# Test Report

**Report No.: A001R20170918018** Date: Sep.29, 2017 Page 1 of 21

Applicant:

Address:

**Report on the submitted sample(s) said to be:**

| | |
|---|---|
| Sample Name: | Bluetooth headset with case. Cable length from ear to ear 51 cm. Case 10cm height x 3cm x 3cm. Lid and volume panel/ears in the same color, transparent tube and black cable |
| Model: | CTT 16928 |
| Item No.: | 7816 |
| Country of origin: | CHINA |
| Country of destination: | EUROPE |
| Sample Received Date: | Sep.18, 2017 |
| Testing Period: | Sep.18, 2017 to Sep.29, 2017 |

| | |
|---|---|
| **Test Requested:** | Please refer to following page(s). |
| **Test Method:** | Please refer to following page(s). |
| **Test Result:** | Please refer to following page(s). |

| Tested by: | Reviewed by: | Approved by: |
|---|---|---|
| Luoxiao | Suhongliang, Leon | Liulinwen, Lewis |
| Test Engineer | Test Team Leader | Technical Director |





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# Test Report



| **Test Requested:** | **Conclusion** |
|---|---|
| 1. As specified by client, to determine the Polycyclic Aromatic Hydrocarbons (PAHs) content in the submitted sample(s) with reference to entry 50, Annex XVII of the REACH Regulation (EC) No 1907/2006. | **Pass** |
| 2. As specified by client, to determine Lead(Pb), Cadmium(Cd), Mercury(Hg) , Hexavalent Chromium ($Cr^{6+}$) content accordance with European Parliament and Council Directive 94/62/EC and Amendment Regulation 2013/2/EU on packaging and packaging waste. | **Pass** |
| 3. As specified by client, to determine Lead(Pb), Cadmium(Cd), Mercury(Hg) content accordance with European Directive 2006/66/EC and its amendments 2013/56/EU. | **Pass** |
| 4.As specified by client, to determine the Pb, Cd, Hg, $Cr^{6+}$, PBBs, PBDEs content in the submitted sample in accordance with EU RoHS Directive 2011/65/EU(RoHS) and its amendment directives on XRF and Chemical Method. | **Pass** |





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# Test Report



**Test Result(s):**

**1. Test result of Polycyclic Aromatic Hydrocarbons (PAHs)**

Unit: mg/kg

| Test Item(s) | Test Method /Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-2 | 1-3 | 1-4 | |
| Benzo[a]anthracene (BaA) | Refer to German consumer product safety regulations (ProdSG: 2014) GC-MS | 0.1 | N.D. | N.D. | N.D. | 1 |
| Chrysene (CHR) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[b]fluoranthene (BbFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[k]fluoranthene (BkFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[j]fluoranthene (BjFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[a]pyrene (BaP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[e]pyrene(BeP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Dibenzo[a,h]anthracene (DBAhA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| **Sum of 8 PAHs** | | — | N.D. | N.D. | N.D. | / |
| **Conclusion** | | / | **Pass** | **Pass** | **Pass** | / |

Unit: mg/kg

| Test Item(s) | Test Method /Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-5 | 1-6 | 1-7 | |
| Benzo[a]anthracene (BaA) | Refer to German consumer product safety regulations (ProdSG: 2014) GC-MS | 0.1 | N.D. | N.D. | N.D. | 1 |
| Chrysene (CHR) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[b]fluoranthene (BbFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[k]fluoranthene (BkFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[j]fluoranthene (BjFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[a]pyrene (BaP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[e]pyrene(BeP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Dibenzo[a,h]anthracene (DBAhA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| **Sum of 8 PAHs** | | — | N.D. | N.D. | N.D. | / |
| **Conclusion** | | / | **Pass** | **Pass** | **Pass** | / |





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# Test Report



Unit: mg/kg

| Test Item(s) | Test Method /Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-8 | 1-9 | 1-10 | |
| Benzo[a]anthracene (BaA) | Refer to German consumer product safety regulations (ProdSG: 2014) GC-MS | 0.1 | N.D. | N.D. | N.D. | 1 |
| Chrysene (CHR) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[b]fluoranthene (BbFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[k]fluoranthene (BkFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[j]fluoranthene (BjFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[a]pyrene (BaP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[e]pyrene(BeP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Dibenzo[a,h]anthracene (DBAhA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| **Sum of 8 PAHs** | | — | N.D. | N.D. | N.D. | / |
| **Conclusion** | | / | **Pass** | **Pass** | **Pass** | / |

Unit: mg/kg

| Test Item(s) | Test Method /Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-11 | 1-12 | 1-13 | |
| Benzo[a]anthracene (BaA) | Refer to German consumer product safety regulations (ProdSG: 2014) GC-MS | 0.1 | N.D. | N.D. | N.D. | 1 |
| Chrysene (CHR) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[b]fluoranthene (BbFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[k]fluoranthene (BkFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[j]fluoranthene (BjFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[a]pyrene (BaP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[e]pyrene(BeP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Dibenzo[a,h]anthracene (DBAhA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| **Sum of 8 PAHs** | | — | N.D. | N.D. | N.D. | / |
| **Conclusion** | | / | **Pass** | **Pass** | **Pass** | / |





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Unit: mg/kg

| Test Item(s) | Test Method /Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-14 | 1-15 | 1-16 | |
| Benzo[a]anthracene (BaA) | Refer to German consumer product safety regulations (ProdSG: 2014) GC-MS | 0.1 | N.D. | N.D. | N.D. | 1 |
| Chrysene (CHR) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[b]fluoranthene (BbFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[k]fluoranthene (BkFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[j]fluoranthene (BjFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[a]pyrene (BaP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[e]pyrene(BeP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Dibenzo[a,h]anthracene (DBAhA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| **Sum of 8 PAHs** | | — | N.D. | N.D. | N.D. | / |
| **Conclusion** | | / | **Pass** | **Pass** | **Pass** | / |

Unit: mg/kg

| Test Item(s) | Test Method /Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-17 | 1-18 | 1-19 | |
| Benzo[a]anthracene (BaA) | Refer to German consumer product safety regulations (ProdSG: 2014) GC-MS | 0.1 | N.D. | N.D. | N.D. | 1 |
| Chrysene (CHR) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[b]fluoranthene (BbFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[k]fluoranthene (BkFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[j]fluoranthene (BjFA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[a]pyrene (BaP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Benzo[e]pyrene(BeP) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| Dibenzo[a,h]anthracene (DBAhA) | | 0.1 | N.D. | N.D. | N.D. | 1 |
| **Sum of 8 PAHs** | | — | N.D. | N.D. | N.D. | / |
| **Conclusion** | | / | **Pass** | **Pass** | **Pass** | / |

**Note:** 1. MDL＝Method Detection Limit
2. N.D.=Not Detected(less than method detection limit)
3. As specified by client, only test the designated sample.





