

# Test Report

## 检测报告

No. SZR171025019005  
编号: SZR171025019005

Date: Nov. 01, 2017  
日期: 2017.11.01

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**Applicant** : Shenzhen Joway Power Supply Co., Ltd  
**申请商** : 深圳市乔威电源有限公司  
**Address** : 1-5 Floor,Building D,Dejin Industrial Park,No 40 Fuyuan 1st Road,Heping Community,Fuyong Town,Bao'an District,Shenzhen City  
**地址** : 深圳市宝安区福永街道和平社区福园一路40号德金工业区厂房D栋第一至五层

**The submitted sample and sample information was/were submitted and identified by/on the behalf of the client/委托检测之样品及样品信息由申请者提供并确认**

**Sample name/样品名称** : Power bank  
**Model No./型号** : JP-97/10000  
**Sample received date** : Oct. 25, 2017  
**样品接收日期** : 2017.10.25  
**Testing period** : Oct. 25, 2017 to Nov. 01, 2017  
**样品测试日期** : 2017.10.25 至 2017.11.01

**Test requested** : Please refer to the following page(s).  
**检测要求** : 请参见下页。

**According to the RoHS Directive 2011/65/EU (按照 RoHS 指令 2011/65/EU)**

**Test Method:** Please refer to the following page(s). / **检测方法:** 请参见下页。

**Test Result(s):** Please refer to the following page(s). / **检测结果:** 请参见下页。

Tested by Willow Liu  
**主 检** : Willow Liu  
Test engineer  
测试工程师

Reviewed by Sahen Chen  
**审 核** : Sahen Chen  
Laboratory manager  
实验室经理

Approved by Leo Li  
**批 准** : Leo Li  
Laboratory director  
实验室总监



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### Test requested 检测要求

1. As specified by client, to screen Lead(Pb), Cadmium(Cd), Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted sample(s) by XRF.

根据客户要求,用 XRF 对所提交样品中的铅(Pb)、镉(Cd)、汞(Hg)、铬(Cr)和溴(Br)进行筛选测试。

2. As specified by client, when screening results exceed the XRF screening limit in IEC 62321-3-1:2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) in the submitted samples.

根据客户要求,当筛选结果超出 IEC 62321-3-1:2013 的 XRF 筛选限值时,进一步采用化学方法对所提交样品中的铅(Pb)、镉(Cd)、汞(Hg)、六价铬(Cr(VI))、多溴联苯(PBBs)和多溴二苯醚(PBDEs)进行测试。

### Test Method: (检测方法)

#### A. Screening test by XRF spectroscopy/XRF 扫描测试

XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1:2013.

IEC 62321-3-1:2013 对管控元素的 XRF 扫描限值

Element 测试元素	Limit of IEC 62321-3-1:2013. Unit (mg/kg) IEC 62321-3-1:2013 要求的限值。单位 (mg/kg)		MDL 方法检测限	
	Polymers and metals 聚合物和金属	Composite material 合成材料	Polymers 聚合物	Other material 其它材料
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma)$ $\leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma)$ $\leq OL$	10 mg/kg	50 mg/kg
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma)$ $\leq OL$	$LOD \leq (50-3\sigma) < X < (150+3\sigma)$ $\leq OL$	10 mg/kg	50 mg/kg
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma)$ $\leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma)$ $\leq OL$	10 mg/kg	50 mg/kg
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$	10 mg/kg	50 mg/kg
Br	$BL \leq (300-3\sigma) < X$	$BL \leq (250-3\sigma) < X$	10 mg/kg	50 mg/kg



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### Note: (备注)

- BL = Under the XRF screening limit=低于XRF筛选限值
- OL = Further chemical test will be conducted while result is above the screening limit=高于XRF筛选限值, 需进一步化学测试确认
- X= The symbol "X" marks the region where further investigation is necessary=此范围内XRF筛选值的样品需要进一步化学测试确认
- 3 $\sigma$ = The reproducibility of analytical instruments=表明分析仪器的重现性
- LOD= Detection limit=检出限


### B. Chemical Test/化学测试

Test Item(s) 测试项目	Test Method 测试方法	Measured Equipment(s) 测试仪器	MDL 方法检测限
Lead (Pb)/ Cadmium (Cd) 铅/镉	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg
Mercury (Hg)/汞	IEC 62321-4:2013 Ed.1.0	ICP-OES	2 mg/kg
Hexavalent Chromium Cr(VI)/六价铬	IEC 62321-7-1:2015 Ed.1.0	UV-VIS	/
	IEC 62321-7-2:2017 Ed.1.0	UV-VIS	2 mg/kg
Polybrominated Biphenyls (PBBs) 多溴二苯	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)/多溴二苯醚	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg

