



220008343840



报告编号
Reference No



CT24-05784

中国认可
国际互认
检测
TESTING
CNAS L0207

检测报告

Test Report

样品名称 Name of sample	铜芯交联聚乙烯绝缘焊接皱纹铝套聚乙烯护套电力电缆 Copper conductor XLPE insulation corrugated aluminum sheath PE sheath power cable
样品型号 Type of sample	YJLW03
委托方 Consigner	上海胜华电缆科技集团有限公司 Shanghai Shenghua Cable Technology Group Co., Ltd.
试验类型 Kind of test	型式试验 Type Test

上海国缆检测股份有限公司

SHANGHAI NATIONAL CENTER OF TESTING AND INSPECTION
FOR ELECTRIC CABLE AND WIRE CO., LTD

国家电线电缆质量检验检测中心

CHINA NATIONAL CENTRE OF TESTING AND INSPECTION
FOR ELECTRIC CABLE AND WIRE

上海国缆检测股份有限公司
国家电线电缆质量检验检测中心
检测报告

Shanghai National Center of Testing and Inspection for Electric Cable and Wire Co., Ltd
China National Centre of Testing and Inspection for Electric Cable and Wire
Test Report

共 18 页 第 1 页
Page 1 of 18

试验类型 Kind of test	型式试验 Type Test	报告编号 Reference No.	CT24-05784		
样品名称 Name of sample	铜芯交联聚乙烯绝缘焊接皱纹铝套聚乙烯护套电力电缆 Copper conductor XLPE insulation corrugated aluminum sheath PE sheath power cable				
型号规格 Type and Size	YJLW03 64/110 1×1600	检测日期 Date of test	2024-11-28 ~ 2025-01-10		
委托方 Consigner	名称 Name	上海胜华电缆科技集团有限公司 Shanghai Shenghua Cable Technology Group Co., Ltd.			
	地址 Address	上海市浦东新区新场镇上海沪南公路7577号胜华科技大厦 Shenghua Technology Building, No. 7577, Shanghai Hunan Highway, Xinchang Town, Pudong New District, Shanghai			
	电话号码 Tel.	/	邮政编码 P.C.	201314	单位编号 Unit No.
生产单位 Manufacturer	名称 Name	胜华电缆科技（宁晋县）有限公司 Shenghua Cable Technology (Ningjin) Co., Ltd.			
	地址 Address	河北省邢台市宁晋县贾家口镇贾家口村泰安路中段北侧 North side of the middle section of Tai'an Road, Jiajiakou Village, Jiajiakou Town, Ningjin County, Xingtai City, Hebei Province			
	电话号码 Tel.	/	邮政编码 P.C.	055550	单位编号 Unit No.
来样方式 Delivering mode	送样 Supplied by consigner	接收状态 Sample state at receiving	正常 Normal	收样日期 Receiving date	2024-11-25
检测依据 Test standard	见第2页 See page 2				
判定依据 Verdict standard	见第2页 See page 2				
检测结论 Conclusion	样品进行了IEC 60840: 2023和GB/T 11017.2—2024标准要求的全部项目检测，经检测该样品符合IEC 60840: 2023和GB/T 11017.2—2024标准要求。 All items for the sample have been carried out according to IEC 60840: 2023 and GB/T 11017.2—2024, and the sample is qualified for the requirements of IEC 60840: 2023 and GB/T 11017.2—2024.				
备注 Note	见第2页 See page 2				
主检 Tested by	肖敬成 Xiao Jingcheng	审核 Checked by	王子强 Wang Ziqiang	批准 Approved by	李闯 Li Chuang
日期 Date	2025.01.23	日期 Date	2025.01.23	日期 Date	2025.1.23

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
检测依据 Test standard 1. GB/T 11017.1—2024 额定电压 66kV($U_m=72.5$kV)和 110kV($U_m=126$kV)交联聚乙烯绝缘电力电缆及其附件 第 1 部分:试验方法和要求 Power cables with cross-linked polyethylene insulation and their accessories for rated voltage of 66kV($U_m=72.5$kV) and 110 kV ($U_m=126$ kV) — Part 1: Test methods and requirements 2. IEC 60840: 2023 额定电压 30kV($U_m=36$kV)至 150kV($U_m=170$kV)挤包绝缘电力电缆及其附件—试验方法和要求 Power cables with extruded insulation and their accessories for rated voltages above 30 kV ($U_m=36$ kV) up to 150 kV ($U_m=170$ kV) —Test methods and requirements			
判定依据 Verdict standard 1. GB/T 11017.2—2024 额定电压 66kV($U_m=72.5$kV)和 110kV($U_m=126$kV)交联聚乙烯绝缘电力电缆及其附件 第 2 部分:电缆 Power cables with cross-linked polyethylene insulation and their accessories for rated voltage of 66kV($U_m=72.5$kV) and 110 kV ($U_m=126$ kV) — Part 2: Power cables 2. IEC 60840: 2023 额定电压 30kV($U_m=36$kV)至 150kV($U_m=170$kV)挤包绝缘电力电缆及其附件—试验方法和要求 Power cables with extruded insulation and their accessories for rated voltages above 30 kV ($U_m=36$ kV) up to 150 kV ($U_m=170$ kV) —Test methods and requirements			
备注 Note 1. 带“*”标记处为 GB/T 11017.2—2024 与 IEC60840: 2023 标准规定不同的项目或要求; The items or requirements with the mark of ‘*’ are required specially by the GB/T 11017.2—2024 which are different from IEC 60840: 2023; 2. 电缆生产单位信息由委托方提供。 The information of cable manufacturer is provided by consigner.			

