# TEST REPORT

| | |
|---|---|
| Report No.: | BCTC2501600334-2R |
| Applicant: | audio pirates & cammica Europe GmbH |
| Product Name: | AUDIO CABLES |
| Test Model: | 12062024-15 |
| Tested Date: | 2024-12-26 to 2025-01-06 |
| Issued Date: | 2025-01-13 |

**Shenzhen BCTC Testing Co., Ltd.**

| | |
|---|---|
| Product Name | AUDIO CABLES |
| Test Model | 12062024-15 |
| Model/Type Reference | Please refer to the following page(s). |
| Applicant | audio pirates & cammica Europe GmbH |
| Address | Waldstrasse 5a, 37130 Gleichen, Germany |
| Manufacturer | audio pirates & cammica Europe GmbH |
| Address | Waldstrasse 5a, 37130 Gleichen, Germany |
| Trademark | audio pirates |
| Sample Received Date | 2024-12-26 |
| Test Type | Entrustment Test |
| Test Method | Please refer to the following page(s). |
| Test Requested | 1. As specified by client, to screen Lead(Pb), Cadmium(Cd), Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted sample(s) by XRF.<br>2. As specified by client, when screening results exceed the XRF screening limit in IEC 62321-3-1:2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) in the submitted sample(s).<br>3. As specified by client, to test the Diisobutyl phthalate(DIBP), Dibutyl phthalate(DBP), Butyl benzyl phthalate(BBP), Bis(2-ethylhexyl) phthalate(DEHP) in the submitted sample(s). |
| Test Standard | RoHS Directive 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863 |
| Test Result | The samples were tested according to the entrusted requirements and test standard, and the test items of the test samples were qualified. |

Prepared by: Rose

Rose

Approved by: Saher Chen

Saher Chen

**Model/Type Reference:**

12062024-11, 26062024-1, 12062024-12, 10062024-6, 12062024-13, 12062024-14, 12062024-15, 12062024-16, 12062024-17, 12062024-18, 26062024-7, 26062024-2, 26062024-3, 10062024-4, 10062024-8, 12062024-23, 12062024-241, 12062024-24, 12062024-25, 10062024-7, 26062024-4, 26062024-5, 10092024-6, 10092024-5, 10092024-4, 10092024-3, 10092024-2, 12092024-10, 12092024-8, 12092024-2, XXXX2025-X, XXXX2025-XX, XXXX2026-X, XXXX2026-XX, XXXX202X-X, XXXX202X-XX

**Test Method:**

**A. XRF screening limits for regulated elements according to IEC 62321-3-1:2013**

| Element | Screening limits of IEC 62321-3-1:2013 Unit (mg/kg) | | |
|---|---|---|---|
| | Polymers | Metals | Composite material |
| Pb | BL≤(700-3σ)<X<(1300+3σ)≤OL | BL≤(700-3σ)<X<(1300+3σ)≤OL | BL≤(500-3σ)<X<(1500+3σ)≤OL |
| Cd | BL≤(70-3σ)<X<(130+3σ)≤OL | BL≤(70-3σ)<X<(130+3σ)≤OL | LOD<X<(150+3σ)≤OL |
| Hg | BL≤(700-3σ)<X<(1300+3σ)≤OL | BL≤(700-3σ)<X<(1300+3σ)≤OL | BL≤(500-3σ)<X<(1500+3σ)≤OL |
| Cr | BL≤(700-3σ)<X | BL≤(700-3σ)<X | BL≤(500-3σ)<X |
| Br | BL≤(300-3σ)<X | -- | BL≤(250-3σ)<X |

## B. Screening limits for Phthalates

| Test Item(s) | Screening limits<br>Unit (mg/kg) |
|---|---|
| Diisobutyl phthalate(DIBP) | BL≤600<X |
| Dibutyl phthalate(DBP) | BL≤600<X |
| Butyl benzyl phthalate(BBP) | BL≤600<X |
| Bis(2-ethylhexyl) phthalate(DEHP) | BL≤600<X |

**Note:**

-BL = Under the screening limit

-OL = Further chemical test will be conducted while result is above the screening limit

-X= The symbol “X” marks the region where further investigation is necessary

-3σ= The reproducibility of analytical instruments

-LOD= Detection limit

-“--” = Not regulated.

