



中国认可
国际互认
检测
TESTING
CNAS L0699



TEST REPORT

CEPRI-EETC08-2023-0161 (E)

Client: ANHUI CHARDON ELECTRIC LTD.

Object: 12/20(24)kV cold shrinkable straight joint

Type: 24-CSCJ 3×630

Test Category: Additional Tests



POWER INDUSTRY QUALITY INSPECTION AND TEST
CENTER FOR ELECTRIC EQUIPMENT



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Test Report	Power Industry Quality Inspection and Test Center for Electric Equipment		CEPRI-EETC08-2023-0161(E) Total 7 Page 2
Client	ANHUI CHARDON ELECTRIC	Manufacturer	ANHUI CHARDON ELECTRIC LTD.
Object	12/20(24)kV cold shrinkable straight joint	Type	24-CSCJ 3×630
Sampling procedure	by the Client	Serial No.	EETC08-23/03/09-011
Test Category	Additional Tests	Date	2023.03.17~2023.09.12
Requirements	<p>1. GB/T 12706.4—2020 Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m=1.2$ kV) up to 35 kV ($U_m=40.5$ kV) — Part 4: Test requirements on accessories for cables with rated voltages from 6 kV ($U_m=7.2$ kV) up to 35 kV ($U_m=40.5$ kV)</p> <p>2. IEC 60502-4:2010 Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m=1.2$ kV) up to 30 kV ($U_m=36$ kV) - Part 4: Test requirements on accessories for cables with rated voltages from 6 kV ($U_m=7.2$ kV) up to 30 kV ($U_m=36$ kV)</p>		
Conclusion	<p>According to GB/T 12706.4 — 2020 and IEC 60502-4:2010, additional tests were performed on 12/20(24)kV cold shrinkable straight joints which were provided by ANHUI CHARDON ELECTRIC LTD. All the results were in accordance with the requirements.</p>		
Note	In the event of any difference in meanings, the Chinese report shall take priority over the English version.		
Tested by: 邓凯	邓凯	周诚	周诚
Checked by: 张伟	张伟	Verified by: 彭超	彭超
Approved by: 阎孟昆	阎孟昆	Date of issue: 2023-09-28	



Test Results

No.	Item	Requirements	Results	Evaluation
1	AC voltage test	No breakdown shall occur at 54kV for 5min	No breakdown occurred on the combination samples at 54kV for 5min	passed
2	DC voltage test	No breakdown shall occur at 48kV for 15min	No breakdown occurred on the combination samples at 48kV for 15min	passed
3	Partial discharge test	The magnitude of the discharge at 20kV shall not exceed 10pC	No detectable discharge exceeding the sensitivity (3.0pC) at 20kV	passed
4	Impulse voltage test	No breakdown shall occur at 10 positive and 10 negative impulses of 125kV	No breakdown occurred on the combination samples at 10 positive and 10 negative impulses of 125kV (See Appendix C)	passed
5	Heating cycle voltage test in air	No breakdown shall occur during 10 cycles in air at the conductor temperature of 95°C to 100°C and 30kV	No breakdown occurred on the combination samples during 10 cycles in air at the conductor temperature of 95°C to 100°C and 30kV	passed
6	Examination	It is advised that the accessory is 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.	(i) No cracking in the filling media and tape or tube components; (ii) No moisture path across a primary seal; (iii) No evident corrosion, tracking and erosion; (iv) No leakage of an insulating material.	passed

Content

1. AC voltage test

No breakdown occurred at 54kV for 5min.
Result: Passed.

2. DC voltage test

No breakdown occurred at 48kV for 15min.
Result: Passed.



3. Partial discharge test

The test voltage was raised gradually to and held at 24kV for 10s and then slowly reduced to 20kV.

Requirements	Result			
	Phase	Noise background (pC)	Sensitivity (pC)	Discharge (pC)
20kV, the magnitude of the discharge shall not exceed 10pC	Y	1.5	3.0	1.5
	G	1.5	3.0	1.5
	R	1.5	3.0	1.5

Result: Passed.

4. Impulse voltage test

No breakdown occurred at 10 positive and 10 negative impulses of 125kV (See Appendix C).

Result: Passed.

5. Heating cycle voltage test in air

Each heating cycle in air was at least 8h duration with at least 2h at a steady temperature of 5°C to 10°C above the maximum cable conductor temperature in normal operation, followed by at least 3h of natural cooling to within 10°C of ambient temperature. No breakdown occurred during 10 cycles in air at the conductor temperature of 95°C to 100°C and 30kV.

Result: Passed.

