



TEST REPORT IEC 60034-1

Rotating electrical machines – Part 1: Rating and Performance

Report Number.....: AOC250221020S

Date of issue.....: 2025-03-09

Total number of pages..... 29 pages

Name of Testing Laboratory preparing the Report.....: Shenzhen AOCE Electronic Technology Service Co., Ltd
Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China

Applicant's name.....: Ningbo Yinzhou Sixin Import and Export Co., Ltd.

Address.....: (3-3)-1, No. 6, Lane 49, SI extension street, Yinzhou District, Ningbo City, Zhejiang Province, China, 315100

Test specification:

Standard..... : EN 60034-1:2010

Test procedure.....: Type testing

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

Test Report Form No.....: IEC60034-1A

Test Report Form(s) Originator.....: UL(US)

Master TRF.....: Dated 2016-10

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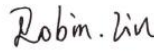
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| | | |
|---|---|---|
| Test item description..... : | Curtain Motor | |
| Trade Mark..... : |  , SIXIN | |
| Manufacturer..... : | Ningbo Yinzhou Sixin Import and Export Co., Ltd. (3-3)-1, No. 6, Lane 49, SI extension street, Yinzhou District, Ningbo City, Zhejiang Province, China, 315100 | |
| Model/Type reference..... : | See Model List | |
| Ratings..... : | 100-240 V~, 50/60 Hz, 0.8A, 80 W, Class II, IP 44 | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input checked="" type="checkbox"/> | Testing Laboratory: | Shenzhen AOCE Electronic Technology Service Co., Ltd |
| Testing location/ address..... : | | Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China |
| Tested by (name, function, signature)..... : | | ZhiCong Xian Technical Engineer  |
| Approved by (name, function, signature)... : | | Robin Liu Technical Manager  |
| <input type="checkbox"/> | Testing procedure: CTF Stage 1: | N/A |
| Testing location/ address..... : | | |
| Tested by (name, function, signature)..... : | | |
| Approved by (name, function, signature)... : | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 2: | N/A |
| Testing location/ address..... : | | |
| Tested by (name + signature)..... : | | |
| Witnessed by (name, function, signature).. : | | |
| Approved by (name, function, signature)... : | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 3: | N/A |
| <input type="checkbox"/> | Testing procedure: CTF Stage 4: | N/A |
| Testing location/ address..... : | | |
| Tested by (name, function, signature)..... : | | |
| Witnessed by (name, function, signature).. : | | |
| Approved by (name, function, signature)... : | | |
| Supervised by (name, function, signature) : | | |

List of Attachments (including a total number of pages in each attachment):**Attachment No.1:** Photo document.**Summary of testing:****Tests performed (name of test and test clause):**

EN 60034-1:2010

Testing location:

Shenzhen AOCE Electronic Technology Service Co.,
Ltd
Room 202, 2nd Floor, No.12th Building of Xinhe
Tongfuyu Industrial Park, Fuhai Street, Baoan District,
Shenzhen, Guangdong, China

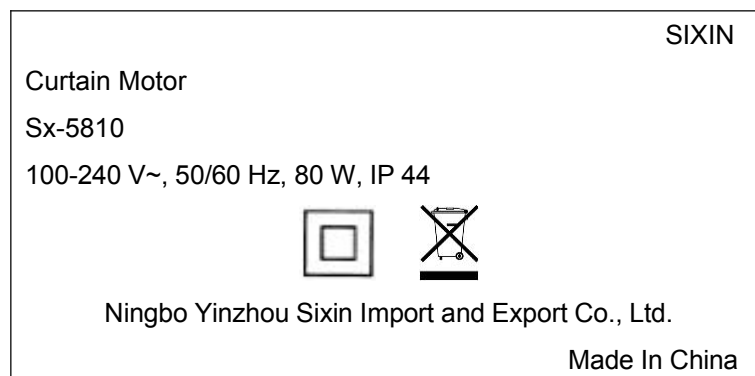
Summary of compliance with National Differences (List of countries addressed):

N/A

☐ The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



| | | | |
|---|------------|--|---------|
| Test item particulars..... : | | | |
| Possible test case verdicts: | | | |
| - test case does not apply to the test object..... : N/A | | | |
| - test object does meet the requirement..... : P (Pass)* | | | |
| - test object does not meet the requirement..... : F (Fail) | | | |
| * For the GMEE program, "Pass" means that measurements and calculations were done according to IEC 60034-2-1 | | | |
| Date of receipt of test item..... : 2025-02-21 | | | |
| Date (s) of performance of tests..... : 2025-02-21 to 2025-03-09 | | | |
| General remarks: | | | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator. | | | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02: | | | |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... : | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable | |
| When differences exist; they shall be identified in the General product information section. | | | |
| Name and address of factory (ies)..... : Same as manufacturer | | | |
| General product information: | | | |
| Model List: | | | |
| Model | Voltage | Power | Current |
| SX-5810 | AC100~240V | 80W | 0.8A |
| SX-5810-W | AC100~240V | 80W | 0.8A |
| SX-5810-Z | AC100~240V | 80W | 0.8A |

| | | | |
|----------------|------------|-----|------|
| SX-5810-M | AC100~240V | 80W | 0.8A |
| SX-5810-KNX | AC100~240V | 80W | 0.8A |
| SX-5810-485 | AC100~240V | 80W | 0.8A |
| SX-5810-C | AC100~240V | 80W | 0.8A |
| SX-5810-D | AC100~240V | 80W | 0.8A |
| SX-5818-50 | AC100~240V | 80W | 0.8A |
| SX-5818-50-W | AC100~240V | 80W | 0.8A |
| SX-5818-50-Z | AC100~240V | 80W | 0.8A |
| SX-5818-50-M | AC100~240V | 80W | 0.8A |
| SX-5818-50-KNX | AC100~240V | 80W | 0.8A |
| SX-5818-50-485 | AC100~240V | 80W | 0.8A |
| SX-5818-50-C | AC100~240V | 80W | 0.8A |
| SX-5818-50-D | AC100~240V | 80W | 0.8A |
| SX-5818 | AC100~240V | 80W | 0.8A |
| SX-5818-W | AC100~240V | 80W | 0.8A |
| SX-5818-Z | AC100~240V | 80W | 0.8A |
| SX-5818-M | AC100~240V | 80W | 0.8A |
| SX-5818-KNX | AC100~240V | 80W | 0.8A |
| SX-5818-485 | AC100~240V | 80W | 0.8A |
| SX-5818-C | AC100~240V | 80W | 0.8A |
| SX-5818-D | AC100~240V | 80W | 0.8A |
| SX-5805 | AC100~240V | 80W | 0.8A |
| SX-5805-W | AC100~240V | 80W | 0.8A |
| SX-5805-Z | AC100~240V | 80W | 0.8A |

