# RoHS TEST REPORT

| | |
|---|---|
| **Report Reference No**.....: | **ZKT-24121918956R** |
| Date of issue.....: | Dec. 30, 2024 |
| Total number of pages..... | 24 |
| **Testing Laboratory**.....: | **Shenzhen ZKT Technology Co., Ltd.** |
| Address..... : | 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China |
| **Applicant's name**.....: | **Dong Guan Jvin Electronic Co.,LTD** |
| Address..... : | Room 701, No. 381 Daxing Road,Yangwu, Dalingshan,Dongguan, Guangdong province,China |
| **Manufacturer's name** .....: | **Dong Guan Jvin Electronic Co.,LTD** |
| Address ..... : | Room 701, No. 381 Daxing Road,Yangwu, Dalingshan,Dongguan, Guangdong province,China |

| **Test Requested:** | | **Conclusion** |
|---|---|---|
| (1) | RoHS Directive 2011/65/EU Annex II amending Annex (EU)2015/863 and amending Annex (EU)2017/2102<br>—Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs and PBDEs Content<br>—Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate(DIBP) Content | PASS |

| | |
|---|---|
| **Test Report Form No**..... : | -- |
| Test Report Form(s) Originator.....: | ZKT Testing |
| Master TRF.....: | Dated: 2017-06 |

**This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of ZKT Test.**

| | |
|---|---|
| **Test item description**.....**:** | **projector** |
| Trade Mark.....: | N/A |
| Model/Type reference..... : | K6<br>K7,K8,K9,K10,K11,K12,K13,K15,K16 |

**Testing procedure and testing location:**

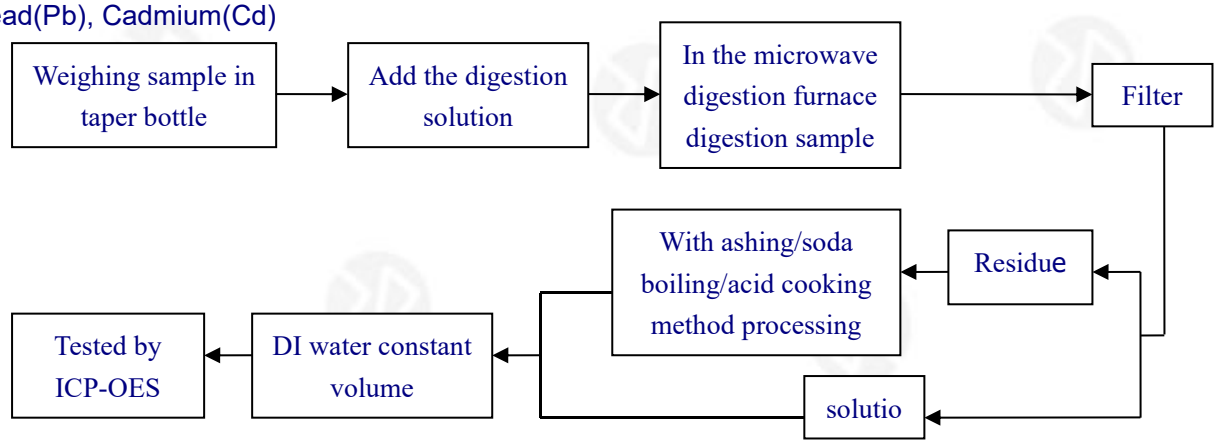
| | |
|---|---|
| **Testing Laboratory.....:** | **Shenzhen ZKT Technology Co., Ltd.** |
| Address.....: | 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China |
| Date of Test.....: | Dec. 19, 2024 - Dec. 30, 2024 |
| Tested by (name + signature).....: | Doris Zhan |
| Reviewer (name + signature).....: | Simon Gong |
| Approved (name + signature).....: | Awen He |

## Test Method:

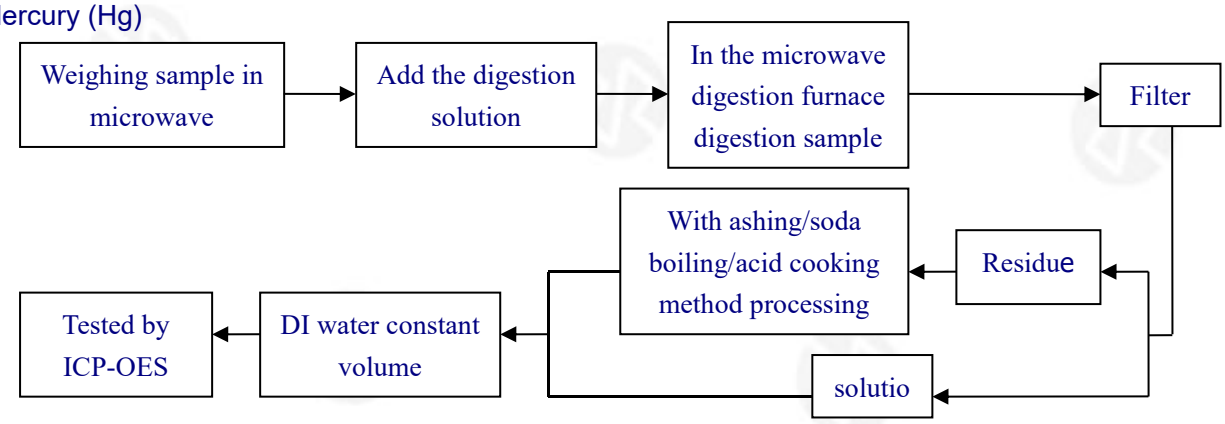
| Test item(s) | Test Method(s) | Equipment(s) | MDL |
|---|---|---|---|
| **Chemical Testing** | | | |
| Mercury(Hg) | IEC 62321-4:2013+A1:2017 | ICP-OES | 2mg/kg |
| Lead(Pb) | IEC 62321-5:2013 | ICP-OES | 2mg/kg |
| Cadmium(Cd) | IEC 62321-5:2013 | ICP-OES | 2mg/kg |
| PBB | IEC 62321-6:2015 | GC-MS | 2mg/kg |
| PBDE | | | 2mg/kg |
| Chromium(Cr VI) for colourless and coloured corrosion-protected coatings on metals | IEC 62321-7-1:2015 | UV-Vis | 0.10μg/cm2 |
| Chromium(Cr VI) for polymers and electronics | IEC 62321-7-2:2017 | UV-Vis | 2mg/kg |
| DEHP | IEC 62321-8:2017 | GC-MS | 30mg/kg |
| DBP | | | 30mg/kg |
| BBP | | | 30mg/kg |
| DIBP | | | 30mg/kg |

## Test Flow:

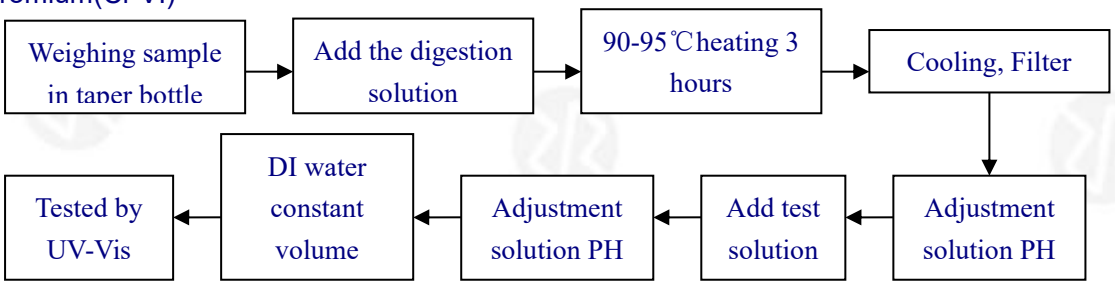
1. Lead(Pb), Cadmium(Cd)