## C. Chemical Test

| Test Item(s) | Test Method | Measured Equipment(s) | MDL | Limit |
|---|---|---|---|---|
| Lead (Pb) | IEC 62321-5:2013 Ed.1.0 | ICP-OES | 2 mg/kg | 1000 mg/kg |
| Cadmium (Cd) | IEC 62321-5:2013 Ed.1.0 | ICP-OES | 2 mg/kg | 100 mg/kg |
| Mercury (Hg) | IEC 62321-4:2013+AMD1:2017 | ICP-OES | 2 mg/kg | 1000 mg/kg |
| Hexavalent Chromium (Cr(VI)) | IEC 62321-7-1:2015 Ed.1.0 | UV-VIS | 0.10 μg/cm$^2$ | 1000 mg/kg |
| | IEC 62321-7-2:2017 Ed.1.0 | | 8 mg/kg | |
| Polybrominated Biphenyls (PBBs) | IEC 62321-6:2015 Ed.1.0 | GC-MS/ HPLC-DAD | 100 mg/kg | 1000 mg/kg |
| Polybrominated Diphenyl Ethers (PBDEs) | IEC 62321-6:2015 Ed.1.0 | GC-MS/ HPLC-DAD | 100 mg/kg | 1000 mg/kg |
| Diisobutyl phthalate (DIBP) | IEC 62321-8:2017 Ed.1.0 | GC-MS | 50 mg/kg | 1000 mg/kg |
| Dibutyl phthalate (DBP) | IEC 62321-8:2017 Ed.1.0 | GC-MS | 50 mg/kg | 1000 mg/kg |
| Butyl benzyl phthalate (BBP) | IEC 62321-8:2017 Ed.1.0 | GC-MS | 50 mg/kg | 1000 mg/kg |
| Bis(2-ethylhexyl) phthalate (DEHP) | IEC 62321-8:2017 Ed.1.0 | GC-MS | 50 mg/kg | 1000 mg/kg |

**Test Result(s):**

| Sample No. | Sample Description | Test Item(s) | XRF Screening Test Unit (mg/kg) | Phthalates Screening Test Unit (mg/kg) | Chemical Test Unit (mg/kg) | Conclusion | Sample Received/ Resubmitted Date |
|---|---|---|---|---|---|---|---|
| 1 | Silver gray wire jacket | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | BL | / | / | | |
| | | DIBP | / | / | N.D. | | |
| | | DBP | / | / | N.D. | | |
| | | BBP | / | / | N.D. | | |
| | | DEHP | / | / | N.D. | | |
| 2 | Black outside wire jacket | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | BL | / | / | | |
| | | DIBP | / | / | N.D. | | |
| | | DBP | / | / | N.D. | | |
| | | BBP | / | / | N.D. | | |
| | | DEHP | / | / | N.D. | | |
| 3 | Copper wire | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | / | / | / | | |
| | | DIBP | / | / | / | | |
| | | DBP | / | / | / | | |
| | | BBP | / | / | / | | |
| | | DEHP | / | / | / | | |
| 4 | White wire jacket | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | BL | / | / | | |
| | | DIBP | / | / | N.D. | | |
| | | DBP | / | / | N.D. | | |

| Sample No. | Sample Description | Test Item(s) | XRF Screening Test Unit (mg/kg) | Phthalates Screening Test Unit (mg/kg) | Chemical Test Unit (mg/kg) | Conclusion | Sample Received/ Resubmitted Date |
|---|---|---|---|---|---|---|---|
| | | BBP | / | / | N.D. | | |
| | | DEHP | / | / | N.D. | | |
| 5 | Black plastic | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | BL | / | / | | |
| | | DIBP | / | / | N.D. | | |
| | | DBP | / | / | N.D. | | |
| | | BBP | / | / | N.D. | | |
| | | DEHP | / | / | N.D. | | |
| 6 | Metal with gray plating | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | / | / | / | | |
| | | DIBP | / | / | / | | |
| | | DBP | / | / | / | | |
| | | BBP | / | / | / | | |
| | | DEHP | / | / | / | | |
| 7 | Yellow plastic | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | BL | / | / | | |
| | | DIBP | / | / | N.D. | | |
| | | DBP | / | / | N.D. | | |
| | | BBP | / | / | N.D. | | |
| | | DEHP | / | / | N.D. | | |
| 8 | Gold metal | Pb | BL | / | / | PASS | 2024-12-26 |
| | | Cd | BL | / | / | | |
| | | Hg | BL | / | / | | |
| | | Cr(Cr(VI)) | BL | / | / | | |
| | | Br(PBBs&PBDEs) | / | / | / | | |
| | | DIBP | / | / | / | | |
| | | DBP | / | / | / | | |

