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# TEST REPORT
## IEC 62368-1
## Audio/video, information and communication technology equipment
## Part 1: Safety requirements

| | |
|---|---|
| **Report Number ..... :** | 210401382SHA-001 |
| Date of issue ..... : | 2021-05-12 |
| Total number of pages ..... : | 198 |
| **Applicant's name ..... :** | GlobTek, Inc. |
| Address ..... : | 186 Veterans Dr. Northvale, NJ 07647 USA |
| **Test specification:** | |
| Standard..... : | IEC 62368-1:2014 (Second Edition) |
| Test procedure ..... : | CB Scheme |
| Non-standard test method ..... : | N/A |
| **Test Report Form No. ..... :** | IEC62368_1B |
| Test Report Form(s) Originator..... : | UL(US) |
| Master TRF ..... : | 2014-03 |



**This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.**

**General disclaimer:**

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

| | |
|---|---|
| Test Item description ..... : | ICT/ITE POWER SUPPLY |
| Trade Mark ..... : | GlobTek, Inc. |
| Manufacturer ..... : | Same as applicant |
| Model/Type reference ..... : | GT*96180-******, GT*96300-******, GT*91120-******, GTM91128LI*CEL**-****, GTM91128***-****<br>(See pages 8-12 for details) |
| Ratings ..... : | Input: 100-240V~, 50-60Hz or 50/60Hz, 0.6A / 1.0A / 1.5A;<br>Output: 5-56VDC, Max. 4.5A, Max. 36W<br>(See pages 8-12 for details) |

| | | | |
|---|---|---|---|
| | | | |
| Testing procedure and testing location: | | | |
| ☒ | CB Testing Laboratory: | Intertek Testing Services Shanghai. | |
| Testing location/ address .....: | | Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China | |
| ☐ | Associated CB Testing Laboratory: | | |
| Testing location/ address .....: | | | |
| Tested by (name + signature) .....: | | Albert Zhou (Engineer) | Albert Zhou |
| Approved by (name + signature) .....: | | Will Wang (Mandated Reviewer) | Will Wang |
| | | | |
| ☐ | Testing procedure: TMP/CTF Stage 1 | | |
| Testing location/ address ..... : | | | |
| Tested by (name + signature) .....: | | | |
| Approved by (name + signature) .....: | | | |
| | | | |
| ☐ | Testing procedure: WMT/CTF Stage 2 | | |
| Testing location/ address .....: | | | |
| Tested by (name + signature) .....: | | | |
| Witnessed by (name + signature).....: | | | |
| Approved by (name + signature) .....: | | | |
| | | | |
| ☐ | Testing procedure: SMT/CTF Stage 3 or 4 | | |
| Testing location/ address .....: | | | |
| Tested by (name + signature) .....: | | | |
| Approved by (name + signature) .....: | | | |
| Supervised by (name + signature) .....: | | | |

**List of Attachments (including a total number of pages in each attachment):**

Appendix No.1: Photos of product, from page 94 to page 161, total 68 pages

Appendix No.2: Group differences for CENELEC countries, from page 162 to page 170, total 9 pages

Appendix No.3: Group differences for the CENELEC countries and national differences for USA and Canada, from page 171 to page 176, total 6 pages

Appendix No.4: National differences for Australia/New Zealand, from page 177 to page 187, total 11 pages

Appendix No.5: National differences for Japan, from page 188 to page 191, total 4 pages
Appendix 6 to 9: Supplementary tests on plug portion, from page 192 to page 197, total 6 pages
Appendix No.10: Mechanical durability test for non-standard interchangeable plug adapters according IEC 61984: 2008, page 198, total 1 page

**Summary of testing:**

From the result of our examination and tests in the submitted samples, conclude they comply with the requirements of the standard IEC 62368-1:2014 (Second Edition) & EN 62368-1:2014+AC:15+A11:2017 & BS EN 62368-1:2014+AC:15+A11:2017.

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| 5.2 Classification and limits of electrical energy sources<br>5.4.1.8 Determination of working voltage<br>5.4.1.10.3 Ball pressure test<br>5.4.2 Clearances<br>5.4.3 Creepage distances<br>5.4.8 Humidity conditioning<br>5.4.9 Electric strength test<br>5.7.2.1 Measurement of touch current<br>6.2.2.2 Power measurement for worst-case load fault<br>6.2.2.3 Power measurement for worst-case source fault<br>6.4.3.3 Single Fault Conditions test<br>B.2.5 Input test<br>B.3.5 Maximum load at output terminals<br>F.3.10 Permanence of markings<br>G.5.3.3 Overload test of Transformers<br>T.2 Steady force test, 10 N<br>T.4 Steady force test, 100 N<br>T.7 Drop test<br>T.8 Stress relief test<br>Remark:<br>From the result of our examination and tests in the submitted samples, conclude they comply with the requirements of the standard IEC 62368-1:2014 (Second Edition) | Intertek Testing Services Shanghai<br>Building No.86, 1198 Qinzhou Road (North), 200233 Shanghai, China |

**Summary of compliance with National Differences:**

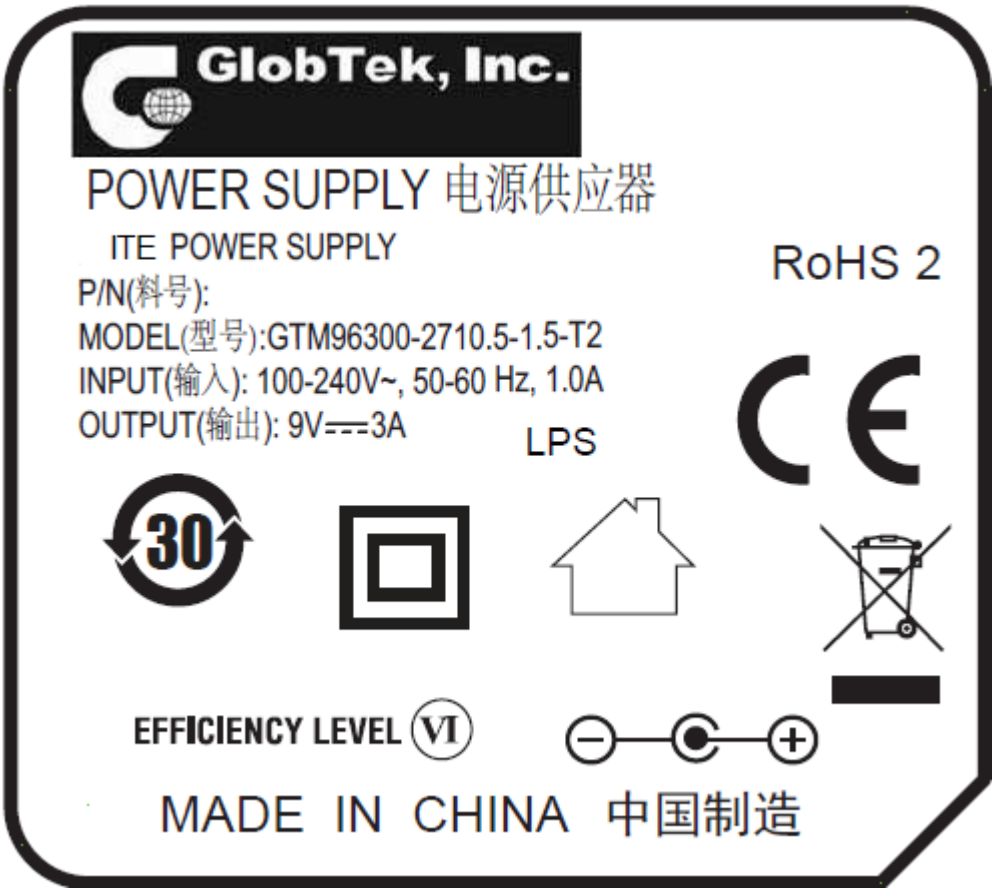
**List of countries addressed**

Group differences for CENELEC countries and national differences for Japan, Australia/New Zealand, US and Canadian are considered.

☒ **The product fulfils the requirements of IEC 62368-1:2014 (Second Edition) & EN 62368-1:2014 + AC:15 + A11:2017 & BS EN 62368-1:2014+AC:15+A11:2017.**

**Copy of marking plate:**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.




Note: The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

Other models are with similar label as corresponding above models except different model name and output ratings.

| TEST ITEM PARTICULARS: | |
|---|---|
| Classification of use by ..... : | ☒ Ordinary person<br>☐ Instructed person<br>☐ Skilled person<br>☐ Children likely to be present |
| Supply Connection ..... : | ☒ AC Mains ☐ DC Mains<br>☐ External Circuit - not Mains connected<br>- ☐ ES1 ☐ ES2 ☐ ES3 |
| Supply % Tolerance ..... : | ☒ +10%/-10%<br>☐ +20%/-15%<br>☐ +____%/ -_____%<br>☐ None |
| Supply Connection – Type ..... : | ☒ pluggable equipment type A -<br>☐ non-detachable supply cord<br>☒ appliance coupler<br>☒ direct plug-in<br>☐ mating connector<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector ☐ other:_____ |
| Considered current rating of protective device as part of building or equipment installation .....: | 16 A (20A for North America);<br>Installation location: ☒ building; ☐ equipment |
| Equipment mobility .....: | ☐ movable ☐ hand-held ☒ transportable<br>☐ stationary ☒ for building-in ☒ direct plug-in ☐ rack-mounting ☐ wall-mounted |
| Over voltage category (OVC) .....: | ☐ OVC I ☒ OVC II ☐ OVC III<br>☐ OVC IV ☐ other: _____ |
| Class of equipment .....: | ☒ Class I ☒ Class II ☐ Class III |
| Access location .....: | ☐ restricted access location ☒ N/A |
| Pollution degree (PD) .....: | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| Manufacturer's specified maxium operating ambient : | 40°C |
| IP protection class .....: | ☒ IPX0 ☐ IP___ |
| Power Systems .....: | ☒ TN ☐ TT ☒ IT - 230 V $_{L-L}$ |
| Altitude during operation (m) .....: | ☐ 2000 m or less ☒ <5000 m |
| Altitude of test laboratory (m) .....: | ☐ 2000 m or less ☒ <50 m |
| Mass of equipment (kg) .....: | ☒ Max. 0.58 kg |
| | |
| **POSSIBLE TEST CASE VERDICTS:** | |
| - test case does not apply to the test object.....: | N/A |

| | |
|---|---|
| - test object does meet the requirement ..... : | P (Pass) |
| - test object does not meet the requirement ..... : | F (Fail) |
| **TESTING:** | |
| Date of receipt of test item..... : | 2021-04-07 |
| Date (s) of performance of tests..... : | 2021-04-12 to 2021-05-11 |
| | |

**GENERAL REMARKS:**

**"(See Enclosure #)" refers to additional information appended to the report.**
**"(See appended table)" refers to a table appended to the report.**

**Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**

**Through the report, model GTM96180-1807-2.0-T2, GTM96180-1817.9-5.9-T2, GTM96180-1838-2.0-T2, GTM96180-1848-T2, GTM96300-2307.5-2.5-R3A, GTM96300-3614.5-2.5-R3A, GTM96300-3624-R3A, GTM96300-3648-R3A, GTM91120-2007.5-2.5-T2, GTM91120-3014.5-2.5-T2, GTM91120-3024-T3A, GTM91120-3048-T2, GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036, GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019, GTM91128LI1CEL-T2-04220 and GTM91128LI3CEL-12614 were tested as typical models for all tests, model GTM96180-1807-2.0 also perform the plug portion test and mechanical durability test.**

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**Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:**

| | |
|---|---|
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... : | ☒ **Yes**<br>☐ **Not applicable** |

**When differences exist; they shall be identified in the General product information section.**

| | |
|---|---|
| **Name and address of factory (ies) ..... :** | **1.** GlobTek, Inc.<br>186 Veterans Dr. Northvale, NJ 07647 USA<br>**2.** GlobTek (Suzhou) Co., Ltd<br>Building 4, No. 76 JinLing East Road, Suzhou Industrial Park, Suzhou, JiangSu, 215021, China |

**GENERAL PRODUCT INFORMATION:**

**Product Description:**

Product covered by this report is ITE power supply module.
Desktop / direct plug-in power supplies are provided with suitable external enclosure. The top and bottom parts of the enclosure are ultrasonic welded.
The products were tested to be suitable for connection to ≤ 16 A (IEC) and ≤ 20 A (USA) branch circuit in series.
The unit is approved for TN mains star connections. The unit provides internally two fuses.
The power supplies are rated class I or class II. Open frame and encapsulated class I power supplies shall be properly bonded to the main protective bonding termination in the end product.

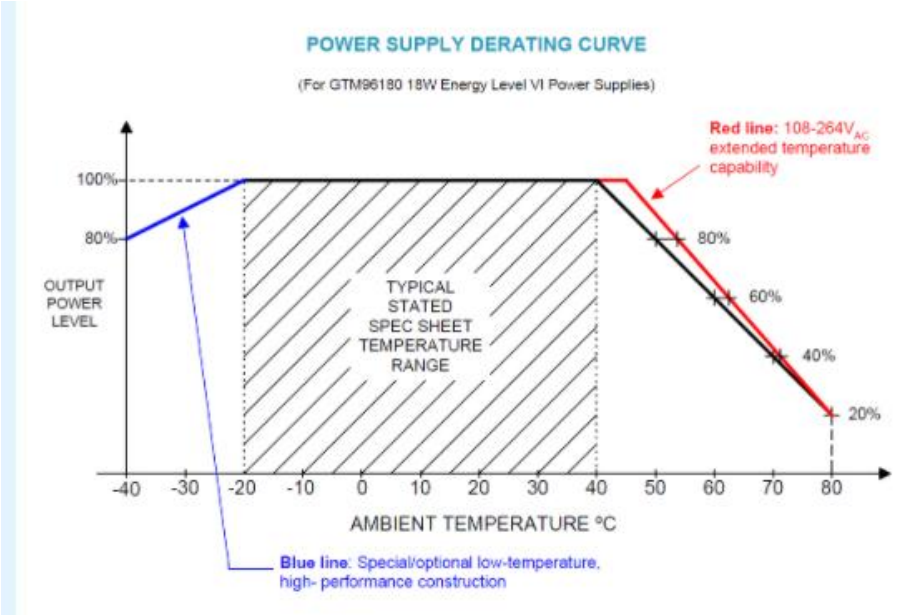
All the types are designed for continuous operation.

The model series GT*96180-****** wall plug in with interchangeable blade and desktop type have same circuit diagram, The model series GT*96300-****** have same enclosure with smooth surface or groove surface and PCB Layout size, The model series GT*91120-****** and GTM91128 series have same enclosure with groove surface and PCB Layout size; The transformer with EE16 core used in GT*96180-****** have the same primary windings but different with secondary windings and constructions. The transformer with EE22 core used in GT*96300-******, GT*91120-****** and GTM91128 series have the same primary windings but different with secondary windings and constructions.

Model Differences:

GT*96180-******,
The 1st "*" part can be 'M' or '-' or 'H' for market identification and not related to safety.
The 2nd "*" denotes the rated output wattage designation, which can be "01" to "18", with interval of 1.
The 3rd "*" denotes the standard rated output voltage designation, which can be "07", "11", "17.9", "30", "38", "48", "54" or "56";
The 4th "*"is optional deviation, subtracted from standard output voltage, which can be "-0.01" to "-12.0" with interval of 0.01, or blank to indicate no voltage different.
The 3rd "*" and 4th "*" together denote the output voltage, with a range of 5 - 56 volts.
The 5th "*" = blank, it means wall plug in with interchangeable blade
=-T2 means desktop class II with C8 AC inlet
=-T2A means desktop class II with C18 AC inlet
=-T3 means desktop class I or class II with functional earth with C14 AC inlet
=-T3A means desktop class I or class II with functional earth with C6 AC inlet
The 6th "*" = Blank or -AP or -PP or -SP
-AP (with baby board) stands for Active POE (full IEEE compliant)
-PP (no baby board) stands for Passive POE
-SP (no baby board) stands for Simple POE
The last * denote any six character = 0-9 or A-Z or ()[] or – or blank for marketing purposes.

The model GTM96180-1830-12.0 which has an output de-rating load 18VDC, 0.3A complies with de-rating test under 75°C ambient.




Ratings
When the 6th "*" is blank:
GT*96180-******, Input: 100-240V~, 50-60Hz or 50/60Hz, 0.6A, Output: 5-48Vdc, Max. 3.6A, Max. 18W
When the 6th "*" = -AP or -PP or –SP:
GT*96180-******, Input: 100-240V~, 50-60Hz or 50/60Hz, 0.6A, Output: 18-56Vdc, Max. 1.0A, Max. 18W

Model list:

GT*96180-**** Interchangeable plug models

| Model | Output Voltage | Max. output current | Max. output power |
|---|---|---|---|
| GT*96180-*07** | 5-7V | 3.6A | 18W |
| GT*96180-*11** | 7.1-11V | 2.53A | 18W |
| GT*96180-*17.9** | 11.1-17.9V | 1.62A | 18W |
| GT*96180-*30** | 18-30V | 1.0A | 18W |
| GT*96180-*38** | 30.1-38V | 0.6A | 18W |
| GT*96180-*48** | 38.1-48V | 0.47A | 18W |

GT*96180-***-T2/T2A/T3/T3A* Desktop models

| Model | Output Voltage | Max. output current | Max. output power |
|---|---|---|---|
| GT*96180-*07*-T2/T2A/T3/T3A* | 5-7V | 3.6A | 18W |
| GT*96180-*11*-T2/T2A/T3/T3A* | 7.1-11V | 2.53A | 18W |
| GT*96180-*17.9*-T2/T2A/T3/T3A* | 11.1-17.9V | 1.62A | 18W |
| GT*96180-*30*-T2/T2A/T3/T3A* | 18-30V | 1.0A | 18W |
| GT*96180-*38*-T2/T2A/T3/T3A* | 30.1-38V | 0.6A | 18W |
| GT*96180-*48*-T2/T2A/T3/T3A* | 38.1-48V | 0.47A | 18W |

GT*96180-***-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP*

| Model | Output Voltage | Max. output current | Max. output power |
|---|---|---|---|
| GT*96180-*30-12.0-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 18V | 1A | 18W |
| GT*96180-*30-6.0-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 24V | 0.75A | 18W |
| GT*96180-*38-2.0-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 36V | 0.5A | 18W |
| GT*96180-*48-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 48V | 0.375A | 18W |
| GT*96180-*54-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 54V | 0.33A | 18W |
| GT*96180-*56-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 56V | 0.32A | 18W |

GT*96300-****** and GT*91120-******

The 1st "*" part can be 'M' or '-' or 'H' for market identification and not related to safety.
The 2nd "*" denotes the rated output wattage designation, which can be "01" to "36", with interval of 1.
The 3rd "*" denotes the standard rated output voltage designation, which can be "07.5","10.5", "14.5","19.5", "24", "36", "48", "54" or "56";
The 4th "*"is optional deviation, subtracted from standard output voltage, which can be "-0.01" to "-11.9" with interval of 0.01, or blank to indicate no voltage different.
The 3rd "*" and 4th "*" together denote the output voltage, with a range of 5 - 56 volts.
The 5th "*" =-T2 means desktop class II with C8 AC inlet
=-T2A means desktop class II with C18 AC inlet
=-T3 means desktop class I or class II with functional earth with C14 AC inlet
=-T3A means desktop class I or class II with functional earth with C6 AC inlet
=-R2 means hybrid desktop housing class II with C8 AC inlet
=-R3A means hybrid desktop housing class I or class II with functional earth with C6 AC inlet
=-F means Open Frame class I or class II with functional earth
=-FW means Open Frame class II
=-P2 means Encapsulated class II
=-P3 means Encapsulated class I or class II with functional earth
The 6th "*" = Blank or -AP or -PP or -SP
-AP (with baby board) stands for Active POE (full IEEE compliant)

-PP (no baby board) stands for Passive POE
-SP (no baby board) stands for Simple POE
The last * denote any six character = 0-9 or A-Z or ()[] or – or blank for marketing purposes.

Ratings
When the 6th "*" is blank:
GT*96300-******, Input: 100-240V~, 50-60Hz or 50/60Hz, 1.0A, Output: 5-48Vdc, Max. 4.5A, Max. 36W
GT*91120-******, Input: 100-240V~, 50-60Hz or 50/60Hz, 1.5A, Output: 5-48Vdc, Max. 4A, Max. 30W
When the 6th "*" = -AP or -PP or –SP:
GT*96300-******, Input: 100-240V~, 50-60Hz or 50/60Hz, 1.0A, Output: 18-56Vdc, Max. 2.0A, Max. 36W

Model list:
GT*96300-***-T2/T2A/T3/T3A/R2/R3A* Desktop models

| Model | Output Voltage | Max. output current | Max. output power |
|---|---|---|---|
| GT*96300-*07.5*-T2/T2A/T3/T3A/R2/R3A* | 5-7.5V | 4.5A | 22.5W |
| GT*96300-*10.5*-T2/T2A/T3/T3A/R2/R3A* | 7.6-9V | 3.94A | 30W |
| GT*96300-*10.5*-T2/T2A/T3/T3A/R2/R3A* | 9.1-10.5V | 3.95A | 36W |
| GT*96300-*14.5*-T2/T2A/T3/T3A/R2/R3A* | 10.6-14.5V | 3.39A | 36W |
| GT*96300-*19.5*-T2/T2A/T3/T3A/R2/R3A* | 14.6-19.5V | 2.46A | 36W |
| GT*96300-*24*-T2/T2A/T3/T3A/R2/R3A* | 19.6-24V | 1.83A | 36W |
| GT*96300-*36*-T2/T2A/T3/T3A/R2/R3A* | 24.1-36V | 1.49A | 36W |
| GT*96300-*48*-T2/T2A/T3/T3A/R2/R3A* | 36.1-48V | 0.99A | 36W |

GT*91120-***-T2/T3A/F/FW/P2/P3* External/Hybird desktop or Open Frame or Encapsulated

| Model | Output Voltage | Max. output current | Max. output power |
|---|---|---|---|
| GT*91120-*07.5*-T2/T3A/F/FW/P2/P3* | 5-7.5V | 4A | 30W |
| GT*91120-*10.5*-T2/T3A/F/FW/P2/P3* | 7.6-10.5V | 3.94A | 30W |
| GT*91120-*14.5*-T2/T3A/F/FW/P2/P3* | 10.6-14.5V | 2.83A | 30W |
| GT*91120-*19.5*-T2/T3A/F/FW/P2/P3* | 14.6-19.5V | 2A | 30W |
| GT*91120-*24*-T2/T3A/F/FW/P2/P3* | 19.6-24V | 1.6A | 30W |
| GT*91120-*36*-T2/T3A/F/FW/P2/P3* | 24.1-36V | 1.25A | 30W |
| GT*91120-*48*-T2/T3A/F/FW/P2/P3* | 36.1-48V | 0.83A | 30W |

GT*96300-***-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP*

| Model | Output Voltage | Max. output current | Max. output power |
|---|---|---|---|
| GT*96300-*19.5-1.5-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 18V | 2A | 36W |
| GT*96300-*24-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 24V | 1.5A | 36W |
| GT*96300-*36-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 36V | 1A | 36W |
| GT*96300-*48-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 48V | 0.75A | 36W |
| GT*96300-*54-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 54V | 0.66A | 36W |
| GT*96300-*56-T2/T2A/T3/T3A/R2/R3A-AP/PP/SP* | 56V | 0.64A | 36W |

GTM91128LI*CEL**-**** series:
The 1st "*" part denotes the number of charging cells, which can be "1" or "2" or "3".
The 2nd "*" denotes product type, which can be M or blank. M means dual output and blank means Charger only.
The 3rd "*" = blank or -R2 means hybrid desktop housing class II with C8 AC inlet
= -T2 means desktop class II with C8 AC inlet
= -T2A means desktop class II with C18 AC inlet
The 4th "*" part is a 3-digit number code, which can be "042", "084" or "126". It represents the Charger output voltage of 4.2V, 8.4V or 12.6V.
The 5th "*" part is a 2-digit number code, which can be from "01" to "20". It represents the Charger output current from 0.1A to 2.0A with interval of 0.1A.
The 6th "*" part is a 3-digit number code, which can be from "050" to "140". It represents the Power Supply output voltage from 5.0Vdc to 14.0Vdc with interval of 0.1V.
The 7th "*" part is a 2-digit number code, which can be from "01" to "36". It represents the Power Supply output current from 0.1A to 3.6A with interval of 0.1A.
When 2nd "*" is blank, the 6th and the 7th "*" is blank too.
There are two alternative PCB layout for this product, with 1 LED or with 2 LEDs. Only the number of LED indicator are different and other part of PCB are identical.

Ratings:
Input: 100-240V~, 50-60Hz or 50/60Hz, 0.6A / 1.0A / 1.5A
Output:

| Model | Charger Output Voltage (Vdc) | Max. Charger Output Current (A) | Max. Charger Output Power (W) | Power Supply Output Voltage (Vdc) | Max. Power Supply Output Current (A) | Max. Power Supply Output Power (W) | Max. Combined Output Power (W) |
|---|---|---|---|---|---|---|---|
| GTM91128LI*CEL*-** | 4.2 | 2 | 8.4 | N/A | N/A | N/A | N/A |
| | 8.4 | 1.6 | 13.44 | N/A | N/A | N/A | N/A |
| | 12.6 | 1.4 | 17.64 | N/A | N/A | N/A | N/A |
| GTM91128LI*CELM*-**** | 4.2 | 1.8 | 7.56 | 5-7.5 | 3.6 | 18 | 20 |
| | 8.4 | 1.4 | 1.76 | 9.5-12 | 2.3 | 21.85 | 25 |
| | 12.6 | 1.2 | 15.12 | 14 | 1.9 | 26.6 | 30 |

Model GTM91128LI1CEL Output: 4.2V, 1.0A;
Model GTM91128LI2CEL Output: 8.4V, 1.0A;
Model GTM91128LI3CEL Output: 12.6V, 1.0A;

GTM91128***-**** series:
The 1st "*" denotes any two characters for marketing purposes.
The 2nd "*" denotes product type, which can be CHRGE or DUALC. CHRGE means charger only. DUALC means dual output.
The 3rd "*" = blank or -R2 means hybrid desktop housing class II with C8 AC inlet
= -T2 means desktop class II with C8 AC inlet
= -T2A means desktop class II with C18 AC inlet
The 4th "*" part is a 3-digit number code from "032" to "126". It represents the Charger output voltage from 3.2V to 12.6V with interval of 0.1V.
The 5th "*" part is a 2-digit number code from "01" to "20". It represents the Charger output current from 0.1A to 2.0A with interval of 0.1A.

The 6th "*" part is a 3-digit number code, which can be from "050" to "140". It represents the Power Supply output voltage from 5.0Vdc to 14.0Vdc with interval of 0.1V.
The 7th "*" part is a 2-digit number code, which can be from "01" to "36". It represents the Power Supply output current from 0.1A to 3.6A with interval of 0.1A.
When 2nd "*" is CHRGE, the 6th and the 7th "*" is blank too.
There are two alternative PCB layout for this product, with 1 LED or with 2 LEDs. Only the number of LED indicator are different and other part of PCB are identical.

Ratings:
Input: 100-240V~, 50-60Hz or 50/60Hz, 0.6A / 1.0A / 1.5A
Output:

| Model | Charger Output Voltage (Vdc) | Max. Charger Output Current (A) | Max. Charger Output Power (W) | Power Supply Output Voltage (Vdc) | Max. Power Supply Output Current (A) | Max. Power Supply Output Power (W) | Max. Combined Output Power (W) |
|---|---|---|---|---|---|---|---|
| GTM91128* CHRGE*-** | 3.2-5.9 | 2 | 8.4 | N/A | N/A | N/A | N/A |
| | 6.0-8.9 | 1.6 | 13.44 | N/A | N/A | N/A | N/A |
| | 9.0-12.6 | 1.4 | 17.64 | N/A | N/A | N/A | N/A |
| GTM91128* DUALC*-**** | 3.2-5.9 | 1.8 | 7.56 | 5-7.5 | 3.6 | 18 | 20 |
| | 6.0-8.9 | 1.4 | 12.46 | 9.5-12 | 2.3 | 21.85 | 25 |
| | 9.0-12.6 | 1.2 | 15.12 | 14 | 1.9 | 26.6 | 30 |

GTM91128LI*CEL**-**** series and GTM91128***-**** series are same except their model number and charger output voltage.

