

# 检测报告

## TEST REPORT

申请商(Applicant): 安徽宇航派蒙防辐射科技股份有限公司  
Anhui Aerospace & PMA Anti-radiation Technology Co., Ltd  
地址(Address): 中国安徽合肥市蜀山区湖光东路 1201 号国际电子商务产业园 16 号楼  
No.16 Building International E-commerce Industrial Estate, No.1201  
HuGuang East Rd, Shushan District, Hefei city, Anhui, China

以下的检测样品及样品信息由客户提供并确认:

The following sample(s) was/were submitted and identified on behalf of the client as:

产品名称 PMA 石墨烯发热商务马甲  
(Product name): PMA Graphene Heating Business Vest  
型号(Model): PMA-J10  
商标(Trade mark): PMA  
制造商(Manufacturer)/ 安徽宇航派蒙防辐射科技股份有限公司  
工厂(Factory): Anhui Aerospace & PMA Anti-radiation Technology Co., Ltd  
地址 (Address): 中国安徽合肥市蜀山区湖光东路 1201 号国际电子商务产业园 16 号楼  
No.16 Building International E-commerce Industrial Estate, No.1201  
HuGuang East Rd, Shushan District, Hefei city, Anhui, China

样品接收日期 (Sample Received Date): 2018-10-13  
检测期间 (Testing Period): 2018-10-13~2018-10-22

检测要求: 请参考下页;

Test Requirement: Please refer to the following page(s);

检测结果: 请参考下页;

Test Result(s): Please refer to the following page(s);

检测方法: 请参考下页;

Test Method: Please refer to the following page(s);

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2018-10-23

#### 检测要求(Test Requirement):

根据客户要求, 依据欧盟 ROHS 指令 2011/65/EU 对所提交样品中铅(Pb), 镉(Cd), 汞(Hg), 六价铬(Cr(VI)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 的含量进行测定。  
(As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr<sup>6+</sup>), Polybrominated Biphenyls(PBBs), Polybrominated, Diphenyl Ethers(PBDEs) in the submitted sample in accordance with ROHS directive 2011/65/EU.)

#### 结论(Conclusion):

符合(Pass)

### 检测结果 (Test Result(s)) :

#### 1. 马甲 (Waistcoat)

| 部件编号<br>Part No. | 部件描述<br>Part Description                          | 测试项目<br>Test Items        | XRF 扫描结果<br>XRF Screening Result(mg/kg) | 化学测试结果<br>Chemical Test Result(mg/kg) | 结论<br>Conclusion |
|------------------|---------------------------------------------------|---------------------------|-----------------------------------------|---------------------------------------|------------------|
| 1                | 黑色布<br>Black cloth                                | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                   | 铬 (Cr VI) Cr(Cr(VI))      | IN                                      | N.D.                                  |                  |
|                  |                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 2                | 黑色布 (衣领)<br>Black cloth (collar)                  | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 3                | 黑色布 (袖口)<br>Black cloth (cuff)                    | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                   | 铬 (Cr VI) Cr(Cr(VI))      | IN                                      | N.D.                                  |                  |
|                  |                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 4                | 黑色布 (衣兜)<br>Black cloth (pocket)                  | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                   | 铬 (Cr VI) Cr(Cr(VI))      | IN                                      | N.D.                                  |                  |
|                  |                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 5                | 拉链-透明塑料<br>上止 Silvery metal bottom stop of zipper | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |

