS
Fire propagate	es beyond the EUT?	rest ting ITS rest ing ITS rest ing ITS rest ing	Yes / No	esting Its resting
Molten metal	emitted?	5 resting 15 resting 15 resting 15 resting 15 rest	Yes / No	Testing The Test
Enclosures def	orm to cause non-complian	Yes / No	The rest ins 175 re	
After the test:	15 reactions 15 reaction 15 res	108 15 105 105 105 118 15 705 108 15 705 108 15 705 108 15	5 Testing ITS Testing	INA THE LESSING THE
Electric streng	th test on reinforced insulat	Yes / No	sting Its results	
Electric streng	th test on Basic insulation b	Yes / No	Testing The Test	
SS Abhormal C		tions Tost	- Celle	Doce 15
Ambient temp	Operations and Fault Condi terature (IC)	100 1/2 462 100 4/2 462 100 1/2 462 100 1/2	25.1 ⁻ C	Pass
Ambient temp Comp./ fault	17 122 100 13 12 12 10k 13 12 12	100 1/2 462 100 4/2 462 100 1/2 462 100 1/2	1. des due Dr. des	Pass

- Fire: the emission of flames from a cell or battery.

- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.



Motor Locked Rotor (36)

36	Abnor	mal Operations and Fault Conditions Te	st a list rest ind its	Pass
Requirement			Result	Remarks
During the test	15 Test Ing Its Test Ing Its te	entine 15 restine 15 restine 15 restine 15 restine 15	5 Testing 115 Testi	Ins ITS Testing ITS
Fire propagates	beyond the EUT?	restine 15 restine 15 restine 15 restine 15 restine	Yes / No	est ine ITS Test ine
Molten metal emitted?			Yes / No	Testing The test
Enclosures deform to cause non-compliance with the standard?			Yes / No	The rest ins The re-
After the test:	15 restine 15 restine 15 re	stink LS restine IS restine IS restine IS restine IS restine IS	5 Testing The Testing	INE ITS TESTINE ITS
Electric strengt	h test on reinforced insula	Yes / No	est ins 115 rest ins	
Electric strength test on Basic insulation breakdown?			Yes / No	Testing The lest
ohmmeter, Wit	or, power meter, Data Acc hstanding Voltage Tester,		illoscope Probe, I	S TESTION TO TES
144 112 185, 144 1	perations and Fault Condi	, the tip tes the day tes the this tes the th	Tes the los tes the	Pass
Ambient tempe	rature (C)	2° 10° 11° 12° 12° 10° 11° 12° 12° 10° 11° 12° 12° 10° 11°	25.1C	the ILS Testine I
Comp./ fault		Result / Ol	oservation	ACT 100 110 ACT 1
Locked Motor	Test voltage: _47.2V_ Duration: _1h_ Fuse or Fuse resistor No: I/P current (A): _Max. 3.79A	Become steady, output power / current Shut down immediately, and damaged, can't be recovered, repeated times. Protected, can be recovered.	Fuse opened immediate Fuse opened after T.F opened after see raw data ⊠ No hazards Winding of motor: 68.3°C Remark:	



Strain Relief Test (37)

Dull I shart for the state	15 rest int 15 res	Test Force		Pass	
Pull Location	Test	Force	Observations	Pass	Fail
10 12 12 12 11 10 12 12 10 10 10 10 10 10 10 10 10 10 10 10 10	5000 215 755 100 20 65 108 215 755 108 20 755 108 115 755 108 20 765 108 115 755 108 15 755 108 115 755 10 15 755 108 115 755 10 15 755 108 115 755 10	156N	No damaged, no breakage, without displacement	8 115 18 25 100 10 10 15 18 25 100 10 15 15 10 10 10 15 10 10 10 10 10 10 10	Terestine Trestine The testine The testine No. The testine No. The test
	115 (e ^s) (in the second seco	156N	No damaged, no breakage, without displacement	100 100 100 100 100 100 100 100 100 100	the [D] te etine [D] te estine [D] testine [D] testine [D] testine [D]
	2 ^{ed} (11) ⁶ 10 ⁵ (12 ^{ed} (11) ⁶ 7 ^{ed} (11) ⁶ 10 ⁵ (2 ^{ed} (11) ⁶ 7 ^{ed} (11) ⁶ 10 ⁵ (2 ^{ed} (11) ⁶ 7 ^{ed} (11) ⁶ 10 ⁵ (2 ^{ed} (11) ⁶) 7 ^{ed} (11) ⁶ 10 ⁵ (11) ⁶ 10 ⁶ 10 ⁶ (11) ⁶ 10 ⁶	156N	No damaged, no breakage, without displacement	10 ⁶ 175 16 ⁶⁰ 10 ⁶ 3 ¹ 1 ⁶ 175 16 ⁵¹ 10 ⁶ 3 ¹ 1 ⁶ 17 ⁶ 17 ⁶ 1 ⁶⁵ 10 ⁶ 175 16 ⁵¹ 1 ⁶⁵ 10 ⁶ 175 16 ⁵¹ 1 ⁶ 1 ⁵⁵ 1 ⁶⁵ 1 ⁵⁵ 1 ⁵⁵	P resum 12 resu
Output cable	8 ¹ 175 (restime 175) ¹⁶ 175 (restime 175) ¹⁶ 175 (restime 175) ² 10 ⁶ 175 (restime 17 ² 10 ⁶ 175 (restime 17 ² 10 ⁶ 175 (restime 17 ² 10 ⁶ 175 (restime 17)	26.7N	No damaged, no breakage, without displacement	v	strink 115 estink 115 Testink 115 5 Testink 11 15 Testink 1 15 Testink
Output cable	10 100 100 100 100 100 100 10 100 100 100 100 100 10 100 100 100 100 100 10 100 100 100	26.7N	No damaged, no breakage, without displacement	V	The rest in a List rest ins List rest ins List rest ins The The stans
Output cable	na TT restina TT ina TT restina TT cina TT restina TT estina TT restina TT restina TT restina restina TT restina restina	26.7N	No damaged, no breakage, without displacement	V	