6. Examination

Check the samples with eyes:(i) no cracking in the filling media and tape or tube components;(ii) no moisture path across a primary seal;(iii) no evident corrosion and tracking and erosion;(iv) no leakage of an insulating material.

Result: Passed.

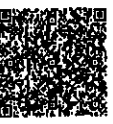
Appendix A Object Parameters**A.1 sample messages**

The sample was received by power cable station on 09/03/2023. The sample was in good condition. The sample is designed with stress cone structure and the raw material is liquid silicone rubber. The material of connector is aluminium. The cable conductor is compacted with the connector by confining pressure.

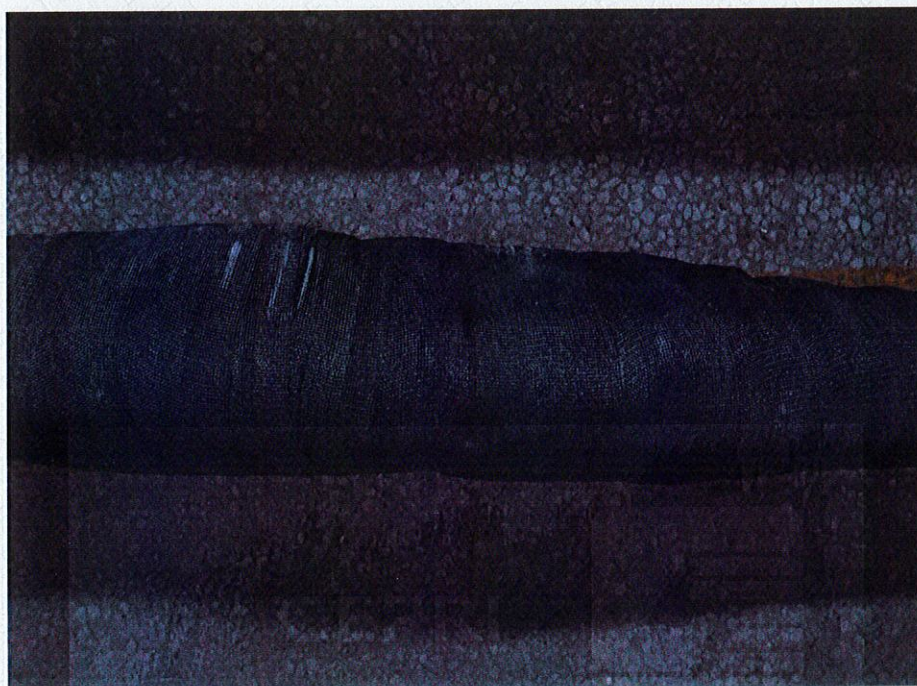
A.2 The Number and Installation of Combination Samples

According to GB/T 12706.4—2020, It was required that a set of straight joints to be tested was installed by the manufacturer on a cable forming combination sample on which the additional tests of table 9 were carried out. The cable used in the combination sample was a XLPE insulated three-core cable for rated voltage 12/20kV, a cross-section of 630sq.mm. A set of indoor terminations and a set of outdoor terminations were also installed by the manufacturer on the combination sample.

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A.3 Photograph about Samples



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 AC voltage measurement system	EETC08- 0046	(0~300)kV	Class 3	National high voltage measurement station	2024.07.24
2	YD(W)-JZ-30/150 AC/DC Test Device	EETC08- 0069	(0~150)kV	Class 3	National high voltage measurement station	2024.07.24
3	JFD-2H PD measurement system	EETC08- 0013	(0.5~1000) pC	Class 10	National high voltage measurement station	2024.05.14
4	FY I 900/600 Weakly damped capacitive voltage divider	EETC08- 0019	(0~900) kV	Class 3	National high voltage measurement station	2024.06.15
5	LCC-V Heating cycle monitoring system	EETC08- 002	(0~3000) A	Class 3	National high voltage measurement station	2025.07.19
6	TP720 Multichannel data recorder	EETC08- 0161	(0~200)°C	±2°C	Vkan Certification & Testing Co., Ltd. Measuring Center	2024.04.27