**Additional application considerations:**

**- normal conditions N.C.**
**- functional insulation FI**
**- double insulation DI**
**- between parts of opposite polarity BOP**
**- short circuit SC**
**- overload O/L**
**- single fault conditions S.F.C**
**- basic insulation BI**
**- supplementary insulation SI**
**- reinforced insulation RI**
**- open circuit OC**

**Indicate used abbreviations (if any)**
**N/A**

| ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE: | |
|---|---|
| (Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)<br>(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3. | |
| **Electrically-caused injury (Clause 5):**<br>(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)<br>Example: +5 V dc input ES1 | |
| **Source of electrical energy** | **Corresponding classification (ES)** |
| Primary circuit | ES3 |
| Output circuit | ES1 |
| **Electrically-caused fire (Clause 6):**<br>(Note: List sub-assembly or circuit designation and corresponding energy source classification)<br>Example: Battery pack (maximum 85 watts): PS2 | |
| **Source of power or PIS** | **Corresponding classification (PS)** |
| Primary circuit | PS3 |
| Output circuit | PS2 |
| **Injury caused by hazardous substances (Clause 7)**<br>(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)<br>Example: Liquid in filled component Glycol | |
| **Source of hazardous substances** | **Corresponding chemical** |
| N/A | N/A |
| N/A | N/A |
| **Mechanically-caused injury (Clause 8)**<br>(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)<br>Example: Wall mount unit MS2 | |
| **Source of kinetic/mechanical energy** | **Corresponding classification (MS)** |
| Edges and corners of enclosure | MS1 |
| Mass of the unit | MS1 |
| **Thermal burn injury (Clause 9)**<br>(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)<br>Example: Hand-held scanner – thermoplastic enclosure TS1 | |
| **Source of thermal energy** | **Corresponding classification (TS)** |
| External surfaces | TS1 for accessible part |
| **Radiation (Clause 10)**<br>(Note: List the types of radiation present in the product and the corresponding energy source classification.)<br>Example: DVD – Class 1 Laser Product RS1 | |
| **Type of radiation** | **Corresponding classification (RS)** |
| N/A | N/A |

| OVERVIEW OF EMPLOYED SAFEGUARDS | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (ES3: Primary Filter circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary | ES3: Internal primary circuit | N/A | N/A | Enclosure |
| Ordinary | ES1: Secondary output circuit | N/A | N/A | N/A |
| 6.1 | Electrically-caused fire | | | |
| Material part (e.g. mouse enclosure) | Energy Source (PS2: 100 Watt circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| All combustible materials within equipment fire enclosure | PS3: All primary circuits and secondary circuits inside the equipment enclosure | Normal temperature below ignition temperature | Fire enclosure; fire barrier; Suitable component and material used | N/A |
| No such part | PS2: Output circuit | Normal temperature below ignition temperature | PCB V-0, wire insulation and tubing VW-1, all other components are mounted on PCB. | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| N/A | N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A | N/A |
| 8.1 | Mechanically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (MS3:High Pressure Lamp) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary | MS1: Sharp edges and corners | N/A | N/A | N/A |
| Ordinary | MS1: Equipment mass | N/A | N/A | N/A |
| 9.1 | Thermal Burn | | | |
| Body Part (e.g., Ordinary) | Energy Source (TS2) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Ordinary | TS1: Accessible surfaces | N/A | N/A | N/A |
| 10.1 | Radiation | | | |
| Body Part (e.g., Ordinary) | Energy Source (Output from audio port) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |

| | | | | |
|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A |
| Supplementary Information:<br>(1) See attached energy source diagram for additional details.<br>(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault | | | | |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4** | **GENERAL REQUIREMENTS** | | P |
| 4.1.1 | Acceptance of materials, components and subassemblies | (See appended table 4.1.2) | P |
| 4.1.2 | Use of components | (See appended table 4.1.2) | P |
| 4.1.3 | Equipment design and construction | | P |
| 4.1.15 | Markings and instructions.....: | (See Annex F) | P |
| 4.4.4 | Safeguard robustness | | P |
| 4.4.4.2 | Steady force tests.....: | (See Annex T.4, T.5) | P |
| 4.4.4.3 | Drop tests .....: | (See Annex T.7) | P |
| 4.4.4.4 | Impact tests .....: | (See Annex T.6) | N/A |
| 4.4.4.5 | Internal accessible safeguard enclosure and barrier tests.....: | The external enclosure cannot be opened without damaging the product. | N/A |
| 4.4.4.6 | Glass Impact tests .....: | No such glass used. | N/A |
| 4.4.4.74 | Thermoplastic material tests.....: | (See Annex T.8) | P |
| 4.4.4.8 | Air comprising a safeguard.....: | (See Annex T) | P |
| 4.4.4.9 | Accessibility and safeguard effectiveness | After tests of 4.4.4.2, 4.4.4.3, 4.4.4.7, no safeguard damaged. | P |
| 4.5 | Explosion | No explosion occurs during normal/abnormal operation and single fault conditions | P |
| 4.6 | Fixing of conductors | | P |
| 4.6.1 | Fix conductors not to defeat a safeguard | | P |
| 4.6.2 | 10 N force test applied to .....: | Internal components and wiring. | P |
| 4.7 | Equipment for direct insertion into mains socket - outlets | For direct plug-in models | P |
| 4.7.2 | Mains plug part complies with the relevant standard.....: | (See Evaluation sheet for plug portion) | P |
| 4.7.3 | Torque (Nm) .....: | Max. 0.131 Nm | P |
| 4.8 | Products containing coin/button cell batteries | No coin/button cell batteries used. | N/A |
| 4.8.2 | Instructional safeguard | | N/A |
| 4.8.3 | Battery Compartment Construction | No battery | N/A |
| | Means to reduce the possibility of children removing the battery.....: | | — |
| 4.8.4 | Battery Compartment Mechanical Tests .....: | (See Table 4.8.4) | N/A |
| 4.8.5 | Battery Accessibility | | N/A |
| 4.9 | Likelihood of fire or shock due to entry of conductive object.....: | No likelihood of conductive object entrying into enclosure. | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| 5.2.1 | Electrical energy source classifications..... : | ES3: All primary circuit of power supply<br>ES1: Output circuit | P |
| 5.2.2 | ES1, ES2 and ES3 limits | | P |
| 5.2.2.2 | Steady-state voltage and current..... : | See appended table 5.2) | P |
| 5.2.2.3 | Capacitance limits ..... : | | N/A |
| 5.2.2.4 | Single pulse limits ..... : | No such single pulses generated in the EUT or applied to it. | N/A |
| 5.2.2.5 | Limits for repetitive pulses ..... : | No such repetitive pulses within the EUT | N/A |
| 5.2.2.6 | Ringing signals ..... : | No such ringing signals within the EUT | N/A |
| 5.2.2.7 | Audio signals ..... : | No such audio signals | N/A |
| 5.3 | Protection against electrical energy sources | See table “OVERVIEW OF EMPLOYED SAFEGUARDS” | P |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | | P |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | | P |
| 5.3.2.2 | Contact requirements | | P |
| | a) Test with test probe from Annex V ..... : | No access with test probe to any ES3 circuit or parts. | P |
| | b) Electric strength test potential (V) ..... : | | N/A |
| | c) Air gap (mm) ..... : | | N/A |
| 5.3.2.4 | Terminals for connecting stripped wire | No stripped wire used. | N/A |
| 5.4 | Insulation materials and requirements | | P |
| 5.4.1.2 | Properties of insulating material | | P |
| 5.4.1.3 | Humidity conditioning ..... : | No hygroscopic material used. | N/A |
| 5.4.1.4 | Maximum operating temperature for insulating materials ..... : | Considered to be class 130 (B) | P |
| 5.4.1.5 | Pollution degree ..... : | 2 | — |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | | N/A |
| 5.4.1.5.3 | Thermal cycling | | N/A |
| 5.4.1.6 | Insulation in transformers with varying dimensions | No such transformer. | N/A |
| 5.4.1.7 | Insulation in circuits generating starting pulses | No such starting pulses. | N/A |
| 5.4.1.8 | Determination of working voltage | (See appended table 5.4.1.8) | P |
| 5.4.1.9 | Insulating surfaces | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | | P |
| 5.4.1.10.2 | Vicat softening temperature ..... : | | N/A |
| 5.4.1.10.3 | Ball pressure ..... : | (See appended table 5.4.1.10.3) | P |
| 5.4.2 | Clearances | | P |
| 5.4.2.2 | Determining clearance using peak working voltage | (See appended table 5.4.2.2) | P |
| 5.4.2.3 | Determining clearance using required withstand voltage ..... : | (See appended table 5.4.2.3) | P |
| | a) a.c. mains transient voltage ..... : | 2500Vpeak | — |
| | b) d.c. mains transient voltage ..... : | Not d.c. mains. | — |
| | c) external circuit transient voltage ..... : | No such transient | — |
| | d) transient voltage determined by measurement ... : | | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test | (See appended table 5.4.2.4) | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages ..... : | 1.48 for clearances | P |
| 5.4.3 | Creepage distances ..... : | (See appended table 5.4.3) | P |
| 5.4.3.1 | General | | P |
| 5.4.3.3 | Material Group ..... : | Material group IIIb is used | — |
| 5.4.4 | Solid insulation | | P |
| 5.4.4.2 | Minimum distance through insulation ..... : | (See appended table 5.4.4.2) | P |
| 5.4.4.3 | Insulation compound forming solid insulation | Approved Opto-coupler used | P |
| 5.4.4.4 | Solid insulation in semiconductor devices | Approved Opto-coupler used | P |
| 5.4.4.5 | Cemented joints | | N/A |
| 5.4.4.6 | Thin sheet material | The thin sheet materials of polyester tape used in transformers. | P |
| 5.4.4.6.1 | General requirements | | P |
| 5.4.4.6.2 | Separable thin sheet material | | P |
| | Number of layers (pcs) ..... : | 2 layers | P |
| 5.4.4.6.3 | Non-separable thin sheet material | Triple-insulating winding | P |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material ..... : | Approved TIW used | N/A |
| 5.4.4.6.5 | Mandrel test | | N/A |
| 5.4.4.7 | Solid insulation in wound components | | P |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz ..... : | (See appended Table 5.4.4.9) | P |
| 5.4.5 | Antenna terminal insulation | No antenna terminal used. | N/A |
| 5.4.5.1 | General | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.5.2 | Voltage surge test | | N/A |
| | Insulation resistance (MΩ)....: | | — |
| 5.4.6 | Insulation of internal wire as part of supplementary safeguard....: | No such insulation of internal wire as part of supplementary safeguard. | N/A |
| 5.4.7 | Tests for semiconductor components and for cemented joints | | N/A |
| 5.4.8 | Humidity conditioning | | P |
| | Relative humidity (%)....: | 93 | — |
| | Temperature (°C) ....: | 40 | — |
| | Duration (h) ....: | 120 (as client's requirement) | — |
| 5.4.9 | Electric strength test....: | (See appended table 5.4.9) | P |
| 5.4.9.1 | Test procedure for a solid insulation type test | | P |
| 5.4.9.2 | Test procedure for routine tests | Should be considered and conducted during production at factory. | N/A |
| 5.4.10 | Protection against transient voltages between external circuit | No such external circuits | N/A |
| 5.4.10.1 | Parts and circuits separated from external circuits | (See appended table 5.4.9) | N/A |
| 5.4.10.2 | Test methods | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test ....: | (See appended table 5.4.9) | N/A |
| 5.4.10.2.3 | Steady-state test....: | (See appended table 5.4.9) | N/A |
| 5.4.11 | Insulation between external circuits and earthed circuitry ....: | (See appended table 5.4.9) | N/A |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |
| | Rated operating voltage $U_{op}$ (V)....: | | — |
| | Nominal voltage $U_{peak}$ (V)....: | | — |
| | Max increase due to variation $U_{sp}$ ....: | | — |
| | Max increase due to ageing $\Delta U_{sa}$ ....: | | — |
| | $U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ ....: | | — |
| 5.5 | Components as safeguards | | |
| 5.5.1 | General | | P |
| 5.5.2 | Capacitors and RC units | | P |
| 5.5.2.1 | General requirement | | P |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector....: | (See appended table 5.5.2.2) | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.5.3 | Transformers | (See Annex G.5.3) | P |
| 5.5.4 | Optocouplers | Approved optocoupler used | P |
| 5.5.5 | Relays | No relays | N/A |
| 5.5.6 | Resistors | (See Annex G.10) | N/A |
| 5.5.7 | SPD's | VDR used between L and N | P |
| 5.5.7.1 | Use of an SPD connected to reliable earthing | No such use | N/A |
| 5.5.7.2 | Use of an SPD between mains and protective earth | | N/A |
| 5.5.8 | Insulation between the mains and external circuit consisting of a coaxial cable.....: | (See Annex G.10.3) | N/A |
| 5.6 | Protective conductor | | P |
| 5.6.2 | Requirement for protective conductors | Class I AC inlet used for models GT**-***-T3/T3A/R3A/F/P3* | P |
| 5.6.2.1 | General requirements | | P |
| 5.6.2.2 | Colour of insulation | Green/Yellow wire used | P |
| 5.6.3 | Requirement for protective earthing conductors | | P |
| | Protective earthing conductor size ($mm^2$) .....: | AC inlet used | — |
| 5.6.4 | Requirement for protective bonding conductors | | P |
| 5.6.4.1 | Protective bonding conductors | | P |
| | Protective bonding conductor size ($mm^2$). .....: | See appended table used | — |
| | Protective current rating (A) ..... : | 16A (20A for US and CA) | — |
| 5.6.4.3 | Current limiting and overcurrent protective devices | | P |
| 5.6.5 | Terminals for protective conductors | AC inlet direct connect to protective bonding wire | N/A |
| 5.6.5.1 | Requirement | | N/A |
| | Conductor size ($mm^2$), nominal thread diameter (mm). .....: | | N/A |
| 5.6.5.2 | Corrosion | | N/A |
| 5.6.6 | Resistance of the protective system | | P |
| 5.6.6.1 | Requirements | | P |
| 5.6.6.2 | Test Method Resistance (Ω).....: | 10mΩ, 0.45V, 40A, 2mins | P |
| 5.6.7 | Reliable earthing | | N/A |
| 5.7 | Prospective touch voltage, touch current and protective conductor current | | P |
| 5.7.2 | Measuring devices and networks | | P |
| 5.7.2.1 | Measurement of touch current .....: | (See appended table 5.7.4) | P |
| 5.7.2.2 | Measurement of prospective touch voltage | | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | System of interconnected equipment (separate connections/single connection) .....: | | — |
| | Multiple connections to mains (one connection at a time/simultaneous connections) .....: | | — |
| 5.7.4 | Earthed conductive accessible parts.....: | Considered only for model GT**-***-T3/T3A/R3A/F/P3** (See appended Table 5.7.4) | P |
| 5.7.5 | Protective conductor current | | P |
| | Supply Voltage (V).....: | See appended table | — |
| | Measured current (mA).....: | See appended table | — |
| | Instructional Safeguard.....: | (See F.4 and F.5) | N/A |
| 5.7.6 | Prospective touch voltage and touch current due to external circuits | No external circuits. | N/A |
| 5.7.6.1 | Touch current from coaxial cables | | N/A |
| 5.7.6.2 | Prospective touch voltage and touch current from external circuits | | N/A |
| 5.7.7 | Summation of touch currents from external circuits | No external circuits. | N/A |
| | a) Equipment with earthed external circuits Measured current (mA).....: | | N/A |
| | b) Equipment whose external circuits are not referenced to earth. Measured current (mA) .....: | | N/A |

| | | | |
|---|---|---|---|
| **6** | **ELECTRICALLY- CAUSED FIRE** | | P |
| 6.2 | Classification of power sources (PS) and potential ignition sources (PIS) | | P |
| 6.2.2 | Power source circuit classifications | | P |
| 6.2.2.1 | General | | P |
| 6.2.2.2 | Power measurement for worst-case load fault ... : | (See appended table 6.2.2) | P |
| 6.2.2.3 | Power measurement for worst-case power source fault ..... : | (See appended table 6.2.2) | P |
| 6.2.2.4 | PS1 ..... : | No such circuit | N/A |
| 6.2.2.5 | PS2 ..... : | Output circuit | P |
| 6.2.2.6 | PS3 ..... : | Primary circuit | P |
| 6.2.3 | Classification of potential ignition sources | | P |
| 6.2.3.1 | Arcing PIS ..... : | No Arcing PIS | N/A |
| 6.2.3.2 | Resistive PIS ..... : | All circuits are considered as resistive PIS | P |
| 6.3 | Safeguards against fire under normal operating and abnormal operating conditions | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.3.1 (a) | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....: | (See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6) | P |
| 6.3.1 (b) | Combustible materials outside fire enclosure | Only output wire and connector complying to 6.4.5. | N/A |
| 6.4 | Safeguards against fire under single fault conditions | | P |
| 6.4.1 | Safeguard Method | Method by control of fire spread applied, Fire enclosure provided. | P |
| 6.4.2 | Reduction of the likelihood of ignition under single fault conditions in PS1 circuits | | N/A |
| 6.4.3 | Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits | | N/A |
| 6.4.3.1 | General | | N/A |
| 6.4.3.2 | Supplementary Safeguards | | N/A |
| | Special conditions if conductors on printed boards are opened or peeled | | N/A |
| 6.4.3.3 | Single Fault Conditions..... : | (See appended table 6.4.3) | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | N/A |
| 6.4.5 | Control of fire spread in PS2 circuits | Compliance detailed as follows:<br>– Printed board: rated min. V-1<br>– Wire insulation (tubing): complying with Clause 6 (See Table 4.1.2 for wiring used).<br>– All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.<br>– Isolating transformer: complying with G.5.3. | P |
| 6.4.5.2 | Supplementary safeguards .....: | (See appended tables 4.1.2 and Annex G) | P |
| 6.4.6 | Control of fire spread in PS3 circuit | Compliance detailed as follows:<br>– Parts as in 6.4.5 above including wiring<br>– Fire enclosure rated V-0 used. | P |
| 6.4.7 | Separation of combustible materials from a PIS | Fire enclosure provided. | N/A |
| 6.4.7.1 | General.....: | (See tables 6.2.3.1 and 6.2.3.2) | N/A |
| 6.4.7.2 | Separation by distance | | N/A |
| 6.4.7.3 | Separation by a fire barrier | No specific barrier provided. | N/A |
| 6.4.8 | Fire enclosures and fire barriers | | P |
| 6.4.8.1 | Fire enclosure and fire barrier material properties | The V-0 fire enclosure is used the overall enclosure. | P |
| 6.4.8.2.1 | Requirements for a fire barrier | No fire barrier used. | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.8.2.2 | Requirements for a fire enclosure | The V-0 fire enclosure is used the overall enclosure as above. | P |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | P |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | | P |
| 6.4.8.3.2 | Fire barrier dimensions | | N/A |
| 6.4.8.3.3 | Top Openings in Fire Enclosure: dimensions (mm) .....: | No openings | P |
| | Needle Flame test | | N/A |
| 6.4.8.3.4 | Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....: | No openings | P |
| | Flammability tests for the bottom of a fire enclosure .....: | | N/A |
| 6.4.8.3.5 | Integrity of the fire enclosure, condition met: a), b) or c) .....: | | N/A |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....: | Fire enclosure is made of V-0 material. | N/A |
| 6.5 | Internal and external wiring | | P |
| 6.5.1 | Requirements | Output cord provided. | P |
| 6.5.2 | Cross-sectional area ($mm^2$) .....: | Less than 0.5 $mm^2$<br>UL Approved output cord used. | — |
| 6.5.3 | Requirements for interconnection to building wiring .....: | (See Annex Q.) | N/A |
| 6.6 | Safeguards against fire due to connection to additional equipment | | P |
| | External port limited to PS2 or complies with Clause Q.1 | | P |

| | | | |
|---|---|---|---|
| **7** | **INJURY CAUSED BY HAZARDOUS SUBSTANCES** | | P |
| 7.2 | Reduction of exposure to hazardous substances | No hazardous chemicals within the equipment. | P |
| 7.3 | Ozone exposure | No ozone production within the equipment. | N/A |
| 7.4 | Use of personal safeguards (PPE) | | N/A |
| | Personal safeguards and instructions ..... : | | — |
| 7.5 | Use of instructional safeguards and instructions | | N/A |
| | Instructional safeguard (ISO 7010) .....: | | — |
| 7.6 | Batteries.....: | No battery used. | N/A |

| | | |
|---|---|---|
| **8** | **MECHANICALLY-CAUSED INJURY** | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.1 | General | | P |
| 8.2 | Mechanical energy source classifications | MS1 | P |
| 8.3 | Safeguards against mechanical energy sources | | P |
| 8.4 | Safeguards against parts with sharp edges and corners | | P |
| 8.4.1 | Safeguards | MS1 | N/A |
| 8.5 | Safeguards against moving parts | No moving parts. | N/A |
| 8.5.1 | MS2 or MS3 part required to be accessible for the function of the equipment | | N/A |
| 8.5.2 | Instructional Safeguard ..... : | | — |
| 8.5.4 | Special categories of equipment comprising moving parts | | N/A |
| 8.5.4.1 | Large data storage equipment | | N/A |
| 8.5.4.2 | Equipment having electromechanical device for destruction of media | | N/A |
| 8.5.4.2.1 | Safeguards and Safety Interlocks .....: | (See Annex F.4 and Annex K) | N/A |
| 8.5.4.2.2 | Instructional safeguards against moving parts | | N/A |
| | Instructional Safeguard .....: | | — |
| 8.5.4.2.3 | Disconnection from the supply | | N/A |
| 8.5.4.2.4 | Probe type and force (N) .....: | | N/A |
| 8.5.5 | High Pressure Lamps | | N/A |
| 8.5.5.1 | Energy Source Classification | | N/A |
| 8.5.5.2 | High Pressure Lamp Explosion Test.....: | (See appended table 8.5.5.2) | N/A |
| 8.6 | Stability | Classification MS1 according to table 35, line 5 and no stability requirements. | N/A |
| 8.6.1 | Product classification | | N/A |
| | Instructional Safeguard .....: | | — |
| 8.6.2 | Static stability | | N/A |
| 8.6.2.2 | Static stability test | | N/A |
| | Applied Force .....: | | — |
| 8.6.2.3 | Downward Force Test | | N/A |
| 8.6.3 | Relocation stability test | | N/A |
| | Unit configuration during 10° tilt.....: | | — |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test (Applied Force).....: | | N/A |
| | Position of feet or movable parts.....: | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.7 | Equipment mounted to wall or ceiling | | N/A |
| 8.7.1 | Mounting Means (Length of screws (mm) and mounting surface) .....: | | N/A |
| 8.7.2 | Direction and applied force.....: | | N/A |
| 8.8 | Handles strength | | N/A |
| 8.8.1 | Classification | | N/A |
| 8.8.2 | Applied Force .....: | | N/A |
| 8.9 | Wheels or casters attachment requirements | | N/A |
| 8.9.1 | Classification | | N/A |
| 8.9.2 | Applied force .....: | | — |
| 8.10 | Carts, stands and similar carriers | | N/A |
| 8.10.1 | General | | N/A |
| 8.10.2 | Marking and instructions | | N/A |
| | Instructional Safeguard.....: | | — |
| 8.10.3 | Cart, stand or carrier loading test and compliance | | N/A |
| | Applied force .....: | | — |
| 8.10.4 | Cart, stand or carrier impact test | | N/A |
| 8.10.5 | Mechanical stability | | N/A |
| | Applied horizontal force (N) .....: | | — |
| 8.10.6 | Thermoplastic temperature stability (°C).....: | | N/A |
| 8.11 | Mounting means for rack mounted equipment | | N/A |
| 8.11.1 | General | | N/A |
| 8.11.2 | Product Classification | | N/A |
| 8.11.3 | Mechanical strength test, variable *N* .....: | | N/A |
| 8.11.4 | Mechanical strength test 250N, including end stops | | N/A |
| 8.12 | Telescoping or rod antennas..... | (See Annex T) | N/A |
| | Button/Ball diameter (mm).....: | | — |

| | | | |
|---|---|---|---|
| **9** | **THERMAL BURN INJURY** | | P |
| 9.2 | Thermal energy source classifications | TS1 for Accessible surfaces. The equipment evaluated by temperature test | P |
| 9.3 | Safeguard against thermal energy sources | | N/A |
| 9.4 | Requirements for safeguards | | N/A |
| 9.4.1 | Equipment safeguard | | N/A |
| 9.4.2 | Instructional safeguard .....: | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **10** | **RADIATION** | | N/A |
| 10.2 | Radiation energy source classification | Only indication LED ued,<br>No such radiation generated from the equipment. | N/A |
| 10.2.1 | General classification | | N/A |
| 10.3 | Protection against laser radiation | No such radiation generated from the equipment. | N/A |
| | Laser radiation that exists equipment: | | — |
| | Normal, abnormal, single-fault..... : | (See attached laser test report) | N/A |
| | Instructional safeguard ..... : | | — |
| | Tool ..... : | | — |
| 10.4 | Protection against visible, infrared, and UV radiation | No such radiation generated from the equipment. | N/A |
| 10.4.1 | General | | N/A |
| 10.4.1.a) | RS3 for Ordinary and instructed persons .....: | | N/A |
| 10.4.1.b) | RS3 accessible to a skilled person.....: | | N/A |
| | Personal safeguard (PPE) instructional safeguard.....: | | — |
| 10.4.1.c) | Equipment visible, IR, UV does not exceed RS1 . : | | N/A |
| 10.4.1.d) | Normal, abnormal, single-fault conditions ..... : | (See appended table B.3 & B.4) | N/A |
| 10.4.1.e) | Enclosure material employed as safeguard is opaque.....: | | N/A |
| 10.4.1.f) | UV attenuation.....: | | N/A |
| 10.4.1.g) | Materials resistant to degradation UV .....: | | N/A |
| 10.4.1.h) | Enclosure containment of optical radiation.....: | | N/A |
| 10.4.1.i) | Exempt Group under normal operating conditions.....: | | N/A |
| 10.4.2 | Instructional safeguard .....: | | N/A |
| 10.5 | Protection against x-radiation | No such x-radiation generated from the equipment | N/A |
| 10.5.1 | X- radiation energy source that exists equipment : | (See appended table B.3 & B.4) | N/A |
| | Normal, abnormal, single fault conditions | | N/A |
| | Equipment safeguards.....: | | N/A |
| | Instructional safeguard for skilled person ..... : | | N/A |
| 10.5.3 | Most unfavourable supply voltage to give maximum radiation .....: | | — |
| | Abnormal and single-fault condition ..... : | (See appended table B.3 & B.4) | N/A |
| | Maximum radiation (pA/kg)..... : | | N/A |
| 10.6 | Protection against acoustic energy sources | Not such an equipment. | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.6.1 | General | | N/A |
| 10.6.2 | Classification | | N/A |
| | Acoustic output, dB(A) ..... : | | N/A |
| | Output voltage, unweighted r.m.s. ..... : | | N/A |
| 10.6.4 | Protection of persons | | N/A |
| | Instructional safeguards ..... : | | N/A |
| | Equipment safeguard prevent ordinary person to RS2 ..... : | | — |
| | Means to actively inform user of increase sound pressure ..... : | | — |
| | Equipment safeguard prevent ordinary person to RS2 ..... : | | — |
| 10.6.5 | Requirements for listening devices (headphones, earphones, etc.) | | N/A |
| 10.6.5.1 | Corded passive listening devices with analog input | | N/A |
| | Input voltage with 94 dB(A) $L_{Aeq}$ acoustic pressure output ..... : | | — |
| 10.6.5.2 | Corded listening devices with digital input | | N/A |
| | Maximum dB(A) ..... : | | — |
| 10.6.5.3 | Cordless listening device | | N/A |
| | Maximum dB(A) ..... : | | — |

