# Test Report

| | | |
|---|---|---|
| Report No. | : | GOM190313065T |
| Applicant | : | Zhejiang Jinghong Electric Co., Ltd. |
| Address | : | No.221, Wei Shijiu Road, Yueqing Economic & Development Zone, Zhejiang, China |
| Manufacturer | : | Zhejiang Jinghong Electric Co., Ltd. |
| Address | : | No.221, Wei Shijiu Road, Yueqing Economic & Development Zone, Zhejiang, China |
| Product | : | Terminal Block |
| Model | : | CMK622, CMK623, CMK625, CMK612, CMK613, CMK614, CMK615, CMK412, CMK413, CMK414, CMK415, CMK418 |
| Test Model | : | CMK622 |
| Standard(s)/Regulation(s) | : | EN 60947-7-1:2009 |
| Date of Test | : | Mar 05, 2019 – Mar 13, 2019 |
| Date of Issue | : | Mar 13, 2019 |
| Complied By | : | |
| Reviewed By | : | |


| | | |
|---|---|---|
| Prepared By | : | Shanghai GOM Testing & Technical Co., Ltd. |
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**Test caseverdicts**

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

Particulars: test item vs. test requirements

| | |
|---|---|
| Number of clamping units. | 2 |
| type of terminal block | Screwless terminal |
| rated and limiting values | 450V~, 32A |

**Testing**

| | |
|---|---|
| Date of receipt of test item ..... : | Mar 05, 2019 |
| Date(s) of performance of test..... : | Mar 05, 2019 – Mar 13, 2019 |

**General remarks**

"This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB, in accordance with IECEE 02".

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

The report include Attachment 1: 1 pages photos.