|    |                                                                   |                           |    |      |         |
|----|-------------------------------------------------------------------|---------------------------|----|------|---------|
| 6  | 拉链-黑色塑料<br>链牙 Black<br>plastic chain<br>teeth of zipper           | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                                                   | 镉 Cd                      | BL | /    |         |
|    |                                                                   | 汞 Hg                      | BL | /    |         |
|    |                                                                   | 铬 (Cr VI) Cr(Cr(VI))      | IN | N.D. |         |
|    |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 7  | 拉链-黑色布带<br>Black woven<br>belt of zipper                          | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                                                   | 镉 Cd                      | BL | /    |         |
|    |                                                                   | 汞 Hg                      | BL | /    |         |
|    |                                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | IN | N.D. |         |
| 8  | 拉链-拉头黑色<br>涂层 Black<br>coating of pull<br>head of zipper          | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                                                   | 镉 Cd                      | BL | /    |         |
|    |                                                                   | 汞 Hg                      | BL | /    |         |
|    |                                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 9  | 拉链-拉头金属<br>基材 Metal<br>base material<br>of pull head of<br>zipper | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                                                   | 镉 Cd                      | BL | /    |         |
|    |                                                                   | 汞 Hg                      | BL | /    |         |
|    |                                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /    |         |
| 10 | 拉链-银色金属<br>下止 Silvery<br>metal under<br>check of zipper           | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                                                   | 镉 Cd                      | BL | /    |         |
|    |                                                                   | 汞 Hg                      | BL | /    |         |
|    |                                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /    |         |
| 11 | 纽扣-银灰色金<br>属 Silvery and<br>grey metal of<br>button               | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                                                   | 镉 Cd                      | BL | /    |         |
|    |                                                                   | 汞 Hg                      | BL | /    |         |
|    |                                                                   | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /    |         |

|    |                                                |                           |    |   |         |
|----|------------------------------------------------|---------------------------|----|---|---------|
| 12 | 纽扣-金色金属<br>Golden metal<br>of button           | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                                | 镉 Cd                      | BL | / |         |
|    |                                                | 汞 Hg                      | BL | / |         |
|    |                                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | / |         |
| 13 | 纽扣-银色金属<br>Silvery metal of<br>button          | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                                | 镉 Cd                      | BL | / |         |
|    |                                                | 汞 Hg                      | BL | / |         |
|    |                                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | / |         |
| 14 | 纽扣-透明塑料<br>Transparent<br>plastic of<br>button | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                                | 镉 Cd                      | BL | / |         |
|    |                                                | 汞 Hg                      | BL | / |         |
|    |                                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |
| 15 | 黑色缝纫线<br>Black sewing<br>thread                | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                                | 镉 Cd                      | BL | / |         |
|    |                                                | 汞 Hg                      | BL | / |         |
|    |                                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |
| 16 | 白色棉花<br>White cotton                           | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                                | 镉 Cd                      | BL | / |         |
|    |                                                | 汞 Hg                      | BL | / |         |
|    |                                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |
| 17 | 白色棉布<br>White cotton<br>cloth                  | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                                | 镉 Cd                      | BL | / |         |
|    |                                                | 汞 Hg                      | BL | / |         |
|    |                                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |

|    |                                     |                           |    |      |         |
|----|-------------------------------------|---------------------------|----|------|---------|
| 18 | 深蓝色布<br>Dark blue cloth             | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                     | 镉 Cd                      | BL | /    |         |
|    |                                     | 汞 Hg                      | BL | /    |         |
|    |                                     | 铬 (Cr VI) Cr(Cr(VI))      | IN | N.D. |         |
|    |                                     | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 19 | 白色无纺布<br>White non-woven fabric     | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                     | 镉 Cd                      | BL | /    |         |
|    |                                     | 汞 Hg                      | BL | /    |         |
|    |                                     | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                     | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 20 | 白色网布<br>White net cloth             | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                     | 镉 Cd                      | BL | /    |         |
|    |                                     | 汞 Hg                      | BL | /    |         |
|    |                                     | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                     | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 21 | 石墨烯发热模<br>块 Graphene heating module | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                     | 镉 Cd                      | BL | /    |         |
|    |                                     | 汞 Hg                      | BL | /    |         |
|    |                                     | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                     | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 22 | 白色胶带<br>White tape                  | 铅 Pb                      | BL | /    | 符合 Pass |
|    |                                     | 镉 Cd                      | BL | /    |         |
|    |                                     | 汞 Hg                      | BL | /    |         |
|    |                                     | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                     | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /    |         |
| 23 | 焊锡<br>Tin solder                    | 铅 Pb                      | IN | 259  | 符合 Pass |
|    |                                     | 镉 Cd                      | BL | /    |         |
|    |                                     | 汞 Hg                      | BL | /    |         |
|    |                                     | 铬 (Cr VI) Cr(Cr(VI))      | BL | /    |         |
|    |                                     | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /    |         |