| | | | |
|---|---|---|---|
| **B** | **NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS** | | P |
| B.2 | Normal Operating Conditions | | P |
| B.2.1 | General requirements ..... : | (See Test Item Particulars and appended test tables) | P |
| | Audio Amplifiers and equipment with audio amplifiers ..... : | Not such equipment. | N/A |
| B.2.3 | Supply voltage and tolerances | | P |
| B.2.5 | Input test ..... : | (See appended table B.2.5) | P |
| B.3 | Simulated abnormal operating conditions | | P |
| B.3.1 | General requirements ..... : | (See appended table B.3) | P |
| B.3.2 | Covering of ventilation openings | | N/A |
| B.3.3 | D.C. mains polarity test | The EUT is not connected to a D.C. mains | N/A |
| B.3.4 | Setting of voltage selector ..... : | No voltage selector was used. | N/A |
| B.3.5 | Maximum load at output terminals ..... : | | P |
| B.3.6 | Reverse battery polarity | No battery within the EUT | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.3.7 | Abnormal operating conditions as specified in Clause E.2. | Not such equipment. | N/A |
| B.3.8 | Safeguards functional during and after abnormal operating conditions | All safeguards remained effective. | P |
| B.4 | Simulated single fault conditions | | P |
| B.4.2 | Temperature controlling device open or short-circuited ..... : | No such device used. | N/A |
| B.4.3 | Motor tests | No motors used. | N/A |
| B.4.3.1 | Motor blocked or rotor locked increasing the internal ambient temperature ..... : | (See Clause G.5) | N/A |
| B.4.4 | Short circuit of functional insulation | | P |
| B.4.4.1 | Short circuit of clearances for functional insulation | (See appended table B.3 & B.4) | P |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | (See appended table B.3 & B.4) | P |
| B.4.4.3 | Short circuit of functional insulation on coated printed boards | No coated printed boards used. | N/A |
| B.4.5 | Short circuit and interruption of electrodes in tubes and semiconductors | (See appended table B.3 & B.4) | P |
| B.4.6 | Short circuit or disconnect of passive components | (See appended table B.3 & B.4) | P |
| B.4.7 | Continuous operation of components | | N/A |
| B.4.8 | Class 1 and Class 2 energy sources within limits during and after single fault conditions | | P |
| B.4.9 | Battery charging under single fault conditions ... : | (See Annex M) | N/A |
| **C** | **UV RADIATION** | | N/A |
| C.1 | Protection of materials in equipment from UV radiation | No UV generated from the equipment. | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method | | N/A |
| C.2 | UV light conditioning test | | N/A |
| C.2.1 | Test apparatus | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure apparatus | | N/A |
| C.2.4 | Xenon-arc light exposure apparatus | | N/A |
| **D** | **TEST GENERATORS** | | N/A |
| D.1 | Impulse test generators | | N/A |
| D.2 | Antenna interface test generator | | N/A |
| D.3 | Electronic pulse generator | | N/A |
| **E** | **TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS** | | N/A |
| E.1 | Audio amplifier normal operating conditions | Not such equipment. | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Audio signal voltage (V) .....: | | — |
| | Rated load impedance (Ω) .....: | | — |
| E.2 | Audio amplifier abnormal operating conditions | | N/A |
| **F** | **EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS** | | P |
| F.1 | General requirements | | P |
| | Instructions – Language .....: | English | — |
| F.2 | Letter symbols and graphical symbols | | P |
| F.2.1 | Letter symbols according to IEC60027-1 | | P |
| F.2.2 | Graphic symbols IEC, ISO or manufacturer specific | | P |
| F.3 | Equipment markings | | P |
| F.3.1 | Equipment marking locations | | P |
| F.3.2 | Equipment identification markings | | P |
| F.3.2.1 | Manufacturer identification .....: | See marking plate | — |
| F.3.2.2 | Model identification .....: | See marking plate | — |
| F.3.3 | Equipment rating markings | | P |
| F.3.3.1 | Equipment with direct connection to mains | | P |
| F.3.3.2 | Equipment without direct connection to mains | | N/A |
| F.3.3.3 | Nature of supply voltage.....: | See marking plate | — |
| F.3.3.4 | Rated voltage .....: | See marking plate | — |
| F.3.3.4 | Rated frequency .....: | See marking plate | — |
| F.3.3.6 | Rated current or rated power .....: | See marking plate | — |
| F.3.3.7 | Equipment with multiple supply connections | | N/A |
| F.3.4 | Voltage setting device | | N/A |
| F.3.5 | Terminals and operating devices | | N/A |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings ..... : | | N/A |
| F.3.5.2 | Switch position identification marking ..... : | | N/A |
| F.3.5.3 | Replacement fuse identification and rating markings ..... : | The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse is marked with F1, F2: T3.15A 250V | P |
| F.3.5.4 | Replacement battery identification marking ..... : | No battery | N/A |
| F.3.5.5 | Terminal marking location | | N/A |
| F.3.6 | Equipment markings related to equipment classification | | P |
| F.3.6.1 | Class I Equipment | For models GT**-***-T3/T3A/R3A/F/P3** | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.6.1.1 | Protective earthing conductor terminal | | P |
| F.3.6.1.2 | Neutral conductor terminal | | N/A |
| F.3.6.1.3 | Protective bonding conductor terminals | | P |
| F.3.6.2 | Class II equipment (IEC60417-5172) | For models GT**-***-T2/T2A/R2/FW/P2** GTM91128LI*CEL**-**** and GTM91128***-**** and GTM91128LI1CEL, GTM91128LI2CEL, GTM91128LI3CEL | P |
| F.3.6.2.1 | Class II equipment with or without functional earth | | P |
| F.3.6.2.2 | Class II equipment with functional earth terminal marking | | N/A |
| F.3.7 | Equipment IP rating marking .....: | IPX0 | — |
| F.3.8 | External power supply output marking | See marking plate | P |
| F.3.9 | Durability, legibility and permanence of marking | | P |
| F.3.10 | Test for permanence of markings | | P |
| F.4 | Instructions | | P |
| | a) Equipment for use in locations where children not likely to be present - marking | | N/A |
| | b) Instructions given for installation or initial use | | P |
| | c) Equipment intended to be fastened in place | | N/A |
| | d) Equipment intended for use only in restricted access area | | N/A |
| | e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1 | | N/A |
| | f) Protective earthing employed as safeguard | | N/A |
| | g) Protective earthing conductor current exceeding ES 2 limits | | N/A |
| | h) Symbols used on equipment | No such symbols used as a safeguard considered. | N/A |
| | i) Permanently connected equipment not provided with all-pole mains switch | | N/A |
| j) | j) Replaceable components or modules providing safeguard function | | N/A |
| F.5 | Instructional safeguards | | N/A |
| | Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction | | N/A |
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches** | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.1.1 | General requirements | No switch used. | N/A |
| G.1.2 | Ratings, endurance, spacing, maximum load | | N/A |
| **G.2** | **Relays** | | N/A |
| G.2.1 | General requirements | No relay used. | N/A |
| G.2.2 | Overload test | | N/A |
| G.2.3 | Relay controlling connectors supply power | | N/A |
| G.2.4 | Mains relay, modified as stated in G.2 | | N/A |
| **G.3** | **Protection Devices** | | P |
| G.3.1 | Thermal cut-offs | No thermal cut-off used. | N/A |
| G.3.1.1a) &b) | Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b) | | N/A |
| G.3.1.1c) | Thermal cut-outs tested as part of the equipment as indicated in c) | | N/A |
| G.3.1.2 | Thermal cut-off connections maintained and secure | | N/A |
| G.3.2 | Thermal links | | N/A |
| G.3.2.1a) | Thermal links separately tested with IEC 60691 | No thermal link used. | N/A |
| G.3.2.1b) | Thermal links tested as part of the equipment | | N/A |
| | Aging hours (H) ..... : | | — |
| | Single Fault Condition ..... : | | — |
| | Test Voltage (V) and Insulation Resistance (Ω). : | | — |
| G.3.3 | PTC Thermistors | No PTC thermistor used. | N/A |
| G.3.4 | Overcurrent protection devices | Fuse provided, see only G.3.5. | N/A |
| G.3.5 | Safeguards components not mentioned in G.3.1 to G.3.5 | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided | | N/A |
| G.3.5.2 | Single faults conditions.....: | (See appended Table B.4) | N/A |
| **G.4** | **Connectors** | | P |
| G.4.1 | Spacings | See below | P |
| G.4.2 | Mains connector configuration .....: | Approvded AC inlet used | P |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | Output connector can not insertion into mains socket outlet | P |
| **G.5** | **Wound Components** | | P |
| G.5.1 | Wire insulation in wound components..... | Approved Insulated wire used as Reinforced insulation for secondary winding of T1. | P |
| G.5.1.2 a) | Two wires in contact inside wound component, angle between 45° and 90° | Separated by tube or tape, See photo document for details. | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| G.5.1.2 b) | Construction subject to routine testing | The routine tests are to be considered for the production based on the relevant approval | P |
| G.5.2 | Endurance test on wound components | Not applied for. | N/A |
| G.5.2.1 | General test requirements | | N/A |
| G.5.2.2 | Heat run test | | N/A |
| | Time (s) .....: | | — |
| | Temperature (°C) .....: | | — |
| G.5.2.3 | Wound Components supplied by mains | | N/A |
| **G.5.3** | **Transformers** | | P |
| G.5.3.1 | Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....: | The transformer meets the requirements given in G.5.3.2 and G.5.3.3. | P |
| | Position.....: | T1 | — |
| | Method of protection .....: | See G.5.3.3. | — |
| G.5.3.2 | Insulation | Primary windings and secondary windings are separated by Reinforced insulation<br>(The core is considered as primary part as it is not isolated from Primary) | P |
| | Protection from displacement of windings.....: | The end-turn of each winding is fixed by insulating tape | — |
| G.5.3.3 | Overload test ..... : | (See appended table B.3&B.4) | P |
| G.5.3.3.1 | Test conditions | Tested in the complete equipment as an SMPS. | P |
| G.5.3.3.2 | Winding Temperatures testing in the unit | (See appended table B.3&B.4) | P |
| G.5.3.3.3 | Winding Temperatures - Alternative test method | Alternative test method was not considered. | N/A |
| **G.5.4** | **Motors** | | N/A |
| G.5.4.1 | General requirements | No motor used. | N/A |
| | Position .....: | | — |
| G.5.4.2 | Test conditions | | N/A |
| G.5.4.3 | Running overload test | | N/A |
| G.5.4.4 | Locked-rotor overload test | | N/A |
| | Test duration (days) .....: | | — |
| G.5.4.5 | Running overload test for d.c. motors in secondary circuits | | N/A |
| G.5.4.5.2 | Tested in the unit | | N/A |
| | Electric strength test (V).....: | | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| G.5.4.5.3 | Tested on the Bench - Alternative test method; test time (h) .....: | | N/A |
| | Electric strength test (V) .....: | | — |
| G.5.4.6 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| G.5.4.6.2 | Tested in the unit | | N/A |
| | Maximum Temperature .....: | | N/A |
| | Electric strength test (V) .....: | | N/A |
| G.5.4.6.3 | Tested on the bench - Alternative test method; test time (h) .....: | | N/A |
| | Electric strength test (V) .....: | | N/A |
| G.5.4.7 | Motors with capacitors | | N/A |
| G.5.4.8 | Three-phase motors | | N/A |
| G.5.4.9 | Series motors | | N/A |
| | Operating voltage .....: | | — |
| **G.6** | **Wire Insulation** | | P |
| G.6.1 | General | Triple insulated winding in T1 secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J. See Appended table 4.1.2. No other wires used in the EUT. | P |
| G.6.2 | Solvent-based enamel wiring insulation | Insulation does not rely on solvent-based enamel. | P |
| **G.7** | **Mains supply cords** | | N/A |
| G.7.1 | General requirements | | N/A |
| | Type.....: | | — |
| | Rated current (A).....: | | — |
| | Cross-sectional area (mm$^2$), (AWG)..... : | | — |
| G.7.2 | Compliance and test method | | N/A |
| G.7.3 | Cord anchorages and strain relief for non-detachable power supply cords | | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements | | N/A |
| | Strain relief test force (N) .....: | | — |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm)....: | | — |
| G.7.3.2.4 | Strain relief comprised of polymeric material | | N/A |
| G.7.4 | Cord Entry ..... : | (See appended table 5.4.11.1) | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.5 | Non-detachable cord bend protection | | N/A |
| G.7.5.1 | Requirements | | N/A |
| G.7.5.2 | Mass (g) ..... : | | — |
| | Diameter (m) ..... : | | — |
| | Temperature (°C) ..... : | | — |
| G.7.6 | Supply wiring space | | N/A |
| G.7.6.2 | Stranded wire | No such wire. | N/A |
| G.7.6.2.1 | Test with 8 mm strand | | N/A |
| **G.8** | **Varistors** | | P |
| G.8.1 | General requirements | | P |
| G.8.2 | Safeguard against shock | (see appended table 4.1.2) | P |
| G.8.3 | Safeguard against fire | | N/A |
| G.8.3.2 | Varistor overload test ..... : | Clause 6.4.1 is not applicable. | N/A |
| G.8.3.3 | Temporary overvoltage ..... : | | N/A |
| **G.9** | **Integrated Circuit (IC) Current Limiters** | | N/A |
| G.9.1 a) | Manufacturer defines limit at max. 5A. | No IC current limiter provided within the equipment. | N/A |
| G.9.1 b) | Limiters do not have manual operator or reset | | N/A |
| G.9.1 c) | Supply source does not exceed 250 VA ..... : | | — |
| G.9.1 d) | IC limiter output current (max. 5A) ..... : | | — |
| G.9.1 e) | Manufacturers' defined drift ..... : | | — |
| G.9.2 | Test Program 1 | | N/A |
| G.9.3 | Test Program 2 | | N/A |
| G.9.4 | Test Program 3 | | N/A |
| **G.10** | **Resistors** | | N/A |
| G.10.1 | General requirements | No such resistor as safeguard used | N/A |
| G.10.2 | Resistor test | | N/A |
| G.10.3 | Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable | | N/A |
| G.10.3.1 | General requirements | | N/A |
| G.10.3.2 | Voltage surge test | | N/A |
| G.10.3.3 | Impulse test | | N/A |
| **G.11** | **Capacitor and RC units** | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.11.1 | General requirements | (see appended table 4.1.2)<br>Y1-capacitor used as Reinforced safeguard which complies with IEC/EN 60384-14. | P |
| G.11.2 | Conditioning of capacitors and RC units | Y1 capacitor complied as environmental category at least 40/100/21 (21 days humidity) or 30/125/56 (56 days humidity) and in any case at 40°C | P |
| G.11.3 | Rules for selecting capacitors | The selection followed with tables G.9 and G.12. Y1 capacitor bridging Reinforced insulation with rated voltage at least 250V tested with impulse 8kV peak and 4kV rms | P |
| **G.12** | **Optocouplers** | | P |
| | Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) .....: | | P |
| | Type test voltage Vini .....: | (see appended table 4.1.2) | — |
| | Routine test voltage, Vini,b .....: | (see appended table 4.1.2) | — |
| **G.13** | **Printed boards** | | P |
| G.13.1 | General requirements | See the following details. | P |
| G.13.2 | Uncoated printed boards | The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements | P |
| G.13.3 | Coated printed boards | No coated printed board or multilayer board applied for within the equipment. | N/A |
| G.13.4 | Insulation between conductors on the same inner surface | | N/A |
| | Compliance with cemented joint requirements (Specify construction) .....: | | — |
| G.13.5 | Insulation between conductors on different surfaces | | P |
| | Distance through insulation .....: | Min. 0.4mm | P |
| | Number of insulation layers (pcs) .....: | | — |
| G.13.6 | Tests on coated printed boards | | N/A |
| G.13.6.1 | Sample preparation and preliminary inspection | | N/A |
| G.13.6.2a) | Thermal conditioning | | N/A |
| G.13.6.2b) | Electric strength test | | N/A |
| G.13.6.2c) | Abrasion resistance test | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **G.14** | **Coating on components terminals** | | N/A |
| G.14.1 | Requirements ..... : | No coating on component terminals considered to affect creepage or clearances. | N/A |
| **G.15** | **Liquid filled components** | | N/A |
| G.15.1 | General requirements | No such device provided within the equipment. | N/A |
| G.15.2 | Requirements | | N/A |
| G.15.3 | Compliance and test methods | | N/A |
| G.15.3.1 | Hydrostatic pressure test | | N/A |
| G.15.3.2 | Creep resistance test | | N/A |
| G.15.3.3 | Tubing and fittings compatibility test | | N/A |
| G.15.3.4 | Vibration test | | N/A |
| G.15.3.5 | Thermal cycling test | | N/A |
| G.15.3.6 | Force test | | N/A |
| G.15.4 | Compliance | | N/A |
| **G.16** | **IC including capacitor discharge function (ICX)** | | N/A |
| a) | Humidity treatment in accordance with sc5.4.8 – 120 hours | | N/A |
| b) | Impulse test using circuit 2 with Uc = to transient voltage .....: | | N/A |
| C1) | Application of ac voltage at 110% of rated voltage for 2.5 minutes | | N/A |
| C2) | Test voltage .....: | | — |
| D1) | 10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer | | N/A |
| D2) | Capacitance .....: | | — |
| D3) | Resistance .....: | | — |
| **H** | **CRITERIA FOR TELEPHONE RINGING SIGNALS** | | N/A |
| H.1 | General | No telephone ringing signal generated within the equipment. | N/A |
| H.2 | Method A | | N/A |
| H.3 | Method B | | N/A |
| H.3.1 | Ringing signal | | N/A |
| H.3.1.1 | Frequency (Hz) .....: | | — |
| H.3.1.2 | Voltage (V) .....: | | — |
| H.3.1.3 | Cadence; time (s) and voltage (V) .....: | | — |
| H.3.1.4 | Single fault current (mA):.....: | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| H.3.2 | Tripping device and monitoring voltage .....: | | N/A |
| H.3.2.1 | Conditions for use of a tripping device or a monitoring voltage complied with | | N/A |
| H.3.2.2 | Tripping device | | N/A |
| H.3.2.3 | Monitoring voltage (V) .....: | | — |
| **J** | **INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION** | | P |
| | General requirements | Triple insulated winding wiring used as reinforced safeguard in the isolating transformer that has been evaluated to Annex J as follows:<br>Requirements of Annex U of IEC 60950-1/A2 are identical to Annex J of this standard (for wires providing Reinforced insulation). See Table 4.1.2. | P |
| **K** | **SAFETY INTERLOCKS** | | N/A |
| K.1 | General requirements | No safety interlock provided. | N/A |
| K.2 | Components of safety interlock safeguard mechanism ..... | (See Annex G) | N/A |
| K.3 | Inadvertent change of operating mode | | N/A |
| K.4 | Interlock safeguard override | | N/A |
| K.5 | Fail-safe | | N/A |
| | Compliance .....: | (See appended table B.4) | N/A |
| K.6 | Mechanically operated safety interlocks | | N/A |
| K.6.1 | Endurance requirement | | N/A |
| K.6.2 | Compliance and Test method .....: | | N/A |
| K.7 | Interlock circuit isolation | | N/A |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....: | | N/A |
| K.7.2 | Overload test, Current (A) .....: | | N/A |
| K.7.3 | Endurance test | | N/A |
| K.7.4 | Electric strength test .....: | (See appended table 5.4.11) | N/A |
| **L** | **DISCONNECT DEVICES** | | P |
| L.1 | General requirements | AC mains plug used as disconnect device. | P |
| L.2 | Permanently connected equipment | | N/A |
| L.3 | Parts that remain energized | When AC plug is disconnected no hazardous voltage in the equipment. | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| L.4 | Single phase equipment | The mains plug disconnects both poles simultaneously. | P |
| L.5 | Three-phase equipment | | N/A |
| L.6 | Switches as disconnect devices | | N/A |
| L.7 | Plugs as disconnect devices | | P |
| L.8 | Multiple power sources | Only one a.c. mains connection. | N/A |
| **M** | **EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS** | | N/A |
| M.1 | General requirements | No battery used. | N/A |
| M.2 | Safety of batteries and their cells | | N/A |
| M.2.1 | Requirements | | N/A |
| M.2.2 | Compliance and test method (identify method) .. : | | N/A |
| M.3 | Protection circuits | | N/A |
| M.3.1 | Requirements | | N/A |
| M.3.2 | Tests | | N/A |
| | - Overcharging of a rechargeable battery | | N/A |
| | - Unintentional charging of a non-rechargeable battery | | N/A |
| | - Reverse charging of a rechargeable battery | | N/A |
| | - Excessive discharging rate for any battery | | N/A |
| M.3.3 | Compliance .....: | (See appended Tables and Annex M and M.4) | N/A |
| M.4 | Additional safeguards for equipment containing secondary lithium battery | | N/A |
| M.4.1 | General | | N/A |
| M.4.2 | Charging safeguards | | N/A |
| M.4.2.1 | Charging operating limits | | N/A |
| M.4.2.2a) | Charging voltage, current and temperature .....: | (See Table M.4) | — |
| M.4.2.2 b) | Single faults in charging circuitry .....: | (See Annex B.4) | — |
| M.4.3 | Fire Enclosure | | N/A |
| M.4.4 | Endurance of equipment containing a secondary lithium battery | | N/A |
| M.4.4.2 | Preparation | | N/A |
| M.4.4.3 | Drop and charge/discharge function tests | | N/A |
| | Drop | | N/A |
| | Charge | | N/A |
| | Discharge | | N/A |
| M.4.4.4 | Charge-discharge cycle test | | N/A |
| M.4.4.5 | Result of charge-discharge cycle test | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.5 | Risk of burn due to short circuit during carrying | | N/A |
| M.5.1 | Requirement | | N/A |
| M.5.2 | Compliance and Test Method (Test of P.2.3) | | N/A |
| M.6 | Prevention of short circuits and protection from other effects of electric current | | N/A |
| M.6.1 | Short circuits | | N/A |
| M.6.1.1 | General requirements | | N/A |
| M.6.1.2 | Test method to simulate an internal fault | | N/A |
| M.6.1.3 | Compliance (Specify M.6.1.2 or alternative method) ..... : | | N/A |
| M.6.2 | Leakage current (mA) ..... : | | N/A |
| M.7 | Risk of explosion from lead acid and NiCd batteries | | N/A |
| M.7.1 | Ventilation preventing explosive gas concentration | | N/A |
| M.7.2 | Compliance and test method | | N/A |
| M.8 | Protection against internal ignition from external spark sources of lead acid batteries | | N/A |
| M.8.1 | General requirements | | N/A |
| M.8.2 | Test method | | N/A |
| M.8.2.1 | General requirements | | N/A |
| M.8.2.2 | Estimation of hypothetical volume *V*z ($m^3/s$)..... : | | — |
| M.8.2.3 | Correction factors..... : | | — |
| M.8.2.4 | Calculation of distance *d* (mm) ..... : | | — |
| M.9 | Preventing electrolyte spillage | | N/A |
| M.9.1 | Protection from electrolyte spillage | | N/A |
| M.9.2 | Tray for preventing electrolyte spillage | | N/A |
| M.10 | Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... : | | N/A |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | N/A |
| | Metal(s) used ..... : | | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | P |
| | Figures O.1 to O.20 of this Annex applied..... : | Considered | — |
| **P** | **SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS** | | N/A |
| P.1 | General requirements | | N/A |
| P.2.2 | Safeguards against entry of foreign object | No opening | N/A |
| | Location and Dimensions (mm) ..... : | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| P.2.3 | Safeguard against the consequences of entry of foreign object | | N/A |
| P.2.3.1 | Safeguards against the entry of a foreign object | | N/A |
| | Openings in transportable equipment | | N/A |
| | Transportable equipment with metalized plastic parts ..... : | | N/A |
| P.2.3.2 | Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... : | | N/A |
| P.3 | Safeguards against spillage of internal liquids | No such liquids. | N/A |
| P.3.1 | General requirements | | N/A |
| P.3.2 | Determination of spillage consequences | | N/A |
| P.3.3 | Spillage safeguards | | N/A |
| P.3.4 | Safeguards effectiveness | | N/A |
| P.4 | Metallized coatings and adhesive securing parts | No such construction. | N/A |
| P.4.2 a) | Conditioning testing | | N/A |
| | Tc (°C) ..... : | | — |
| | Tr (°C) ..... : | | — |
| | Ta (°C) ..... : | | — |
| P.4.2 b) | Abrasion testing ..... : | (See G.13.6.2) | N/A |
| P.4.2 c) | Mechanical strength testing ..... : | (See Annex T) | N/A |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | P |
| Q.1 | Limited power sources | See appended table Annex Q.1 | P |
| Q.1.1 a) | Inherently limited output | | N/A |
| Q.1.1 b) | Impedance limited output | | P |
| | - Regulating network limited output under normal operating and simulated single fault condition | A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault. | P |
| Q.1.1 c) | Overcurrent protective device limited output | | N/A |
| Q.1.1 d) | IC current limiter complying with G.9 | | N/A |
| Q.1.2 | Compliance and test method | See appended table Annex Q.1 | P |
| Q.2 | Test for external circuits – paired conductor cable | No such circuit for connection to the EUT | N/A |
| | Maximum output current (A) ..... : | | — |
| | Current limiting method ..... : | | — |
| **R** | **LIMITED SHORT CIRCUIT TEST** | | **N/A** |
| R.1 | General requirements | No such consideration. | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| R.2 | Determination of the overcurrent protective device and circuit | | N/A |
| R.3 | Test method Supply voltage (V) and short-circuit current (A)). .....: | | N/A |
| **S** | **TESTS FOR RESISTANCE TO HEAT AND FIRE** | | **P** |
| S.1 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | Approved fire enclosure with V-0 material used. | P |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | - Material not consumed completely | | N/A |
| | - Material extinguishes within 30s | | N/A |
| | - No burning of layer or wrapping tissue | | N/A |
| S.2 | Flammability test for fire enclosure and fire barrier integrity | | N/A |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | Test specimen does not show any additional hole | | N/A |
| S.3 | Flammability test for the bottom of a fire enclosure | | N/A |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Cheesecloth did not ignite | | N/A |
| S.4 | Flammability classification of materials | See Table 4.1.2 only. | P |
| S.5 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | | N/A |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (test condition), (°C).....: | | — |
| | Test flame according to IEC 60695-11-20 with conditions as set out | | N/A |
| | After every test specimen was not consumed completely | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | After fifth flame application, flame extinguished within 1 min | | N/A |
| **T** | **MECHANICAL STRENGTH TESTS** | | **P** |
| T.1 | General requirements | | P |
| T.2 | Steady force test, 10 N .....: | (See appended table T.2) | P |
| T.3 | Steady force test, 30 N .....: | (See appended table T3) | N/A |
| T.4 | Steady force test, 100 N .....: | (See appended table T4) | P |
| T.5 | Steady force test, 250 N .....: | (See appended table T5) | N/A |
| T.6 | Enclosure impact test | (See appended table T6) | N/A |
| | Fall test | | N/A |
| | Swing test | | N/A |
| T.7 | Drop test .....: | (See appended table T7) | P |
| T.8 | Stress relief test .....: | (See appended table T8) | N/A |
| T.9 | Impact Test (glass) | | N/A |
| T.9.1 | General requirements | | N/A |
| T.9.2 | Impact test and compliance | | N/A |
| | Impact energy (J).....: | | — |
| | Height (m) .....: | | — |
| T.10 | Glass fragmentation test .....: | (See sub-clause 4.4.4.9) | N/A |
| T.11 | Test for telescoping or rod antennas | | N/A |
| | Torque value (Nm) .....: | | — |
| **U** | **MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION** | | N/A |
| U.1 | General requirements | No CRT provided. | N/A |
| U.2 | Compliance and test method for non-intrinsically protected CRTs | | N/A |
| U.3 | Protective Screen.....: | (See Annex T) | N/A |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)** | | P |
| V.1 | Accessible parts of equipment | No access with test probes to any hazardous parts | P |
| V.2 | Accessible part criterion | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 4.1.2 | TABLE: List of critical components | | | | P |
|---|---|---|---|---|---|
| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard (Edition / year) | Mark(s) of conformity[1]) |
| PCB | WALEX ELECTRONIC (WUXI) CO LTD | T2, T2A, T2B<br>T4 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E154355 |
| Alt. use | DONGGUAN HE TONG ELECTRONICS CO LTD | CEM1<br>2V0<br>FR4 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E243157 |
| Alt. use | CHEERFUL ELECTRONIC (HK) LTD | 02<br>03<br>03A | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E199724 |
| Alt. use | DONGGUAN DAYSUN ELECTRONIC CO LTD | DS2 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E251754 |
| Alt. use | SUZHOU CITY YILIHUA ELECTRONICS CO LTD | YLH-1 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E251781 |
| Alt. use | SHANGHAI AREX PRECISION ELECTRONIC CO LTD | 02V0<br>03V0<br>04V0 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E186016 |
| Alt. use | BRITE PLUS ELECTRONICS (SUZHOU) CO LTD | DKV0-3A<br>DGV0-3A | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E177671 |
| Alt. use | KUOTIANG ENT LTD | C-2<br>C-2A | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E227299 |
| Alt. use | SHENZHEN TONGCHUANGXIN ELECTRONICS CO LTD | TCX | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E250336 |
| Alt. use | PACIFIC WIN INDUSTRIAL LTD | PW-02<br>PW-03 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E228070 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Alt. use | YUANMAN PRINTED CIRCUIT CO LTD | 1V0 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E74757 |
| Alt. use | SUZHOU XINKE ELECTRONICS CO LTD | XK-2, XK-3 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E231590 |
| Alt. use | KUNSHAN CITY HUA SHENG CIRCUIT BOARD CO LTD | HS-S | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E229877 |
| Alt. use | JIANGSU DIFEIDA ELECTRONICS CO LTD | DFD-1 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E213009 |
| Alt. use | HUIZHOU SHUNJIA ELECTRONICS CO LTD | SJ-B | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E320884 |
| Alt. use | Shanghai H-FAST Electronics Co Ltd | 211001 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E337862 |
| Alt. use | Jiangxi ZHONG XIN HUA Electronics Industry Co Ltd | ZXH-1,<br>ZXH-2,<br>ZXH-3 | Min. 1,6 mm thickness, min. V-0, 130°C | IEC 62368-1<br>UL 796 | Tested with appliance<br>UL E331298 |
| Fuse (F1, F2) (F2 is optional) | Conquer Electronics Co., Ltd. | MST series | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40017118<br>UL E82636 |
| Alt. use | Ever Island Electric Co., Ltd. And Walter Electric | 2010, ICP | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40018781<br>UL E220181 |
| Alt. use | Bel Fuse Ltd. | RST-Serie(s) | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40011144<br>UL E20624 |
| Alt. use | Cooper Bussmann LLC | SS-5 | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40015513<br>UL E19180 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Alt. use | Shenzhen Lanson Electronics Co. Ltd. | SMT | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40012592<br>UL E221465 |
| Alt. use | Das & Sons International Ltd. | 385T series | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40008524<br>UL E205718 |
| Alt. use | Dongguan Better Electronics<br>Technology Co., Ltd. | 932 | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40033369<br>UL E300003 |
| Alt. use | Hollyland Company Limited | 5ET | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40015669<br>UL E156471 |
| Alt. use | Sunny East Enterprise Co. Ltd. | CFD-Serie(s) | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40030246<br>UL E133774 |
| Alt. use | Conquer Electronics Co., Ltd. | MET series | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40017157<br>UL E82636 |
| Alt. use | Zhongshan Lanbao Electrical<br>Appliances Co., Ltd. | RTI-10 Serie(s) | T1.6A, 250V;<br>T3.15A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1<br>UL 248-14 | VDE 40017009<br>UL E213695 |
| Bridging resistor (Optional) For model series GT*96180-****** use only | TY-Ohm Suzhou Electronic Works Co. Ltd | RT | 10MΩ, 1W | IEC/EN 60950-1 | VDE 40031266<br>UL E321764 |
| Alt. use | Yageo Components (Suzhou) Co. Ltd | HHV | 10MΩ, 1W | IEC/EN 60950-1 | VDE 40031974<br>UL E333286 |
| Y capacitor (CY1, CY2) (Optional) | TDK-EPC Corporation, Capacitors Group Circuit Devices Business Group | CD | Y1, AC250V, max 4700pF, 25/085/21/B | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 138526<br>UL E37861 |

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| Alt. use | Success Electronics Co., Ltd. | SE | Y1, AC250V, or AC500V, max 4700pF, 40/125/56/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40037211<br>VDE 40020002<br>UL E114280 |
| Alt. use | Success Electronics Co., Ltd. | SB | Y1, AC250V, max 4700pF, 40/125/56/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40037221<br>VDE 40020001<br>UL E114280 |
| Alt. use | Murata Mfg. Co., Ltd. | KX | Y1, AC250V, max 4700pF, 25/125/21/B | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40002831<br>UL E37921 |
| Alt. use | Walsin Technology Corp. | AH | Y1, AC250V, max 4700pF, 25/125/21/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40001804<br>UL E146544 |
| Alt. use | JYA-NAY Co., Ltd. | JN | Y1, AC250V, max 4700pF, 25/125/21/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40001831<br>UL E201384 |
| Alt. use | Haohua Electronic Co. | CT 7 | Y1, AC250V, max 4700pF, 30/125/56/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40003902<br>UL E233106 |
| Alt. use | Jyh Chung Electronic Co., Ltd. | JD | Y1, AC250V, max 4700pF, 40/085/21/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 137027<br>UL E187963 |
| Alt. use | Jerro Electronics Corp. | JX-series | Y1, AC250V, max 4700pF, 40/125/21/C | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40032158<br>UL E333001 |
| X capacitor (CX1) (Optional) | Cheng Tung Industrial Co., Ltd. | CTX | Min. 300VAC, Max. 0.47µF,110 ºC, X1 or X2 | IEC 62368-1<br>UL 60384-14<br>UL 1414 | Tested with appliance<br>UL E193049 |
| Alt. use | Tenta Electric Industrial Co. Ltd. | MEX | Min. 250VAC, Max. 0.47µF, 40/100/21/B, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 119119<br>UL E222911 |

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| Alt. use | Joey Electronics (Dong Guan) Co., Ltd. | MPX | Min. 250VAC, Max. 0.47µF, 40/105/21/B, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40032481<br>UL E216807 |
| Alt. use | Ultra Tech Xiphi Enterprise Co. Ltd. | HQX | Min. 250VAC, Max. 0.47µF, 40/100/21/C, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40015608<br>UL E183780 |
| Alt. use | Yuon Yu Electronics Co. Ltd. | MPX | Min. 250VAC, Max. 0.47µF, 40/100/21/C, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40032392<br>UL E200119 |
| Alt. use | Sinhua Electronics (Huzhou) Co., Ltd. | MPX | Min. 250VAC, Max. 0.47µF, 40/100/21/C, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40014686<br>UL E237560 |
| Alt. use | Jiangsu Xinghua Huayu Electronics Co., Ltd. | MPX - Series | Min. 250VAC, Max. 0.47µF, 40/100/21/C, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40022417<br>UL E311166 |
| Alt. use | Dain Electronics Co., Ltd. | MEX, MPX, NPX | Min. 250VAC, Max. 0.47µF, 40/100/21/C, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40018798<br>UL E147776 |
| Alt. use | Shenzhen Jinghao Capacitor Co., Ltd. | CBB62B | Min. 250VAC, Max. 0.47µF, 40/110/56/B, X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>UL 1414 | VDE 40018690<br>UL E252286 |
| Photo coupler (U2/U3) (U2 for GTM91120, GTM91128LI* CEL**-**** and GTM91128***-**** series) | Everlight Electronics Co., Ltd. | EL817 | Dti=0.5mm Int. , dcr=6.0mm EXT.dcr=7.7mm, thermal cycling test,110°C | IEC/EN 60747-5-2 | VDE 132249 |
| Alt. use | COSMO Electronics Corporation | K1010 / KP1010 | Dti=0.6mm Int. , dcr=4.0mm EXT.dcr=5.0mm, thermal cycling test,115°C | IEC/EN 60747-5-2 | VDE 101347 |

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| Alt. use | Lite-On Technology Corporation | LTV-817 | Dti=0.8mm Int. , EXT.dcr=7.8mm, thermal cycling test,110°C | IEC/EN 60747-5-2 | VDE 40015248 |
| Alt. use | Fairchild Semiconductor Pte Ltd. | H11A817B / FOD817B | Insulation voltage: 850V; Transient overvoltage: 6000V; CTI175; Int. Cr/ Ext. Cr: ≥7,0/ 7,0 mm; 30/110/21 | IEC/EN 60747-5-2 | VDE 40026857 |
| Alt. use | Sharp Corporation Electronic Components and Devices Group | PC817 | Insulation voltage: 890V; Transient overvoltage: 9000V Int. Cr/ Ext. Cr: 7.62/ 7.62 mm; 30/100/21 | IEC/EN 60747-5-2 | VDE 40008087 |
| Alt. use | Bright Led Electronics Corp. | BPC-817 A/B/C/D/L BPC-817 M BPC-817 S | Dti=0.4mm EXT.dcr=7.0mm, thermal cycling test,110°C | IEC/EN 60747-5-2 | VDE 40007240 |
| Alt. use | Toshiba Corporation Semiconductor & Storage Products Company | TLP781F | Dti > 0.4mm, Ext cr > 8.0mm, Isolation 3000Vac min., 110°C min., Thermal cycling test | IEC/EN 60747-5-2 | VDE 40021173 |
| Varistor (MOV/MOV 1, MOV for GTM91120, GTM91128LI* CEL**-**** and GTM91128***-**** series) (Optional) | Thinking Electronic Industrial Co., Ltd. | TVR10471K, TVR14471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1 IEC 61051-2 IEC 61051-2-2 | VDE 005944 |
| Alt. use | Centra Science Corp. | 10D471K, 14D471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1 IEC 61051-2 IEC 61051-2-2 | VDE 4008220 |

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| Alt. use | Success Electronics Co., Ltd. | SVR10D471K<br>SVR14D471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40030401 |
| Alt. use | Walsin Technology Co., Ltd. | 14D471K<br>10D471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40010090 |
| Alt. use | Lien Shun Electronics Co., Ltd. | 14D471K<br>10D471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40005858 |
| Alt. use | Ceramate Techn. Co., Ltd. | GNR10D471K<br>GNR14D471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40031745 |
| Alt. use | Brightking (Shenzhen) Co., Ltd. | 14D471K<br>10D471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 40027827 |
| Alt. use | Joyin Co., Ltd. | JVR10N471K<br>JVR14N471K | Max. Continuous voltage: min 300Vac(rms), 85°C, The coating is V-0 | IEC 61051-1<br>IEC 61051-2<br>IEC 61051-2-2 | VDE 005937 |
| Appliance inlet CON1 Class I units (C6 type) | Zhejiang LECI Electronics Co., Ltd. | DB-6 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40032465 |
| Alt. use | Rich Bay Co., Ltd. | R-30790 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40030381 |
| Alt. use | Sun Fair Electric Wire & Cable (HK) Co. Ltd. | S-02 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40034448 |
| Alt. use | TECX-UNIONS Technology Corporation | TU-333 | 2.5A, 250Vac | IEC/EN 60320-1 | ENEC 00633 |
| Alt. use | Rong Feng Industrial Co., Ltd. | RF-190 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40030379 |
| Alt. use | Inalways Corporation | 0724 | 2.5A, 250Vac | IEC/EN 60320-1 | ENEC 2010080 |

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| Alt. use | Zhe Jiang Bei Er jia | ST-A04-002 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40016045 |
| Alt. use | Shenzhen Delikang Electronics Technology Co. Ltd. | CDJ-2 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40015580 |
| Appliance inlet CON1 Class I units (C14 type) | Zhejiang LECI Electronics Co., Ltd. | DB-14 | 10A, 250Vac | IEC/EN 60320-1 | VDE 40032137 |
| Alt. use | Rich Bay Co., Ltd. | R-301SN | 10A, 250Vac | IEC/EN 60320-1 | VDE 40030228 |
| Alt. use | Sun Fair Electric Wire & Cable (HK)Co. Ltd. | S-03 | 10A, 250Vac | IEC/EN 60320-1 | VDE 40034447 |
| Alt. use | TECX-UNIONS Technology Corporation | TU-301-S, TU-301-SP | 10A, 250Vac | IEC/EN 60320-1 | ENEC 00647 |
| Alt. use | Rong Feng Industrial Co., Ltd. | SS-120 | 10A, 250Vac | IEC/EN 60320-1 | VDE 40028101 |
| Alt. use | Inalways Corporation | 0711 | 10A, 250Vac | IEC/EN 60320-1 | ENEC 2010084 |
| Alt. use | Zhe Jiang Bei Er jia | ST-A01-003J | 10A, 250Vac | IEC/EN 60320-1 | VDE 40013388 |
| Appliance inlet CON1 Class II units (C8 type) | Zhejiang LECI Electronics Co., Ltd. | DB-8 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40032028 |
| Alt. use | Rich Bay Co., Ltd. | R-201SN90 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40030384 |
| Alt. use | Sun Fair Electric Wire & Cable (HK)Co. Ltd. | S-01 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40034449 |
| Alt. use | TECX-UNIONS Technology Corporation | SO-222 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40043268 |
| Alt. use | Rong Feng Industrial Co., Ltd. | RF-180 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40030168 |
| Alt. use | Inalways Corporation | 0721 | 2.5A, 250Vac | IEC/EN 60320-1 | ENEC 2010087 |
| Alt. use | Zhe Jiang Bei Er jia | ST-A03-005 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40014833 |
| Alt. use | Shenzhen Delikang Electronics Technology Co. Ltd. | CDJ-8 | 2.5A, 250Vac | IEC/EN 60320-1 | VDE 40025531 |

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| Appliance inlet CN1 Class II units (C18 type) | Rong Feng Industrial Co., Ltd. | SS-120 | 10A, 250Vac | IEC/EN 60320-1 | VDE 40028101 |
| Alt. use | HCR ELECTRONICS CO LTD | SK05 | 10A, 250Vac | IEC/EN 60320-1 | ENEC NO4018 |
| Earthing wire for Class I model | KUNSHAN NEW ZHICHENG ELECTRONICS TECHNOLOGIES CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E237831 |
| Alt. use | ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E333601 |
| Alt. use | DONGGUAN CHUANTAI WIRE PRODUCTS CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E315628 |
| Alt. use | YONG HAO ELECTRICAL INDUSTRY CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E240426 |
| Alt. use | DONGGUAN GUNEETAL WIRE & CABLE CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E204204 |
| Alt. use | SHENG YU ENTERPRISE CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E219726 |
| Alt. use | KUNSHAN XINGHONGMENG ELECTRONIC CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E315421 |
| Alt. use | SUZHOU YEMAO ELECTRONIC CO LTD | 1015, 1007, 1185 | Min. 20 AWG, Min. 300V, Min. 80°C | IEC/EN 62368-1 | Tested with appliance UL E353532 |
| Output cord | Interchangeable | Interchangeable | Min. 24AWG, min. 300Vac, min. 80°C | IEC/EN 62368-1 UL 758 | Tested with appliance UL approved |

