# APPLICATION FOR TEST REPORT
## UL ANSI/CAN/UL 2272
## On Behalf of

| | |
|---|---|
| Prepared For: | shenzhenshikeruiankejiyouxiangongsi |
| Address: | shenzhenshibaoanqushiyanjiedaoluozushequdisangongyequ6.7.8haozonghelou 408 |
| Product Name: | Voyager |
| Model: | MB0061 |
| Trade Mark: | MEEPO |
| Manufacturer: | shenzhenshikeruiankejiyouxiangongsi |
| Address: | shenzhenshibaoanqushiyanjiedaoluozushequdisangongyequ6.7.8haozonghelou 408 |
| Prepared By: | Shenzhen Wuxiang Testing (Group) Co., Ltd<br>Building B, Xinbaosheng, No.233, Xixiang Street, Bao'an District, Shenzhen, China |
| Test Date: | May.10, 2022 to May. 17, 2022 |
| Date of Report: | May. 17, 2022 |
| Report No.: | WUX202206162085UL |

# ANSI/CAN/UL 2272 TEST REPORT

| Standard: ANSI/CAN/UL 2272-2016 | | | |
|---|---|---|---|
| Report No.: | WUX202206162085UL | Client: | shenzhenshikeruiankejiyouxiangongsi |
| Product: | Voyager | Rated input | Adaptor:Input:AC100-240V,50/60HZ, 5A |
| Project Engineer: | Tony Bi | Rated output | DC50.4V 45A |
| Test Engineer: | Rust He | Protection class | -- |
| Application Date | May. 10, 2022 | Protection against moisture: | Min. IP44 |
| Requested Date | May. 17, 2022 | Construction: | With battery |
| Re-test | ☐ | Operation mode | Continous |
| Full-test | ☒ | Weight: | <20kg |
| Model/ type reference: | MB0061 | Sample No. | 1#,2# |
| Should the heating test be done in heating oven? | ☐ Yes °C<br>☒ No | | |
| Altitude during operation (m) | ☐ Up to 2000<br>☒ No | | |
| Altitude of test laboratory (m) | ☒ below 2000<br>☐ No | | |
| Other information:..... | Outdoor used, Battery , With over charge protection, Over discharge protection, over current protection and temperature protection. | | |

| **Lab Use Only** | | | |
|---|---|---|---|
| Lab Start Date | May. 10, 2022 | Lab Finish Date | May. 17, 2022 |
| Ambient Temperature, °C | 24.8 | Relative Humidity, % | 48.6 |

Remarks:

**Tested by:** Rust He **Checked by:** Tony Bi.

Wuxiang Testing (Group) Lab Report Approved

****Modified History****

| Revision | Description | Issued Data | Remark |
|---|---|---|---|
| Revision 1.0 | Initial Test Report Release | 2022/05/17 | Rust He |
| Revision 2.0 | All test data were obtained from: WUX202205101571UL.<br>Added three photos. | 2022/06/17 | Rust He |

| No.1 | Clause(s) | Test(s) | Remark | Comment |
|---|---|---|---|---|
| 1 | 6 | Non-Metallic Materials | UL 746<br>RTI>80℃<br>V-1, UL94 | Pass |
| 2 | 7 | Metallic Parts Resistance to Corrosion | Paint | Pass |
| 3 | 8 | Enclosures | No Opening<br>Min. IP44 | Pass |
| 4 | 9 | Wiring and Terminals | Non-replaceable batteries<br>No Terminals outside | Pass |
| 5 | 10 | Chargers | UL 1310 | Pass |
| 6 | 11 | Fuses | No fuse | N/A |
| 7 | 12 | Lighting | No lighting | N/A |
| 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<br>IEC61025<br>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 | | N/A |
| 30 | 35 | Motor Overload Test | See the table | Pass |
| 31 | 36 | Motor Locked Rotor | See the table | Pass |
| 32 | 37 | Strain Relief Tests | | N/A |
| 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 | -- | 50.4 | 1.6 | >3.2 | 1.6 | >3,2 |
| 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 | 30V | 8 | 44.9 | 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, (mΩ) | Maximum case temperature rise ΔT, ( C) | Results |
| battery | 24.2 | 40.82 | <20mΩ | 21.8 | 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)*

| 23 | TABLE: Over discharge Test | | | P |
|---|---|---|---|---|
| Model | OCV at start of test, (Vdc) | Constant discharging current (A) | Maximum outer casing temperature(° C) | Results |
| battery | 40.07 | 80 | 48.7 | P |
| -- | | | | |
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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) .....: | AC240V | -- | -- | -- | -- | — |
| | Ambient Tmin (°C) .....: | 24.5 | -- | -- | -- | -- | — |
| | Ambient Tmax (°C) ..... : | 25.1 | -- | -- | -- | -- | — |
| | Max. load | Charge battery | -- | -- | -- | -- | |
| | Model | -- | -- | -- | -- | -- | |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed Tmax (°C) |
| Enclosure of Adaptor | | 40.2 | -- | -- | -- | -- | 70 |
| PCB near control IC | | 36.4 | -- | -- | -- | -- | 105 |
| Internal wire | | 31.7 | -- | -- | -- | -- | 55 |
| Connector | | 37.6 | -- | -- | -- | -- | 70 |
| Battery | | 36.1 | -- | -- | -- | -- | 60 |
| Enclosure of battery | | 31.4 | -- | -- | -- | -- | 70 |
| -- | | | | | | | |
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| Supplementary information: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Temperature T of winding: | t1 (°C) | R1 (Ω) | t2 (°C) | R2 (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
| -- | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

