

报告编号 Rep. No.

20240610R11126X-6



验证报告

VERIFICATION REPORT

委托单位名称

Client Name

浙江凡华电子股份有限公司

Zhejiang Fanhar Electronics Co.,Ltd.

产品名称

Name of product

继电器

Relay

制造厂商

Manufacturer

浙江凡华电子股份有限公司

Zhejiang Fanhar Electronics Co.,Ltd.

型号

Model

W18

检测类别

Test sort

委托检测 Commission Test



中检集团南方测试股份有限公司

CCIC Southern Testing Co.,Ltd.

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客户信息 Customer information	委托单位 Client	浙江凡华电子股份有限公司 Zhejiang Fanhar Electronics Co.,Ltd.
	地址 Address	浙江省嘉兴市南湖区新昌路 828 号 No.828 Xinchang Road, Nanhu District, Jiaxing City, Zhejiang Province
样品信息 Sample information	样品名称 Name of sample	继电器 Relay
	型号 Model	W18
	产品商标 Trade Name	
	制造商 Manufacturer	浙江凡华电子股份有限公司 Zhejiang Fanhar Electronics Co.,Ltd.
	地址 Address	浙江省嘉兴市南湖区新昌路 828 号 No.828 Xinchang Road, Nanhu District, Jiaxing City, Zhejiang Province
	生产企业 Factory	浙江凡华电子股份有限公司 Zhejiang Fanhar Electronics Co.,Ltd.
	地址 Address	浙江省嘉兴市南湖区新昌路 828 号 No.828 Xinchang Road, Nanhu District, Jiaxing City, Zhejiang Province
检测信息 Test information	收样日期 Sample Received	2024. 06.24
	检测周期 Testing Period	2024. 06.24~2024. 07.05
	检测类别 Test sort	委托检测 Commission Test
	检测项目 Item Requested	见下页 See next page
	检测依据 Standard/Foundation	见下页 See next page
	检测结论 Conclusion	所检样品符合 RoHS 指令(2011/65/EU)和(EU)2015/863 修订指令。 The tested sample complied with RoHS directive (2011/65/EU) and amending directive (EU)2015/863.
备注 Remark	----	

主检
Tested By:审核
Checked By:批准
Approved By:

日期 Date: Jul. 09, 2024

日期 Date: Jul. 09, 2024

日期 Date: Jul. 09, 2024



检测项目 Item Requested	(1) 依据客户要求, 对所提交样品中镉 Cd, 铅 Pb, 汞 Hg, 六价铬 Cr(VI), 多溴联苯 PBBs, 多溴二苯醚 PBDEs 和邻苯二甲酸酯(DIBP, DEHP, BBP, DBP)进行筛选测试。 As specified by client, to screen test Cd, Pb, Hg, Cr(VI), PBBs, PBDEs and phthalates(DIBP, DEHP, BBP, DBP) content in the submitted sample. (2) 根据客户要求, 当筛选结果超出 IEC 62321-3-1:2013 所规定的筛选限值或本报告中所列邻苯二甲酸酯筛选限值时, 进一步采用更精确的化学方法对所提交样品中的镉 Cd, 铅 Pb, 汞 Hg, 六价铬 Cr(VI), 多溴联苯 PBBs, 多溴二苯醚 PBDEs 和邻苯二甲酸酯(DIBP, DEHP, BBP, DBP)进行测试。 As specified by client, further chemical testing for Cd, Pb, Hg, Cr(VI), PBBs, PBDEs and phthalates(DIBP, DEHP, BBP, DBP) are recommended to be performed if the screen results exceeds the limit of IEC 62321-3-1:2013 or the phthalates screen limit.
检测依据 Standard/Foundation	(1) 依据 IEC 62321-3-1:2013, 使用 X 射线荧光光谱仪对电子产品中的铅、汞、镉、总铬和总溴进行筛选。 According to IEC 62321-3-1:2013, Screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry 依据 IEC 62321-8:2017, 使用气相色谱质谱联用仪 GC-MS 对电子产品中的邻苯二甲酸酯进行筛选。 According to IEC 62321-8:2017, Screening - phthalates by GC-MS (2) 化学确证分析方法 Chemical test method: a) 依据 IEC 62321-5:2013, 使用 ICP-OES 测定聚合物和电子材料中的镉、铅和铬, 以及金属中的镉和铅; According to IEC 62321-5:2013, Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by ICP-OES; b) 依据 IEC 62321-4:2013+A1:2017, 使用 ICP-OES 测定聚合物、金属和电子材料中的汞; According to IEC 62321-4:2013+A1:2017, Mercury in polymers, metals and electronics by ICP-OES; c) 依据 IEC 62321-7-2:2017 & IEC 62321-7-1:2015, 比色法测定六价铬; According to IEC 62321-7-2:2017 & IEC 62321-7-1:2015, determination of Hexavalent Chromium by Colorimetric method; d) 依据 IEC 62321-6:2015, 使用 GC-MS 测定多溴联苯, 多溴二苯醚。 According to IEC 62321-6:2015, determination of PBBs,PBDEs by GC-MS. e) 参考方法: IEC 62321-8:2017; 分析仪器: 气相色谱质谱联用仪 GC-MS With reference to IEC 62321-8:2017, and analysis was performed by GC-MS.