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| Heat-shrinkable tubing (Optional) | SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD | RSFR, RSFR-H, RSFR-HPF | 600V, 125 °C | IEC/EN 62368-1 | Tested with appliance<br>UL E203950 |
| Alt. use | QIFURUI ELECTRONICS CO | QFR-h | 600V, 125°C | IEC/EN 62368-1<br>UL 224 | Tested within appliance<br>UL E225897 |
| Alt. use | DONGGUAN SALIPT CO LTD | SALIPT S-901-300<br>SALIPT S-901-600 | Min. 300V, 125°C | IEC/EN 62368-1<br>UL 224 | Tested within appliance<br>UL E209436 |
| Alt. use | GUANGZHOU KAIHENG ENTERPRISE GROUP | K-2 (+) K-2 (CB) | Min. 300V, 125°C | IEC/EN 62368-1<br>UL 224 | Tested within appliance<br>UL E214175 |
| Alt. use | CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD | CB-HFT | Min. 300V, 125°C | IEC/EN 62368-1<br>UL 224 | Tested within appliance<br>UL E180908 |
| Line filter LF1 (for GT*96300 &GT*91120 & GTM91128 series) | GlobTek / HAOPUWEI / HEJIA / BOAM | LF007 | 17mH | IEC 62368-1 | Tested with appliance |
| Line filter LF1 (for GT*96180 series) | GlobTek / HAOPUWEI / HEJIA / BOAM | NF00001D | 32mH | IEC 62368-1 | Tested with appliance |
| Transformer (T1) | GlobTek / BOAM / HAOPUWEI / ENG | See attachment for details | Class B, with critical component listed below | IEC 62368-1 | Tested with appliance |
| - Magnet wire | PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD | UEWN/U (UL E201757) | MW28-C, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD | UEWS/U (UL E201757) | MW75-C, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | JUNG SHING WIRE CO LTD | UEW-4 (UL E174837) | MW75C, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | JUNG SHING WIRE CO LTD | UEY-2 (UL E174837) | MW28-C, 130°C | IEC 62368-1 | Tested with appliance |

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| Alt. use | JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD | 2UEW/130 (UL E335065) | MW75-C, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | CHANGZHOU DAYANG WIRE & CABLE CO LTD | 2UEW/130 (UL E158909) | MW75-C, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | WUXI JUFENG COMPOUND LINE CO LTD | 2UEWB (UL E206882) | MW75#, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | JIANGSU DARTONG M & E CO LTD | UEW (UL E237377) | MW 75-C, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | SHANDONG SAINT ELECTRIC CO LTD | UEW/130 (UL E194410) | MW75#, 130°C | IEC 62368-1 | Tested with appliance |
| Alt. use | ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD | UEW (UL E222214) | MW 79#, 130°C | IEC 62368-1 | Tested with appliance |
| -Triple-insulated wire (Secondary) | Great Leoflon Industrial Co., Ltd. | TRW (B) Serie(s) | Class B, reinforced insulation | IEC 60950-1<br>UL 2353<br>UL 60601-1 | VDE 136581<br>UL E211989 |
| - Alt. use | COSMOLINK CO. Ltd. | TIW-M Serie(s) | Class B, reinforced insulation | IEC 60950-1<br>UL 2353<br>UL 60601-1 | VDE 138053<br>UL E213764 |
| - Alt. use | Furukawa Electric Co., Ltd. Electronics & Automotive Systems Company Global Business Development Division | TEX-E | Class B, reinforced insulation | IEC 60950-1<br>UL 2353<br>UL 60601-1 | VDE 006735<br>UL E206440 |
| - Alt. use | TOTOKU ELECTRIC CO LTD | TIW-2 | Reinforced insulation, rated 130° C (Class B) | UL 2353<br>UL60950-1<br>UL 60601-1 | VDE 40005152<br>UL E249037 |
| - Alt. use | E&B TECHNOLOGY CO LTD | E&B-XXXB<br>E&B-XXXB-1 | Reinforced insulation, Class B | IEC 60950-1<br>UL 2353<br>UL 60601-1 | VDE 40023473<br>UL E315265 |

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| - Alt. use | CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD | CB-TIW | Reinforced insulation, Class B | IEC 60950-1<br>UL 2353<br>UL 60601-1 | Tested with appliance<br>UL E249037 |
| - Alt. use | SHENZHEN JIUDING NEW MATERIAL CO LTD | DTIW-B | Reinforced insulation, Class B | IEC 60950-1<br>UL 2353<br>UL 60601-1 | VDE 40037495<br>UL E357999 |
| -Bobbin | CHANG CHUN PLASTICS CO LTD | T375J<br>T375HF | V-0, 150°C, thickness 0,45 mm min. | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E59481 |
| - Alt. use | CHANG CHUN PLASTICS CO LTD | 4130 | V-0, 140°C, thickness 0,74 mm min. | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E59481 |
| - Alt. use | SUMITOMO BAKELITE CO LTD | PM-9820 | V-0, 150°C, thickness 0,45 mm min. | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E41429 |
| - Alt. use | HITACHI CHEMICAL CO LTD | CP-J-8800 | V-0, 150°C, thickness 0,45 mm min. | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E42956 |
| -Insulating tape | 3M COMPANY ELECTRICAL MARKETS DIV (EMD) | 1350F-1<br>1350T-1<br>44 | Min.130°C | IEC 62368-1<br>UL 510 | Tested with appliance<br>UL E17385 |
| - Alt. use | BONDTEC PACIFIC CO LTD | 370S | Min.130°C | IEC 62368-1<br>UL 510 | Tested with appliance<br>UL E175868 |
| - Alt. use | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD | PZ<br>CT<br>WF | Min.130°C | IEC 62368-1<br>UL 510 | Tested with appliance<br>UL E165111 |
| - Alt. use | JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD | JY25-A | Min.130°C | IEC 62368-1<br>UL 510 | Tested with appliance<br>UL E246950 |
| - Alt. use | CHANG SHU LIANG YI TAPE INDUSTRY CO LTD | LY-XX | Min.130°C | IEC 62368-1<br>UL 510 | Tested with appliance<br>UL E246820 |

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| -PTFE tubing | GREAT HOLDING INDUSTRIAL CO LTD | TFT / TFS | Min. 300V, 200°C | IEC 62368-1 | Tested with appliance<br>UL E156256 |
| -Alt. use | SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD | WF | 600V, 200°C | IEC 62368-1 | Tested with appliance<br>UL E203950 |
| -Alt. use | CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD | CB-TT-T / CB-TT-S | Min. 300V, 200°C | IEC 62368-1 | Tested with appliance<br>UL E180908 |
| Enclosure (all parts) | SABIC INNOVATIVE PLASTICS B V | SE1X, SE1 | PPE+PS, Min. V-1, Min. thickness:2.0mm, 105°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E45329 |
| Alt. use | SABIC INNOVATIVE PLASTICS B V | SE100 | PPE+PS, Min. V-1, Min. thickness:2.0mm, 95°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E45329 |
| Alt. use | SABIC INNOVATIVE PLASTICS B V | C2950 | PC/ABS, Min. V-0, Min. thickness:2.0mm, 85°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E45329 |
| Alt. use | SABIC INNOVATIVE PLASTICS B V | CX7211<br>EXCY0098 | PC/ABS, Min. V-1, Min. thickness:2.0mm, 90°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E45329 |
| Alt. use | SABIC INNOVATIVE PLASTICS B V | 945 | PC, Min. V-1, Min. thickness: 2.0mm, 120°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E45329 |
| Alt. use | SABIC INNOVATIVE PLASTICS B V | HF500R | PC, V-0, Min. thickness:2.0mm, 125°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E45329 |
| Alt. use | SABIC JAPAN L L C | SE1X, SE1 | PPE+PS, Min. V-1, Min. thickness:2.0mm, 105°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E207780 |
| Alt. use | SABIC JAPAN L L C | SE100 | PPE+PS, Min. V-1, Min. thickness:2.0mm, 95°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E207780 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Alt. use | SABIC JAPAN L L C | C2950 | PC/ABS, Min. V-0, Min. thickness:2.0mm, 85°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E207780 |
| Alt. use | SABIC JAPAN L L C | CX7211<br>EXCY0098 | PC/ABS, Min. V-1, Min. thickness:2.0mm, 90°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E207780 |
| Alt. use | SABIC JAPAN L L C | 945 | PC, Min. V-1, Min. thickness: 2.0mm, 120°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E207780 |
| Alt. use | SABIC JAPAN L L C | HF500R | PC, V-0, Min. thickness:2.0mm, 125°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E207780 |
| Alt. use | SABIC INNOVATIVE PLASTICS US L L C | 945 | PC, Min. V-1, Min. thickness: 2.0mm, 120°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E121562 |
| Alt. use | TEIJIN CHEMICALS LTD | LN-1250P<br>LN-1250G | PC, Min. V-0, Min. thickness:2.0mm, 115°C | IEC 62368-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E50075 |
| Coupler for directly plug in model use | GlobTek, Inc. | Q-coupler | Max. 240V,<br>Max. 2.0A | IEC 60320-1 | Tested with appliance |
| Mylar sheet<br>(Optional) | SUMITOMO BAKELITE CO LTD | AV-Lite DP 901 | Diallyl Phthalate (DAP), V-0, thickness min.: 0.4mm. min.105°C, | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL 41429 |
| - Alt. use | SABIC INNOVATIVE PLASTICS US L L C | FR700 | PC, V-0, thickness: min. 0.4mm; min.105°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E121562 |
| - Alt. use | DUPONT HONGJI FILMS FOSHAN CO LTD | EM, MO31 | PET, VTM-2, thickness: min. 0.4mm; min.105°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E241830 |
| - Alt. use | Kanglongxin | PC-811A,<br>PC-813A | PC, VTM-2, thickness: min. 0.4mm; min.80°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E315185 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| - Alt. use | MIANYANG LONGHUA FILM CO LTD | PC-770, PC-770A,<br>PC-870A.<br>PC-1870A, PP-BK18 | PC, VTM-0, thickness: min. 0.4mm; min.80°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E254551 |
| - Alt. use | TORAY INDUSTRIES INC | Lumirror H10 | PC, VTM-2, thickness: min. 0.4mm; min.105°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E86511 |
| - Alt. use | SKC CO LTD | SH71S | PC, VTM-2, thickness: min. 0.4mm; min.105°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E74359 |
| - Alt. use | FORMEX,DIV OF IL TOOL WORKS INC,FRMRLY FASTEX,DIV OF ILTOOL WORKS INC | FORMEX GK series | PC, V-0, thickness: min. 0.4mm; min.105°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E121855 |
| - Alt. use | SABIC INNOVATIVE PLASTICS US LLC | FR60 series<br>FR63 series<br>FR65 series<br>FR7 series<br>FR700 series | PC, V-0, thickness: min. 0.4mm; min.130°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E121562 |
| - Alt. use | MIANYANG LONGHUA FILM CO LTD | PP-BK-20<br>PP-BK-17<br>PP-BK-18 | PC, VTM-0, thickness: min. 0.4mm; min.80°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E254551 |
| - Alt. use | CHENGDU KANGLONGXIN PLASTICS CO LTD | KLX PP WT-10 series | PC, VTM-0, thickness: min. 0.4mm; min.110°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E315185 |
| - Alt. use | CHENGDU KANGLONGXIN PLASTICS CO LTD | KLX FRPC-1860B | PC, VTM-0, thickness: min. 0.4mm; min.80°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E315185 |
| - Alt. use | JiangSu YuXing | CY28 | PET, VTM-2, thickness: min. 0.4mm; min.105°C | IEC 60950-1<br>UL 94<br>UL 746 A/B/C/D | Tested with appliance<br>UL E212271 |

**Supplementary information:**

[1)] **Provided evidence ensures the agreed level of compliance. See OD-CB2039**.

**For all transformers under all manufacturers.**

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment for transformer as below:

| Product Model | Voltage Range | Transformer model | Product Model | Voltage Range | Transformer model |
|---|---|---|---|---|---|
| GTM96180 | 5V-8V | TF042 | GTM96300 | 5-8.9V | TF038 |
| | 8.1V-14.9V | TF043 | | 9-11.9V | TF057 |
| | 15V-18.9V | TF044 | | 12-14.9V | TF039 |
| | 19V-30V | TF045 | | 15-24V | TF040 |
| | 30.1V-48V | TF046 | | 24.1-48V | TF041 |
| GTM96180 POE | 18V | TF064 | GTM96300 POE | 18V | TF068 |
| | 24V | TF065 | | 24V | TF069 |
| | 36V | TF066 | | 36V | TF070 |
| | 48V | TF067 | | 48V | TF051 |
| | 54V, 56V | TF063 | | 54V, 56V | TF051 |
| GTM91120 series | 5-7.5V | GT-3005001 | GTM91128LI*CEL**-****;<br><br>GTM91128***-**** series;<br><br>GTM91128LI1CEL<br>GTM91128LI2CEL<br>GTM91128LI3CEL | 5.0-7.5V for power supply output, 3.2V-5.9V for charger output | GT-3005001 |
| | 7.6V-10.5V | GT-3009001 | | 7.6-12V for power supply output, 6.0V-8.9V for charger output | GT-3012001 |
| | 10.6V-14.5V | GT-3012001 | | 12.1-14V for power supply output, 9.0V-12.6V for charger output | GT-3015001 |
| | 14.6V-19.5V | GT-3015001 | | | |
| | 19.6V-24V | GT-3024001 | | | |
| | 24.1V-48V | GT-3048001 | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 5.2 | Table: Classification of electrical energy sources | P |
|---|---|---|

5.2.2.2 – Steady State Voltage and Current conditions

| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | ES Class |
|---|---|---|---|---|---|---|---|
| | | | | U (Vrms or Vpk) | I (Apk or Arms) | Hz | |
| Model: GTM96300-3648-R2 | | | | | | | |
| 1 | 264Va.c. 60Hz | Primary circuits supplied by a.c. mains supply | Normal | -- | -- | -- | ES3 |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |
| 2 | 264Va.c, 60Hz | T1 secondary pin A to B | Normal | 33,6Vpk / 89,9Vrms | -- | 60 | ES3 |
| 3 | 264Va.c, 60Hz | T1 secondary pin B to D4 | Normal | 48.1Vdc | -- | DC | ES1 |
| | | | Single fault – D4 SC | 0 | -- | -- | |

5.2.2.3 - Capacitance Limits

| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | ES Class |
|---|---|---|---|---|---|---|
| | | | | Capacitance, nF | Upk (V) | |
| 1 | 264V | C4 | Normal | 2200uF | 48.1 | ES1 |
| 2 | 264V | C4 | Abnormal (Output OL) | 2200uF | 47.75 | ES1 |
| 3 | 264V | C4 | Single fault (C4 SC) | 2200uF | 0.2 | ES1 |

5.2.2.4 - Single Pulses

| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | ES Class |
|---|---|---|---|---|---|---|---|
| | | | | Duration (ms) | Upk (V) | Ipk (mA) | |
| -- | -- | -- | Normal | -- | -- | -- | -- |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |

5.2.2.5 - Repetitive Pulses

| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | ES Class |
|---|---|---|---|---|---|---|---|
| | | | | Off time (ms) | Upk (V) | Ipk (mA) | |
| -- | -- | -- | Normal | -- | -- | -- | -- |
| | | | Abnormal | -- | -- | -- | |

| IEC 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | Result - Remark | | | Verdict |
| | | | Single fault – SC/OC | -- | -- | -- | |

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|---|---|---|
| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Temperature measurements** | | | P |
| | Supply voltage (V) .....: | 90 | 264 | — |
| | Ambient $T_{min}$ (°C) .....: | 40 | 40 | — |
| | Model .....: | GTM96180-1807-2.0-T2 | | — |
| Maximum measured temperature T of part/at……: | | T (°C) | | Allowed $T_{max}$ (°C) |
| T1 winding | | 105 | 99 | 110 |
| T1 core | | 102 | 94 | Ref |
| C1 | | 101 | 91 | 105 |
| U3 | | 93 | 84 | 100 |
| MOV1 | | 82 | 60 | 85 |
| CY1 | | 101 | 95 | 125 |
| CX1 | | 85 | 63 | 100 |
| PCB | | 111 | 105 | 130 |
| External enclosure | | 83 | 78 | 95 |
| Internal enclosure | | 97 | 88 | Ref |
| Inlet body | | 62 | 58 | -- |
| GTM96180-1817.9-5.9-T2 | | | | |
| T1 winding | | 95 | 92 | 110 |
| T1 core | | 93 | 92 | Ref |
| C1 | | 99 | 79 | 105 |
| U3 | | 76 | 75 | 100 |
| MOV1 | | 77 | 59 | 85 |
| CY1 | | 86 | 83 | 125 |
| CX1 | | 77 | 60 | 100 |
| PCB | | 94 | 80 | 130 |
| External enclosure | | 67 | 68 | 95 |
| Internal enclosure | | 76 | 77 | Ref |
| Inlet body | | 58 | 55 | -- |
| Supplementary information: | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|---|---|---|
| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Thermal requirements** | | | P |
| | Supply voltage (V) .....: | 90 | 264 | — |
| | Ambient $T_{min}$ (°C) .....: | 40 | 40 | — |
| | Model .....: | GTM96180-1838-2.0-T3A | | — |
| Maximum measured temperature T of part/at……: | | T (°C) | | Allowed $T_{max}$ (°C) |
| T1 winding | | 97 | 88 | 110 |
| T1 core | | 95 | 88 | Ref |
| C1 | | 96 | 73 | 105 |
| U3 | | 76 | 70 | 100 |
| MOV1 | | 74 | 55 | 85 |
| CY1 | | 81 | 75 | 125 |
| CX1 | | 71 | 55 | 100 |
| PCB | | 93 | 74 | 130 |
| External enclosure | | 68 | 62 | 95 |
| Internal enclosure | | 71 | 66 | Ref |
| Inlet body | | 63 | 62 | -- |
| GTM96180-1848-T3 | | | | |
| T1 winding | | 92 | 86 | 110 |
| T1 core | | 94 | 89 | Ref |
| C1 | | 98 | 78 | 105 |
| U3 | | 73 | 69 | 100 |
| MOV1 | | 77 | 57 | 85 |
| CY1 | | 90 | 84 | 125 |
| CX1 | | 77 | 58 | 100 |
| PCB | | 95 | 75 | 130 |
| External enclosure | | 66 | 62 | 95 |
| Internal enclosure | | 75 | 71 | Ref |
| Inlet body | | 57 | 55 | -- |
| Supplementary information: | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|---|---|---|
| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Thermal requirements** | | | P |
| | Supply voltage (V) .....: | 90 | 264 | — |
| | Ambient $T_{min}$ (°C) .....: | 40 | 40 | — |
| | Model .....: | GTM96300-2307.5-2.5-R2 | | — |
| Maximum measured temperature T of part/at……: | | T (°C) | | Allowed $T_{max}$ (°C) |
| T1 winding | | 106 | 102 | 110 |
| T1 core | | 98 | 93 | Ref |
| C1 | | 95 | 84 | 105 |
| U3 | | 96 | 90 | 100 |
| MOV1 | | 66 | 55 | 85 |
| CY1 | | 90 | 86 | 125 |
| CX1 | | 75 | 63 | 100 |
| PCB | | 88 | 84 | 130 |
| External enclosure | | 73 | 70 | 95 |
| Internal enclosure | | 81 | 77 | Ref |
| Inlet body | | 61 | 54 | -- |
| GTM96300-3617.9-5.9-R3A | | | | |
| T1 winding | | 105 | 98 | 110 |
| T1 core | | 105 | 98 | Ref |
| C1 | | 103 | 81 | 105 |
| U3 | | 97 | 92 | 100 |
| MOV1 | | 72 | 56 | 85 |
| CY1 | | 107 | 99 | 125 |
| CX1 | | 85 | 64 | 100 |
| PCB | | 96 | 88 | 130 |
| External enclosure | | 73 | 68 | 95 |
| Internal enclosure | | 83 | 76 | Ref |
| Inlet body | | 61 | 50 | -- |
| Supplementary information: | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|---|---|---|
| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Thermal requirements** | | | P |
| | Supply voltage (V) .....: | 90 | 264 | — |
| | Ambient $T_{min}$ (°C) .....: | 40 | 40 | — |
| | Model .....: | GTM96300-3624-R2 | | — |
| Maximum measured temperature T of part/at…...: | | T (°C) | | Allowed $T_{max}$ (°C) |
| T1 winding | | 105 | 88 | 110 |
| T1 core | | 105 | 91 | Ref |
| C1 | | 103 | 76 | 105 |
| U3 | | 92 | 87 | 100 |
| MOV1 | | 72 | 54 | 85 |
| CY1 | | 98 | 87 | 125 |
| CX1 | | 89 | 62 | 100 |
| PCB | | 95 | 81 | 130 |
| External enclosure | | 76 | 66 | 95 |
| Internal enclosure | | 84 | 74 | Ref |
| Inlet body | | 72 | 55 | -- |
| GTM96300-3648-R3A | | | | |
| T1 winding | | 103 | 90 | 110 |
| T1 core | | 101 | 90 | Ref |
| C1 | | 100 | 76 | 105 |
| U3 | | 98 | 90 | 100 |
| MOV1 | | 67 | 52 | 85 |
| CY1 | | 95 | 86 | 125 |
| CX1 | | 79 | 58 | 100 |
| PCB | | 104 | 86 | 130 |
| External enclosure | | 76 | 70 | 95 |
| Internal enclosure | | 88 | 81 | Ref |
| Inlet body | | 58 | 50 | -- |
| Supplementary information: | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|---|---|---|
| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Temperature measurements** | | | P |
| | Supply voltage (V) .....: | 90 | 264 | — |
| | Ambient $T_{min}$ (°C) .....: | 75 | 75 | — |
| | Model .....: | GTM96180-1830-12.0 | | — |
| Maximum measured temperature T of part/at…...: | | T (°C) | | Allowed $T_{max}$ (°C) |
| T1 winding | | 86 | 87 | 110 |
| T1 core | | 85 | 85 | Ref. |
| C1 | | 85 | 84 | 105 |
| U3 | | 82 | 82 | 100 |
| MOV1 | | 80 | 78 | 85 |
| CY1 | | 84 | 85 | 125 |
| CX1 | | 82 | 81 | 100 |
| PCB | | 87 | 87 | 130 |
| External enclosure | | 76 | 77 | 95 |
| Internal enclosure | | 80 | 81 | Ref. |
| Note: Derating load (output load 18Vdc, 0.3A) is considered because of derating under 75°C. | | | | |

| IEC 62368-1 | | | | |
|---|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | | Verdict |
| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | P |
| | Supply voltage (V) ..... : | 90 | 264 | — |
| | Ambient Tmin (°C) ..... : | 40 | 40 | — |
| | Model ..... : | See below table | | — |
| Maximum measured temperature T of part/at……: | | T (°C) | | Allowed Tmax (°C) |
| GTM91128LI3CEL -12614 | T1 winding | 105 | 107 | 110 |
| | T1 core | 106 | 111 | Ref |
| | C2 | 99 | 95 | 105 |
| | Optocoupler | 101 | 102 | 110 |
| | MOV1 | 72 | 70 | 85 |
| | CY1 | 84 | 86 | 125 |
| | CX1 | 80 | 78 | 100 |
| | PCB | 99 | 95 | 130 |
| | External enclosure | 81 | 82 | 95 |
| | Internal enclosure | 82 | 83 | Ref |
| | Inlet body | 68 | 66 | -- |
| | Output cord | 70 | 65 | 80 |
| GTM91128LI1CEL -T2-04220 | T1 winding | 104 | 109 | 110 |
| | T1 core | 102 | 107 | Ref |
| | C2 | 84 | 86 | 105 |
| | Optocoupler | 95 | 98 | 110 |
| | MOV1 | 66 | 67 | 85 |
| | CY1 | 93 | 96 | 125 |
| | CX1 | 71 | 71 | 100 |
| | Optocoupler | 97 | 102 | 110 |
| | PCB | 87 | 88 | 130 |
| | External enclosure | 80 | 83 | 95 |
| | Internal enclosure | 85 | 88 | Ref |
| | Inlet body | 65 | 64 | -- |
| | Output cord | 64 | 63 | 80 |
| GTM91128LI3CEL | T1 winding | 109 | 104 | 110 |

| IEC 62368-1 | | | | |
|---|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | | Verdict |
| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | P |
| | Supply voltage (V) ..... : | 90 | 264 | — |
| | Ambient Tmin (°C) ..... : | 40 | 40 | — |
| | Model ..... : | See below table | | — |
| Maximum measured temperature T of part/at……: | | T (°C) | | Allowed Tmax (°C) |
| M-1260214019 | T1 core | 108 | 103 | Ref |
| | C2 | 104 | 96 | 105 |
| | Optocoupler | 109 | 107 | 110 |
| | MOV1 | 74 | 62 | 85 |
| | CY1 | 96 | 91 | 125 |
| | CX1 | 82 | 68 | 100 |
| | PCB | 121 | 107 | 130 |
| | External enclosure | 76 | 72 | 95 |
| | Internal enclosure | 84 | 80 | Ref |
| | Inlet body | 67 | 58 | -- |
| | Output cord | 51 | 51 | 80 |
| GTM91128LI3CEL M-1261214010 | T1 winding | 106 | 105 | 110 |
| | T1 core | 105 | 104 | Ref |
| | C2 | 101 | 96 | 105 |
| | Optocoupler | 109 | 108 | 110 |
| | MOV1 | 72 | 63 | 85 |
| | CY1 | 92 | 90 | 125 |
| | CX1 | 80 | 69 | 100 |
| | PCB | 116 | 107 | 130 |
| | External enclosure | 69 | 73 | 95 |
| | Internal enclosure | 81 | 80 | Ref |
| | Inlet body | 66 | 58 | -- |
| | Output cord | 50 | 51 | 80 |
| GTM91128LI1CEL M-0420405036 | T1 winding | 87 | 87 | 110 |
| | T1 core | 84 | 85 | Ref |
| | C2 | 84 | 78 | 105 |

| IEC 62368-1 | | | | |
|---|---|---|---|---|
| Clause | Requirement + Test | | Result - Remark | Verdict |
| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | P |
| | Supply voltage (V) ..... : | 90 | 264 | — |
| | Ambient Tmin (°C) ..... : | 40 | 40 | — |
| | Model ..... : | See below table | | — |
| Maximum measured temperature T of part/at……: | | T (°C) | | Allowed Tmax (°C) |
| | Optocoupler | 85 | 84 | 110 |
| | MOV1 | 59 | 56 | 85 |
| | CY1 | 75 | 75 | 125 |
| | CX1 | 59 | 60 | 100 |
| | PCB | 84 | 72 | 130 |
| | External enclosure | 69 | 69 | 95 |
| | Internal enclosure | 74 | 73 | Ref |
| | Inlet body | 59 | 52 | -- |
| | Output cord | 46 | 48 | 80 |
| GTM91128LI1CELM-0421805024 | T1 winding | 98 | 99 | 110 |
| | T1 core | 96 | 96 | Ref |
| | C2 | 91 | 84 | 105 |
| | Optocoupler | 94 | 93 | 110 |
| | MOV1 | 62 | 59 | 85 |
| | CY1 | 87 | 87 | 125 |
| | CX1 | 67 | 64 | 100 |
| | PCB | 91 | 77 | 130 |
| | External enclosure | 77 | 77 | 95 |
| | Internal enclosure | 82 | 81 | Ref |
| | Inlet body | 57 | 55 | -- |
| | Output cord | 49 | 51 | 80 |
| Supplementary information: | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 5.4.1.10.2 | TABLE: Vicat softening temperature of thermoplastics | | N/A |
|---|---|---|---|
| Penetration (mm)..... : | | | — |
| Object/ Part No./Material | Manufacturer/trademark | T softening (°C) | |
| | | | |
| | | | |
| supplementary information: | | | |

| 5.4.1.10.3 | TABLE: Ball pressure test of thermoplastics | | P |
|---|---|---|---|
| Allowed impression diameter (mm) ..... : | | ≤ 2 mm | — |
| Object/Part No./Material | Manufacturer/trademark | Test temperature (°C) | Impression diameter (mm) |
| Enclosure (SE1, SE1X) | SABIC INNOVATIVE PLASTICS B V<br>SABIC JAPAN L L C | 125 | 1.5 |
| Enclosure (SE100) | SABIC INNOVATIVE PLASTICS B V<br>SABIC JAPAN L L C | 125 | 1.6 |
| Enclosure (C2950) | SABIC INNOVATIVE PLASTICS B V<br>SABIC JAPAN L L C | 125 | 1.7 |
| Enclosure (CX7211, EXCY0098) | SABIC INNOVATIVE PLASTICS B V<br>SABIC JAPAN L L C | 125 | 1.8 |
| Enclosure (945) | SABIC INNOVATIVE PLASTICS B V<br>SABIC JAPAN L L C<br>SABIC INNOVATIVE PLASTICS US L L C | 125 | 1.4 |
| Enclosure (HF500R) | SABIC INNOVATIVE PLASTICS B V<br>SABIC JAPAN L L C | 125 | 1.4 |
| Enclosure (LN-1250P, LN-1250G) | TEIJIN CHEMICALS LTD | 125 | 1.5 |
| Supplementary information: The bobbin material of transformer (T1) are phenolic, no test is needed. | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 5.4.2.2, 5.4.2.4 and 5.4.3 | TABLE: Minimum Clearances/Creepage distance | | | | | | P |
|---|---|---|---|---|---|---|---|
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Frequency (kHz) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| GTM96180 series | | | | | | | |
| L to N before fuse(FI) | 400 | 240 | <30 | 2.22* | 3.75 | 2.4 | 3.75 |
| Two poles of fuse(FI) | 400 | 240 | <30 | 2.22* | 2.46 | 2.4 | 2.46 |
| Primary to protective earth (Class I)(RI) | 400 | 240 | <30 | 5.92* | 6.1 | 5.92** | 6.1 |
| Live parts to accessible parts(RI) | 426 | 259 | >30 | 6.22* | 8.2 | 6.4 | 8.2 |
| Primary circuits to secondary circuits(RI) | 426 | 259 | >30 | 6.22* | 6.53 | 6.4 | 6.53 |
| Primary winding to secondary winding(RI) | 426 | 259 | >30 | 6.22* | 6.5 | 6.4 | 6.5 |
| Secondary winding to core(RI) | 426 | 259 | >30 | 6.22* | 7.2 | 6.4 | 7.2 |
| Core to secondary parts(RI) | 426 | 259 | >30 | 6.22* | 7.1 | 6.4 | 7.1 |
| GTM96300 series | | | | | | | |
| L to N before fuse(FI) | 400 | 245 | <30 | 2.22* | 7.12 | 2.45 | 7.12 |
| Two poles of fuse(FI) | 400 | 245 | <30 | 2.22* | 2.60 | 2.45 | 2.60 |
| Primary to protective earth (Class I)(RI) | 400 | 245 | <30 | 5.92* | 6.1 | 5.92** | 6.1 |
| Live parts to accessible parts(RI) | 500 | 259 | >30 | 6.52* | 8.2 | 6.52** | 8.2 |
| Primary circuits to secondary circuits(RI) | 500 | 259 | >30 | 6.52* | 6.66 | 6.52** | 6.66 |
| Primary winding to secondary winding(RI) | 500 | 259 | >30 | 6.52* | 7.2 | 6.52** | 7.2 |
| Secondary winding to core(RI) | 500 | 259 | >30 | 6.52* | 6.85 | 6.52** | 6.85 |
| Core to secondary parts(RI) | 500 | 259 | >30 | 6.52* | 7.1 | 6.52** | 7.1 |
| GTM91120series | | | | | | | |
| L to N before fuse(FI) | 340 | 240 | <30 | 2.22* | 4.6 | 2.40 | 4.6 |
| Two poles of fuse(FI) | 340 | 240 | <30 | 2.22* | 2.62 | 2.40 | 2.62 |
| Primary to protective earth (Class I)(RI) | 340 | 240 | <30 | 5.92* | 6.1 | 5.92** | 6.1 |
| Live parts to accessible parts(RI) | 526 | 278 | >30 | 6.52* | 8.2 | 6.52** | 8.2 |

