

检 测 报 告

TEST REPORT

报告编号 (No.) :UTS23060026R51 报告日期 (Report Date) : 2023/08/25

委托单位/Client : 浙江新富尔电子有限公司
Zhejiang Xinfuer Electron Co.,Ltd
地 址/Address : 浙江省乐清市虹桥镇溪西工业区标准厂区 9 号
No.9 Xixi industrial park,Hongqiao town,Yueqing,Zhejiang,China

以下样品信息由申请人提供及确认:

The sample(s) information below is/are provided and confirmed by client:

样品名称/Sample Name : PHC 系列连接器/PHC series connectors
料 号/Part No. : PHC-nAWB-NK
PHC-nAB-NK
PHC-T-NK
PHC-nY-NK
PHC-nYK
接样日期/Receiving Date : 2023/06/20
检测项目/Test Item : TG2 材料和表面分析/TG2 Materials and surface analysis, contacts



签 发
Approved by 樊建红 授权签字人

审 核
Reviewed by 毛贯南

编 制
Prepared by 王彭

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1、测试标准/Test Standard

VW 75174 LV-214 2018 及客户要求; VW 75174 LV-214 2018 and customer requirements
JIS H 3110-2018;
JIS H 3100-2018

2、测试日期/Test Date

2023/06/25-2023/07/20

3、测试仪器/Test Equipment

设备名称 Test Equipment	设备编号/型号 Equipment Number/Type	校准有效期 Calibration Period of Validity
粗糙度仪 Roughness meter	CD-1-062	2023/11/28
涡流导电仪 Eddy current conductivity meter	sigma2008A	2023/07/26
三目体视显微镜 Triocular stereomicroscope	M-1-568	2024/07/27
直读光谱仪 Optical emission spectrometer	M-1-527	2025/05/03
万能试验机 Universal Testing Machines	M-1-004	2024/05/03

4、测试条件/Test Condition

P0.1 目检; P0.1 Visual inspection;

P2.1 端子材料试验; P2.1 Materials testing, contact parts;

对端子各成分进行材料试验, 并做记录(端子区域和导线区域);The materials test must be verified for all individual parts of the contact (contact area and cable area).

材料证书; Materials certificate;

电导率; Electric conductances;

抗拉强度; Tensile strength;

接触弹簧弹性模量;

Modulus of elasticity of the contact spring;

端子镀层厚度测量和导线连接区域镀层厚度测量;

Measurement of coating thickness in the completed contact area and the cable connection area;

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表面粗糙度测量(如果对限定有规范，如图纸)以及证明材料证明表面不会受到生产加工过程损害;
 Measurement of surface roughness (if limits are specified, e.g, in drawings) and documentation that the surface was not damaged by the production process.

P 2.2 可视表面标记;
 P 2.2 Markings on the visible surface;
 在加工之后 (如压接)端子标记仍能可见;
 The markings on the contact must be recognizable after the processing procedure(e.g., crimping);

 已使用材料材料归类需在 IMDS 中找到获得。
 The breakdown of the materials used must be available in the IMDS.

5、测试结果/Test Result(s)

成分分析 Component analysis

样品编号 Sample No.	测试项目 Test Item(s)	单位 Unit	判定依据 Judgment Basis	测试结果 Test Result	判定 Determine
T0.2 (C5191H)	Sn	%	5.5-7.0	5.601	符合 PASS
	Fe		<0.1	0.003	
	Zn		<0.2	0.0019	
	Pb		<0.02	0.0044	
	P		0.03-0.35	0.106	
	Cd		/	0.0005	
	Cu		余量/Remainder	余量/Remainder	

备注：判定限值依标准 JIS H 3110-2018。
 Note: The limit value is determined according to the standard JIS H 3110-2018.

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样品编号 Sample No.	测试项目 Test Item(s)	单位 Unit	判定依据 Judgment Basis	测试结果 Test Result	判定 Determine
T0.2 (C5191H)	Sn	%	5.5-7.0	5.705	符合 PASS
	Fe		<0.1	0.0036	
	Zn		<0.2	0.0023	
	Pb		<0.02	0.0028	
	P		0.03-0.35	0.105	
	Cd		/	0.0005	
	Cu		余量/Remainder	余量/Remainder	

备注：判定限值依标准 JIS H 3110-2018。
Note: The limit value is determined according to the standard JIS H 3110-2018.