| | | | |
|-------------|------------|-----|------|
| SX-5805-M | AC100~240V | 80W | 0.8A |
| SX-5805-KNX | AC100~240V | 80W | 0.8A |
| SX-5805-485 | AC100~240V | 80W | 0.8A |
| SX-5805-C | AC100~240V | 80W | 0.8A |
| SX-5805-D | AC100~240V | 80W | 0.8A |
| SX-6501 | AC100~240V | 60W | 0.3A |
| SX-6501-W | AC100~240V | 60W | 0.3A |
| SX-6501-Z | AC100~240V | 60W | 0.3A |
| SX-6501-M | AC100~240V | 60W | 0.3A |
| SX-6501-KNX | AC100~240V | 60W | 0.3A |
| SX-6501-485 | AC100~240V | 60W | 0.3A |
| SX-6501-C | AC100~240V | 60W | 0.3A |
| SX-6501-D | AC100~240V | 60W | 0.3A |
| SX-6502 | AC100~240V | 60W | 0.3A |
| SX-6502-W | AC100~240V | 60W | 0.3A |
| SX-6502-Z | AC100~240V | 60W | 0.3A |
| SX-6502-M | AC100~240V | 60W | 0.3A |
| SX-6502-KNX | AC100~240V | 60W | 0.3A |
| SX-6502-485 | AC100~240V | 60W | 0.3A |
| SX-6502-C | AC100~240V | 60W | 0.3A |
| SX-6502-D | AC100~240V | 60W | 0.3A |
| SX-5807 | AC100~240V | 60W | 0.3A |
| SX-5807-W | AC100~240V | 60W | 0.3A |
| SX-5807-Z | AC100~240V | 60W | 0.3A |

| | | | |
|-------------|------------|-----|------|
| SX-5807-M | AC100~240V | 60W | 0.3A |
| SX-5807-KNX | AC100~240V | 60W | 0.3A |
| SX-5807-485 | AC100~240V | 60W | 0.3A |
| SX-5807-C | AC100~240V | 60W | 0.3A |
| SX-5807-D | AC100~240V | 60W | 0.3A |
| SX-6805 | AC100~240V | 60W | 0.3A |
| SX-6805-W | AC100~240V | 60W | 0.3A |
| SX-6805-Z | AC100~240V | 60W | 0.3A |
| SX-6805-M | AC100~240V | 60W | 0.3A |
| SX-6805-KNX | AC100~240V | 60W | 0.3A |
| SX-6805-485 | AC100~240V | 60W | 0.3A |
| SX-6805-C | AC100~240V | 60W | 0.3A |
| SX-6805-D | AC100~240V | 60W | 0.3A |
| SX-GD80 | AC100~240V | 45W | 0.5A |
| SX-GD80-W | AC100~240V | 45W | 0.5A |
| SX-GD80-Z | AC100~240V | 45W | 0.5A |
| SX-GD80-M | AC100~240V | 45W | 0.5A |
| SX-GD80-KNX | AC100~240V | 45W | 0.5A |
| SX-GD80-485 | AC100~240V | 45W | 0.5A |
| SX-GD80-C | AC100~240V | 45W | 0.5A |
| SX-GD80-D | AC100~240V | 45W | 0.5A |
| SX-AT02 | AC100~240V | 60W | 0.3A |
| SX-AT02-W | AC100~240V | 60W | 0.3A |
| SX-AT02-Z | AC100~240V | 60W | 0.3A |

| | | | |
|-------------|------------|-----|------|
| SX-AT02-M | AC100~240V | 60W | 0.3A |
| SX-AT02-KNX | AC100~240V | 60W | 0.3A |
| SX-AT02-485 | AC100~240V | 60W | 0.3A |
| SX-AT02-C | AC100~240V | 60W | 0.3A |
| SX-AT02-D | AC100~240V | 60W | 0.3A |
| SX-AT06 | AC100~240V | 60W | 0.3A |
| SX-AT06-W | AC100~240V | 60W | 0.3A |
| SX-AT06-Z | AC100~240V | 60W | 0.3A |
| SX-AT06-M | AC100~240V | 60W | 0.3A |
| SX-AT06-KNX | AC100~240V | 60W | 0.3A |
| SX-AT06-485 | AC100~240V | 60W | 0.3A |
| SX-AT06-C | AC100~240V | 60W | 0.3A |
| SX-AT06-D | AC100~240V | 60W | 0.3A |
| SX-DM82 | AC100~240V | 45W | 0.5A |
| SX-DM82-W | AC100~240V | 45W | 0.5A |
| SX-DM82-Z | AC100~240V | 45W | 0.5A |
| SX-DM82-M | AC100~240V | 45W | 0.5A |
| SX-DM82-KNX | AC100~240V | 45W | 0.5A |
| SX-DM82-485 | AC100~240V | 45W | 0.5A |
| SX-DM82-C | AC100~240V | 45W | 0.5A |
| SX-DM82-D | AC100~240V | 45W | 0.5A |

| IEC 60034-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4 | SECTION 4: DUTY | | P |
| 4.1 | Declaration of duty | | P |
| | Purchasers declaration of duty | | P |
| | If duty not declared, S1 | | N/A |
| 4.2 | Duty types | | P |
| 4.2.1 | Duty type S1 - Continuous running duty | | N/A |
| 4.2.2 | Duty type S2 - Short-time duty | | P |
| 4.2.3 | Duty type S3 - Intermittent periodic duty | | N/A |
| 4.2.4 | Duty type S4 — Intermittent periodic duty with starting | | N/A |
| 4.2.5 | Duty type SS - Intermittent periodic duty with electric braking | | N/A |
| 4.2.6 | Duty type S6 - Continuous-operation periodic duty | | N/A |
| 4.2.7 | Duty type S7 — Continuous-operation periodic duty with electric breaking | | N/A |
| 4.2.8 | Duty type S8 - Continuous-operation periodic duty with related load/speed changes | | N/A |
| 4.2.9 | Duty type S9 - Duty with non-periodic load and speed variations | | N/A |
| 4.2.10 | Duty type S10 - Duty with discrete constant loads | | N/A |
| 5 | SECTION 5: RATING | | P |
| 5.1 | Assignment of rating | | P |
| | Rating assigned by manufacturer | | P |
| 5.2 | Classes of rating | | P |
| 5.2.1 | Rating for continuous running duty | | N/A |
| 5.2.2 | Rating for short-time duty | | P |
| 5.2.3 | Rating for periodic duty | | N/A |
| 5.2.4 | Rating for non-periodic duty | | N/A |
| 5.2.5 | Rating for duty with discrete constant loads | | N/A |
| 5.2.6 | Rating for equivalent loading | | N/A |
| 5.3 | Selection of a class of rating | | P |
| | General purpose machine has rating for continuous running duty | | N/A |

