



CAT5E 4PX26AWG-

规格编号Spec.No.: ROBOT190105  
样品来源Sample From: 技术部  
温湿度Temp.&Hum: 23°C / 56%

客户编号Customer No.: /  
样品描述Sample Desc: 4P\*26AWG,PVC  
参考标准Refer Standard: 规格书

序号	项目Item	规格Spec	测量值Record	结果Result	设备Apparatus	备注
<b>1</b>	<b>结构检验Structure Test</b>					
<b>1.1</b>	<b>导体Conductor</b>					
	芯线(Cores)	4P	4P	Pass	Visual	/
	材料Material	Stranded Bare Copper	Stranded Bare Copper	Pass	Visual	/
	面积(AWG)	26AWG	26AWG	Pass	Visual	/
	导体根数Number of strands	30 Strand	30 Strand	Pass	Visual	/
	单根线径Diameter Per.Root	0.080±0.006mm	0.081mm	Pass	Micrometer	P03308
	绞合外径Stranded Dia.	0.50±0.03mm	0.49mm	Pass	Projector	T07010
<b>1.2</b>	<b>绝缘Insulation</b>					
	材料Material	PE	PE	Pass	Visual	/
	厚度 Nom.Thickness	0.20mm	0.231mm	Pass	Projector	T07010
	外径Diameter	0.95±0.10mm	0.954mm	Pass	Micrometer	P03308
<b>1.3</b>	<b>对绞Twisted</b>					
	对绞Twisted	2C	2C	Pass	Visual	/
<b>1.4</b>	<b>成缆Cores Assembly</b>					
	成缆 Cores Assembly	4P+Filler	4P+Filler	Pass	Visual	/
<b>1.5</b>	<b>填充Filler</b>					
	填充Filler	3000D Fiber	3000D Fiber	Pass	Visual	/
<b>1.6</b>	<b>PP带 PP Tape</b>					
	重叠率(Overlapping)	25%	38%	Pass	Ruler	/
<b>1.7</b>	<b>铝箔带 AL-Mylar</b>					
	重叠率(Overlapping)	25%	30%	Pass	Ruler	/
<b>1.8</b>	<b>编织Braid</b>					
	材料Material	Tinned Copper	Tinned Copper	Pass	Visual	/
	编织密度Calculation of Coverage	≥85%	85.0%	Pass	Ruler	/
<b>1.9</b>	<b>外被Jacket</b>					
	材料Material	PVC	PVC	Pass	Visual	/
	最薄厚度Min.Thickness	≥0.50mm	0.64mm	Pass	Projector	T07010
	厚度Nom.Thickness	≥0.60mm	0.72mm	Pass	Projector	T07010
	外径Diameter	6.40±0.30mm	6.57mm	Pass	Micrometer	P03308
<b>2</b>	<b>电气性能Electrical Characteristic</b>					
	导体电阻Conductor Resistance at 20°C	≤140Ω/Km	123.3Ω/Km	Pass	Ohm measuring machine	T05079
	耐电压AC Dielectric Voltage Withstand Test	0.7+0.2/-0KV/min	No Crack	Pass	Withstand voltage	T05042
	特性阻抗 Characteristic Impedance	100±15Ω	<a href="#">见附页</a>	Pass	PNA	



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3	<b>护套物理性能 Jacket Physical Properties</b>					
	老化前 Unaged					
	抗张强度 Tensile Strength	≥10.3Mpa	12.13Mpa	Pass	Tensile measuring machine	T03106
	伸长率 Elongation	≥100%	226%	Pass	Tensile measuring machine	T03106
	老化后 Aged: 113±2°C x 168hours					
	抗张强度 Tensile Strength	≥70%	11.68Mpa	Pass	Chamber&Tensile measuring machine	T03106&&T09064
	抗张强度残率 Minimum percent of unaged values of tensile strength		96%			
	伸长率 Elongation	≥65%	187%	Pass	Chamber&Tensile measuring machine	T03106&&T09064
	伸长残率 Minimum percent of unaged values of elongation		82%			
	加热变形试验 Deformation 121±2°C x 1hours x 2kg	≤50%	26, 34, 35%	Pass	Heat distortion	T09046
	冷弯曲试验 Cold Bend -20±2°C x 4hours	No Crack	No Crack	Pass	Chamber	T10004
	热冲击试验 Heat Shock 121±2°C x 1hours	No Crack	No Crack	Pass	Chamber	T09045
	燃烧试验 Flammability	VW-1	Pass	Pass	Flame test machine	T01004
4	<b>UL耐油试验 Oil Immersion</b>					
	护套 Jacket					
	浸油后 IRM902, 100±2°C x 96hours					
	抗张强度 Tensile Strength	≥50%	12.76, 12.70, 13.19, 13.37, 11.86Mpa	Pass	Chamber&Tensile measuring machine	T03106 & T09020
	抗张强度残率 Minimum percent of unaged values of tensile strength		105%			
伸长率 Elongation	≥50%	199, 186, 189, 204, 173%	Pass	Chamber&Tensile measuring machine	T03106 & T09020	
伸长残率 Minimum percent of unaged values of elongation		84%				
5	<b>拖链试验 towline test</b>					
	拖链试验 Sliding test	≥1000万次	见附页	Pass	DZ-405F5wire U-shaped repeated	
	弯曲试验 Bending test	≥200万次	见附页	Pass	LX-T108	
	扭转试验 Torsion test	≥1000万次	见附页	Pass	Torsion cable testing machine	
	----以下空白----					