检测结果 Test Results:

编号 No.	描述内容 COMPONENTS	测试 项目 Item	X 荧光扫描 结果 Results of EDXRF (BL/OL/D)	邻苯二甲 酸酯筛分 结果 Screen results of PHTH	化学测试结果 Results of chemical testing (mg/kg)	结论 Conclusion (P/F)	样品提交/再 次提交日期 Sample submitted/ Resubmitted date
6-1	黑色塑料外壳 Black plastic case	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	D	/	N.D.	P	
		PBDEs	D	/	N.D.	P	
		DEHP	/	BL	/	P	
		DBP	/	BL	/	P	
		BBP	/	BL	/	P	
		DIBP	/	BL	/	P	
6-3	铜色金属插片 Copper metal insert	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	D	/	N.D.**	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	
6-4	银色金属触点 Silvery metal contact	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	





编号 No.	描述内容 COMPONENTS	测试 项目 Item	X 荧光扫描 结果 Results of EDXRF (BL/OL/D)	邻苯二甲 酸酯筛分 结果 Screen results of PHTH	化学测试结果 Results of chemical testing (mg/kg)	结论 Conclusion (P/F)	样品提交/再 次提交日期 Sample submitted/ Resubmitted date
6-5	银色金属内框 Silvery metal inside frame	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	
6-8	铜色金属线芯 Copper metal wire core	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	
6-9	银色金属引脚 Silvery metal pin	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	





编号 No.	描述内容 COMPONENTS	测试 项目 Item	X 荧光扫描 结果 Results of EDXRF (BL/OL/D)	邻苯二甲 酸酯筛分 结果 Screen results of PHTH	化学测试结果 Results of chemical testing (mg/kg)	结论 Conclusion (P/F)	样品提交/再 次提交日期 Sample submitted/ Resubmitted date
6-10	黑色塑料块 Black plastic block	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	D	/	N.D.	P	
		PBDEs	D	/	N.D.	P	
		DEHP	/	BL	/	P	
		DBP	/	BL	/	P	
		BBP	/	BL	/	P	
		DIBP	/	BL	/	P	
6-11	铜色金属垫片 Copper metal gasket	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	
6-12	铜色金属插片 Copper metal insert	Cd	BL	/	/	P	2024. 06.24
		Cr(VI)	BL	/	/	P	
		Hg	BL	/	/	P	
		Pb	BL	/	/	P	
		PBBs	/	/	/	/	
		PBDEs	/	/	/	/	
		DEHP	/	/	/	/	
		DBP	/	/	/	/	
		BBP	/	/	/	/	
		DIBP	/	/	/	/	





备注 Remark:

- (1) 对于六价铬和多溴联苯/多溴联苯醚的扫描, X 荧光扫描只能测试总铬和总溴的含量。

It is the result on total Br while test PBBs and PBDEs by EDXRF. It is the result on total Cr while test Hexavalent Chromium by EDXRF.