| Sample No. | Sample Description | Test Item(s) | XRF Screening Test Unit (mg/kg) | Phthalates Screening Test Unit (mg/kg) | Chemical Test Unit (mg/kg) | Conclusion | Sample Received/ Resubmitted Date |
|---|---|---|---|---|---|---|---|
| | | BBP | / | / | / | | |
| | | DEHP | / | / | / | | |

**Note:**

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

-“ / ”= Not conducted.

-The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10μg/cm$^2$. The coating is considered a non-Cr(VI) based coating.

-The sample is positive for Cr(VI) − The Cr(VI) concentration is above 0.13μg/cm$^2$. The sample coating is considered to contain Cr(VI).

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

**Remark:**

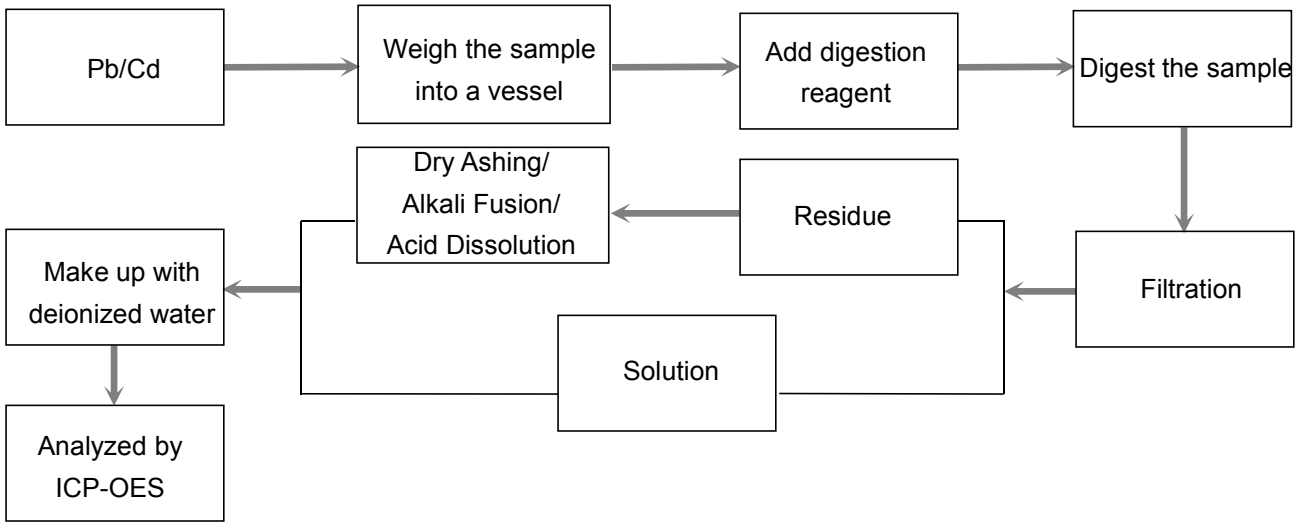
-The screening results are only used for reference.

-When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively; When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively.