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)

## 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 Control IC | | 33.2 | -- | -- | -- | -- | 105 |
| Internal wire | | 36.3 | -- | -- | -- | -- | 55 |
| Connector | | -- | -- | -- | -- | -- | 70 |
| Battery | | 41.7 | -- | -- | -- | -- | 60 |
| Enclosure of battery | | 30.3 | -- | -- | -- | -- | 70 |
| Winding of Motor | | 50.4 | | | | | 70 |
| Enclosure of Motor | | 45.3 | | | | | 90 |
| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| Supplementary information: | | | | | | | |

| Temperature T of winding: | t1 (°C) | R1 (Ω) | t2 (°C) | R2 (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- |
| | | | | | | | |

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)

## *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 | 31.5 | 41.6 | P |
| | | | |
| | | | |
| | | | |
| Remark:41.6V<50.4V | | | |

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)

# *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 | | AC1480 60Hz | No |
| Input and 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.

| | | |
|---|---|---|
| 29 | 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 |
| | | |
| | | |

## *Vibration test (30)*

| 30 | TABLE: Vibration tests | | | P |
|---|---|---|---|---|
| Model | OCV at start of test, (Vdc) | Test frequency (Hz) | Vibration time (h) | Results |
| Battery | 41.5 | 7Hz~200Hz~7Hz | 15 min | P |
| Battery | 41.4 | 7Hz~200Hz~7Hz | 15 min | P |
| Battery | 41.7 | 7Hz~200Hz~7Hz | 15 min | P |
| Supplementary information:<br>- NF: No Fire<br>- NE: No Explosion<br>- NL: No Leakage<br>- NR: No Rupture<br>- 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 |
| MB0061 | 41.6 | 50gn | 3 | P |
| MB0061 | 41.5 | 50gn | 3 | P |
| MB0061 | 41.5 | 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 | 31.8 | 41.4 | P |
| | | | |
| | | | |
| | | | |

Remark:41.4V<50.4V

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)

## *Crush Test (32)*

| 32 | TABLE: force test | Pass |
|---|---|---|
| Test condition | Result | |
| 14700 N force applied DUT | NF, NE, NL, NR, NS.<br>Damaged the DUT. | |

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)

## *Drop Test (33)*

| 33 | TABLE: Drop test | | | Pass |
|---|---|---|---|---|
| Model | OCV at start of test, (Vdc) | Cycles | Height (m) | Results |
| MB0061 | -- | Three times | 1m | P |
| MB0061 | -- | Three times | 1m | P |
| MB0061 | -- | Three times | 1m | P |
| After 0 ℃ 3h | | | | |
| Electric skateboard | -- | Three times | 1m | P |
| Electric skateboard | -- | Three times | 1m | P |
| Electric skateboard | -- | 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 (℃) | 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 | AC1480 60Hz | No |
| Input and output | AC1480 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: _50.2V_<br>Duration: _5H53mins_<br>Fuse or Fuse resistor No: _ _<br>I/P current (A): _3.85A_<br>I/P power (W): _0_ | ☐ Become steady, output power / current _____<br>☐ Shut down immediately, and _____ damaged, can't be recovered, repeated ____ times.<br>☐ Protected, can be recovered. | ☐ Fuse opened immediately<br>☐ Fuse opened after __<br>☐ T.F opened after __<br>☐ see raw data __<br>☒ No hazards<br>Winding of motor: 71.7°C<br>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;<br>**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) ……: | 25.0°C | | |
| Comp./ fault | | Result / Observation | |
| Locked Motor | Test voltage: _50.3V_<br>Duration: _1h_<br>Fuse or Fuse resistor No: _ _<br>I/P current (A): _Max. 3.83A_<br>I/P power (W): _0_ | ☐ Become steady, output power / current _____<br>☐ Shut down immediately, and _____ damaged, cannot be recovered, repeated ____ times.<br>☒ Protected, can be recovered. | ☐ Fuse opened immediately<br>☐ Fuse opened after __<br>☐ T.F opened after __<br>☐ see raw data __<br>☒ No hazards<br>Winding of motor: 64.3°C<br>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 | N/A | |
|---|---|---|---|---|---|
| | | | | Pass | Fail |
| -- | -- | 156N | No damaged, no breakage, without displacement | -- | |
| -- | -- | 156N | No damaged, no breakage, without displacement | -- | |
| -- | -- | 156N | No damaged, no breakage, without displacement | -- | |
| -- | -- | 26.7N | No damaged, no breakage, without displacement | -- | |
| -- | -- | 26.7N | No damaged, no breakage, without displacement | -- | |
| -- | -- | 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 |
| supplementary information:<br>- NF: No Fire<br>- NE: No Explosion<br>- NL: No Leakage<br>- Fire: the emission of flames from a cell or battery.<br>- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.<br>- 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 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 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)

## *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℃/min ± 2 ℃/min | 60 to -20 | 6min | P |
| 1# | Full battery | 5 ℃/min ± 2 ℃/min | 60 to -20 | 6min | P |
| 1# | Full battery | 5 ℃/min ± 2 ℃/min | 60 to -20 | 6min | P |
| 1# | Full battery | 5 ℃/min ± 2 ℃/min | 60 to -20 | 6min | P |
| 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.
- 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 |
| | | | |

**Photo documentation**

**Photo 1 Over view**


**Photo 2 Over view**

**Photo 3 Over view**

**Photo 4 Over view**

**Photo 5 Over view**

**Photo 6 Over view**

**Photo 7 Over view**

**Photo 8 Over view**

**Photo 9 Over view**

**.....End of Report.....**