| IEC 60034-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | If duty not specified by purchaser S1 applies | | N/A |
| | Short-time duty, S2 applies | | P |
| | Varying loads and no-load, S3 to S8 applies | | N/A |
| | Non-periodical variable loads at variable speeds, S9 applies | | N/A |
| | Discrete constant loads, S10 applies | | N/A |
| 5.4 | Allocation of outputs to class of rating | | P |
| | For duty S1 to S8, specified value(s) of constant load(s) is rated output(s) | | P |
| | For duty S9 and S10, reference value of load based on S1 taken as rated output | | N/A |
| 5.5 | Rated output | | P |
| 5.5.1 | DC generators | | N/A |
| | Output at terminals (W) | | N/A |
| 5.5.2 | AC generators | | N/A |
| | Apparent power at terminals (VA) : | | N/A |
| | Power factor | | N/A |
| | Rated power factor for synchronous generators 0.8 lagging (over-excited) | | N/A |
| 5.5.3 | Motors | | P |
| | Mechanical power at shaft (W)..... | 2.5Nm | P |
| 5.5.4 | Synchronous condensers | | N/A |
| | Reactive power at terminals (var)..... | | N/A |
| 5.6 | Rated voltage | | N/A |
| 5.6.1 | DC generators | | N/A |
| | For small range of voltage, rated output and output factor applies at any voltage within range | | N/A |
| 5.6.2 | AC generators | | N/A |
| | Small range of voltage, rated output and output factor applying at any voltage within range | | N/A |
| 5.7 | Coordination of voltages and outputs | | N/A |
| | For machines with rated voltages above 1 kV, preferred rated voltages are selected according to rated output as stated in table | | N/A |
| 5.8 | Machines with more than one rating | | N/A |

| IEC 60034-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Complying with standard for each rating | | N/A |
| | Multi-speed motors rating assigned for each speed | | N/A |
| | For varying rated quantities rating s stated at limits | | N/A |
| 6 | SECTION 6: SITE OPERAT ING CONDITIONS | | P |
| 6.1 | General | | P |
| | Machine suitable for operating conditions as stated in follows | | P |
| 6.2 | Altitude | | P |
| | Not exceeding 1000 m | | P |
| 6.3 | Maximum ambient air temperature | | P |
| | Not exceeding +40°C | | P |
| 6.4 | Minimum ambient air temperature | | P |
| | Not less than -15 °C | | N/A |
| | Not less than 0°C if one or more exceptions apply | | P |
| 6.5 | Water coolant temperature | | N/A |
| | For the reference water coolant temperature see Table 4.For other water coolant temperature see Table 9.The water coolant temperature shall not be less than +5°C | | N/A |
| 6.6 | Storage and transport | | N/A |
| | Minium specified temperature if different from that in 6.4(°C) | | N/A |
| 6.7 | Purity of hydrogen coolant | | N/A |
| | Operation at hydrogen content of $\geq 95\%$ | | N/A |
| 7 | SECTION 7: ELECTRICAL OPERATING CONDITIONS | | N/A |
| 7.1 | Electrical supply | | N/A |
| | Rated voltage of three-phase machines derived from IEC 60038 | | N/A |
| 7.2 | Form and symmetry of voltages and currents | | N/A |
| 7.2.1 | AC motors | | N/A |
| 7.2.1.1 | AC motors supplied from power supply (AC generator) of fixed frequency suitable for operation on supply voltage having harmonic voltage factor not exceeding: | | N/A |
| | 0.02 for single and three phase motors | | N/A |

| IEC 60034-1 | | | |
|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | 0.03 for design N motors | | N/A |
| 7.2.1.2 | AC motors supplied from static converters | | N/A |
| 7.2.2 | AC generators | | N/A |
| | Complying with requirements | | N/A |
| 7.2.3 | Synchronous machines | | N/A |
| | Maximum $12/IN$ value for continuous operation | | N/A |
| | Maximum $(12/IN)^2 \times t$ in seconds at single fault condition.... | | N/A |
| 7.2.4 | DC motors supplied from static power converters | | N/A |
| | Complying with requirements | | N/A |
| 7.3 | Voltage and frequency variations during operation | | N/A |
| | Figure 11 used for generators and synchronous condensers | | N/A |
| | Figure 12 used for motors | | N/A |
| | Machine capable of performing its primary function within Zone A | | N/A |
| | Machine capable of performing its primary function within Zone B with deviations | | N/A |
| 7.4 | Three-phase AC machines operating on unearthed systems | | N/A |
| | Machine able to operate at earthed neutral | | N/A |
| | Machine able to operate at unearthed systems with one line at earth potential for short duration | | N/A |
| 7.5 | Voltage (peak and gradient) withstand levels | | N/A |
| | Limiting value for peak voltage (V) | | N/A |
| | Limiting value for voltage gradient • | | N/A |
| | For cage induction motors within the scope of IEC 60034-12 | | N/A |
| | For high-voltage a.c. motor | | N/A |
| 8 | SECTION 8: THERMAL PERFORMANCE AND TESTS | | P |
| 8.1 | Thermal class | | P |
| | Thermal classification of windings according to IEC 62114 | Class E | P |
| 8.2 | Reference coolant | | P |
| | Primary coolant.. .. | Air | P |
| | Method of cooling | Indirect | P |
| | Secondary coolant | Air | P |

