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# Test Report

Report No.: PTC23071200202C-EN01

Issue Date: Jul. 26, 2023

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**Applicant:** Shenzhen Lampow Electronics co., Ltd

**Address:** 11th A buiding Quanju industrial park jiangshi road ,gongming shenzhen china

The following merchandise was (were) submitted and identified by client as:

**Sample Name:** Switch on the power supply control module

**Model:** Main test model:RSRMEV2300-SC

Series models:URX

**Manufacturer:** Shenzhen Lampow Electronics co., Ltd

**Address:** 11th A buiding Quanju industrial park jiangshi road ,gongming shenzhen china

**Sample Received Date:** Jul. 17, 2023

**Completed Date:** Jul. 20, 2023

**Test Requested:** As specified by client, with reference to RoHS Directive 2011/65/EU and its subsequent amendments regulation EU No.2015/863.(Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium( $\text{Cr}^{6+}$ ), PBBs and PBDEs, Phthalates (DBP, BBP,DEHP,DIBP))

**Conclusion(s):** According to the test results of below test parameters, the tested materials of submitted samples complied with the requirements for RoHS Directive 2011/65/EU and its subsequent amendments regulation EU No.2015/863.

**Test Result(s) and Test Method(s):**Please refer to next page(s)

Prepared by: Anne

Checked by:Crystal

Approved by: Miya

Anne

Crystal

Miya



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## Test Result(s):

1.1) RoHS Directive 2011/65/EU -(Lead (Pb)/Cadmium(Cd)/Mercury(Hg)/Hexavalent Chromium(Cr<sup>6+</sup>)/PBBs/PBDEs)

Test Method: IEC62321-3-1: 2013, IEC62321-6:2015, analyzed by EDXRF & GC-MS.

| No. | Materials Description                                   | EDXRF Result(s)<br>(mg/kg) |    |    |    |    | Chemical<br>Result (mg/kg) | Conclusion |
|-----|---|----------------------------|----|----|----|----|----------------------------|------------|
|     |   | Pb                         | Cd | Hg | Cr | Br |                            |            |
| 1   | Green PCB (PCB "LP-RX-M3 V1.0")                         | BL                         | BL | BL | BL | IN | PBBs:N.D.<br>PBDEs:N.D.    | PASS       |
| 2   | Silver metal (housing, varistor, PCB "LP-RX-M3 V1.0")   | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 3   | Black plastic (gasket, varistor, PCB "LP-RX-M3 V1.0")   | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 4   | Silver metal (pin, varistor, PCB "LP-RX-M3 V1.0")       | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 5   | Black body (integrated chip, PCB "LP-RX-M3 V1.0")       | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 6   | Silver metal (integrated chip pin, PCB "LP-RX-M3 V1.0") | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 7   | Brown body (capacitor, PCB "LP-RX-M3 V1.0")             | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 8   | White body (inductor, PCB "LP-RX-M3 V1.0")              | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 9   | Black body (resistor, PCB "LP-RX-M3 V1.0")              | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 10  | Green PCB (PCB "RSRMEV2300-SC")                         | BL                         | BL | BL | BL | IN | PBBs:N.D.<br>PBDEs:N.D.    | PASS       |
| 11  | Black body (diode, PCB "RSRMEV2300-SC")                 | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 12  | Black body (triode, PCB "RSRMEV2300-SC")                | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 13  | Red body (diode, PCB "RSRMEV2300-SC")                   | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 14  | Green plastic (socket, PCB "RSRMEV2300-SC")             | BL                         | BL | BL | BL | BL | --                         | PASS       |

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| No. | Materials Description  | EDXRF Result(s)<br>(mg/kg) |    |    |    |    | Chemical<br>Result (mg/kg) | Conclusion |
|-----|--|----------------------------|----|----|----|----|----------------------------|------------|
|     |  | Pb                         | Cd | Hg | Cr | Br |                            |            |
| 15  | Silver metal (insert pin, PCB<br>"RSRMEV2300-SC")                          | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 16  | Red plastic (lamp, PCB<br>"RSRMEV2300-SC")                                 | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 17  | Black body (integrated chip,<br>PCB "RSRMEV2300-SC")                       | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 18  | Silver metal (pin, integrated<br>chip, PCB<br>"RSRMEV2300-SC")             | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 19  | Gray body with multi-color<br>printing (capacitor, PCB<br>"RSRMEV2300-SC") | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 20  | Black plastic with white print<br>(sleeve, capacitor)                      | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 21  | Silver metal (case,<br>capacitor)  | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 22  | Black soft rubber (base,<br>capacitor)                                     | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 23  | Brown paper with liquid (film,<br>capacitor)                               | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 24  | Silver metal (foil, capacitor)   | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 25  | Dark silver metal (foil,<br>capacitor)                                     | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 26  | Silver metal (pins,<br>capacitors)   | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 27  | Black plastic (buttons,<br>switches)                                       | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 28  | Silver metal (cap, switch)   | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 29  | Silver metal (foil, switch)  | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 30  | Black plastic (base, switch)   | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 31  | Silver metal (connectors,<br>switches)                                     | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 32  | Blue plastic (housing,   | BL                         | BL | BL | BL | BL | --                         | PASS       |