Test Item(s) 测试项目	Limit 限值
Lead (Pb)/铅	1000 mg/kg
Cadmium (Cd)/镉	100 mg/kg
Mercury (Hg)/汞	1000 mg/kg
Hexavalent Chromium Cr(VI)/六价铬	1000 mg/kg
	1000 mg/kg
Polybrominated Biphenyls (PBBs) 多溴二苯	1000 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)/多溴二苯醚	1000 mg/kg

### Shenzhen Anbotek Compliance Laboratory Limited

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### Test Results: (检测结果)

Sample No./ 样品编号	Sample Description 样品描述	Tested Items 检测项目	XRF Screening Test Unit (mg/kg) XRF 扫描结果 单位 (mg/kg)	Chemical Test Unit (mg/kg) 化学测试结果 单位 (mg/kg)	Conclusion 结论
1	Gray plastic shell 灰色塑料外壳	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
2	Red gummed tape 红色胶纸	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
3	Dark green gummed tape 墨绿色胶纸	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
4	Black collodion 黑色胶棉	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
5	Black cotton pad 黑色垫棉	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	

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Sample No./ 样品编号	Sample Description 样品描述	Tested Items 检测项目	XRF Screening Test Unit (mg/kg) XRF 扫描结果 单位 (mg/kg)	Chemical Test Unit (mg/kg) 化学测试结果 单位 (mg/kg)	Conclusion 结论
6	Black inner plastic 黑色内塑料	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
7	Pin 引脚	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
8	Silvery metal 银色金属 (USB)	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
9	Silvery metal 银色金属 (USB)	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
10	Black inner plastic 黑色内塑料	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	



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11	Pin 引脚	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
12	White plastic button 白色塑料按钮	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
13	Yellow gummed paper 黄色胶纸	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
14	Silvery metal shrapnel 银色金属弹片	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	X	Negative 阴性	
		Br(PBBs&PBDEs)	/	/	
15	Silvery metal plate 银色金属片	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	

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16	Black plastic pedestal 黑色塑料底座	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
17	Chip LED 贴片 LED	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
18	Chip audion 贴片三极管	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	X	N.D.	
19	Chip resistor 贴片电阻	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
20	Gray inductor 灰色电感	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	

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21	Chip capacitor 贴片电容	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
22	Black magnetic pillar 黑色磁柱	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
23	IC	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
24	IC	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	BL	/	
25	Copper wire 铜丝	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	



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26	Soldering tin 焊锡	Pb	BL	/	PASS 合格
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	/	/	
27	PCB	Pb	BL	/	PASS 合格
		Cd	LOD	/	
		Hg	BL	/	
		Cr(Cr(VI) )	BL	/	
		Br(PBBs&PBDEs)	X	N.D.	

### Note: (备注)

- N.D. = Not Detected (<MDL)=未检出 (小于方法检测限)
- mg/kg = ppm = parts per million= ppm = 百万分之几
- Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.10ug/cm<sup>2</sup>.
- 阴性=表示不含有六价铬, 即由样品所萃取出来的溶液中的六价铬的浓度小于0.10ug/cm<sup>2</sup>.
- Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than 0.13ug/cm<sup>2</sup>.
- 阳性=表示含有六价铬, 即由样品所萃取出来的溶液中的六价铬的浓度等于或大于0.13ug/cm<sup>2</sup>.

### Remark: (备注)

- The screening results are only used for reference./ XRF 扫描分析结果仅供参考。
- When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively./ 对于 PBBs&PBDEs, XRF 筛选时针对溴元素 (Br) 进行; 对于六价铬, XRF 筛选时针对铬元素 (Cr) 进行。