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# Test Report



**2. Lead(Pb), Cadmium(Cd), Mercury(Hg) , Hexavalent Chromium ($Cr^{6+}$) content (94/62/EC)**

Unit: mg/kg

| Test item(s) | Test Method/ Equipment | MDL | Result(s) | | | | Limit |
|---|---|---|---|---|---|---|---|
| | | | 1-14 | 1-15 | 1-16 | 1-17 | |
| Lead (Pb) | Refer to IEC 62321-5:2013 ICP-OES | 5 | N.D. | N.D. | N.D. | N.D. | — |
| Cadmium (Cd) | | 5 | N.D. | N.D. | N.D. | N.D. | — |
| Mercury (Hg) | Refer to IEC 62321-4:2013 ICP-OES | 5 | N.D. | N.D. | N.D. | N.D. | — |
| Hexavalent Chromium ($Cr^{6+}$) | Refer to IEC 62321-7-2:2017 UV-Vis | 1 | N.D. | N.D. | N.D. | N.D. | — |
| Sum of (Pb + Cd + $Cr^{6+}$ + Hg) | / | / | N.D. | N.D. | N.D. | N.D. | 100 |
| **Conclusion** | / | / | **Pass** | **Pass** | **Pass** | **Pass** | / |

Unit: mg/kg

| Test item(s) | Test Method/ Equipment | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|---|
| | | | 1-18 | 1-19 | 1-20 | |
| Lead (Pb) | Refer to IEC 62321-5:2013 ICP-OES | 5 | N.D. | N.D. | 42 | — |
| Cadmium (Cd) | | 5 | N.D. | N.D. | N.D. | — |
| Mercury (Hg) | Refer to IEC 62321-4:2013 ICP-OES | 5 | N.D. | N.D. | N.D. | — |
| Hexavalent Chromium ($Cr^{6+}$) | Refer to IEC 62321-7-2:2017 UV-Vis | 1 | N.D. | N.D. | / | — |
| Hexavalent Chromium ($Cr^{6+}$) | Refer to IEC 62321-7-1:2015 UV-Vis | See note | / | / | Negative | # |
| Sum of (Pb + Cd + $Cr^{6+}$ + Hg) | / | / | N.D. | N.D. | 42-52 | 100 |
| **Conclusion** | / | / | **Pass** | **Pass** | **Pass** | / |





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**Note:**

- N.D.=Not Detected(less than method detection limit)
- MDL = Method Detection Limit
- Negative = Absence of Cr(Ⅵ) on the tested areas
- Boiling-water-extraction:

| Number | Colorimetric result (Cr(VI) concentration) | **Qualitative result** |
|---|---|---|
| 1 | The sample solution is<the 0,10 μg/cm$^2$ equivalent comparison standard solution | The sample is negative for Cr(VI) − The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating. |
| 2 | The sample solution is ≥ the 0,10 μg/cm$^2$ and ≤ the0,13 μg/cm$^2$ equivalent comparison standard solutions | The result is considered to be inconclusive – Unavoidable coating variations may influence the determination. |
| 3 | The sample solution is > the 0,13 μg/cm$^2$ equivalent comparison standard solution | The sample is positive for Cr(VI) − The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI). |

- # =Negative indicates the absence of Cr(Ⅵ) on the tested areas concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
  Uncertainty indicates the absence of Cr(Ⅵ) on the tested areas unavoidable coating variations may influence the determination.
  Positive indicates the presence of Cr(Ⅵ) on the tested areas concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).
  Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.
- As specified by client, only test the designated sample.





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# Test Report



**3. Test result of Lead(Pb), Cadmium(Cd), Mercury(Hg)**

Unit: %,w/w

| Test item(s) | Test Method/ Equipment | MDL | Result(s) | Limit |
|---|---|---|---|---|
| | | | 1-1 | |
| **Lead (Pb)** | Refer to IEC 62321-5:2013 ICP-OES | 0.0005 | N.D. | — |
| **Cadmium (Cd)** | | 0.0005 | N.D. | 0.002 |
| **Mercury (Hg)** | Refer to IEC 62321-4:2013, ICP-OES | 0.0001 | N.D. | 0.0005 |
| **Conclusion** | / | / | **Pass** | / |

**Note:**

- 0.1%,w/w=1000 mg/kg
- N.D.=Not Detected(less than method detection limit)
- MDL = Method Detection Limit
- "—" =Not regulated
- As specified by client, only test the designated sample.

**Sample description:**

| | | | |
|---|---|---|---|
| 1-1 | Electric core | 1-11 | White plastic shell |
| 1-2 | Red plastic shell | 1-12 | White silicone plug |
| 1-3 | Red silicone plug | 1-13 | Black grip |
| 1-4 | Blue wire leather | 1-14 | Black outside leather |
| 1-5 | Blue plastic shell | 1-15 | White rubber cover(box) |
| 1-6 | Blue silicone plug | 1-16 | Blue rubber cover(box) |
| 1-7 | Black wire leather | 1-17 | Red rubber cover(box) |
| 1-8 | Black plastic shell | 1-18 | Black rubber cover(box) |
| 1-9 | Black silicone plug | 1-19 | Transparent plastic shell(box) |
| 1-10 | White wire leather | 1-20 | Metal buckle(box) |





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# Test Report



**4.Test Methods:**

A: Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Ed 1.0 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