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| No. | Materials Description                      | EDXRF Result(s)<br>(mg/kg) |    |    |    |    | Chemical<br>Result (mg/kg) | Conclusion |
|-----|--|----------------------------|----|----|----|----|----------------------------|------------|
|     |  | Pb                         | Cd | Hg | Cr | Br |                            |            |
|     | switch)                                    |                            |    |    |    |    |                            |            |
| 33  | White plastic (buttons, switches)          | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 34  | Black plastic (connector fastener, switch) | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 35  | Silver metal (connectors, switches)        | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 36  | Green plastic (housing, connectors)        | BL                         | BL | BL | BL | BL | --                         | PASS       |
| 37  | Silver metal (screws, connectors)          | BL                         | BL | BL | BL | -- | --                         | PASS       |
| 38  | Silver metal (connectors, connectors)      | BL                         | BL | BL | BL | -- | --                         | PASS       |

- Note:**
1. mg/kg = milligram per kilogram (ppm).
  2. N.D. = Not Detected
  3. The result are obtained by EDXRF for primary screening, if the result exceeds the below limit (BL), and further chemical testing.
  4. For EDXRF screening, the result(s) of Cr VI was (were) reported as total chromium and the result(s) of PBBs and PBDEs was (were) reported as total bromine.

## Screening limits in mg/kg for regulated elements in various matrices

| Elements  | Polymer  | Metal  | Composite Materials                                  |
|-----------|--|--|--|
| <b>Pb</b> | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$ |
| <b>Cd</b> | $BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$   | $BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$   | $LOD < X < (150+3\sigma) \leq OL$                    |
| <b>Hg</b> | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$ | $BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$ |
| <b>Cr</b> | $BL \leq (700-3\sigma) < X$                          | $BL \leq (700-3\sigma) < X$                          | $BL \leq (500-3\sigma) < X$                          |
| <b>Br</b> | $BL \leq (300-3\sigma) < X$                          | --   | $BL \leq (250-3\sigma) < X$                          |

BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection

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## Chemical Testing - Detection Limit & 2011/65/EU Limit:

| Name of Chemicals  | Detection Limit<br>(mg/kg)       | 2011/65/EU Limit<br>(mg/kg)        |
|--|----------------------------------|------------------------------------|
| Lead (Pb)  | 5                                | 1000                               |
| Cadmium (Cd)   | 5                                | 100                                |
| Mercury (Hg)   | 5                                | 1000                               |
| Chromium VI (Cr VI)  | Non-metal: 10<br>Metal: Negative | Non-metal: 1000<br>Metal: Negative |
| Polybromobiphenyls (PBBs)<br>-Bromobiphenyl (MonoBB)<br>-Dibromobiphenyl (DiBB)<br>-Tribromobiphenyl (TriBB)<br>-Tetrabromobiphenyl (TetraBB)<br>-Pentabromobiphenyl (PentaBB)<br>-Hexabromobiphenyl (HexaBB)<br>-Heptabromobiphenyl (HeptaBB)<br>-Octabromobiphenyl (OctaBB)<br>-Nonabromobiphenyl (NonaBB)<br>-Decabromobiphenyl (DecaBB)  | Each 5                           | Sum: 1 000                         |
| Polybromodiphenyl ethers (PBDEs)<br>-Bromodiphenyl ether (MonoBDE)<br>-Dibromodiphenyl ether (DiBDE)<br>-Tribromodiphenyl ether (TriBDE)<br>-Tetrabromodiphenyl ether (TetraBDE)<br>-Pentabromodiphenyl ether (PentaBDE)<br>-Hexabromodiphenyl ether (HexaBDE)<br>-Heptabromodiphenyl ether (HeptaBDE)<br>-Octabromodiphenyl ether (OctaBDE)<br>-Nonabromodiphenyl ether (NonaBDE)<br>-Decabromodiphenyl ether (DecaBDE) | Each 5                           | Sum: 1 000                         |