结果 Conclusion:  符合规格 (Meets Specification)

不符合规格 (Does not Meet Specification)

测试员 Tester: 欧阳勇

审批 Approval: 张萍

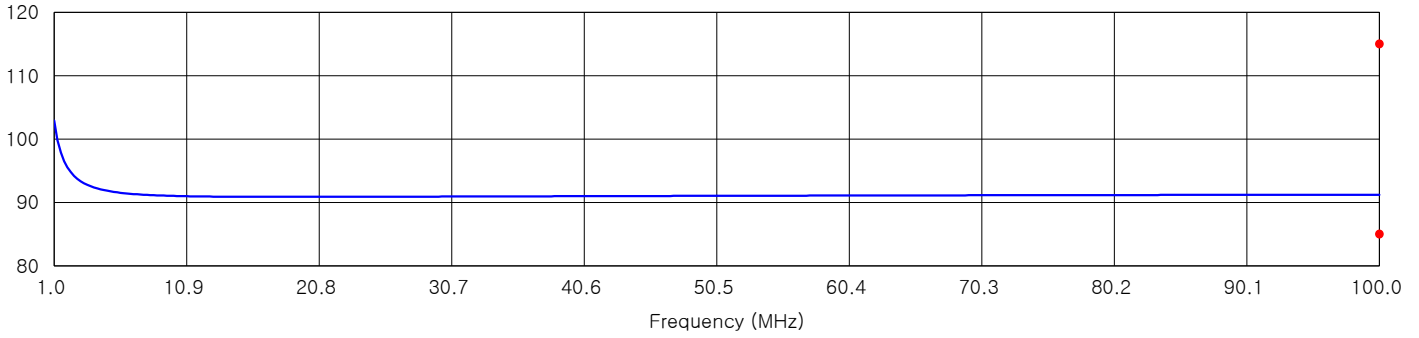


Cable Type :	CAT5E 4PX26AWG-ROBOT190105	Factory Number :	LTK-HZEW	Order No.:	
Reel/Drum. Number :	EEB91212A035001	Length (Meter) :	10	Date :	2019-12-12
Agilent VNA E5062A		Operator :	ZhouMD	Time :	12:58 PM

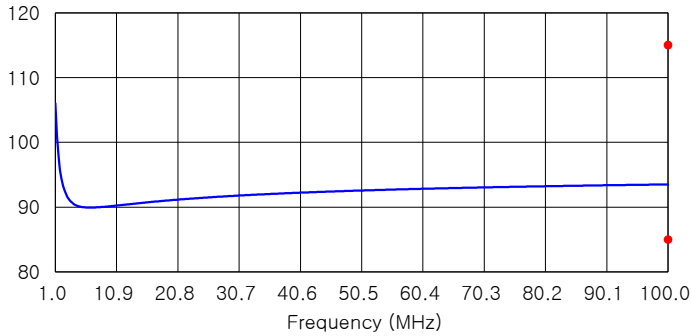
**Worst Cord(s) Summary**

Test Type	Limit	Frequency (MHz)	Measured (Cord(s))		Margin	Passed/Failed
Characteristic Impedance (Ohm)	100 ± 15	100	91.22	Pair 3	6.22	Passed