## 2. 控制器 (Controller)

| 部件编号<br>Part No. | 部件描述<br>Part Description                              | 测试项目<br>Test Items        | XRF 扫描结果<br>XRF Screening Result(mg/kg) | 化学测试结果<br>Chemical Test Result(mg/kg) | 结论<br>Conclusion |
|------------------|-------------------------------------------------------|---------------------------|-----------------------------------------|---------------------------------------|------------------|
| 24               | 黑色橡胶帽-黑色橡胶<br>Black rubber of black rubber cap        | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                       | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                       | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                       | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                       | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 25               | 黑色橡胶帽-透明塑料<br>Transparent plastic of black rubber cap | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                       | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                       | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                       | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                       | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 26               | 半透明胶体<br>Translucence colloid                         | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                       | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                       | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                       | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                       | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 27               | 白色线皮<br>White wire jacket                             | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                       | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                       | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                       | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                       | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 28               | 黑色套管<br>Black casing tube                             | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                       | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                       | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                       | 铬 (Cr VI) Cr(Cr(VI))      | BL                                      | /                                     |                  |
|                  |                                                       | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |

|    |                    |                           |    |   |         |
|----|--------------------|---------------------------|----|---|---------|
| 29 | 线芯<br>Core of wire | 铅 Pb                      | BL | / | 符合 Pass |
|    |                    | 镉 Cd                      | BL | / |         |
|    |                    | 汞 Hg                      | BL | / |         |
|    |                    | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                    | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | / |         |

### 3. 控制器PCBA (Controller PCBA)

| 部件编号<br>Part No. | 部件描述<br>Part Description                                          | 测试项目<br>Test Items        | XRF 扫描结果<br>XRF Screening Result(mg/kg) | 化学测试结果<br>Chemical Test Result(mg/kg) | 结论<br>Conclusion |
|------------------|-------------------------------------------------------------------|---------------------------|-----------------------------------------|---------------------------------------|------------------|
| 30               | PCB<br>PCB                                                        | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                                   | 铬 (Cr VI) Cr(Cr(VI) )     | BL                                      | /                                     |                  |
|                  |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | IN                                      | N.D.                                  |                  |
| 31               | 触点开关-银色<br>金属壳 Silvery<br>metal shell of<br>contact switch        | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                                   | 铬 (Cr VI) Cr(Cr(VI) )     | IN                                      | 阴性 Negative                           |                  |
|                  |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /                                       | /                                     |                  |
| 32               | 触点开关-黑色<br>塑料 Black<br>plastic of<br>contact switch               | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                                   | 铬 (Cr VI) Cr(Cr(VI) )     | BL                                      | /                                     |                  |
|                  |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL                                      | /                                     |                  |
| 33               | 触点开关-银色<br>金属弹片<br>Silvery metal<br>shrapnel of<br>contact switch | 铅 Pb                      | BL                                      | /                                     | 符合 Pass          |
|                  |                                                                   | 镉 Cd                      | BL                                      | /                                     |                  |
|                  |                                                                   | 汞 Hg                      | BL                                      | /                                     |                  |
|                  |                                                                   | 铬 (Cr VI) Cr(Cr(VI) )     | IN                                      | 阴性 Negative                           |                  |
|                  |                                                                   | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /                                       | /                                     |                  |