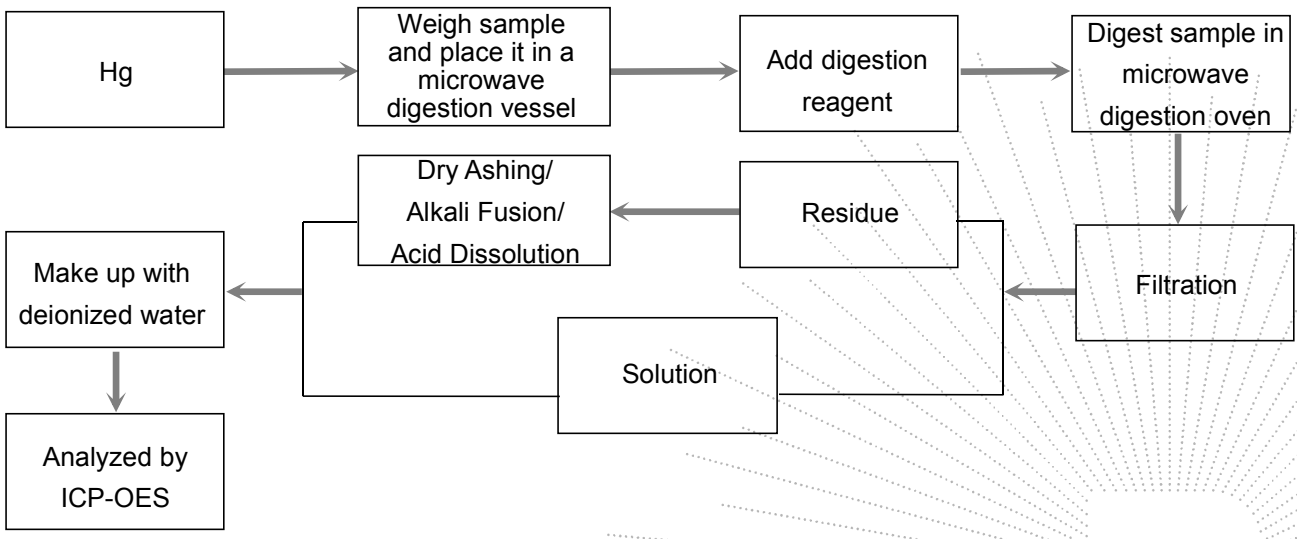
## Test Process:

The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

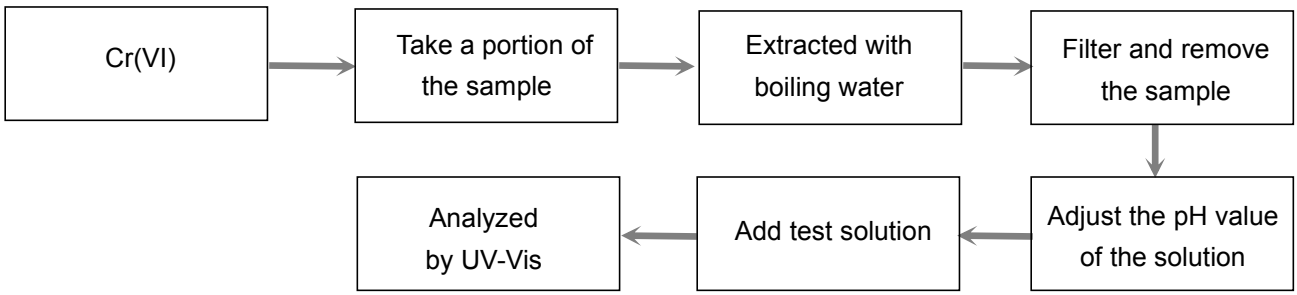
◆IEC 62321-5:2013 Ed.1.0



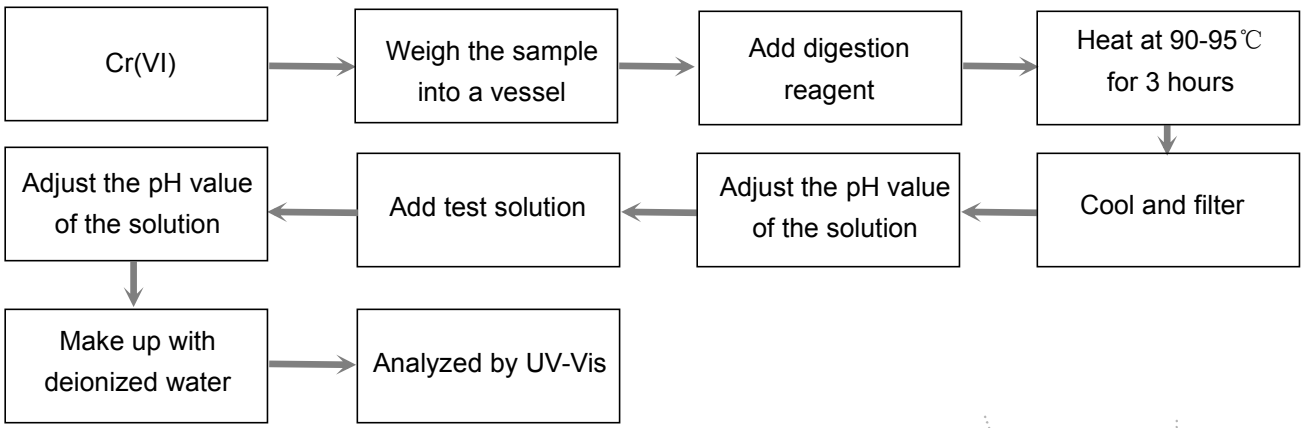

◆IEC 62321-4:2013+AMD1:2017



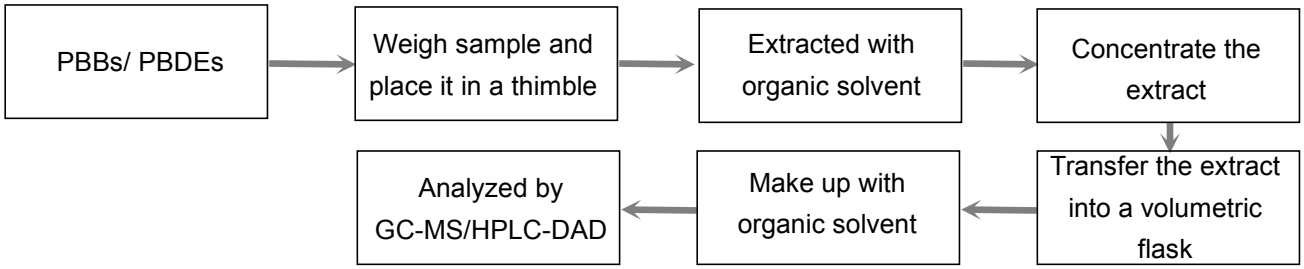
◆IEC 62321-7-1:2015 Ed.1.0



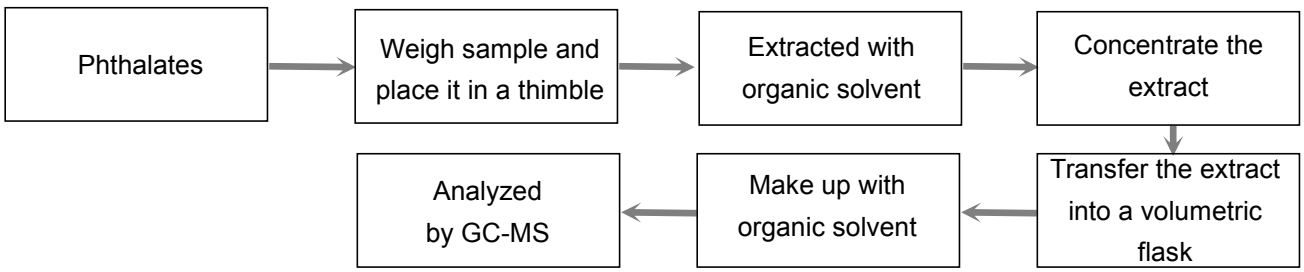

◆IEC 62321-7-2:2017 Ed.1.0



◆IEC 62321-6:2015 Ed.1.0




◆IEC 62321-8:2017 Ed.1.0



## Photograph of Sample

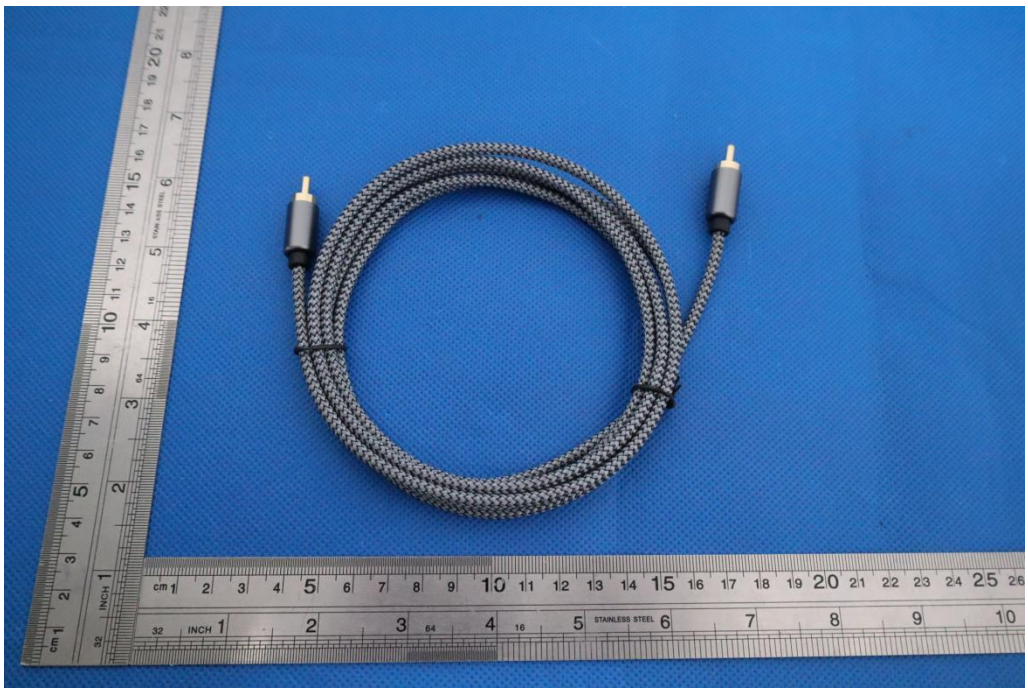


Fig.1