- (2) 样品先进行 X 荧光扫描, 超过 X 荧光设定的筛选限值, 进行化学测试 (用 ICP 测定铅、镉、汞; 用比色法测定六价铬; 用气相色谱质谱法测定多溴联苯和多溴联苯醚)

Results are obtained by EDXRF for primary screening, and chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (Cr(VI)) and GCMS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below screening limits (unit:mg/kg)

元素 Element	聚合物材料 Polymer	金属材料 Metal	专用元器件材料 Composite Materials
Cd 镉	$BL \leq 70-3\sigma < D < 130+3\sigma \leq OL$	$BL \leq 70-3\sigma < D < 130+3\sigma \leq OL$	$BL \leq 50-3\sigma < D < 150+3\sigma \leq OL$
Pb 铅	$BL \leq 700-3\sigma < D < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < D < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < D < 1500+3\sigma \leq OL$
Hg 汞	$BL \leq 700-3\sigma < D < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < D < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < D < 1500+3\sigma \leq OL$
Br 溴	$BL \leq 300-3\sigma < D$	----	$BL \leq 250-3\sigma < D$
Cr 铬	$BL \leq 700-3\sigma < D$	$BL \leq 700-3\sigma < D$	$BL \leq 500-3\sigma < D$

- BL = 低于筛选限值 Below limit; OL = 高于筛选限值 Over limit; D = 需要化学测试 DETECTED;

- 对于复合材料, ED-XRF 筛选检测元素所得数据可能与样品中实际含量不同

For composite material, the ED-XRF results may be different to the actual content in the sample.

- (3) 邻苯二甲酸酯筛分结果只作初步筛选, 如果测试结果超出下表所规定的警戒范围, 我们采用更精确的化学测试方法测试样品, 用 GC-MS 测试 DIBP、DEHP、BBP 和 DBP

Screening results of PHTH are for primary screening, and further chemical testing by GC-MS (for DBP, BBP, DEHP and DIBP) are recommended to be performed if the concentration exceeds the below warning value.

测试项目 TEST ITEM	筛选限值 Screening Limit (单位 Unit: mg/kg)
邻苯二甲酸(2-乙基己基)酯 Di-2-ethylhexyl phthalate(DEHP)	$BL \leq 300 < D$
邻苯二甲酸二正丁酯 Dibutyl phthalate(DBP)	$BL \leq 300 < D$
邻苯二甲酸丁基苄酯 Benzylbutyl phthalate(BBP)	$BL \leq 300 < D$
邻苯二甲酸二异丁酯 Diisobutyl phthalate(DIBP)	$BL \leq 300 < D$





(4) 化学测试 Chemical test

测试项目 TEST ITEM	单位 Unit	方法检出限 MDL	限值 Limit
镉 (Cd)	mg/kg	2	100
六价铬 (Cr(VI))	mg/kg	聚合物和电子材料 Polymer and Composite Materials: 8	1000
	$\mu\text{g}/\text{cm}^2$	金属 Metal: 0.10**	----
汞 (Hg)	mg/kg	2	1000
铅 (Pb)	mg/kg	2	1000
多溴联苯 (PBBs)	mg/kg	5	1000
多溴二苯醚(PBDEs)	mg/kg	5	1000
邻苯二甲酸(2-乙基己基)酯 Di-2-ethylhexyl phthalate(DEHP)	mg/kg	30	1000
邻苯二甲酸二正丁酯 Dibutyl phthalate(DBP)	mg/kg	30	1000
邻苯二甲酸丁基苄酯 Benzylbutyl phthalate(BBP)	mg/kg	30	1000
邻苯二甲酸二异丁酯 Diisobutyl phthalate(DIBP)	mg/kg	30	1000

(5) mg/kg = ppm; MDL = 方法检出限 Method Detection Limit ;

N.D. = 未检出 (<方法检出限) Not Detected (<MDL)

**= a. 如果含量大于 $0.13 \mu\text{g}/\text{cm}^2$, 六价铬为阳性。样品表层含有六价铬

The sample is positive for CrVI if the CrVI concentration is greater than $0.13 \mu\text{g}/\text{cm}^2$. The sample coating is considered to contain CrVI

b. 如果含量小于 $0.10 \mu\text{g}/\text{cm}^2$, 六价铬为阴性。样品表层不含有六价铬

The sample is negative for CrVI if CrVI is ND (concentration less than $0.10 \mu\text{g}/\text{cm}^2$). The coating is considered a non-CrVI based coating

c. 如果含量在 $0.10 \mu\text{g}/\text{cm}^2$ 和 $0.13 \mu\text{g}/\text{cm}^2$ 之间, 六价铬结果不确定, 表层的变化可能会影响到结果
The result between $0.10 \mu\text{g}/\text{cm}^2$ and $0.13 \mu\text{g}/\text{cm}^2$ is considered to be inconclusive -unavoidable coating variations may influence the determination