|    |                                                                         |                           |    |             |         |
|----|-------------------------------------------------------------------------|---------------------------|----|-------------|---------|
| 34 | 触点开关-金色<br>金属按钮<br>Golden metal<br>button of<br>contact switch          | 铅 Pb                      | BL | /           | 符合 Pass |
|    |                                                                         | 镉 Cd                      | BL | /           |         |
|    |                                                                         | 汞 Hg                      | BL | /           |         |
|    |                                                                         | 铬 (Cr VI) Cr(Cr(VI))      | BL | /           |         |
|    |                                                                         | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /           |         |
| 35 | miniUSB 接口-<br>银色金属壳<br>Silvery metal<br>shell of mini<br>USB interface | 铅 Pb                      | BL | /           | 符合 Pass |
|    |                                                                         | 镉 Cd                      | BL | /           |         |
|    |                                                                         | 汞 Hg                      | BL | /           |         |
|    |                                                                         | 铬 (Cr VI) Cr(Cr(VI))      | IN | 阴性 Negative |         |
|    |                                                                         | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /           |         |
| 36 | miniUSB 接口-<br>黑色塑料 Black<br>plastic of mini<br>USB interface           | 铅 Pb                      | BL | /           | 符合 Pass |
|    |                                                                         | 镉 Cd                      | BL | /           |         |
|    |                                                                         | 汞 Hg                      | BL | /           |         |
|    |                                                                         | 铬 (Cr VI) Cr(Cr(VI))      | BL | /           |         |
|    |                                                                         | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /           |         |
| 37 | miniUSB 接口-<br>金属触片 Metal<br>contact sheet<br>of mini USB<br>interface  | 铅 Pb                      | BL | /           | 符合 Pass |
|    |                                                                         | 镉 Cd                      | BL | /           |         |
|    |                                                                         | 汞 Hg                      | BL | /           |         |
|    |                                                                         | 铬 (Cr VI) Cr(Cr(VI))      | BL | /           |         |
|    |                                                                         | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | /  | /           |         |
| 38 | 芯片<br>Chip                                                              | 铅 Pb                      | BL | /           | 符合 Pass |
|    |                                                                         | 镉 Cd                      | BL | /           |         |
|    |                                                                         | 汞 Hg                      | BL | /           |         |
|    |                                                                         | 铬 (Cr VI) Cr(Cr(VI))      | BL | /           |         |
|    |                                                                         | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /           |         |
| 39 | 贴片-贴片电阻<br>SMD resistor                                                 | 铅 Pb                      | BL | /           | 符合 Pass |
|    |                                                                         | 镉 Cd                      | BL | /           |         |
|    |                                                                         | 汞 Hg                      | BL | /           |         |
|    |                                                                         | 铬 (Cr VI) Cr(Cr(VI))      | BL | /           |         |
|    |                                                                         | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | /           |         |

|    |                                |                           |    |   |         |
|----|--------------------------------|---------------------------|----|---|---------|
| 40 | 贴片-贴片电容<br>SMD capacitor       | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                | 镉 Cd                      | BL | / |         |
|    |                                | 汞 Hg                      | BL | / |         |
|    |                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |
| 41 | 贴片-贴片三极<br>管 SMD audion        | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                | 镉 Cd                      | BL | / |         |
|    |                                | 汞 Hg                      | BL | / |         |
|    |                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |
| 42 | 贴片-贴片 LED<br>灯 SMD LED<br>lamp | 铅 Pb                      | BL | / | 符合 Pass |
|    |                                | 镉 Cd                      | BL | / |         |
|    |                                | 汞 Hg                      | BL | / |         |
|    |                                | 铬 (Cr VI) Cr(Cr(VI) )     | BL | / |         |
|    |                                | 多溴联苯/多溴二苯醚<br>PBBs/ PBDEs | BL | / |         |

说明 -1mg/kg=1ppm = 0.0001%

(Note): N.D. =未检出 Not Detected (<MDL)

MDL =方法检出限 Method Detection Limit

/=未控制 Not Regulated/不适用 Not Applicable

阴性 = 不含有六价铬 Cr(VI),六价铬的浓度小于  $0.10 \mu\text{g}/\text{cm}^2$

Negative = Absence of Cr(VI), the detected Cr(VI) concentration is less than  $0.10 \mu\text{g}/\text{cm}^2$

阳性 = 含有六价铬 Cr(VI),六价铬的浓度大于  $0.13 \mu\text{g}/\text{cm}^2$

Positive = Presence of Cr(VI), the detected Cr(VI) concentration is greater than  $0.13 \mu\text{g}/\text{cm}^2$

六价铬浓度介于  $0.10\mu\text{g}/\text{cm}^2$  及  $0.13\mu\text{g}/\text{cm}^2$  之间,无法确定是否检出六价铬。不可避免因样品的不一致性导致测试的不确定性。

The result is considered to be inconclusive -The Cr(VI) concentration is between the  $0.10\mu\text{g}/\text{cm}^2$  and  $0.13 \mu\text{g}/\text{cm}^2$ .Unavoidable coating variations may influence the determination.