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|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | Result - Remark | | | Verdict |
| Primary circuits to secondary circuits(RI) | 526 | 278 | >30 | 6.52* | 7.7 | 6.52** | 7.7 |
| Primary winding to secondary winding(RI) | 526 | 278 | >30 | 6.52* | 8.4 | 6.52** | 8.4 |
| Secondary winding to core(RI) | 526 | 278 | >30 | 6.52* | 6.85 | 6.52** | 6.85 |
| Core to secondary parts(RI) | 526 | 278 | >30 | 6.52* | 7.1 | 6.52** | 7.1 |
| GTM91128 series | | | | | | | |
| L to N before fuse(FI) | 400 | 240 | <30 | 2.22* | 4.2 | 2.4 | 4.2 |
| Two poles of fuse(FI) | 400 | 240 | <30 | 2.22* | 4.3 | 2.4 | 4.3 |
| Live parts to accessible parts(RI) | 400 | 240 | <30 | 5.92* | 7.25 | 5.92** | 7.25 |
| Primary circuits to secondary circuits(RI) | 400 | 240 | >30 | 6.22* | 7.25 | 5.92** | 7.25 |
| Primary winding to secondary winding(RI) | 400 | 240 | >30 | 6.22* | 13.0 | 5.92** | 13.0 |
| Secondary winding to core(RI) | 400 | 240 | >30 | 6.22* | 12.5 | 5.92** | 12.5 |
| Core to secondary parts(RI) | 400 | 240 | >30 | 6.22* | 9.28 | 5.92** | 9.28 |
| Supplementary information:<br>*Required value was multiplied by the factor 1,48 due to the maximum specified altitude of 5000m<br>**Required creepage not less than required clearance | | | | | | | |

| 5.4.2.3 | TABLE: Minimum Clearances distances using required withstand voltage | | | P |
|---|---|---|---|---|
| | **Overvoltage Category (OV):** | | | II |
| | **Pollution Degree:** | | | 2 |
| Clearance distanced between: | | Required withstand voltage | Required cl (mm) | Measured cl (mm) |
| See table 5.4.2.2, 5.4.2.4 and 5.4.3 above. | | -- | -- | -- |
| Supplementary information: Limits in previous table for clearance selected based on Table 15 for Required Withstand Voltage 2.5kV (mains transient voltage 2.5kV). | | | | |

| 5.4.2.4 | TABLE: Clearances based on electric strength test | | | N/A |
|---|---|---|---|---|
| Test voltage applied between: | | Required cl (mm) | Test voltage (kV) peak/ r.m.s. / d.c. | Breakdown Yes / No |
| | | | | |
| Supplementary information: Using procedure 2 to determine the clearance. | | | | |

| 5.4.4.2, | TABLE: Distance through insulation measurements | P |
|---|---|---|

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 5.4.4.5 c) 5.4.4.9 | | | | | |
|---|---|---|---|---|---|
| Distance through insulation di at/of: | Peak voltage (V) | Frequency (Hz) | Material | Required DTI (mm) | DTI (mm) |
| Enclosure | 526 | >30K | Plastic | 0.4 | See appended table 4.1.2 |
| Bobbin of T1 | 526 | >30K | Phenolic | 0.4 | See appended table 4.1.2 |
| Insulation tape on T1 and secondary heat-sink | 526 | >30K | -- | 2 layers | See appended table 4.1.2 |
| Insulation sheet | 526 | >30K | Phenolic | 0.4 | See appended table 4.1.2 |
| Supplementary information:<br>1. See also sub-clause 5.4.4.9. | | | | | |

| 5.4.9 | TABLE: Electric strength tests | | | P |
|---|---|---|---|---|
| Test voltage applied between: | | Voltage shape (AC, DC) | Test voltage (Vpeak) | Breakdown Yes / No |
| Basic/supplementary: | | | | |
| Line to Neutral (with fuse disconnect) | | AC | 2500 | No |
| Reinforced: | | | | |
| Primary circuit to body (RI) | | AC | 4000 | No |
| Primary circuit to protective earth(RI) | | AC | 4000 | No |
| Primary circuit to secondary circuit (RI) | | AC | 4000 | No |
| Primary winding to secondary winding of T1 (RI) | | AC | 4000 | No |
| Primary winding to core (RI) | | AC | 4000 | No |
| Insulation tape around transformer per layer (RI) | | AC | 4000 | No |
| Insulation sheet (RI) | | AC | 4000 | No |
| Supplementary information:<br>1) Each source of insulation tape tested, see appended table 4.2.1 for detail. | | | | |

| 5.5.2.2 | TABLE: Stored discharge on capacitors | | | | P |
|---|---|---|---|---|---|
| Supply Voltage (V), Hz | Test Location | Operating Condition (N, S) | Switch position On or off | Measured Voltage (after 2 seconds) | ES Classification |
| 264V, 60Hz | AC inlet | N | No switch | 24V | ES1 |
| 264V, 60Hz | AC inlet | S(R1 open) | No switch | 120V | ES2 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

Supplementary information:
X-capacitors installed for testing are: CX1, Max. 0.47uF
√ bleeding resistor rating: R1=R2=1MΩ
☐ ICX:
Notes:
A. Test Location:
Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth
B. Operating condition abbreviations:
N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

| 5.6.6.2 | TABLE: Resistance of protective conductors and terminations | | | P |
|---|---|---|---|---|
| Accessible part | Test current (A) | Duration (min) | Voltage drop (V) | Resistance (Ω) |
| AC inlet inside to outside | 40A | 2min | 0.45V | 10mΩ |
| Supplementary information: Tested with model GTM96300-3648-T3A | | | | |

| 5.7.2.2, 5.7.4 | TABLE: Earthed accessible conductive part | P |
|---|---|---|
| Supply voltage.....: | 264Vac | — |
| Location | Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7 | Touch current (mA) |
| **L, N to output terminal(Class I)** | 1 (e closed, normal and reverse polarity p) | 0.076 |
| **L, N to output terminal(Class I)** | 2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p) | 0.122 |
| **L, N to output terminal(Class I, CY1 short circuit)** | 1 (e closed, normal and reverse polarity p) | 0.120 |
| **L, N to output terminal(Class I, CY1 short circuit)** | 2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p) | 0.143 |
| **L, N to output terminal(Class II)** | 1 (e closed, normal and reverse polarity p) | 0.076 |
| **L, N to output terminal(Class II)** | 2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p) | 0.211 |
| **L, N to output terminal(Class II, CY1 short circuit)** | 1 (e closed, normal and reverse polarity p) | 0.122 |
| **L, N to output terminal(Class II, CY1 short circuit)** | 2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p) | 0.176 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|---|---|---|
| -- | 3 (for IT system, each phase conductor faulted to earth, one at a time (switch g) | -- |
| -- | 4 (for three-phase, each phase conductor open, one at a time switches l) | -- |
| -- | 5 (IT power system or three phase delta system) | -- |
| -- | 6 (three-phase for use on centre-earthed dalta supply system) | -- |
| -- | 8 (incidental electrically connected to other parts) | -- |

Notes:
[1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.
a) Not considered IT power system.
b) Not three phase equipment.
c) Not IT power system or three phase delta system.
d) Not three-phase for use on centre-earthed dalta supply system.
e) Not such parts.

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 6.2.2 | Table: Electrical power sources (PS) measurements for classification | | | | P |
|---|---|---|---|---|---|
| Source | Description | Measurement | Max Power after 3 s | Max Power after 5 s*) | PS Classification |
| Model: GTM96300-2307.5-2.5-R2 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 33.9 | 33.9 | PS2 |
| | | VA (V) : | 4.8 | 4.8 | |
| | | IA (A) : | 5.4 | 5.4 | |
| Model: GTM96300-3648-R2 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 42.7 | 42.7 | PS2 |
| | | VA (V) : | 47.74 | 47.74 | |
| | | IA (A) : | 0.77 | 0.77 | |
| Model: GTM96180-1807-2.0-T2 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 24.6 | 24.6 | PS2 |
| | | VA (V) : | 4.77 | 4.77 | |
| | | IA (A) : | 3.90 | 3.90 | |
| Model: GTM96180-1848-T2 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 26.6 | 26.6 | PS2 |
| | | VA (V) : | 48.25 | 48.25 | |
| | | IA (A) : | 0.46 | 0.46 | |
| Model: GTM91120-2007.5-2.5-T2 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 21.6 | 21.6 | PS2 |
| | | VA (V) : | 4.8 | 4.8 | |
| | | IA (A) : | 4.5 | 4.5 | |
| Model: GTM91120-3048-T2 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 38.4 | 38.4 | PS2 |
| | | VA (V) : | 48 | 48 | |
| | | IA (A) : | 0.85 | 0.85 | |
| Model: GTM91128LI3CEL | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 31.2 | 31.2 | PS2 |
| | | VA (V) : | 12 | 12 | |
| | | IA (A) : | 1.0 | 1.0 | |
| Model: GTM91128LI3CEL-12614 | | | | | |
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 21.9 | 21.9 | PS2 |
| | | VA (V) : | 12.8 | 12.8 | |
| | | IA (A) : | 1.41 | 1.41 | |
| Model: GTM91128LI1CEL-T2-04220 | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Output (See 6.2.2.2) | Normal operation | Power (W) : | 12.7 | 12.7 | PS1 |
| | | VA (V) : | 4.3 | 4.3 | |
| | | IA (A) : | 2.1 | 2.1 | |
| Model: GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019 | | | | | |
| Power supply output (See 6.2.2.2) | Normal operation | Power (W) : | 32.2 | 32.2 | PS2 |
| | | VA (V) : | 14.2 | 14.2 | |
| | | IA (A) : | 2.0 | 2.0 | |
| Model: GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019 | | | | | |
| Charger output (See 6.2.2.2) | Normal operation | Power (W) : | 18.9 | 18.9 | PS2 |
| | | VA (V) : | 12.7 | 12.7 | |
| | | IA (A) : | 1.3 | 1.3 | |
| Model: GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036 | | | | | |
| Power supply output (See 6.2.2.2) | Normal operation | Power (W) : | 24.3 | 24.3 | PS2 |
| | | VA (V) : | 5.12 | 5.12 | |
| | | IA (A) : | 3.7 | 3.7 | |
| Model: GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036 | | | | | |
| Charger output (See 6.2.2.2) | Normal operation | Power (W) : | 11.9 | 11.9 | PS1 |
| | | VA (V) : | 4.3 | 4.3 | |
| | | IA (A) : | 1.9 | 1.9 | |
| Supplementary information: | | | | | |

| 6.2.3.1 | Table: Determination of Potential Ignition Sources (Arcing PIS) | | | P |
|---|---|---|---|---|
| Location | Open circuit voltage After 3 s (Vp) | Measured r.m.s current (Irms) | Calculated value ($V_p$ x $I_{rms}$) | Arcing PIS? Yes / No |
| See below | -- | -- | -- | -- |

Supplementary information:

The primary components and T1 having soldered pins in mains circuit (>50V peak) are considered as arcing PIS.

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage ($V_p$) and normal operating condition rms current ($I_{rms}$) is greater than 15.

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 6.2.3.2 | Table: Determination of Potential Ignition Sources (Resistive PIS) | | | | P |
|---|---|---|---|---|---|
| Circuit Location (x-y) | Operating Condition (Normal / Describe Single Fault) | Measured wattage or VA During first 30 s (W / VA) | Measured wattage or VA After 30 s (W / VA) | Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment) | Resistive PIS? Yes/No |
| -- | -- | -- | -- | -- | Yes |

Supplementary Information:

All power dissipating components in primary and secondary circuit are considered as resistive PIS.

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

| 8.5.5 | TABLE: High Pressure Lamp | N/A |
|---|---|---|
| Description | Values | Energy Source Classification |
| Lamp type.....: | | — |
| Manufacturer .....: | | — |
| Cat no. .....: | | — |
| Pressure (cold) (MPa).....: | | MS_ |
| Pressure (operating) (MPa) .....: | | MS_ |
| Operating time (minutes) .....: | | — |
| Explosion method .....: | | — |
| Max particle length escaping enclosure (mm) .: | | MS_ |
| Max particle length beyond 1 m (mm).....: | | MS_ |
| Overall result .....: | | |
| Supplementary information: | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96180-1807-2.0-T2 & GTM96180-1807-2.0 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.4062 | -- | 22.64 | F1/F2 | 0.4062 | Max Normal Load |
| 100 | 0.3675 | 0.6 | 22.27 | F1/F2 | 0.3675 | Max Normal Load |
| 240 | 0.1901 | 0.6 | 21.95 | F1/F2 | 0.1901 | Max Normal Load |
| 264 | 0.1758 | -- | 22.18 | F1/F2 | 0.1758 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96180-1817.9-5.9-T2 & GTM96180-1817.9-5.9 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.3974 | -- | 22.13 | F1/F2 | 0.3974 | Max Normal Load |
| 100 | 0.3647 | 0.6 | 21.86 | F1/F2 | 0.3647 | Max Normal Load |
| 240 | 0.1859 | 0.6 | 21.35 | F1/F2 | 0.1859 | Max Normal Load |
| 264 | 0.1731 | -- | 21.52 | F1/F2 | 0.1731 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96180-1838-2.0-T2 & GTM96180-1838-2.0 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.3851 | -- | 21.35 | F1/F2 | 0.3851 | Max Normal Load |
| 100 | 0.3530 | 0.6 | 21.11 | F1/F2 | 0.3530 | Max Normal Load |
| 240 | 0.1806 | 0.6 | 20.55 | F1/F2 | 0.1806 | Max Normal Load |
| 264 | 0.1653 | -- | 20.61 | F1/F2 | 0.1653 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96180-1848-T2 & GTM96180-1848 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.3794 | -- | 20.94 | F1/F2 | 0.3794 | Max Normal Load |
| 100 | 0.3481 | 0.6 | 20.69 | F1/F2 | 0.3481 | Max Normal Load |
| 240 | 0.1774 | 0.6 | 20.26 | F1/F2 | 0.1774 | Max Normal Load |
| 264 | 0.1648 | -- | 20.41 | F1/F2 | 0.1648 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96300-2307.5-2.5-R3A | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.5931 | -- | 31.03 | F1/F2 | 0.5931 | Max Normal Load |
| 100 | 0.5285 | 1.0 | 30.53 | F1/F2 | 0.5285 | Max Normal Load |
| 240 | 0.2643 | 1.0 | 30.59 | F1/F2 | 0.2643 | Max Normal Load |
| 264 | 0.2332 | -- | 30.71 | F1/F2 | 0.2332 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96300-3614.5-2.5-R3A | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.8171 | -- | 43.36 | F1/F2 | 0.8171 | Max Normal Load |
| 100 | 0.7227 | 1.0 | 42.68 | F1/F2 | 0.7227 | Max Normal Load |
| 240 | 0.3547 | 1.0 | 42.07 | F1/F2 | 0.3547 | Max Normal Load |
| 264 | 0.3133 | -- | 41.93 | F1/F2 | 0.3133 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96300-3624-R3A | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.8007 | -- | 42.30 | F1/F2 | 0.8007 | Max Normal Load |
| 100 | 0.7162 | 1.0 | 41.84 | F1/F2 | 0.7162 | Max Normal Load |
| 240 | 0.3407 | 1.0 | 40.80 | F1/F2 | 0.3407 | Max Normal Load |
| 264 | 0.3109 | -- | 40.86 | F1/F2 | 0.3109 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96300-3648-R3A | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.7682 | -- | 41.46 | F1/F2 | 0.7682 | Max Normal Load |
| 100 | 0.6849 | 1.0 | 41.03 | F1/F2 | 0.6849 | Max Normal Load |
| 240 | 0.3343 | 1.0 | 39.91 | F1/F2 | 0.3343 | Max Normal Load |
| 264 | 0.3019 | -- | 39.86 | F1/F2 | 0.3019 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM96300-3656-T3-APOE | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.7245 | -- | 40.92 | F1/F2 | 0.7245 | Max Normal Load |
| 100 | 0.6158 | 1.0 | 40.23 | F1/F2 | 0.6158 | Max Normal Load |
| 240 | 0.3205 | 1.0 | 39.37 | F1/F2 | 0.3205 | Max Normal Load |
| 264 | 0.2987 | -- | 38.89 | F1/F2 | 0.2987 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91120-2007.5-2.5-T2 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.52 | -- | 27.0 | F1/F2 | 0.52 | Max Normal Load |
| 100 | 0.47 | 1.0 | 26.2 | F1/F2 | 0.47 | Max Normal Load |
| 240 | 0.24 | 1.0 | 26.1 | F1/F2 | 0.24 | Max Normal Load |
| 264 | 0.22 | -- | 26.1 | F1/F2 | 0.22 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91120-3014.5-2.5-T2 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.70 | -- | 36.1 | F1/F2 | 0.70 | Max Normal Load |
| 100 | 0.64 | 1.0 | 35.7 | F1/F2 | 0.64 | Max Normal Load |
| 240 | 0.32 | 1.0 | 35.0 | F1/F2 | 0.32 | Max Normal Load |
| 264 | 0.29 | -- | 35.1 | F1/F2 | 0.29 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91120-3024-T3A | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.65 | -- | 35.0 | F1/F2 | 0.65 | Max Normal Load |
| 100 | 0.59 | 1.0 | 34.6 | F1/F2 | 0.59 | Max Normal Load |
| 240 | 0.30 | 1.0 | 33.8 | F1/F2 | 0.30 | Max Normal Load |
| 264 | 0.28 | -- | 33.6 | F1/F2 | 0.28 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91120-3048-T2 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.66 | -- | 35.2 | F1/F2 | 0.66 | Max Normal Load |
| 100 | 0.61 | 1.0 | 34.9 | F1/F2 | 0.61 | Max Normal Load |
| 240 | 0.30 | 1.0 | 33.6 | F1/F2 | 0.30 | Max Normal Load |
| 264 | 0.28 | -- | 34.2 | F1/F2 | 0.28 | Max Normal Load |
| Supplementary information:The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91128LI3CEL-12614 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.454 | -- | 21.82 | F1/F2 | 0.454 | Max Normal Load |
| 100 | 0.422 | 1.0 | 21.71 | F1/F2 | 0.422 | Max Normal Load |
| 240 | 0.225 | 1.0 | 21.91 | F1/F2 | 0.225 | Max Normal Load |
| 264 | 0.209 | -- | 21.89 | F1/F2 | 0.209 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91128LI1CEL-T2-04220 | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.286 | -- | 12.43 | F1/F2 | 0.286 | Max Normal Load |
| 100 | 0.264 | 1.0 | 12.45 | F1/F2 | 0.264 | Max Normal Load |
| 240 | 0.140 | 1.0 | 12.67 | F1/F2 | 0.140 | Max Normal Load |
| 264 | 0.131 | -- | 12.76 | F1/F2 | 0.131 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91128LI3CELM-1261214010(full load on Charger output) | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.395 | -- | 18.58 | F1/F2 | 0.395 | Max Normal Load |
| 100 | 0.366 | 1.0 | 18.50 | F1/F2 | 0.366 | Max Normal Load |
| 240 | 0.192 | 1.0 | 18.52 | F1/F2 | 0.192 | Max Normal Load |
| 264 | 0.181 | -- | 18.75 | F1/F2 | 0.181 | Max Normal Load |
| Model: GTM91128LI3CELM-1260214019(full load on power supply output) | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.596 | -- | 30.51 | F1/F2 | 0.596 | Max Normal Load |
| 100 | 0.553 | 1.0 | 30.27 | F1/F2 | 0.553 | Max Normal Load |
| 240 | 0.294 | 1.0 | 30.05 | F1/F2 | 0.294 | Max Normal Load |
| 264 | 0.274 | -- | 30.12 | F1/F2 | 0.274 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| B.2.5 | TABLE: Input test | | | | | P |
|---|---|---|---|---|---|---|
| Model: GTM91128LI1CELM-0421805024(full load on Charger output) | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.258 | -- | 11.04 | F1/F2 | 0.258 | Max Normal Load |
| 100 | 0.237 | 1.0 | 11.01 | F1/F2 | 0.237 | Max Normal Load |
| 240 | 0.128 | 1.0 | 11.39 | F1/F2 | 0.128 | Max Normal Load |
| 264 | 0.122 | -- | 11.54 | F1/F2 | 0.122 | Max Normal Load |
| Model: GTM91128LI1CELM-0420405036(full load on power supply module output) | | | | | | |
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 0.474 | -- | 22.61 | F1/F2 | 0.474 | Max Normal Load |
| 100 | 0.442 | 1.0 | 22.50 | F1/F2 | 0.442 | Max Normal Load |
| 240 | 0.230 | 1.0 | 22.41 | F1/F2 | 0.230 | Max Normal Load |
| 264 | 0.216 | -- | 22.66 | F1/F2 | 0.216 | Max Normal Load |
| Supplementary information: The max. current under rated voltage didn't exceed 110% of the rated current. | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| B.3 & B.4 | TABLE: Abnormal operating and fault condition tests | | P |
|---|---|---|---|
| | Ambient temperature (°C) ..... : | 25, if no else specified | — |
| | Power source for EUT: Manufacturer, model/type, output rating ..... : | Chroma, 61512, 18kVA | — |

| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
|---|---|---|---|---|---|---|
| Output (5V series) | OL | 264 | 1h | F1/F2 | 0.858A | Load to 5.44A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding = 94℃<br>Enclosure: 58℃ |
| Output (48V series) | OL | 264 | 1h | F1/F2 | 0.803A | Load to 0.768A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding = 109℃<br>Enclosure: 66℃ |
| Output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| C4 | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| Q1 pinD-S | SC | 90/264 | <1s | F1/F2 | 10* | EUT shut down immediately, fuse opened, repeat 10 times, no hazards |
| Q1 pinG-S | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| D2 | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| T1 pin1-2 | SC | 90/264 | <2mins | F1/F2 | 10* | EUT shut down, fuse opened, repeat 10 times, no hazards |
| T1 pinTA-TB | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| C1 | SC | 90/264 | <1s | F1/F2 | 10* | EUT shut down immediately, fuse opened, repeat 10 times, no hazards |
| BD1 | SC | 90/264 | <1s | F1/F2 | 10* | EUT shut down immediately, fuse opened, repeat 10 times, no hazards |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

Supplementary information:
"Sc" means short-circuited test, "Ol" means overload test, "Oc" means open-circuited test; "Uoc" means output voltage without load.

| B.3 & B.4 | TABLE: Abnormal operating and fault condition tests | | P |
|---|---|---|---|
| | Ambient temperature (°C) ..... : | 25, if no else specified | — |
| | Power source for EUT: Manufacturer, model/type, output rating ..... : | Chroma, 61512, 18kVA | — |

| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
|---|---|---|---|---|---|---|
| For model GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019 | | | | | | |
| Charger output | OL | 264 | 1h | F1/F2 | 0.187 | Load to 1.21A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 105°C<br>Enclosure 73°C |
| Charger output | OL | 90 | 1h | F1/F2 | 0.405 | Load to 1.21A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 106°C<br>Enclosure 69°C |
| Power supply output | OL | 264 | 1h | F1/F2 | 0.281 | Load to 2.01A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 104°C<br>Enclosure 72°C |
| Power supply output | OL | 90 | 1h | F1/F2 | 0.605 | Load to 2.01A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 109°C<br>Enclosure 76°C |
| Charger output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| Power supply output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards |
| Q1 pin D-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards |

| IEC 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | | Result - Remark | | Verdict |
| Q1 pin G-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| D4 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| C2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| U2 pin 1-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| U2 pin 3-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| C12 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| D7 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| | | | | | | | |
| For model GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036 | | | | | | | |
| Charger output | OL | 264 | 1h | F1/F2 | 0.142 | Load to 1.81A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 99°C<br>Enclosure 77°C | |
| Charger output | OL | 90 | 1h | F1/F2 | 0.269 | Load to 1.81A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 98°C<br>Enclosure 77°C | |
| Power supply output | OL | 264 | 1h | F1/F2 | 0.225 | Load to 1.21A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 87°C<br>Enclosure 69°C | |
| Power supply output | OL | 90 | 1h | F1/F2 | 0.486 | Load to 1.21A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 87°C<br>Enclosure 69°C | |
| Charger output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards | |

| IEC 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | | Result - Remark | | Verdict |
| Power supply output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards | |
| Q1 pin D-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| Q1 pin G-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| D2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| C2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| U2 pin 1-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| U2 pin 3-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| C11 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| D7 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| | | | | | | | |
| For model GTM91128LI3CEL-12614 | | | | | | | |
| Output | OL | 264 | 1h | F1/F2 | 0.229 | Load to 1.41 A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 109°C<br>Enclosure 82°C | |
| Output | OL | 90 | 1h | F1/F2 | 0.478 | Load to 1.41 A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 105°C<br>Enclosure 81°C | |
| Output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards | |
| Q1 pin D-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| Q1 pin G-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| D2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |

| IEC 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | | Result - Remark | | Verdict |
| C2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| U2 pin 1-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| U2 pin 3-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| C11 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| D7 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| | | | | | | | |
| For model GTM91128LI1CEL-T2-04220 | | | | | | | |
| Output | OL | 264 | 1h | F1/F2 | 0.147 | Load to 2.10A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 109°C<br>Enclosure 83°C | |
| Output | OL | 90 | 1h | F1/F2 | 0.295 | Load to 2.10A, EUT protected immediately, no hazards.<br>Temperature recorded:<br>T1 winding 106°C<br>Enclosure 80°C | |
| Output | SC | 90/264 | 10mins | F1/F2 | 0 | EUT protected immediately, no hazards | |
| Q1 pin D-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| Q1 pin G-S | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| D2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| C2 | SC | 90/264 | 40min | F1/F2 | >10A | EUT shut down immediately, fuse opened, no hazards | |
| U2 pin 1-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| U2 pin 3-2 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| C11 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |
| D7 | SC | 90/264 | 45min | F1/F2 | 0 | EUT protected immediately, no hazards | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

Supplementary information:
"Sc" means short-circuited test, "Ol" means overload test, "Oc" means open-circuited test; "Uoc" means output voltage without load.

| **Annex Q.1** | **TABLE: Circuits intended for interconnection with building wiring (LPS)** | | | | | P |
|---|---|---|---|---|---|---|
| Note: Measured UOC (V) with all load circuits disconnected: | | | | | | |
| Output Circuit | Components | Uoc (V) | Isc (A) | | S (VA) | |
| | | | Meas. | Limit | Meas. | Limit |
| Model: GTM96300-2307.5-2.5-R2 | | | | | | |
| Output | Output Oc | 5.14 | 0 | 8.0 | 0 | 100 |
| Output | Output Ol | 0 | 5.44 | 8.0 | 33.9 | 100 |
| Output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Model: GTM96300-3648-R2 | | | | | | |
| Output | Output Oc | 48.09 | 0 | 3.125 | 0 | 100 |
| Output | Output Ol | 0 | 0.768 | 3.125 | 42.7 | 100 |
| Output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 3.125 | 0 | 100 |
| Model: GTM96180-1807-2.0-T2 | | | | | | |
| Output | Output Oc | 5.112 | 0 | 8.0 | 0 | 100 |
| Output | Output Ol | 0 | 3.90 | 8.0 | 24.6 | 100 |
| Output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Model: GTM96180-1848-T2 | | | | | | |
| Output | Output Oc | 48.44 | 0 | 3.125 | 0 | 100 |
| Output | Output Ol | 0 | 0.465 | 3.125 | 26.6 | 100 |
| Output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 3.125 | 0 | 100 |

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|---|---|---|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | | | | Verdict |
| Model: GTM91120-2007.5-2.5-T2 | | | | | | |
| Output | Output Oc | 5.13 | 0 | 8.0 | 0 | 100 |
| Output | Output OI | 0 | 4.5 | 8.0 | 21.6 | 100 |
| Output | Single fault: Primary current limitation disabled.<br>(R11 short) | 0 | 0 | 8.0 | 0 | 100 |
| Model: GTM91120-3048-T2 | | | | | | |
| Output | Output Oc | 48.03 | 0 | 3.125 | 0 | 100 |
| Output | Output OI | 0 | 0.85 | 3.125 | 38.4 | 100 |
| Output | Single fault: Primary current limitation disabled.<br>(R11 short) | 0 | 0 | 3.125 | 0 | 100 |
| Model: GTM91128LI3CEL-12614 | | | | | | |
| Output | Output Oc | 12.36 | 0 | 8.0 | 0 | 100 |
| Output | Output OI | 0 | 1.41 | 8.0 | 21.91 | 100 |
| Output | Single fault: Primary current limitation disabled.<br>(R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Model: GTM91128LI1CEL-T2-04220 | | | | | | |
| Output | Output Oc | 3.80 | 0 | 8.0 | 0 | 100 |
| Output | Output OI | 0 | 2.10 | 8.0 | 12.76 | 100 |
| Output | Single fault: Primary current limitation disabled.<br>(R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Model: GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019 | | | | | | |
| Power supply output | Output Oc | 13.2 | 0 | 8.0 | 0 | 100 |
| Power supply output | Output OI | 0 | 2.01 | 8.0 | 31.54 | 100 |
| Power supply output | Single fault: Primary current limitation disabled.<br>(R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Charger output | Output Oc | 12.3 | 0 | 8.0 | 0 | 100 |

| IEC 62368-1 | | | | | | |
|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| Charger output | Output OI | 0 | 1.21 | 8.0 | 18.92 | 100 |
| Charger output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Model: GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036 | | | | | | |
| Power supply output | Output Oc | 4.57 | 0 | 8.0 | 0 | 100 |
| Power supply output | Output OI | 0 | 3.60 | 8.0 | 23.80 | 100 |
| Power supply output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Charger output | Output Oc | 3.80 | 0 | 8.0 | 0 | 100 |
| Charger output | Output OI | 0 | 1.81 | 8.0 | 11.97 | 100 |
| Charger output | Single fault: Primary current limitation disabled. (R13 short) | 0 | 0 | 8.0 | 0 | 100 |
| Supplementary Information: SC=Short circuit, Oc=Open circuit, OI=over loaded | | | | | | |

| T.2, T.3, T.4, T.5 | TABLE: Steady force test | | | | | P |
|---|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Force (N) | Test Duration (sec) | Observation | |
| Enclosure top, closed to transformer (T.4) | Plastics | 2.0 | 100 | 5 | Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown. | |
| Enclosure side (T.4) | Plastics | 2.0 | 100 | 5 | Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown. | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Enclosure bottom, closed to transformer (T.4) | Plastics | 2.0 | 100 | 5 | Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown. |
| Internal components (T.2) | -- | -- | 10 | 5 | No insulation breakdown. No reduction the clearances and creepage distances |
| Supplementary information: | | | | | |

| T.6, T.9 | TABLE: Impact tests | | | | N/A |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Vertical distance (mm) | Observation | |
| | | | | | |
| Supplementary information: | | | | | |

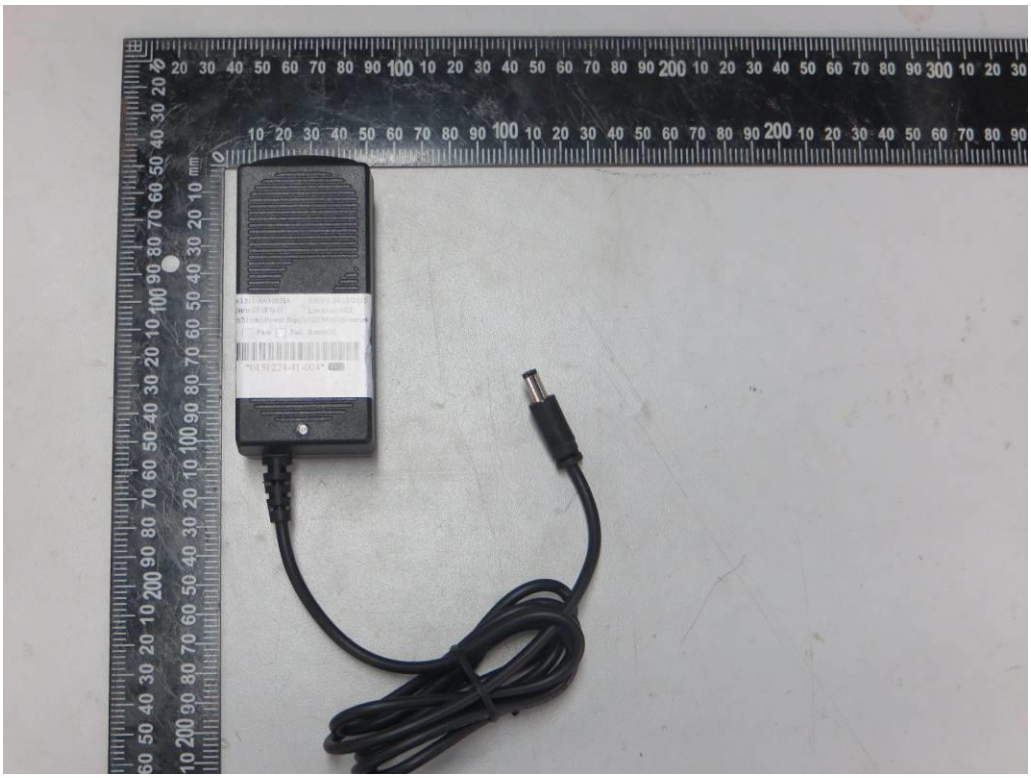
| T.7 | TABLE: Drop tests | | | | P |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Drop Height (mm) | Observation | |
| Three side of enclosure | Hardwood | 15mm | 1000mm | After the drop test, no open was found for the enclosure | |
| Supplementary information: | | | | | |

| T.8 | TABLE: Stress relief test | | | | |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation |
| Enclosure | Plastics | 2.0mm | 125 | 7 | Enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown. |
| Supplementary information: | | | | | |