同材质部位，仅提供信息不测试：

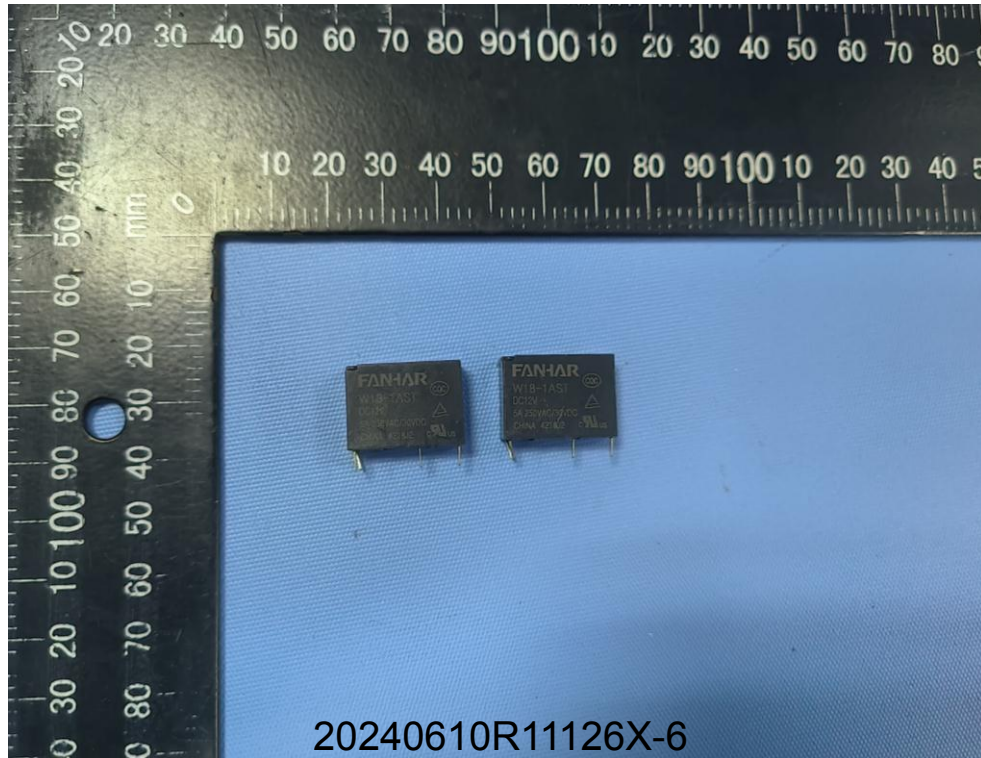
Same material parts, only provide information and do not test:

编号 Specimen No.	描述 Description	备注 Note
6-2	黑色塑料底座 Black plastic base	与测试样品标号 6-1 同材质（在成分、颜色和颜料方面） same material as tested sample no. 6-1 (in term of composition, color and pigment)
6-6	银色金属柱 Silvery metal pillar	与测试样品标号 6-5 同材质（在成分、颜色和颜料方面） same material as tested sample no. 6-5 (in term of composition, color and pigment)
6-7	黑色塑料内框 Black plastic	与测试样品标号 6-1 同材质（在成分、颜色和颜料方面） same material as tested sample no. 6-1 (in term of composition, color and pigment)
6-13	银色金属触点 Silvery metal contact	与测试样品标号 6-4 同材质（在成分、颜色和颜料方面） same material as tested sample no. 6-4 (in term of composition, color and pigment)
6-14	焊锡 Soldering tin	与报告编号: 20240610R11126X-1 中测试样品标号 1-15 同材质（在成分、颜色和颜料方面） same material as tested sample no. 1-15 in Rep. No.: 20240610R11126X-1 (in term of composition, color and pigment)
6-15	黑色胶 Black glue	与报告编号: 20240610R11126X-1 中测试样品标号 1-16 同材质（在成分、颜色和颜料方面） same material as tested sample no. 1-16 in Rep. No.: 20240610R11126X-1 (in term of composition, color and pigment)
6-16	银色金属衔铁 Silver metal armature	与测试样品标号 6-5 同材质（在成分、颜色和颜料方面） same material as tested sample no. 6-5 (in term of composition, color and pigment)





