

Test Report



Report No. A2220132159101001

Company Name shown on Report AMBO TECHNOLOGY CO., LTD.

Address 12 F., NO. 786-1, ZHONGZHENG RD., ZHONGHE DIST., NEW TAIPEI CITY 23586, TAIWAN

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name ATM2802-H
Part No. ATM2802-H
Sample Received Date Apr. 8, 2022
Testing Period Apr. 8, 2022 to Apr. 21, 2022

Test Requested Please refer to the following page

Tested by

Reviewed by

Approved by

Date

May 18, 2022

George Fong
Laboratory Manager



Testing Center, Centre Testing International (Taiwan) Co., Ltd.

No. R392331022

5F-6, No.9, Sec.2, Nankan Rd, Luzhu Dist., Taoyuan, Taiwan

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- Test Requested**
- As specified by client, to screen Lead(Pb), Cadmium(Cd), Mercury(Hg), Chromium(Cr), Bromine(Br), Phthalates (Dibutyl phthalate(DBP), Benzylbutyl phthalate(BBP), Di-2-ethylhexyl phthalate(DEHP), Diisobutyl phthalate(DIBP)) in the submitted sample(s).
 - As specified by client, when screening results exceed the screening limit in IEC 62321-3-1:2013 or screening limit of Phthalates in this report, 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) and Phthalates (Dibutyl phthalate(DBP), Benzylbutyl phthalate(BBP), Di-2-ethylhexyl phthalate(DEHP), Diisobutyl phthalate(DIBP)) in the submitted samples.

| Conclusion | According to standard/directive | Result |
|----------------------|--|---------------|
| Tested Sample | | |
| Submitted Sample | RoHS Directive 2011/65/EU with amendment (EU) 2015/863 | Pass |

Pass means that the results of test parts shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.

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Test Method

A. Screening limits for regulated elements according to IEC 62321-3-1:2013 (Unit: mg/kg)

| Element | Polymers | Metals | Composite material |
|---------|--|--|--|
| Pb | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$ |
| Cd | $BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$ | $BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$ | $LOD < X < (150+3\sigma) \leq OL$ |
| 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 | $BL \leq (300-3\sigma) < X$ | N/A | $BL \leq (250-3\sigma) < X$ |

B. Screening limits for Phthalates

| Tested Item(s) | Screening limits (mg/kg) |
|---------------------------------|--------------------------|
| Dibutyl phthalate(DBP) | $BL \leq 600 < X$ |
| Benzylbutyl phthalate(BBP) | $BL \leq 600 < X$ |
| Di-2-ethylhexyl phthalate(DEHP) | $BL \leq 600 < X$ |
| Diisobutyl phthalate(DIBP) | $BL \leq 600 < X$ |

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C. Chemical Test

| Tested Item(s) | Test Method | Measured Equipment(s) | MDL | Limit |
|--|------------------------------------|-----------------------|-------------------------------|---------------------|
| Lead(Pb) | IEC 62321-5:2013 | ICP-OES | 10 mg/kg | 1000 mg/kg |
| Cadmium(Cd) | IEC 62321-5:2013 | ICP-OES | 10 mg/kg | 100 mg/kg |
| Mercury(Hg) | IEC 62321-4:2013+ AMD1:2017 CSV | ICP-OES | 10 mg/kg | 1000 mg/kg |
| Hexavalent Chromium(Cr(VI)) | IEC 62321-7-2:2017 | UV-Vis | 20 mg/kg | 1000 mg/kg |
| | IEC 62321-7-1:2015 | UV-Vis | 0.10 µg/cm ² (LOQ) | |
| Polybrominated Biphenyls(PBBs) | IEC 62321-6:2015 | GC-MS | 100 mg/kg | 1000 mg/kg |
| Polybrominated Diphenyl Ethers (PBDEs) | IEC 62321-6:2015 | GC-MS | 100 mg/kg | 1000 mg/kg |
| Phthalates (DBP, BBP, DEHP, DIBP) | IEC 62321-8:2017 | GC-MS | 50 mg/kg | 1000 mg/kg for each |

Remark:

BL = Under the screening limit

OL = Above the screening limit

X = The range of needing to do further testing

3σ = The reproducibility of analytical instruments

N/A = Not applicable

LOD = Detection limit

LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm²

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Test Result(s)

| Sample No. | Photo No. | Sample Description | Pb | Cd | Hg | Cr (VI) | PBBs / PBDEs | DBP | BBP | DEHP | DIBP |
|------------|-----------|-----------------------------|----|----|----|---------|--------------|-----|-----|------|------|
| 1 | A-1 | Black plastic | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 2 | A-2 | Gray ink | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 3 | A-3-1 | White plastic | BL | BL | BL | BL | N.D. | BL | BL | BL | BL |
| 4 | A-3-2 | Cupreous metal | BL | BL | BL | BL | N/A | N/A | N/A | N/A | N/A |
| 5 | A-3-3 | Black adhesive | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 6 | A-4-1 | Black electronic components | BL | BL | BL | N.D. | BL | BL | BL | BL | BL |
| 7 | A-4-2 | Silvery metal | BL | BL | BL | BL | N/A | N/A | N/A | N/A | N/A |
| 8 | A-4-3 | Black electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 9 | A-4-4 | Black plastic | BL | BL | BL | BL | N.D. | BL | BL | BL | BL |
| 10 | A-4-5 | Black electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 11 | A-4-6 | Black electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 12 | A-4-7 | Brown electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |

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| Sample No. | Photo No. | Sample Description | Pb | Cd | Hg | Cr (VI) | PBBs / PBDEs | DBP | BBP | DEHP | DIBP |
|------------|-----------|-----------------------------|---------------------|------|----|---------|--------------|-----|-----|------|------|
| 13 | A-4-8 | Black electronic components | 18814 ^{#1} | BL | BL | BL | BL | BL | BL | BL | BL |
| 14 | A-4-9 | Black electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 15 | A-4-10 | Black electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 16 | A-4-11 | Brown electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 17 | A-4-12 | Brown electronic components | BL | N.D. | BL | BL | BL | BL | BL | BL | BL |
| 18 | A-4-13 | Black electronic components | BL | BL | BL | BL | BL | BL | BL | BL | BL |
| 19 | A-4-14 | Silvery metal | BL | BL | BL | BL | N/A | N/A | N/A | N/A | N/A |
| 20 | A-4-15 | White ink | BL | BL | BL | BL | N.D. | BL | BL | BL | BL |
| 21 | A-4-16 | Green ink | BL | BL | BL | BL | N.D. | BL | BL | BL | BL |
| 22 | A-4-17 | Green PCB | BL | BL | BL | BL | N.D. | BL | BL | BL | BL |

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Note:

- N.D. = Not Detected (<MDL or LOQ)
- MDL = Method Detection Limit
- Unit of numeric results: mg/kg, result by chemical test
- mg/kg = ppm = parts per million
- 1000 mg/kg = 0.1%
- / = Not tested
- N/A = Not applicable
- BL = Under screening limit
- ▼The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10µg/cm².
The coating is considered a non-Cr(VI) based coating.
- When conducting the test for PBBs & PBDEs, XRF was introduced to screening Br exclusively;
When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
- #1 According to the client's statement, the material of the sample(s) fall into exemption item 7(c)-I according to EU Directive 2011/65/EU: Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

