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# TEST REPORT

CEPRI-EETC08-2017-0362

Client: Shanghai Chardon Electrical Ltd.

Object: 18/30(36) kV cold shrinkable outdoor termination

Type: 30-CSTO 1×185

Test Category: Type Tests



**POWER INDUSTRY QUALITY INSPECTION AND TEST  
CENTER FOR ELECTRIC EQUIPMENT**

## Catalogue

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| Test Report                                       | Power Industry Quality Inspection and Test Center for Electric Equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              | CEPRI-EETC08-2017-0362<br>Total 14 Page 2 |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------|
| Client                                            | Shanghai Chardon Electrical Ltd.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Manufacturer | Shanghai Chardon Electrical Ltd.          |
| Object                                            | 18/30(36) kV cold shrinkable outdoor termination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Type         | 30-CSTO 1×185                             |
| Sampling procedure                                | by the Client                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Serial No.   | EETC08-17/05/31-003                       |
| Test Category                                     | Type Tests                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date         | 2017.06.12~2017.11.10                     |
| Requirements                                      | <p>1. GB/T 12706.4—2008 Power cables with extruded insulation and their accessories for rated voltages from 1 kV (<math>U_m=1.2</math> kV) up to 35 kV (<math>U_m=40.5</math> kV) — Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (<math>U_m=7.2</math> kV) up to 35 kV (<math>U_m=40.5</math> kV)</p> <p>2. IEC 60502-4:2010 Power cables with extruded insulation and their accessories for rated voltages from 1 kV (<math>U_m=1.2</math> kV) up to 30 kV (<math>U_m=36</math> kV) - Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (<math>U_m=7.2</math> kV) up to 30 kV (<math>U_m=36</math> kV)</p> |              |                                           |
| Conclusion                                        | <p>According to GB/T 12706.4—2008 and IEC 60502-4:2010, type tests were performed on 18/30(36) kV cold shrinkable outdoor terminations which were provided by Shanghai Chardon Electrical Ltd. All the results were in accordance with the requirements.</p>                                                                                                                                                                                                                                                                                                                                                                                                                     |              |                                           |
| Note                                              | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |                                           |
| <p>Compiled by: 韩卫京 付平</p>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |                                           |
| <p>Checked by: 彭超 Verified by: 苗付贵</p>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |                                           |
| <p>Approved by: 郭雄 Date of issue: 2017.11.23.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |                                           |

| Test Report  |                                               | Power Industry Quality Inspection and Test Center for Electric Equipment                                                  |                                                                                                                                              | CEPRI-EETC08-2017-0362<br>Total 14 Page 3 |            |            |
|--------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------|------------|
| Test Results |                                               |                                                                                                                           |                                                                                                                                              |                                           |            |            |
| No.          | Item                                          | Requirements                                                                                                              | Results                                                                                                                                      |                                           |            | Evaluation |
| 1            | Sequence 1.1                                  | /                                                                                                                         | /                                                                                                                                            |                                           |            | /          |
| 1.1          | AC voltage test                               | Neither breakdown nor flashover shall occur at 81 kV for 5 min                                                            | No breakdown and flashover occurred on the combination samples at 81 kV for 5 min                                                            |                                           |            | passed     |
| 1.2          | AC voltage test under rain                    | Neither breakdown nor flashover shall occur at 72 kV for 1 min                                                            | No breakdown and flashover occurred on the combination samples at 72 kV for 1 min                                                            |                                           |            | passed     |
| 1.3          | Partial discharge test at ambient temperature | The magnitude of the discharge at 30 kV shall not exceed 10 pC                                                            | Phase                                                                                                                                        | No.1& No.4                                | No.2& No.3 | passed     |
|              |                                               |                                                                                                                           | Voltage (kV)                                                                                                                                 | 30                                        | 30         |            |
|              |                                               |                                                                                                                           | Noise background (pC)                                                                                                                        | 1.9                                       | 1.9        |            |
|              |                                               |                                                                                                                           | Discharge (pC)                                                                                                                               | 1.9                                       | 2.6        |            |
| 1.4          | Impulse voltage test at 95℃～100℃              | Neither breakdown nor flashover shall occur at 10 positive and 10 negative impulses of 170 kV                             | No breakdown and flashover occurred on the combination samples at 10 positive and 10 negative impulses of 170 kV (See Appendix C.1)          |                                           |            | passed     |
| 1.5          | Heating cycle voltage test in air             | Neither breakdown nor flashover shall occur during 60 cycles in air at the conductor temperature of 95℃ to 100℃ and 45 kV | No breakdown and flashover occurred on the combination samples during 60 cycles in air at the conductor temperature of 95℃ to 100℃ and 45 kV |                                           |            | passed     |
| 1.6          | Partial discharge test at ambient temperature | The magnitude of the discharge at 30 kV shall not exceed 10 pC                                                            | Phase                                                                                                                                        | No.1& No.4                                | No.2& No.3 | passed     |
|              |                                               |                                                                                                                           | Voltage (kV)                                                                                                                                 | 30                                        | 30         |            |
|              |                                               |                                                                                                                           | Noise background (pC)                                                                                                                        | 2.0                                       | 2.0        |            |
|              |                                               |                                                                                                                           | Discharge (pC)                                                                                                                               | 2.0                                       | 3.0        |            |
| 1.7          | Partial discharge test at 95℃～100℃            | The magnitude of the discharge at 30 kV shall not exceed 10 pC                                                            | Phase                                                                                                                                        | No.1& No.4                                | No.2& No.3 | passed     |
|              |                                               |                                                                                                                           | Voltage (kV)                                                                                                                                 | 30                                        | 30         |            |
|              |                                               |                                                                                                                           | Noise background (pC)                                                                                                                        | 2.0                                       | 2.0        |            |
|              |                                               |                                                                                                                           | Discharge (pC)                                                                                                                               | 2.0                                       | 3.3        |            |