B: Chemical test:

| **Test Item** | **Test Method** | **Measuring Instrument** | **MDL** |
|---|---|---|---|
| Cadmium (Cd) | IEC 62321-5:2013 Ed 1.0 Section 7 | ICP-OES | 2 mg/kg |
| Lead (Pb) | IEC 62321-5:2013 Ed 1.0 Section 7 | ICP-OES | 2 mg/kg |
| Mercury (Hg) | IEC 62321-4:2013 Ed 1.0 Section 7 | ICP-OES | 2 mg/kg |
| Non-metal Hexavalent Chromium ($Cr^{6+}$) | IEC 62321-7-2:2017 Ed 1.0 | UV-Vis | 1 mg/kg |
| Metal Hexavalent Chromium ($Cr^{6+}$) | IEC 62321-7-1:2015 Ed 1.0 | UV-Vis | / |
| PBBs/PBDEs | IEC 62321-6:2015 Ed 1.0 | GC-MS | 5 mg/kg |





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# Test Report



**Test Results:**

**A、EU RoHS Directive 2011/65/EU and its amendment directives on XRF**

| Seq. No. | Tested Part(s) | Results(mg/kg) | | | | |
|---|---|---|---|---|---|---|
| | | Cd | Pb | Hg | Cr | Br |
| 1 | Red plastic ear shell(ear shell) | BL | BL | BL | BL | BL |
| 2 | Silver plating ring(ear shell) | BL | BL | BL | BL | BL |
| 3 | Metal buckle(ear shell) | BL | BL | BL | BL | - |
| 4 | Red silicone plug(ear shell) | BL | BL | BL | BL | BL |
| 5 | Yellow glue(horn) | BL | X* | BL | BL | BL |
| 6 | PCB board(horn) | BL | BL | BL | BL | BL |
| 7 | Tin solder(horn) | BL | BL | BL | BL | - |
| 8 | Metal shell(horn) | BL | BL | BL | BL | - |
| 9 | Black foam ring(horn) | BL | BL | BL | BL | BL |
| 10 | Metal cover(horn) | BL | BL | BL | BL | - |
| 11 | Diaphragm(horn) | BL | BL | BL | BL | BL |
| 12 | Enameled wire(horn) | BL | BL | BL | BL | - |
| 13 | magnet(horn) | BL | BL | BL | BL | BL |
| 14 | Red plastic shell(Sound controller) | BL | BL | BL | BL | BL |
| 15 | Red buckle(Sound controller) | BL | BL | BL | BL | BL |
| 16 | IC Ontology(IC) (Sound controller) | BL | BL | BL | BL | BL |
| 17 | Pin(IC) (Sound controller) | BL | BL | BL | BL | - |
| 18 | Tin solder(Sound controller) | BL | BL | BL | BL | - |
| 19 | PCB board(Sound controller) | BL | BL | BL | BL | X* |
| 20 | SMD capacitor(Sound controller) | BL | BL | BL | BL | BL |
| 21 | Patch LED(Sound controller) | BL | BL | BL | BL | BL |
| 22 | SMD crystal(Sound controller) | BL | BL | BL | BL | BL |
| 23 | Black plastic seat(Tact Switch) (Sound controller) | BL | BL | BL | BL | BL |
| 24 | Metal shrapnel(Tact Switch) (Sound controller) | BL | BL | BL | X* | - |





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| Seq. No. | Tested Part(s) | Results(mg/kg) | | | | |
|---|---|---|---|---|---|---|
| | | Cd | Pb | Hg | Cr | Br |
| 25 | Black dust-proof net(Microphone) (Sound controller) | BL | BL | BL | BL | BL |
| 26 | Copper Shell(Microphone) (Sound controller) | BL | BL | BL | BL | - |
| 27 | metal Sheet(Microphone) (Sound controller) | BL | BL | BL | BL | - |
| 28 | Diaphragm(Microphone) (Sound controller) | BL | BL | BL | BL | BL |
| 29 | PCB board(Microphone) (Sound controller) | BL | BL | BL | BL | X* |
| 30 | White plastic ring(Microphone) (Sound controller) | BL | BL | BL | BL | BL |
| 31 | Metal shell(Micro joint) (Sound controller) | BL | BL | BL | BL | - |
| 32 | Black plastic joint(Micro joint) (Sound controller) | BL | BL | BL | BL | BL |
| 33 | Pin(Micro joint) (Sound controller) | BL | BL | BL | BL | - |
| 34 | Brown tape(Battery) | BL | BL | BL | BL | BL |
| 36 | Red skin(Battery) | BL | BL | BL | BL | BL |
| 37 | Wire core(Battery) | BL | BL | BL | BL | - |
| 38 | Black line leather(Battery) | BL | BL | BL | BL | BL |
| 39 | Patch IC(Battery) | BL | BL | BL | BL | X* |
| 40 | Tin solder(Battery) | BL | BL | BL | BL | - |
| 41 | PCB board(Battery) | BL | BL | BL | BL | BL |
| 42 | Red wire leather(Wire rod) | BL | BL | BL | BL | BL |
| 43 | Red enameled wire(Wire rod) | BL | BL | BL | BL | - |
| 44 | Brown enameled wire(Wire rod) | BL | BL | BL | BL | - |
| Differences (earphones) | | | | | | |
| 45 | Blue wire leather(Blue earphone) | BL | BL | BL | BL | BL |
| 46 | Blue buckle(Blue earphone) | BL | BL | BL | BL | BL |
| 47 | Blue plastic shell(Blue earphone) | BL | BL | BL | BL | BL |
| 48 | Blue plastic ear shell(Blue earphone) | BL | BL | BL | BL | BL |
| 49 | Blue silicone plug(Blue earphone) | BL | BL | BL | BL | BL |
| 50 | Black wire leather(Black earphone) | BL | BL | BL | BL | BL |