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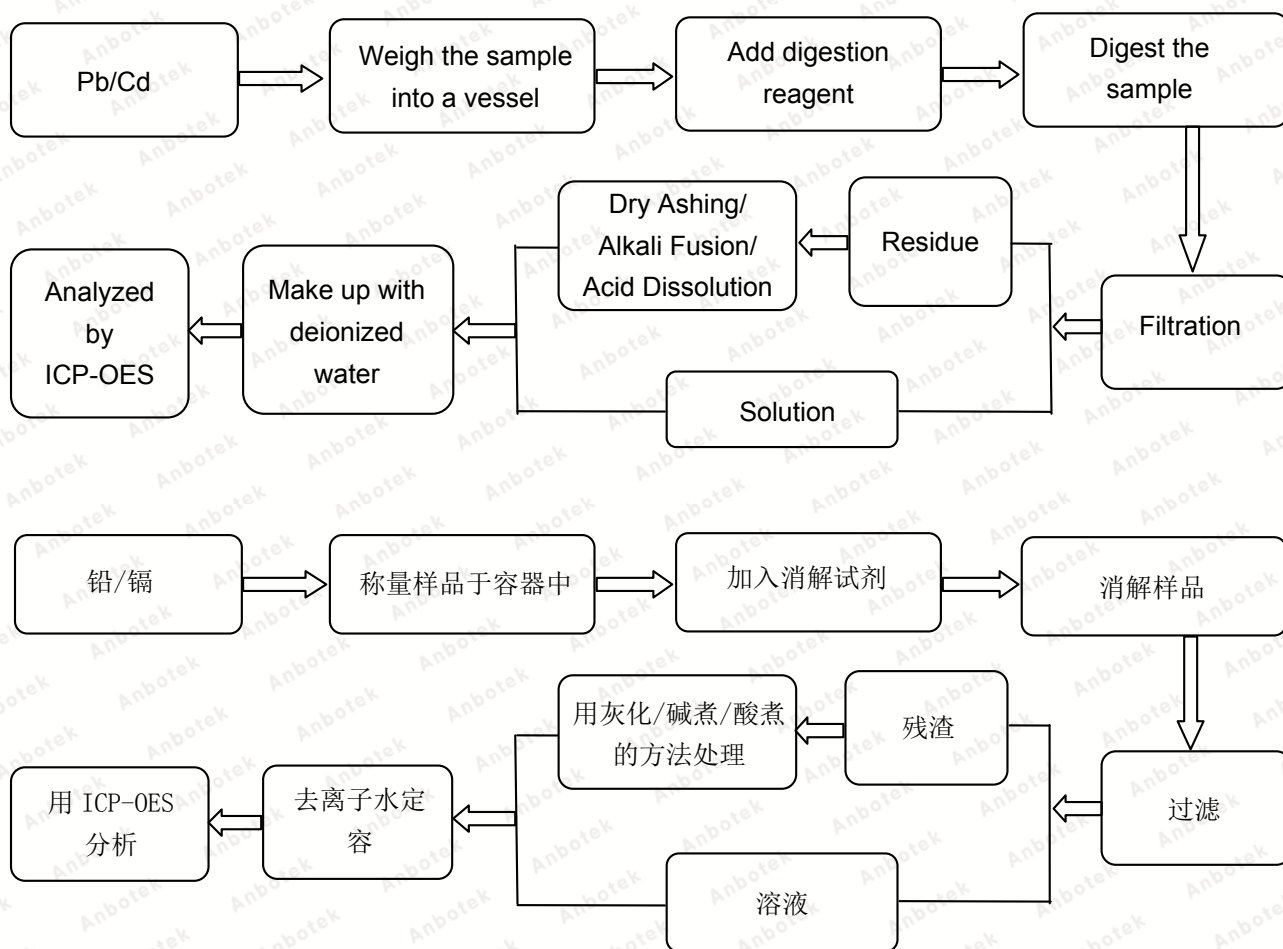
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### Test Process: (检测流程)

The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury./对于检测铅, 镉, 汞之样品已完全溶解。

