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Client	Shenzhen Woer Heat-Shrinkable Material Co.,Ltd.	Manufacturer	Shenzhen Woer Heat-Shrinkable Material Co., Ltd.
Sample Name	35kV Inner Cone Separable Termination	Spec.	WCBN-26/35 3*185
Sampling Source	Sent by the client	Sample No.	DL 2017-082
Test Type	Type test	Inspection Date	10.24.2016-03.29.2017
Test Reference	Power cables and cable accessories with extruded and laminated insulation with rated voltages from 1kV (Um=1.2kV) to 35kV (Um=40.5kV) Part 4 : Test requirements on accessories for cables with rated voltages from 6 kV (Um=7.2kV) up to 35 kV (Um=40.5kV)		
Test Conclusion	The type of 35kV WCBN-26/35 3*185 XLPE cable inner cone plug-in terminations taken to test by client self have passed the type tests specified in GB/T 12706.4-2008.		
Remarks			

Test Result

No.	Items	Requirements	Results	Remarks
1	1.1 series	/	/	/
1.1	AC withstand voltage test	No breakdown shall occur at 117kV for 5min	No breakdown occurred on the combination samples at 117kV for 5min	Pass
1.2	Partial discharge test at ambient temperature	The magnitude of the discharge at 45kV shall not exceed 10pC	The level of maximum noise background being 2pC at 45kV during the tests, the magnitude of the discharge of the combination samples: Yellow 8.9pC, Green 6.4pC, Red 9.0pC	Pass
1.3	Impulse withstand voltage test at 95℃ -100℃	No breakdown shall occur at 10 positive and 10 negative impulse of 200 kV	No breakdown occurred on the combination samples at 10 positive and 10 negative impulse of 200 kV	Pass

1.4	Heating cycle voltage test	No breakdown shall occur during 60 cycles in air at conductor temperature of 95℃ to 100 ℃ and 65kV	No breakdown occurred on the combination samples subjected to 60 cycles in air at conductor temperature of 95℃ to 100 ℃ and 65kV	Pass
1.5	Partial discharge test at 95℃-100℃	The magnitude of the discharge at 45kV shall not exceed 10pC	The level of maximum noise background being 2pC at 45kV during the tests, the magnitude of the discharge of the combination samples: Yellow 8.6pC, Green 6.8pC, Red 8.8pC	Pass
1.6	Partial discharge test at ambient temperature	The magnitude of the discharge at 45kV shall not exceed 10pC	The level of maximum noise background being 2.1pC at 45kV during the tests, the magnitude of the discharge of the combination samples: Yellow 9.0pC, Green 8.1pC, Red 9.2pC	Pass
1.7	Impulse withstand voltage test	No breakdown shall occur at 10 positive and 10 negative impulse of 200 kV	No breakdown occurred on the combination samples at 10 positive and 10 negative impulse of 200 kV	Pass

1.8	AC withstand voltage test	No breakdown shall occur at 65kV for 15min	No breakdown occurred on the combination samples at 65kV for 15min	Pass
1.9	Examination	Check visually if there is any :(1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking path (4) insulating material leakage	Upon examination, there is no:(1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking path (4) insulating material leakage	Pass
2	1.2 and 1.3 series	/	/	/
2.1	AC withstand voltage test	No breakdown shall occur at 117kV for 5min	No breakdown occurred on the combination samples at 117kV for 5min	Pass
2.2	Thermal short-circuit test(conductor)	No visible deterioration at 24.1 kA,2s	No visible deterioration at 24.48 kA,2.01s and 24.31kA ,2.02s	Pass
2.3	Dynamic short-circuit test(conductor)	No visible deterioration at 85.2 kA, not less than 10ms	No visible deterioration at 88.16 kA, 57ms	Pass