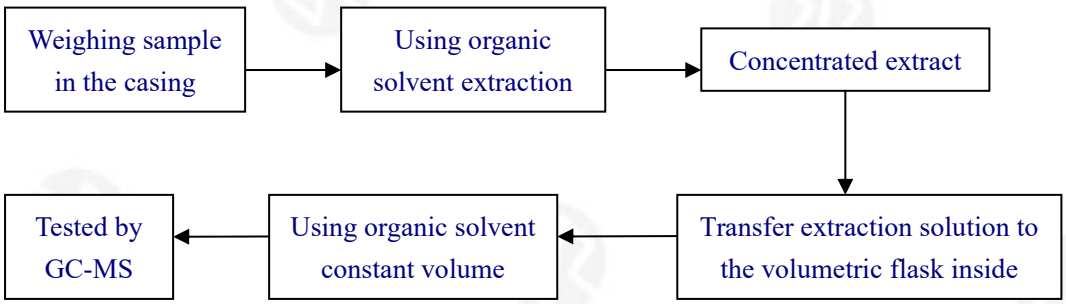

2. Mercury (Hg)



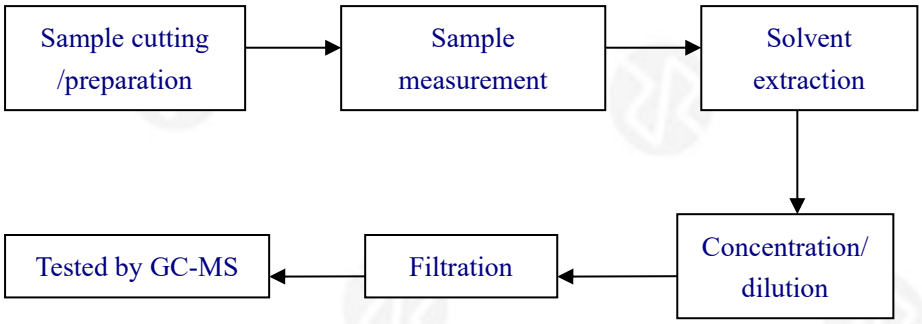

3. Chromium(Cr VI)




4. PBBs/ PBDEs



5. DEHP/ BBP/ DBP/ DIBP



## Test Item Description And Photo List:

| Sample No. | Description |
|---|---|
| 001 | White plastic |
| 002 | Gray plastic |
| 003 | Silica gel |
| 004 | Black plastic |
| 005 | SILVER -GREY PLATING ON METAL |
| 006 | Golden metal |
| 007 | PCB |
| 008 | IC |
| 009 | TIN |
| 010 | SMD CAPACITOR |
| 011 | SMD RESISTOR |
| 012 | SMD DIODE |
| 013 | SMD TRANSISTOR |
| 014 | Transformer-Bobbin |
| 015 | Transformer-Core |
| 016 | Transformer-Yellow tape |
| 017 | Transformer- Enamelled round copper wire |
| 018 | Transformer-Teflon WHITE TUBE |
| 019 | THREE LAYERS OF INSULATION |
| 020 | Red wire |
| 021 | Black wire |
| 022 | Yellow wire |
| 023 | Switch |
| 024 | Screw |
| 025 | SMD INDUCTOR |
| 026 | X capacitor |

| | |
|---|---|
| 027 | Y capacitor |
| 028 | LINE CHOKE-COPPER WIRE |
| 029 | LINE CHOKE -Yellow tape |
| 030 | LINE CHOKE－CORE |
| 031 | LINE CHOKE -Bobbin |
| 032 | LED |
| 033 | Transparent plastic |

## Test Results:

**Screening test for the specified hazardous substances of RoHS for the selected materials of the submitted sample:**

- Heavy Metal (Cadmium, Chromium, Mercury, Lead) Content Test
- Bromine Content Test

According to IEC 62321-3-1:2013, and Quantification analyzed with Energy Dispersive X-ray Fluorescence Spectrometers.

| Sample No. | Total Cadmium | Total Lead | Total Mercury | Total Chromium | Total Bromine |
|---|---|---|---|---|---|
| Sample 001 | BL | BL | BL | BL | BL |
| Sample 002 | BL | BL | BL | BL | BL |
| Sample 003 | BL | BL | BL | BL | BL |
| Sample 004 | BL | BL | BL | BL | BL |
| Sample 005 | BL | BL | BL | BL | N.A. |
| Sample 006 | BL | BL | BL | BL | N.A. |
| Sample 007 | BL | BL | BL | BL | BL |
| Sample 008 | BL | BL | BL | BL | BL |
| Sample 009 | BL | BL | BL | BL | N.A. |
| Sample 010 | BL | BL | BL | BL | BL |
| Sample 011 | BL | BL | BL | BL | BL |
| Sample 012 | BL | BL | BL | BL | BL |
| Sample 013 | BL | BL | BL | BL | BL |
| Sample 014 | BL | BL | BL | BL | BL |
| Sample 015 | BL | BL | BL | BL | N.A. |
| Sample 016 | BL | BL | BL | BL | BL |
| Sample 017 | BL | BL | BL | BL | N.A. |
| Sample 018 | BL | BL | BL | BL | BL |
| Sample 019 | BL | BL | BL | BL | BL |
| Sample 020 | BL | BL | BL | BL | BL |
| Sample 021 | BL | BL | BL | BL | BL |
| Sample 022 | BL | BL | BL | BL | BL |
| Sample 023 | BL | BL | BL | BL | BL |
| Sample 024 | BL | BL | BL | BL | N.A. |
| Sample 025 | BL | BL | BL | BL | BL |
| Sample 026 | BL | BL | BL | BL | BL |
| Sample 027 | BL | BL | BL | BL | BL |
| Sample 028 | BL | BL | BL | BL | N.A. |
| Sample 029 | BL | BL | BL | BL | BL |
| Sample 030 | BL | BL | BL | BL | N.A. |
| Sample 031 | BL | BL | BL | BL | BL |

| | | | | | |
|---|---|---|---|---|---|
| Sample 032 | BL | BL | BL | BL | BL |
| Sample 033 | BL | BL | BL | BL | BL |

Note:
All Concentrations express in “mg/kg” (milligram per kilogram), mg/kg ~ ppm
“OL” denotes “over limit”
“BL” denotes “below limit”
“N.A.” denotes “Not Applicable”
“Inconclusive” denotes result is intermediate between “OL” and “BL”
“^”denotes the screening result was inconclusive(X) or over limit (OL), thus further confirmation test was conducted, results are listed in 3.2 and 3.3.

