

# Test Report

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Client:

Client Address:

Sample Name: Power Bank

Sample Style: UP-808

Supplier: /

Sample Receiving Date: Oct.12, 2017

Test Period: Oct.12, 2017 to Oct.19, 2017

Test Requested:

1. With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU (RoHS2.0).
2. EU Battery Directive (2006/66/EC & 2013/56/EU) on Mercury, Cadmium and Lead Content.

Test Results: Please refer to next page(s).

Test Conclusion:

1. The submitted sample(s) **complied** with the Lead, Cadmium, Mercury, Hexavalent Chromium, Polybrominated biphenyls (PBBs) and Polybrominated diphenyl ethers (PBDEs) content requirement according to RoHS Directive (EU) 2015/863 amending 2011/65/EU (RoHS2.0).
2. The submitted sample(s) **complied** with the EU Battery Directive (2006/66/EC & 2013/56/EU).

Tested By:

Leo

Test engineer

Reviewed By:

Peter

Test engineer

Approved By:

Syphu

Technical Director

Issue Date: Oct.19, 2017



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- Test Method:**
1. With reference to IEC 62321-2:2013, review was performed for the samples disjointed from the submitted articles.
  2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report
    - (1) With reference to IEC 62321-3-1:2013, screening by XRF spectroscopy.
    - (2) Wet chemical test method
      - a. With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
      - b. With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
      - c. With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
      - d. With reference to IEC 62321-7-1:2015 & IEC 62321-7-2:2017, determination of Hexavalent chromium by Colorimetric method using UV-Vis.
      - e. With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.
  3. With reference to US EPA 3050B:1996, US EPA 3052:1996 and US EPA 6010D:2014, determination of Pb, Cd, Hg by Inductively coupled plasma- Atomic emission spectrometry (ICP).

## Testing Result:

**1. With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU (RoHS2.0) to test Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs.**

| Part No. | Part Name           | XRF       |                        | Chemical Testing |                                   |                  | Conclusion |
|----------|---------------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                     | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 1        | White plastic shell | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                     | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                     | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                     | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                     | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                     |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 2        | Gray plastic        | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                     | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                     | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                     | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                     | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                     |           |                        | PBDEs            | /                                 | 1000             | PASS       |

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| Part No. | Part Name                | XRF       |                        | Chemical Testing |                                   |                  | Conclusion |
|----------|--------------------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                          | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 3        | Gray plastic button      | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                          | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                          | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                          | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                          | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                          |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 4        | Transparent plastic film | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                          | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                          | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                          | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                          | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                          |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 5        | Transparent plastic      | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                          | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                          | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                          | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                          | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                          |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 6        | Black foam               | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                          | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                          | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                          | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                          | Br        | X                      | PBBs             | N.D.                              | 1000             | PASS       |
|          |                          |           |                        | PBDEs            | N.D.                              | 1000             | PASS       |
| 7        | Silver screw             | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                          | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                          | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                          | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                          | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                          |           |                        | PBDEs            | NA                                | NA               | NA         |
| 8        | Black line skin          | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                          | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                          | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                          | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                          | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                          |           |                        | PBDEs            | /                                 | 1000             | PASS       |

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| Part No. | Part Name                  | XRF       |                        | Chemical Testing |                                   |                  | Conclusion |
|----------|----------------------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                            | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 9        | Red line skin              | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                            | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                            | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                            | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                            | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                            |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 10       | Wire core                  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                            | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                            | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                            | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                            | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                            |           |                        | PBDEs            | NA                                | NA               | NA         |
| 11       | Yellow tape                | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                            | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                            | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                            | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                            | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                            |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 12       | Black coating              | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                            | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                            | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                            | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                            | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                            |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 13       | Transparent plastic        | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                            | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                            | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                            | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                            | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                            |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 14       | Double sided adhesive tape | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                            | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                            | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                            | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                            | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                            |           |                        | PBDEs            | /                                 | 1000             | PASS       |