**Copy of marking plate**

**Terminal Blocks**
**Model: CMK-622**
**450V~, 32A**

**ZHEJIANG JINGHONG ELECTRIC CO.,LTD.**
**MADE IN CHINA**

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| 5 | Product information | | --- |
| 5.1 | Marking | | P |
| | A terminal block shall be marked in a durable and legible manner with the following: | | P |
| | a)the name of the manufacturer or a trade mark by which the manufacturer can be readily identified; | | P |
| | b) a type reference permitting its identification in order to obtain relevant information from the manufacturer or his catalogue. | | P |
| 5.2 | Additional information | | -- |
| | The following information shall be stated by the manufacturer, if applicable, e.g. in the manufacturer's data sheet or his catalogue or on the packing unit: | | P |
| | a) IEC 60947-7-1, if the manufacturer claims compliance with this standard; | | P |
| | b) the rated cross-section; | 0.5mm$^2$-4mm$^2$ | P |
| | d) the rated insulation voltage; | | N |
| | e) the rated impulse withstand voltage, when determined; | | N |
| | f) Service conditions, if different from those of clause 6. | | N |
| 6 | Normal service, mounting and transport conditions | | --- |
| 6.1 | Normal service conditions | | P |
| | Equipment complying with this standard shall be capable of operating under the following standard conditions: | | P |
| | NOTE For non-standard conditions in service, see Annex B. These may require agreement between manufacturer and user. | | P |
| 6.1.1 | Ambient air temperature | | P |
| | The ambient air temperature does not exceed +40 °C and its average over a period of 24 h does not exceed +35 °C. | | P |
| | The lower limit of the ambient air temperature is – 5 °C. | | P |
| | Ambient air temperature is that existing in the vicinity of the equipment if supplied without enclosure, or in the vicinity of the enclosure if supplied with an enclosure. | | P |
| 6.1.2 | Altitude | | P |
| | The altitude of the site of installation does not exceed 2 000 m. | | P |
| 6.1.3 | Atmospheric conditions | | P |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| 6.1.3.1 | Humidity | | P |
| | The relative humidity of the air does not exceed 50 % at a maximum temperature of +40 °C. Higher relative humidities may be permitted at lower temperatures, e.g. 90 % at +20 °C. Special measures may be necessary in cases of occasional condensation due to variations in temperature. | | P |
| | The pollution degree (see 2.5.58) refers to the environmental conditions for which the equipment is intended. | | P |
| | For equipment intended for use within an enclosure or provided with an integral enclosure, the pollution degree of the environment in the enclosure is applicable. | | N |
| | For the purpose of evaluating clearances and creepage distances, the following four degrees of pollution of the micro-environment are established (clearances and creepage distances according to the different pollution degrees are given in Tables 13 and 15): | | - |
| | Pollution degree 1:<br>No pollution or only dry, non-conductive pollution occurs. | | N |
| | Pollution degree 2:<br>Normally, only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation may be expected. | | P |
| | Pollution degree 3:<br>Conductive pollution occurs, or dry, non-conductive pollution occurs which becomes conductive due to condensation. | | P |
| | Pollution degree 4:<br>The pollution generates persistent conductivity caused, for instance, by conductive dust or by rain or snow. | | N |
| | Standard pollution degree of industrial applications: | | P |
| | Unless otherwise stated by the relevant product standard, equipment for industrial applications is generally for use in pollution degree 3 environment. However, other pollution degrees may be considered to apply depending upon particular applications or the micro-environment. | | P |
| | Standard pollution degree of household and similar applications: | | N |
| | Unless otherwise stated by the relevant product standard, equipment for household and similar applications is generally for use in pollution degree 2 environment. | | N |
| 6.1.4 | Shock and vibration | | N |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| | Standard conditions of shock and vibration to which the equipment can be submitted are under consideration. | | N |
| 6.2 | Conditions during transport and storage | | N |
| | A special agreement shall be made between user and manufacturer if the conditions during transport and storage, e.g. temperature and humidity, differ from those defined in 6.1, except that, unless otherwise specified, the following temperature range applies during transport and storage: between –25 °C and +55 °C and, for short periods not exceeding 24 h, up to +70 °C. | | N |
| | Equipment subjected to these extreme temperatures without being operated shall not undergo<br>any irreversible damage and shall then operate normally under the specified conditions. | | N |
| 6.3 | Mounting | | P |
| | The equipment shall be mounted in accordance with the manufacturer's instructions. | | P |
| 7 | Constructional and performance requirements | | P |
| 7.1 | Constructional requirements | | P |
| 7.1.1 | Clamping units | | P |
| | The clamping units shall allow the conductors to be connected by means ensuring that reliable mechanical linkage and electrical contact is properly maintained. | | P |
| | The clamping units shall be able to withstand the forces that can be applied through the connected conductors. | | P |
| | No contact pressure shall be transmitted through insulating materials other than ceramic or other material with characteristics not less suitable, unless there is sufficient resiliency in the metallic parts to compensate for any possible shrinkage of the insulating material. | | P |
| | The corresponding test is under consideration. | | P |
| 7.1.2 | Terminal blocks shall be provided with means that allow them to be securely attached to a rail or a mounting surface. | | P |
| 7.1.3 | Clearances and creepage distances | | P |
| | For terminal blocks for which the manufacturer has stated values of rated impulse withstand voltage Uimp and rated insulation voltage Ui, minimum values of clearances and creepage distances are given in tables 13 and 15 of IEC 60947-1 | | P |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| | For terminal blocks for which the manufacturer has determined no value of rated impulse withstand voltage Uimp, guidance for minimum values is given in annex A. | | P |
| 7.1.4 | Terminal identification and marking | | P |
| | A terminal block shall have provision, or at least space, for identification marks or numbers for each clamping unit or terminal assembly related to the circuit of which it forms a part. | | |
| 7.1.5 | Resistance to abnormal heat and fire | | P |
| | The insulation materials of terminal blocks shall not be adversely affected by abnormal heat and fire | | P |
| | Compliance is checked by the needle flame test according to IEC 60695-2-2 (see note in7.1.1.1 of IEC 60947-1), as specified in 8.5 of this standard. | | P |
| 7.1.6 | Rated cross-section and rated connecting capacity | | P |
| | Terminal blocks shall be so designed that conductors of the rated cross-section and the rated connecting capacity, if applicable, can be accepted. | | P |
| | Compliance is checked by the test described in 8.3.3.4. | | P |
| | The verification of the rated cross-section may be performed by the special test according to8.3.3.5. | | P |