XRF screening limits for different materials:

| Materials | Concentration (mg/kg) | | | | |
|---|---|---|---|---|---|
| | Cd | Cr | Pb | Hg | Br |
| **Metal** | BL≤(70-3σ)<X<(130+3σ )≤OL | BL≤(700-3σ)<X | BL≤(700-3σ)<X<(1300+3σ )≤OL | BL≤(700-3σ)<X<(1300+3σ )≤OL | N.A. |
| **Polymers** | BL≤(70-3σ)<X<(130+3σ )≤OL | BL≤(700-3σ)<X | BL≤(700-3σ)<X<(1300+3σ )≤OL | BL≤(700-3σ)<X<(1300+3σ )≤OL | BL≤(300-3σ)<X |
| **Composite material** | BL≤(50-3σ)<X<(150+3σ )≤OL | BL≤(500-3σ)<X | BL≤(500-3σ)<X<(1500+3σ )≤OL | BL≤(500-3σ)<X<(1500+3σ )≤OL | BL≤(250-3σ)<X |

## Test for Heavy Metals:

**Lead, Cadmium, Hexavalent Chromium and Mercury Tests according to IEC 62321-4:2013+A1:2017 &IEC 62321-5:2013 & IEC 62321-7-1:2015& IEC 62321-7-2:2017, Analysis was conducted by ICP-OES, UV-VIS.**

| Element | Total Cadmium [mg/kg] | Total Lead [mg/kg] | Total Mercury [mg/kg] | Hexavalent Chromium [μg/cm2] | Hexavalent Chromium [mg/kg] |
|---|---|---|---|---|---|
| **Detection Limit** | 5 | 5 | 5 | 0.10 | 5 |
| **Limit** | 100 | 1000 | 1000 | 0.10 | 1000 |

Note:

1. All Concentrations express in “mg/kg”(milligram per kilogram), mg/kg ~ ppm.
2. “N.D.” = “Not Detected”.
3. Boiling-water-extraction:
   Negative = Absence of Cr(VI) coating / surface layer: the detected concentration in boiling-water-extraction solution is less than 0.10μg with 1cm2 sample surface area. Positive = Presence of Cr(VI) coating / surface layer: the detected concentration in boiling-water-extraction solution is greater than 0.13μg with 1cm2 sample surface area.
   Inconclusive =the detected concentration in boiling-water-extraction solution is greater than 0.10μg and less than 0.13μg with 1cm2 sample surface area.
4. Positive = result be regarded as not comply with RoHS requirement
   Negative = result be regarded as comply with RoHS requirement
5. “-” =Not regulated

## Test for Flame retardants:

**Test Method: With reference to IEC 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting Limit: 5mg/kg]**

| Test Item | | Result [mg/kg] | RoHS Requirement [mg/kg] |
|---|---|---|---|
| | | Sample 005 | |
| PBBs | Monobromobiphenyl | < 5 | Sum of PBBs < 1000 |
| | Dibromobiphenyl | < 5 | |
| | Tribromobiphenyl | < 5 | |
| | Tetrabromobiphenyl | < 5 | |
| | Pentabromobiphenyl | < 5 | |
| | Hexabromobiphenyl | < 5 | |
| | Heptabromobiphenyl | < 5 | |
| | Octabromobiphenyl | < 5 | |
| | Nonabromobiphenyl | < 5 | |
| | Decabromobiphenyl | < 5 | |
| | Sum of PBBs | < 5 | |
| PBDEs | Monobromodiphenyl Ether | < 5 | Sum of PBDEs < 1000 |
| | Dibromodiphenyl Ether | < 5 | |
| | Tribromodiphenyl Ether | < 5 | |
| | Tetrabromodiphenyl Ether | < 5 | |
| | Pentabromodiphenyl Ether | < 5 | |
| | Hexabromodiphenyl Ether | < 5 | |
| | Heptabromodiphenyl Ether | < 5 | |
| | Octabromodiphenyl Ether | < 5 | |
| | Nonabromodiphenyl Ether | < 5 | |
| | Decabromodiphenyl Ether | < 5 | |
| | Sum of PBDEs | < 5 | |

Note:

1. All Concentrations express in “mg/kg” (milligram per kilogram), mg/kg ~ ppm.
2. “<” denotes less than

**Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) Content—RoHS Directive 2011/65/EU Annex II amending Annex (EU)2017/2102**

Test method: With reference to IEC 62321-8:2017; Analysis was conducted by GC-MS.

| Element | Di-(2-ethylhexyl) phthalate (DEHP) [mg/kg] | Benzylbutyl phthalate (BBP) [mg/kg] | Dibutyl phthalate (DBP) [mg/kg] | Diisobutyl phthalate(DIBP) [mg/kg] |
|---|---|---|---|---|
| **Detection Limit** | **50** | **50** | **50** | **50** |
| **Limit** | **1000** | **1000** | **1000** | **1000** |
| Sample 001 | N.D. | N.D. | N.D. | N.D. |
| Sample 002 | N.D. | N.D. | N.D. | N.D. |
| Sample 003 | N.D. | N.D. | N.D. | N.D. |
| Sample 004 | N.D. | N.D. | N.D. | N.D. |
| Sample 007 | N.D. | N.D. | N.D. | N.D. |
| Sample 008 | N.D. | N.D. | N.D. | N.D. |
| Sample 010 | N.D. | N.D. | N.D. | N.D. |
| Sample 011 | N.D. | N.D. | N.D. | N.D. |
| Sample 012 | N.D. | N.D. | N.D. | N.D. |
| Sample 013 | N.D. | N.D. | N.D. | N.D. |
| Sample 014 | N.D. | N.D. | N.D. | N.D. |
| Sample 016 | N.D. | N.D. | N.D. | N.D. |
| Sample 018 | N.D. | N.D. | N.D. | N.D. |
| Sample 019 | N.D. | N.D. | N.D. | N.D. |
| Sample 020 | N.D. | N.D. | N.D. | N.D. |
| Sample 021 | N.D. | N.D. | N.D. | N.D. |
| Sample 022 | N.D. | N.D. | N.D. | N.D. |
| Sample 023 | N.D. | N.D. | N.D. | N.D. |
| Sample 025 | N.D. | N.D. | N.D. | N.D. |
| Sample 026 | N.D. | N.D. | N.D. | N.D. |
| Sample 027 | N.D. | N.D. | N.D. | N.D. |
| Sample 029 | N.D. | N.D. | N.D. | N.D. |
| Sample 031 | N.D. | N.D. | N.D. | N.D. |
| Sample 032 | N.D. | N.D. | N.D. | N.D. |
| Sample 033 | N.D. | N.D. | N.D. | N.D. |

Note:

All Concentrations express in “mg/kg”(milligram per kilogram), mg/kg ~ ppm.

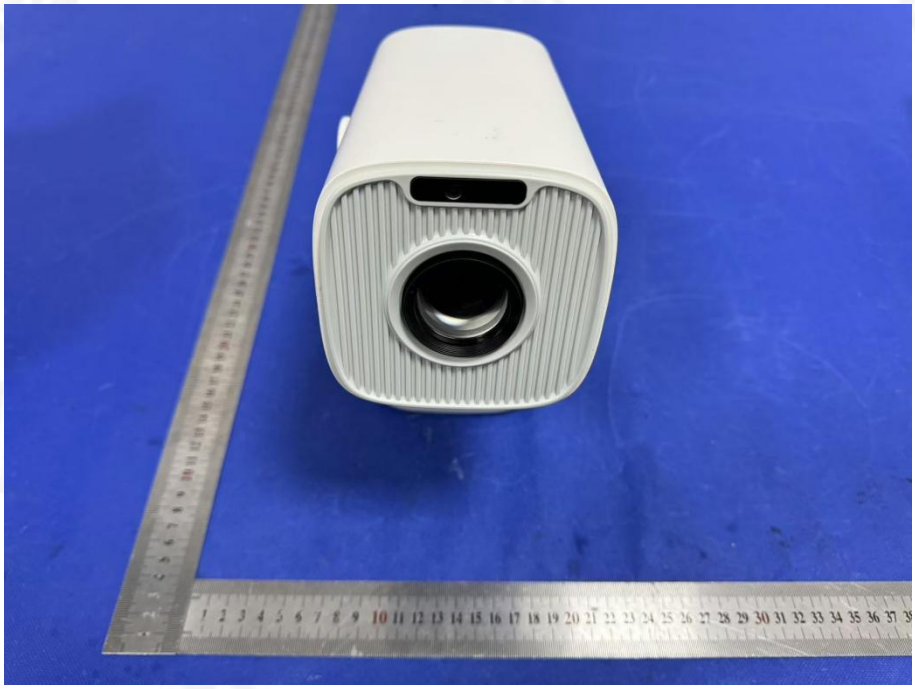
“N.D.” = “Not Detected”.