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
1	结构尺寸 Check of cable construction				
1.1	导体 Conductor				
*	—材料 Material		铜Copper	铜Copper	P
*	—导体结构 Construction		分割导体 Milliken conductor	分割导体(5分割) Milliken conductor (5 segments)	P
*	—单线根数 Number of wires	No.	≥170	305(5×61)	P
	—导体外径 Diameter of conductor	mm	/	49.3	N
*	—分割导体的圆度 Roundness of milliken conductor		卡尺测得的5个最大直径的平均值未超过周长带测得的5个直径的平均值的2%；在任一位置卡尺测得的最大直径未超过周长带测得直径的3%。 The average value of the five largest diameters measured by calliper shall be no more than 2% of the average value of the five diameters measured by a measuring tape, and the maximum diameter measured by calliper at any position shall be no more than 3% of the diameter measured a measuring tape.	卡尺测得的5个最大直径的平均值未超过周长带测得的5个直径的平均值的0.6%；在任一位置卡尺测得的最大直径未超过周长带测得直径的0.8%。 The average value of the five largest diameters measured by calliper is no more than 0.6% of the average value of the five diameters measured by a measuring tape, and the maximum diameter measured by calliper at any position is no more than 0.8% of the diameter measured a measuring tape.	P
1.2	导体屏蔽 Conductor screen				
*	—结构 Construction		应由挤包的半导体层或先绕包半导体带再在其上挤包半导体层组成 Extruded semi-conducting layer or consisted of semi-conducting tape and extruded semi-conducting layer	先绕包2层半导体带再在其上挤包半导体层组成 The conductor screen consists of 2 layers of semi-conducting tape and extruded semi-conducting layer	P

注：“单项评定”符号含义：P：检测结果符合要求；F：检测结果不符合要求；N：检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
*	—挤包层平均厚度 Average thickness of extruded semi-conducting layer	mm	/	1.5	N
	—挤包层最薄处厚度 Minimum thickness of extruded semi-conducting layer	mm	≥0.5	1.3	P
1.3	绝缘 Insulation				
	—平均厚度 Average thickness	mm	/	16.2	N
	—最薄处厚度 Minimum thickness	mm	≥14.40	15.63	P
	—偏心度 Eccentricity		≤0.15	0.06	P
			≤0.10(*)	0.06	P
1.4	绝缘屏蔽 Insulation screen				
*	—绝缘屏蔽结构 Construction		应为挤包半导电层 Should be consisted of extruded semi-conducting layer	挤包半导电层 Extruded semi-conducting layer	P
	—平均厚度 Average thickness	mm	/	1.2	N
*	—最薄处厚度 Minimum thickness	mm	≥0.5	1.1	P
*1.5	缓冲层和纵向阻水层 Buffer layer and longitudinal water blocking layer		半导电弹性材料或半导电阻水膨胀带 Semi-conducting elastic material or semi-conducting water blocking tape	2层半导电阻水带 2 layers of semi-conducting water blocking tape	P
1.6	皱纹铝套 Corrugated aluminium sheath				
	—工艺 Process		/	焊接 Welded	N
	—平均厚度 Average thickness	mm	/	2.4	N
	—最薄处厚度 Minimum thickness	mm	≥1.86	2.36	P
*	—防蚀层 Anti-corrosion layer		表面应有沥青或热熔胶 Bitumen or thermosol should be coated on the aluminium sheath surface	铝套表面涂覆沥青 Bitumen was coated on the aluminium sheath surface	P

