

TEST REPORT

On Behalf of

Prepared For :	Shenzhen Yunmi Intelligent Technology Co., Ltd. Room 11401, Lanbao Industrial Zone, No. 74, Xisha Road, Shasan Community, Shajing Street, Baoan District, Shenzhen
Brand name :	YUME
Product Name :	Electric Scooter
Model(s) :	X11PRO, X11+, Y11+, Y11PRO, Y10, HAWK, HAWKPRO, SWIFT, RAPTOR, OSPREY, M11H, M13, PREDATOR, DK11
Prepared By:	Shenzhen Huaxiang Testing Co., Ltd 201, Building A10, Fuhai Information Port, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen City, Guangdong, China
Test Date:	Dec. 28, 2023-Jan. 04, 2024
Date of Report:	Jan. 04, 2024
Report No. :	HUAX240102024M

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 Huaxiang Testing Co., Ltd.

TEST REPORT**UL 2272**

Standard for Electrical Systems for Personal E-Mobility Devices

Reference No..... : HUAX240102024M

Date of issue..... : Jan. 04, 2023

Testing laboratory

Name..... : Shenzhen Huaxiang Testing Co., Ltd

Address..... : 201, Building A10, Fuhai Information Port, Xinhe Community,
Fuhai Street, Bao'an District, Shenzhen City, Guangdong, China

Testing location..... : Same as above

Client

Name..... : Shenzhen Yunmi Intelligent Technology Co., Ltd.

Address..... : Room 11401, Lanbao Industrial Zone, No. 74, Xisha Road,
Shasan Community, Shajing Street, Baoan District, Shenzhen**Test specification**

Standard..... : UL 2272

Test procedure : ---

Non-standard test method..... : N/A

Test item

Description..... : Electric Scooter

Brand name..... : YUME

Model and/or type reference..... : X11PRO, X11+, Y11+, Y11PY, M11HRO, Y10, HAWK,
HAWKPRO, SWIFT, RAPTOR, OSPRE, M13, PREDATOR,
DK11

Manufacturer..... : Shenzhen Yunmi Intelligent Technology Co., Ltd.

Address..... : Room 11401, Lanbao Industrial Zone, No. 74, Xisha Road,
Shasan Community, Shajing Street, Baoan District, Shenzhen

Test Result: Please refer to next page(s) for details.

Testing procedure and testing location

Laboratory name..... : Shenzhen Huaxiang Testing Co., Ltd

Testing location/address : Room 201, Building A, No. 56, Nanlian Road, Nanlian Community, Longgang Street, Longgang District, Shenzhen

Testing lprocedure : TL RMT SMT WMT TMP

Tested By (Test Engineer) : Kevin su



Reviewed By (Supervisor) : Amy jiang

POSSIBLE TEST CASE VERDICTS:

- test case does not apply to the test object..... :	N (N/A)
- test object does meet the requirement..... :	P (Pass)
- test object does not meet the requirement..... :	F (Fail)

TESTING:

Date of receipt of test item..... :	Dec. 28, 2023
Date (s) of performance of tests..... :	Dec. 28, 2023-Jan. 04, 2024

Standard: ANSI/CAN/UL 2272-2016			
Report No.:	HUAX240102024M	Client:	Shenzhen Yunmi Intelligent Technology Co., Ltd.
Product:	Electric Scooter	Rating	60V 6000W
Protection class	--	Battery	60v30ah
Application Date	Dec. 28, 2023	Construction:	With battery
Requested Date	Jan. 04, 2024	Operation mode	Continuous
Re-test			
Full-test	<input checked="" type="checkbox"/>		
Model/ type reference:	X11PRO		
Should the heating test be done in heating oven?	<input type="checkbox"/> Yes C <input checked="" type="checkbox"/> No		
Altitude during operation (m)	<input type="checkbox"/> Up to 2000 <input checked="" type="checkbox"/> No		
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> below 2000 <input type="checkbox"/> No		
Other information:	Outdoor used, Battery 60V 30Ah, With over charge protection, Over discharge protection, over current protection and temperature protection.		