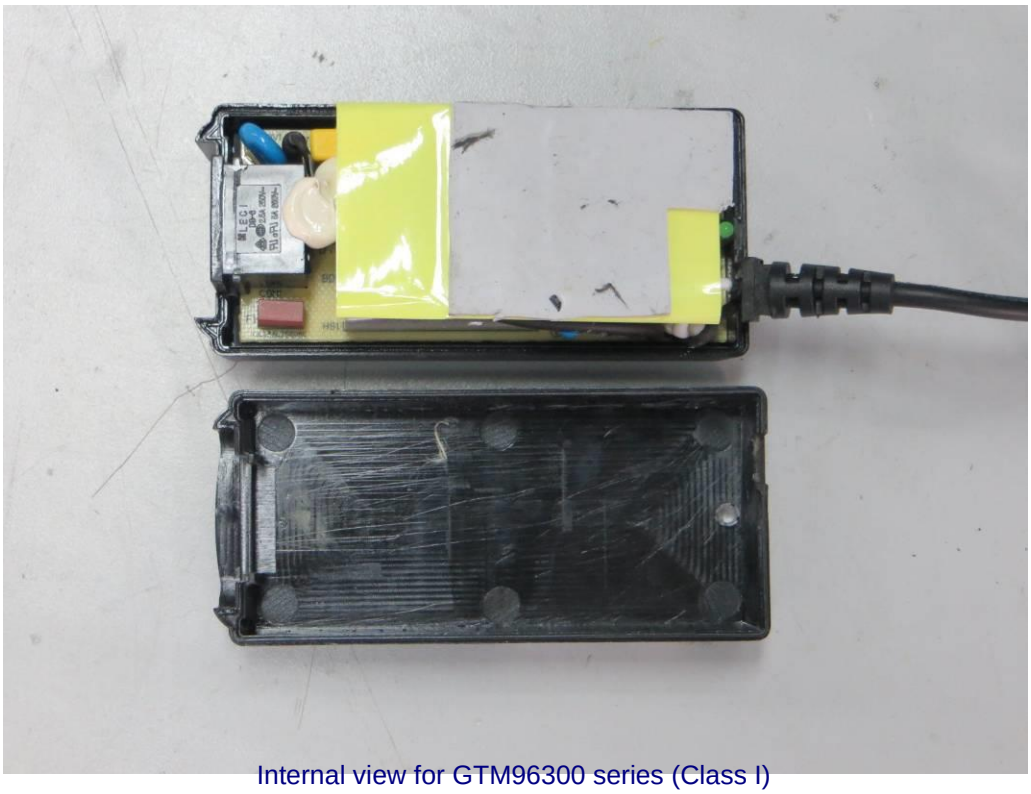
## Appendix 1: Photos of the product

External view for GTM96300 series

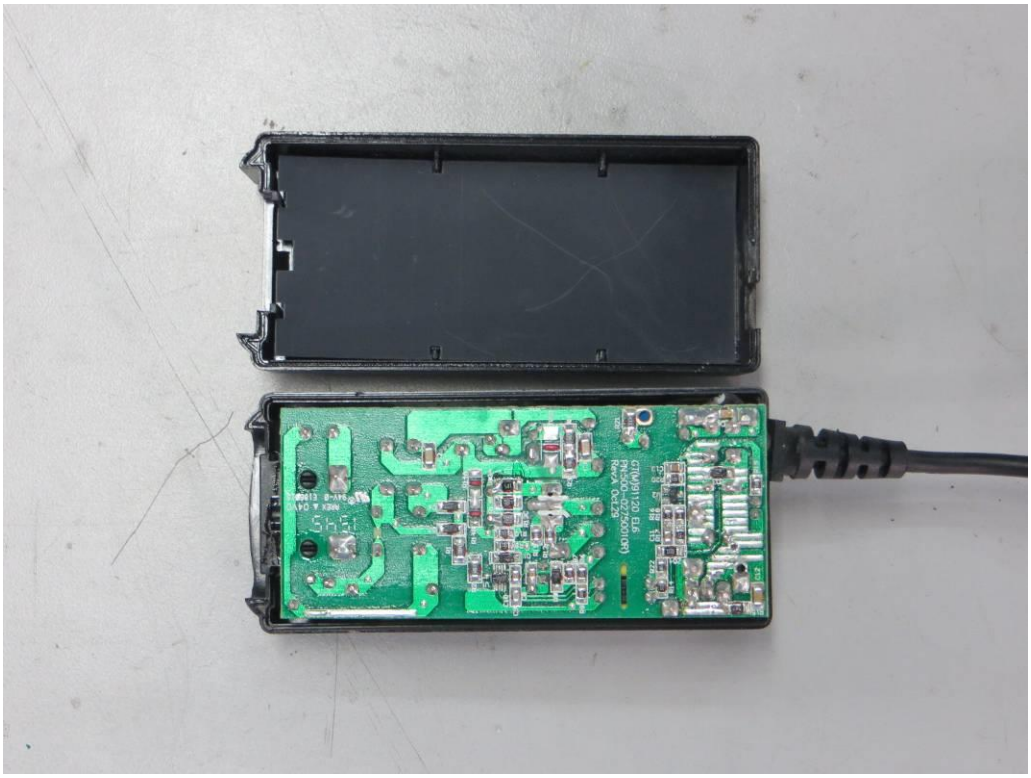
External view for GTM96300 series



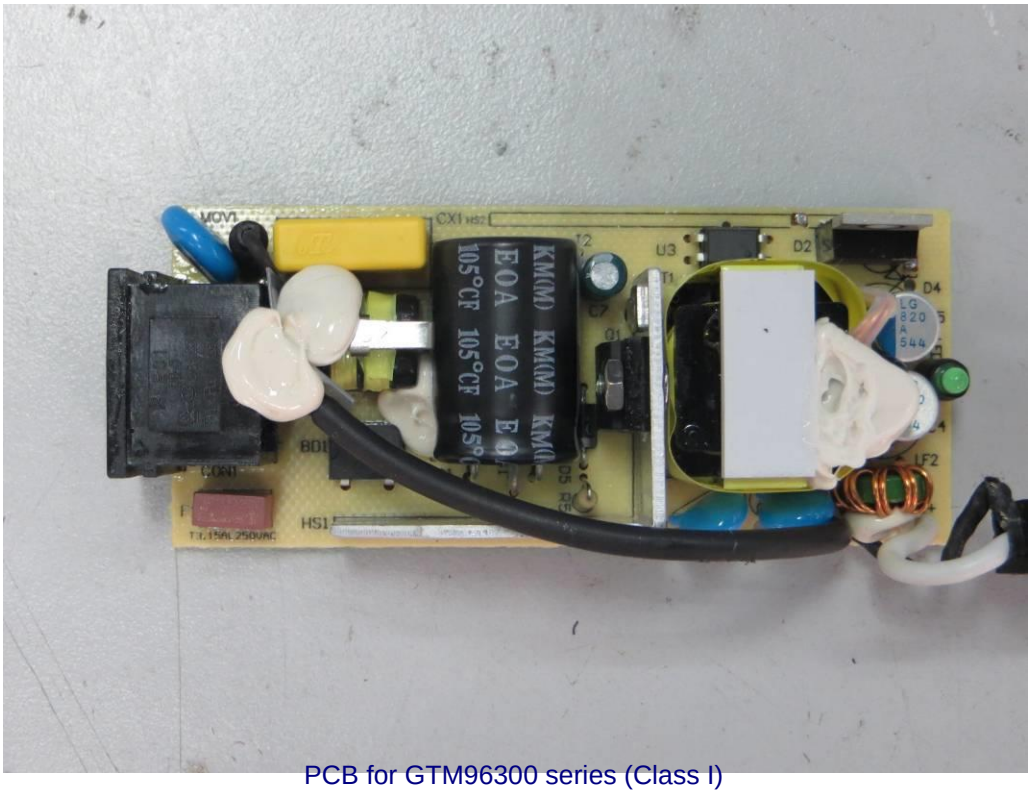
Internal view for GTM96300 series (Class I)



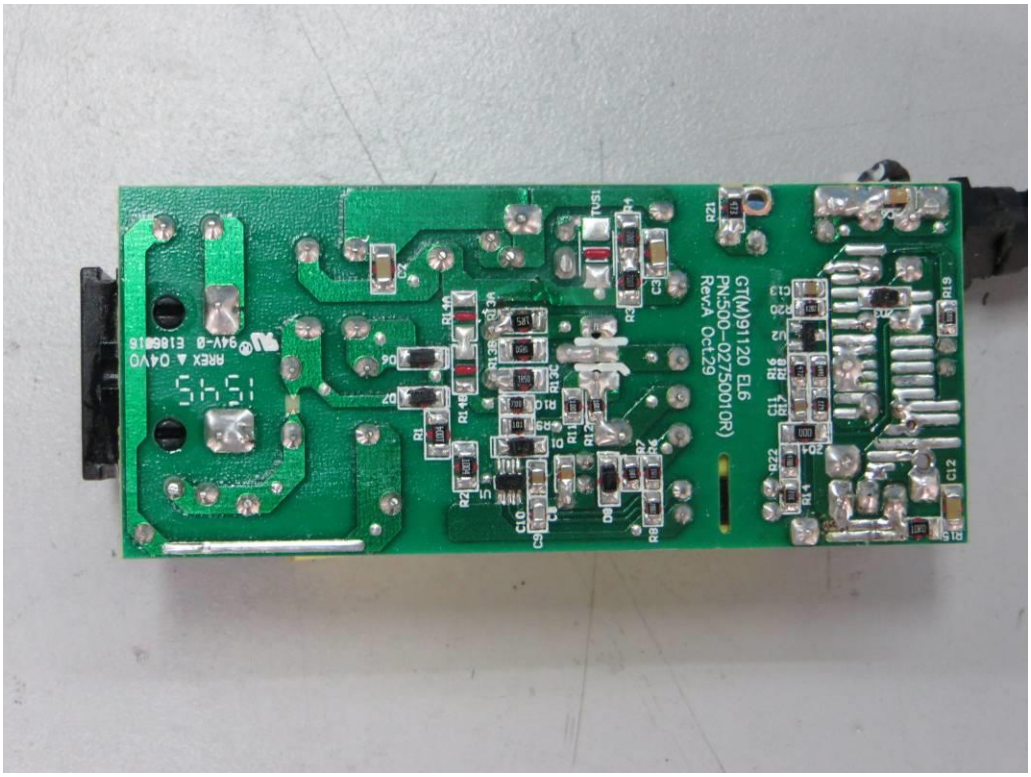
Internal view for GTM96300 series (Class I)



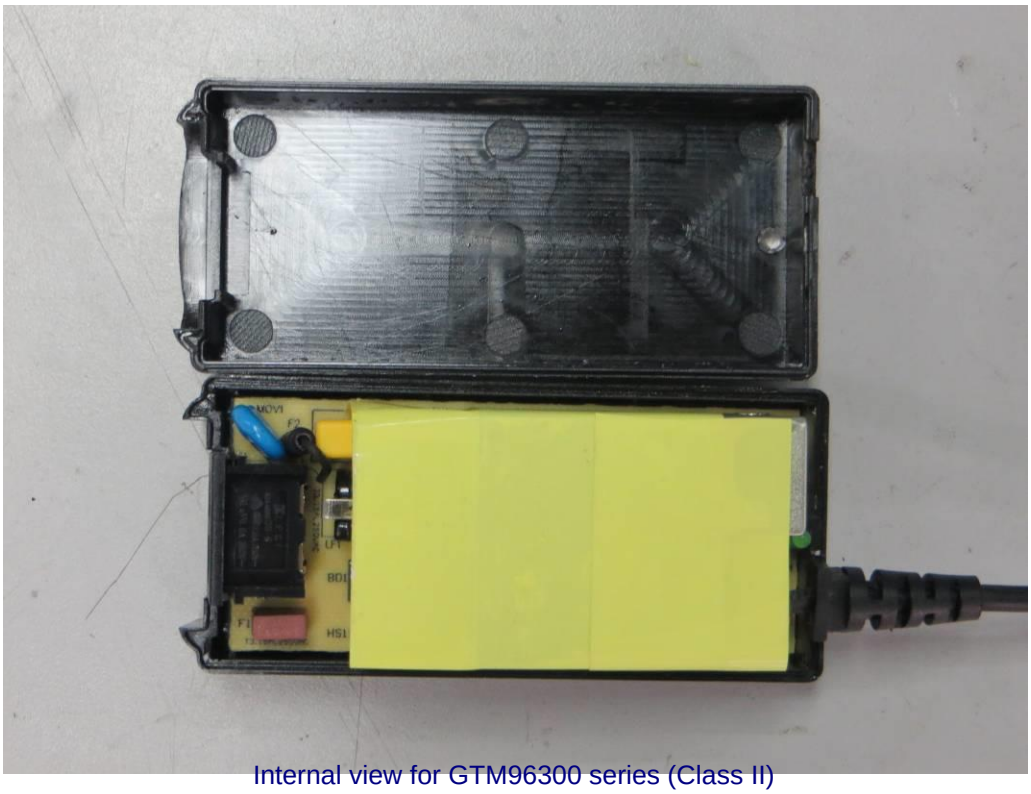
PCB for GTM96300 series (Class I)



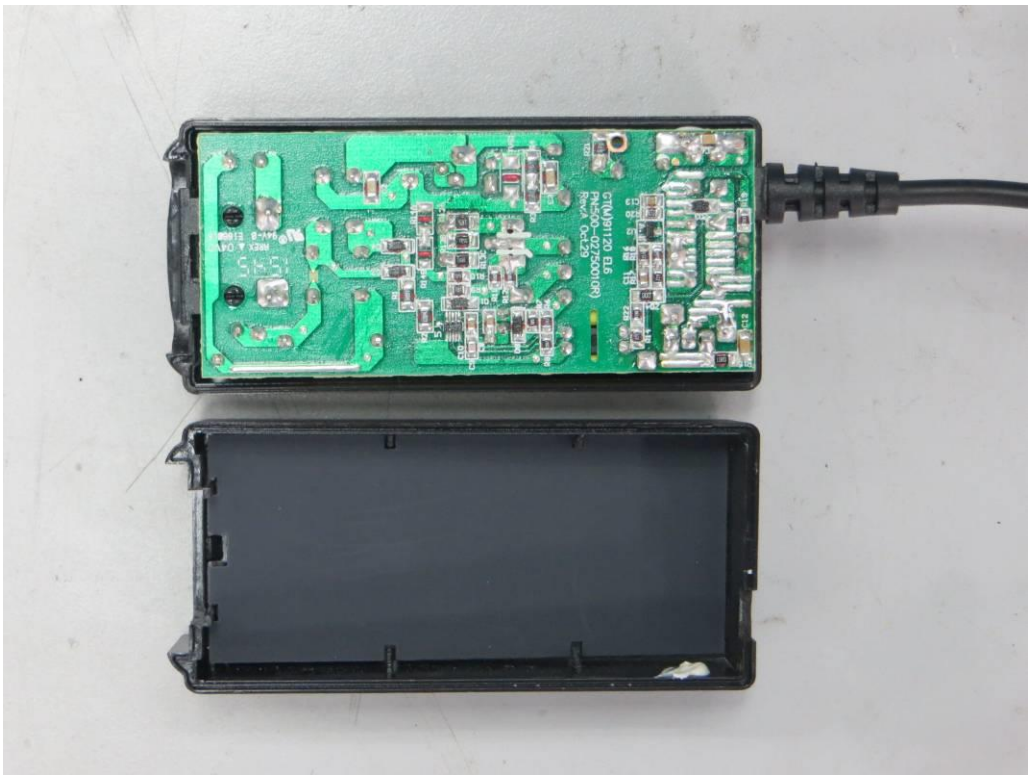

PCB for GTM96300 series (Class I)



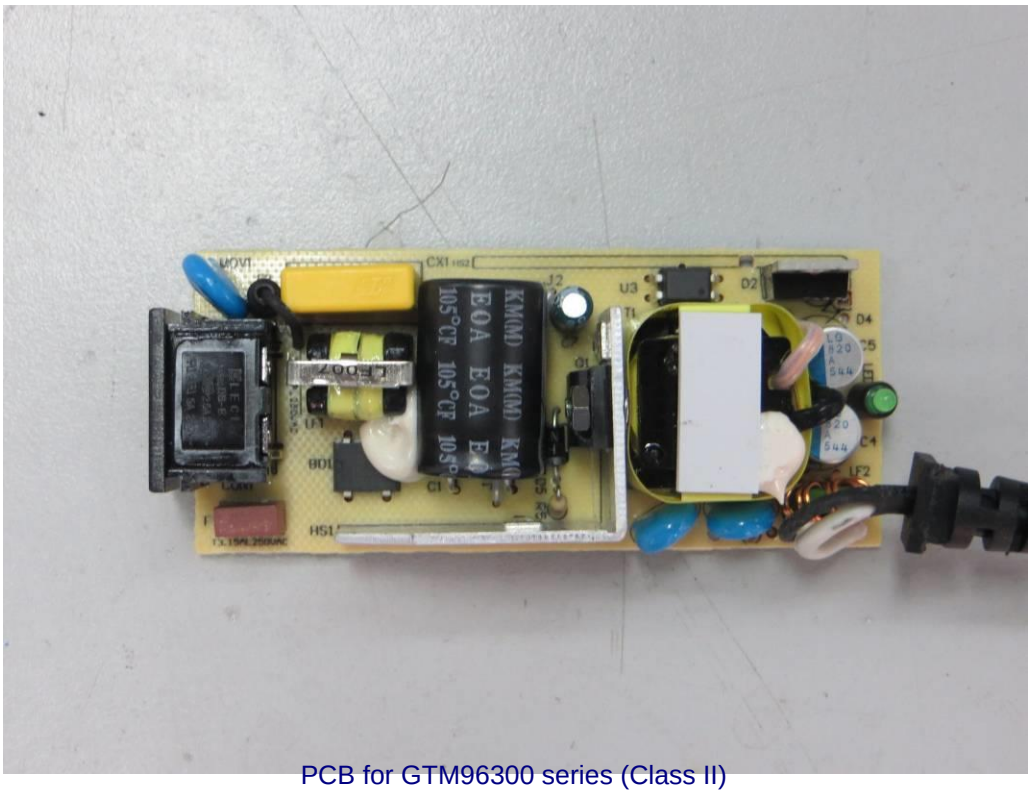
Internal view for GTM96300 series (Class II)



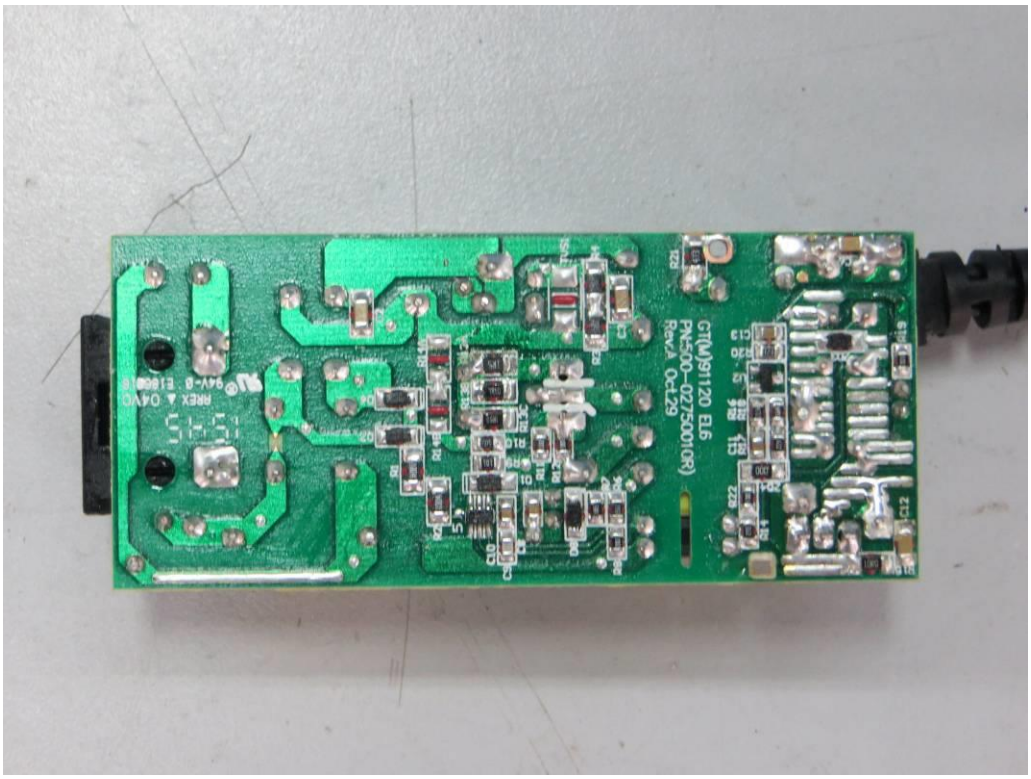
Internal view for GTM96300 series (Class II)



PCB for GTM96300 series (Class II)

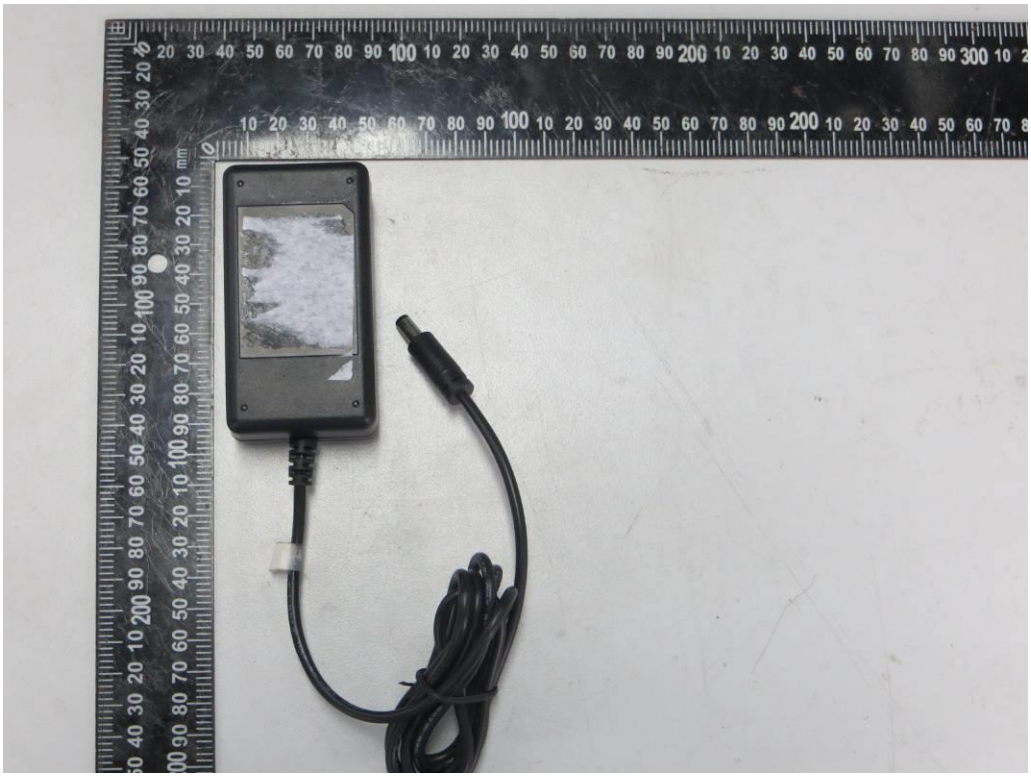


PCB for GTM96300 series (Class II)



External view for GTM96180 series (desktop)

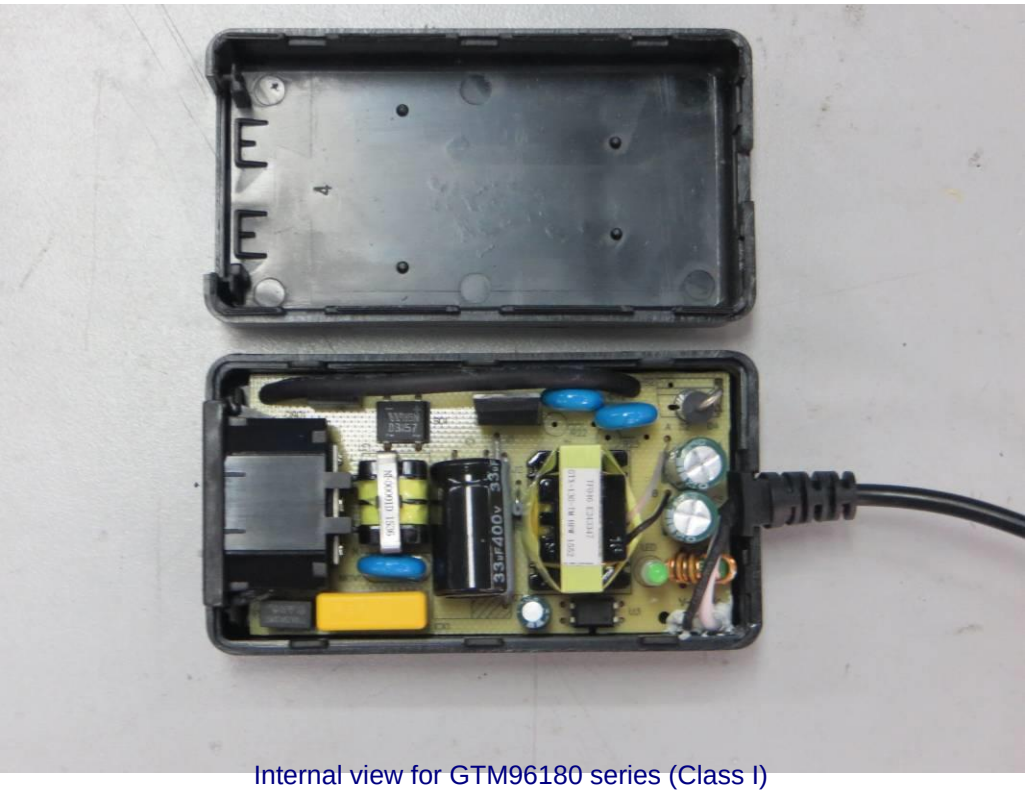
External view for GTM96180 series (desktop)



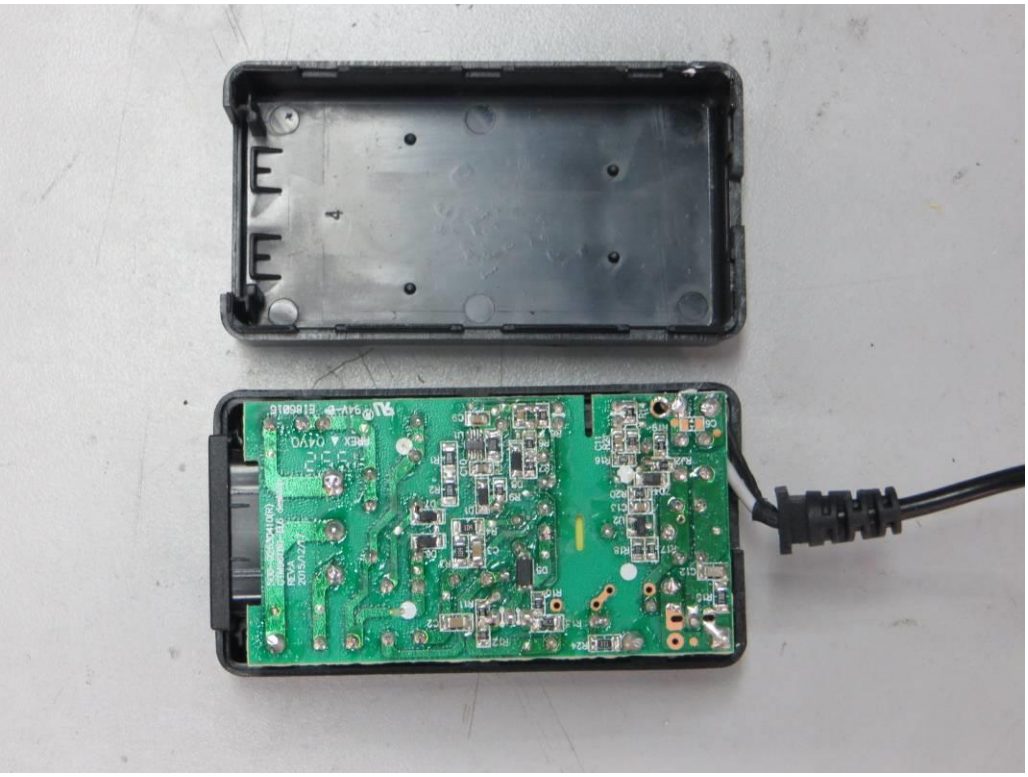
External view for GTM96180 series (Interchangeable plug)

External view for GTM96180 series (Interchangeable plug)

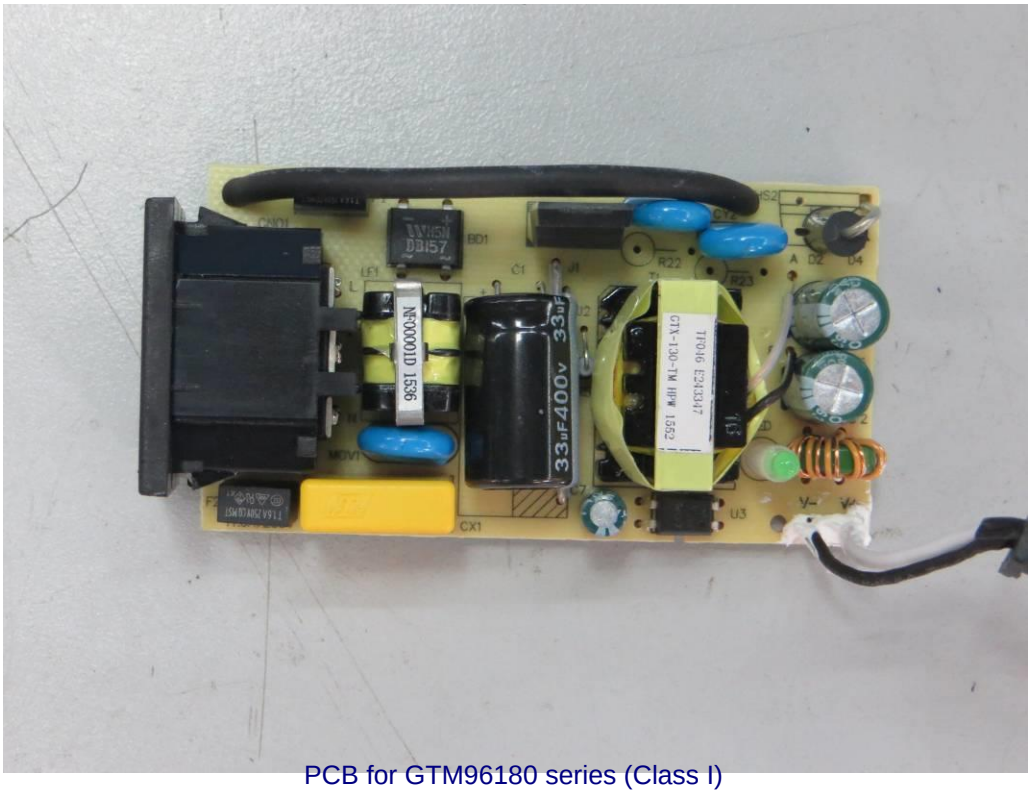
Internal view for GTM96180 series (Class I)



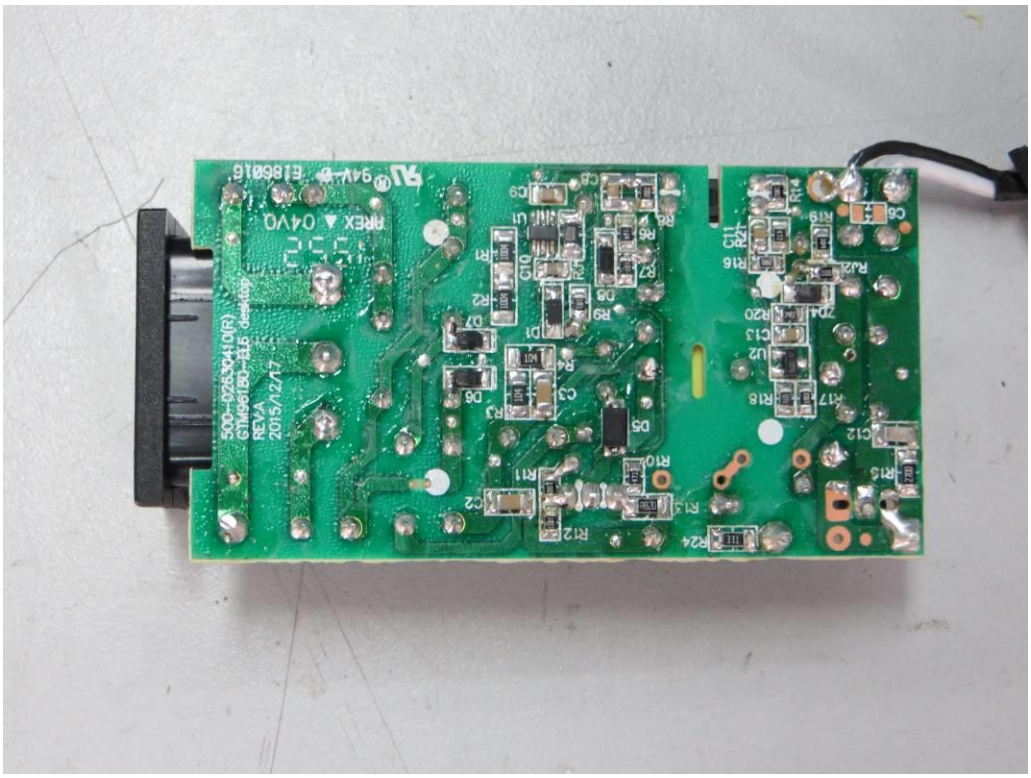
Internal view for GTM96180 series (Class I)