注：“单项评定”符号含义：P：检测结果符合要求；F：检测结果不符合要求；N：检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
1.7	PE 外护套 PE outer sheath				
	—颜色 Color		/	黑色 Black	N
	—平均厚度 Average thickness	mm	/	6.4	N
	—最薄处厚度 Minimum thickness	mm	≥4.15	5.43	P
*	—半导体层 Semi-conducting layer		外护套表面应有均匀牢固的导电层 Conducting layer should be coated evenly and firmly over the oversheath surface	石墨层覆盖在外护套表面 Graphite layer was coated over the oversheath surface	P
1.8	电缆外径 Overall diameter of cable	mm	/	116.4	N
2	电气型式性能 Electrical type tests				
2.1	型式试验前绝缘厚度检查和试验电压值确定 Check of insulation thickness and determination of test voltage value prior to the type test				
	—绝缘厚度平均值 Average insulation thickness	mm	≤18.4 (16.0×(1+15%))	16.2	P
	— $(t_{avg} - t_n) / t_n \times 100\%$ t_{avg} : 绝缘平均厚度, 单位毫米 Average insulation thickness (mm) t_n : 绝缘标称厚度, 单位毫米 Normal insulation thickness (mm)	%	/	1 (绝缘平均厚度未超过标称厚度的5%, 试验电压值按标准中规定, 无需调整。The average insulation thickness does not exceed 5% of the normal thickness, and the test voltages are the values specified in the standard without adjustment.)	N

注: “单项评定”符号含义: P: 检测结果符合要求; F: 检测结果不符合要求; N: 检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

Note: "P" means this item does meet the requirement, "F" means this item does not meet the requirement, "N" means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
2.6	局部放电试验(环境温度, 96 kV) Partial discharge test (at ambient temperature, 96 kV)		在5pC或更优的灵敏度下 无可检测的放电 No detectable discharge at the declared sensitivity (5pC or better)	无超过申明灵敏度的 可测放电 No detectable discharge exceeding the declared sensitivity (灵敏度为2.8pC The sensitivity is 2.8pC)	P
2.7	雷电冲击电压试验及随后的工频电压试验 Lightning impulse voltage test followed by a power frequency voltage test — 雷电冲击电压试验(95 °C~100 °C, 550 kV, 正负极性各10次) Lightning impulse voltage test (95 °C~100 °C, 550kV, 10 impulses of each polarity) — 工频电压试验(160 kV, 15 min) Power frequency voltage test (160 kV, 15 min)		不击穿 No breakdown 不击穿 No breakdown	未击穿 No breakdown 未击穿 No breakdown	P P
2.8	检查 Examination 将一个试样电缆解剖, 以正常视力或经矫正但不放大的视力进行检查 Examination of the cable by dissection of a sample with normal or corrected vision without magnification		应无可能影响电缆系统运行的劣化迹象(如: 电气品质下降、泄露、腐蚀或有害的收缩)。 No signs of deterioration (e.g. electrical degradation, leakage, corrosion or harmful shrinkage) which could affect the system in service operation.	无可能影响电缆系统运行的劣化迹象(如: 电气品质下降、泄露、腐蚀或有害的收缩)。 No signs of deterioration (e.g. electrical degradation, leakage, corrosion or harmful shrinkage) which could affect the system in service operation.	P
2.9	半导体屏蔽电阻率(90 °C) Resistivity of semi-conducting screen (90 °C) 老化前 Without ageing — 导体屏蔽 Conductor screen — 绝缘屏蔽 Insulation screen	$\Omega \cdot m$ $\Omega \cdot m$	≤ 1000 ≤ 500	3.512 1.17	P P

注: “单项评定”符号含义: P: 检测结果符合要求; F: 检测结果不符合要求; N: 检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
*2.10	成品电缆段老化后(100 °C, 168 h) After additional ageing test on pieces of completed cable (100 °C, 168 h)				
	— 导体屏蔽 Conductor screen	Ω·m	≤1000	3.127	P
	— 绝缘屏蔽 Insulation screen	Ω·m	≤500	1.34	P
	导体直流电阻(20 °C) DC conductor resistance (20 °C)	Ω/km	≤0.0113	0.0112	P
3	绝缘物理机械性能 Mechanical properties of insulation				
3.1	原始性能 Without ageing				
	— 抗张强度 Tensile strength	N/mm ²	≥12.5	23.5	P
	— 断裂伸长率 Elongation at break	%	≥200	540	P
3.2	空气箱老化后(135 °C, 168 h) After ageing in air oven(135 °C, 168 h)				
	— 抗张强度变化率 Variation of tensile strength	%	≤±25	4	P
	— 断裂伸长率变化率 Variation of elongation at break	%	≤±25	7	P
3.3	成品电缆段老化后(100 °C, 168 h) After additional ageing test on pieces of completed cable (100 °C, 168 h)				
	— 抗张强度变化率 Variation of tensile strength	%	≤±25	-4	P
	— 断裂伸长率变化率 Variation of elongation at break	%	≤±25	-2	P
3.4	热延伸试验(200 °C, 20 N/cm ²) Hot set test (200 °C, 20 N/cm ²)				
	— 负载下伸长率 Elongation under load	%	≤175	85	P
	— 冷却后永久伸长率 Permanent elongation after cooling	%	≤15	0	P
3.5	收缩试验(130 °C, 6 h) Shrinkage test (130 °C, 6 h)				
	— 收缩率 Shrinkage	%	≤4.5	2.3	P