# ANNEX A: Photo-documentation

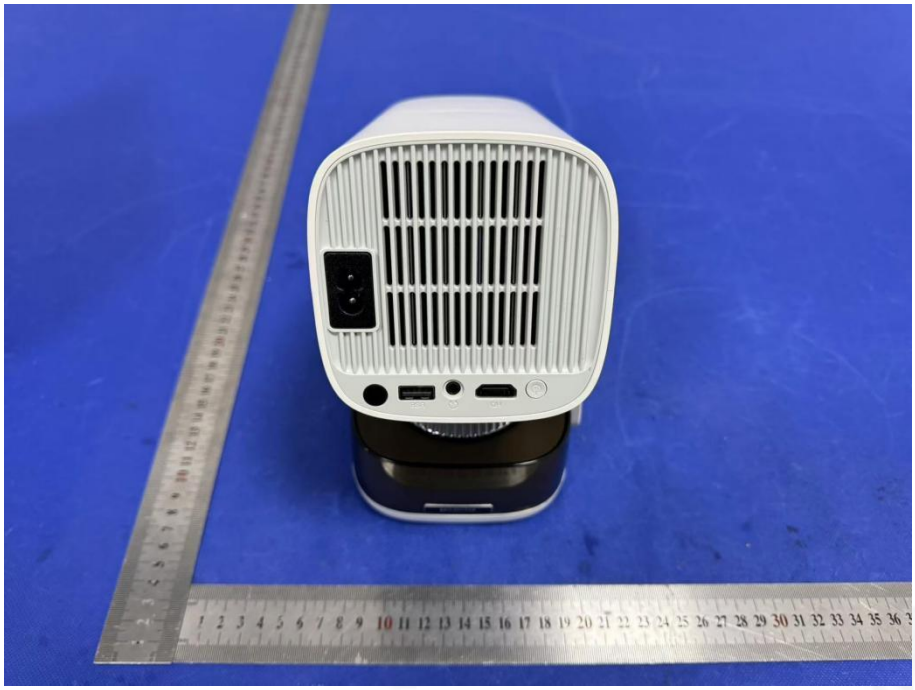
## EUT Photo 1

## EUT Photo 2

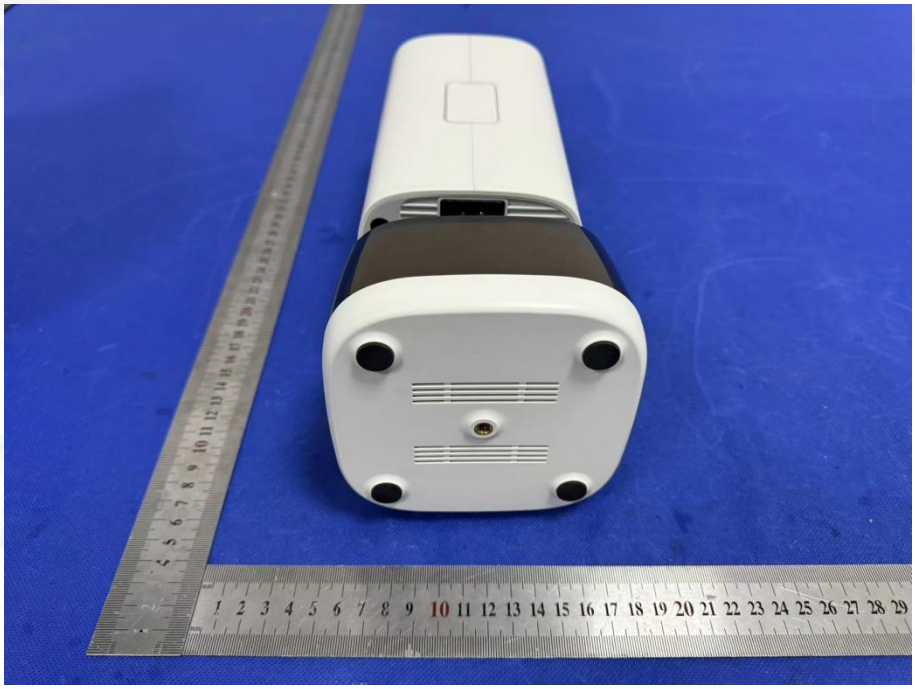
**EUT Photo 3**



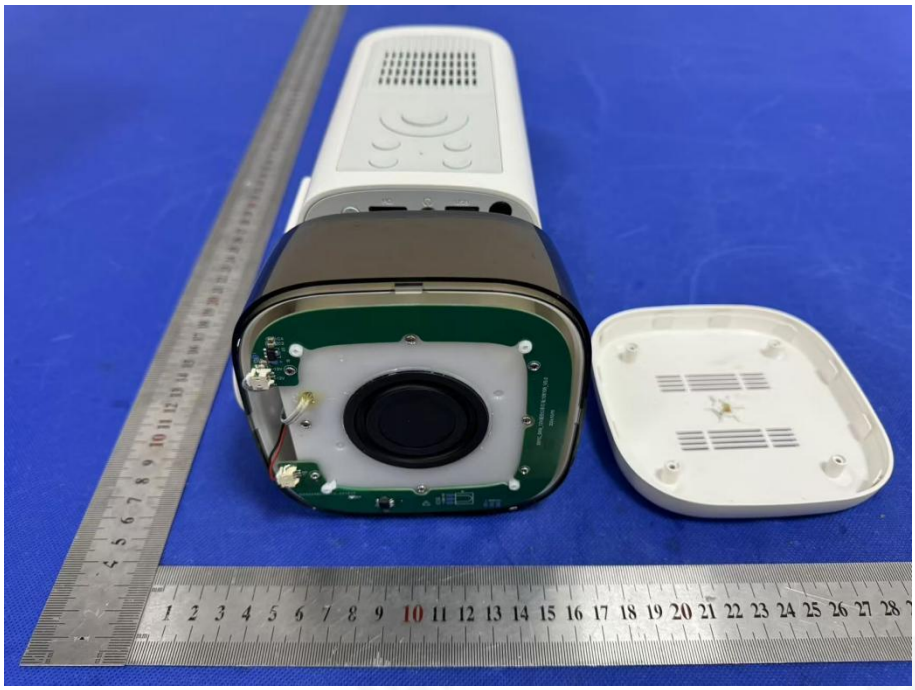
**EUT Photo 4**



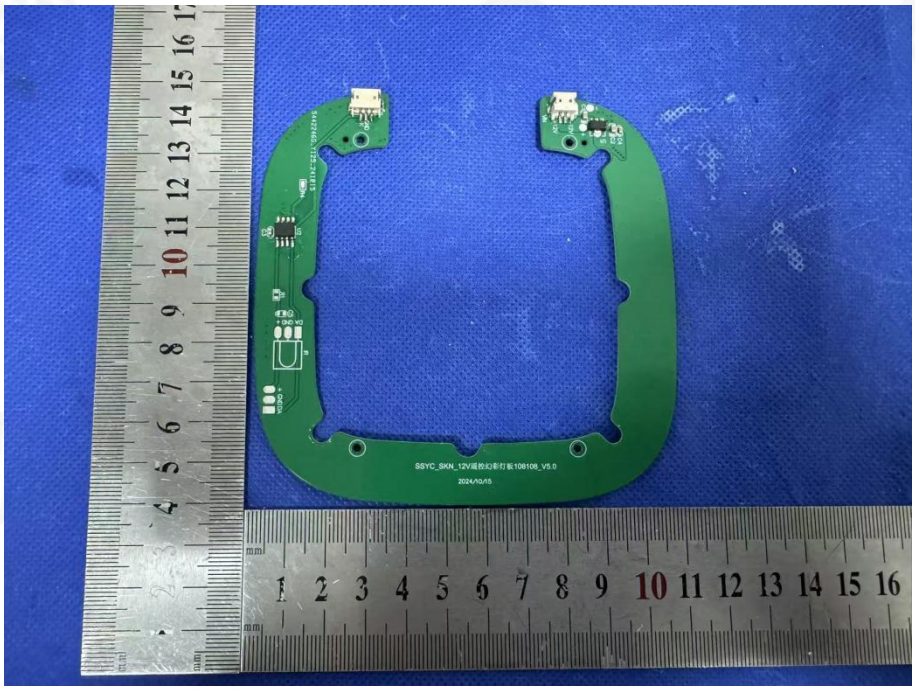