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## Test Result(s):

**1.2) RoHS Directive 2011/65/EU and its subsequent amendments regulation EU No.2015/863 - (Phthalates DIBP,DBP, BBP, DEHP)**

Method: IEC 62321-8: 2017, analyzed by Gas Chromatograph-Mass Spectrometry (GC-MS).

| Substances       | DBP            | BBP     | DEHP     | DIBP    | Conclusion |
|------------------|----------------|---------|----------|---------|------------|
| CAS No.          | 84-74-2        | 85-68-7 | 117-81-7 | 84-69-5 |            |
| Limit(s) (mg/kg) | 1000           | 1000    | 1000     | 1000    |            |
| RL (mg/kg)       | 50             | 50      | 50       | 50      |            |
| Material No.     | Result (mg/kg) |         |          |         |            |
| 1+10+14          | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 16+20+22         | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 23+36            | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 27+17+33         | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 30+32+34         | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 3+5+19           | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 7+8+9            | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |
| 11+12+13         | N.D.           | N.D.    | N.D.     | N.D.    | PASS       |

- Note:**
1. mg/kg = milligram per kilogram (ppm).
  2. N.D. = Not Detected (<RL).
  3. RL=Reporting Limit.

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## Test Material List

The following materials apply only to the samples submitted for phthalates testing.

| Material No. | Description (Location)   |
|--------------|--|
| 1            | Green PCB (PCB "LP-RX-M3 V1.0")                                      |
| 3            | Black plastic (gasket, varistor, PCB "LP-RX-M3 V1.0")                |
| 5            | Black body (integrated chip, PCB "LP-RX-M3 V1.0")                    |
| 7            | Brown body (capacitor, PCB "LP-RX-M3 V1.0")                          |
| 8            | White body (inductor, PCB "LP-RX-M3 V1.0")                           |
| 9            | Black body (resistor, PCB "LP-RX-M3 V1.0")                           |
| 10           | Green PCB (PCB "RSRMEV2300-SC")                                      |
| 11           | Black body (diode, PCB "RSRMEV2300-SC")                              |
| 12           | Black body (triode, PCB "RSRMEV2300-SC")                             |
| 13           | Red body (diode, PCB "RSRMEV2300-SC")                                |
| 14           | Green plastic (socket, PCB "RSRMEV2300-SC")                          |
| 16           | Red plastic (lamp, PCB "RSRMEV2300-SC")                              |
| 17           | Black body (integrated chip, PCB "RSRMEV2300-SC")                    |
| 19           | Gray body with multi-color printing (capacitor, PCB "RSRMEV2300-SC") |
| 20           | Black plastic with white print (sleeve, capacitor)                   |
| 22           | Black soft rubber (base, capacitor)                                  |
| 23           | Brown paper with liquid (film, capacitor)                            |
| 27           | Black plastic (buttons, switches)                                    |
| 30           | Black plastic (base, switch)   |
| 32           | Blue plastic (housing, switch)                                       |
| 33           | White plastic (buttons, switches)                                    |
| 34           | Black plastic (connector fastener, switch)                           |
| 36           | Green plastic (housing, connectors)                                  |