| IEC 60034-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Table number | 7 | P |
| 8.3 | Conditions for thermal tests | | P |
| 8.3.1 | Electrical supply | | N/A |
| | Complying with requirements | | N/A |
| 8.3.2 | Temperature of machine before test | | P |
| | Temperature of winding measured before the test shall not different from the coolant temperature by more than 2K | | N/A |
| | For short-time rating (S2) temperature of winding measured before the test within 5 K of coolant temperature | | P |
| 8.3.3 | Temperature of coolant | | P |
| | Temperature of primary coolant (°C) | 23°C | P |
| | Temperature of secondary coolant (°C).... | 23°C | P |
| 8.3.4 | Measurement of coolant temperature during test | | P |
| | Mean value of readings during last quarter taken as value; variations of temperature of coolant minimized | | P |
| 8.3.4.1 | Open machines or closed machines without heat exchangers (cooled by surrounding ambient air or gas) | | P |
| | Several detectors placed around the machine at halfway at distance of 1 m to 2 m; detectors protected from radiant heat and draught | | P |
| 8.3.4.2 | Machines cooled by air or gas from a remote source through ventilation ducts and machines with separately mounted heat exchangers | | N/A |
| | Temperature of the primary coolant measured where it enters the machine | | N/A |
| 8.3.4.3 | Closed machines with machine-mounted or internal-heat exchangers | | N/A |
| | Temperature of primary coolant measured where it enters the machine; for machines having water-cooled or air-cooled heat exchangers, temperature of secondary coolant measured where it enters the heat exchanger | | N/A |
| 8.4 | Temperature rise of a part of a machine | | P |
| | Temperature measured at the end of the test | | P |
| 8.5 | Methods of measurement of temperature | | P |
| | Recognized method used | | P |
| 8.6 | Determination of winding temperature | | P |

| IEC 60034-1 | | | |
|-------------|---|--------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.6.1 | Choice of method | | P |
| | Rated output (W or VA) • • | 2.5Nm | P |
| | Method for measuring winding temperature | Thermometer method | P |
| | Thermometer method only used in following cases: | | P |
| | a) When not practicable to determine temperature rise by resistance method | | P |
| | b) Single layer windings, rotating or stationary. | | N/A |
| | c) During routine tests on machines manufactured in large numbers | | N/A |
| | d) If purchaser wishes to have thermometer reading in addition to values determined by resistance or ETD method | | N/A |
| 8.6.2 | Determination by resistance method | | N/A |
| 8.6.2.1 | Measurement | | N/A |
| | One of following methods used: | | N/A |
| | Direct measurement | | N/A |
| | Measurement by DC current/voltage | | N/A |
| | Superposition method | | N/A |
| 8.6.2.2 | Calculation | | N/A |
| | Temperature (91) of winding (cold) at moment of initial resistance measurement (°C) | | N/A |
| | Temperature (ea) of coolant at end of test (°C) : | | N/A |
| | Resistance (R1) of winding (cold) at temperature e1 (n) | | N/A |
| | Resistance (R2) of winding (hot) at end of test I at temperature e2 (Q) | | N/A |
| | Reciprocal of temperature coefficient (k) | | N/A |
| | Temperature rise (92 - ea) (K)..... | | N/A |
| 8.6.2.3 | Correction for stopping time | | N/A |
| 8.6.2.3.1 | General | | N/A |
| 8.6.2.3.2 | Short stopping time | | N/A |
| | Initial reading obtained within time interval specified in table 4 | | N/A |
| 8.6.2.3.3 | Extended stopping time | | N/A |
| | Initial reading obtained within twice the time interval specified in table 4 | | N/A |

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|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Value at time of shutdown determined through extrapolation | | N/A |
| 8.6.2.3.4 | Windings with one coil-side per slot | | N/A |
| | Direct measurement only used if machine comes to stop within time interval specified in table 4 | | N/A |
| 8.6.3 | Determination by ETD method | | N/A |
| 8.6.3.1 | General | | N/A |
| 8.6.3.2 | Two or more coil-sides per slot | | N/A |
| | Detectors located between insulated coil-sides within slot in positions which highest temperature are likely to occur | | N/A |
| 8.6.3.3 | One coil-side per slot | | N/A |
| | Detectors located between wedge and outside of winding insulation in positions which highest temperature are likely to occur | | N/A |
| 8.6.3.4 | End windings | | N/A |
| | Detectors located between two adjacent coil-sides within end windings in positions where highest temperature are likely to occur; sensing point in close contact with surface of coil-side and adequately protected against influence of coolant | | N/A |
| 8.6.4 | Determination by thermometer method | | P |
| | Thermometer placed at hottest accessible spot | | P |
| 8.7 | Duration of thermal tests | | P |
| 8.7.1 | Rating for continuous running duty | | N/A |
| | Test continued until thermal equilibrium has been reached | | N/A |
| 8.7.2 | Rating for short-time duty | | P |
| | Test duration as specified in rating | | P |
| 8.7.3 | Rating for periodic duty | | N/A |
| | Rated for equivalent loading applied until thermal equilibrium has been reached | | N/A |
| | Test on actual duty load cycle and continued until practically identical temperature cycles are obtained | | N/A |
| 8.7.4 | Rating for non-periodic duty and for duty with discrete constant loads | | N/A |
| | Rated for equivalent loading applied until thermal equilibrium has been reached | | N/A |
| 8.8 | Determination of the thermal equivalent time constant for machines of duty type S9 | | N/A |

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|-------------|--|--------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Thermal equivalent time constant determined from plotted cooling curve | | N/A |
| 8.9 | Measurement of bearing temperature | | P |
| | Thermometer method or ETD method used | Thermometer method | P |
| | Measuring point for as near as possible to one of the two locations specified in table 6 | | P |
| | Thermal resistance between temperature detector and object minimized | | P |
| 8.10 | Limits of temperature and temperature rise | | P |
| 8.10.1 | Indirect cooled windings | | P |
| | Temperature rises not exceeding limits of table 7 or 8 | | P |
| | Temperature rise limit according to table 7 or 8 (K) : | 70 | P |
| | Measured / calculated temperature rise according to 8.6 (K) | 40.5 | P |
| | For other operating site conditions, ratings other than continuous running duty, rated voltages greater than 12 000 V, limits adjusted according to table 9 and 10 | | N/A |
| | For test site conditions differing from operating site conditions, limits adjusted according to table 11 | | N/A |
| 8.10.2 | Direct cooled windings | | N/A |
| | Temperatures not exceeding limits of table 12 | | N/A |
| | For other operating site conditions limits adjusted according to table 13 | | N/A |
| | For test site conditions differing from operating site conditions, limits adjusted according to table 14 | | N/A |
| 8.10.3 | Adjustment to take account of hydrogen purity on test | | N/A |
| | Hydrogen content between 95 - 100 % | | N/A |
| 8.10.4 | Permanently short-circuited windings, magnetic cores and all structural components (other than bearings) whether or not in contact with insulation | | P |
| | Temperature rise Temperature not detrimental to insulation | | P |
| 8.10.5 | Commutators and sliprings, open or enclosed and their brushes and brushgear | | P |
| | Temperature rise Temperature not detrimental to insulation | | P |