注：“单项评定”符号含义：P：检测结果符合要求；F：检测结果不符合要求；N：检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
4	护套机械物理性能 Mechanical properties of sheath				
4.1	老化前 Without ageing				
	—抗张强度 Tensile strength	N/mm ²	≥12.5	14.8	P
	—断裂伸长率 Elongation at break	%	≥300	560	P
4.2	空气箱老化后 (110 °C, 240 h) After ageing in air oven (110 °C, 240 h)				
	—抗张强度 Tensile strength	N/mm ²	/	14.4	N
	—断裂伸长率 Elongation at break	%	≥300	500	P
	—抗张强度变化率 Variation of tensile strength	%	/	-3	N
	—断裂伸长率变化率 Variation of elongation at break	%	/	-11	N
4.3	成品电缆段老化后(100 °C, 168 h) After ageing on pieces of the complete cable (100 °C, 168 h)				
	—抗张强度变化率 Variation of tensile strength	%	/	-4	N
	—断裂伸长率变化率 Variation of elongation at break	%	/	-7	N
4.4	高温压力试验(110 °C, 6 h) Pressure test at high temperature (110 °C, 6 h)				
	—压痕深度/平均厚度 Depth of indentation/Average thickness	%	≤50	9	P
4.5	收缩试验(80°C, 5h, 5次) Shrinkage test(80°C, 5h, 5times)				
	—收缩率 Shrinkage	%	≤3.0	1.5	P
4.6	碳黑含量 Carbon black content	%	2.5±0.5	2.2	P
*4.7	低温拉伸试验(-15°C) Cold elongation test(-15°C)				
	—伸长率 Elongation at break	%	≥20	150	P
*4.8	低温冲击试验(-15°C) Cold impact test(-15°C)		无裂纹 No cracks	无裂纹 No cracks	P

注：“单项评定”符号含义：P：检测结果符合要求；F：检测结果不符合要求；N：检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
*4.9	外护套吸水试验(70°C, 336h) Water absorption for oversheath (70°C, 336h) —重量增量 Increase of mass	mg/cm ²	≤1.5	0.15	P
*5	微孔、杂质和突起试验 Voids, contaminants and protrusion				
5.1	绝缘层微孔和杂质试验 Voids and contaminants in insulation				
	—大于0.05 mm的微孔 Voids larger than 0.05 mm		无 None	无 None	P
	—大于0.025 mm, 小于等于0.05 mm的 微孔数 Number of voids larger than 0.025 mm and not larger than 0.05 mm	个/ 16.4cm ³	≤30	0	P
	—大于0.125 mm的不透明杂质 Contaminants larger than 0.125 mm		无 None	无 None	P
	—大于0.05 mm, 小于等于0.125 mm的 不透明杂质数 Number of contaminants larger than 0.05 mm and not larger than 0.125 mm	个/ 16.4cm ³	≤10	0	P
	—大于0.25mm的半透明棕色杂质 Semi-translucent brown contaminants larger than 0.25mm		无 None	无 None	P
5.2	半导体屏蔽层与绝缘层界面微孔、突 起试验 Voids and protrusion in contact surface between semi-conducting screen and insulation				
	—大于 0.05mm 的微孔 Voids larger than 0.05mm		无 None	无 None	P
	—导体屏蔽层与绝缘层界面大于 0.125 mm的进入绝缘层或半导体层的 突起 Protrusion extend larger than 0.125 mm into insulation or 0.125 mm into conductor screen at contact surface		无 None	无 None	P