| Test Report |                                        | Power Industry Quality Inspection and Test<br>Center for Electric Equipment                                                                                                                                                                                                                               |                                                                                                                                                                                                                              | CEPRI-EETC08-2017-0362<br>Total 14 Page 4 |
|-------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1.8         | Impulse voltage test                   | Neither breakdown nor flashover shall occur at 10 positive and 10 negative impulses of 170 kV                                                                                                                                                                                                             | No breakdown and flashover occurred on the combination samples at 10 positive and 10 negative impulses of 170 kV<br>(See Appendix C.2)                                                                                       | passed                                    |
| 1.9         | AC voltage test                        | Neither breakdown nor flashover shall occur at 45 kV for 15 min                                                                                                                                                                                                                                           | No breakdown and flashover occurred on the combination samples at 45 kV for 15 min                                                                                                                                           | passed                                    |
| 1.10        | Examination                            | It is advised that the accessory be examined for signs of any of the following:<br>( i ) cracking in the filling media and/or tape or tube components;<br>( ii ) a moisture path across a primary seal;<br>( iii ) corrosion and/or tracking and/or erosion;<br>( iv ) leakage of an insulating material. | ( i ) No cracking in the filling media and tape or tube components;<br>( ii ) No moisture path across a primary seal;<br>( iii ) No evident corrosion, tracking and erosion;<br>( iv ) No leakage of an insulating material. | passed                                    |
| 2           | Sequence 1.2 and 1.3                   | /                                                                                                                                                                                                                                                                                                         | /                                                                                                                                                                                                                            | /                                         |
| 2.1         | AC voltage test                        | Neither breakdown nor flashover shall occur at 81 kV for 5 min                                                                                                                                                                                                                                            | No breakdown and flashover occurred on the combination samples at 81 kV for 5 min                                                                                                                                            | passed                                    |
| 2.2         | Thermal short-circuit test (conductor) | No visible deterioration at 24.2 kA, 2 s, twice                                                                                                                                                                                                                                                           | No visible deterioration at 24.73 kA, 2.01 s and 24.78 kA, 2.01 s<br>(See Appendix C.4)                                                                                                                                      | passed                                    |
| 2.3         | Dynamic short-circuit test (conductor) | No visible deterioration at 85.4 kA, not less than 10 ms                                                                                                                                                                                                                                                  | No visible deterioration at 86.23 kA, 80 ms<br>(See Appendix C.5)                                                                                                                                                            | passed                                    |
| 2.4         | Impulse voltage test                   | Neither breakdown nor flashover shall occur at 10 positive and 10 negative impulses of 170 kV                                                                                                                                                                                                             | No breakdown and flashover occurred on the combination samples at 10 positive and 10 negative impulses of 170 kV<br>(See Appendix C.3)                                                                                       | passed                                    |
| 2.5         | AC voltage test                        | Neither breakdown nor flashover shall occur at 45 kV for 15 min                                                                                                                                                                                                                                           | No breakdown and flashover occurred on the combination samples at 45 kV for 15 min                                                                                                                                           | passed                                    |