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| Seq. No. | Tested Part(s) | Results(mg/kg) | | | | |
|---|---|---|---|---|---|---|
| | | Cd | Pb | Hg | Cr | Br |
| 51 | Black Buckle(Black earphone) | BL | BL | BL | BL | BL |
| 52 | Black plastic shell(Black earphone) | BL | BL | BL | BL | BL |
| 53 | Black plastic ear shell(Black earphone) | BL | BL | BL | BL | BL |
| 54 | Black silicone plug(Black earphone) | BL | BL | BL | BL | BL |
| 55 | White line leather(White earphone) | BL | BL | BL | BL | BL |
| 56 | White buckle(White earphone) | BL | BL | BL | BL | BL |
| 57 | White plastic shell(White earphone) | BL | BL | BL | BL | BL |
| 58 | White plastic ear shell(White earphone) | BL | BL | BL | BL | BL |
| 59 | White silicone plug(White earphone) | BL | BL | BL | BL | BL |
| USB line | | | | | | |
| 60 | Black grip(USB plug) | BL | BL | BL | BL | BL |
| 61 | Tin solder(USB plug) | BL | BL | BL | BL | - |
| 62 | White plastic plug(USB plug) | BL | BL | BL | BL | BL |
| 63 | Pin(USB plug) | BL | BL | BL | BL | - |
| 64 | Metal shell(USB plug) | BL | BL | BL | BL | - |
| 65 | Tin solder(Micro plug) | BL | BL | BL | BL | - |
| 66 | Black plastic plug(Micro plug) | BL | BL | BL | BL | BL |
| 67 | Metal Thimble(Micro plug) | BL | BL | BL | BL | - |
| 68 | Pin(Micro plug) | BL | BL | BL | X* | - |
| 69 | Metal shell(Micro plug) | BL | BL | BL | X* | - |
| 70 | Black outside wire leather(Wire rod) | BL | BL | BL | BL | BL |
| 71 | Red wire leather(Wire rod) | BL | BL | BL | BL | BL |
| 72 | Wire core(Wire rod) | BL | BL | BL | BL | - |
| 73 | Black wire leather(Wire rod) | BL | BL | BL | BL | BL |





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# Test Report



| Element | Unit | Non-metal | Metal | Composite Material |
|---|---|---|---|---|
| Cd | mg/kg | BL≤70-3σ<X <130+3σ≤OL | BL≤70-3σ<X <130+3σ≤OL | BL≤50-3σ<X <150+3σ≤OL |
| Pb | mg/kg | BL≤700-3σ<X <1300+3σ≤OL | BL≤700-3σ<X <1300+3σ≤OL | BL≤500-3σ<X <1500+3σ≤OL |
| Hg | mg/kg | BL≤700-3σ<X <1300+3σ≤OL | BL≤700-3σ<X <1300+3σ≤OL | BL≤500-3σ<X <1500+3σ≤OL |
| Cr | mg/kg | BL≤700-3σ<X | BL≤700-3σ<X | BL≤500-3σ<X |
| Br | mg/kg | BL≤300-3σ<X | - | BL≤250-3σ<X |

Note: BL= Below Limit
OL= Over limited
X= Inconclusive
"-"= Not regulated
*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

**Test result on specimen No.7 was resubmitted sample on Sep.27,2017.**





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Remark:

i Results were obtained by XRF for primary scanning, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(Ⅵ)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the above warning value according to IEC 62321-3-1:2013 Ed 1.0.

ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

iii The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2011/65/EU:

| RoHS Restricted Substances | Maximum Concentration Value (mg/kg) (by weight in homogenous materials) |
|---|---|
| Cadmium (Cd) | 100 |
| Lead (Pb) | 1000 |
| Mercury (Hg) | 1000 |
| Hexavalent Chromium (Cr(Ⅵ)) | 1000 |
| Polybrominated biphenyls (PBBs) | 1000 |
| Polybrominated diphenylethers (PBDEs) | 1000 |

Disclaimers:

This XRF Scanning report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF scanning report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.





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**B、The Test Results of Chemical Method:**

1) The Test Results of Pb

| Test Item(s) | Unit | Result(s) |
|---|---|---|
| | | 5 |
| Lead(Pb) | mg/kg | 36 |

Note: N.D. = Not Detected or less than MDL
MDL = Method Detection Limit

2)The Test Results of metal $Cr^{6+}$

| Test Item(s) | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|
| | | 24 | 68 | 69 | |
| Hexavalent Chromium ($Cr^{6+}$) | See note | Negative | Negative | Negative | # |

Note:

- Negative = Absence of Cr(Ⅵ) on the tested areas
- MDL = Method Detection Limit
- Boiling-water-extraction:

| Number | Colorimetric result (Cr(VI) concentration) | Qualitative result |
|---|---|---|
| 1 | The sample solution is<the 0,10 μg/cm² equivalent comparison standard solution | The sample is negative for Cr(VI) − The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating. |
| 2 | The sample solution is ≥ the 0,10 μg/cm² and ≤ the0,13 μg/cm² equivalent comparison standard solutions | The result is considered to be inconclusive – Unavoidable coating variations may influence the determination. |
| 3 | The sample solution is > the 0,13 μg/cm² equivalent comparison standard solution | The sample is positive for Cr(VI) − The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI). |

- # =Negative indicates the absence of Cr(Ⅵ) on the tested areas concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.

Uncertainty indicates the absence of Cr(Ⅵ) on the tested areas unavoidable coating variations may influence the determination.

Positive indicates the presence of Cr(Ⅵ) on the tested areas concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.





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# Test Report



3）The Test Results of PBBs & PBDEs

Unit:mg/kg

| Item(s) | MDL | Result(s) | | | Limit |
|---|---|---|---|---|---|
| | | 19 | 29 | 39 | |
| **Polybrominated Biphenyls (PBBs)** | | | | | |
| Monobromobiphenyl | 5 | N.D. | N.D. | N.D. | Total PBBs Content <1000 |
| Dibromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Tribromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Tetrabromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Pentabromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Hexabromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Heptabromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Octabromobiphenyl | 5 | N.D. | N.D. | N.D. | |
| Nonabromodiphenyl | 5 | N.D. | N.D. | N.D. | |
| Decabromodiphenyl | 5 | N.D. | N.D. | N.D. | |
| Total content | / | N.D. | N.D. | N.D. | |
| **Polybrominated Diphenylethers (PBDEs)** | | | | | |
| Monobromodiphenyl ether | 5 | N.D. | N.D. | N.D. | Total PBDEs Content <1000 |
| Dibromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Tribromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Tetrabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Pentabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Hexabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Heptabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Octabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Nonabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Decabromodiphenyl ether | 5 | N.D. | N.D. | N.D. | |
| Total content | / | N.D. | N.D. | N.D. | |
| **Conclusion** | / | **Pass** | **Pass** | **Pass** | / |