2.4	Impulse withstand voltage test	No breakdown shall occur at 10 positive and 10 negative impulse of 200 kV	No breakdown occurred on the combination samples at 10 positive and 10 negative impulse of 200 kV	Pass
2.5	AC withstand voltage test	No breakdown shall occur at 65kV for 15min	No breakdown occurred on the combination samples at 65kV for 15min	Pass
2.6	Examination	Check visually if there is any :(1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking path (4) insulating material leakage	Upon examination, there is no:(1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking path (4) insulating material leakage	Pass

Report Body

1. 1.1 series of Table 4 in GB/T 12706.4-2008

1.1 AC voltage test

1.1.1 Test method

As specified in the 4th chapter of GB/T 18889-2002, no breakdown shall occur on the combination samples at ambient temperature with 117kV withstand voltage for 5min between every phase and ground.

1.1.2 Test results

No breakdown occurred on the combination samples with 117kV withstand voltage for 5min between every phase and ground.

1.1.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.2 Partial discharge test at ambient temperature

1.2.1 Test method

Slowly raise the test voltage to 52kV and maintain 10s, then lower the voltage to the value of 45kV gradually and carry out the partial discharge test at ambient temperature in accordance with the 4th chapter of GB/T 18889-2002 at the same voltage.

1.2.2 Test results

Phase	Yellow	Green	Red
Background (pC)	2.6	2.6	2.6
Voltage (kV)	4.5	4.5	4.5
Results (pC)	8.9	6.4	9.0

1.2.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.3 Impulse withstand voltage test

1.3.1 Test method

Impulse withstand voltage test is carried out in accordance with the 9th chapter of GB/T 18889-2002. No breakdown shall occur on the combination samples at 10 positive and 10 negative impulse of 200 kV with the conductor temperature (95-100)℃.

1.3.2 Test results

No breakdown occurred on the combination samples at 10 positive and 10 negative impulse of 200 kV with the conductor temperature (95-100)℃.

Actual withstand voltage applied in the test is as follows.(Waveform refers to annex C.1)

Temperature:6.5℃ Relative humidity:63% Pressure:0.1022MPa

Positive(kV)	201	201	201	200	200	202	201	201	202	202
Negative(kV)	201	202	202	201	201	200	200	200	201	202

1.3.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.4 Heating cycle voltage test

1.4.1 Test method

As specified in the 9th chapter of GB/T 18889-2002, exert heating current for 60 cycles to test circuit with 5h heating and 3h cooling at AC voltage of 65kV.

1.4.2 Test results

No breakdown occurred on the combination samples.

1.4.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.5 Partial discharge test at 95℃-100℃

1.5.1 Test method

Slowly raise the test voltage to 52kV and maintain 10s, then lower the voltage to the value of 45kV gradually and carry out the partial discharge test at temperature of 95℃-100℃in accordance with the 4th chapter of GB/T 18889-2002 at the same voltage.

1.5.2 Test results

Phase	Yellow	Green	Red

Background (pC)	2.0	2.0	2.0
Voltage (kV)	45	45	45
Results (pC)	8.6	6.8	8.8

1.5.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.6 Partial discharge test at ambient temperature

1.6.1 Test method

Slowly raise the test voltage to 52kV and maintain 10s, then lower the voltage to the value of 45kV gradually and carry out the partial discharge test at ambient temperature in accordance with the 4th chapter of GB/T 18889-2002 at the same voltage.

1.6.2 Test results

Phase	Yellow	Green	Red
Background (pC)	2.1	2.1	2.1
Voltage (kV)	45	45	45
Results (pC)	9.0	8.1	9.2

1.6.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.7 Impulse withstand voltage test

1.7.1 Test method

Impulse withstand voltage test is carried out in accordance with the 9th chapter of GB/T 18889-2002. No breakdown shall occur on the combination samples at 10 positive and 10 negative impulse of 200 kV.

1.7.2 Test results

No breakdown occurred on the combination samples at 10 positive and 10 negative impulse of 200 kV.