样品编号 Sample No.	测试项目 Test Item(s)	单位 Unit	判定依据 Judgment Basis	测试结果 Test Result	判定 Determine
T0.5 (C2680EH)	Fe	%	<0.05	0.021	符合 PASS
	Pb		<0.05	0.009	
	Cd		/	0.0006	
	Cu		64.0-68.0	64.6	
	Ni		/	0.0044	
	Zn		余量/Remainder	余量/Remainder	

备注：判定限值依标准 JIS H 3100-2018。
Note: The limit value is determined according to the standard JIS H 3100-2018.

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抗拉强度 Tensile strength

样品编号 Sample No.	测试项目 Test Items	单位 Unit	判定依据 Judgment Basis	结果/Result				
				①	②	③	④	⑤
T0.2 (C5191H)	抗拉强度 R_m Tensile Strength R_m	MPa	590-685	619	619	622	623	617
	屈服强度 $R_{p0.2}$ Yield Strength $R_{p0.2}$	MPa	/	573	575	576	577	567
	断后伸长率 A_{50mm} Percentage Elongation after Fracture A_{50mm}	%	>8	14.5	13.5	15.5	14.0	13.5
	弹性模量 Modulus of Elasticity	MPa	/	119241	129392	116755	125000	107842
判定/Determine				符合 PASS	符合 PASS	符合 PASS	符合 PASS	符合 PASS

备注：判定限值依标准 JIS H 3110-2018。

Note: The limit value is determined according to the standard JIS H 3110-2018.

样品编号 Sample No.	测试项目 Test Items	单位 Unit	判定依据 Judgment Basis	结果/Result				
				①	②	③	④	⑤
T0.5 (C2680EH)	抗拉强度 R_m Tensile Strength R_m	MPa	520-620	561	566	565	563	564
	屈服强度 $R_{p0.2}$ Yield Strength $R_{p0.2}$	MPa	/	523	531	501	518	499
	断后伸长率 A_{50mm} Percentage Elongation after Fracture A_{50mm}	%	/	13.5	13.0	12.5	15.5	13.0
	弹性模量 Modulus of Elasticity	MPa	/	123040	103508	117672	121939	113199
判定/Determine				符合 PASS	符合 PASS	符合 PASS	符合 PASS	符合 PASS

备注：判定限值依标准 JIS H 3100-2018。

Note: The limit value is determined according to the standard JIS H 3100-2018.

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电导率 Electric conductances

样品编号 Sample No.		结果(%IACS) Result(%IACS)	
		电导率 Electrical conductivity	平均值 Mean
T0.2 (C5191H)	1	18.03	18.04
	2	18.02	
	3	18.05	
	4	18.05	
	5	18.03	
T0.2 (C5191H)	1	18.03	18.05
	2	18.05	
	3	18.08	
	4	18.06	
	5	18.03	
T0.5 (C2680EH)	1	27.16	27.17
	2	27.19	
	3	27.15	
	4	27.18	
	5	27.15	

表面粗糙度 Surface roughness

样品编号 Sample No.		结果 Result(μm)					平均值 Mean
		1	2	3	4	5	
T0.2 (C5191H)	X1	0.137	0.120	0.115	0.112	0.155	0.127
	X2	0.120	0.106	0.141	0.122	0.153	0.102
	X3	0.143	0.115	0.134	0.123	0.150	0.133
	X4	0.141	0.093	0.113	0.102	0.196	0.129
	X5	0.092	0.132	0.104	0.143	0.152	0.124
	Y1	0.197	0.193	0.209	0.205	0.186	0.198
	Y2	0.222	0.259	0.207	0.203	0.236	0.225
	Y3	0.222	0.262	0.194	0.212	0.236	0.225
	Y4	0.218	0.238	0.195	0.204	0.211	0.213
	Y5	0.201	0.208	0.229	0.197	0.186	0.204