**EUT Photo 5**



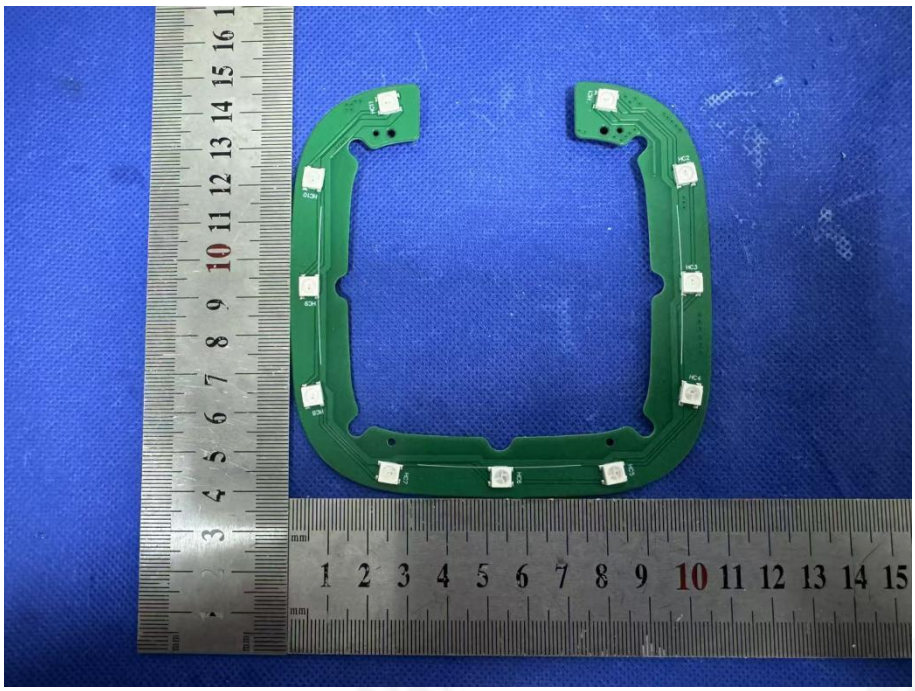
**EUT Photo 6**



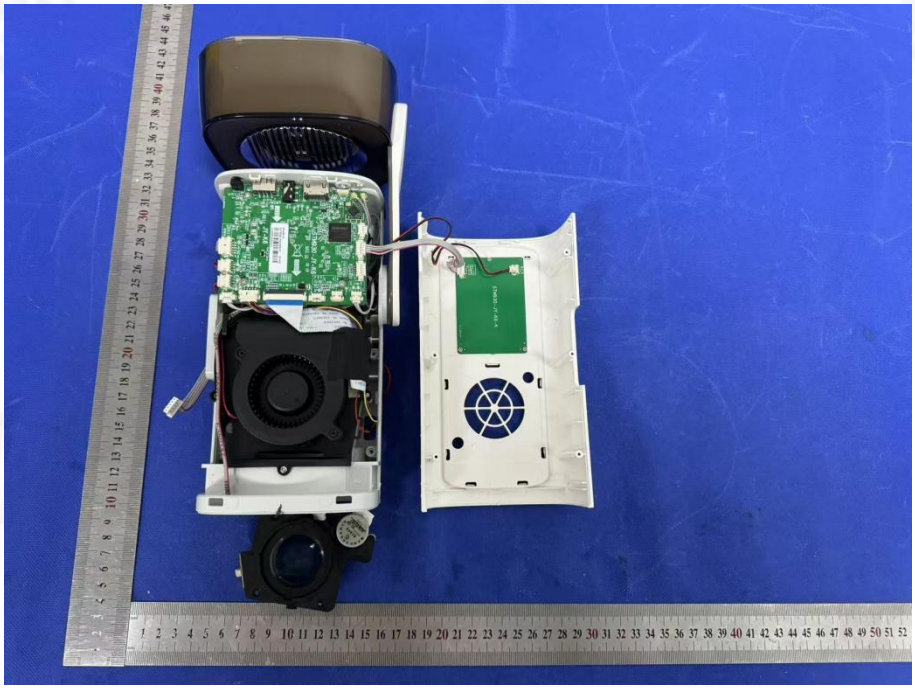
**EUT Photo 7**



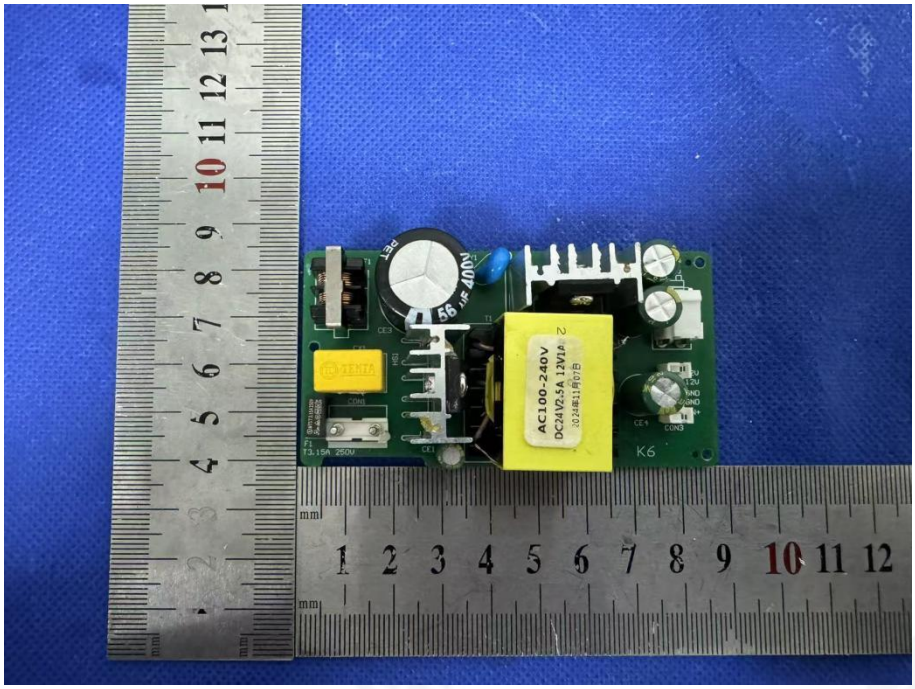
**EUT Photo 8**



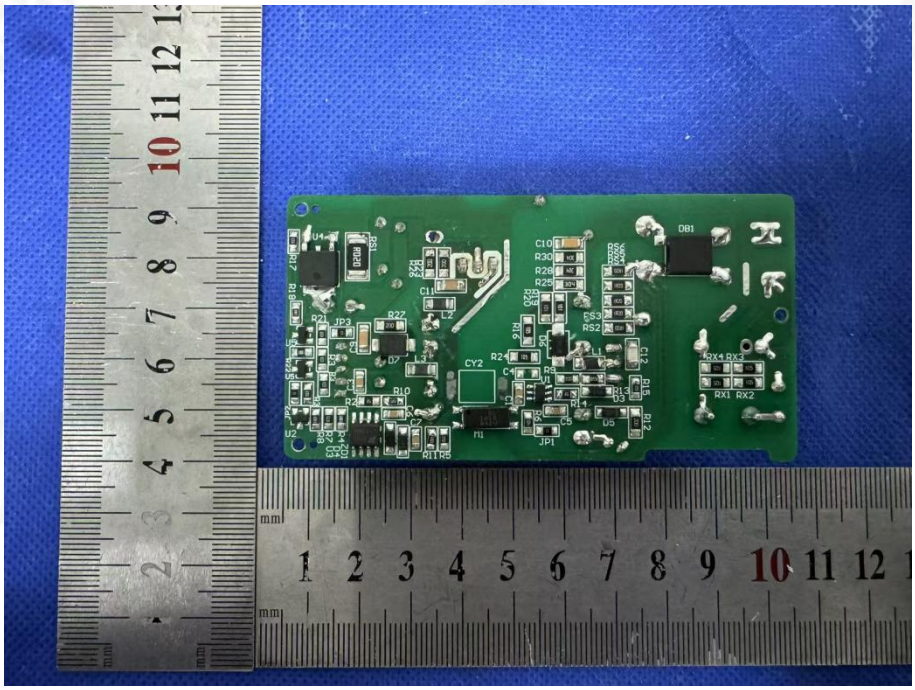