Lab Use Only			
Lab Start Date	Dec. 28, 2023	Lab Finish Date	Jan. 04, 2024
Ambient Temperature, ° C	25.2	Relative Humidity, %	49.4

No.1	Clause(s)	Test(s)	Remark	Comment
1	6	Non-Metallic Materials	UL 746 RTI>80°C V-1, UL94	Pass
2	7	Metallic Parts Resistance to Corrosion	Paint	Pass
3	8	Enclosures	No Opening Min. IP44	Pass
4	9	Wiring and Terminals	Non-replaceable batteries No Terminals outside	Pass
5	10	Chargers		Pass
6	11	Fuses	No fuse in scooter	N/A
7	12	Lighting		Pass
8	13	Electrical Spacings and Separation of Circuits		Pass
9	14	Insulation Levels and Protective Grounding	No earth	N/A
10	15	Protective Circuits and Safety Analysis	IEC 60812 IEC61025 UL 991	Pass
11	16	Cells	UL 2580	Pass
12	17	Motors	UL 1004-1	Pass
13	18	Manufacturing and Production Line Testing		N/A
14	19	PERFORMANCE		Pass
15	20	Tolerances		Pass
16	21	Post Test Cycle		Pass
17	22	Results Criteria		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
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 probe				Pass
Location	Dimension of opening	Tester	Observations	Pass	Fail
Opening	No opening	Articulate probe	Can't touch Live parts and dangerous moving parts	√	--

Spacings (13)

13	Electrical Spacings					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	--	68	1.6	>3.0	1.6	>3.0
Input to Enclosure	--	--	--	--	--	--
Primary component to accessible enclosure (RI)	--	--	--	--	--	--
Primary trace to secondary trace under transformer (T1) (RI)	--	--	--	--	--	--
Primary winding to secondary winding of transformer (T1) (RI)	--	--	--	--	--	--
Supplementary information						
Note(s): --						

Overcharge Test (23)

23	TABLE: Overcharge Test				P
Model	OCV at start of test, (Vdc)	Constant charging current (A)	Maximum outer casing temperature(°C)	Results	
battery	60	6	39.7	P	
--					
supplementary information: - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)					

Short Circuit Test (24)

24	TABLE: Short-Circuit Test					P
Model	Ambient, (°C)	OCV at start of test, (Vdc)	Resistance of circuit, (mW)	Maximum case temperature rise ΔT , (C)	Results	
battery	24.9	66.99	<20mW	6.9	P	
--	--	--	--	--	--	
Supplementary information: supplementary information: - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)						

Over discharge Test (25)

25	TABLE: Over discharge Test			P
Model	OCV at start of test, (Vdc)	Constant discharging current (A)	Maximum outer casing temperature(°C)	Results
battery	67.5	60	48.2	P
--				
supplementary information: - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)				

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	TABLE: Thermal requirements,						Pass
	Supply voltage (V)	DC 67.2V	--	--	--	--	—
	Ambient Tmin (°C)	24.5	--	--	--	--	—
	Ambient Tmax (°C)	24.9	--	--	--	--	—
	Max. load	Charge battery	--	--	--	--	
	Model	--	--	--	--	--	
Maximum measured temperature T of part/at::		T (°C)					Allowed Tmax (°C)
Enclosure of Adaptor		45.3	--	--	--	--	70
PCB near IC		40.4	--	--	--	--	105
Internal wire		37.8	--	--	--	--	55
Capacitor		55.6	--	--	--	--	80
Connector		47.1	--	--	--	--	70
Battery		21.2	--	--	--	--	60
Enclosure of battery		27.1	--	--	--	--	70
--							
Supplementary information:							
Temperature T of winding:		t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)
--		--	--	--	--	--	--
--							
Supplementary information:							
- 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)							

Temperature Test (26)

Result:

26	TABLE: Thermal requirements,						Pass
	Supply voltage (V)	Power by full Battery	--	--	--	--	—
	Ambient Tmin (°C)	24.6	--	--	--	--	—
	Ambient Tmax (°C)	24.9	--	--	--	--	—
	Max. load	Max. load	--	--	--	--	
	Model	--	--	--	--	--	
Maximum measured temperature T of part/at::		T (°C)				Allowed Tmax (°C)	
Enclosure of Adaptor		--	--	--	--	70	
PCB near IC		42.3	--	--	--	105	
Internal wire		38.2	--	--	--	55	
Capacitor		54.5	--	--	--	80	
Connector		--	--	--	--	70	
Battery		25.6	--	--	--	60	
Enclosure of battery		33.1	--	--	--	70	
Winding of Motor		57.2				70	
Enclosure of Motor		52.3				90	
Supplementary information:							
Temperature T of winding:		t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)
		--	--	--	--	--	--
Supplementary information:							
<ul style="list-style-type: none"> - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain) 							

Imbalanced Charging Test (27)

24	TABLE: Imbalanced Charging Test			P
Model	OCV at start of test, (Vdc)	OCV at charge end by adaptor, (Vdc)	Results	
Battery	65.5	64	P	
Remark:54V<54.6V				
Supplementary information:				
<ul style="list-style-type: none"> - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain) 				

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 voltage applied between:		Test voltage (V)	Breakdown	
input and enclosure		AP9480 60Hz	No	
Input and output		AJ1480 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.