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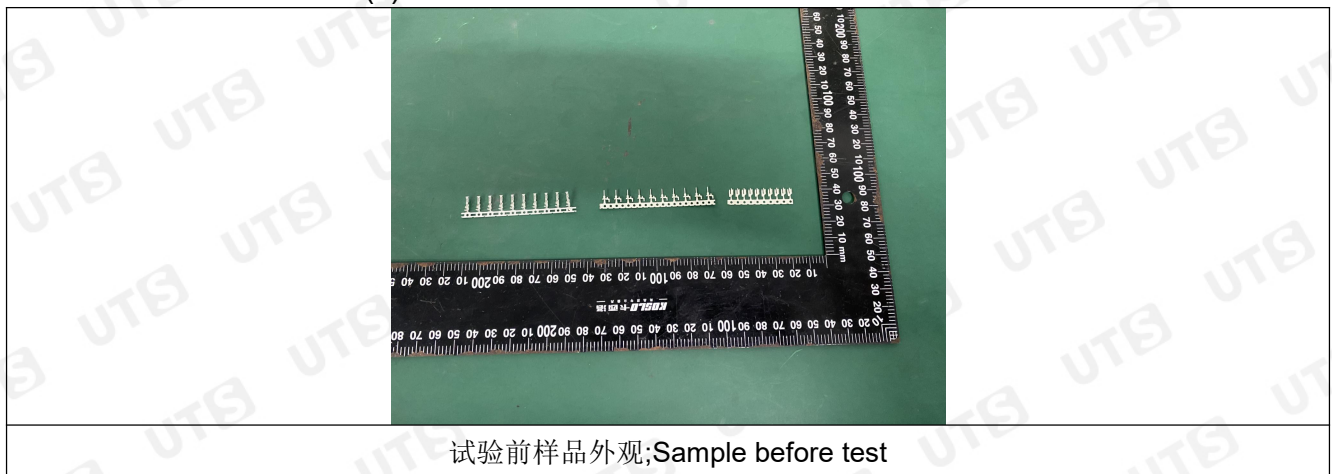
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T0.2 (C5191H)	X1	0.113	0.124	0.097	0.192	0.129	0.131
	X2	0.126	0.138	0.121	0.131	0.106	0.124
	X3	0.127	0.105	0.131	0.130	0.120	0.102
	X4	0.119	0.182	0.141	0.141	0.120	0.125
	X5	0.125	0.125	0.098	0.109	0.109	0.113
	Y1	0.184	0.178	0.181	0.194	0.176	0.182
	Y2	0.197	0.218	0.188	0.208	0.187	0.199
	Y3	0.181	0.205	0.209	0.257	0.193	0.209
	Y4	0.199	0.169	0.194	0.179	0.202	0.188
	Y5	0.179	0.198	0.196	0.182	0.197	0.190
T0.5 (C2680EH)	X1	0.137	0.167	0.163	0.165	0.159	0.158
	X2	0.186	0.156	0.161	0.147	0.133	0.156
	X3	0.133	0.155	0.126	0.177	0.123	0.142
	X4	0.139	0.154	0.180	0.106	0.135	0.142
	X5	0.152	0.126	0.192	0.144	0.118	0.146
	Y1	0.335	0.345	0.372	0.351	0.382	0.357
	Y2	0.297	0.314	0.336	0.307	0.324	0.315
	Y3	0.349	0.339	0.308	0.356	0.404	0.351
	Y4	0.335	0.432	0.345	0.315	0.319	0.349
	Y5	0.330	0.325	0.331	0.308	0.332	0.325