| Test Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                | Power Industry Quality Inspection and Test<br>Center for Electric Equipment                                                                                                                                                                                                                               |                                                                                                                                                                                                                              | CEPRI-EETC08-2017-0362<br>Total 14 Page 5 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 2.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Examination    | It is advised that the accessory be examined for signs of any of the following:<br>( i ) cracking in the filling media and/or tape or tube components;<br>( ii ) a moisture path across a primary seal;<br>( iii ) corrosion and/or tracking and/or erosion;<br>( iv ) leakage of an insulating material. | ( i ) No cracking in the filling media and tape or tube components;<br>( ii ) No moisture path across a primary seal;<br>( iii ) No evident corrosion, tracking and erosion;<br>( iv ) No leakage of an insulating material. | passed                                    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Sequence 1.5   | /                                                                                                                                                                                                                                                                                                         | /                                                                                                                                                                                                                            | /                                         |
| 3.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Salt fog tests | Neither breakdown nor flashover, no more than three trippings, no substantial damage shall occur at 22.5 kV for 1000 h                                                                                                                                                                                    | No breakdown, flashover, tripping, substantial damage occurred on the combination samples at 22.5 kV for 1000 h                                                                                                              | passed                                    |
| 3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Examination    | It is advised that the accessory be examined for signs of any of the following:<br>( i ) cracking in the filling media and/or tape or tube components;<br>( ii ) a moisture path across a primary seal;<br>( iii ) corrosion and/or tracking and/or erosion;<br>( iv ) leakage of an insulating material. | ( i ) No cracking in the filling media and tape or tube components;<br>( ii ) No moisture path across a primary seal;<br>( iii ) No evident corrosion, tracking and erosion;<br>( iv ) No leakage of an insulating material. | passed                                    |
| <b>Content</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                              |                                           |
| <b>1. Sequence 1.1 in Table 4 of GB/T 12706.4—2008</b><br><b>1.1 AC voltage test</b><br><b>1.1.1 Test method</b><br>The test shall be carried out in accordance with GB/T 18889—2002, clause 4. Neither breakdown nor flashover shall occur at 81 kV for 5 min.<br><b>1.2 AC voltage test under rain</b><br><b>1.2.1 Test method</b><br>The test shall be carried out in accordance with GB/T 18889—2002, clause 4. Neither breakdown nor flashover shall occur at 72 kV for 1 min. |                |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                              |                                           |

**1.3 Partial discharge test at ambient temperature****1.3.1 Test method**

The test voltage shall be raised gradually to and held at 36 kV for 10 s and then slowly reduced to 30 kV. The test shall be carried out in accordance with GB/T 18889—2002, clause 7.

**1.4 Impulse voltage test at 95 °C~100 °C****1.4.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 6. The conductor of the cable shall be heated and stabilized for at least 2 h at a temperature of 95 °C~100 °C. Neither breakdown nor flashover shall occur at 10 positive and 10 negative impulses of 170 kV.

**1.5 Heating cycle voltage test in air****1.5.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 9. Each heating cycle in air shall be of at least 8 h duration with at least 2 h at a steady temperature of 5 °C to 10 °C above the maximum cable conductor temperature in normal operation, followed by at least 3 h of natural cooling to within 10 °C of ambient temperature. Neither breakdown nor flashover shall occur during 60 cycles in air at the conductor temperature of 95°C to 100°C and 45 kV.

**1.6 Partial discharge test at 95 °C~100 °C****1.6.1 Test method**

The test voltage shall be raised gradually to and held at 36 kV for 10 s and then slowly reduced to 30 kV. The test shall be carried out in accordance with GB/T 18889—2002, clause 7. The conductor temperature shall be of 95°C to 100°C during the test.

**1.7 Partial discharge test at ambient temperature****1.7.1 Test method**

The test voltage shall be raised gradually to and held at 36 kV for 10 s and then slowly reduced to 30 kV. The test shall be carried out in accordance with GB/T 18889—2002, clause 7.

**1.8 Impulse voltage test****1.8.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 6. Neither breakdown nor flashover shall occur at 10 positive and 10 negative impulses of 170 kV.

**1.9 AC voltage test****1.9.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 4. Neither breakdown nor flashover shall occur at 45 kV for 15 min.

**1.10 Examination****1.10.1 Test method**

It is advised that the accessory be examined for signs of any of the following:( i ) cracking in the filling media and/or tape or tube components;( ii ) a moisture path across a primary seal;(iii) corrosion and/or tracking and/or erosion;(iv) leakage of an insulating material.

**2. Sequence 1.2 and 1.3 in Table 4 of GB/T 12706.4-2008****2.1 AC voltage test****2.1.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 4. Neither breakdown nor flashover shall occur at 81 kV for 5 min.

**2.2 Thermal short-circuit test (conductor)****2.2.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 11. Two short-circuits shall be applied using AC to raise the conductor temperature to the maximum permissible short-circuit temperature(250℃) of the cable within 5 s. Between the two short-circuits, the test loop shall be allowed to cool to a temperature less than 10 °C above its temperature prior to the first short-circuit. There shall be no visible deterioration on the samples.

**2.3 Dynamic short-circuit test (conductor)****2.3.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 12. The dynamic short-circuit current value shall be 2.5 times of the thermal short-circuit value when the thermal short-circuit time equals 1s. There shall be no visible deterioration on the samples after the short-circuit lasts for at least 10s.

**2.4 Impulse voltage test****2.4.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 6. Neither breakdown nor flashover shall occur at 10 positive and 10 negative impulses of 170 kV.

**2.5 AC voltage test****2.5.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 4. Neither breakdown nor flashover shall occur at 45 kV for 15 min.