由于未获知样品的存储条件和生产日期,样品的六价铬检测结果仅能代表检测时样品含六价铬的状态。

Because the storage condition and production date of the sample are not known, the test results of the sample of hexavalent chromium can only represent the state of hexavalent chromium in the samples tested.

备注 1.所有的扫描结果仅供参考。

(Remark): The screening results are only used for reference.

2.在测试样品中的 PBBs 和 PBDEs 时, XRF 只能扫描其中的溴元素; 在测试样品中六价铬时, XRF 只能扫描其中的铬元素。

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.

### 检测方法 (Test Method) :

先用 IEC62321-3-1: 2013 方法对样进行 XRF 扫描筛选, 并对超过筛选限值的样品进一步用化学测试的方法确认样品中的铅(Pb), 镉(Cd), 汞(Hg), 六价铬(Cr(VI)), 多溴联苯(PBBs), 多溴联苯醚(PBDEs) 的含量。

(when screening results exceed the XRF screening limit in IEC62321-3-1: 2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs) and Polybrominated Diphenyl Ethers(PBDEs))

### 1. IEC 62321-3-1:2013 对管控元素的 XRF 扫描限值

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

| 检测元素<br>Test Element | IEC 62321-3-1:2013 要求的限值 (mg/kg)<br>Limit of IEC 62321-3-1:2013 (unit:mg/kg) |                                                           |                                                           |
|----------------------|------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|
|                      | 聚合物 Polymers                                                                 | 金属 Metals                                                 | 合成材料 Composite material                                   |
| 铅(Pb)                | $BL \leq (700-3\sigma) < X$<br>$< (1300+3\sigma) \leq OL$                    | $BL \leq (700-3\sigma) < X$<br>$< (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X$<br>$< (1500+3\sigma) \leq OL$ |
| 镉(Cd)                | $BL \leq (70-3\sigma) < X$<br>$< (130+3\sigma) \leq OL$                      | $BL \leq (70-3\sigma) < X$<br>$< (130+3\sigma) \leq OL$   | $LOD < X < (150+3\sigma) \leq OL$                         |
| 汞(Hg)                | $BL \leq (700-3\sigma) < X$<br>$< (1300+3\sigma) \leq OL$                    | $BL \leq (700-3\sigma) < X$<br>$< (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X$<br>$< (1500+3\sigma) \leq OL$ |
| 铬(Cr)                | $BL \leq (700-3\sigma) < X$                                                  | $BL \leq (700-3\sigma) < X$                               | $BL \leq (500-3\sigma) < X$                               |
| 溴 (Br)               | $BL \leq (300-3\sigma) < X$                                                  | /                                                         | $BL \leq (250-3\sigma) < X$                               |