**EUT Photo 9**



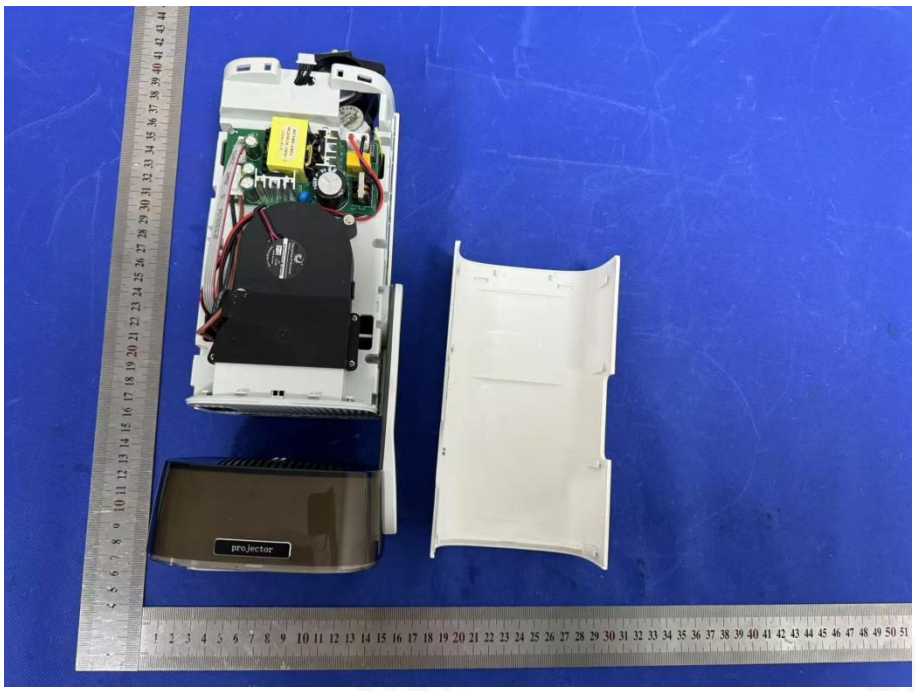
**EUT Photo 10**



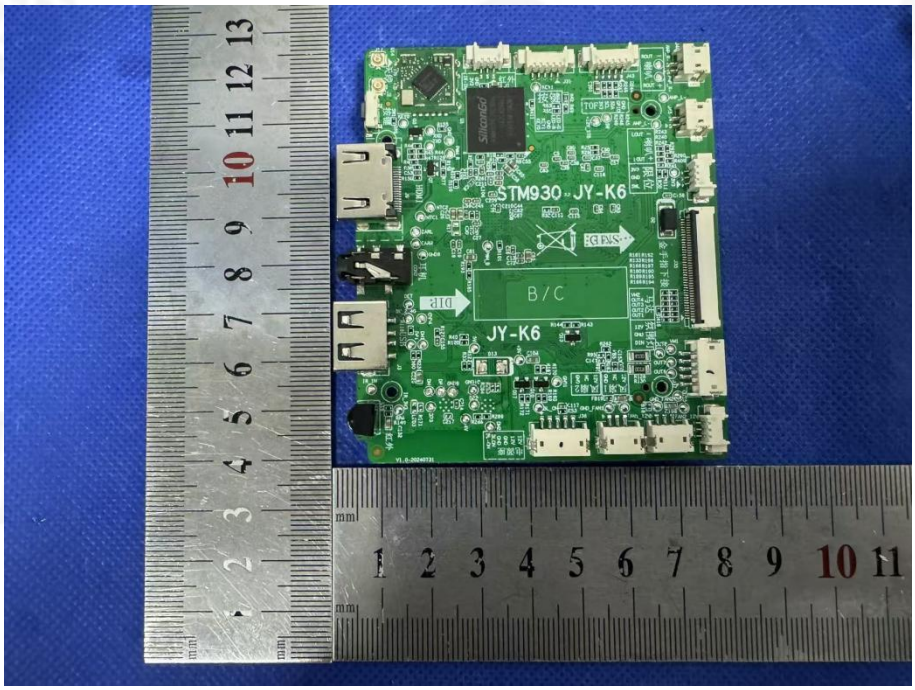
**EUT Photo 11**



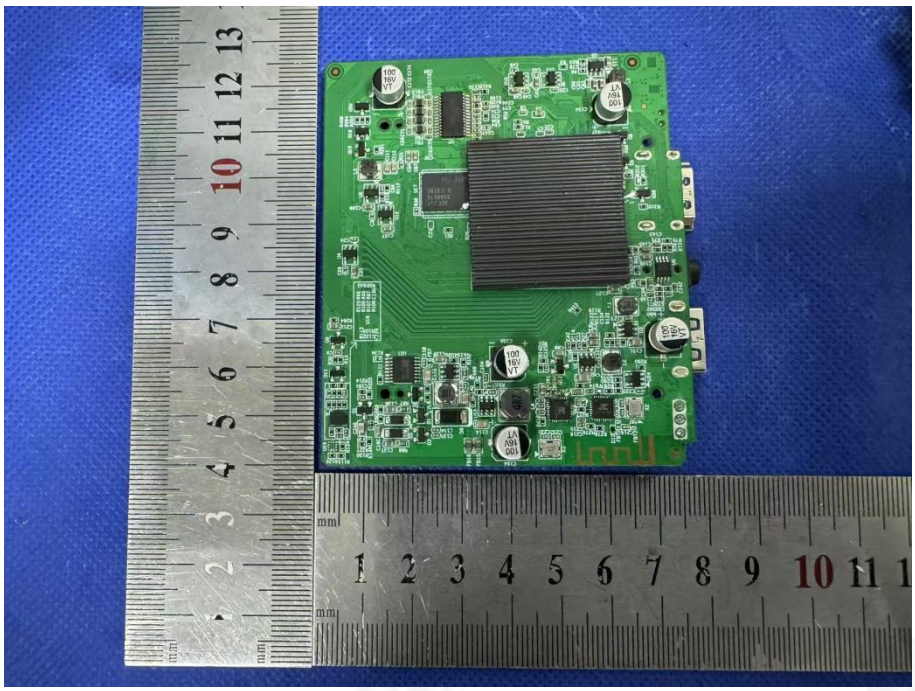
**EUT Photo 12**



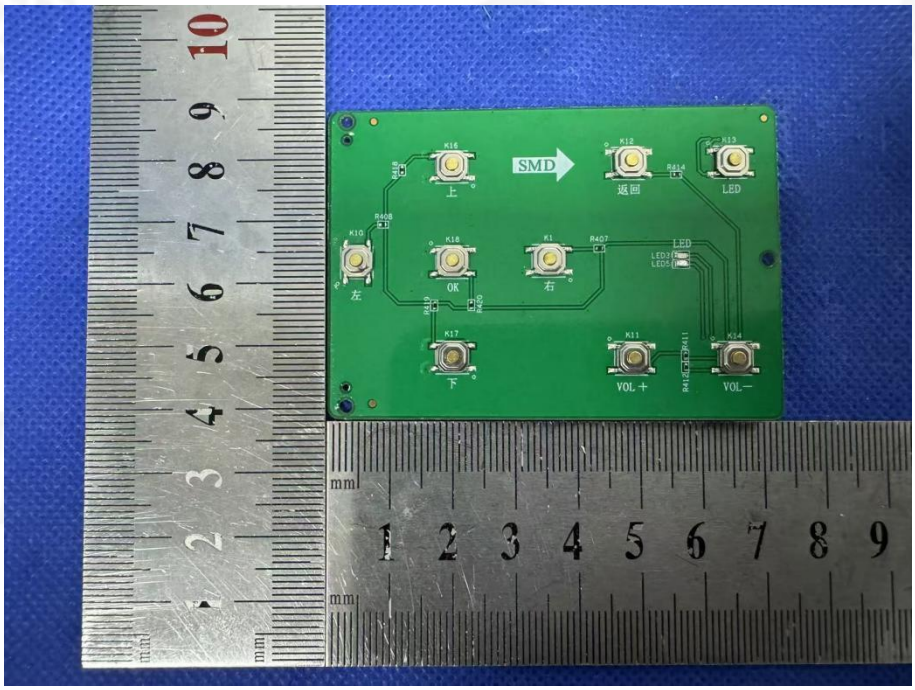