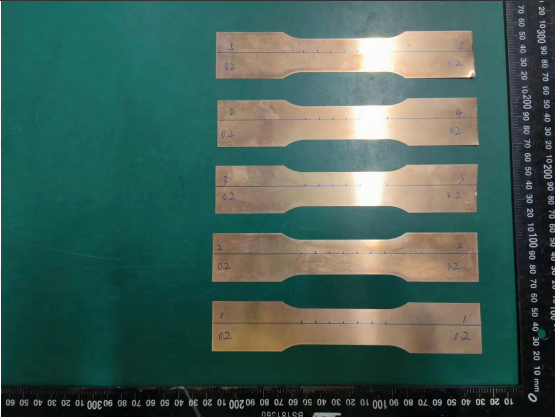
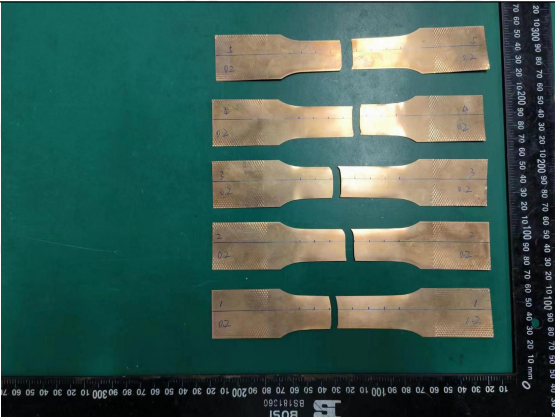
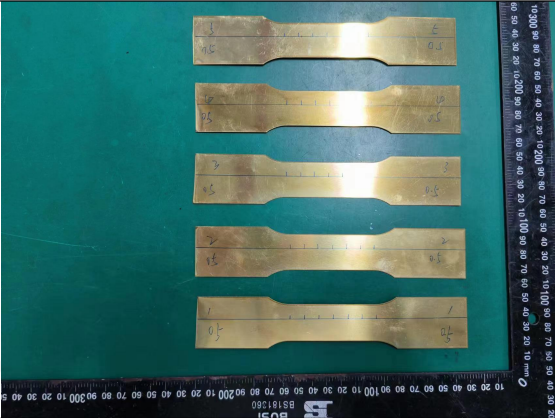
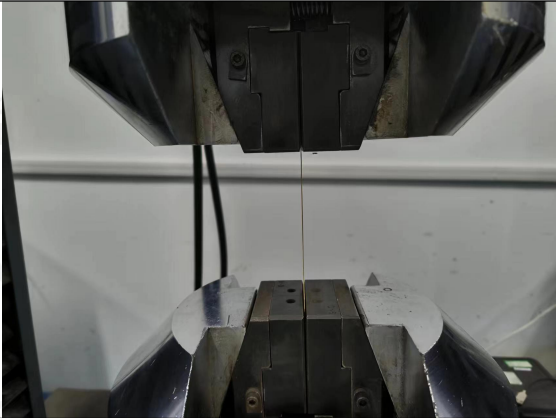
6、测试照片/Test Photo(s)



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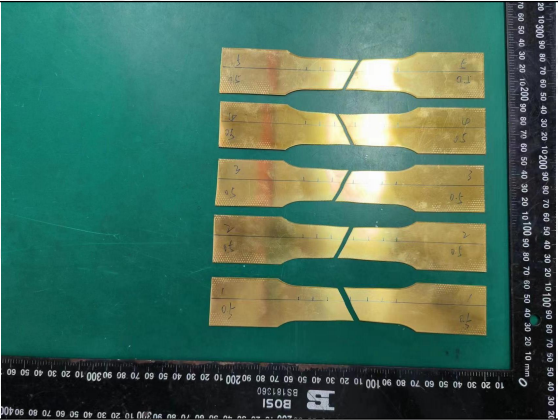
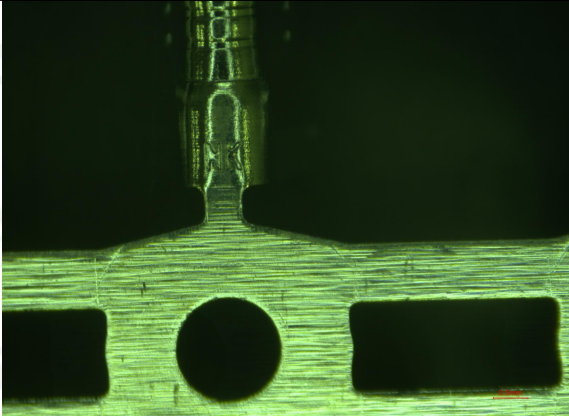
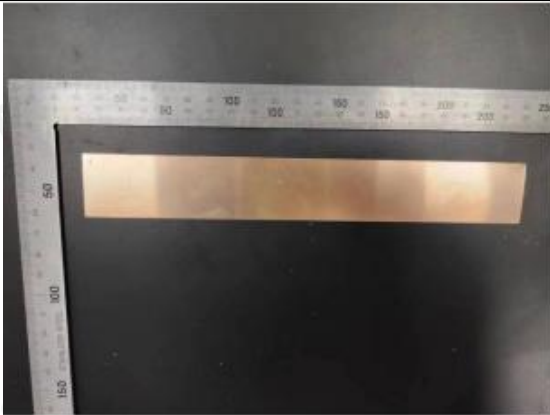
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抗拉强度试验 Tensile strength test	
T0.2(C5191H)	
	