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| Part No. | Part Name              | XRF       |                        | Chemical Testing |                                   |                     | Conclusion |
|----------|------------------------|-----------|------------------------|------------------|-----------------------------------|---------------------|------------|
|          |                        | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg)    |            |
| 15       | Silver metal connector | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                        | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                        | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                        | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                        | Br        | NA                     | PBBs             | NA                                | NA                  | NA         |
|          |                        |           |                        | PBDEs            | NA                                | NA                  | NA         |
| 16       | White glue             | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                        | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                        | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                        | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                        | Br        | BL                     | PBBs             | /                                 | 1000                | PASS       |
|          |                        |           |                        | PBDEs            | /                                 | 1000                | PASS       |
| 17       | Black paper            | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                        | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                        | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                        | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                        | Br        | BL                     | PBBs             | /                                 | 1000                | PASS       |
|          |                        |           |                        | PBDEs            | /                                 | 1000                | PASS       |
| 18       | Black plastic button   | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                        | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                        | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                        | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                        | Br        | BL                     | PBBs             | /                                 | 1000                | PASS       |
|          |                        |           |                        | PBDEs            | /                                 | 1000                | PASS       |
| 19       | Silver metal           | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                        | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                        | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                        | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                        | Br        | NA                     | PBBs             | NA                                | NA                  | NA         |
|          |                        |           |                        | PBDEs            | NA                                | NA                  | NA         |
| 20       | Metal dome             | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                        | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                        | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                        | Cr        | X                      | Cr <sup>6+</sup> | N.D.                              | See Note<br>(2) (c) | PASS       |
|          |                        | Br        | NA                     | PBBs             | NA                                | NA                  | NA         |
|          |                        |           |                        | PBDEs            | NA                                | NA                  | NA         |

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|----------|---------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |               | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 21       | White plastic | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |               | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |               | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |               | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |               | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |               |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 22       | Lead          | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |               | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |               | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |               | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |               | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |               |           |                        | PBDEs            | NA                                | NA               | NA         |
| 23       | Three feet IC | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |               | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |               | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |               | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |               | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |               |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 24       | Silver metal  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |               | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |               | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |               | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |               | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |               |           |                        | PBDEs            | NA                                | NA               | NA         |
| 25       | Black plastic | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |               | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |               | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |               | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |               | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |               |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 26       | Guide pin     | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |               | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |               | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |               | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |               | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |               |           |                        | PBDEs            | NA                                | NA               | NA         |

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|----------|----------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 27       | Silver metal   | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                |           |                        | PBDEs            | NA                                | NA               | NA         |
| 28       | White plastic  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 29       | Guide pin      | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                |           |                        | PBDEs            | NA                                | NA               | NA         |
| 30       | Chip capacitor | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                | Br        | X                      | PBBs             | N.D.                              | 1000             | PASS       |
|          |                |           |                        | PBDEs            | N.D.                              | 1000             | PASS       |
| 31       | Eight feet IC  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 32       | Cooling fin    | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                |           |                        | PBDEs            | NA                                | NA               | NA         |

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|----------|----------------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                      | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 33       | Black chip capacitor | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                      | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                      | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                      | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                      | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                      |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 34       | Black electromagnet  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                      | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                      | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                      | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                      | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                      |           |                        | PBDEs            | NA                                | NA               | NA         |
| 35       | Copper wire          | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                      | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                      | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                      | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                      | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                      |           |                        | PBDEs            | NA                                | NA               | NA         |
| 36       | LED                  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                      | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                      | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                      | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                      | Br        | X                      | PBBs             | N.D.                              | 1000             | PASS       |
|          |                      |           |                        | PBDEs            | N.D.                              | 1000             | PASS       |
| 37       | Lead                 | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                      | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                      | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                      | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                      | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                      |           |                        | PBDEs            | NA                                | NA               | NA         |
| 38       | LED                  | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                      | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                      | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                      | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                      | Br        | X                      | PBBs             | N.D.                              | 1000             | PASS       |
|          |                      |           |                        | PBDEs            | N.D.                              | 1000             | PASS       |



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| Part No. | Part Name         | XRF       |                        | Chemical Testing |                                   |                  | Conclusion |
|----------|-------------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                   | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 39       | Soldering tin     | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                   | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                   |           |                        | PBDEs            | NA                                | NA               | NA         |
| 40       | PCB               | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                   | Br        | X                      | PBBs             | N.D.                              | 1000             | PASS       |
|          |                   |           |                        | PBDEs            | N.D.                              | 1000             | PASS       |
| 41       | White bundle skin | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                   | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                   |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 42       | Wire core         | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                   | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                   |           |                        | PBDEs            | NA                                | NA               | NA         |
| 43       | White plastic     | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                   | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                   |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 44       | Silver metal      | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                   | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                   |           |                        | PBDEs            | NA                                | NA               | NA         |