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|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Temperature rise / Temperature not exceeding that at which combination of brush grade and commutator or slipring material can handle current over full operating range | | P |
| 9 | SECTION 9: OTHER PERFORMANCE AND TESTS | | P |
| 9.1 | Routine tests | | N/A |
| 9.2 | Dielectric tests | | P |
| | High-voltage test applied between windings under test and frame of machine | | P |
| | Dielectric test carried out immediately after the thermal test | | P |
| | Polyphase machines with rated voltages above 1 kV having both ends of each phase individually accessible, test carried out for each phase | | N/A |
| | Test voltage applied for 1 min | 1500V | P |
| 9.3 | Occasional excess current | | P |
| 9.3.1 | General | | P |
| 9.3.2 | Generators | | N/A |
| | AC generators with output not exceeding 1200 MVA capable of withstanding current of 1.5 times rated current for 30 s | | N/A |
| | AC generators with output exceeding 1 200 MVA capable of withstanding current of 1.5 times rated current for at least 15 s | | N/A |
| 9.3.3 | AC motors (except commutator motors) | | N/A |
| | Three-phase AC motors having rated outputs not exceeding 315 kW and rated voltages not exceeding 1 kV capable of withstanding current equal to 1.5 times rated current for not less than 2 min | | N/A |
| 9.3.4 | Commutator machines | | P |
| | Capable of withstanding 1.5 times rated current for 60s for specified conditions | | P |
| 9.4 | Momentary excess torque for motors | | P |
| 9.4.1 | Polyphase induction motors and DC motors (excluding motors for specific applications) | | P |
| | Capable of withstanding for 15 s excess torque of 60 % of rated torque; motor for duty type S9 capable of withstanding momentarily excess torque determined according to duty specified | | N/A |
| | For d.c. motors, the torque shall be expressed in terms of overload current | | P |

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|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Rated torque (Nm): | | P |
| | Excess torque (Nm)..... | | P |
| | Induction motors for specific applications | | N/A |
| | Motor intended for specified applications that require a high torque subject of agreement between manufacturer and purchaser | | N/A |
| | For cage-type induction motors specially designed to ensure starting current less than 4.5 times the rated current, excess torque not less than 50 % | | N/A |
| | Special type induction motor with special inherent starting properties, value of excess torque subject of agreement between manufacturer and purchaser | | N/A |
| | Rated torque (Nm) | | N/A |
| | Excess torque (Nm)..... | | N/A |
| 9.4.2 | Polyphase synchronous motors | | N/A |
| | Capable of withstanding excess torque as specified for 15 s without failing out of synchronism | | N/A |
| | Rated torque (Nm) | | N/A |
| | Excess torque (Nm)..... | | N/A |
| 9.4.3 | Other motors | | N/A |
| | Momentary excess torque subject of agreement | | N/A |
| | Rated torque (Nm) | | N/A |
| | Excess torque (Nm)..... | | N/A |
| 9.5 | Pull-up torque | | N/A |
| | Unless otherwise specified, the pull-up torque of cage induction motors under full voltage shall be not less than 0.3 times the rated torque. | | N/A |
| | Rated torque (Nm) | | N/A |
| | Pull-up torque (Nm) | | N/A |
| 9.6 | Safe operating speed of cage induction motor | | N/A |
| | All three-phase single cage induction motors of frame number up to and including 315, shall be capable of safe continuous operation at speed up to the appropriate speed given in table 17, unless otherwise stated on rating plate. | | N/A |
| 9.7 | Overspeed | | P |
| | Withstanding speed specified in table 18 | | P |
| 9.8 | Short-circuit current for synchronous machines | | N/A |

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|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Peak value of short-circuit current of synchronous machines not exceeding 15 times peak value or 21 times the r.m.s.value of rated current | | N/A |
| | Rated current (peak I r.m.s.) (A) | | N/A |
| | Measured / calculated short-circuit current (A) | | N/A |
| 9.9 | Short-circuit withstand test for synchronous machines | | N/A |
| | Requested by purchaser | | N/A |
| | Machine running on no-load with excitation corresponding to rated voltage, short circuit maintained for 3 s | | N/A |
| | No harmful deformation, dielectric strength test not resulting in breakdown | | N/A |
| 9.10 | Commutation test for commutator machines | | P |
| | Capable of operating from no-load to operation with excess current or excess torque specified in 9.3 and 9.4 without permanent damage to surface of commutator and brushes, no injurious sparking, brushes remaining in same set position | | P |
| 9.11 | Total Harmonic Distortion (THO) for synchronous machines | | N/A |
| 9.11.1 | General | | N/A |
| 9.11.2 | Limits | | N/A |
| | Not exceeding limit | | N/A |
| 9.11.3 | Tests | | N/A |
| | THO limit (%) | | N/A |
| | THO measured (%) | | N/A |
| 10.1 | General | | P |
| | Machine provided with rating plate, durable and securely mounted | | P |
| | Rating plate mounted on frame, easily legible | | P |
| | Second rating label requested by purchaser | | N/A |
| 10.2 | Marking | | P |
| | Machines with rated output not exceeding 750 W (VA) and special-purpose built-in machines with rated output not exceeding 3 kW (kVA) marked with items a, b, k, l, (z) as minimum | | P |
| | Other machines marked with the following as far as applicable: | | N/A |