样品图 Sample photo

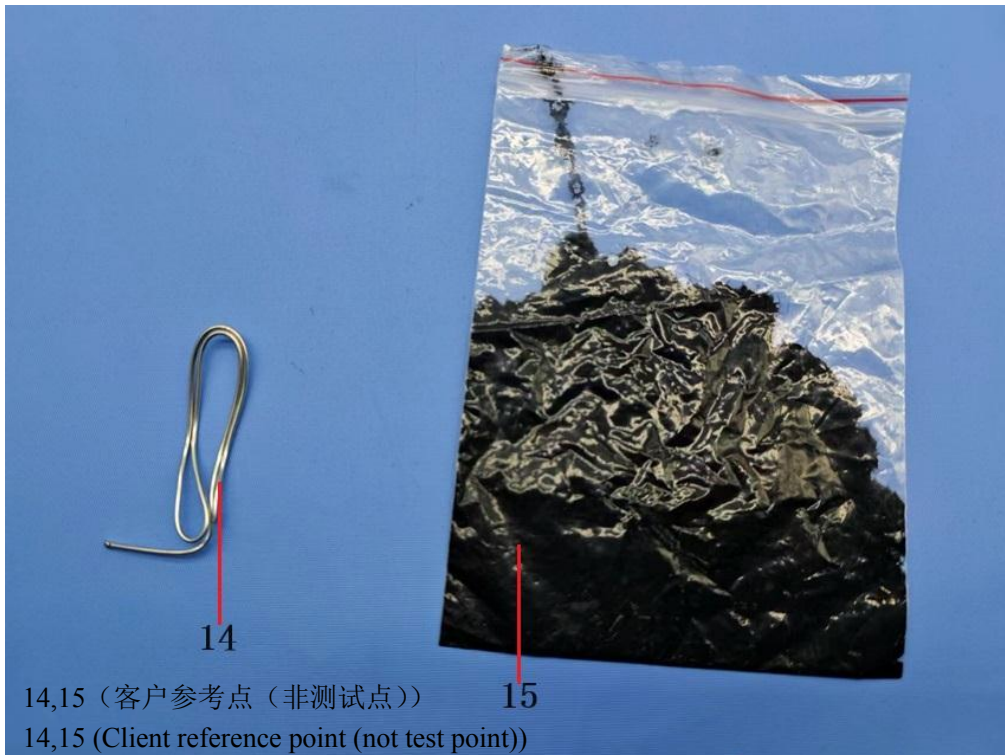
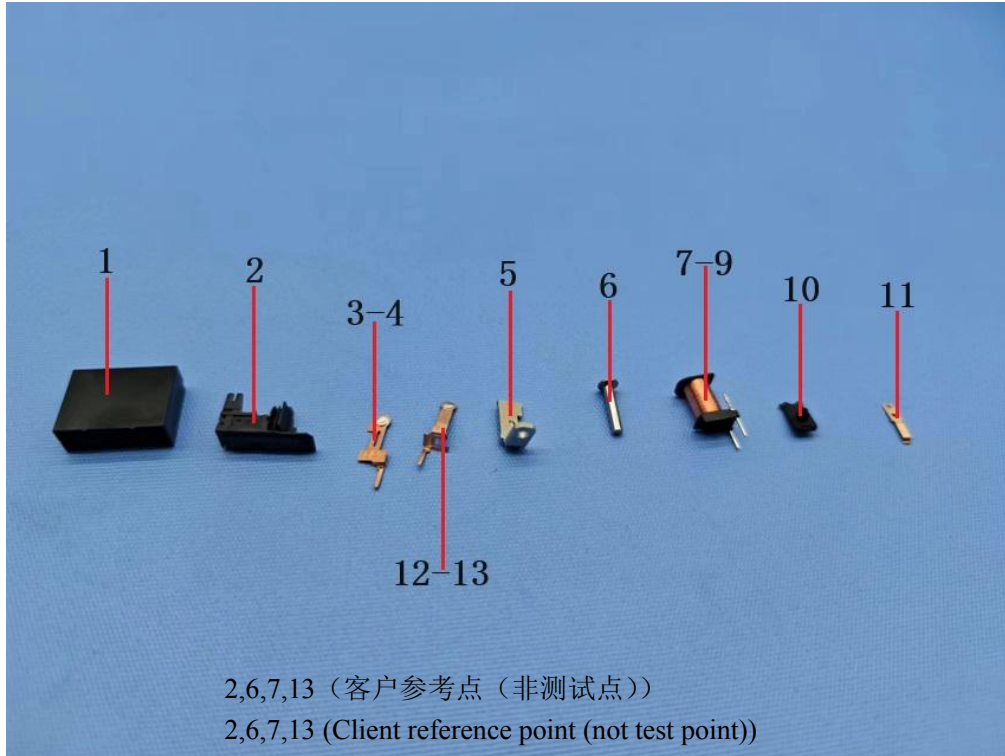