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| Part No. | Part Name         | XRF       |                        | Chemical Testing |                                   |                     | Conclusion |
|----------|-------------------|-----------|------------------------|------------------|-----------------------------------|---------------------|------------|
|          |                   | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg)    |            |
| 45       | White plastic     | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                   | Br        | BL                     | PBBs             | /                                 | 1000                | PASS       |
|          |                   |           |                        | PBDEs            | /                                 | 1000                | PASS       |
| 46       | Guide pin         | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                   | Br        | NA                     | PBBs             | NA                                | NA                  | NA         |
|          |                   |           |                        | PBDEs            | NA                                | NA                  | NA         |
| 47       | Silver metal      | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                   | Cr        | X                      | Cr <sup>6+</sup> | N.D.                              | See Note<br>(2) (c) | PASS       |
|          |                   | Br        | NA                     | PBBs             | NA                                | NA                  | NA         |
|          |                   |           |                        | PBDEs            | NA                                | NA                  | NA         |
| 48       | Black plastic     | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                   | Br        | X                      | PBBs             | N.D.                              | 1000                | PASS       |
|          |                   |           |                        | PBDEs            | N.D.                              | 1000                | PASS       |
| 49       | Guide pin         | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                   | Cr        | X                      | Cr <sup>6+</sup> | N.D.                              | See Note<br>(2) (c) | PASS       |
|          |                   | Br        | NA                     | PBBs             | NA                                | NA                  | NA         |
|          |                   |           |                        | PBDEs            | NA                                | NA                  | NA         |
| 50       | White wire saddle | Pb        | BL                     | Pb               | /                                 | 1000                | PASS       |
|          |                   | Cd        | BL                     | Cd               | /                                 | 100                 | PASS       |
|          |                   | Hg        | BL                     | Hg               | /                                 | 1000                | PASS       |
|          |                   | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000                | PASS       |
|          |                   | Br        | BL                     | PBBs             | /                                 | 1000                | PASS       |
|          |                   |           |                        | PBDEs            | /                                 | 1000                | PASS       |

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| Part No. | Part Name       | XRF       |                        | Chemical Testing |                                   |                  | Conclusion |
|----------|-----------------|-----------|------------------------|------------------|-----------------------------------|------------------|------------|
|          |                 | Test Item | Results <sup>(1)</sup> | Test Item        | Results <sup>(2)</sup><br>(mg/Kg) | Limit<br>(mg/kg) |            |
| 51       | Black line skin | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                 | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                 | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                 | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                 | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                 |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 52       | Red line skin   | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                 | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                 | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                 | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                 | Br        | BL                     | PBBs             | /                                 | 1000             | PASS       |
|          |                 |           |                        | PBDEs            | /                                 | 1000             | PASS       |
| 53       | Wire core       | Pb        | BL                     | Pb               | /                                 | 1000             | PASS       |
|          |                 | Cd        | BL                     | Cd               | /                                 | 100              | PASS       |
|          |                 | Hg        | BL                     | Hg               | /                                 | 1000             | PASS       |
|          |                 | Cr        | BL                     | Cr <sup>6+</sup> | /                                 | 1000             | PASS       |
|          |                 | Br        | NA                     | PBBs             | NA                                | NA               | NA         |
|          |                 |           |                        | PBDEs            | NA                                | NA               | NA         |

## Remark:

- (1)(a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr<sup>6+</sup>.
- (b) Results are obtained by XRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013 (unit: mg/kg).

| Element | Polymers                                             | Metals                                               | Composite Material                                   |
|---------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Cd      | $BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$   | $BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$   | $LOD < X < (150+3\sigma) \leq OL$                    |
| Pb      | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$ |
| Hg      | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$ |
| Cr      | $BL \leq (700-3\sigma) < X$                          | $BL \leq (700-3\sigma) < X$                          | $BL \leq (500-3\sigma) < X$                          |
| Br      | $BL \leq (300-3\sigma) < X$                          | NA                                                   | $BL \leq (250-3\sigma) < X$                          |

(c) OL=Over Limit, BL=Below Limit, X=inconclusive, LOD=Limit of Detection, NA=not applicable

(d) The XRF screening test for RoHS elements-The reading may be different to the actual content

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in the sample be of non-uniformity composition

(2) (a) mg/kg=ppm=0.0001%, N.D.=not detected (<MDL)

(b) Unit and Method Detection Limit(MDL) in wet chemical test

| Test Items | Pb    | Hg    | Cd    |
|------------|-------|-------|-------|
| Unit       | mg/kg | mg/kg | mg/kg |
| MDL        | 5     | 5     | 5     |

The MDL for single compound of PBBs & PBDEs is 20mg/kg, MDL of Cr<sup>6+</sup> for metal sample is 0.10µg/cm<sup>2</sup>. and MDL of Cr<sup>6+</sup> for polymer & composite sample is 8 mg/kg.