测试前/Before test	测试中/During test
	/
测试后/After test	/
T0.5(C2680EH)	
	
测试前/Before test	测试中/During test

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	/
测试后/After test	/
	/
表面可视标识; Markings on the visible surface	/
电导率 Electric conductances	
	
测试前 T0.2(C5191H);Before test T0.2(C5191H)	测试前 T0.2(C5191H);Before test T0.2(C5191H)

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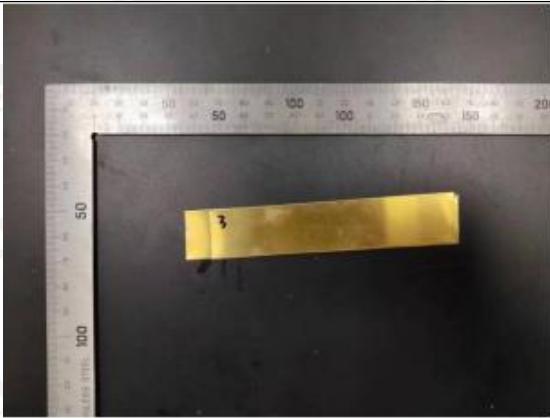
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A photograph showing a rectangular copper-colored metal strip placed horizontally on a dark surface. A metal ruler is positioned above the strip, and a square corner piece is visible on the left side.	A photograph showing a person wearing a blue nitrile glove using a black handheld tool to apply heat or pressure to a copper-colored metal strip.
测试前 T0.5(C2680EH);Before test T0.5(C2680EH)	测试中 T0.2(C5191H);During test T0.2(C5191H)
A photograph showing a person wearing a blue nitrile glove using a black handheld tool to apply heat or pressure to a copper-colored metal strip.	A photograph showing a person wearing a blue nitrile glove using a black handheld tool to apply heat or pressure to a copper-colored metal strip.
测试中 T0.2(C5191H);During test T0.2(C5191H)	测试中 T0.5(C2680EH);During test T0.5(C2680EH)
A photograph showing a rectangular copper-colored metal strip placed horizontally on a dark surface. A metal ruler is positioned above the strip, and a square corner piece is visible on the left side.	A photograph showing a rectangular copper-colored metal strip placed horizontally on a dark surface. A metal ruler is positioned above the strip, and a square corner piece is visible on the left side.
测试后 T0.2(C5191H);After test T0.2(C5191H)	测试后 T0.2(C5191H);After test T0.2(C5191H)

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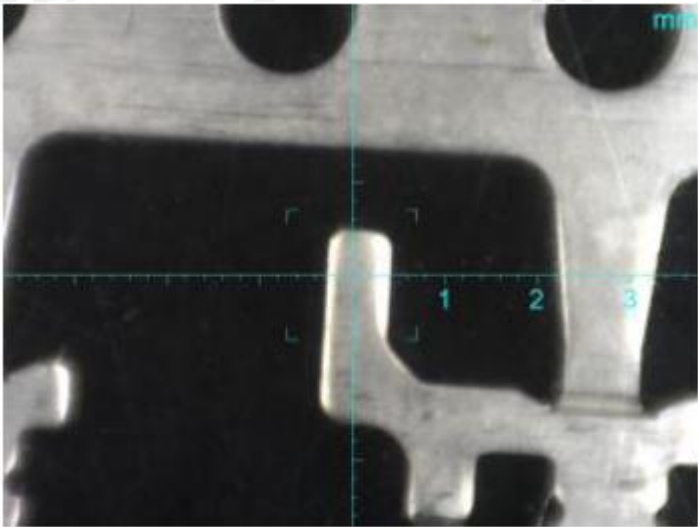
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	/
测试后 T0.5(C2680EH);After test T0.5(C2680EH)	/

*附件： 镀层厚度; Attachment: Plating Thickness （备注： *此数据由客户提供/This data is provided by the customer）