#### ◆ IEC 62321-5:2013 Ed.1.0





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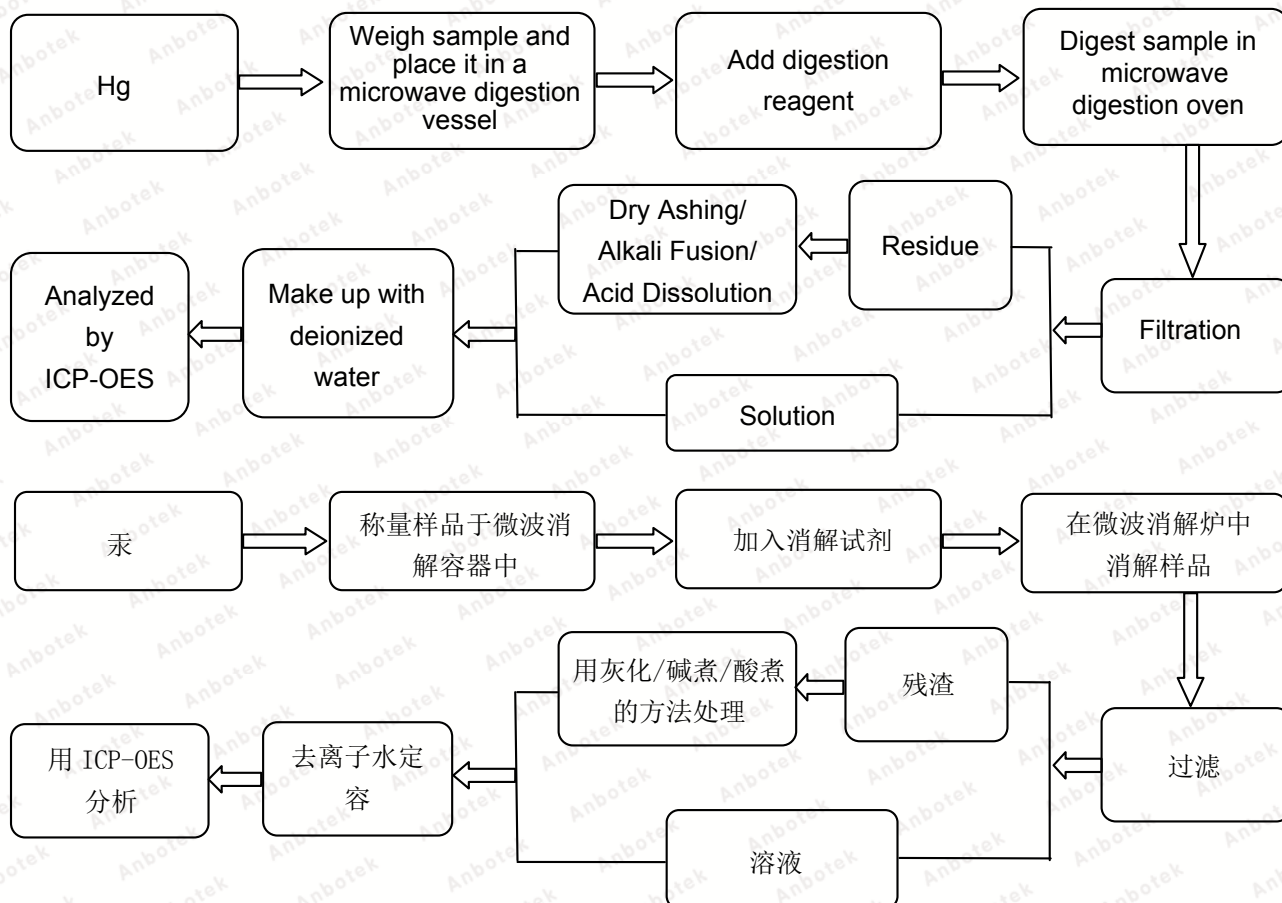
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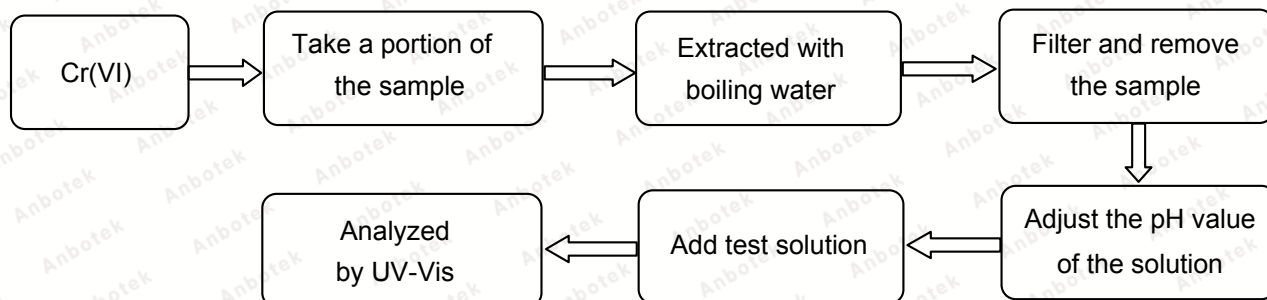
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◆ IEC 62321-4:2013 Ed.1.0



◆ IEC 62321-7-1:2015 Ed.1.0



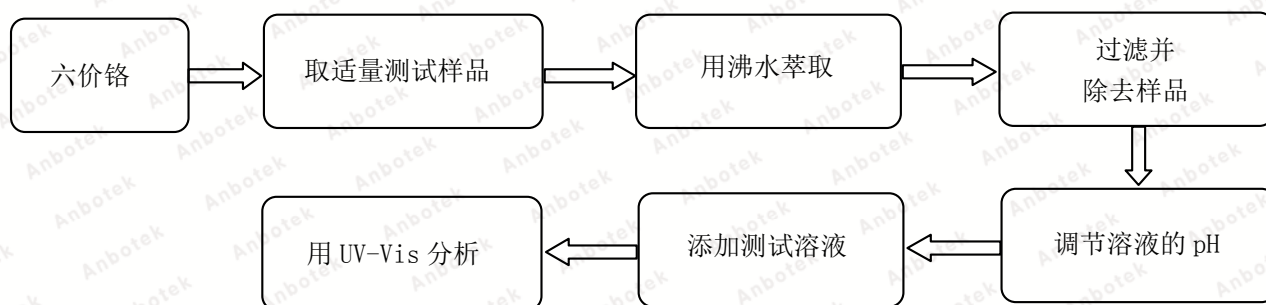
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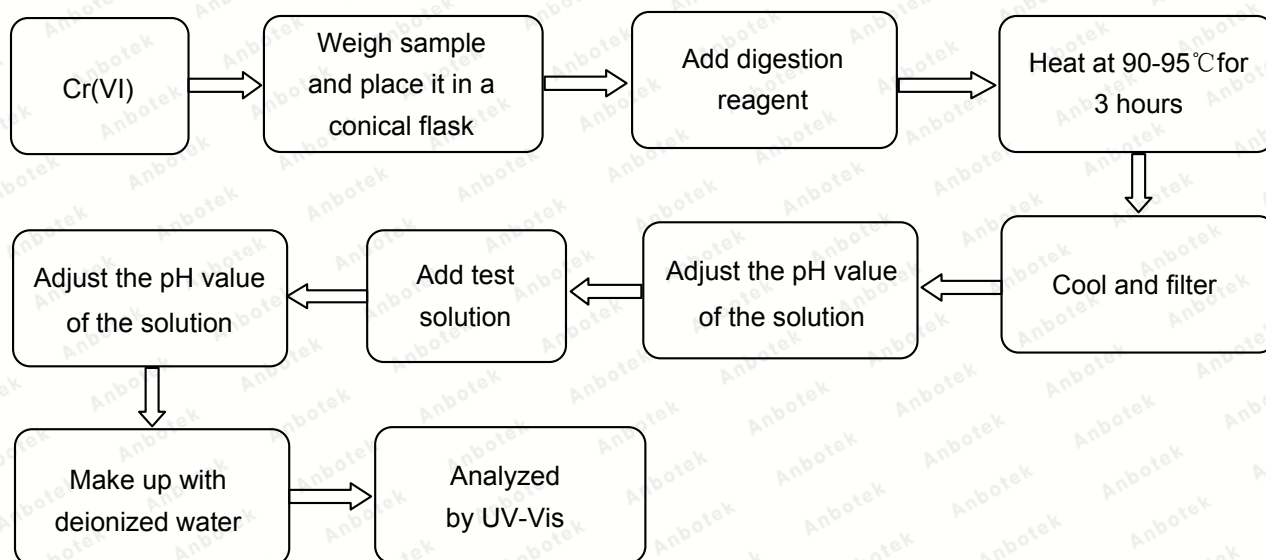
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### ◆ IEC 62321-7-2:2017 Ed.1.0