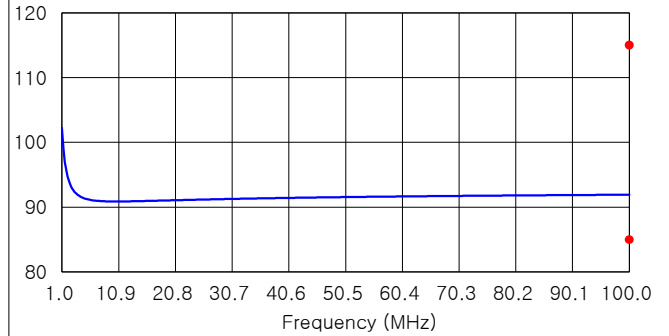
Impedance (Ohm) for Worst Pair



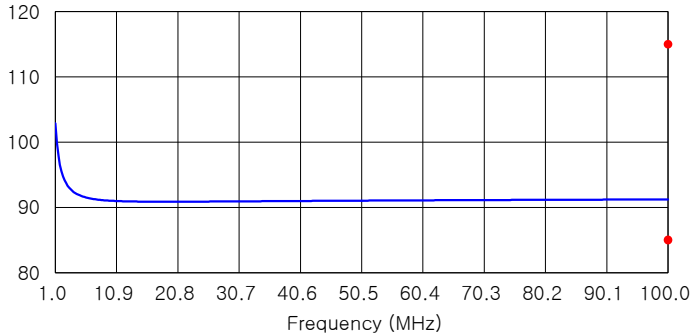
Impedance (Ohm) for Pair 1



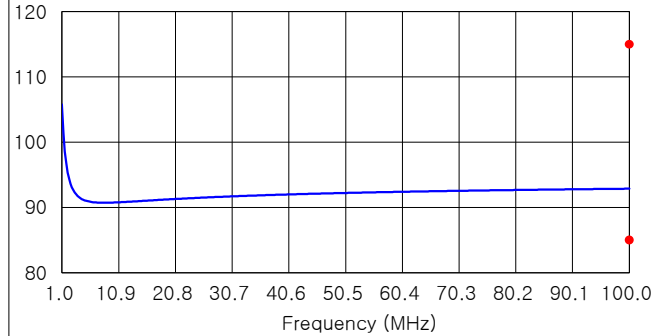
Impedance (Ohm) for Pair 2



Impedance (Ohm) for Pair 3



Impedance (Ohm) for Pair 4





测试项目 Test Item : **拖链试验 Drag Chain test**

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温湿度 Temp.&Humidity : 22°C / 60%

样品描述 Sample Describe : 4P\*26AWG,PVC

**测试参考标准 Test Standards:**

机器人 TUV 2577-08.16 robot cable revision 8.4

客户要求 Customer requirements



**测试主要设备 Test Main Equipments**

- 1, LX-T108拖链电缆试验机 LX-T108 towline cable testing machine
- 2, DZ-405F5电线U字形反复弯折试验机 DZ-405F5 wire U-shaped repeated bending test machine



**测试步骤 Test Procedure:**

- 1, LX-T108拖链电缆试验机, 取样长度6米 LX-T108 towline cable testing machine, sampling length of 6 meters
- 2, DZ-405F5电线U字形反复弯折试验机, 取样长度3米 DZ-405F5 wire U-shaped repeated bending test machine, sampling length of 3 meters
- 3, 将试样两端的导体分别串联对接, 构成一个串联不可重复的回路 The conductor at both ends of the conductor were connected in series, constitute a series of non-repeatable loop.
- 4, 用规定的夹具夹住试样一端, 连接导体电阻测试仪(数据采集器)上 Hold one end of the specimen with a specified clamp and connect it to a conductor resistance tester (data collector)
- 5, 调节速度, 设定弯曲次数, 接通电源, 开始测试. Adjust the speed, set the number of bending, turn on the power, start testing.

**测试条件&要求 Test Requirement:** R=65mm(10D), Rate:2m/s, Travel: 1.0m

- 1, 弯曲次数 Number of Bends : 10,000,000 次
- 2, 施加 2.0kv 电压, 试样不能被击穿. All the specimens without breakdown under 不击穿
- 3, 最大导体电阻 Max.conductor resistance : ≤140 Ω/km.
- 4, 外观 Exterior : No Crack

**测试结果 Test Result:**

- 1, 弯曲次数 Number of Bends : 11,566,771 次
- 2, 耐压期间, 试样是否被击穿 The specimens breakdown for 30 minutes or not : 不击穿
- 3, 导体电阻是 Conductor resistance : 132.2 Ω/km.
- 4, 外观 Exterior : No Crack

**结果判定 Judge Result:**

符合规格 (Meets Specification)