29	TABLE: Insulation resistance measurements		Pass
Insulation resistance R between:		R (M Ω)	Required R (Ω)
DC input and enclosure		>100 M Ω	50000 Ω
L/N and enclosure		>100 M Ω	50000 Ω
L/N and output		>100 M Ω	50000 Ω

Vibration test (30)

30	TABLE: Vibration tests			P
Model	OCV at start of test, (Vdc)	Test frequency (Hz)	Vibration time (h)	Results
Battery	67.1	7Hz~200Hz~7Hz	15 min	P
Battery	66.8	7Hz~200Hz~7Hz	15 min	P
Battery	67.3	7Hz~200Hz~7Hz	15 min	P
Supplementary information:				
<ul style="list-style-type: none"> - NF: No Fire - NE: No Explosion - NL: No Leakage - NR: No Rupture - NS: No Electric shock hazard 				

Shock Test (31)

31	TABLE: Mechanical tests (batteries)			P
Model	OCV at start of test, (Vdc)	Acceleration (gn)	Number of shocks per half axis	Results
Electric Scooter	67.1	50gn	3	P
Electric Scooter	66.8	50gn	3	P
Electric Scooter	67.3	50gn	3	P
31	TABLE: Charging Test by adaptor			P
Model	OCV at start of test, (Vdc)	OCV at charge end by adaptor, (Vdc)	Results	
Battery	28.3	47.5	P	
Remark:DC 67.2V<48V				
Supplementary information:				
<ul style="list-style-type: none"> - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain) 				

Crush Test (32)

32	TABLE: force test		Pass
Test condition	Result		
14700 N force applied DUT	NF, NE, NL, NR, NS. Damaged the DUT.		
Supplementary information:			
<ul style="list-style-type: none"> - 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. - Leakage: visible escape of liquid electrolyte.- Others (please explain) 			

Drop Test (33)

33	TABLE: Drop test				Pass
Model	OCV at start of test, (Vdc)	Cycles	Height (m)	Results	
Electric Scooter	--	Three times	1m	P	
Electric Scooter	--	Three times	1m	P	
Electric Scooter	--	Three times	1m	P	
After 0 °C 3h					
Electric Scooter	--	Three times	1m	P	
Electric Scooter	--	Three times	1m	P	
Electric Scooter	--	Three times	1m	P	
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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)					

Mold Stress Relief Test (34)

34	TABLE: Strain relief test			Pass
Test part	Temperature (°C)	Duration (h)	Result	
Enclosure	70	1h	Pass electrical strength	
Notes: Oven temperature shall be 10 K higher than the maximum temperature on the enclosure but not less than 70°C.				
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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)				

Result:

34	Electric strength test			Pass
Test voltage applied between:		Test voltage (V)	Breakdown	
input and enclosure		AJ1480 60Hz	No	
Input and output		AJ1480 60Hz	No	
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.				

34	TABLE: Insulation resistance measurements			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 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.				

Motor Overload Test (35)

35	Abnormal Operations and Fault Conditions Test		Pass
Requirement	Result	Remarks	
During the test:			
Fire propagates beyond the EUT?	Yes/ No	--	
Molten metal emitted?	Yes/ No	--	
Enclosures deform to cause non-compliance with the standard?	Yes/ No	--	
After the test:			
Electric strength test on reinforced insulation breakdown?	Yes/ No	--	
Electric strength test on Basic insulation breakdown?	Yes/ No	--	
SC: Short-circuited; OC: Open-circuited; OL: Over-load; BK: Block; RP: Reverse-polarity; LK: Lock; DC: Disconnect; OVC: Overcharging under Max. available charging voltage or 106% rated voltage; ED: Excessive discharging			
Voltage regulator, power meter, Data Acquisition/Switch Unit , Oscilloscope, Oscilloscope Probe, Digital Micro-ohmmeter, Withstanding Voltage Tester, DC Electrical load;			
35 Abnormal Operations and Fault Conditions Test			Pass
Ambient temperature (°C)		25.1°C	
Comp./ fault	Result / Observation		
Motor Overload Test voltage: <u>_DC 67.2V_</u> Duration: <u>_7H28mins_</u> Fuse or Fuse resistor No: <u>_ _</u> I/P current (A): <u>_3.81A_</u> I/P power (W): <u>_0_</u>	Become steady, output power / current _____ Shut down immediately, and _____ damaged, can't be recovered, repeated _____ times. Protected, can be recovered.		Fuse opened immediately Fuse opened after ____ T.F opened after ____ see raw data _____ <input checked="" type="checkbox"/> No hazards Winding of motor: 76.4°C Remark: --
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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)			