## 2.化学测试 Chemical Test

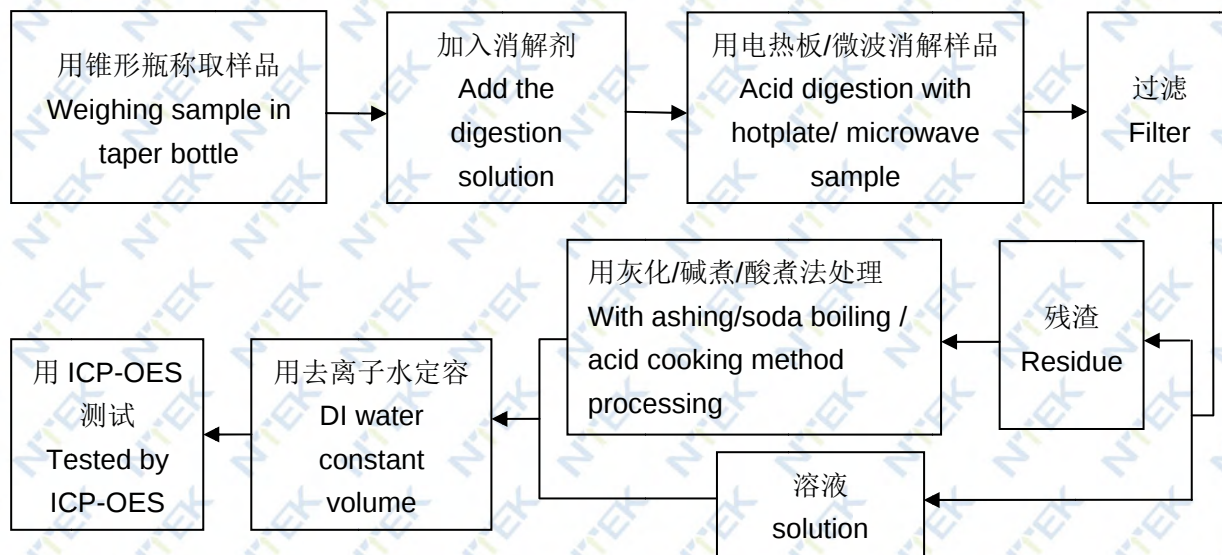
| 检测项目<br>Test item                                      | 检测方法<br>Test method       | 检测仪器<br>Test instrument | 方法检出限<br>MDL            | 限值<br>Limit |
|--------------------------------------------------------|---------------------------|-------------------------|-------------------------|-------------|
| 铅 (Pb) Lead                                            | IEC 62321-5:2013 Ed.1.0   | ICP-OES                 | 10 mg/kg                | 1000 mg/kg  |
| 镉 (Cd) Cadmium                                         | IEC 62321-5:2013 Ed.1.0   | ICP-OES                 | 10 mg/kg                | 100 mg/kg   |
| 汞 (Hg) Mercury                                         | IEC 62321-4:2013 Ed.1.0   | ICP-OES                 | 10 mg/kg                | 1000 mg/kg  |
| 六价铬 (Cr VI)<br>Hexavalent Chromium                     | IEC 62321-7-1:2015 Ed.1.0 | UV-Vis                  | 0.10 µg/cm <sup>2</sup> | 1000 mg/kg  |
|                                                        | IEC 62321-7-2:2017 Ed.1.0 |                         | 10mg/kg                 |             |
| 多溴联苯(PBBs)<br>Polybrominated Biphenyls(PBBs)           | IEC 62321-6:2015 Ed.1.0   | GC-MS                   | 100mg/kg                | 1000 mg/kg  |
| 多溴二苯醚(PBDEs)<br>Polybrominated, Diphenyl Ethers(PBDEs) | IEC 62321-6:2015 Ed.1.0   | GC-MS                   | 100mg/kg                | 1000 mg/kg  |

说明 -BL =在 XRF 扫描限值以下.  
(Note): (Under the XRF screening limit)  
-OL =在 XRF 扫描限值以上.  
(Over the XRF screening limit)  
-X= X 代表一个区域, 落在此区域的值需进一步确认.  
(The symbol "X" marks the region where further investigation is necessary.)  
-3σ= 分析仪器的重复性(The reproducibility of analytical instruments)  
-LOD= 检测限(Detection limit)