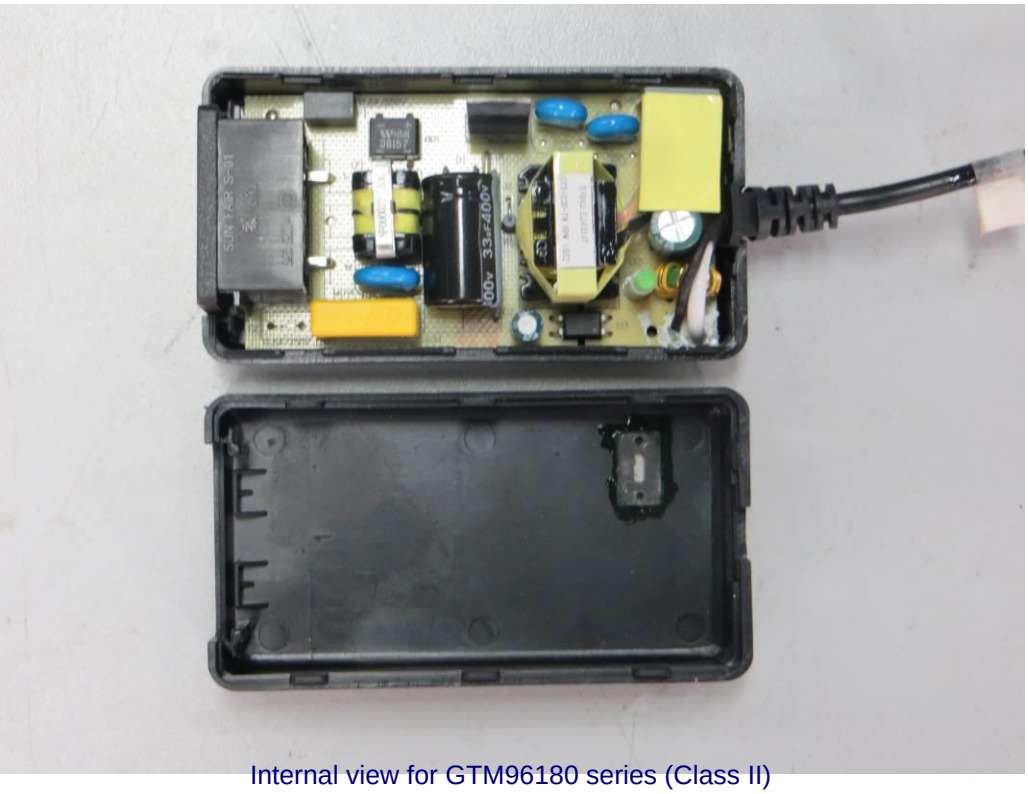
PCB for GTM96180 series (Class I)



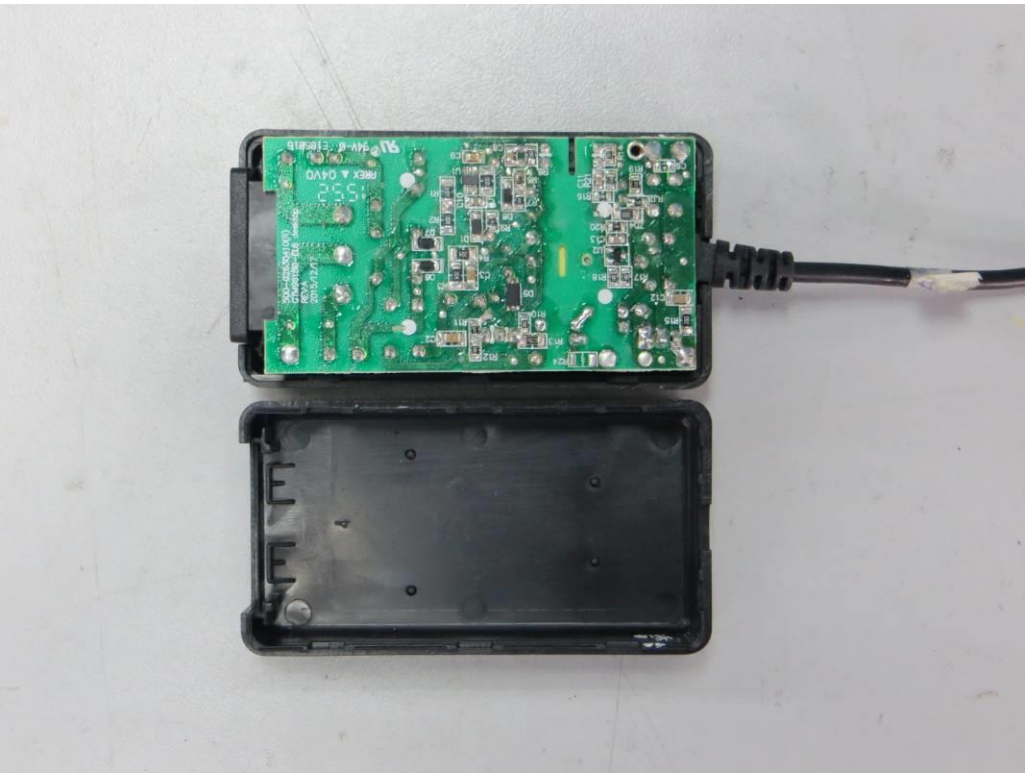

PCB for GTM96180 series (Class I)



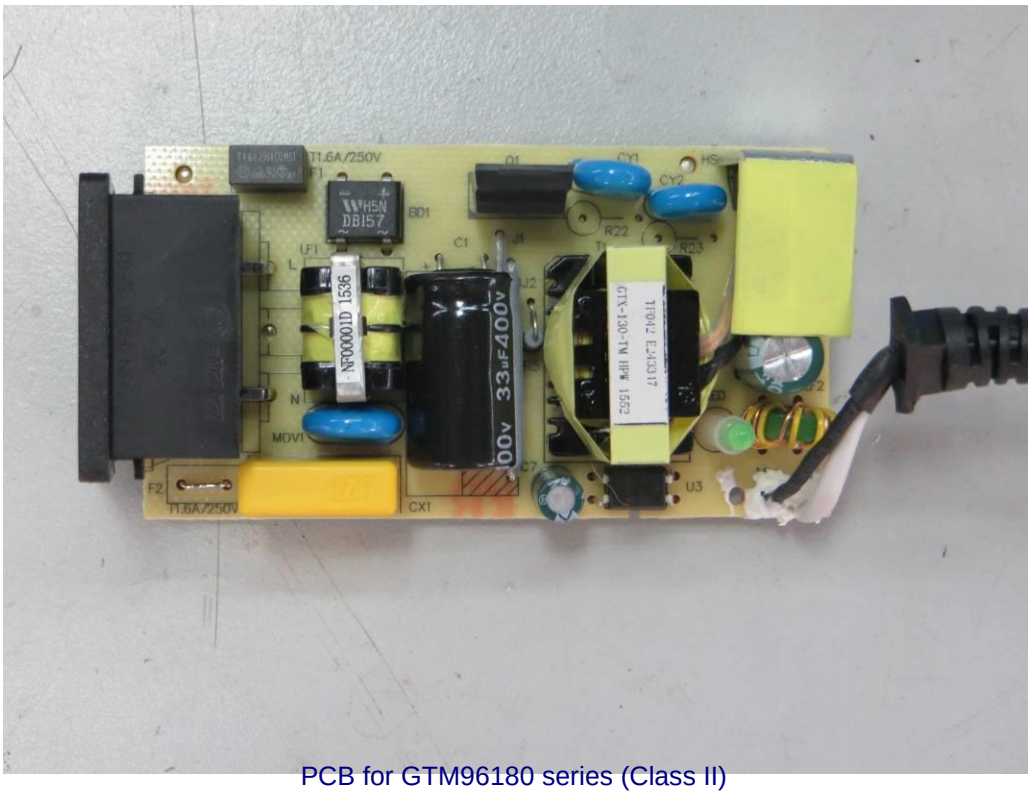
Internal view for GTM96180 series (Class II)



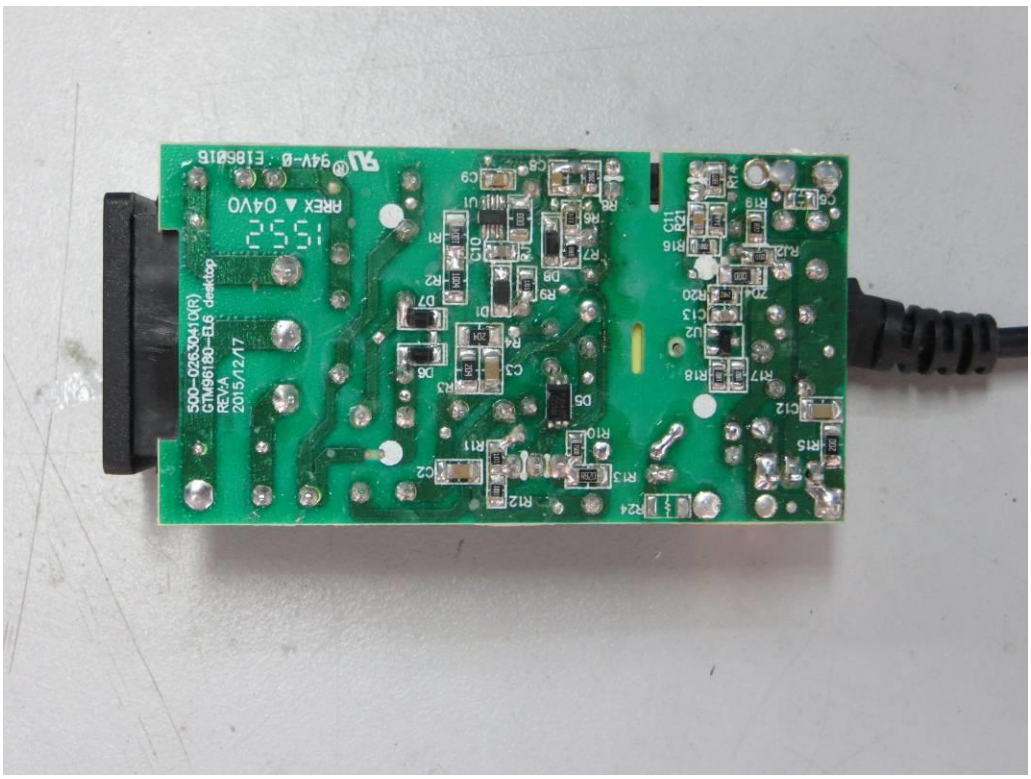
Internal view for GTM96180 series (Class II)



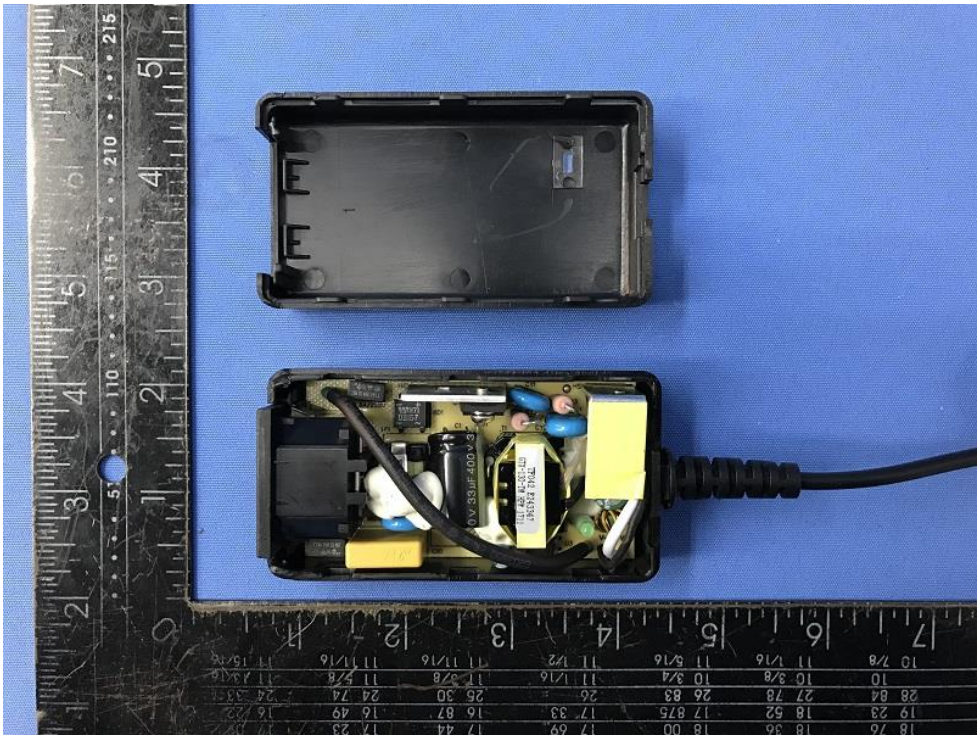
PCB for GTM96180 series (Class II)



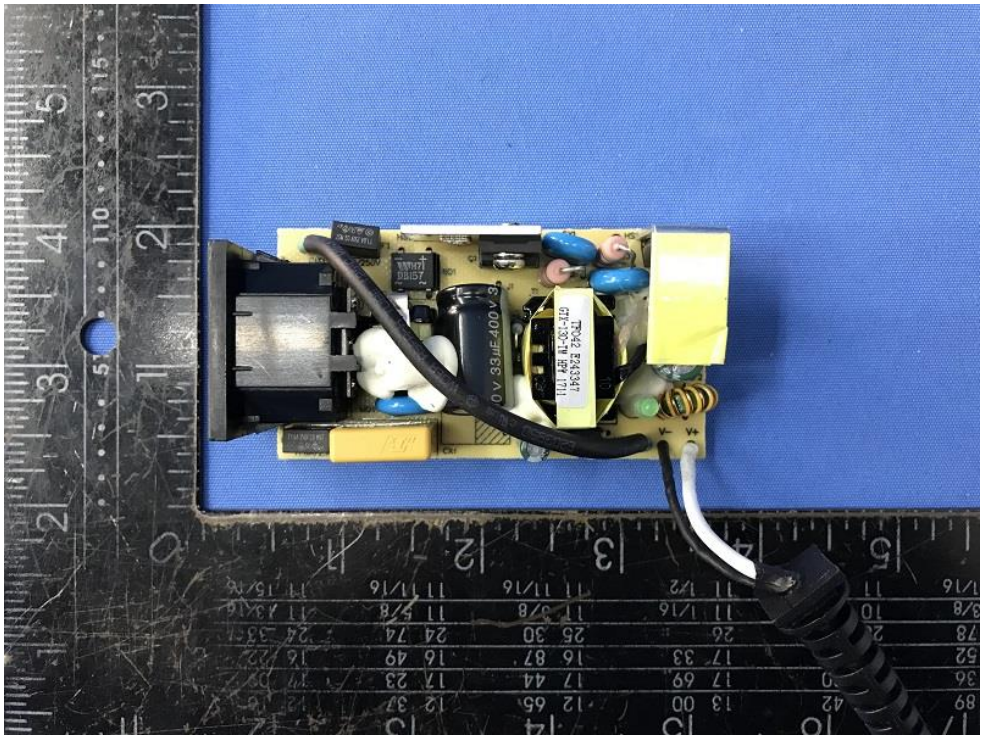

PCB for GTM96180 series (Class II)



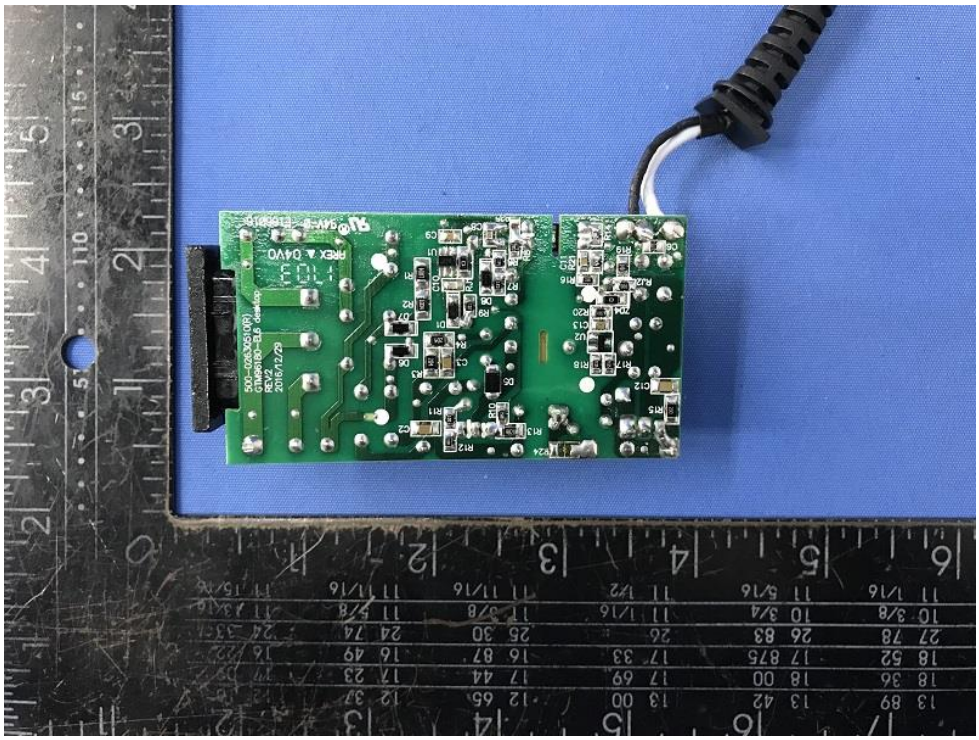
Internal view for GTM96180 series (Class I) with R22, R23 and without R24



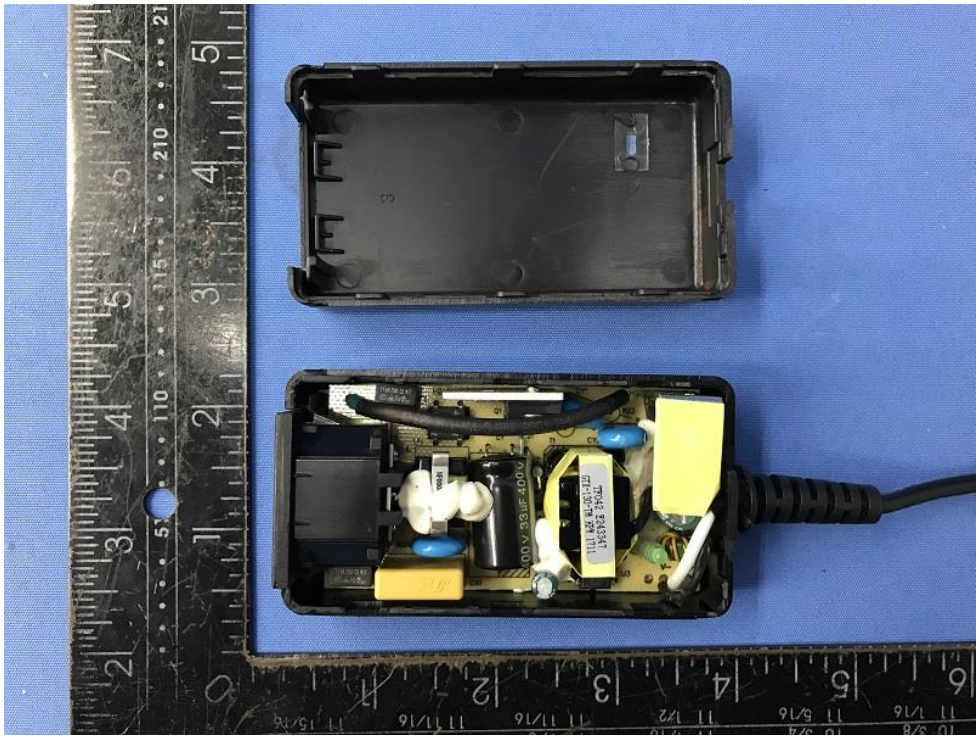
PCB view for GTM96180 series (Class I) with R22, R23 and without R24



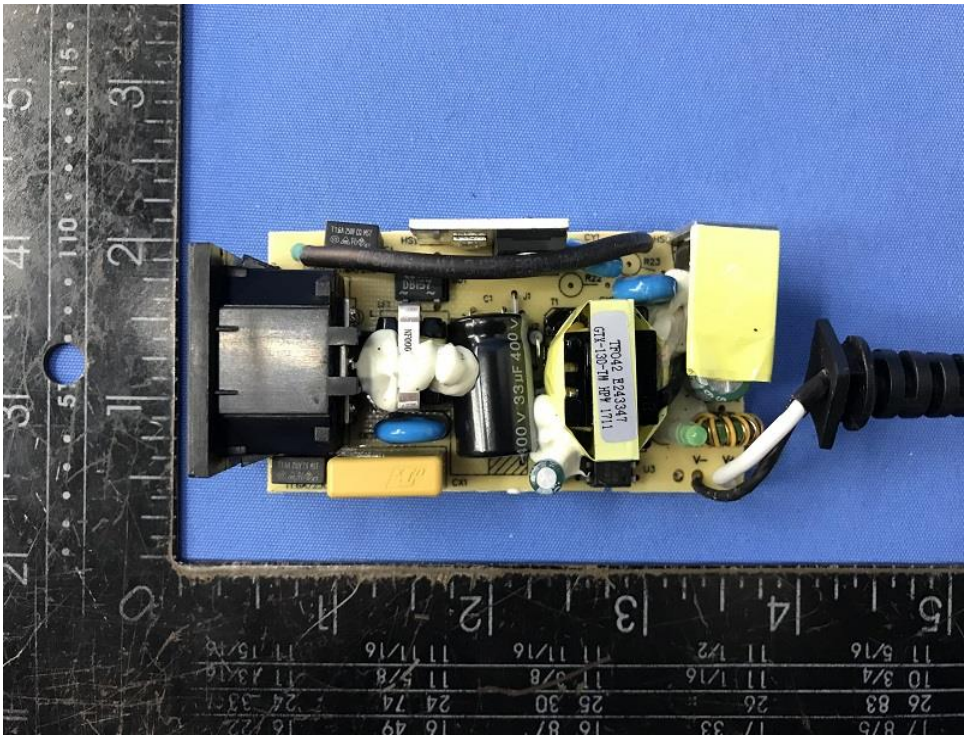
PCB view for GTM96180 series (Class I) with R22, R23 and without R24



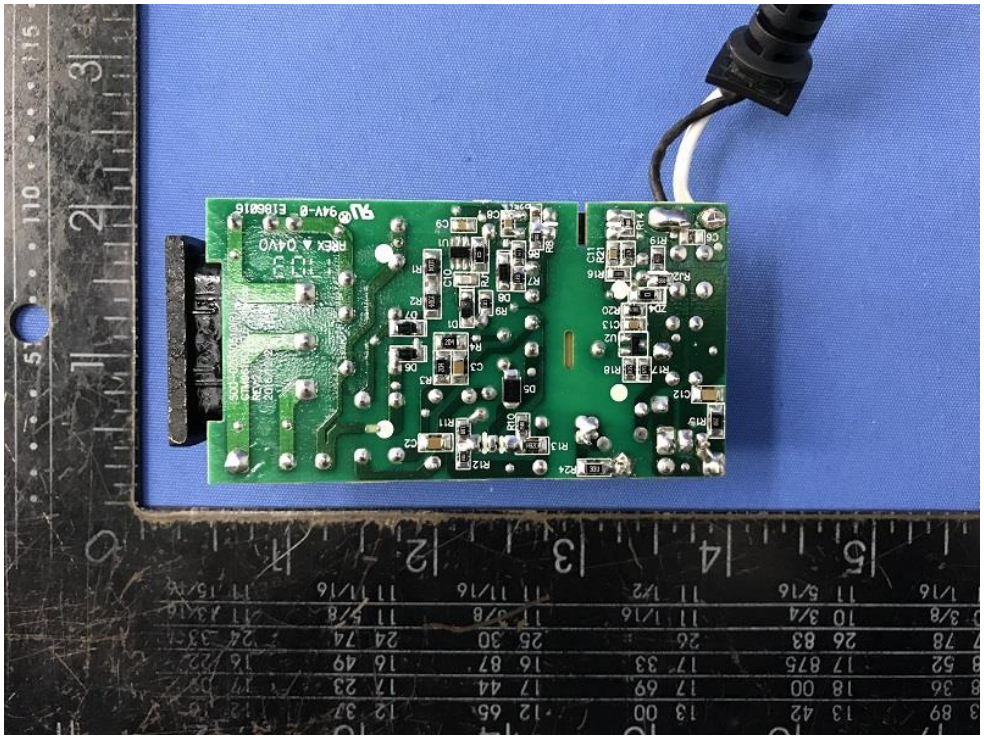
Internal view for GTM96180 series (Class I) without R22, R23 and with R24



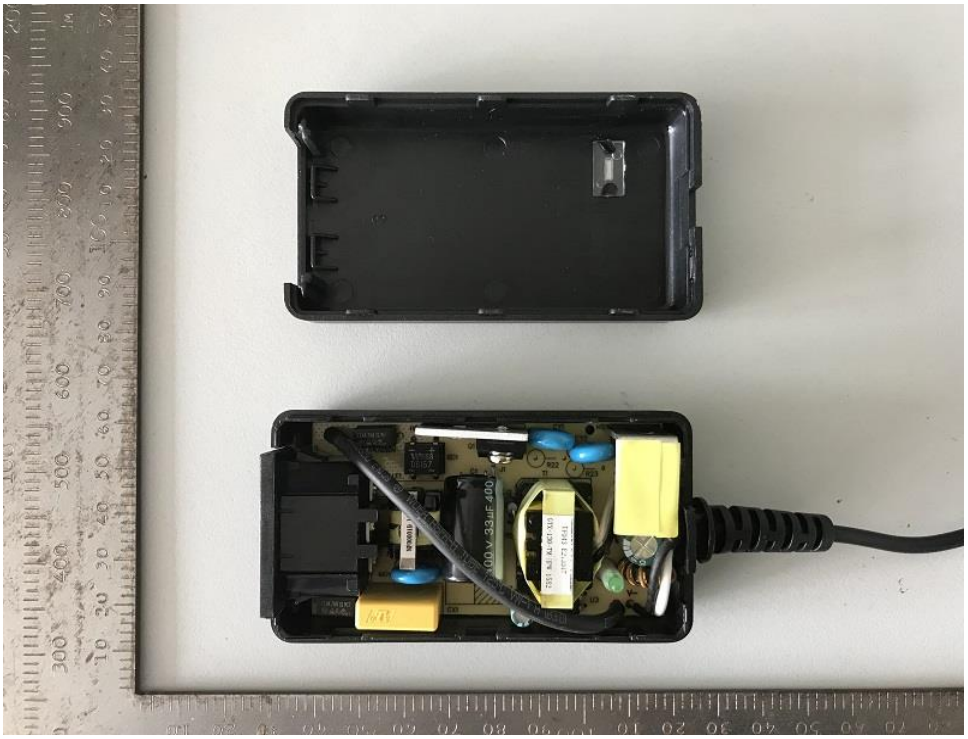
PCB view for GTM96180 series (Class I) without R22, R23 and with R24



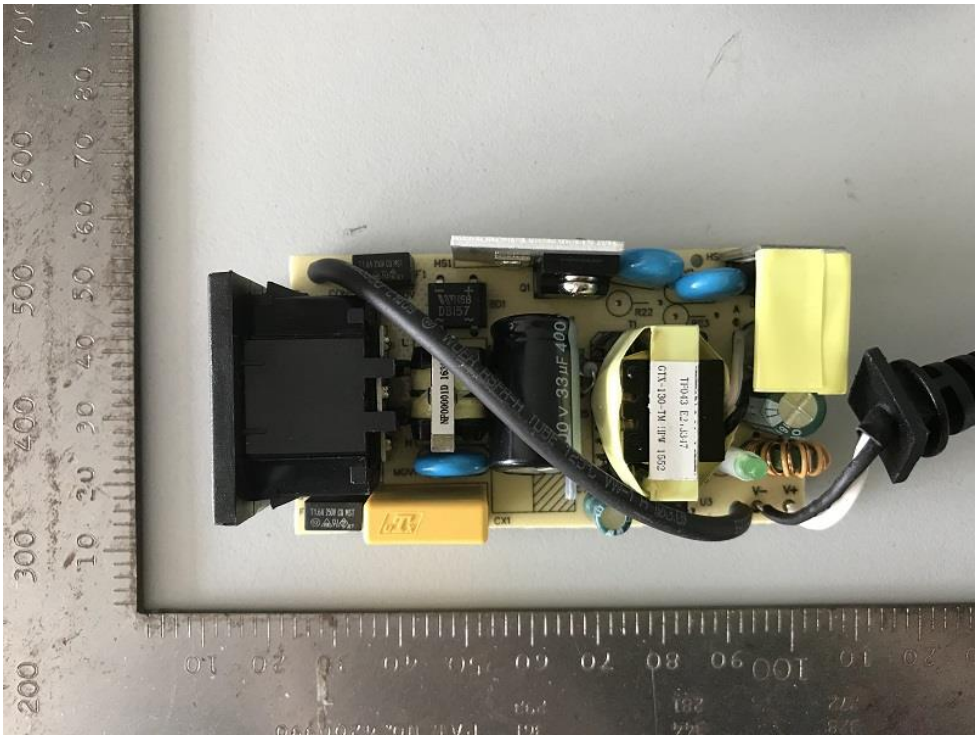
PCB view for GTM96180 series (Class I) without R22, R23 and with R24



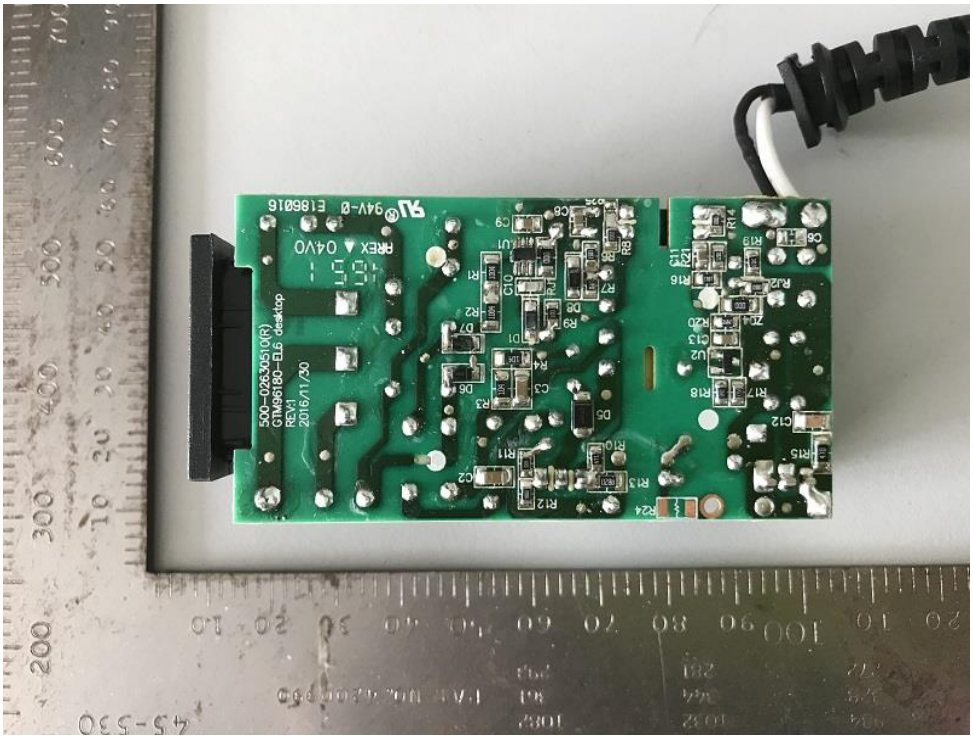
Internal view for GTM96180 series (Class I) without R22, R23 and with R24