注: “单项评定”符号含义: P: 检测结果符合要求; F: 检测结果不符合要求; N: 检测结果不要求判定。

Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

型号和规格 Type and Size		YJLW03 64/110 1×1600		报告编号 Reference No.	CT24-05784
序号 No.	检测项目 Test Items	单位 Unit	技术要求 Requirements	检测结果 Test Results	单项 评定 Verdict
	—绝缘屏蔽层与绝缘层界面大于 0.125 mm的进入绝缘层或半导体层 的突起 Protrusion extend larger than 0.125 mm into insulation or 0.125 mm into insulation screen at contact surface		无 None	无 None	P
*6	外护套刮磨试验 Abrasion test on oversheath				
	—刮磨试验(550N, 25次) Abrasion test (550N, 25 times)	/		25 次完成 25 times finished	N
	—直流电压试验(负极性, 20kV, 1min) DC voltage test (Negative polarity, 20kV, 1min)		不击穿 No breakdown	未击穿 No breakdown	P
	—冲击电压试验(37.5kV, 正负极性各 10次) Impulse voltage test (37.5kV, 10 impulses of each polarity)		不击穿 No breakdown	未击穿 No breakdown	P
	—检查护套表面 Check the surface of over sheath		无裂缝或开裂 No crack	无裂缝和开裂 No crack	P
*7	铝套腐蚀扩展试验(1%硫酸钠溶液中, 100 h) Corrosion spread test on aluminium sheath(1% Na ₂ SO ₄ solution, 100 h)		距钻孔边缘 10mm 外 处, 应无肉眼可见的腐 蚀痕迹 There are no signs of corrosion extending morethan 10 mm beyond the rim of any hole at any point by examination with normal vision	距钻孔边缘 5 mm 外处, 无肉眼可见的腐蚀痕迹 There are no signs of corrosion extending more than 5 mm beyond the rim of any hole at any point by examination with normal vision.	P

注: “单项评定”符号含义: P: 检测结果符合要求; F: 检测结果不符合要求; N: 检测结果不要求判定。

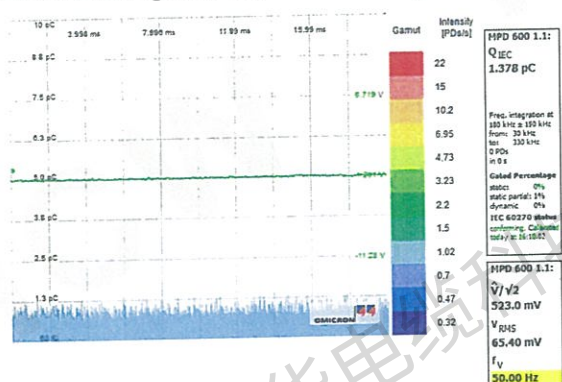
Note: “P” means this item does meet the requirement, “F” means this item does not meet the requirement, “N” means this item does not require verdict.

Note: "P" means this item does meet the requirement, "F" means this item does not meet the requirement, "N" means this item does not require verdict.

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
------------------------	----------------------	-----------------------	------------

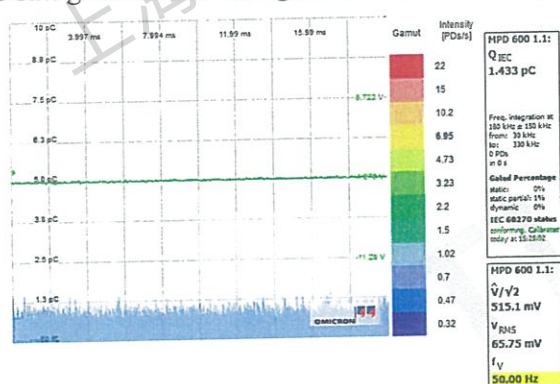
附录 A：局部放电试验图形

Annex A: Oscillograms of partial discharges



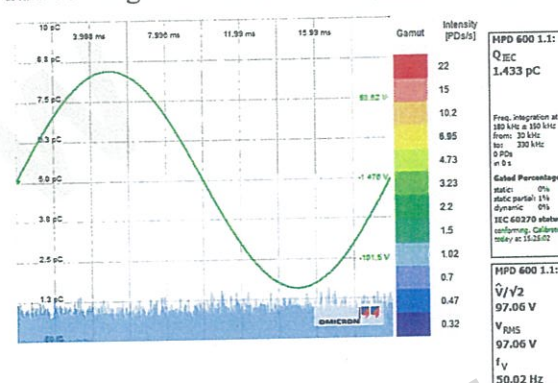
A1: 局部放电试验背景噪声(弯曲试验后)

The background noise during PD test (after bending test)



A2: 96kV 下局部放电波形(弯曲试验后)

The oscillograms of PD at 96kV (after bending test)



A3: 局部放电试验背景噪声(热循环试验后室温下)

The background noise during PD test (after heating cycle voltage test at ambient temperature)

A4: 96kV 下局部放电波形(热循环试验后室温下)

The oscillograms of PD at 96kV (after heating cycle voltage test at ambient temperature)

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
------------------------	----------------------	-----------------------	------------

附录 B: 热循环电压试验后样品冲击电压试验实际耐受电压值及其波形图 (高温下, $\pm 550\text{kV}$, $\pm 3\%$ 偏差)
Annex B: The values and oscillograms of impulse voltages on the sample after heating cycle voltage test (at high temperature, $\pm 550\text{kV}$, $\pm 3\%$ tolerance)