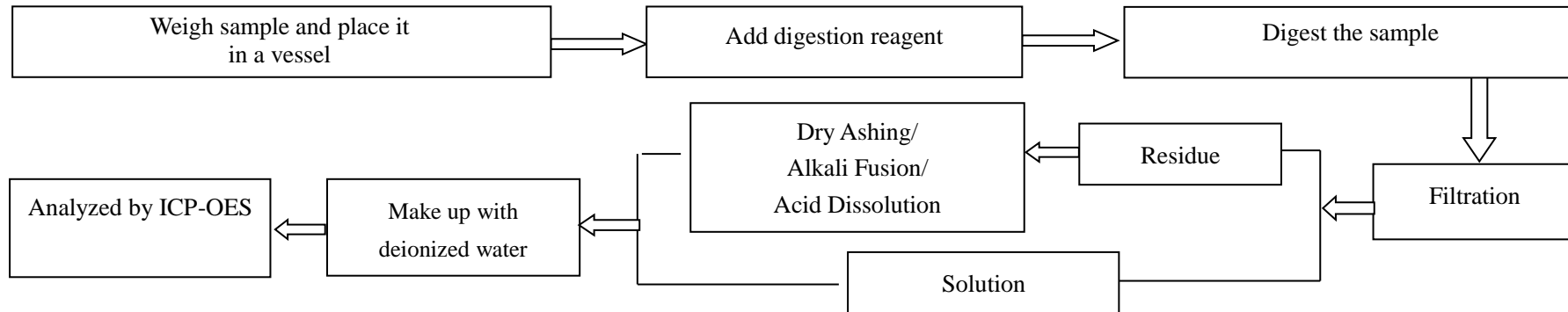
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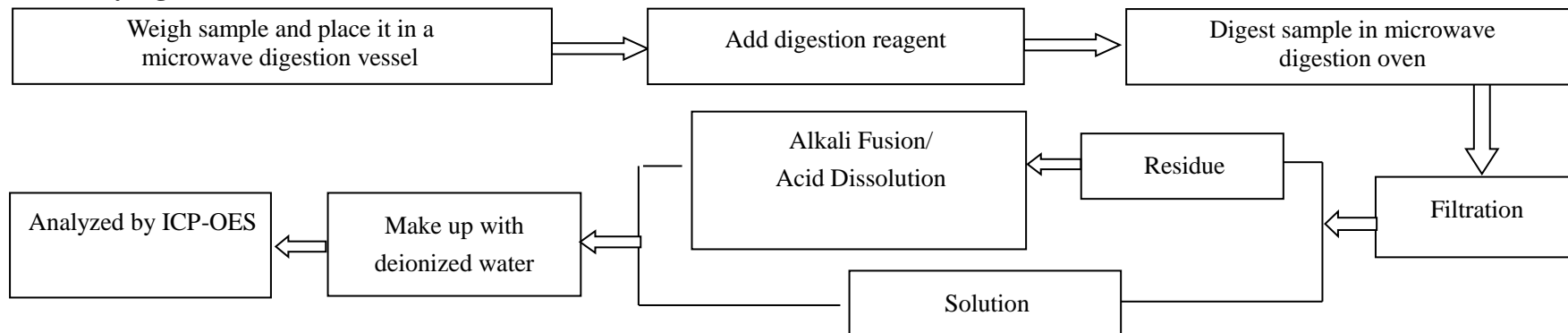
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Test Process

1. Lead(Pb), Cadmium(Cd)



2. Mercury(Hg)



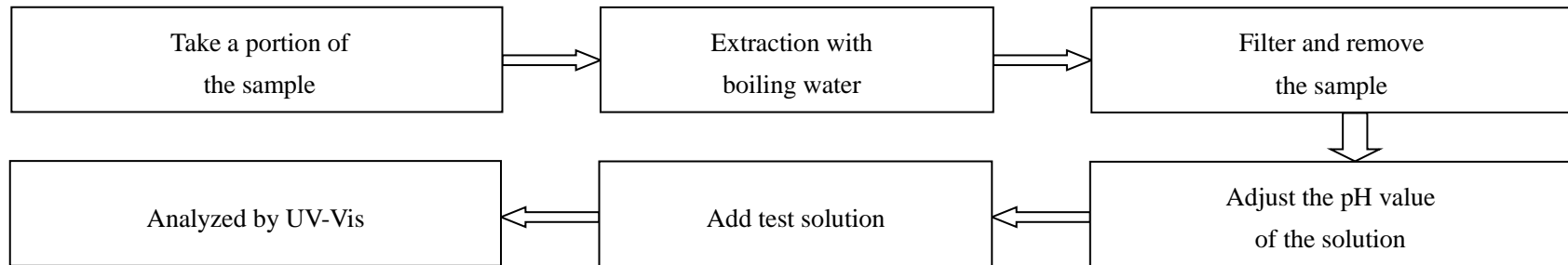
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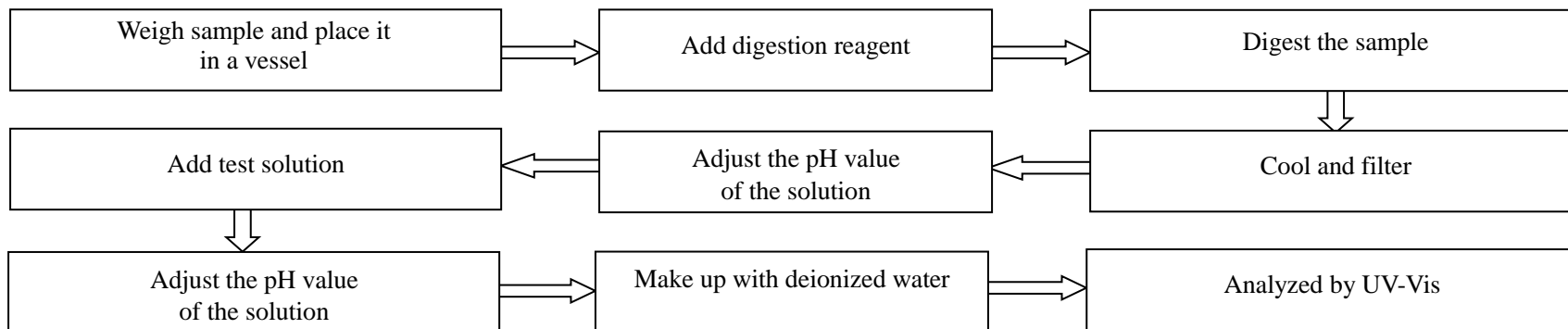
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3. Hexavalent Chromium(Cr(VI))