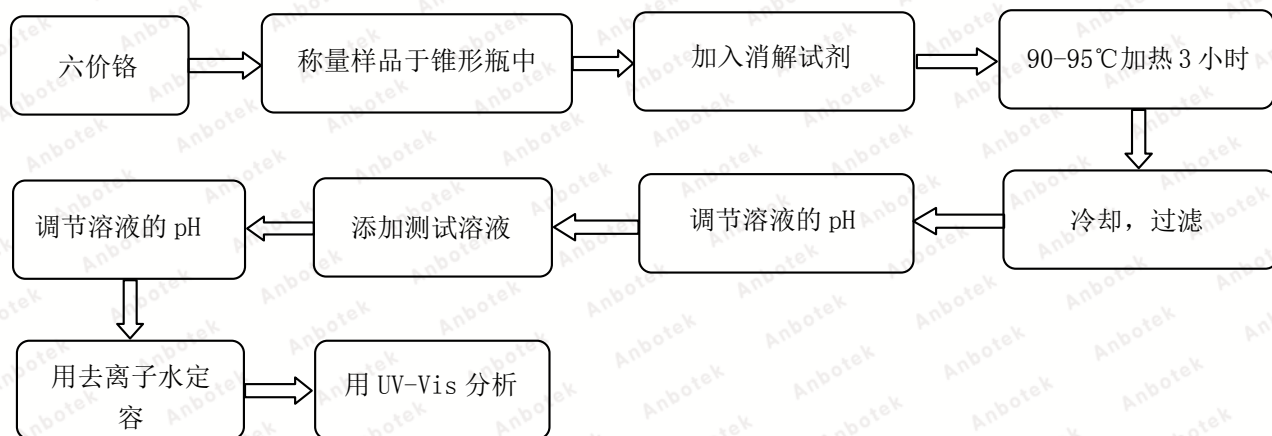
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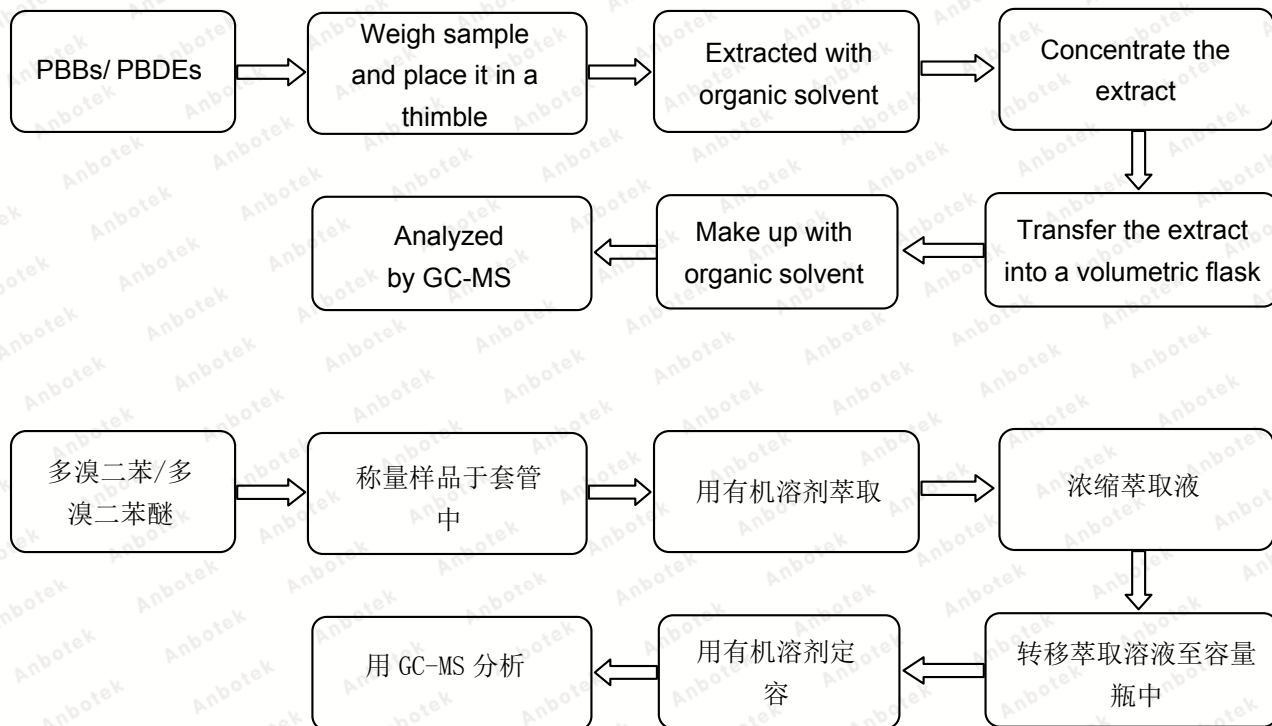
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### ◆ IEC 62321-6:2015 Ed.1.0