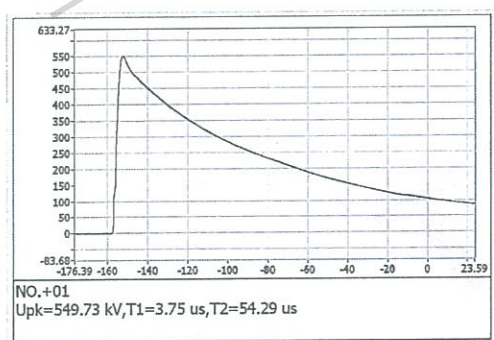
环境 温度: 12°C 相对湿度: 41% 大气压: 102.1 kPa

Ambient temperature: 12°C , Relative humidity: 41%, Atmosphere: 102.1 kPa

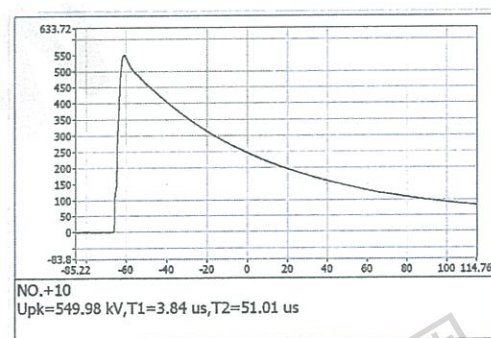
B1 样品冲击电压试验实际耐受电压值 The values of impulse voltages on the sample

正极性 (kV) Positive polarity	549.7	549.9	549.9	549.0	551.0	550.7	551.7	548.5	547.6	550.0
负极性 (kV) Negative polarity	555.5	552.1	558.0	558.3	556.9	562.4	554.2	552.3	552.5	557.1

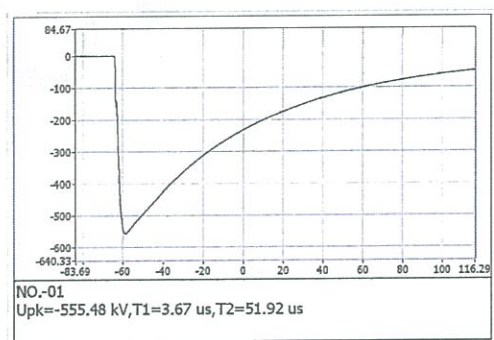
B2 冲击电压波形图 Oscillograms of impulse voltages waveform



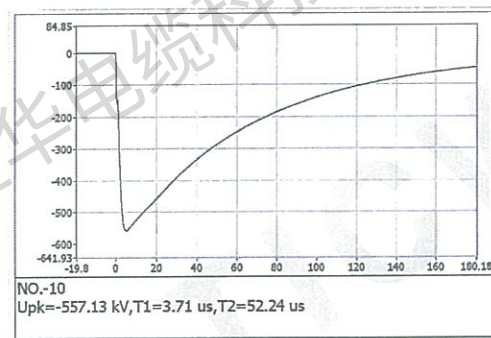
B2.1: 正极性第 1 次
The 1st positive impulse waveform



B2.2: 正极性第 10 次
The 10th positive impulse waveform



B2.3: 负极性第 1 次
The 1st negative impulse waveform



B2.4: 负极性第 10 次
The 10th negative impulse waveform

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
------------------------	----------------------	-----------------------	------------

附录 C：电缆特性特性(委托方提供)

Annex C: Cable characteristics (Provided by consigner)