**2.6 Examination****2.6.1 Test method**

It is advised that the accessory be examined for signs of any of the following:( i ) cracking in the filling media and/or tape or tube components;( ii ) a moisture path across a primary seal;(iii) corrosion and/or tracking and/or erosion;(iv) leakage of an insulating material.

**3. Sequence 1.5 in Table 4 of GB/T 12706.4-2008****3.1 Salt fog tests****3.1.1 Test method**

The test shall be carried out in accordance with GB/T 18889—2002, clause 13. Throughout the test duration, the mist spray shall be sprinkled at a rate of  $(0.4 \pm 0.1)\text{L/h/m}^3$  and its conductivity shall be  $(1\ 600 \pm 200)\text{ mS/m}$ . Neither breakdown nor flashover, no more than three trippings, no substantial damage shall occur at 22.5 kV for 1000 h.

**3.2 Examination****3.2.1 Test method**

It is advised that the accessory be examined for signs of any of the following:( i ) cracking in the filling media and/or tape or tube components;( ii ) a moisture path across a primary seal;(iii) corrosion and/or tracking and/or erosion;(iv) leakage of an insulating material.

## Appendix A Object Parameters

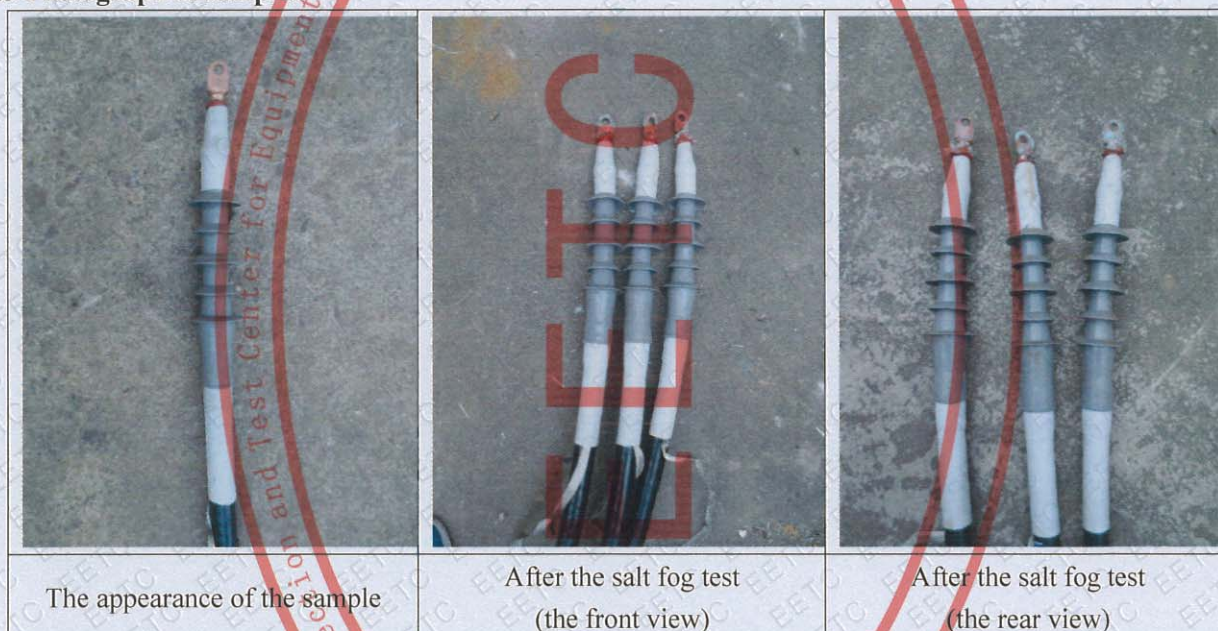
### A.1 Sample information

The sample was received by Power Cable Station on 31/05/2017. The sample was in good condition with the date of manufacture not provided.

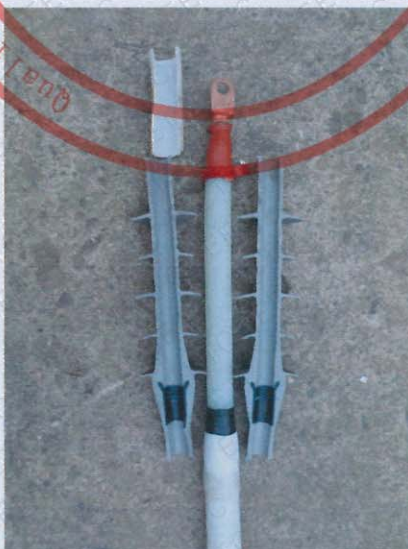
### A.2 The number and installation of samples

According to GB/T 12706.4—2008, It was required that eight sets of terminations to be tested were installed by the manufacturer on eight length of cables forming No.1, No.2, No.3 and No.4 combination samples on which the type tests sequence 1.1, 1.2 and 1.3 were carried out. Four sets of screened separable connectors were also installed by the manufacturer on the combination samples. The cable used in the combination samples was a XLPE insulated single-core cable for rated voltage 18/30 kV, a cross-section of 185 sq.mm. In addition, another six sets of terminations to be tested were installed by the manufacturer on three length of cables forming combination samples on which the type tests sequence 1.5 were carried out.