1) IEC 62321-7-1:2015



2) IEC 62321-7-2:2017

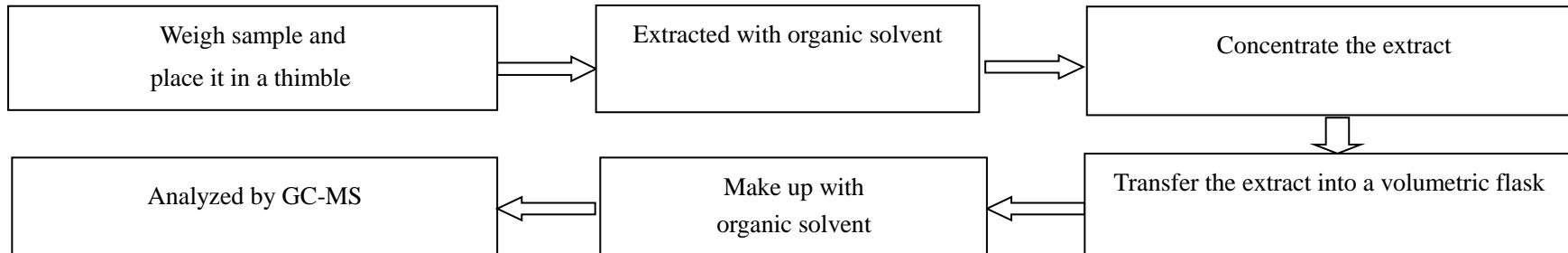


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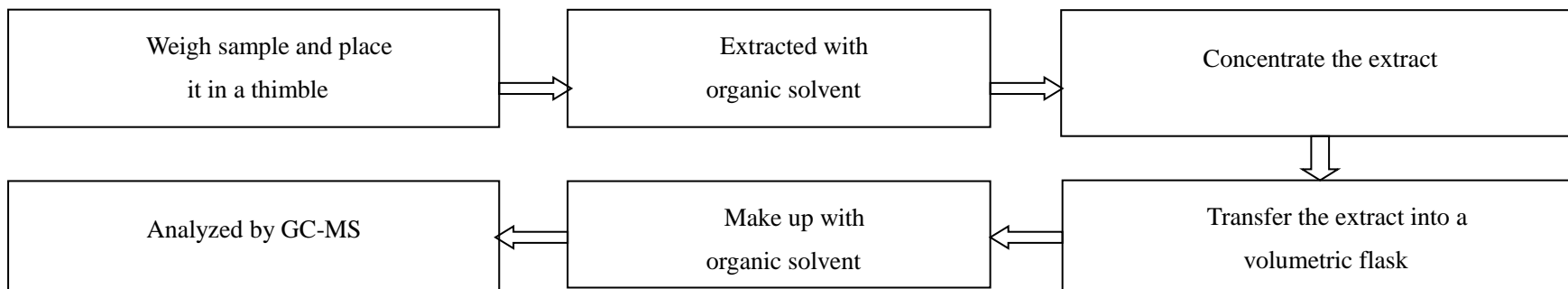
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4. Polybrominated Diphenyl Ethers (PBDEs), Polybrominated Biphenyls(PBBs)