**EUT Photo 13**



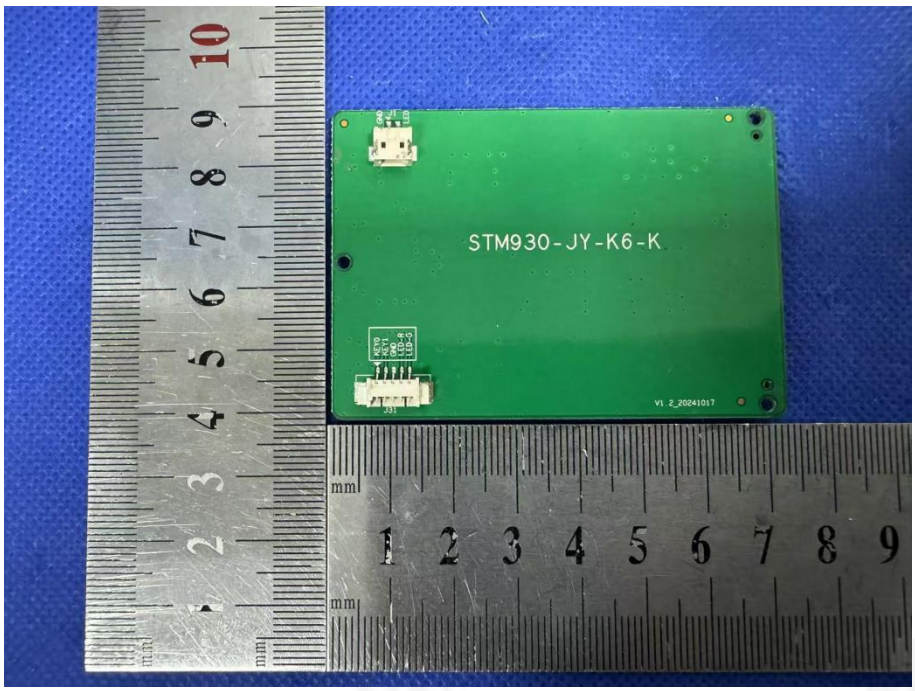

**EUT Photo 14**



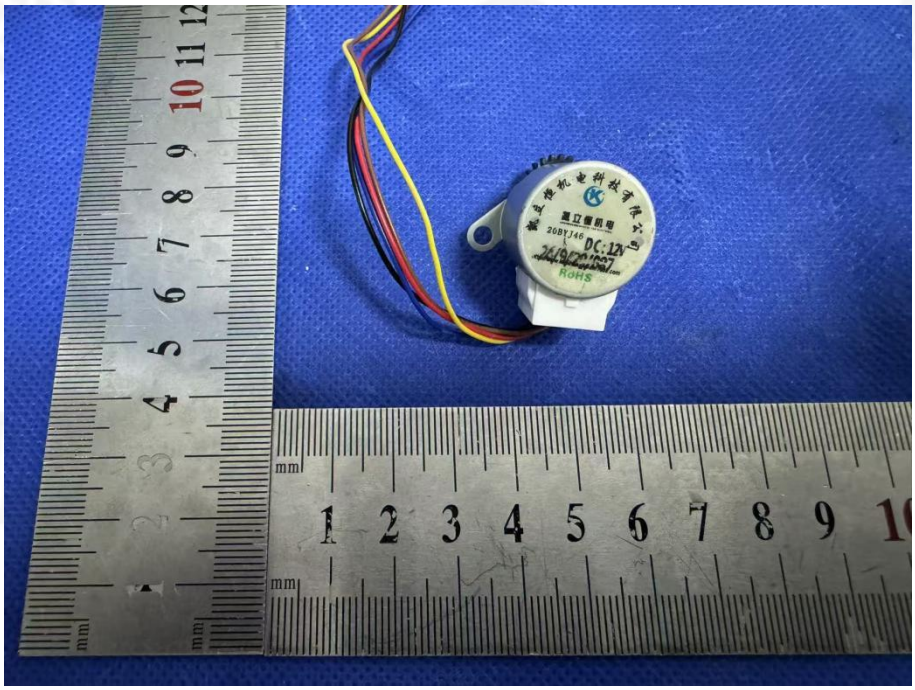
**EUT Photo 15**




**EUT Photo 16**



**EUT Photo 17**

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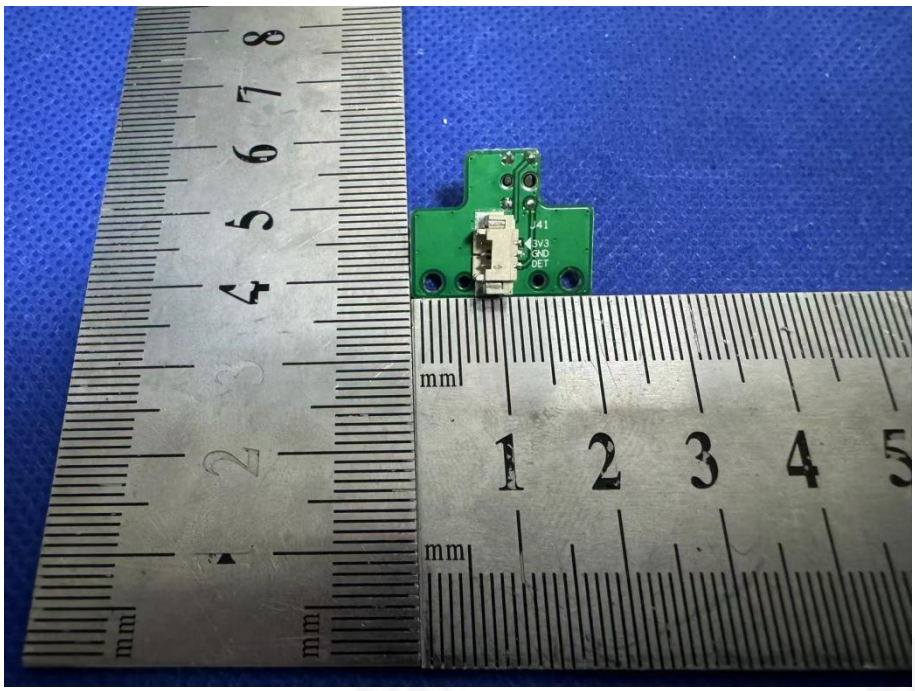