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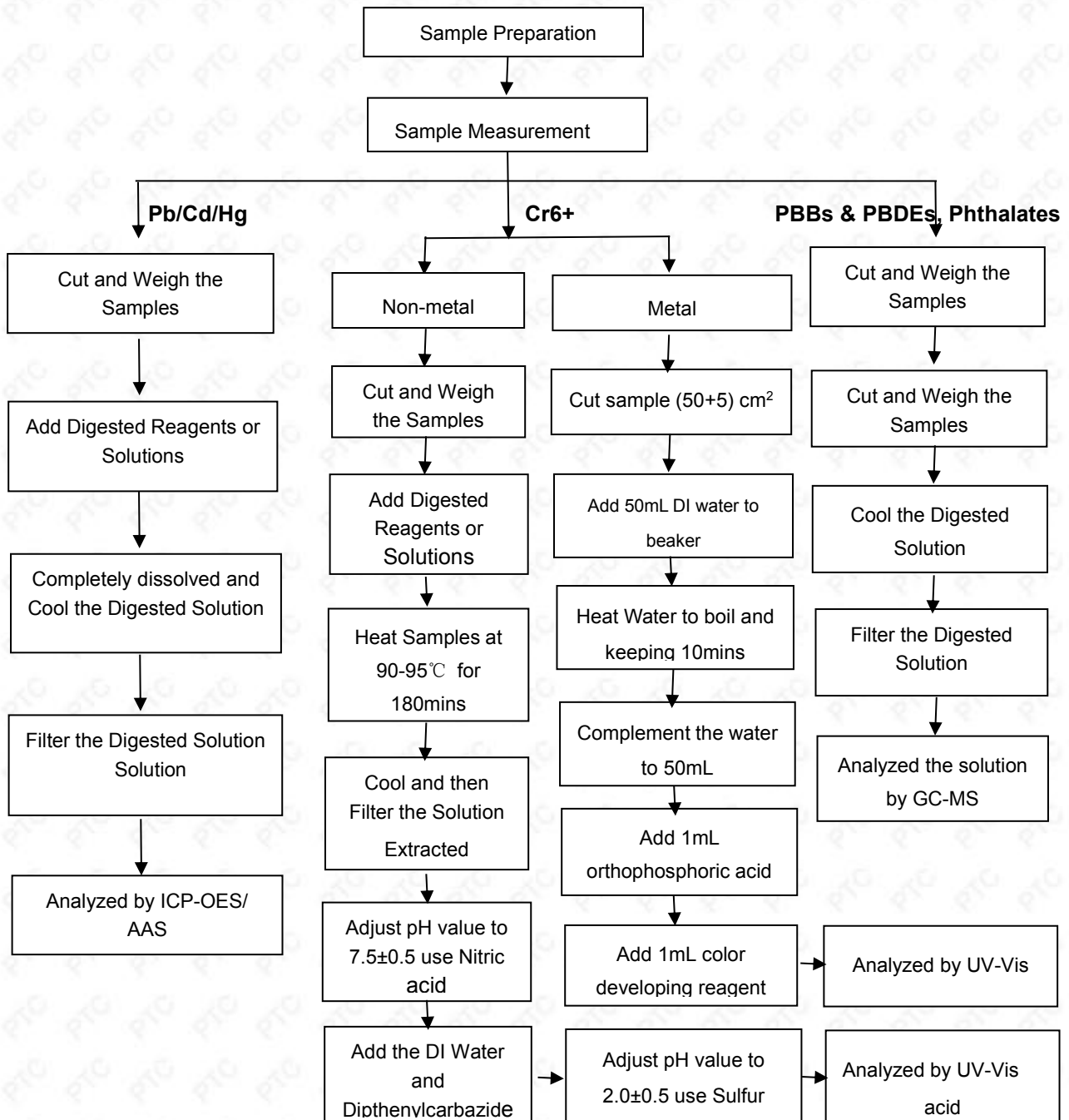
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**Pb/Cd/Hg/Cr6+/PBBs/PBDEs , Phthalates Testing Flow Chart**