5. Phthalates(DBP, BBP, DEHP, DIBP)

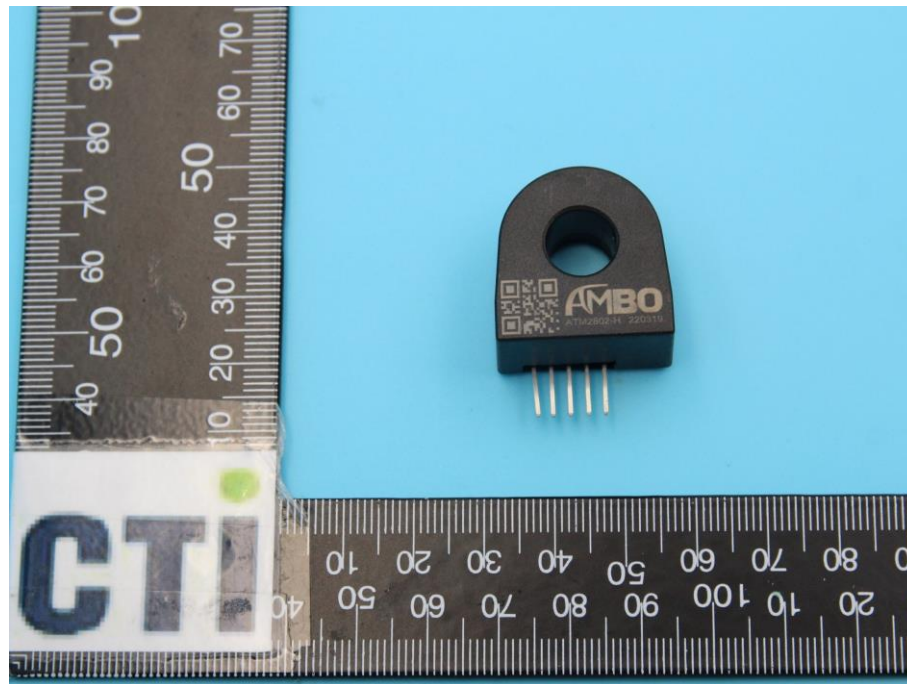


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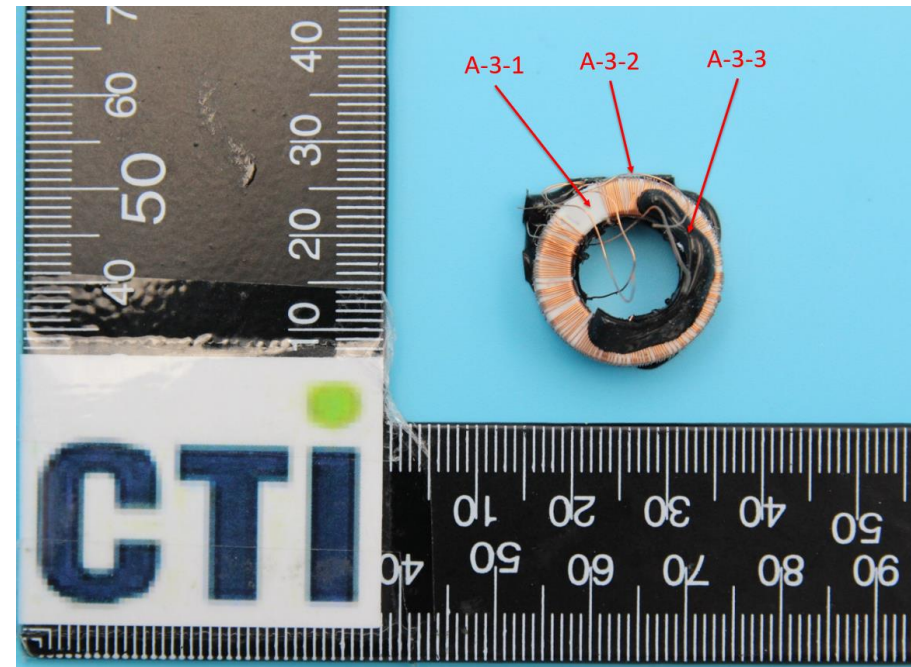
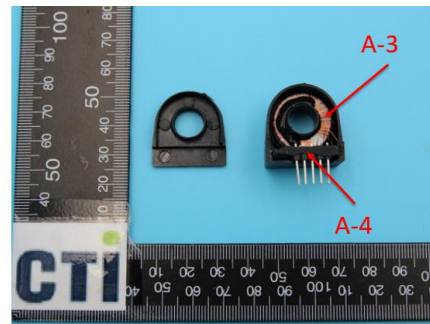
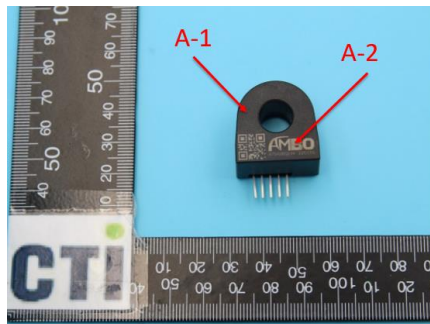
Photo(s) of the sample(s)