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|-------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | a) Manufacturer's name or mark | Ningbo Yinzhou Sixin Import and Export Co., Ltd. | P |
| | b) Manufacturer's serial number, or identification mark ... | | P |
| | c) Year of manufacture (or as code as part of item 2)) : | | P |
| | d) Manufacturer's machine code. • | | P |
| | e) For AC machines, number of phases .. | | N/A |
| | f) Number(s) of rating and performance standard(s) which are applicable (IEC 60034-X and/or equivalent national standard(s)) | | N/A |
| | g) Degree of protection provided by enclosures (IP code) in accordance with IEC 60034-5 | IP44 | P |
| | h) For motors within the scope of IEC 60034-30, the efficiency class(IE code) and the rated efficiency as specified in IEC 60034-30. | E | P |
| | i 1) Thermal classification or permissible temperature rise.... | | N/A |
| | i2) If necessary, method of measurement, followed in case of machine with water-cooled heat exchanger by “P” or “S” . . | | N/A |
| | j) Class(es) of rating of machine if designed for other than rating for continuous running duty type S1.... | S2 1min | P |
| | k) Rated output(s) (W or VA)..... | 2.5Nm | P |
| | l) Rated voltage(s) or range of rated voltage (V)..... : | 100-240V | P |
| | m1) For AC machines rated frequency or range of rated frequencies (Hz) | 50/60Hz | P |
| | m2) For universal motors, rated frequency (Hz) followed by appropriate symbol | | N/A |
| | n) For synchronous machines excited by permanent magnets the open circuit voltage at rated speed. | | N/A |
| | o) Rated current(s) (A)..... | | N/A |
| | p) Rated speed(s) or range of rated speeds (min-1 or 1/min)..... | 160r/min | P |
| | q) Permissible overspeed, if other than specified in 9.7 (min-1 or 1/min). or the maximum safe operating speed if less than in 9.6 or if the machine is designed especially for variable speed operation.: | | N/A |

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|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | r) For DC machines with separate excitation or with shunt excitation and for synchronous machines, rated field voltage (V) and rated field current (A) : | | N/A |
| | s) For AC machines, rated power factor(s) | | N/A |
| | t) For wound-motor induction machines rated open- circuit voltage (V) between slip-rings and rated slip- ring current (A) | | N/A |
| | u) For DC motors with armatures intended to be supplied by static power converters, identification code of static power converter in accordance with IEC 60971 (alternatively for motors not exceeding 5 kW, rated form factor and rated alternating voltage at input terminals of static power converter , when this exceeds rated direct voltage of motor armature circuit) | | N/A |
| | v) Maximum permissible ambient temperature, if other than 40 °C; maximum permissible water temperature , if other than 25 °C (°C) : | | N/A |
| | w) Minimum permissible ambient temperature if other than specified in 6.4 (°C) | | N/A |
| | x) Altitude for which machine is designed (if exceeding 1 000 m above sea level)..... : | | N/A |
| | y) For hydrogen-cooled machines, hydrogen pressure at rated output (Pa or bar) : | | N/A |
| | z) When specified, approximate total mass of machine, if exceeding 30 kg (kg) | | N/A |
| | aa) For machines suitable for operation in only one direction of rotation, direction of rotation, indicated by arrow; arrow easily visible | | N/A |
| | bb) The connecting instructions in accordance with IEC 60034-8 by means of a diagram or text located near the terminals. | | N/A |
| | Two different rated values shall be indicated by | | N/A |
| | If winding of machine is partially or totally repaired or changed by other than manufacturer, additional plate provided indicating repair contractors name, year of repair and changes made | | N/A |
| 11 | SECTION 11: MISCELLANEOUS REQUIREMENTS | | P |
| 11.1 | Protective earthing of machines | | P |

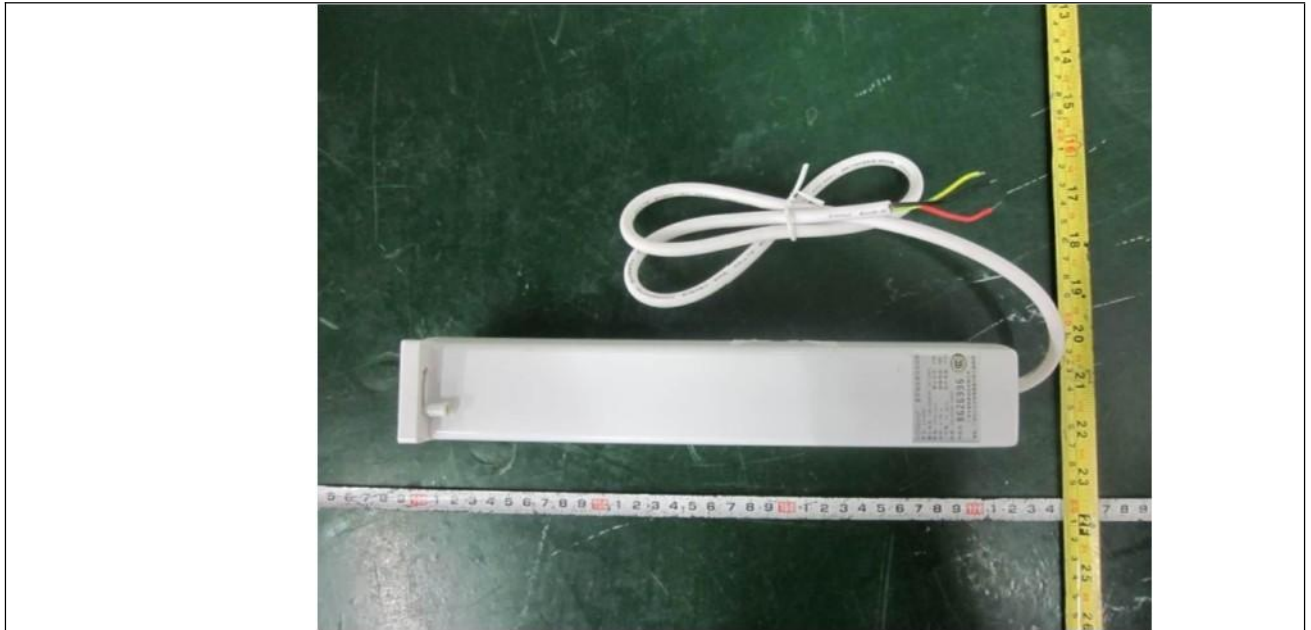
| IEC 60034-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Machines shall be provided with an earthing terminal or another device to permit the connection of a protective conductor or an earthing conductor | | P |
| | Appropriate symbol or legend used | | P |
| | However , machines shall neither be earthed nor be provide with an earthing terminal when: | | N/A |
| | 1) they are fitted with supplementary insulation, or | | N/A |
| | 2) they are intended for assembly in apparatus having supplementary insulation, or | | N/A |
| | 3) they have rated voltages up to SOV a.c. or 120V d.c. and are intended for use on SELV circuits. | | N/A |
| | Machines with rated voltages greater than AC 50 V or DC 120 V, but not exceeding AC 1 000 V or DC 1 500 V terminal for earth conductor situated in vicinity of terminals for line conductors, inside terminal box (if provided); | | P |
| | machines having rated outputs exceeding 100 kW provided with in addition, with earth terminal fitted on frame | | N/A |
| | Machines with rated voltages greater than AC 1 000 V or DC 1500 V, provided with earth terminal on frame and in addition, means inside terminal box for connecting conducting cable sheath (if any) | | N/A |
| | Accessible conducting parts have good electrically conducting connection with earth terminal; if all bearings and rotor winding of machine are insulated, shaft electrically connected to earth terminal (unless manufacturer and purchaser agree to alternative means of protection) | | P |
| | If earth terminal provided in terminal box, earth conductor made of same metal as live conductors | | N/A |
| | If earth terminal provided on frame, earth conductor made of another metal, proper consideration given to conductivity of conductor | | N/A |
| | Earth terminal designed to accommodate earth conductor of cross-sectional area in accordance with table 19 | | N/A |