(c) Metal sample:

-The sample is positive for Cr<sup>6+</sup> if the Cr<sup>6+</sup> concentration is greater than 0.13 µg/cm<sup>2</sup>.

The sample coating is considered to contain Cr<sup>6+</sup>.

-The sample is negative for Cr<sup>6+</sup> if Cr<sup>6+</sup> is ND (concentration less than 0.10 µg/cm<sup>2</sup>).

The coating is considered a non- Cr<sup>6+</sup> based coating

-The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive, unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr<sup>6+</sup> results represent status of the sample at the time of testing.

(3) As specified by client to test the specified materials only.

## 2. EU Battery Directive (2006/66/EC & 2013/56/EU) on Mercury, Cadmium and Lead Content.

| Sample Identity | Sample Name     | Color and Material | Type |
|-----------------|-----------------|--------------------|------|
| 54              | Lithium Battery | Mixed              | /    |

| Item         | MDL (mg/kg) | Results (mg/kg) | Required Limit (mg/kg) |
|--------------|-------------|-----------------|------------------------|
|              |             | 54              |                        |
| Lead (Pb)    | 5           | N.D.            | 40*                    |
| Cadmium (Cd) | 5           | N.D.            | 20                     |
| Mercury (Hg) | 2           | N.D.            | 5                      |
| Conclusion   | —           | PASS            | —                      |

### Note:

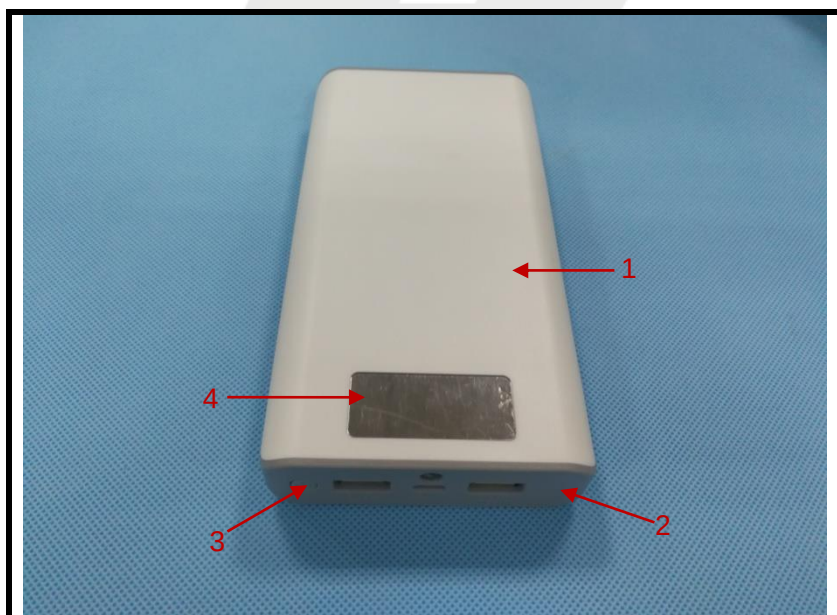
- N.D. = Not Detected or less than MDL
- MDL = Method Detection Limit
- 1mg/kg=1ppm=0.0001%
- \*: According to 2006/66/EC battery directive if the lead content is more than 40ppm (40mg/kg), the sample must be marked "Pb".

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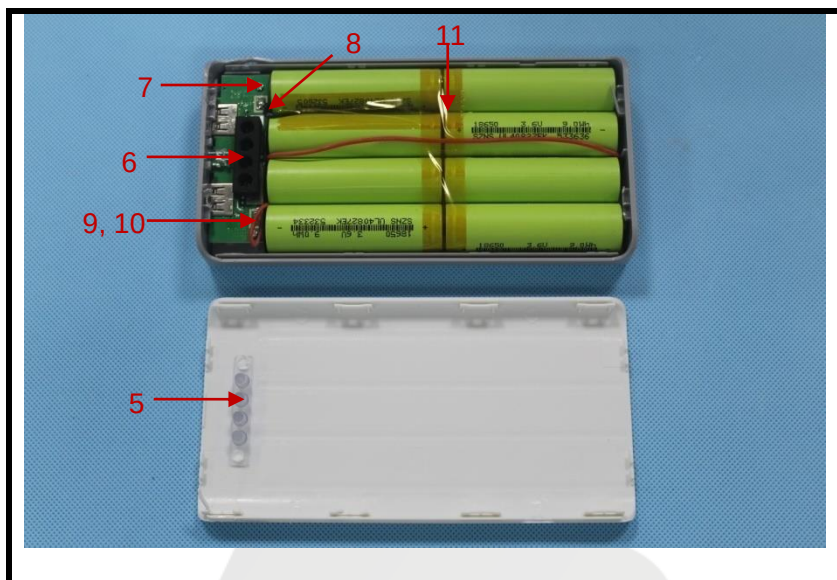
## Sample photo