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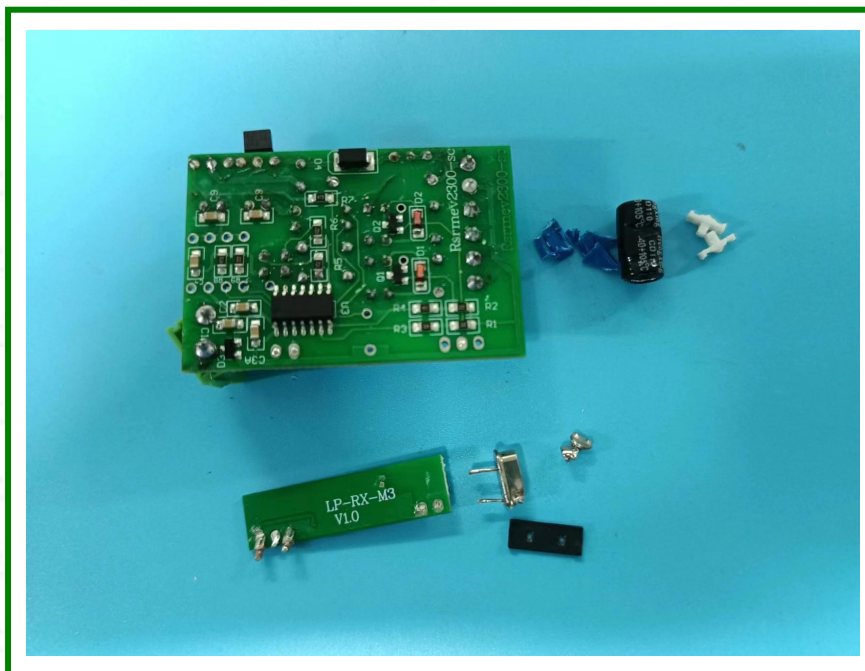
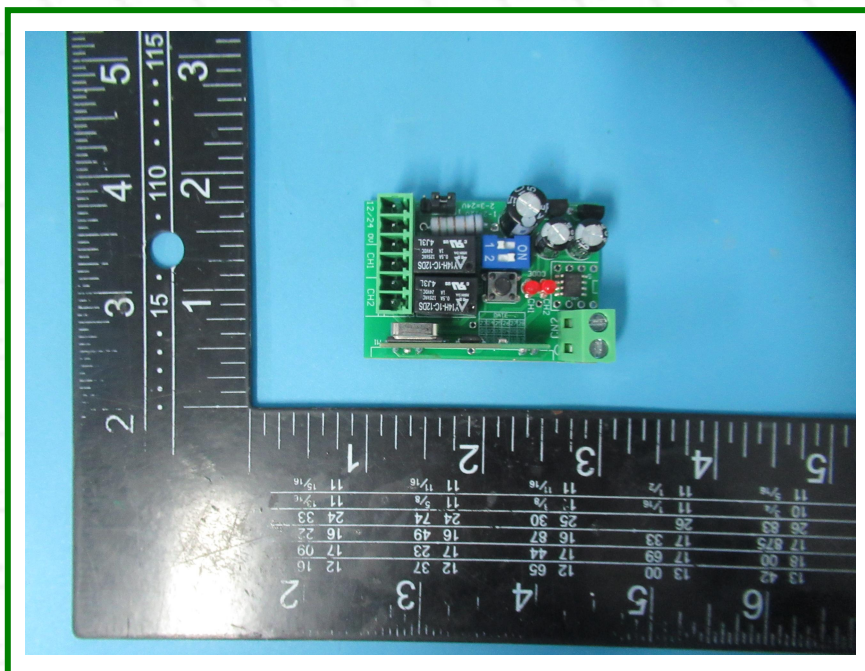
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Photo(s) of Sample:



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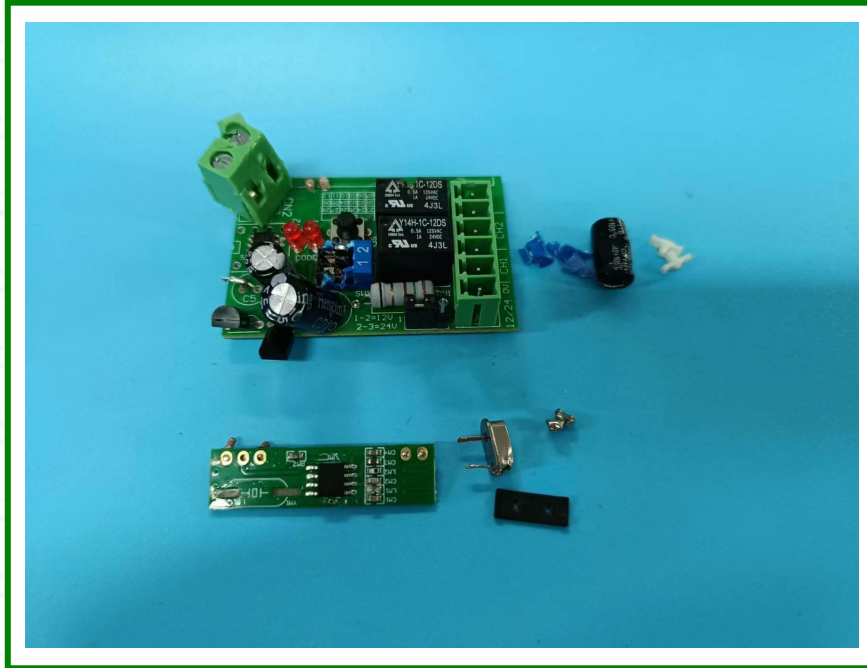


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