### A.3 Photograph of samples



### A.4 Photograph of dissected samples



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

## Appendix B The Main Test Devices

| No. | Name/ Type/ Specification                                | Serial No.    | Measurement Range | Uncertainty / Accuracy class / Maximum Permissible Error | Calibration Institute                                   | Valid Date |
|-----|----------------------------------------------------------|---------------|-------------------|----------------------------------------------------------|---------------------------------------------------------|------------|
| 1   | TRF300-0.002<br>AC voltage measurement system            | 110650        | (0~300) kV        | Grade 3                                                  | National high voltage measurement station               | 2018.07.21 |
| 2   | JFD-2H<br>PD measurement system                          | 20041202      | (0.5~1000) pC     | Class 10                                                 | National high voltage measurement station               | 2018.05.19 |
| 3   | FY I 900/600<br>Weakly damped capacitive voltage divider | 11165-2-1     | (0~900) kV        | Class 3                                                  | National high voltage measurement station               | 2018.06.29 |
| 4   | H-DJF-2<br>Data collected system                         | CJ06          | (0~100) kA        | Class 0.5                                                | National high voltage measurement station               | 2020.01.03 |
| 5   | LM-0.5<br>Current transformer                            | 3306          | (0~3000) A        | Class 0.5                                                | National high voltage measurement station               | 2020.10.26 |
| 6   | 287C Digital voltage meter                               | 31470016      | (0~700) V         | Class 1                                                  | Vkan Certification & Testing Co., Ltd. Measuring Center | 2018.07.02 |
| 7   | DDS-307 conductivity meter                               | 61050811-0058 | (0~2000) mS/m     | Class 3                                                  | Vkan Certification & Testing Co., Ltd. Measuring Center | 2018.10.18 |

## Appendix C Waveforms

### C.1 The values and waveforms of impulse voltage on the combination samples before heating cycles voltage test

#### C.1.1 The values of impulse voltage test

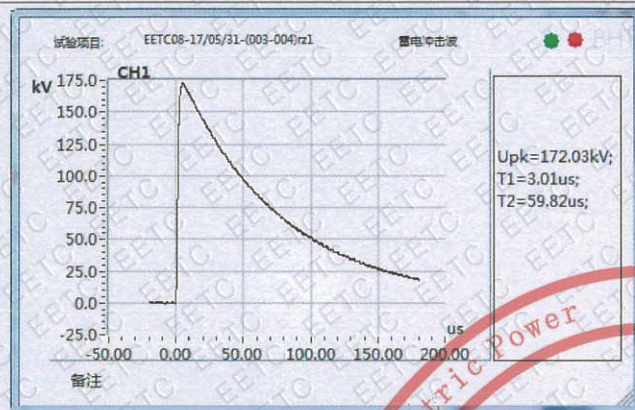
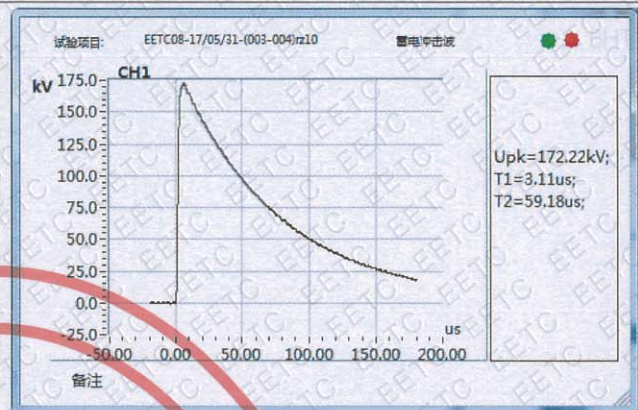
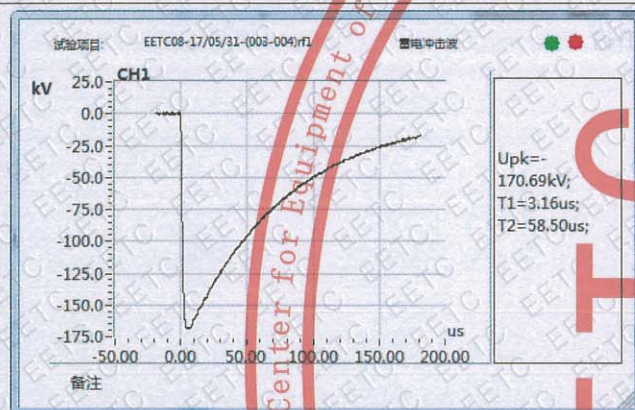
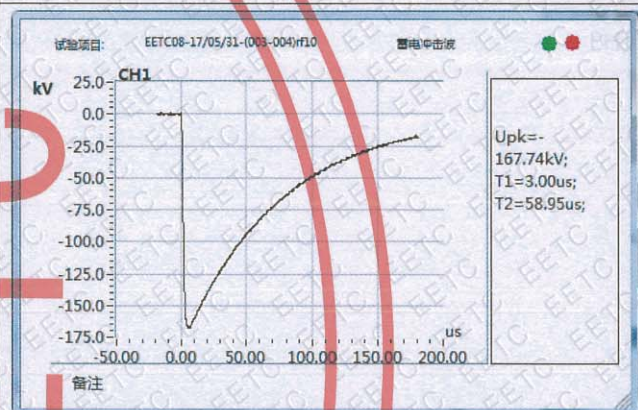
Ambient temperature: 30℃