20240610R11126X-6



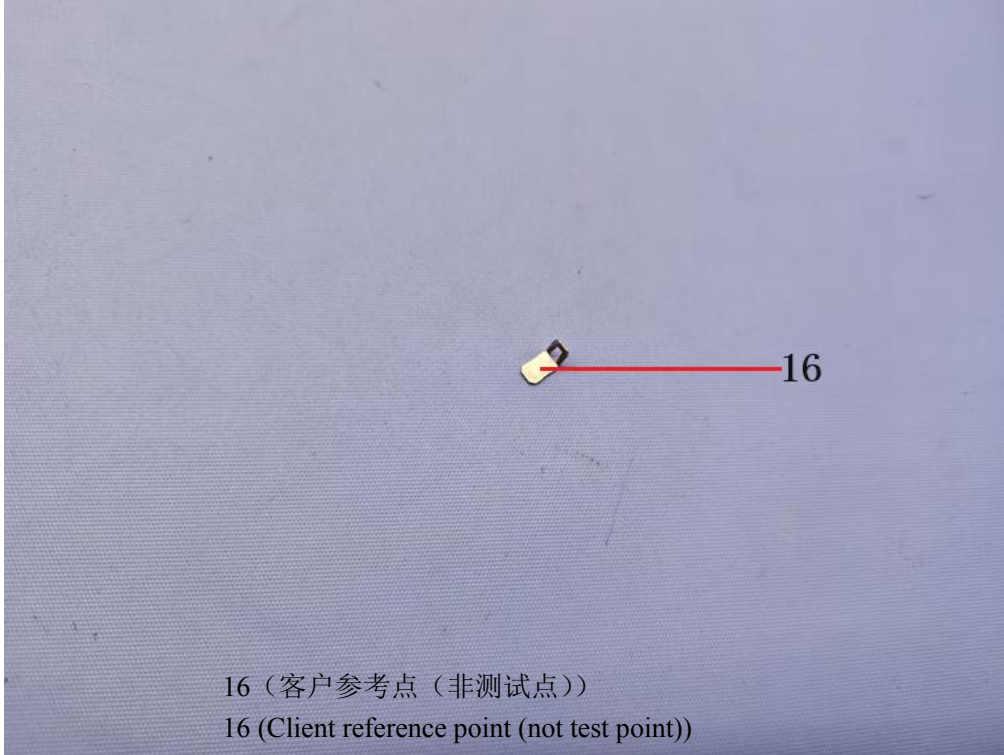


拆分图 Detailed split chart





拆分图 Detailed split chart



*****报告结束 END OF REPORT *****





声 明

STATEMENT

1. 报告未加盖“检验检测专用章”无效。

The test report is invalid without stamp of laboratory.

2. 报告无检测、批准人员签字无效。

The test report is invalid without signature of person(s) testing and authorizing.

3. 报告涂改无效。

The test report is invalid if erased and corrected.

4. 自送样品的检测结论仅对送检样品有效。

Test results of the report is valid to the test samples if sampling by client.

5. “☆”项目未通过 CNAS 认可。

“☆”item to be outside the scope of authorized by CNAS.

6. 未加盖资质认定标志的报告，不具有对社会的证明作用。

The report without the "CMA" stamp shall not have a certifying effect on the society.

7. 未经本实验室书面同意，不得部分地复制本报告。

The test report shall not be reproduced except in full, without written approval of the laboratory.

8. 如对本报告有异议，可在收到报告后 15 天内向本单位申诉，逾期不予受理。

If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