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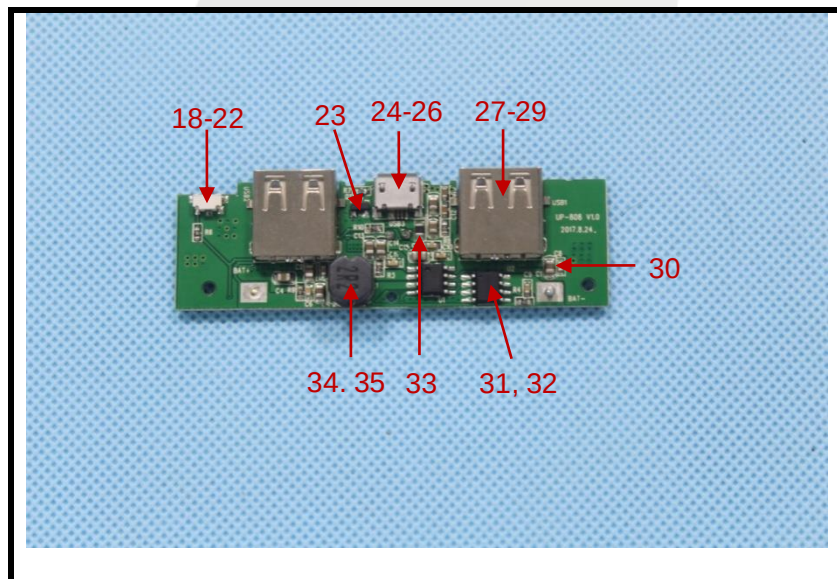
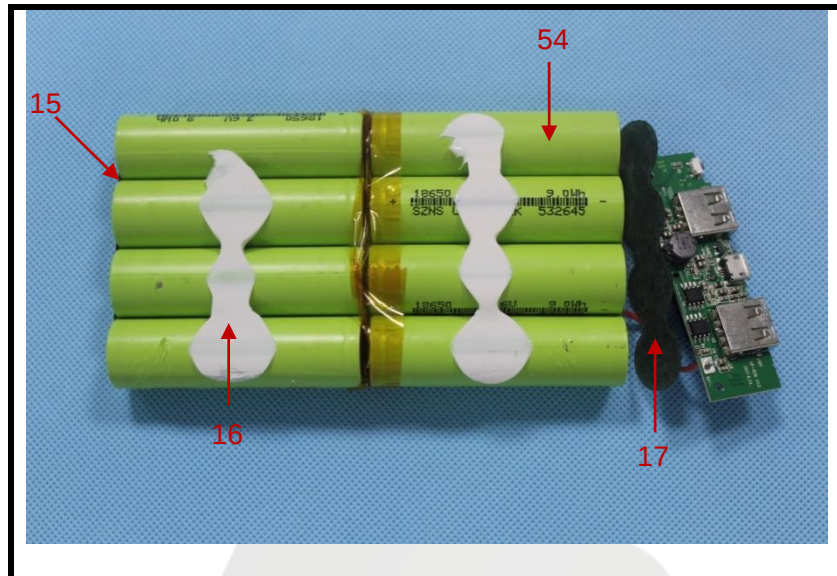