Water Exposure Tests (38.1)

Test procedure

For IPX4, the sample is positioned under oscillating spray tubes rotating at nearly±180° from the vertical for 10 minutes. The oscillation rate is two cycles of about360° in 12 seconds. Each surface of the enclosure within the spray arch is to be tested for 1 min/m2, with no less than 5 minutes of total test timeThe flow rate again depends upon the tube size, Withstand voltage test is pass, No harmful effects

IPX4	-For IPX4, the sample is positioned under oscillating spray tubes rotating at nearly±180° from the vertical for 10 minutes. The oscillation rate is two cycles of about360° in 12 seconds. Each surface of the enclosure within the spray arch is to be tested for 1 min/m2, with no less than 5 minutes of total test timeThe flow rate again depends upon the tube size, Withstand voltage test is pass, No harmful effects	No harmful effects	Pass
- NF: No Fire	y information:	100 115 100 100 100 100 100 100 100 100	resting IN TO
- NE: No Explo			
- NL: No Leak	이 가슴		
	ission of flames from a cell or battery.	a anone violently and major	
15 Jac 10 10 10	sion: failure that occurs when a cell container or battery case are forcibly expelled.	e opens violently and major	



Partial immersion (38.2)

Test procedure

The samples were placed in the test tank, the samples was submerged underwater.

The DUT is subjected to immersion in water at a height of about ½ of the vertical height of the scooter.

The duration of the test is 5mins

The water temperature does not differ from that of the equipment by more than 5K. Evaluation of test results No liquid entering, Withstand voltage test is pass, No harmful effects

Test results

Sample No.	Test time	Observations	Verdict
2#	5mins	No water entered into the enclosure	Pass
supplementary inf	ormation:	$ \begin{array}{c} 1e^{-t_{110}} 1b^{-t_{12}} e^{-t_{110}} b^{-t_{12}} e^{-t_{110}} b^{-t_{12}}} b^{-t_{12}} e^{-t_{110}} b^{-t_{12}} e^{-t_{110}} b^{-t_{12}} e^{-t_{110}} b^{-t_{12}} b^{-t_{12}} e^{-t_{110}} b^{-t_{12}}} b^{-t_{12}} e^{-t_{110}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{12}} b^{-t_{12}}} b^{-t_{$	The rest into The rest in The
- NF: No Fire			
• NE: No Explosion	To restine The restin		
- NL: No Leakage			
- Fire: the emissio	n of flames from a o	cell or battery.	
- Explosion:	failure that occurs	when a cell container or battery case opens violently	and major
components are fo	orcibly expelled.		
- Leakage: visible e	escape of liquid elec	ctrolyte Others (please explain)	

Thermal Cycling Test (39)

Sample	OCV at start of test, (Vdc)	Temperature raise rated(°C/min)	Test temperature (°C)	Duration (min)	Results
1#	Full battery	5℃/min ± 2 ℃/min	60 to -20	6min	P
1#	Full battery	5 ℃/min ± 2 ℃/min	60 to -20	6min	Р
1#	Full battery	5 ℃/min ± 2 ℃/min	60 to -20	6min	P
1#	Full battery	5 ℃/min ± 2 ℃/min	60 to -20	6min	Р
1#	Full battery	5℃/min ± 2 ℃/min	60 to -20	6min	P

Supplementary information:

supplementary information:

- NF: No Fire
- NE: No Explosion
- NL: No Leakage

- Fire: the emission of flames from a cell or battery.

- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.



Label Permanence Test (40)

Location	Checked by	Time	Result
Label	water	15s	Pass
Label	petroleum	15s	Pass



Photo-documentation:



Photo 1



Photo 2

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