| 7.2 | Performance requirements | | P |
| 7.2.1 | Temperature-rise | | P |
| | Terminal blocks shall be tested in accordance with 8.4.5. The temperature-rise of the terminals shall not exceed 45 K. | | P |
| 7.2.2 | Dielectric properties | | P |
| | If the manufacturer has declared a value of the rated impulse withstand voltage Uimp (see4.3.1.3 of IEC 60947-1), the requirements of 7.2.3 and 7.2.3.1 of IEC 60947-1 apply. If applicable, the impulse withstand voltage test shall be carried out in accordance with 8.4.3 a) | | P |
| | For the verification of solid insulation, the requirements of 7.2.3, 7.2.3.2 and 7.2.3.5 of IEC 60947-1 apply. The power-frequency withstand voltage test shall be carried out in accordance with 8.4.3 b). | | P |
| | The verification of sufficient clearances and creepage distances shall be made in accordance with 8.4.2. If no value of Uimp has been declared, the verification of clearance and creepage distances shall be made as stated in annex A. | | P |
| 7.2.3 | Rated short-time withstand current | | P |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| | A terminal block shall be capable of withstanding for 1 s the rated short-time withstands current which corresponds to 120 A/mm2 of its rated cross-section, in accordance with 8.4.6. | | P |
| 7.2.4 | Voltage drop | | P |
| | The voltage drop on a terminal block caused by the conductor connection, measured according to 8.4.4, shall not exceed the values specified in 8.4.4 and, where applicable, in8.4.7. | | P |
| 7.2.5 | Electrical performance after ageing (for screwless-type terminal blocks only) | | P |
| | Terminal blocks shall be capable of withstanding the ageing test comprising 192 temperature cycles in accordance with 8.4.7. | | P |
| 7.3 | Electromagnetic compatibility (EMC) | | N |
| 7.3.1 | General | | N |
| | For products falling within the scope of this standard, two sets of environmental conditions are<br>considered and are referred to as<br>a) environment A;<br>b) environment B. | | N |
| | Environment A relates to low-voltage non-public or industrial networks/locations/installations including highly disturbing sources. | | N |
| | Environment B relates to low-voltage public networks such as domestic, commercial and light industrial locations/installations. Highly disturbing sources such as arc welders are not covered by this environment. | | N |
| | Environment B relates to low-voltage public networks such as domestic, commercial and light industrial locations/installations. Highly disturbing sources such as arc welders are not covered by this environment. | | N |
| 7.3.2 | Immunity | | N |
| 7.3.2.1 | Equipment not incorporating electronic circuits | | N |
| | Equipment not incorporating electronic circuits is not sensitive to electromagnetic disturbances in normal service conditions, and therefore no immunity tests are required. | | N |
| 7.3.2.2 | Equipment incorporating electronic circuits | | N |
| | Equipment incorporating electronic circuits shall have a satisfactory immunity to electromagnetic disturbances. | | N |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| | For the purpose of this subclause, the term “electronic circuits” excludes circuits in which all components are passive (for example diodes, resistors, varistors, capacitors, surge suppressors, inductors). | | N |
| | For the appropriate tests to verify the compliance with these requirements, see 8.4. | | N |
| | Specific performance criteria shall be given in the relevant product standard based on the acceptance criteria given in Table 24. | | N |
| 7.3.3 | Emission | | N |
| 7.3.3.1 | Equipment not incorporating electronic circuits | | N |
| | For equipment not incorporating electronic circuits, electromagnetic disturbances can only be generated by equipment during occasional switching operations. The duration of the disturbances is of the order of milliseconds. | | N |
| | The frequency, the level and the consequences of these emissions are considered as part of the normal electromagnetic environment of low-voltage installations. | | N |
| | Therefore, the requirements for electromagnetic emissions are deemed to be satisfied, and no verification is necessary. | | N |
| 7.3.3.2 | Equipment incorporating electronic circuits | | N |
| 7.3.3.2.1 | Limits for high-frequency emissions | | N |
| | Equipment incorporating electronic circuits (such as switched mode power supply, circuits incorporating microprocessors with high-frequency clocks) may generate continuous electromagnetic disturbances. | | N |
| | For such emissions, these shall not exceed the limits specified in the relevant product standard, based on CISPR 11 for environment A and for environment B. | | N |
| | These tests are only required when the control and/or auxiliary circuits contain components with fundamental switching frequencies greater than 9 kHz. | | N |
| | The product standard shall detail the test methods. | | N |
| 7.3.3.2.2 | Limits for low-frequency emissions | | N |
| | For equipment which generates low frequency harmonics, where applicable, the requirements of IEC 61000-3-2 apply. | | N |
| | For equipment which generates low frequency voltage fluctuations, where applicable, the requirements of IEC 61000-3-3 apply. | | N |
| 7.3 | Electromagnetic compatibility (EMC) | | N |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| 7.3.1 | General | | N |
| | For products falling within the scope of this standard, two sets of environmental conditions are considered and are referred to as a) environment A; b) environment B. | | N |
| | Environment A relates to low-voltage non-public or industrial networks/locations/installations including highly disturbing sources. | | N |
| | Environment B relates to low-voltage public networks such as domestic, commercial and light industrial locations/installations. Highly disturbing sources such as arc welders are not covered by this environment. | | N |
| | Environment B relates to low-voltage public networks such as domestic, commercial and light industrial locations/installations. Highly disturbing sources such as arc welders are not covered by this environment. | | N |
| 7.3.2 | Immunity | | N |
| 7.3.2.1 | Equipment not incorporating electronic circuits | | N |
| | Equipment not incorporating electronic circuits is not sensitive to electromagnetic disturbances in normal service conditions, and therefore no immunity tests are required. | | N |
| 7.3.2.2 | Equipment incorporating electronic circuits | | N |
| | Equipment incorporating electronic circuits shall have a satisfactory immunity to electromagnetic disturbances. | | N |
| | For the purpose of this subclause, the term “electronic circuits” excludes circuits in which all components are passive (for example diodes, resistors, varistors, capacitors, surge suppressors, inductors). | | N |
| | For the appropriate tests to verify the compliance with these requirements, see 8.4. | | N |
| | Specific performance criteria shall be given in the relevant product standard based on the acceptance criteria given in Table 24. | | N |
| 7.3.3 | Emission | | N |
| 7.3.3.1 | Equipment not incorporating electronic circuits | | N |
| | For equipment not incorporating electronic circuits, electromagnetic disturbances can only be generated by equipment during occasional switching operations. The duration of the disturbances is of the order of milliseconds. | | N |