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### Photograph of Sample

样品图片





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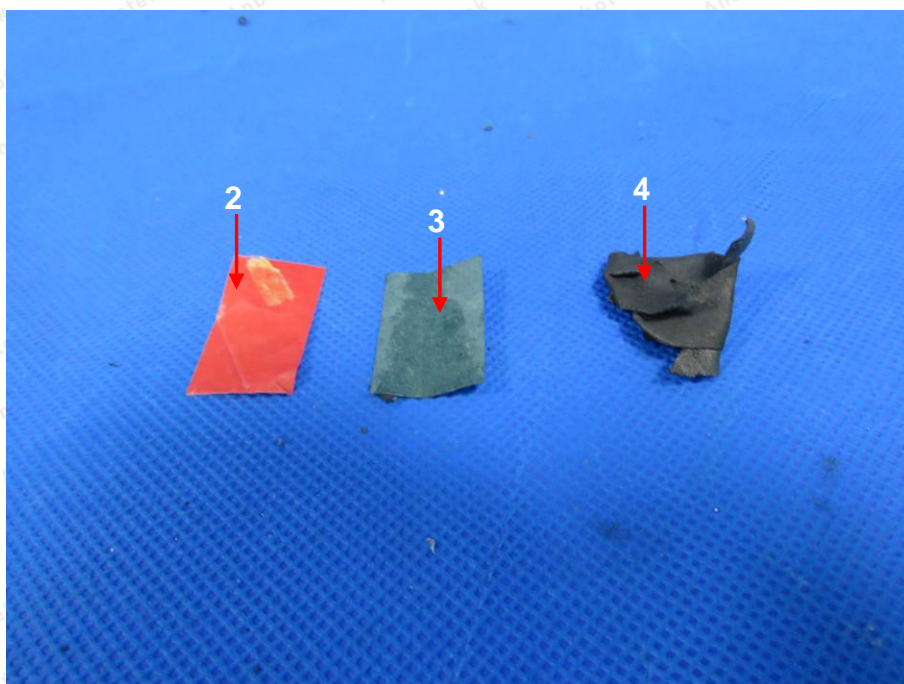
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### Photo(s) of the tested component(s)

部件图片



### Shenzhen Anbotek Compliance Laboratory Limited

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Hotline  
400-003-0500  
www.anbotek.com