## 检测流程 (Test Flow) :

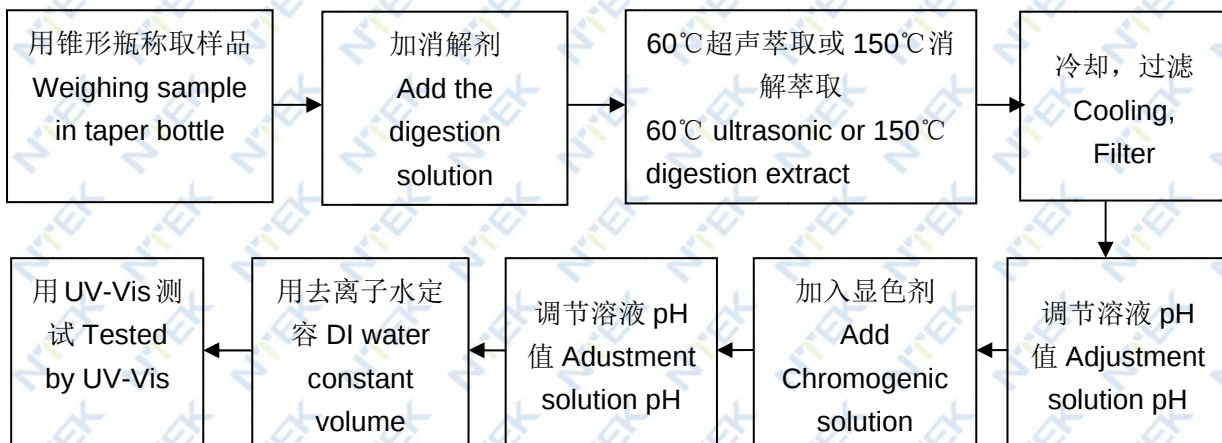
检测人员(Tested By): 刘军/吴美琴(Guen.Liu/ Wu)

### 1. 铅 Lead(Pb), 镉 Cadmium(Cd), 汞 Mercury (Hg)

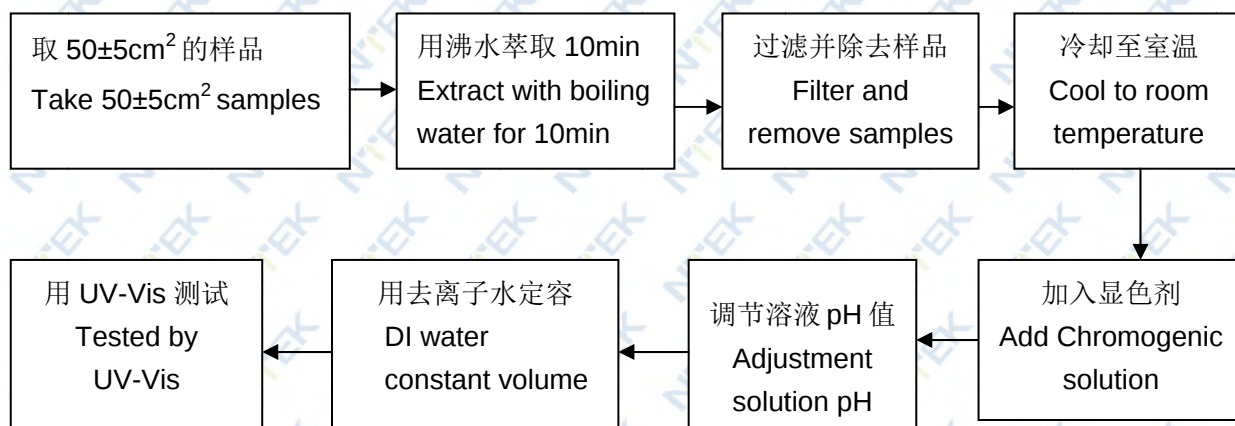


### 2. 六价铬 Hexavalent Chromium (Cr VI)

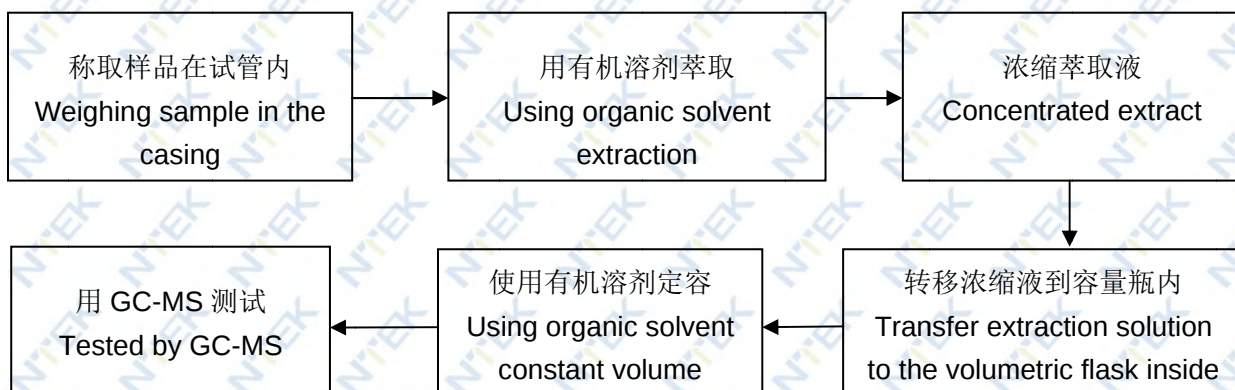
#### 2.1 非金属样品 (Non-metal samples)