| EN 60947-7-1 | | | |
|---|---|---|---|
| Clause | Requirement Test | Result - Remark | Verdict |
| | The frequency, the level and the consequences of these emissions are considered as part of the normal electromagnetic environment of low-voltage installations. | | N |
| | Therefore, the requirements for electromagnetic emissions are deemed to be satisfied, and no verification is necessary. | | N |
| 7.3.3.2 | Equipment incorporating electronic circuits | | N |
| 7.3.3.2.1 | Limits for high-frequency emissions | | N |
| | Equipment incorporating electronic circuits (such as switched mode power supply, circuits incorporating microprocessors with high-frequency clocks) may generate continuous electromagnetic disturbances. | | N |
| | For such emissions, these shall not exceed the limits specified in the relevant product standard, based on CISPR 11 for environment A and for environment B. | | N |
| | These tests are only required when the control and/or auxiliary circuits contain components with fundamental switching frequencies greater than 9 kHz. | | N |

*Tables*

| 8.1 | TABLE: insulation resistance measurements | P |
|---|---|---|
| insulation resistance R between: | R (MΩ) | required R (MΩ) |
| L / N to enclosure | >20MΩ | 5 |
| L to N | >20MΩ | 5 |

| 8.1 | TABLE: electric strength measurements | P |
|---|---|---|
| test voltage applied between: | test voltage (V) | breakdown |
| L / N to enclosure | 3000Vac | No |

| 7.1.5 | TABLE: ball-pressure tests for thermoplastics | | P |
|---|---|---|---|
| | Limited impression diameter (mm) | ≦2 mm | --- |
| Part | Test temperature (℃) | Impression diameter (mm) | |
| Enclosure | 125℃ | 0.9 | |

| 7.1.5 | TABLE: glow wire test | P |
|---|---|---|
| Part | Test temperature (℃) | Impression diameter (mm) |
| Enclosure | 850/750℃ | Not burning |