Relative humidity: 72%

Atmosphere: 0.1012MPa

|                        |     |     |     |     |     |     |     |     |     |     |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Positive polarity (kV) | 172 | 171 | 171 | 172 | 170 | 171 | 171 | 171 | 172 | 172 |
| Negative polarity (kV) | 171 | 170 | 170 | 171 | 171 | 172 | 170 | 169 | 171 | 168 |

## C.1.2 The waveforms of impulse voltage test

The 1<sup>st</sup> positive impulses waveformThe 10<sup>th</sup> positive impulses waveformThe 1<sup>st</sup> negative impulses waveformThe 10<sup>th</sup> negative impulses waveformC.2 The values and waveforms of impulse voltage on the combination samples after heating cycles  
voltage test

## C.2.1 The values of impulse voltage test

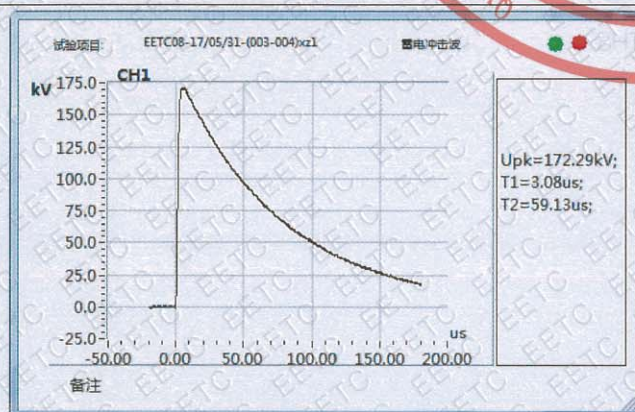
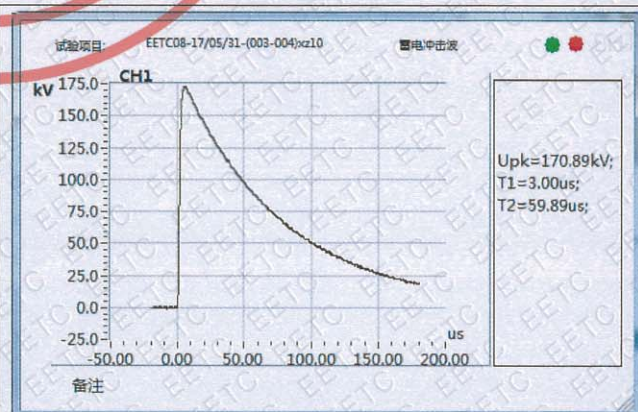
Ambient temperature: 17.0℃

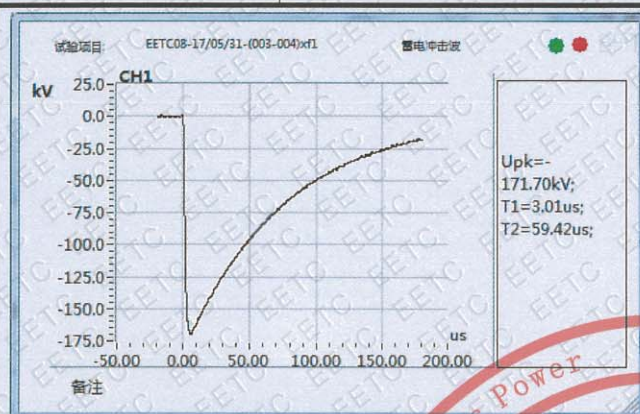
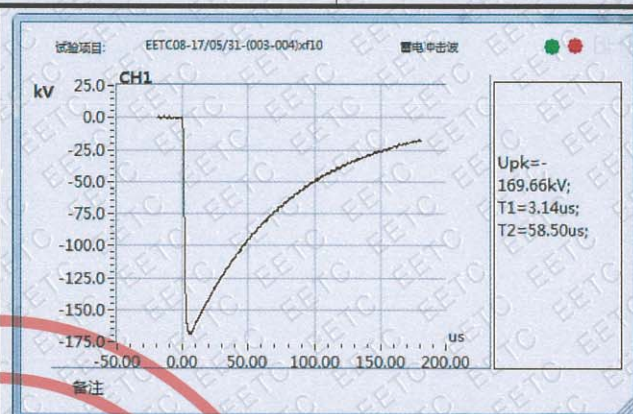
Relative humidity: 61%