## 2.2 金属样品 (Metal samples)



## 3. 多溴联苯/多溴二苯醚 (PBBs/ PBDEs)



样品照片(Sample photo):



图(Fig).1



图(Fig).2



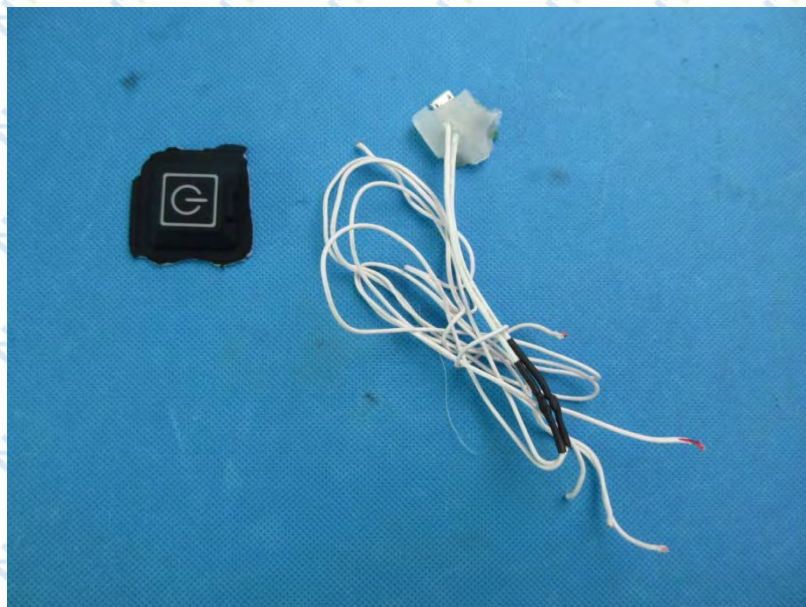
图(Fig).3



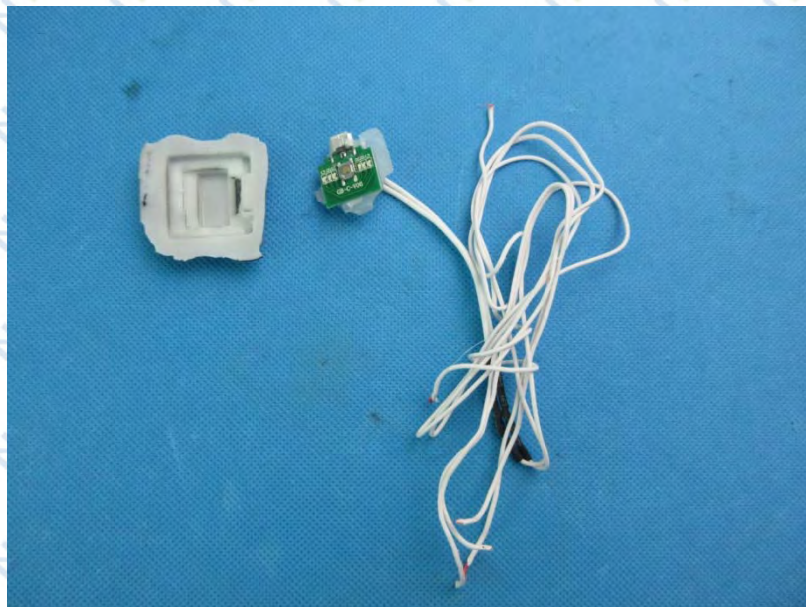
图(Fig).4



图(Fig).5



图(Fig).6



图(Fig).7



图(Fig).8

\*\*\*\*报告结束(End of Report)\*\*\*\*

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