# ATTACHMENT 1

## Photo Documentation

View:
Model:
CMK622

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

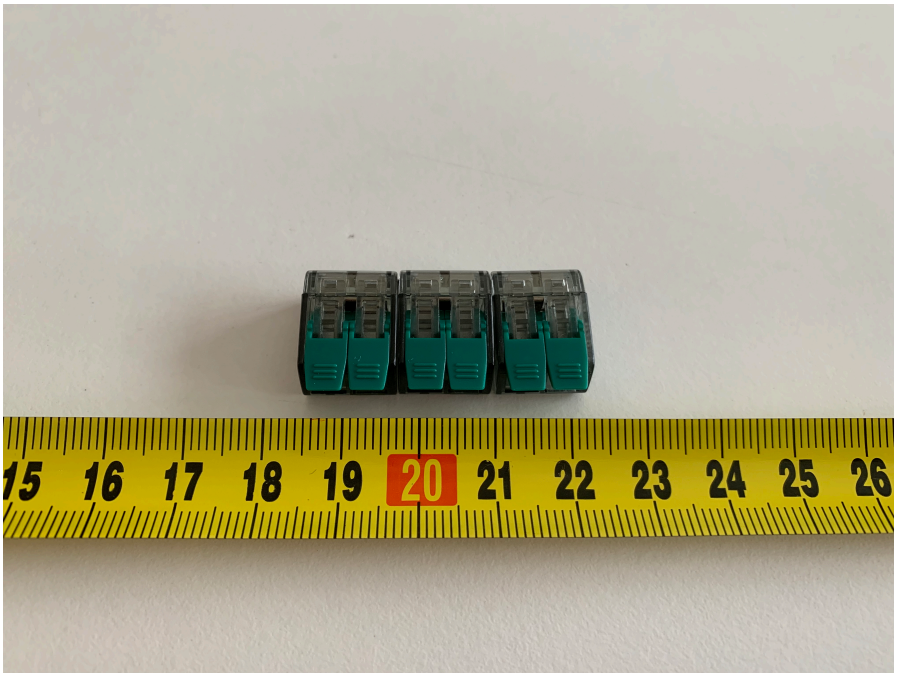


Figure 1

View:

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

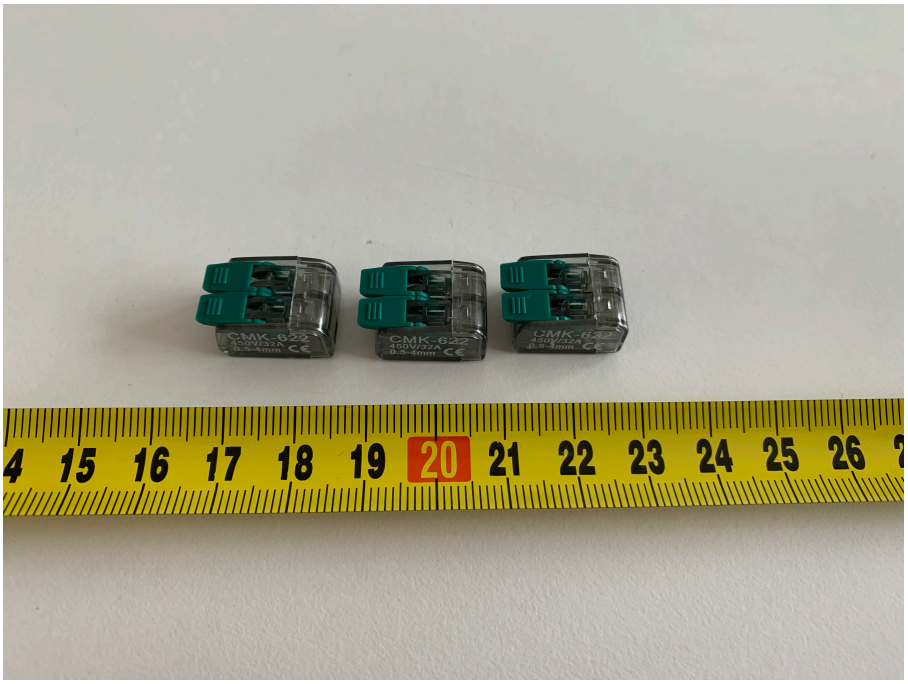


Figure 2