公插座(卧式)/Male socket (horizontal)

1#

n=1	Sn 1=104.7μ”	Ni 2=54.2μ”	
n=2	Sn 1=100.3μ”	Ni 2=50.4μ”	
n=3	Sn 1=109.9μ”	Ni 2=57.1μ”	
平均值 /Average	105.0μ”	53.88μ”	
标准偏差 /Standard deviation	4.810μ”	3.370μ”	
变动率/Rate of change	4.58%	6.26%	
变动范围 /Range of Changes	9.61μ”	6.72μ”	
有效读数 /Effective reading	3	3	
最小值 /Minimum	100.3μ”	50.4μ”	
最大值 /Maximum	109.9μ”	57.1μ”	

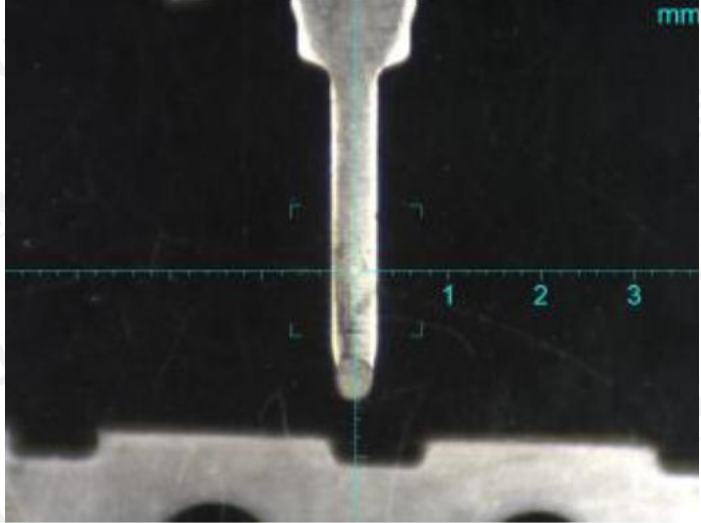
规格/Type: Sn:80μ” min; Ni:30μ” min

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2#

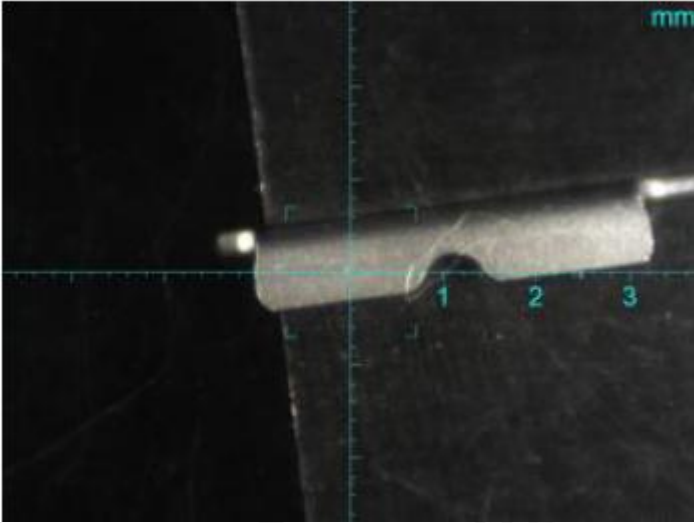
n=1	Sn 1=129.9μ"	Ni 2=85.3μ"	
n=2	Sn 1=118.8μ"	Ni 2=74.1μ"	
n=3	Sn 1=125.7μ"	Ni 2=83.4μ"	
平均值 /Average	124.8μ"	53.88μ"	
标准偏差 /Standard deviation	5.561μ"	3.370μ"	
变动率/Rate of change	4.46%	7.41%	
变动范围 /Range of Changes	11.0μ"	11.2μ"	
有效读数 /Effective reading	3	3	
最小值 /Minimum	118.8μ"	74.1μ"	
最大值 /Maximum	129.9μ"	85.3μ"	