Note: N.D. = Not Detected or less than MDL
MDL = Method Detection Limit





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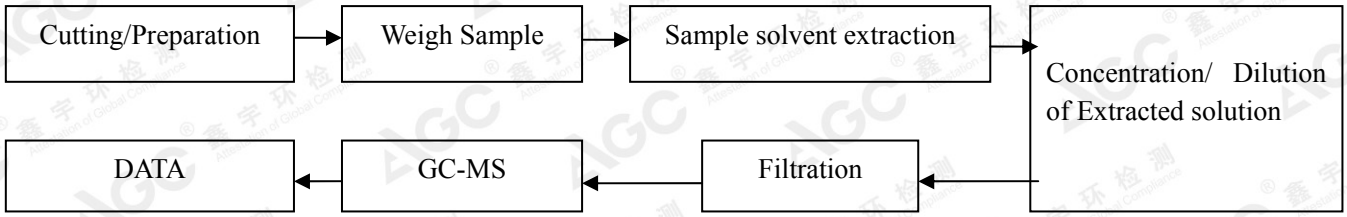
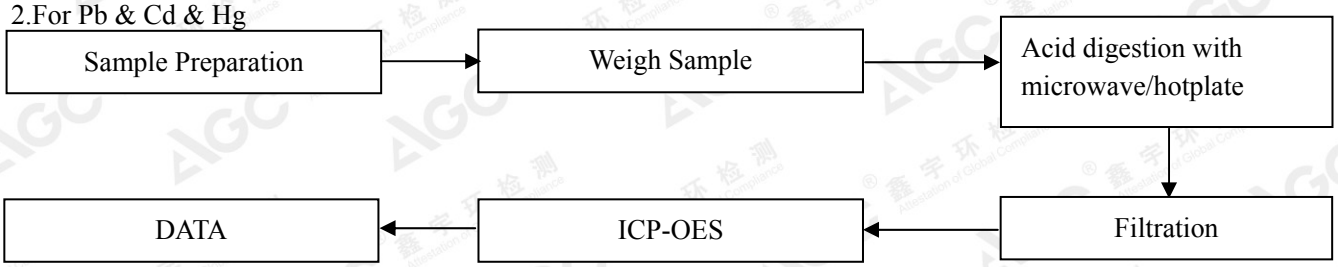
## Test Flow Chart

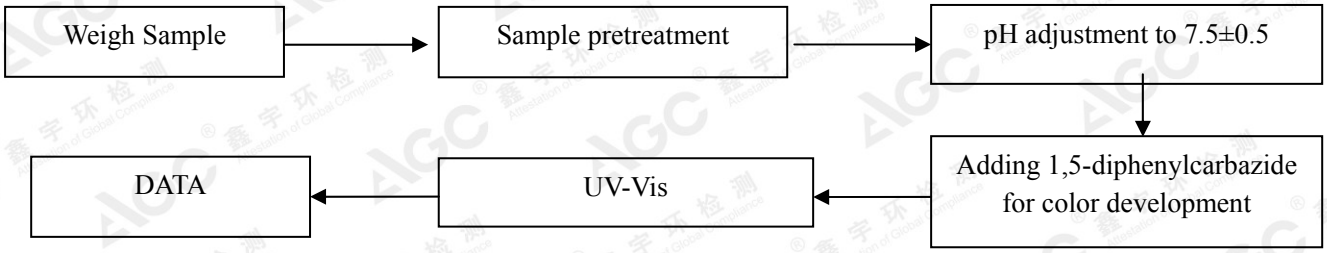
1.For PAHs



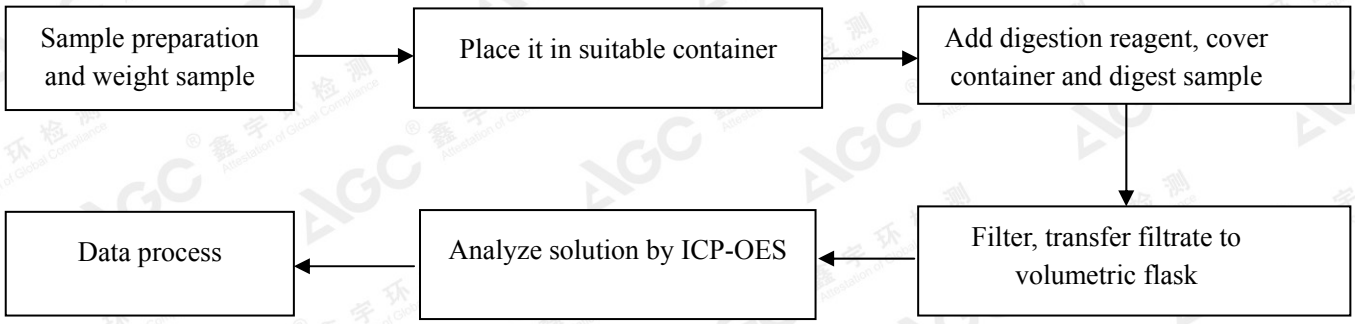

2.For Pb & Cd & Hg




3. For non-metal Cr(Ⅵ)




4.For Lead(Pb), Cadmium(Cd), Mercury(Hg)(2006/66/EC)