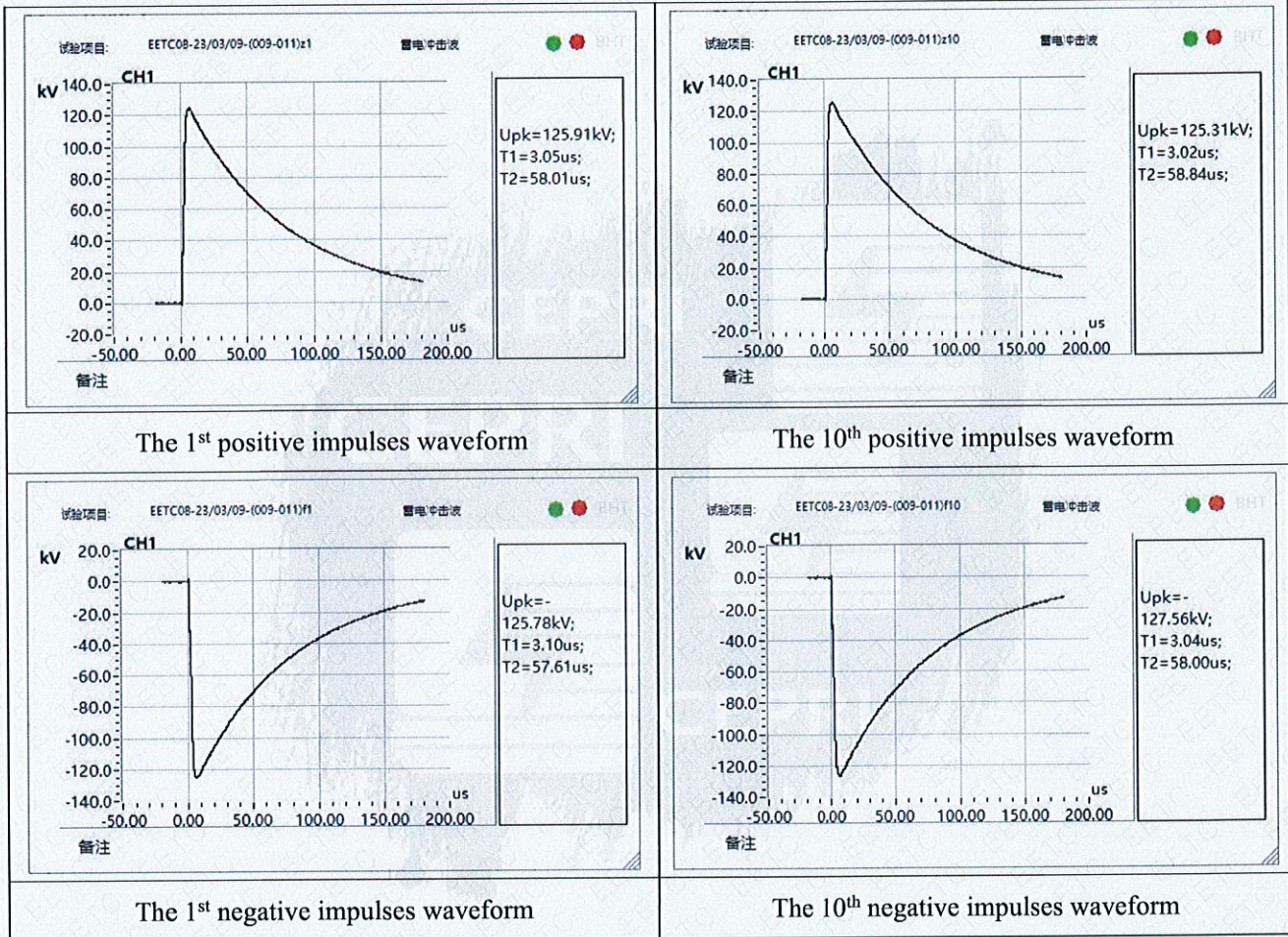
Appendix C The waveforms of impulse voltage test

C.1 The values of impulse voltage test

Ambient temperature: 21.5°C, Relative humidity: 63%, Atmosphere: 0.1011MPa

Positive polarity (kV)	125.9	124.2	125.5	125.6	125.6	125.7	127.2	124.9	125.6	125.3
Negative polarity (kV)	125.8	125.3	125.0	126.3	124.9	124.3	125.5	125.7	126.6	127.6

C.2 The waveforms of impulse voltage test



Appendix D Other Information

D.1 Identification of test cable (specified in GB/T 12706.2—2020)

rated voltage $U_0/U(U_m)$	12/20(24)kV	
construction	core	three-core
	construction of screen	separated screen
conductor	material	Aluminium
	type	round compact stranded
	cross section	630mm ²



	diameter	30.2mm
insulation	material	XLPE
	thickness	5.5mm
	diameter	43.1mm
screen	thickness of conductor screen	0.8mm
	thickness of insulation screen	0.9mm
	strippability of insulation screen	strippable
	diameter of insulation screen	44.9mm
	metallic screen	copper tape
armour		/
oversheath	material	PVC
	diameter	100.4mm
mark of cable		YJLV-12/20 3×630