不符合规格 (Does not Meet Specification)

测试员 Tester: 欧阳勇

核准 Approval: 张萍



测试项目 Test Item : 弯曲 Bending Test

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样品描述 Sample Described : 4P\*26AWG,PVC

测试参考标准 Test Standards:

客户需求 custom requirement

测试主要设备 Main Equipments

1. 弯曲试验机 A bending tester
2. 夹具 Fixtures(clamps)

测试步骤 Test Procedure:

1. 取至少600mm的试样,两端开皮露出导体. Preparation specimens having a minimum length of 600 mm, and wipe off sheathing the two ends should made be bare.
2. 将试样两端的导体分别串联对接, 构成一个串联不可重复的回路. Connect the conductors as two docking of two ends of the specimen, forming circuit conductors can not be repeated.
3. 用规定的夹具夹住试样一端,另一端悬挂重量,调节角度和速度,设定弯曲次数,接通电源,开始测试.  
Fix one end of specimen by specified fixture, and weight the other end. Adjust angle and speed, set the cycles.  
Cut-in power to start testing.

测试条件&要求 Test Requirement:

- 角度 Angle : ±60 °;
- 速度 Speed : 45 Cycles/min;
- 弯曲半径 Radius : 40 mm;
- 吊重 Weight : / g;
- 弯曲次数 Cycles : 200万 Cycles.

弯曲测试示意图如右图 Diagrammatic drawing:

注 Remark: A cycle is A to B, B to A, A to C and C to A.

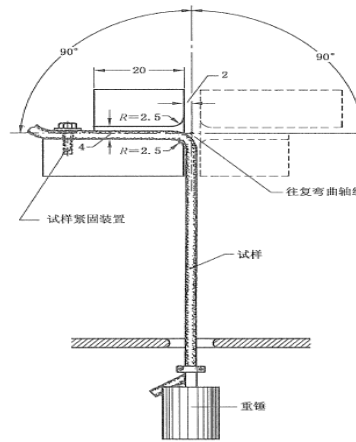


图2 弯曲试验设备

测试结果 Test Result:

弯曲次数 Bending cycles : 2,140,560 x 2pcs, 芯线导通

结果判定 Judge Result:

符合规格 (Meets Specification)

不符合规格 (Does not Meet Specification)

测试员 Tester: 欧阳勇

核准 Approval: 张萍



测试项目 Test Item : **扭转试验Torsion test**

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客户编号Customer No. : /

样品来源 Sample From : 技术部

温湿度 Temp.&Humidity : 22°C / 60%

样品描述 Sample Described : 4P\*26AWG,PVC

**测试参考标准 Test Standards:**

- 机器人 TUV 2577-08.16 robot cable revision 8.4
- 客户要求Customer requirements



**测试主要设备 Test Main Equipments**

- 1, 扭转电缆试验机 Torsion cable testing machine

**测试步骤 Test Procedure:**

- 1, 扭转电缆试验机, 取样长度至少1米 Torsion cable testing machine, sampling length at least of 1 meters
- 3, 将试样两端的导体分别串联对接, 构成一个串联不可重复的回路The conductor at both ends of the conductor were connected in series, constitute a series of non-repeatable loop.
- 4, 用规定的夹具夹住试样一端, 连接扭转次数计数器(数据采集器)上Hold one end of the specimen with a specified clamp and connect it to a torsion counter (data collector)
- 5, 调节速度, 设定次数, 接通电源, 开始测试.Adjust the speed, set the number of torsion, turn on the power, start testing.

**测试条件&要求 Test Requirement:**

- 1, 试验条件Test conditions : ±180°, L=300m, 45T/min
- 2, 扭转次数Number of Torsions : 10,000,000 次
- 3, 施加 2.0kv 电压,试样不能被击穿.All the specimens without breakdown under 不击穿
- 4, 最大导体电阻 Max.conductor resistance : ≤140 Ω/km.
- 5, 外观Exterior : No Crack

**测试结果 Test Result:**

- 1, 扭转次数Number of Torsions : 11,404,132 次
- 2, 耐压期间,试样是否被击穿The specimens breakdown for 30 minutes or not : 不击穿
- 3, 导体电阻是 Conductor resistance : 130.1 Ω/km.
- 4, 外观Exterior : No Crack

**结果判定 Judge Result:**

符合规格(Meets Specification)

不符合规格(Does not Meet Specification)

测试员Tester: 欧阳勇

核准Approval: 张萍