规格/Type: Sn:80μ" min; Ni:30μ" min

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3#

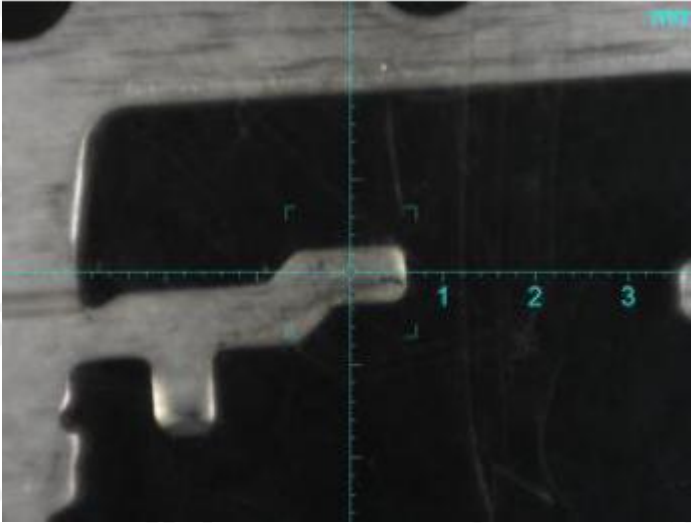
n=1	Sn 1=95.7μ”	Ni 2=51.9μ”	
n=2	Sn 1=97.1μ”	Ni 2=50.4μ”	
n=3	Sn 1=87.7μ”	Ni 2=55.1μ”	
平均值 /Average	93.51μ”	52.50μ”	
标准偏差 /Standard deviation	5.045μ”	2.403μ”	
变动率/Rate of change	5.40%	4.58%	
变动范围 /Range of Changes	9.35μ”	4.71μ”	
有效读数 /Effective reading	3	3	
最小值 /Minimum	87.7μ”	50.4μ”	
最大值 /Maximum	97.1μ”	55.1μ”	

规格/Type: Sn:80μ” min; Ni:30μ” min

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公插座(立式)/Male socket(Vertical)
4#

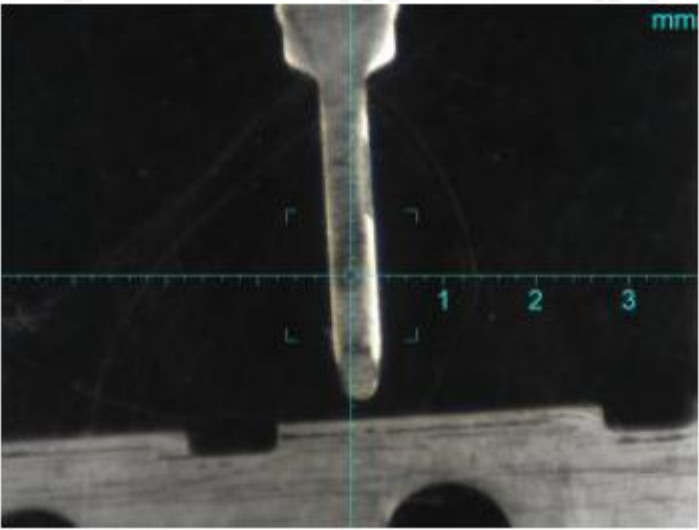
n=1	Sn 1=114.4μ”	Ni 2=54.5μ”	
n=2	Sn 1=110.2μ”	Ni 2=56.9μ”	
n=3	Sn 1=107.5μ”	Ni 2=54.3μ”	
平均值 /Average	110.7μ”	55.23μ”	
标准偏差 /Standard deviation	3.476μ”	1.430μ”	
变动率/Rate of change	3.14%	2.59%	
变动范围 /Range of Changes	6.90μ”	2.57μ”	
有效读数 /Effective reading	3	3	
最小值 /Minimum	107.5μ”	54.3μ”	
最大值 /Maximum	114.4μ”	56.9μ”	