| IEC 60034-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The earth terminals shall be identified in accordance with IEC60445 | | N/A |
| 11.2 | Shaft-end key(s) | | N/A |
| | If machine shaft end provided with one or more keyways, keyway provided with full key of normal shape and length | | N/A |
| 12 | SECTION 12:TOLERANCES | | P |
| 12.1 | General | | P |
| 12.2 | Tolerances as specified in table 20 | | P |
| 13 | SECTION 13: Electromagnetic Compatibility (EMC) | | N/A |
| 13.1 | General | | N/A |
| | Rotating machine with rated voltage not exceeding AC 1000V or DC 1500V | | N/A |
| | Electronic components mounted inside rotating electrical machine and essential for its operation | | N/A |
| 13.2 | Immunity | | N/A |
| 13.2.1 | Machines not incorporating electronic circuits | | N/A |
| | Machines without electronic circuits are not sensitive to electromagnetic emissions, no immunity tests are required. | | N/A |
| 13.2.2 | Machines incorporating electronic circuits | | N/A |
| | As electronic circuits which are incorporated in machines generally utilize components that are passive, immunity tests are not required. | | N/A |
| 13.3 | Emission | | N/A |
| 13.3.1 | Machines without brushes | | N/A |
| | Radiated and conducted emissions shall comply with the requirements of CISPR 11, Class B, Group 1, see Table B.1 | | N/A |
| 13.3.2 | Machines with brushes | | N/A |
| | Radiated and conducted (if applicable) emissions shall comply with the requirements of CISPR 11, Class A, Group 1, see Table B.2 | | N/A |
| 13.4 | Immunity tests | | N/A |
| | Immunity tests are not required. | | N/A |
| 13.5 | Emission tests | | N/A |
| | Type tests shall be carried out in accordance with CISPR 11, CISPR 14 and CISPR 16 as applicable | | N/A |

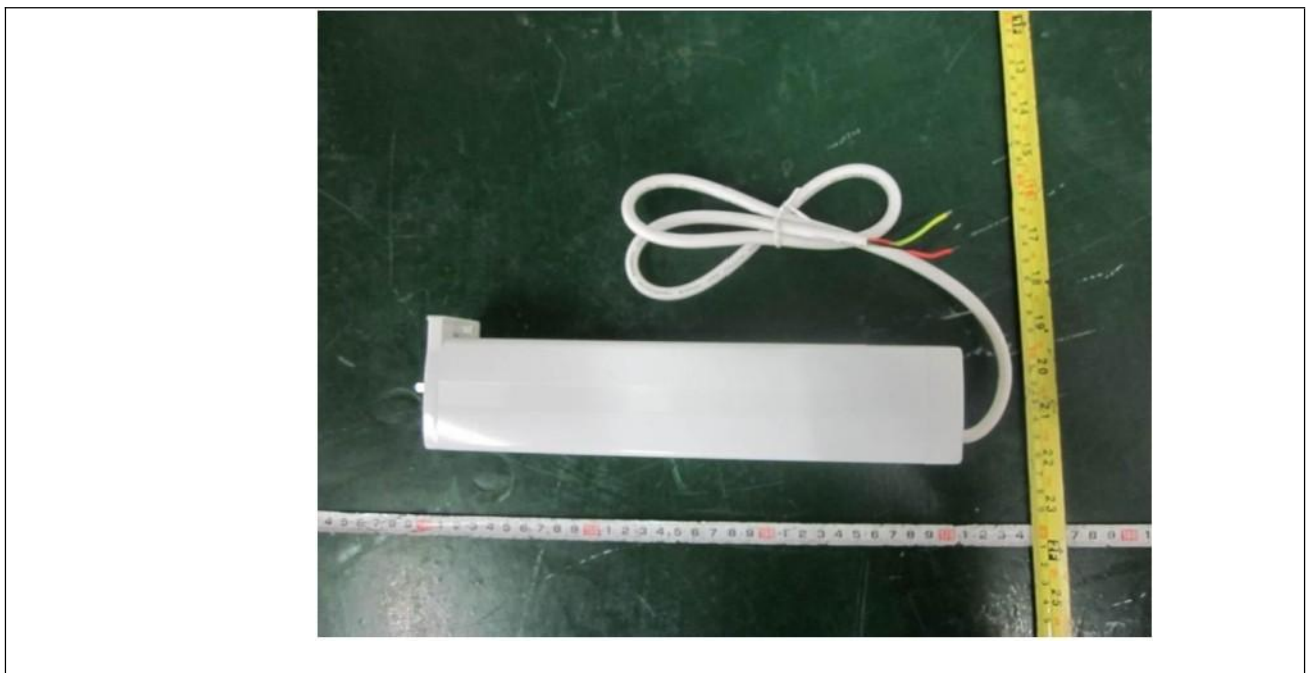
| IEC 60034-1 | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| 13.5.1 | Machines without brushes | | N/A |
| | Machines without brushes shall comply with the emission limits of 13.3.1. | | N/A |
| | Note: The emission from squirrel cage induction motors are always so low that the testing is not needed. | | N/A |
| 13.5.2 | Machines with brushes | | N/A |
| | Machines with brushes, when tested at no-load, shall comply with the emission limits of 13.3.2 | | N/A |
| 14 | SECTION 14: SAFETY | | P |
| | Rotating machines in accordance with this standard shall comply with the requirements of IEC 60204-1 or relevant product standard, and be designed and constructed as far as possible in accordance with internationally accepted best design practice, appropriate to the application | | P |