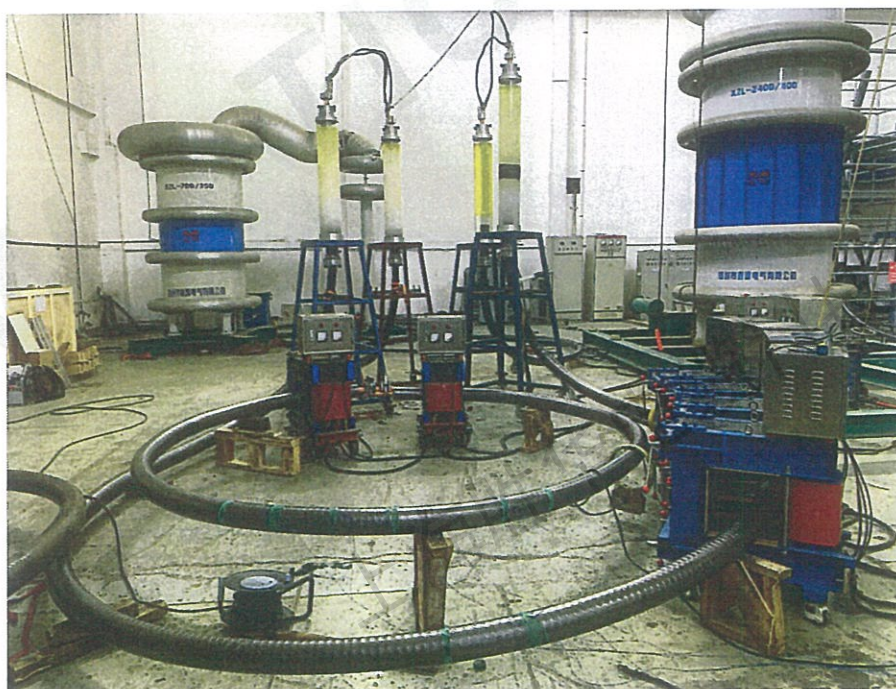
- a) -制造商: 胜华电缆科技(宁晋县)有限公司
Manufacturer: Shenghua Cable Technology (Ningjin) Co., Ltd.
-型号 Type: YJLW03
-名称: 铜芯交联聚乙烯绝缘焊接皱纹铝套聚乙烯护套电力电缆
Designation: Copper conductor XLPE insulation corrugated aluminum sheath PE sheath power cable
-制造日期 Manufacturing date: 2024.11
- b) - U_0/U_m : 64/110/126(kV)
- c) -导体类型 Type of conductor: 二类导体 class 2
-导体材料 Material of conductor: 铜 Copper
-导体标称截面积 Nominal cross-sectional area: 1600mm²
-导体结构 Conductor construction: 分割导体 Milliken
-导体的阻水措施(如果有)及其性质: 无 No
Presence, if any, and nature of water tightness measures in the conductor: No
-导体标称直径 (d) Nominal diameter of the conductor (d): 48.7 mm
-正常运行时电缆导体最高温度: Maximum conductor temperature in normal operation: 90 °C
- d) -绝缘材料 Material of insulation: XLPE
-绝缘标称厚度 (t_n) Nominal thickness of insulation (t_n): 16.0mm
-绝缘的标称内径(d_{ii}) Nominal inner diameter (d_{ii}): 52.3mm
-绝缘的标称外径(D_{io}) Nominal outer diameter (D_{io}) of the insulation: 84.3mm
- e) -绝缘系统的制造工艺类型 Type of manufacturing process for insulation system: CCV
- f) -屏蔽层的阻水措施(如果有)及其性质: 有
Presence, if any, and nature of water tightness measures in the screening area: Yes
- g) -金属屏蔽/套的材料 Material of metal screen / sheath: 铝 Aluminum
-金属屏蔽/套的结构 Construction of metal screen / sheath: 焊接皱纹铝套 Welded corrugated aluminum sheath
-金属屏蔽/套的最大直流电阻 (20°C) Maximum DC resistance of the metal screen/sheath (20°C): 0.0415Ω/km
- h) -外护套的材质 Material of oversheath: PE
-外护套的标称厚度 Thickness of oversheath: 5.0mm
-半导电涂覆层的性质和材料 Nature and material of semi-conductive covering: 石墨 Graphite
- i) -成品电缆标称外径 (D) Nominal overall diameter of the cable (D): 116.8mm
- j) -标称电容 Nominal capacitance: 0.272 μF/km
- k) -导体屏蔽上的标称电场强度(E_i) Nominal electrical stress at conductor screen under U_0 (E_i): 5.1kV/mm
-绝缘屏蔽上的标称电场强度(E_o) Nominal electrical stress at insulation screen under U_0 (E_o): 3.2kV/mm

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
------------------------	----------------------	-----------------------	------------