Atmosphere: 0.1018MPa

|                        |     |     |     |     |     |     |     |     |     |     |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Positive polarity (kV) | 172 | 171 | 171 | 172 | 172 | 172 | 172 | 170 | 171 | 171 |
| Negative polarity (kV) | 172 | 172 | 171 | 171 | 172 | 171 | 172 | 171 | 172 | 170 |

## C.2.2 The waveforms of impulse voltage test

The 1<sup>st</sup> positive impulses waveformThe 10<sup>th</sup> positive impulses waveform

The 1<sup>st</sup> negative impulses waveformThe 10<sup>th</sup> negative impulses waveform

### C.3 The values and waveforms of impulse voltage on the combination samples after thermal and dynamic short-circuit tests

#### C.3.1 The values of impulse voltage test

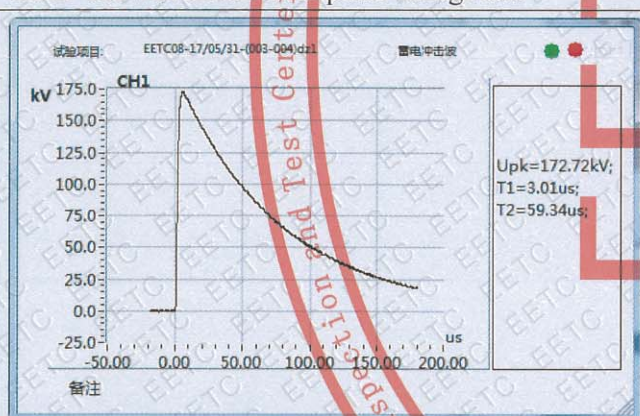
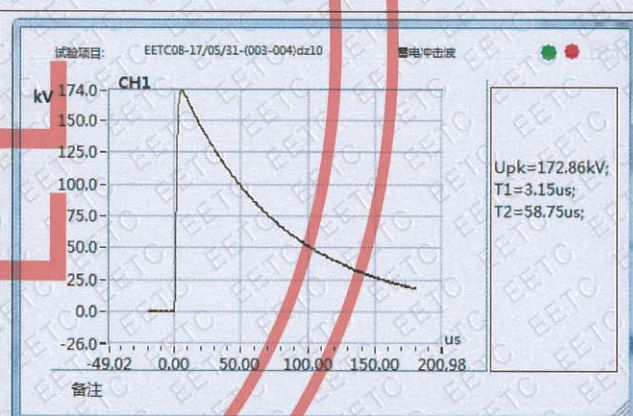
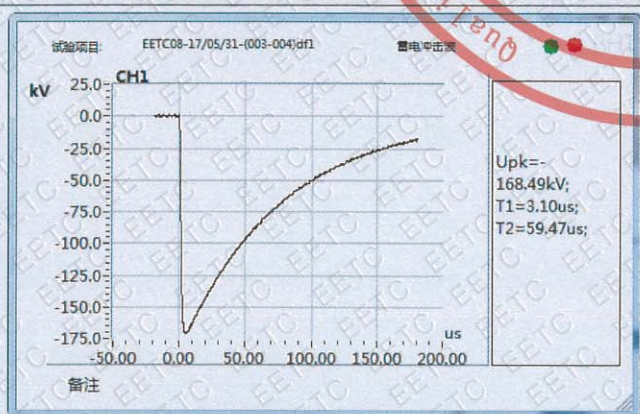
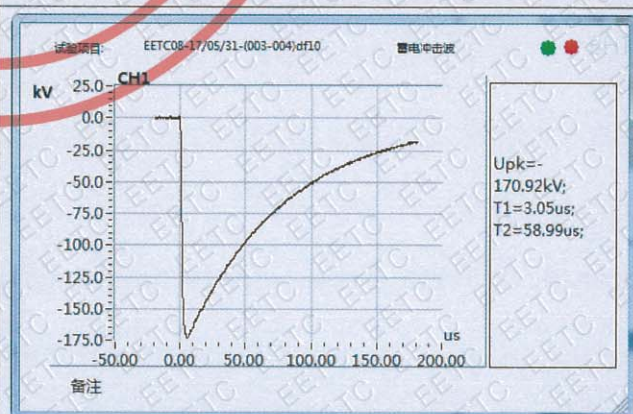
Ambient temperature: 19.0℃