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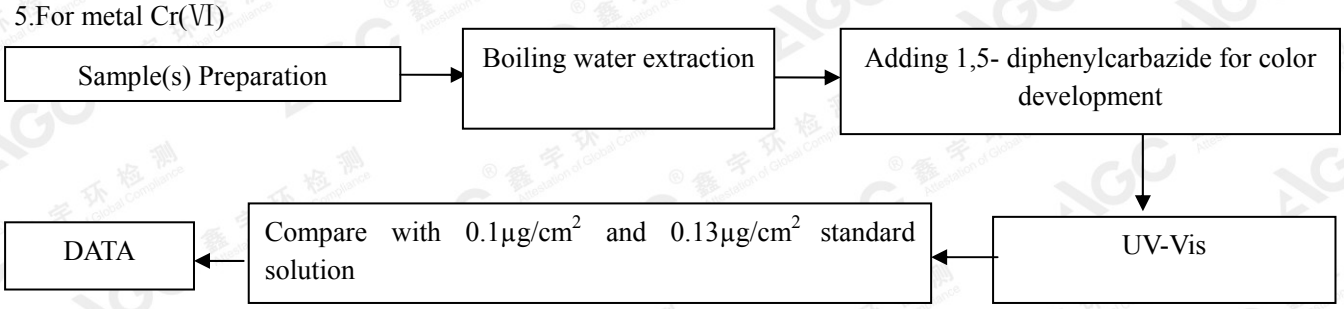
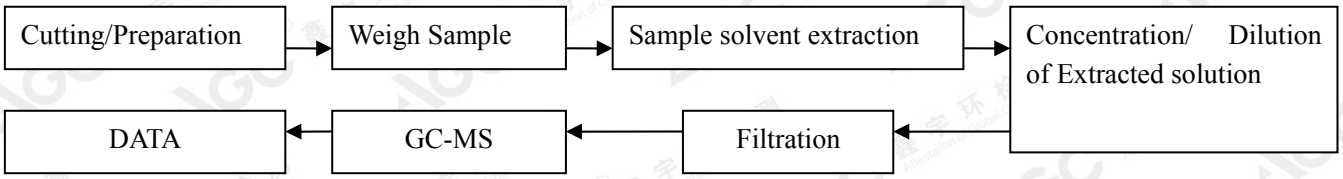
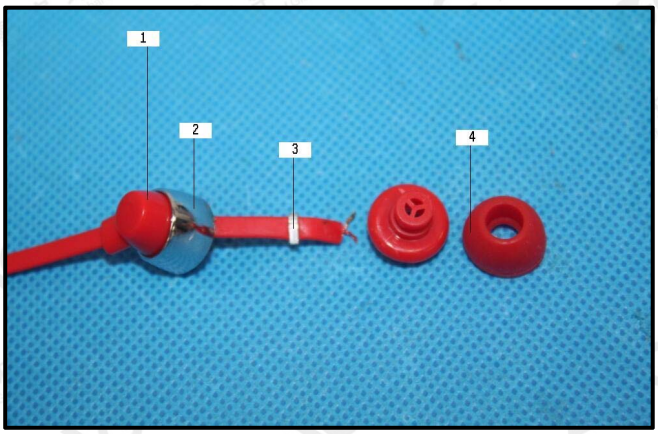
5.For metal Cr(Ⅵ)

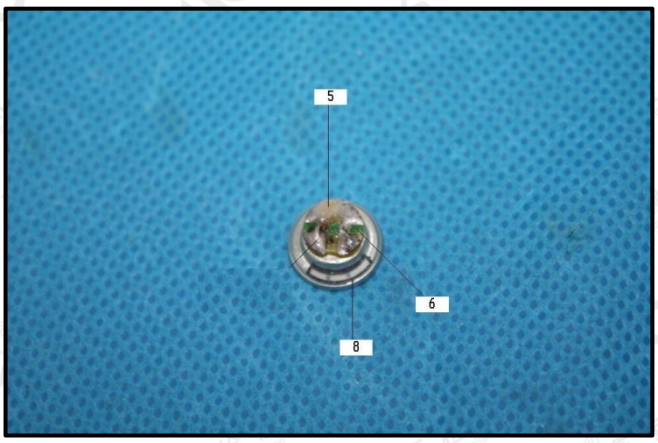



6.For PBBs & PBDEs




## The photo of the sample





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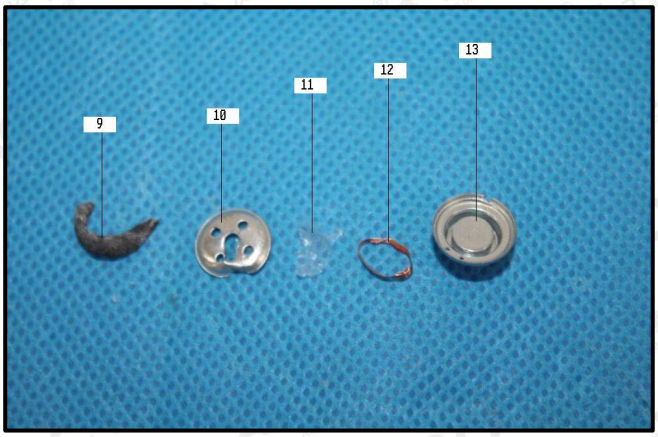
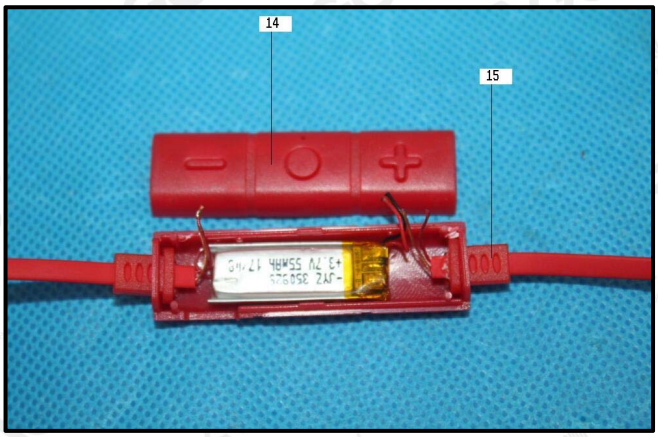
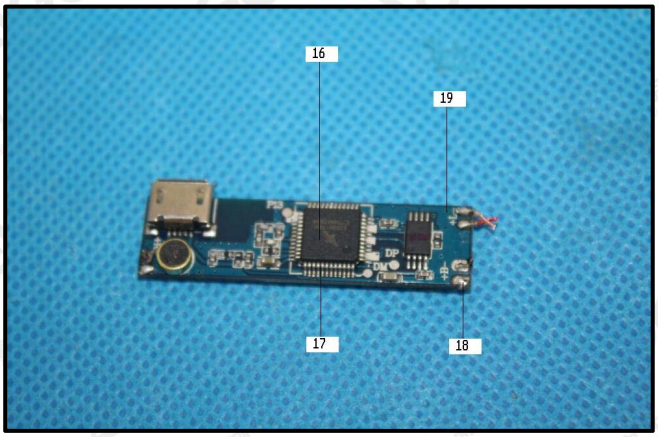
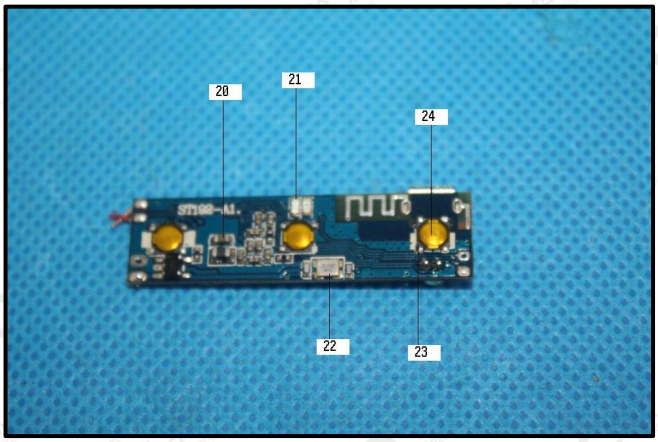
# Test Report