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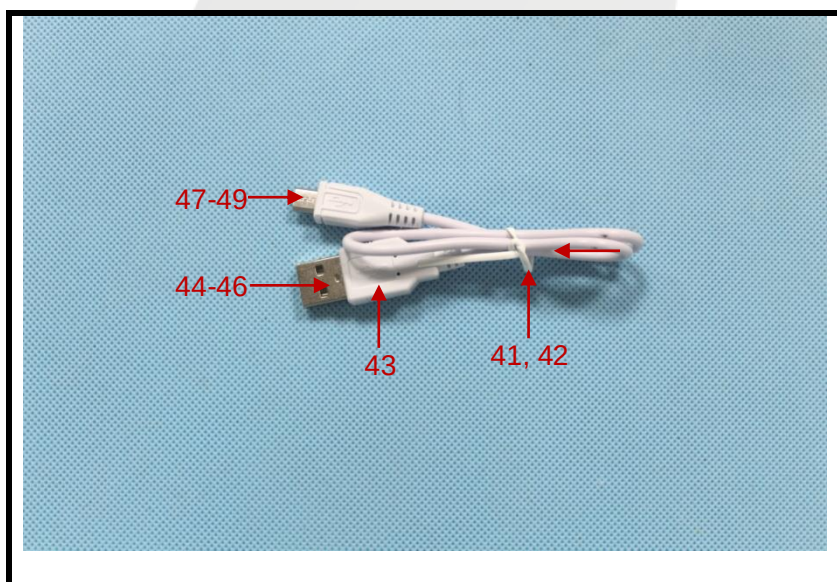
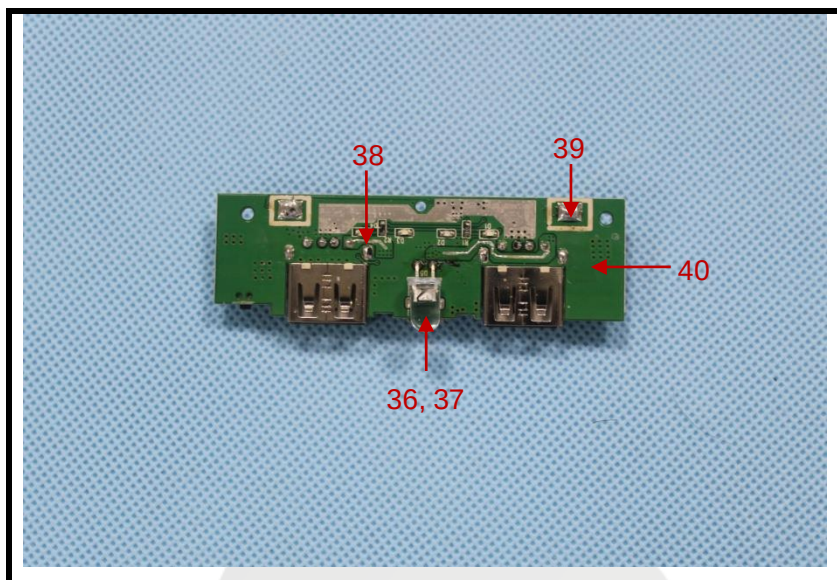
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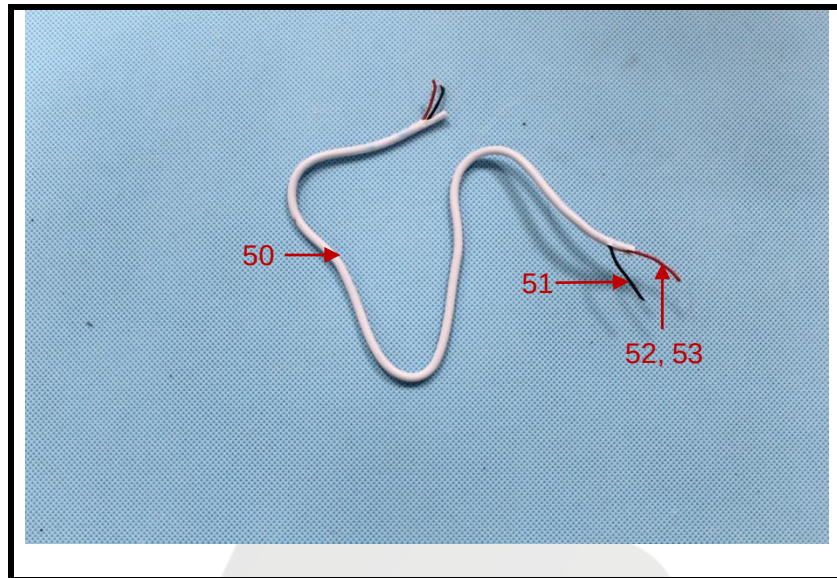




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PTL authenticate the photo on original report only

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

## Important Information

1. The test report is invalid without the official stamp of the lab.
2. Nobody is allowed to photocopy or partly photocopy this report without written permission of the lab.
3. The test report is invalid without the signature of approver and reviewer.
4. The test report is invalid if altered.
5. If any test method is deviation from the designated test method, must be commented in the test data sheet.
6. Objections to the test report must be submitted to LAB within 15days.
7. The test report is valid for the tested sample only.