附录D 主要的试验照片 Annex D Key photos during test

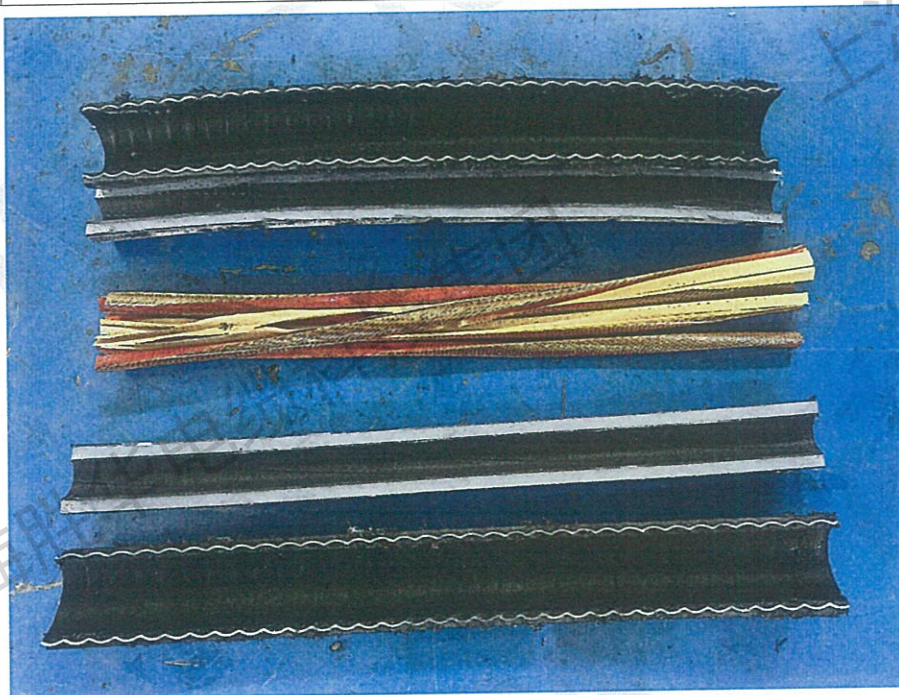


D1 弯曲试验 Bending test



D2 热循环电压试验 Heating cycle voltage test

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
------------------------	----------------------	-----------------------	------------

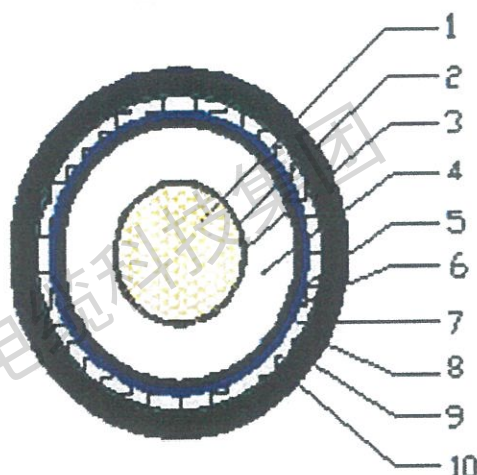


D3 电缆检查 Examination for cable

型号和规格 Type and Size	YJLW03 64/110 1×1600	报告编号 Reference No.	CT24-05784
------------------------	----------------------	-----------------------	------------

附录 E: 样品结构图(委托方提供)

Annex E: Drawings of sample (Provided by consigner)



E1: 电缆结构图

Drawing of cable

序号 No.	电缆结构 Component	标称厚度 Nominal Thickness (mm)	标称外径 Nominal diameter (mm)
1	导体 Conductor	-	48.7
2	半导体包带 Semi-conducting tape	-	49.3
3	导体屏蔽 Conductor screen	1.5	52.3
4	绝缘 Insulation	16.0	84.3
5	绝缘屏蔽 Insulation screen	1.0	86.3
6	半导体缓冲带 Semi-conducting swellable tape	3.5	93.3
7	焊接皱纹铝套 Welded corrugated aluminium sheath	2.3	106.7
8	电缆沥青 Cable asphalt	0.05	106.8
9	聚乙烯护套 Polyethylene sheath	5.0	116.8
10	石墨 Gaphite	0.01	

附件：
Appendix

主要检测设备清单
List of key test equipment

报告编号：CT24-05784
Reference No.: CT24-05784

设备编号 No. of equipment	设备名称 Name of equipment	下次检定日期 Next calibration date
JL0303	拉力试验机	2025-04-21
JL0351	电子天平	2025-05-21
JL0364	数字直流电桥	2025-07-17
JL0601	介损 $\tan \delta$ 、电容测量电桥	2025-07-18
JL0660	连续变倍体视显微镜	2025-02-18
JL0727	电缆绝缘和护套几何参数全自动测试系统	2025-09-23
JL0987	数显千分尺	2025-06-03
JL0997-D8	钢直尺	2025-06-04
SB0516	碳黑测定仪	2025-09-18
ZJ0345	热延伸试验装置	2025-06-27
ZJ0393	热老化试验箱	2025-03-01
ZJ0433	热老化试验箱	2025-10-24
ZJ0441	热老化试验箱	2025-11-21
ZJ0473	低温冲击机	2025-03-13
ZJ0497	热老化试验箱	2025-09-08
ZJ0547	高温压力试验装置	2026-09-11
ZJ0653	高压串联谐振测试装置	2025-01-25
ZJ0654	冲击电压发生器	2025-01-09
ZJ0667	直流耐压试验仪	2025-06-19
ZJ0680	冲击电压发生器	2025-09-29
ZJ0698	串联谐振试验系统	2025-01-25
ZJ6030	腐蚀扩展试验装置	2025-12-11
ZJ6072	老化试验箱	2025-12-12
ZJ6205	局部放电检测系统	2025-11-21
ZJ6248	热老化试验箱	2025-05-16
ZJ6334	低温卷绕及拉伸试验机	2025-12-01
ZJ6335	挤出外套刮磨试验机	2025-12-04
ZJ6432F	半导体层电阻测量装置	2025-08-05