Relative humidity: 63%

Atmosphere: 0.1019MPa

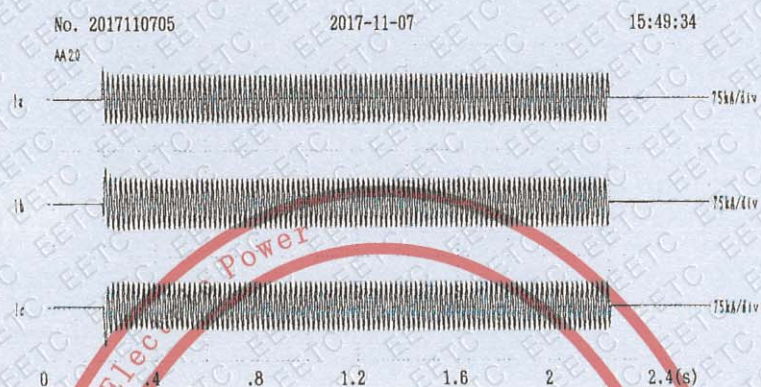
|                        |     |     |     |     |     |     |     |     |     |     |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Positive polarity (kV) | 173 | 172 | 171 | 172 | 172 | 172 | 173 | 171 | 172 | 173 |
| Negative polarity (kV) | 168 | 172 | 171 | 172 | 172 | 173 | 172 | 171 | 172 | 171 |

#### C.3.2 The waveforms of impulse voltage test

The 1<sup>st</sup> positive impulses waveformThe 10<sup>th</sup> positive impulses waveformThe 1<sup>st</sup> negative impulses waveformThe 10<sup>th</sup> negative impulses waveform

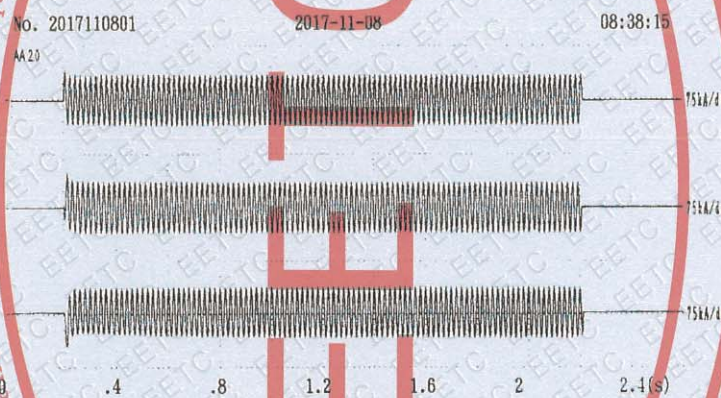
**C.4 The waveform of thermal short-circuit tests of the combination samples (conductor)**

Power Industry Quality Inspection and Test Center for Electric Equipment



Shanghai Chardon Electrical Ltd. 18/30(36) kV cold shrinkable outdoor termination 30-CSTO 1×185

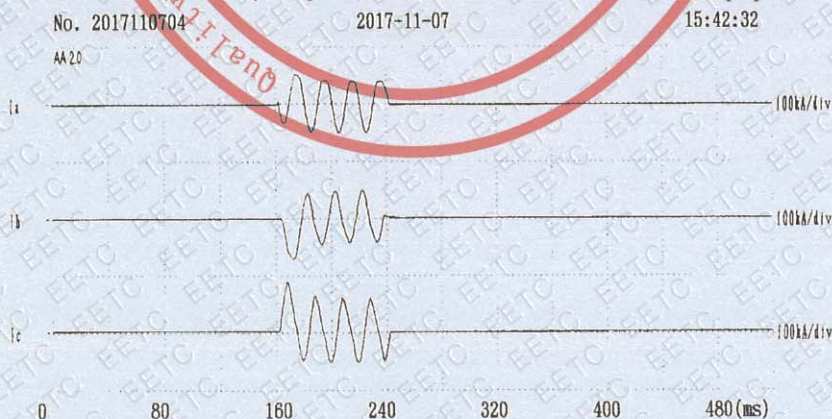
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**C.5 The waveform of thermal short-circuit tests of the combination samples (conductor)**

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## Appendix D Other Information

## D.1 Identification of test cable (specified in GB/T 12706.2—2008)

|                            |                                    |                        |
|----------------------------|------------------------------------|------------------------|
| rated voltage $U_0/U(U_m)$ |                                    | 18/30(36) kV           |
| construction               | core                               | single-core            |
|                            | construction of screen             | single phase screen    |
| conductor                  | material                           | copper                 |
|                            | type                               | round compact stranded |
|                            | cross section                      | 185 mm <sup>2</sup>    |
|                            | diameter                           | 16.2 mm                |
| insulation                 | material                           | XLPE                   |
|                            | thickness                          | 8.0 mm                 |
|                            | diameter                           | 34.3 mm                |
| screen                     | thickness of conductor screen      | 0.9 mm                 |
|                            | thickness of insulation screen     | 0.9 mm                 |
|                            | strippability of insulation screen | strippable             |
|                            | diameter of insulation screen      | 36.1 mm                |
|                            | metallic screen                    | copper tape            |
| armour                     |                                    | /                      |
| oversheath                 | material                           | PVC                    |
|                            | diameter                           | 43.0mm                 |
| mark of cable              |                                    | YJV-18/30 1×185        |

## D.2 Main structure dimensions of the samples