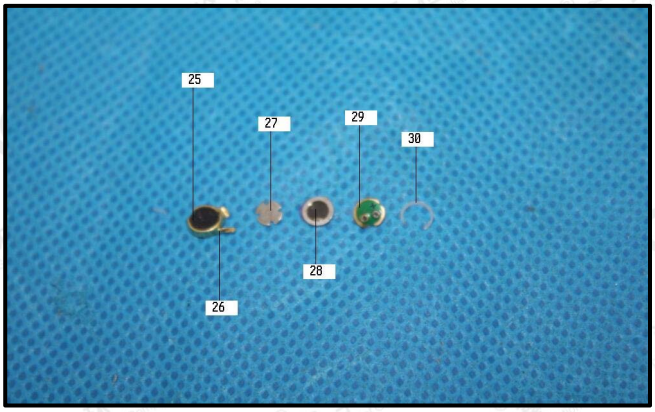


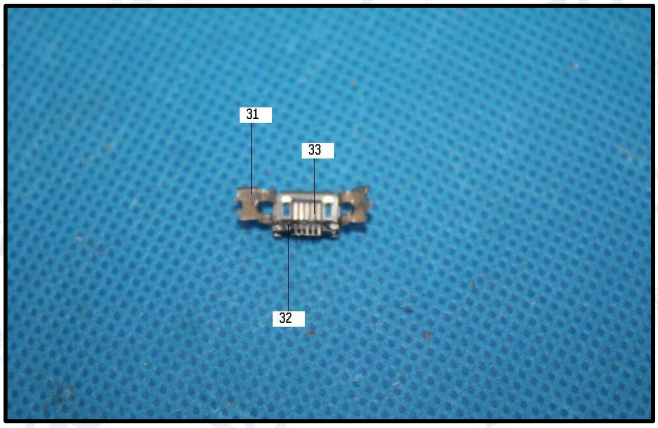




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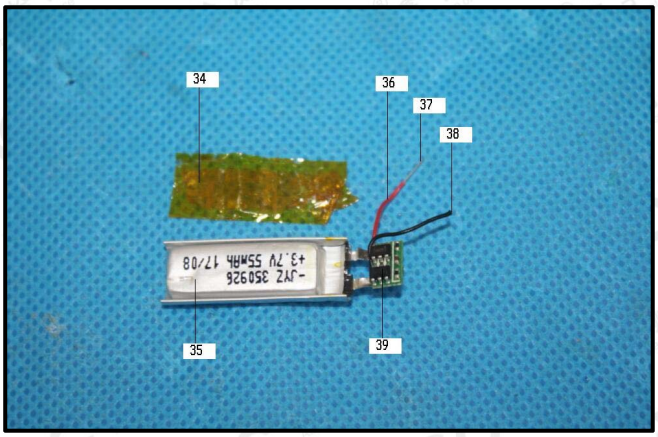