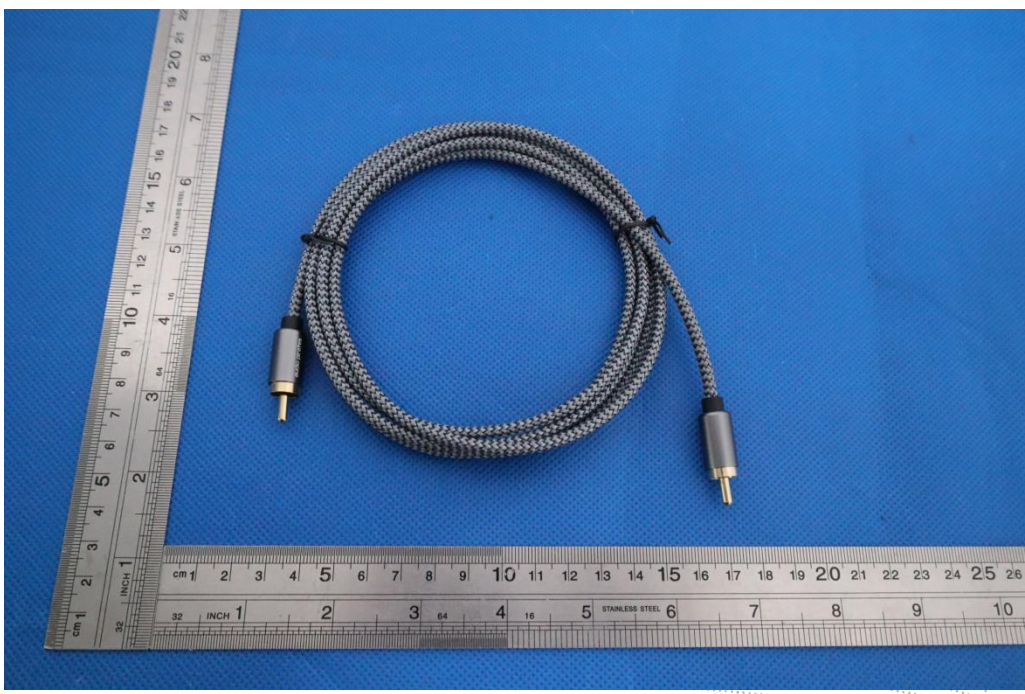


Fig.2

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

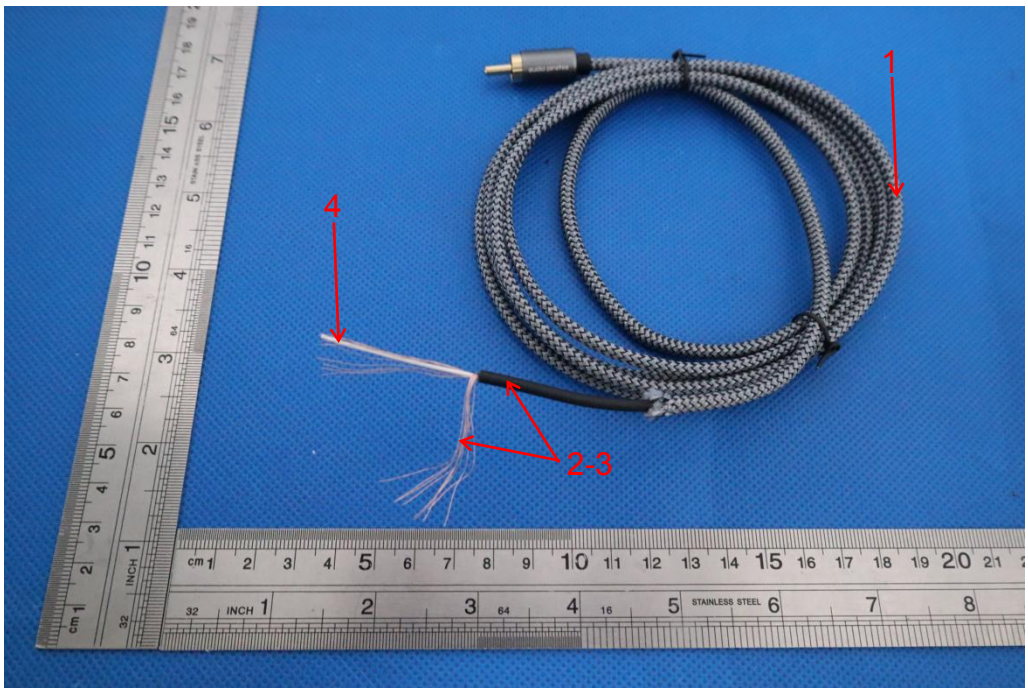



**Fig.3**

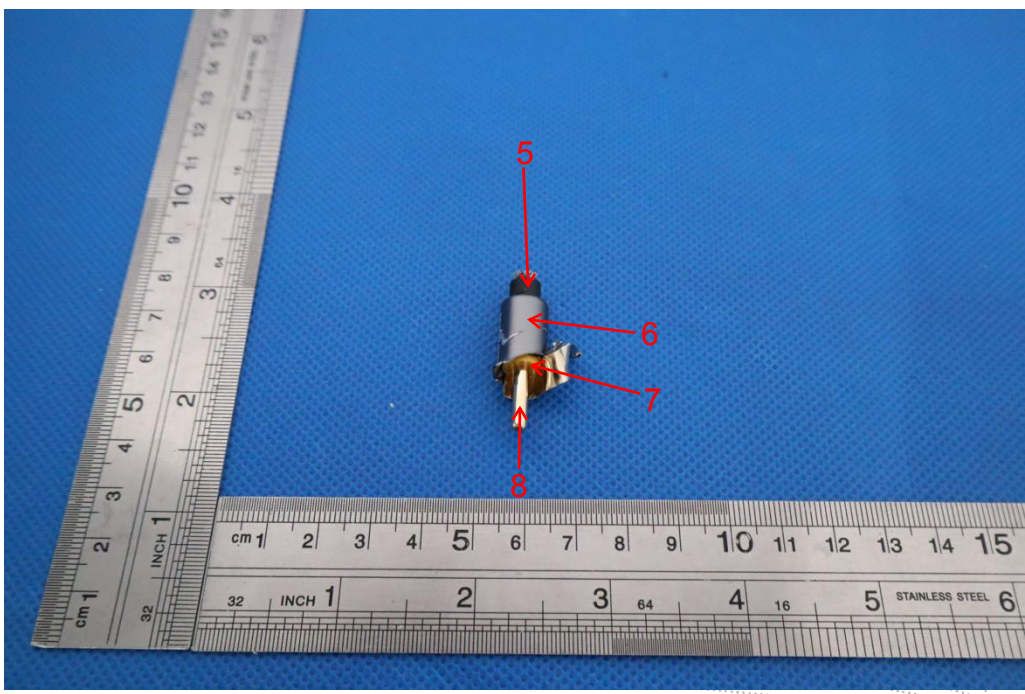



**Fig.4**

# STATEMENT

1. The equipment lists are traceable to the national reference standards.

2. The test report can not be partially copied unless prior written approval is issued from our lab.

3. The test report is invalid without the "special seal for inspection and testing".

4. The test report is invalid without the signature of the approver.

5. The test process and test result is only related to the Unit Under Test.

6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.

7. The quality system of our laboratory is in accordance with ISO/IEC17025.

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

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Complaint/Advice E-mail : advice@bctc-lab.com.cn

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