Actual withstand voltage applied in the test is as follow. (Waveform refers to annex C.2)

Temperature:18.0℃ Relative humidity:58% Pressure: 0.1018MPa

Positive(kV)	201	201	201	200	200	202	201	201	202	202
Negative(kV)	201	202	202	201	201	200	200	200	201	202

1.7.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.8 AC withstand voltage test

1.8.1 Test method

As specified in the 4th chapter of GB/T 18889-2002, no breakdown shall occur on the combination samples at ambient temperature with 65kV withstand voltage for 15min between every phase and ground.

1.8.2 Test results

No breakdown occurred on the combination samples with 65kV withstand voltage for 15min between every phase and ground.

1.8.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

1.9 Examination

1.9.1 Test method

Check visually if there is any : (1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking path (4) insulating material leakage

1.9.2Test results

Upon examination, there is no: (1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking path (4) insulating material leakage

1.9.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

2. 1.2 and 1.3 series of Table 4 in GB/T 12706.4-2008

2.1 AC voltage test

2.1.1 Test method

As specified in the 4th chapter of GB/T 18889-2002, no breakdown shall occur on the combination samples at ambient temperature with 117kV withstand voltage for 5min between every phase and ground.

2.1.2 Test results

No breakdown occurred on the combination samples with 117kV withstand voltage for 5min between every phase and ground.

2.1.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

2.2 Thermal short-circuit test

2.2.1 Test method

The test is carried out at ambient temperature in accordance with the 11th chapter of GB/T 18889-2002.

2.2.2 Test results

The current and time of two thermal short-circuit tests are: 24.48kA, 2.01s and 24.31kA ,2.01s respectively. And the combination samples show no visible damage.(Waveform refers to annex C.4)

2.2.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

2.3 Dynamic short-circuit test (conductor)

2.3.1 Test method

The test is carried out at ambient temperature in accordance with the 12th chapter of GB/T 18889-2002.

2.3.2 Test results

88.16kA, 57ms. And the combination samples show no visible damage. (Waveform refers to annex C.5)

2.3.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

2.4 Impulse withstand voltage test

2.4.1 Test method

Impulse withstand voltage test is carried out in accordance with the 9th chapter of GB/T 18889-2002. No breakdown shall occur on the combination samples at 10 positive and 10 negative impulse of 200 kV at ambient temperature.

2.4.2 Test results

No breakdown occurred on the combination samples at 10 positive and 10 negative impulse of 200 kV.

Actual withstand voltage applied in the test is as follows.(Waveform refers to annex C.3)

Temperature:22.0℃ Relative humidity:66% Pressure: 0.1018MPa

Positive(kV)	202	201	202	202	202	201	201	201	202	202
Negative(kV)	200	200	199	198	202	202	201	202	202	202

2.4.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

2.5 AC voltage test

2.5.1 Test method

As specified in the 4th chapter of GB/T 18889-2002, no breakdown shall occur on the combination samples at ambient temperature with 65kV withstand voltage for 15min between every phase and ground.

2.5.2 Test results

No breakdown occurred on the combination samples with 56kV withstand voltage for 15min between every phase and ground.

2.5.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

2.6 Examination

2.6.1 Test method

Check visually if there is any : (1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking passage (4) insulating material leakage

2.6.2 Test results

Upon examination, there is no: (1)crack on filler and/or strip and/or tube (2)humidity path through major sealing part (3)corrosion and/or tracking passage (4) insulating material leakage

2.6.3 Conclusion

Specimens are in good condition before or after test. Test is up to standard. So the test is passed.

Annex A Specimen Information

A.1 Relevant information

The tested specimen is received on Oct.20.2016 at Quality Inspection Department for Power Cable and Accessories, which is intact and manufactured in September of 2016.

A.2 Quantity and installation

The combination samples assembled by the manufacture consist of 4 inner cone terminations and 2 YJV-26/35 3*185 cables to conduct the 1.1, 1.2 and 1.3 series tests in table 7. The combination samples also include 2 outdoor terminations, which are more than 2m away from the specimens.