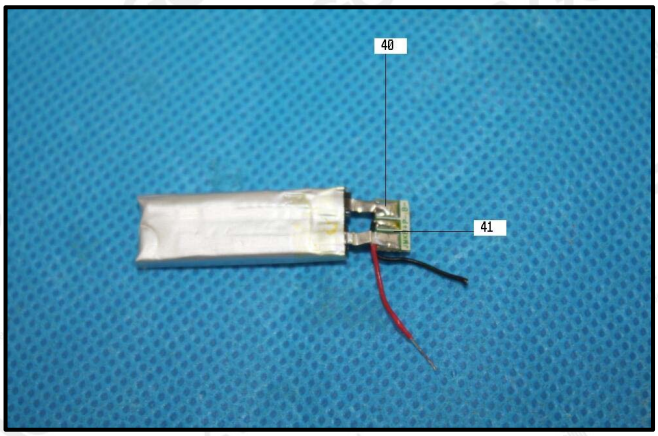


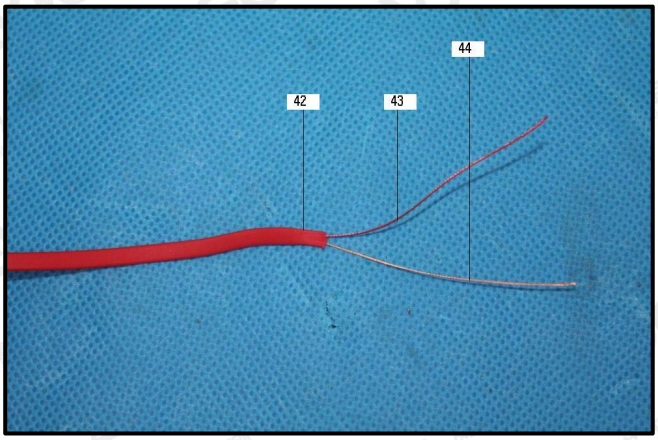


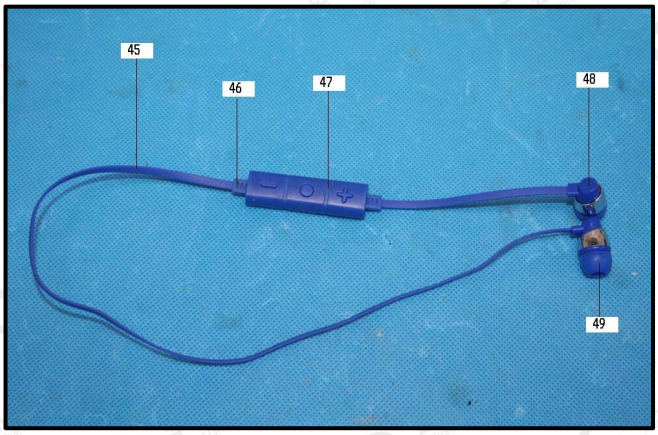


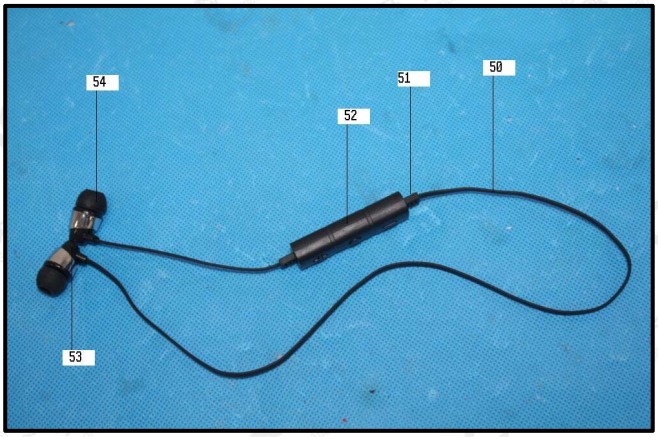


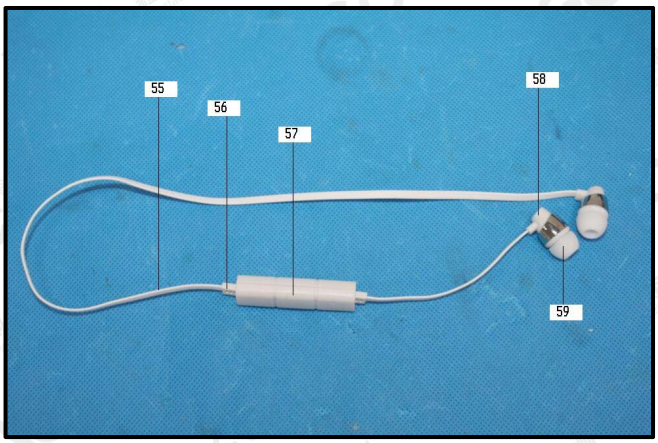






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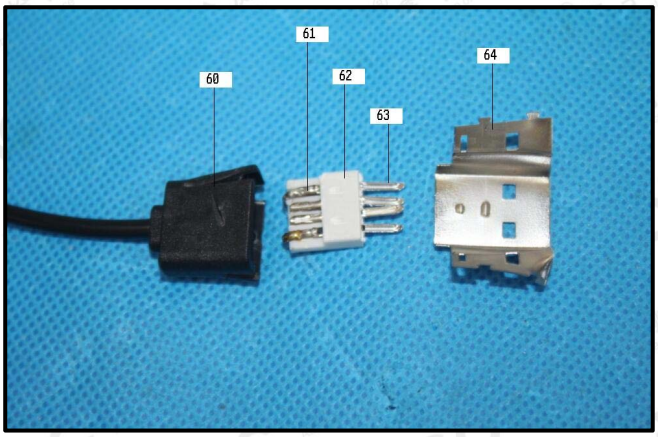


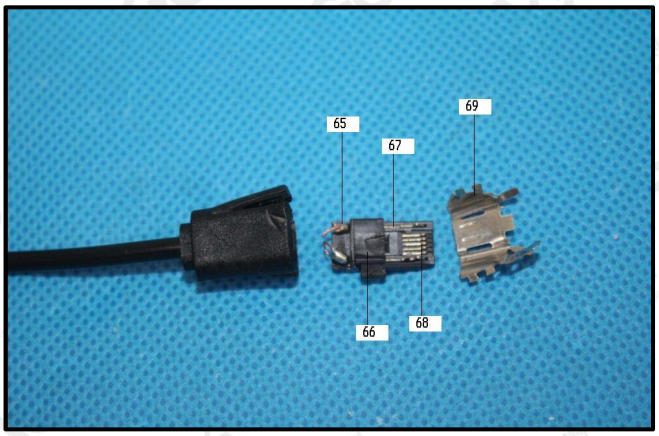


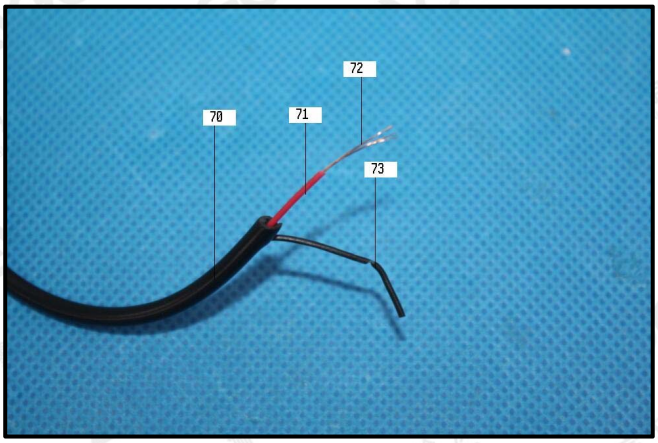


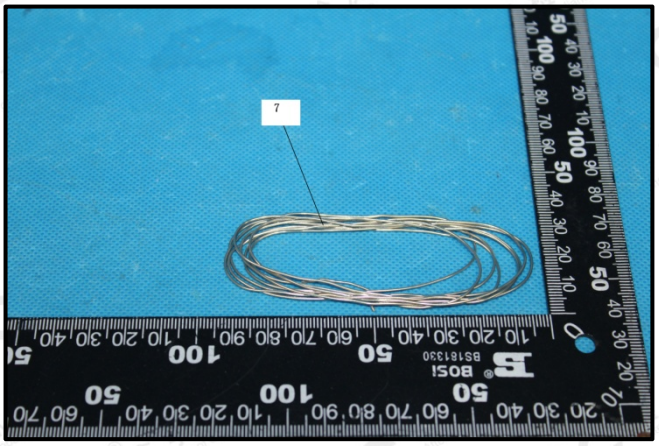



AGC authenticate the photo only on original report

*** End of Report ***





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