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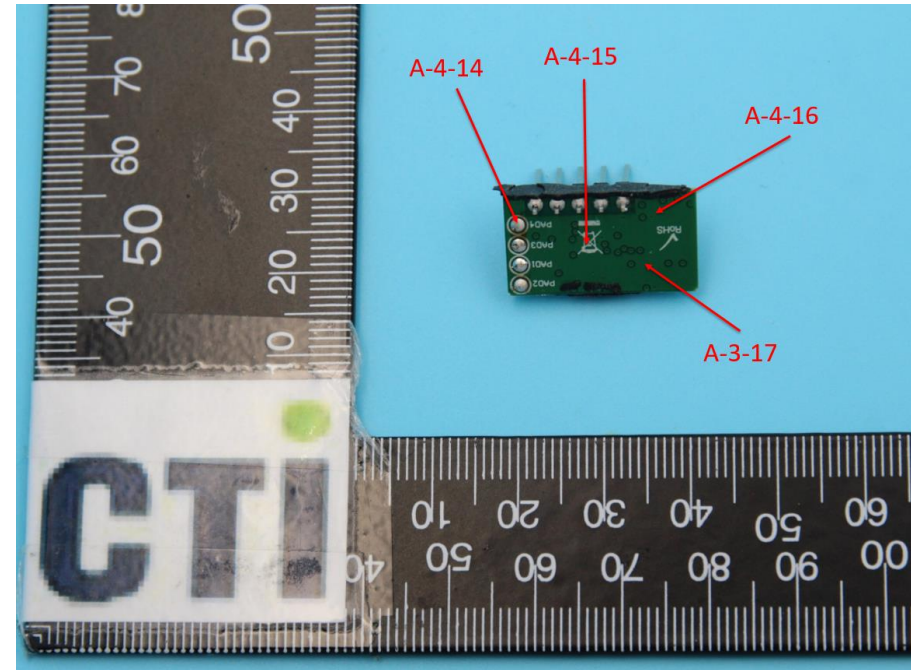
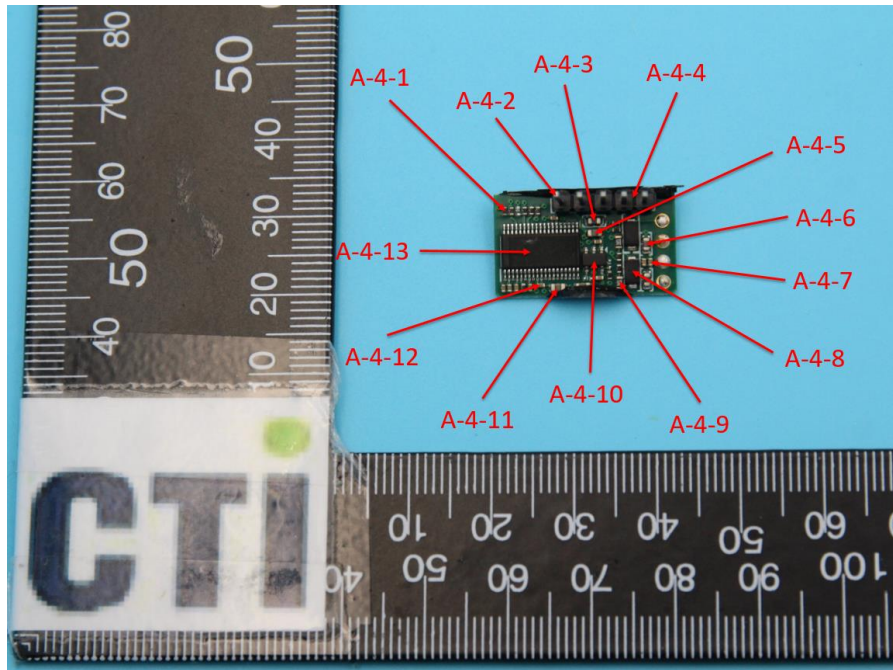
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Exempted Items of RoHS Directive

In accordance with Directive 2011/65/EU as amended, there are 45 exemption items in Annex III of 2011/65/EU altogether. Listed below is (are) exemption item(s) relevant to this report.

| | Exemption | Scope and dates of applicability |
|--------|--|---|
| 7(c)-I | Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound | Applies to categories 1-7 and 10 (except applications covered under point 34) and expires on 21 July 2021. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024. |

Statement :

1. This report is considered invalidated without approval signature, special seal and the seal on the perforation;
2. Company Name and Address shown on Report, the sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of Report ***