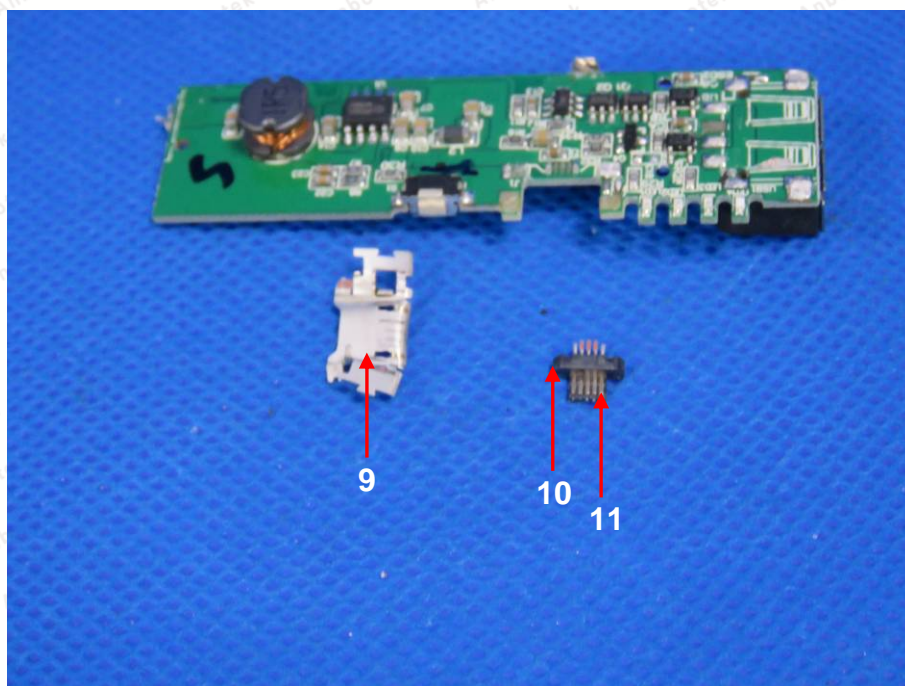
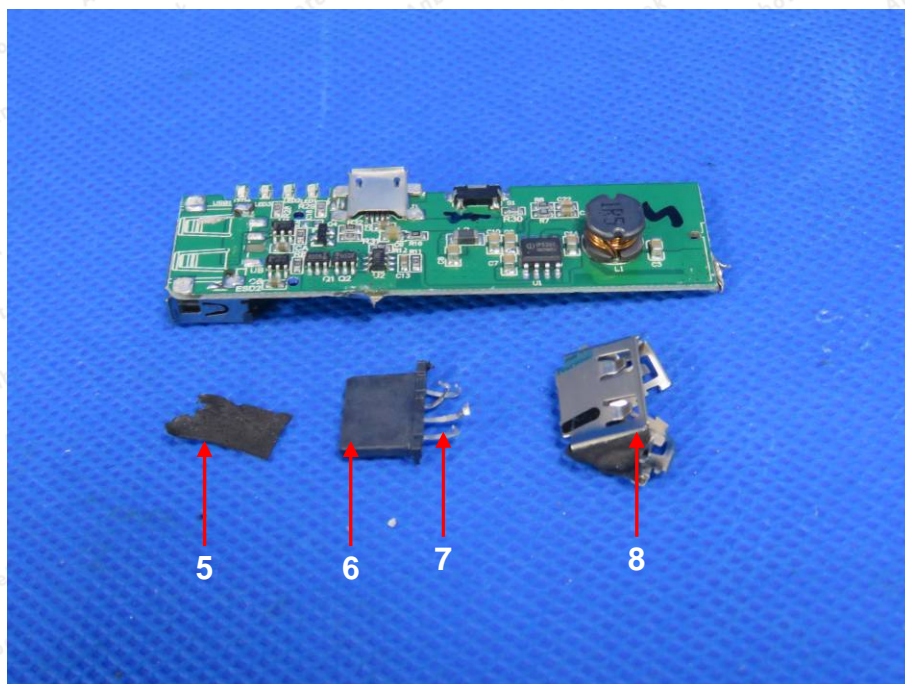
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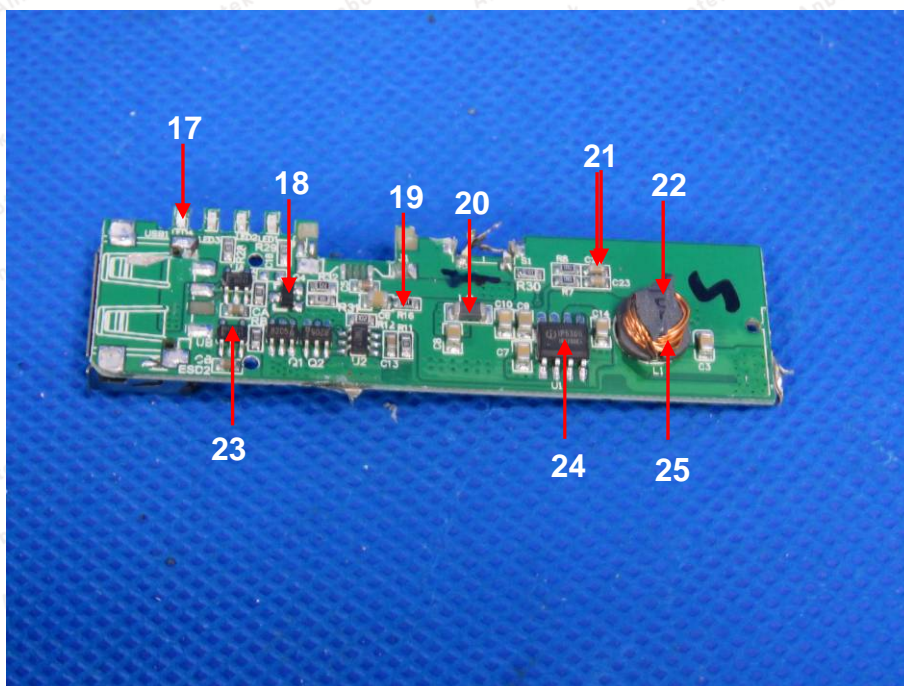
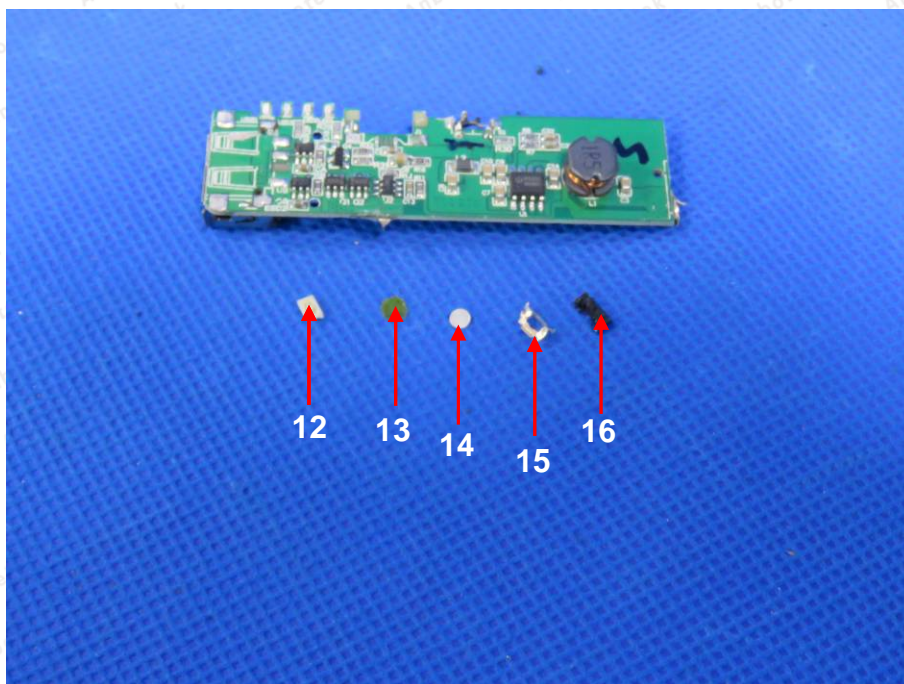
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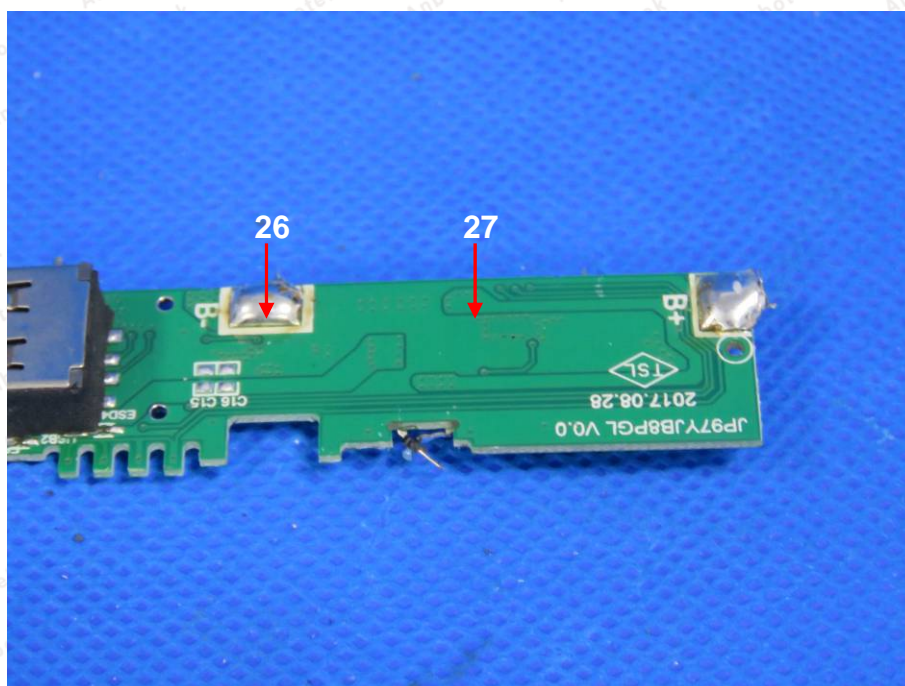
# Test Report

## 检测报告

No. SZR171025019005  
编号: SZR171025019005

Date: Nov. 01, 2017  
日期: 2017.11.01

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\*\*\*\*\* End of Report \*\*\*\*\*

\*\*\*\*\* 报告结束 \*\*\*\*\*

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