Motor Locked Rotor (36)

36	Abnormal Operations and Fault Conditions Test		Pass
Requirement	Result	Remarks	
During the test:			
Fire propagates beyond the EUT?	Yes/ No	--	
Molten metal emitted?	Yes/ No	--	
Enclosures deform to cause non-compliance with the standard?	Yes/ No	--	
After the test:			
Electric strength test on reinforced insulation breakdown?	Yes/ No	--	
Electric strength test on Basic insulation breakdown?	Yes/ No	--	
SC: Short-circuited; OC: Open-circuited; OL: Over-load; BK: Block; RP: Reverse-polarity; LK: Lock; DC: Disconnect; OVC: Overcharging under Max. available charging voltage or 106% rated voltage; ED: Excessive discharging			
Voltage regulator, power meter, Data Acquisition/Switch Unit , Oscilloscope, Oscilloscope Probe, Digital Micro-ohmmeter, Withstanding Voltage Tester, DC Electrical load;			
36 Abnormal Operations and Fault Conditions Test			Pass
Ambient temperature (°C)		25.1°C	
Comp./ fault	Result / Observation		
Locked Motor	Test voltage: _DC 67.2V_ Duration: _1h_ Fuse or Fuse resistor No: __ I/P current (A): _Max. 3.79A_ I/P power (W): _0_	Become steady, output power / current _____ Shut down immediately, and _____damaged, can't be recovered, repeated _____ times. <input checked="" type="checkbox"/> Protected, can be recovered.	Fuse opened immediately Fuse opened after ____ T.F opened after ____ see raw data _____ <input checked="" type="checkbox"/> No hazards Winding of motor: 68.3°C Remark: --
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. - Leakage: visible escape of liquid electrolyte.- Others (please explain)			

Strain Relief Test (37)

Pull Location	Test	Force	Observations	Pass	
				Pass	Fail
--	--	156N	No damaged, no breakage, without displacement	--	
--	--	156N	No damaged, no breakage, without displacement	--	
--	--	156N	No damaged, no breakage, without displacement	--	
Output cable	--	26.7N	No damaged, no breakage, without displacement	✓	
Output cable	--	26.7N	No damaged, no breakage, without displacement	✓	
Output cable	--	26.7N	No damaged, no breakage, without displacement	✓	

Remark: No non-detachable accessible cord

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

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 1/2 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 information:

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

Thermal Cycling Test (39)

39	TABLE: Heating Test				P
Sample	OCV at start of test, (Vdc)	Temperature raise rated(°C/min)	Test temperature (°C)	Duration (min)	Results
1#	Full battery	5 °C/min ± 2 °C/min	60 to -20	6min	P
1#	Full battery	5 °C/min ± 2 °C/min	60 to -20	6min	P
1#	Full battery	5 °C/min ± 2 °C/min	60 to -20	6min	P
1#	Full battery	5 °C/min ± 2 °C/min	60 to -20	6min	P
1#	Full battery	5 °C/min ± 2 °C/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.
- Leakage: visible escape of liquid electrolyte.- Others (please explain)

Label Permanence Test (40)

40	TABLE: Marking test			Pass
Location	Checked by	Time	Result	
Label	water	15s	Pass	
Label	petroleum	15s	Pass	

Appendix 1: Critical components information					
Component Name	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
Plastic Enclosure	CHI MEI CORPORATION	PC-122(+)	Min thickness 1.7mm, V-2, HWI=2, HAI=0, 105°C, screw for fixing	UL746 UL94	UR
PCB Alt.	Interchangeable	Interchangeable	V-1 or better, 130°C, min 0.8mm,	UL769 UL94	UR
IC (IC1, IC2)	XySemi Inc	XB7608A	Overcharge Detection Voltage: 4.3±0.05 V, Over-discharge Detection Voltage: 2.4 ±0.1 V,	•	UR
<u>Controller</u>	Interchangeable	Interchangeable	DC60V	--	UR
Battery	Interchangeable	TR-WB72V50 AH	50Ah/3600Wh	UL2271	UR
Adapter	DONGUAN ANGDI TECHNOLOGY CO.,LTD	BC267546020	Input:100-240VAC,50/60Hz ,3Amax. Output:DC84.2V,2A	UL1310	ULE507245
Remark:					

Photo-documentation:

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



***** END OF REPORT *****