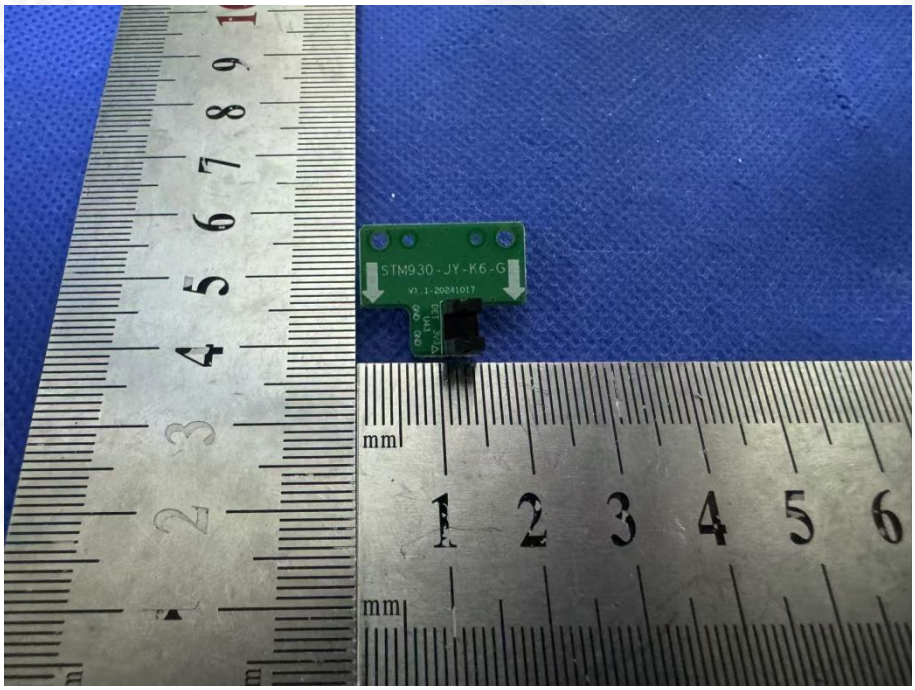
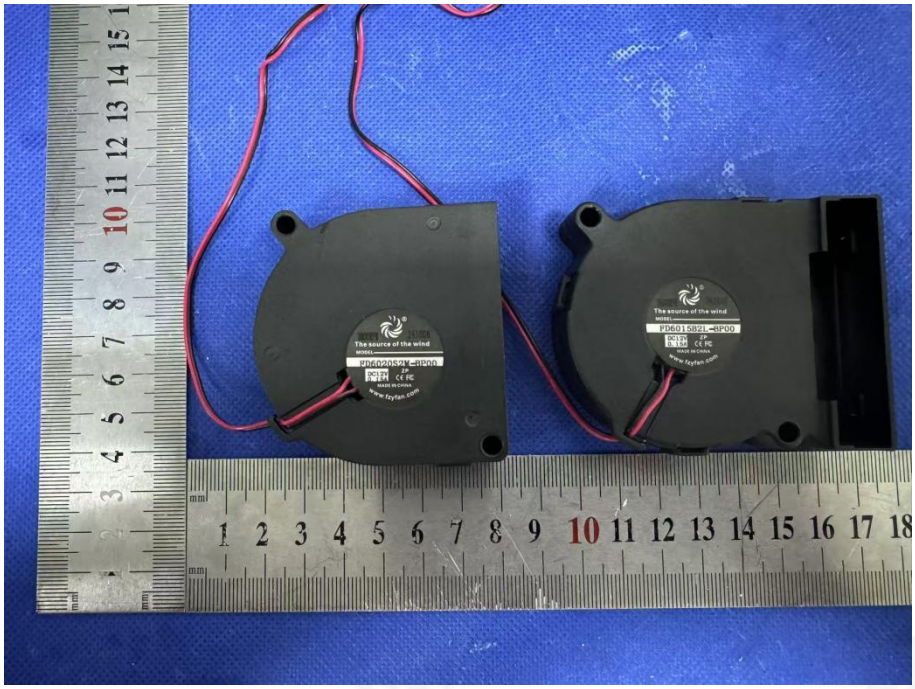


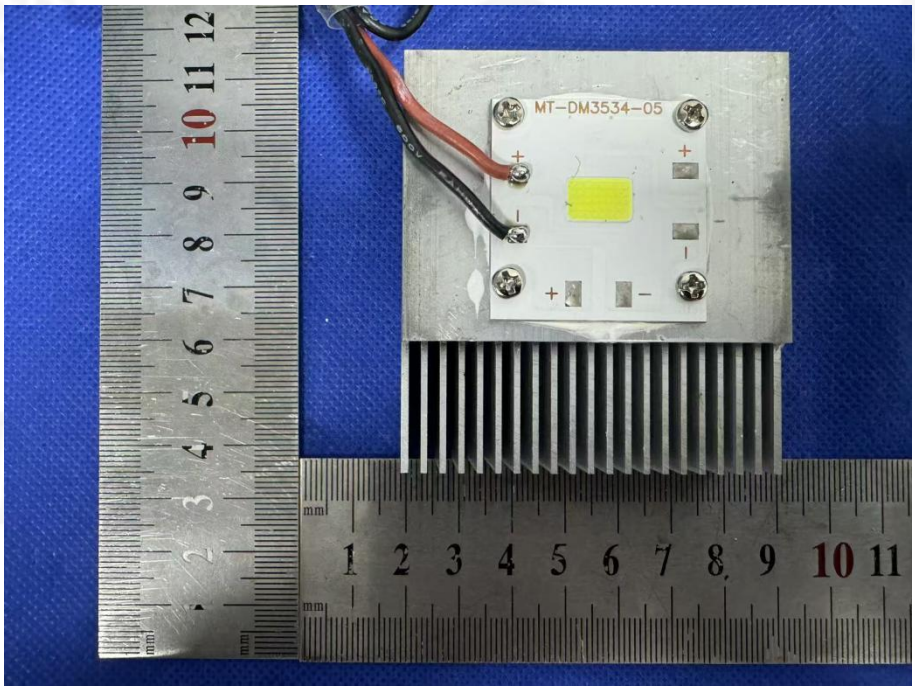
**EUT Photo 19**




**EUT Photo 20**



**EUT Photo 21**




**EUT Photo 22**

**※※※※※ END OF REPORT※※※※※**