Attachment No.1**Product Photos**

Details of: Fig.1



Details of: Fig.2



Attachment No.1**Product Photos**

Details of: Fig.3



Details of: Fig.4

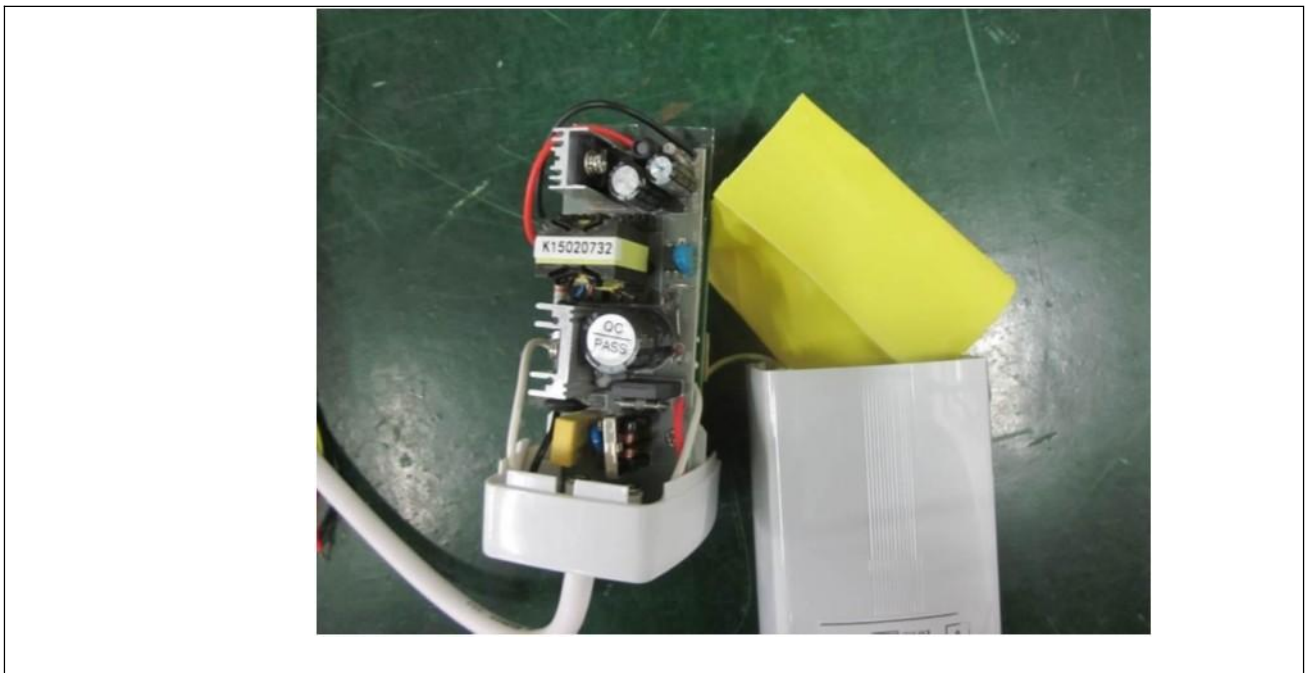


Attachment No.1**Product Photos**

Details of: Fig.5

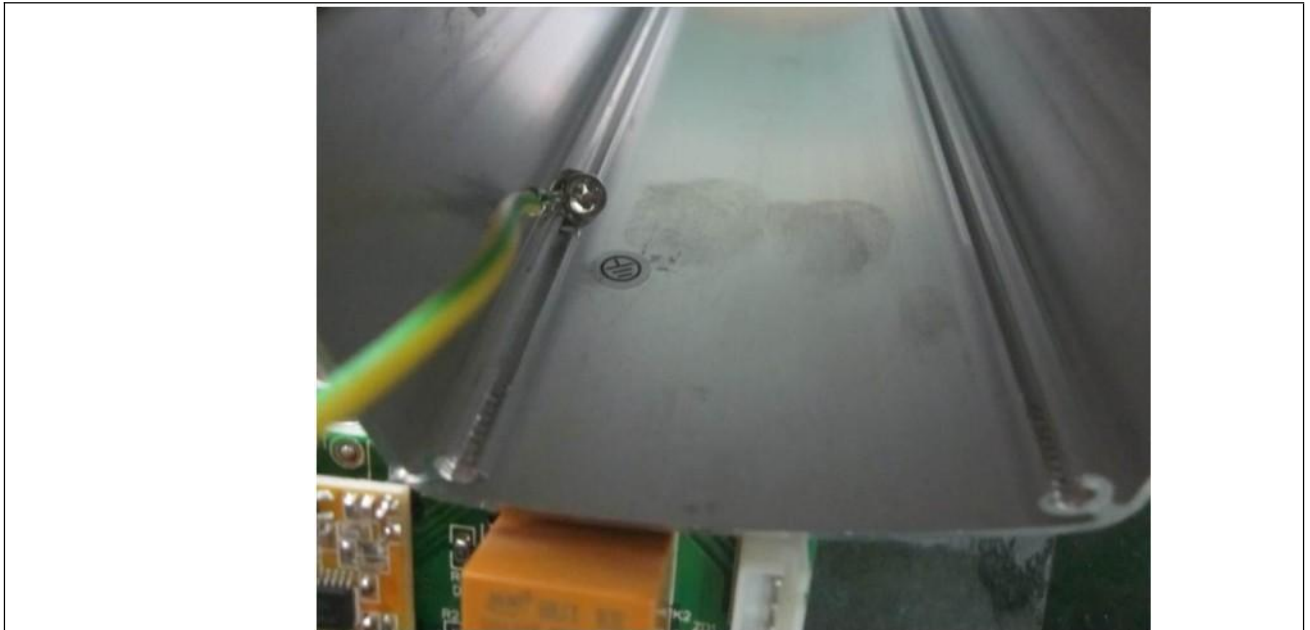


Details of: Fig.6



Attachment No.1**Product Photos**

Details of: Fig.7



Details of: Fig.8



-End of test report-