规格/Type: Sn:80μ” min; Ni:30μ” min

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5#

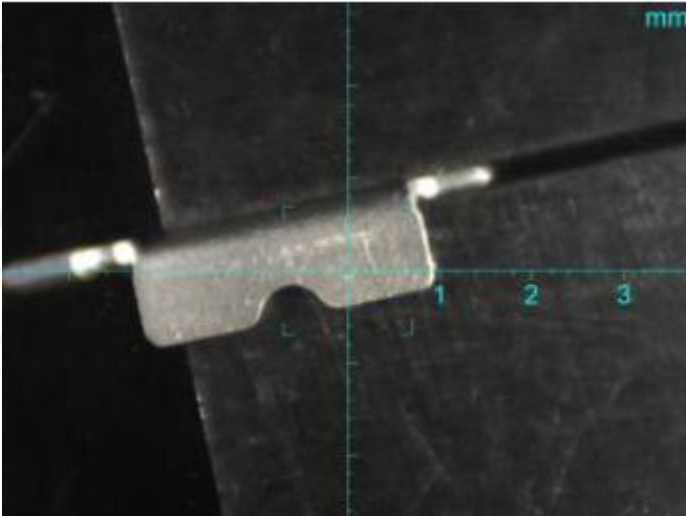
n=1	Sn 1=123.7μ"	Ni 2=89.0μ"	
n=2	Sn 1=126.4μ"	Ni 2=55.7μ"	
n=3	Sn 1=129.3μ"	Ni 2=88.5μ"	
平均值 /Average	126.5μ"	87.75μ"	
标准偏差 /Standard deviation	2.806μ"	1.777μ"	
变动率/Rate of change	2.22%	2.02%	
变动范围 /Range of Changes	5.61μ"	3.29μ"	
有效读数 /Effective reading	3	3	
最小值 /Minimum	123.7μ"	85.7μ"	
最大值 /Maximum	129.3μ"	89.0μ"	

规格/Type: Sn:80μ" min; Ni:30μ" min

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6#

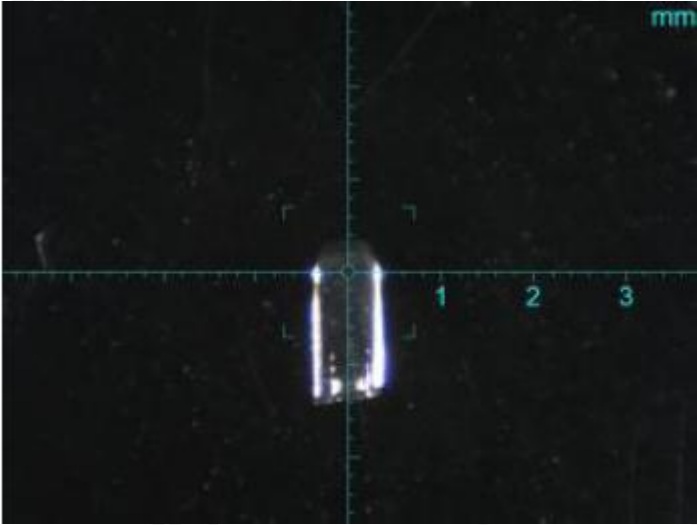
n=1	Sn 1=98.4μ"	Ni 2=46.1μ"	
n=2	Sn 1=94.5μ"	Ni 2=46.6μ"	
n=3	Sn 1=93.1μ"	Ni 2=43.9μ"	
平均值 /Average	95.32μ"	45.54μ"	
标准偏差 /Standard deviation	2.769μ"	1.435μ"	
变动率/Rate of change	2.91%	3.15%	
变动范围 /Range of Changes	5.33μ"	2.72μ"	
有效读数 /Effective reading	3	3	
最小值 /Minimum	93.1μ"	43.9μ"	
最大值 /Maximum	98.4μ"	46.6μ"	

规格/Type: Sn:80μ" min; Ni:30μ" min

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母端子(Terminal)
7#

n=1	Sn 1=84.1μ”	Ni 2=41.3μ”	
n=2	Sn 1=87.6μ”	Ni 2=41.0μ”	
n=3	Sn 1=88.4μ”	Ni 2=41.2μ”	
平均值 /Average	86.70μ”	41.16μ”	
标准偏差 /Standard deviation	2.298μ”	0.155μ”	
变动率/Rate of change	2.65%	0.73%	
变动范围 /Range of Changes	4.31μ”	0.309μ”	
有效读数 /Effective reading	3	3	
最小值 /Minimum	84.1μ”	41.0μ”	
最大值 /Maximum	88.4μ”	41.3μ”	

规格/Type: Sn:80μ” min; Ni:40μ” min

.....报告结束/End of Report.....

本报告中结果仅作为科研、教学或内部质量控制之用。

Test results in this report are only used for scientific research, teaching and internal quality control.