PCB view for GTM96180 series (Class I) without R22, R23 and with R24

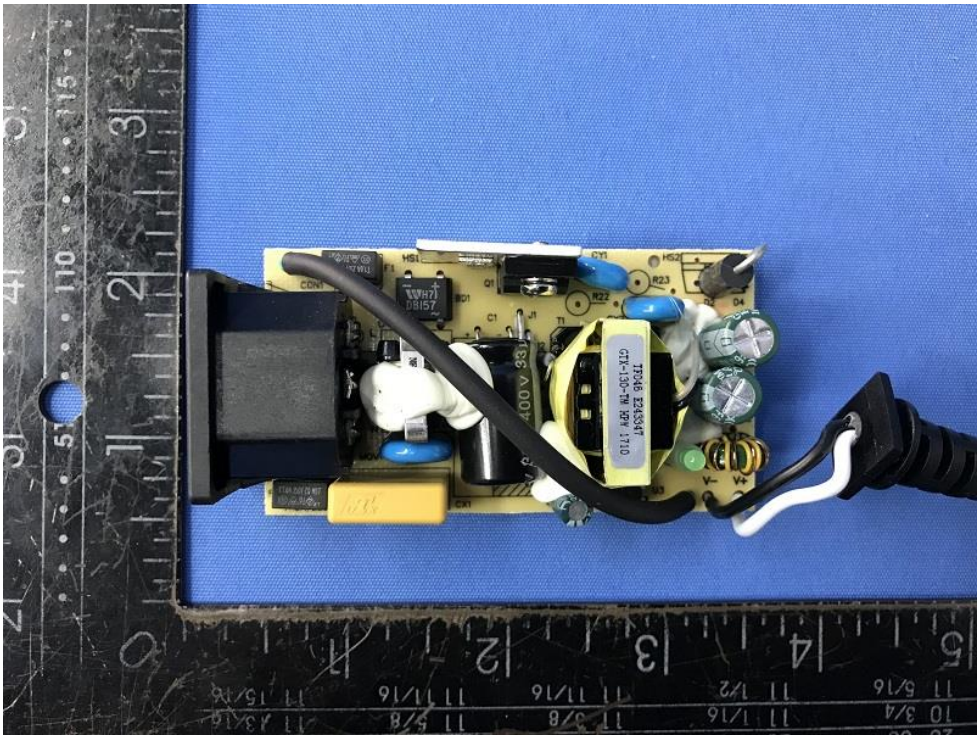


PCB view for GTM96180 series (Class I) without R22, R23 and with R24

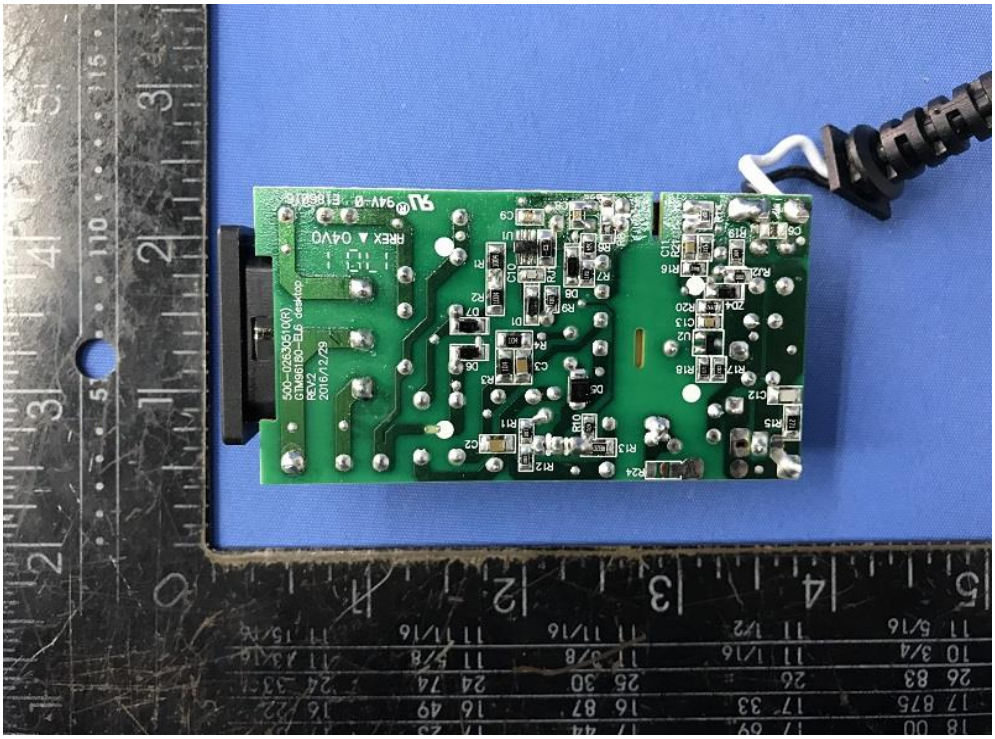


Internal view for GTM96180 series (Class I) without heatsink for D2

PCB view for GTM96180 series (Class I) without heatsink for D2



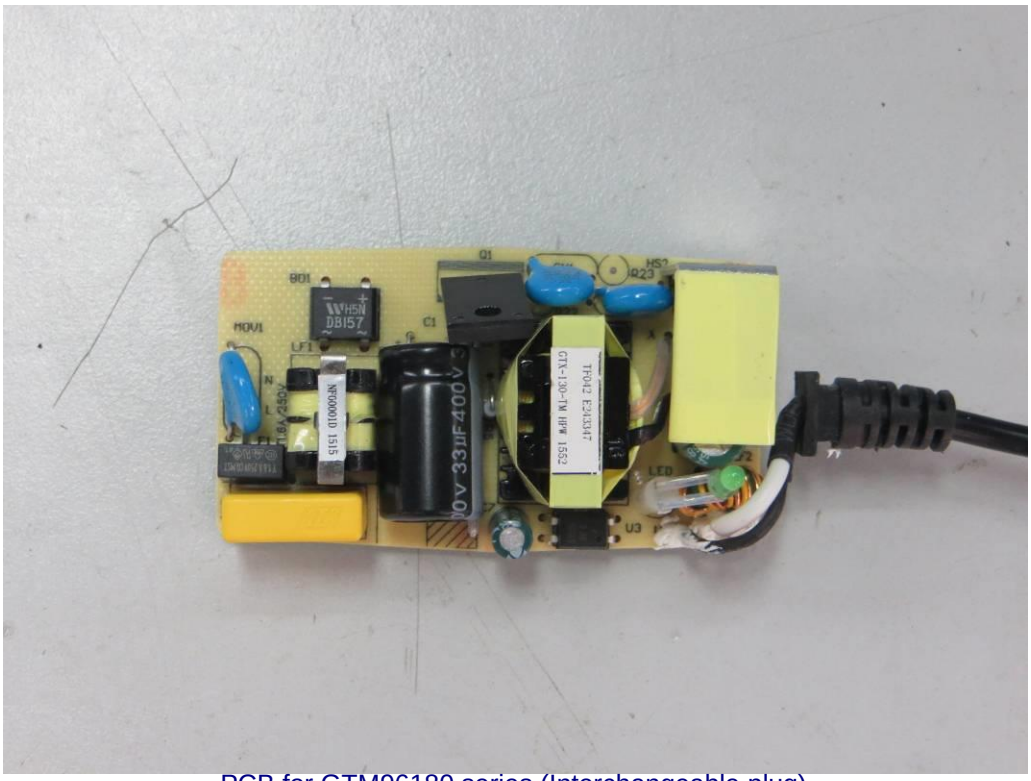
PCB view for GTM96180 series (Class I) without heatsink for D2



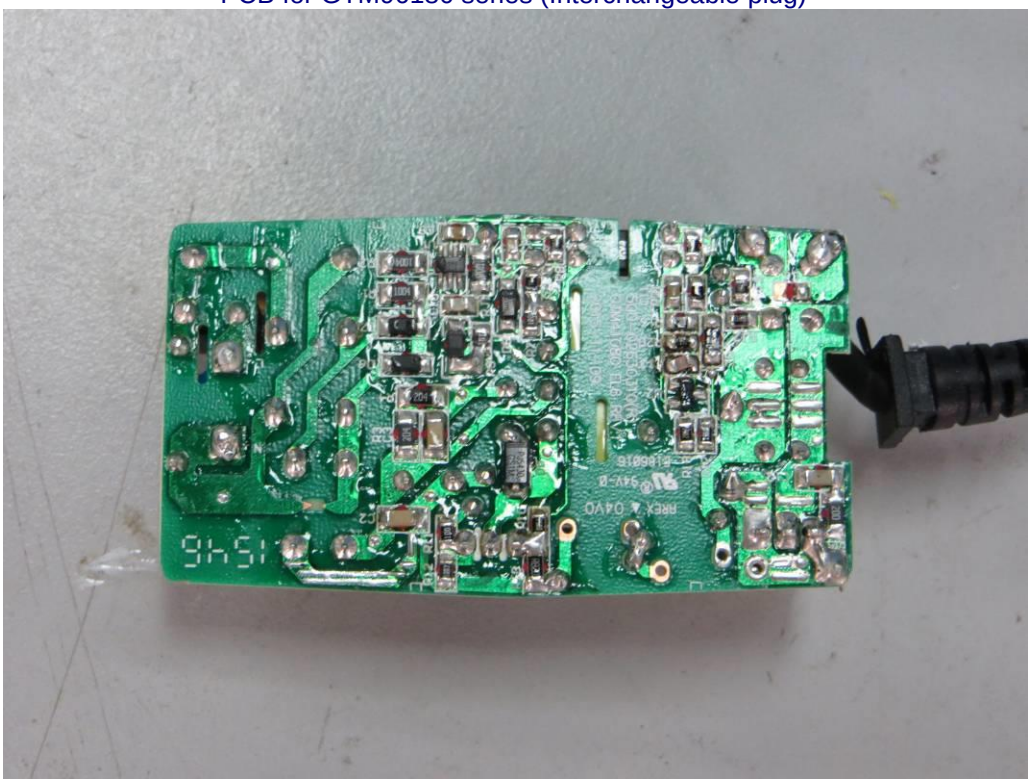
Internal view for GTM96180 series (Interchangeable plug)

Internal view for GTM96180 series (Interchangeable plug)

PCB for GTM96180 series (Interchangeable plug)




PCB for GTM96180 series (Interchangeable plug)



External view for GTM91120 series

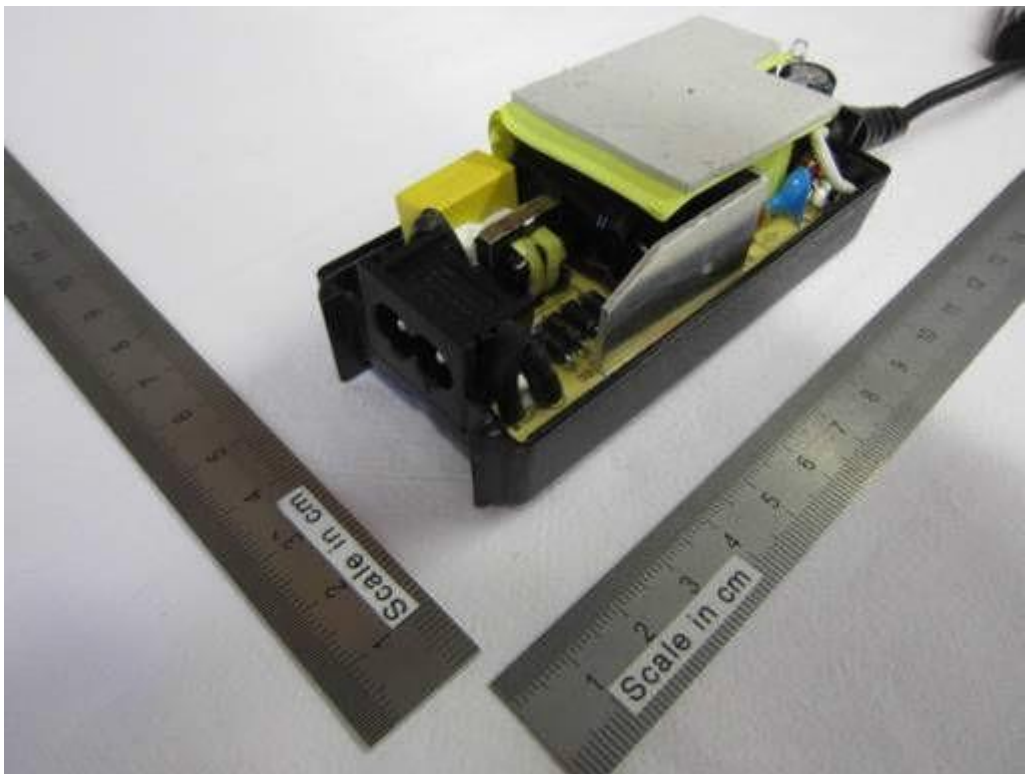

External view for GTM91120 series

External view for GTM91120 series

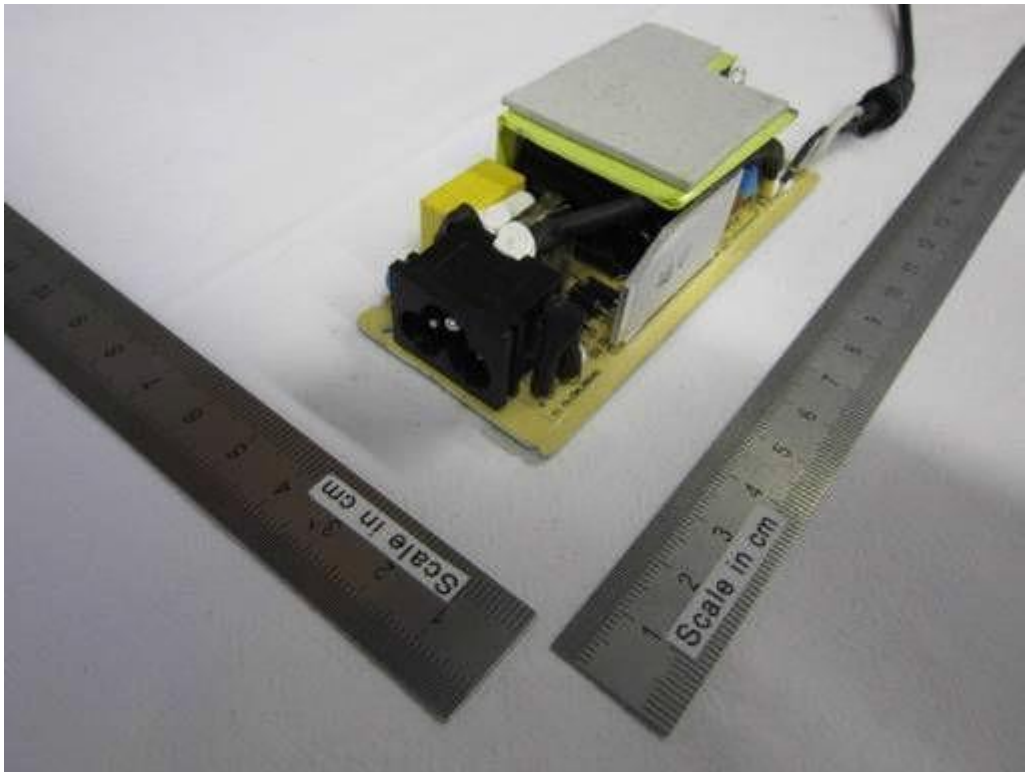

External view for GTM91120 series

Internal view for GTM91120 series

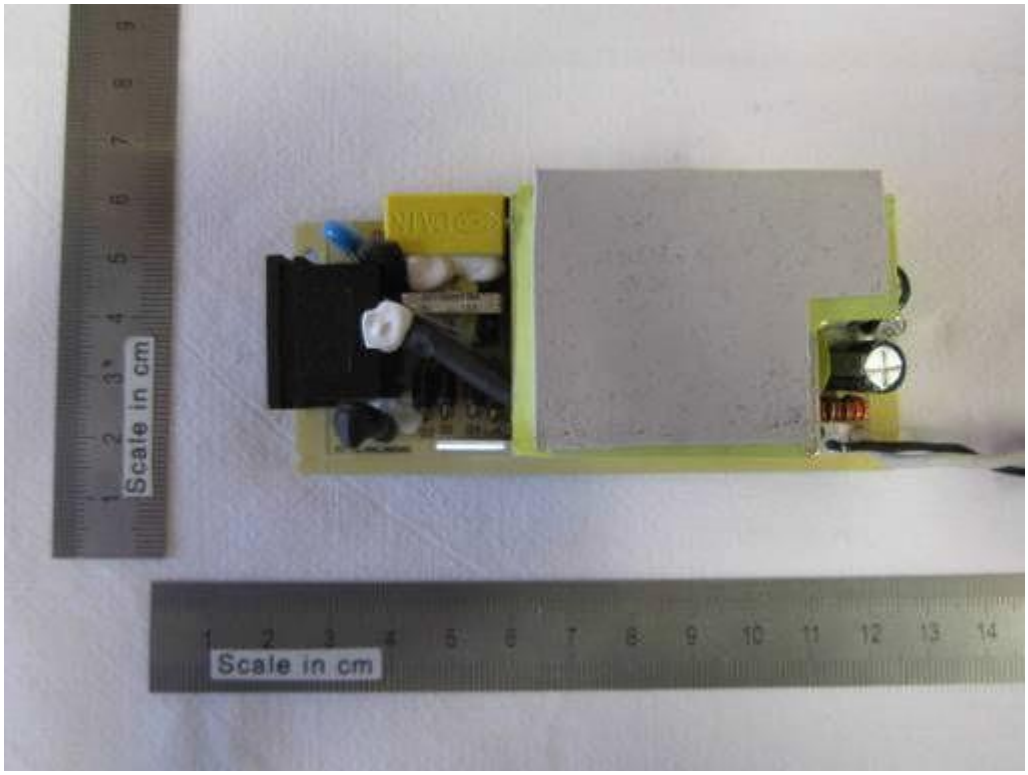

Internal view for GTM91120 series



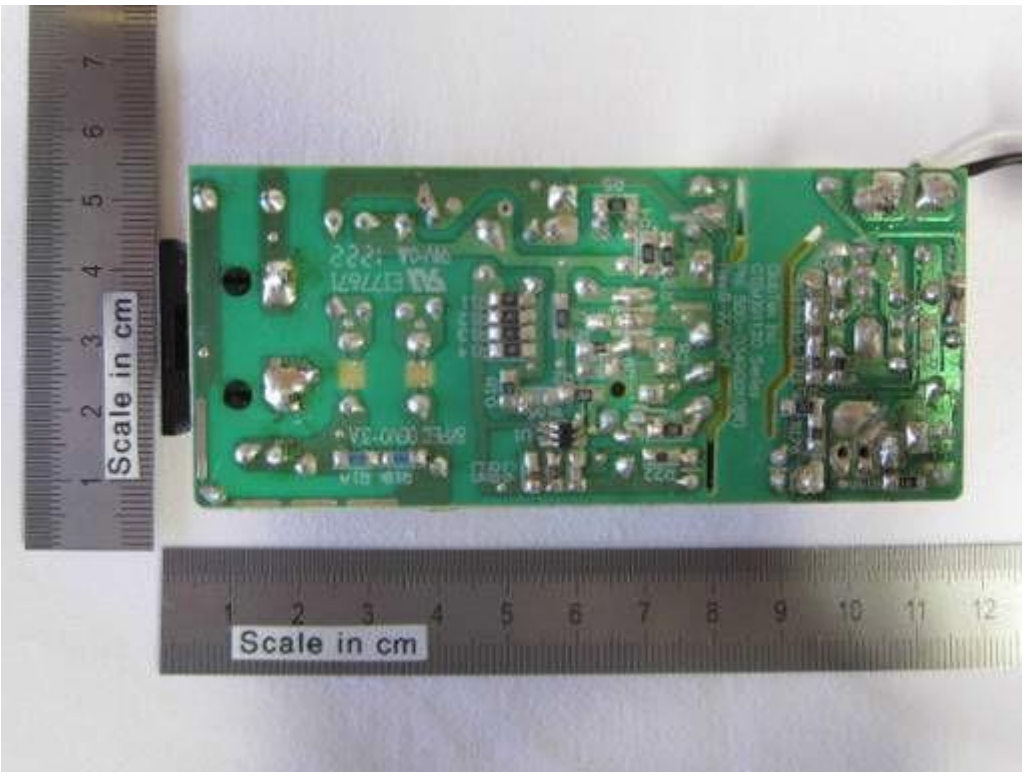
Internal view for GTM91120 series




Internal view for GTM91120 series

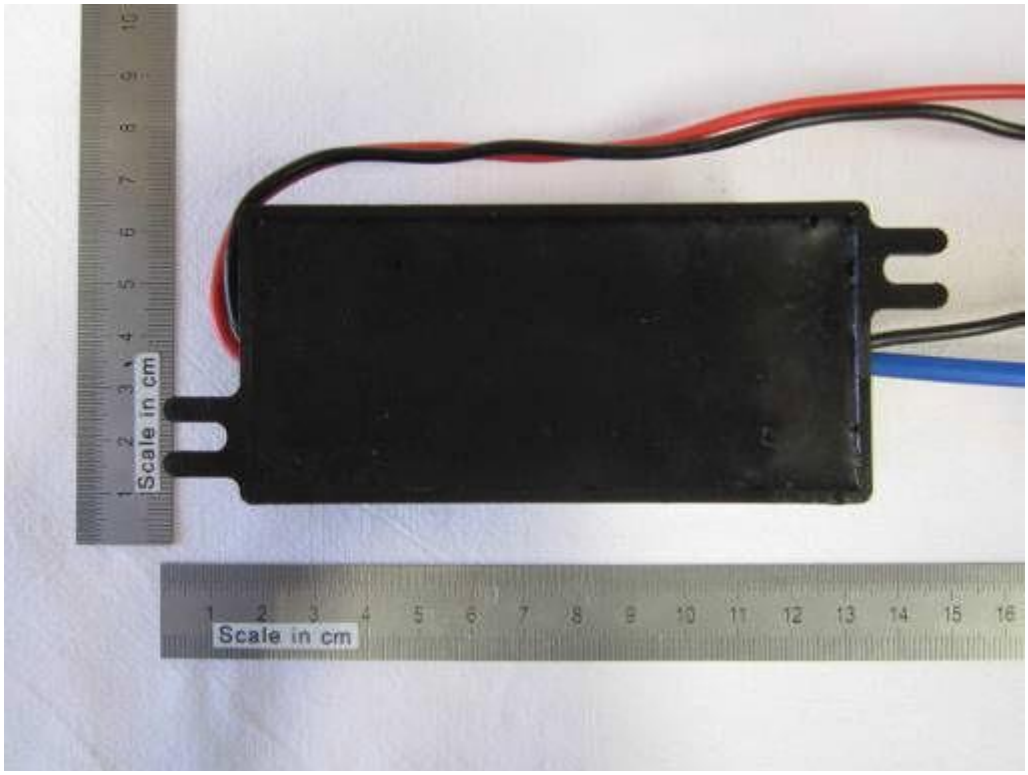


Internal view for GTM91120 series

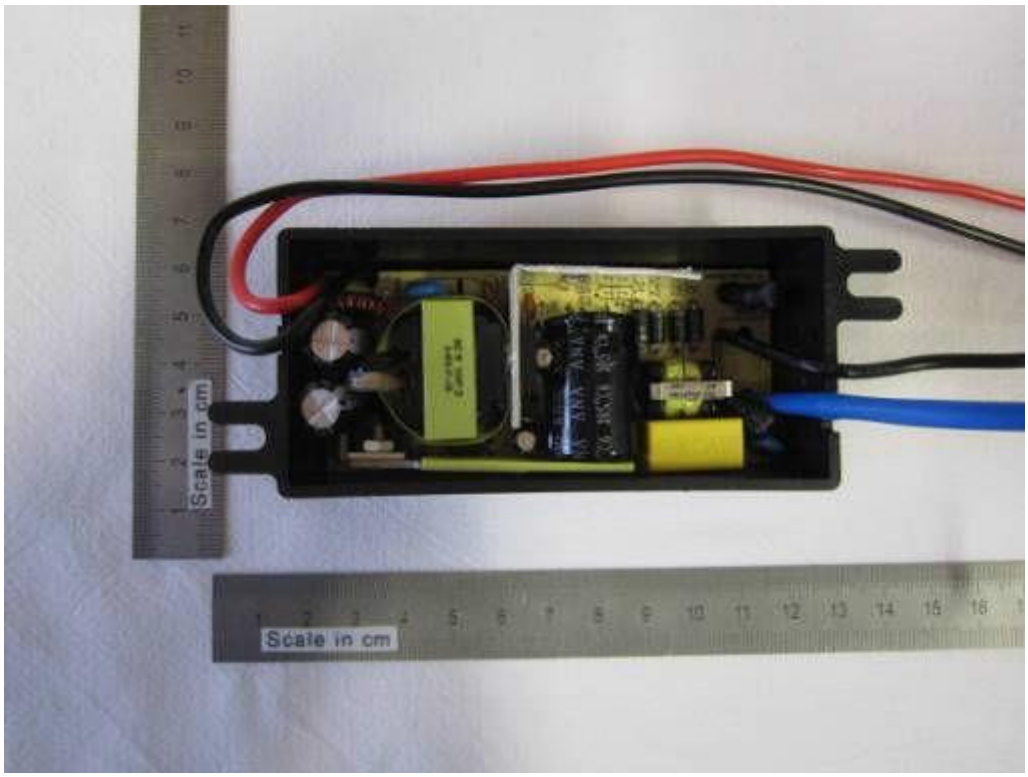



External view for GTM91120 series (Encapsulated)

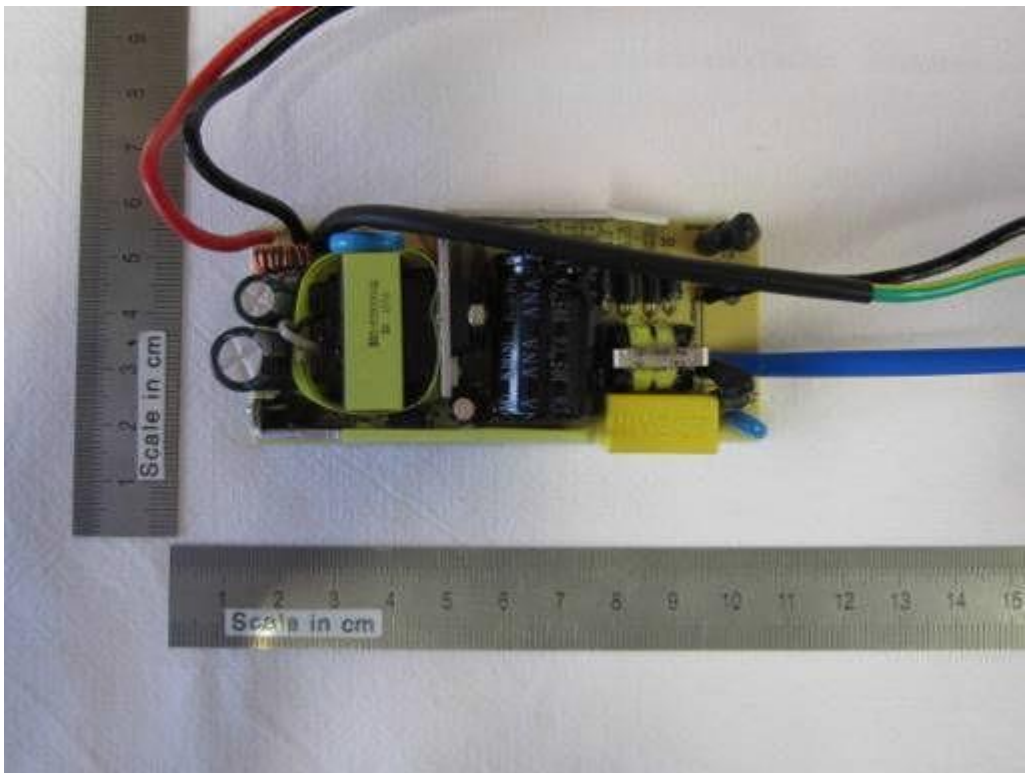
External view for GTM91120 series (Encapsulated)



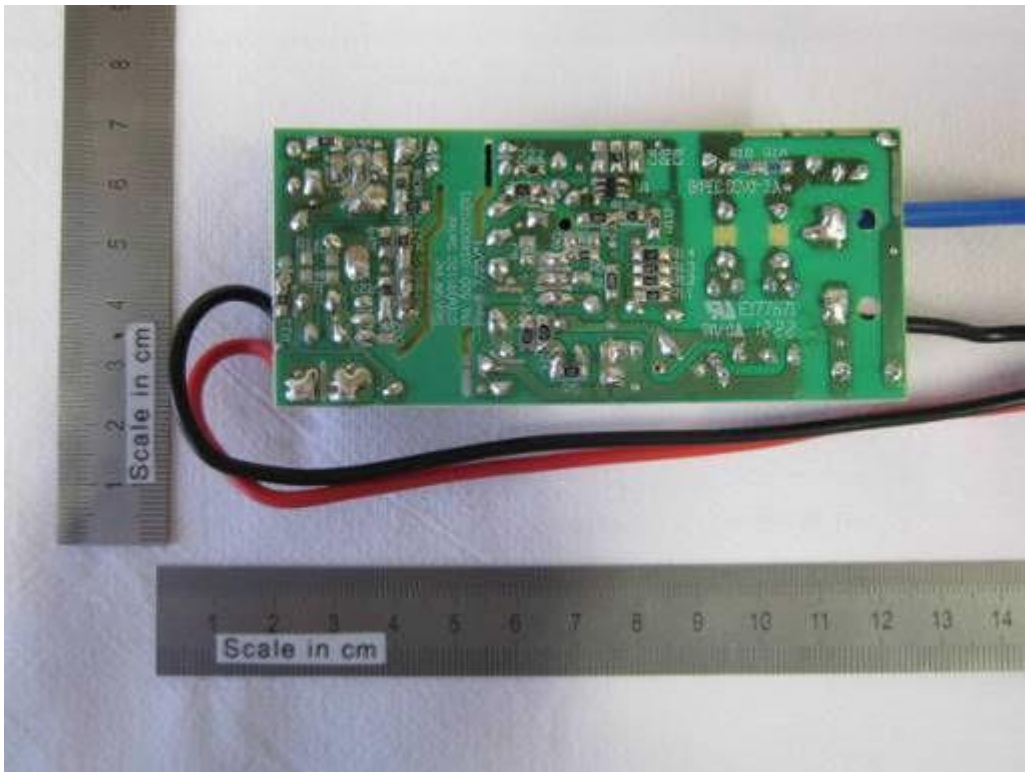

Internal view for GTM91120 series (Encapsulated)



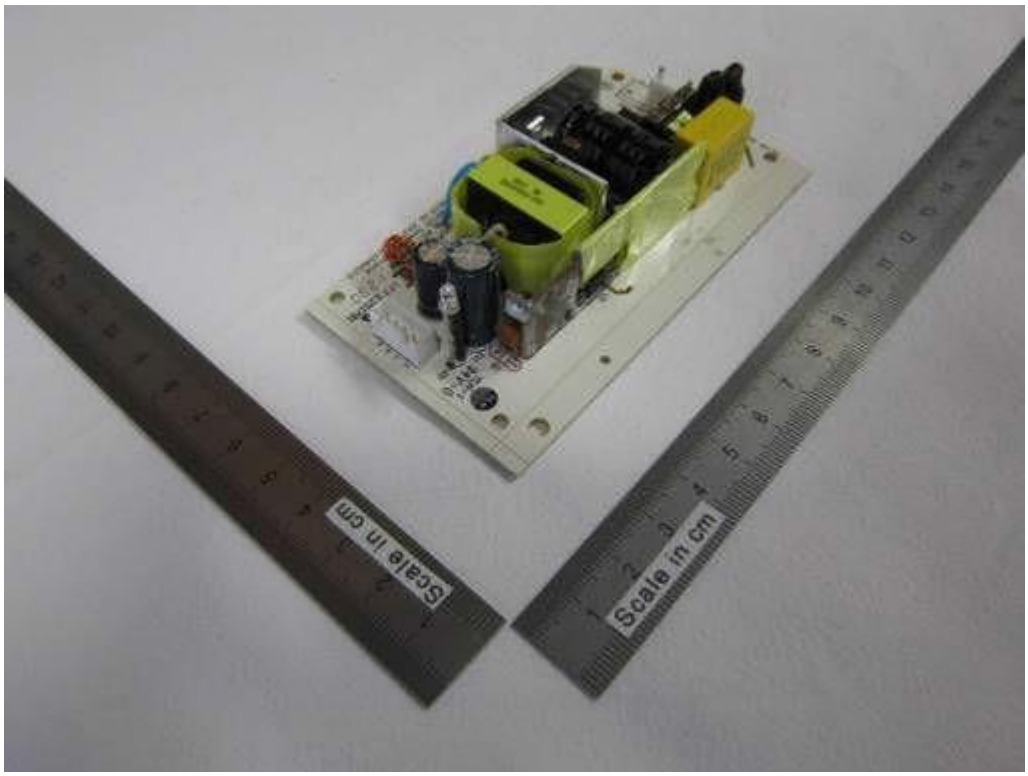
Internal view for GTM91120 series (Encapsulated)



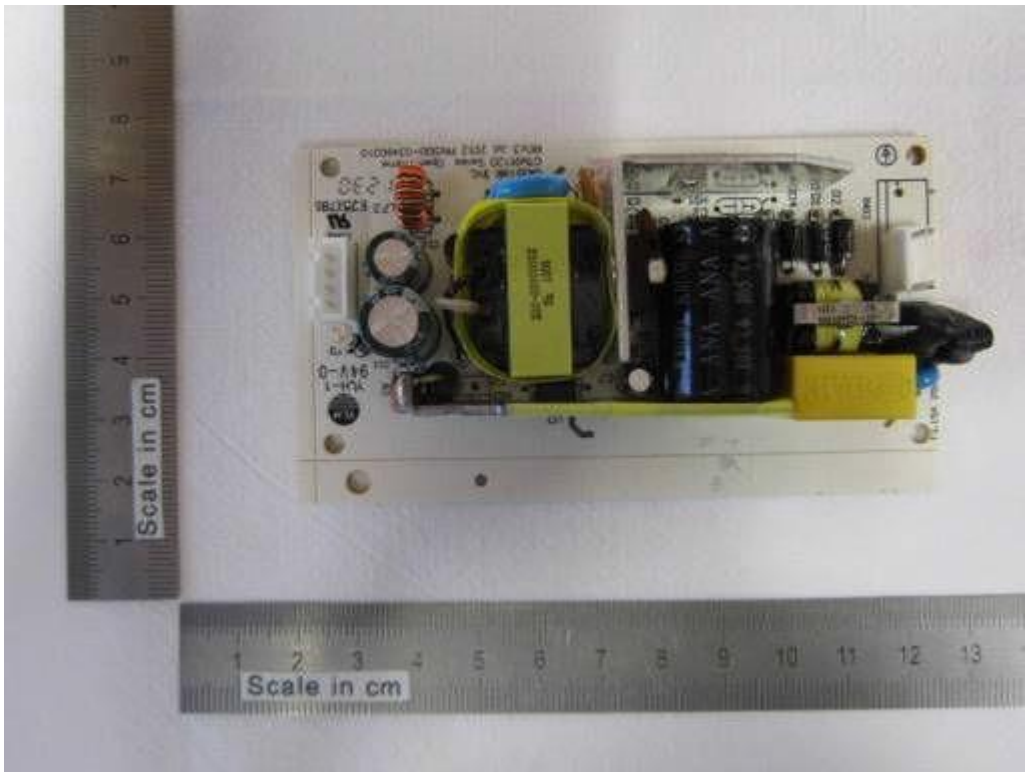

Internal view for GTM91120 series (Encapsulated)



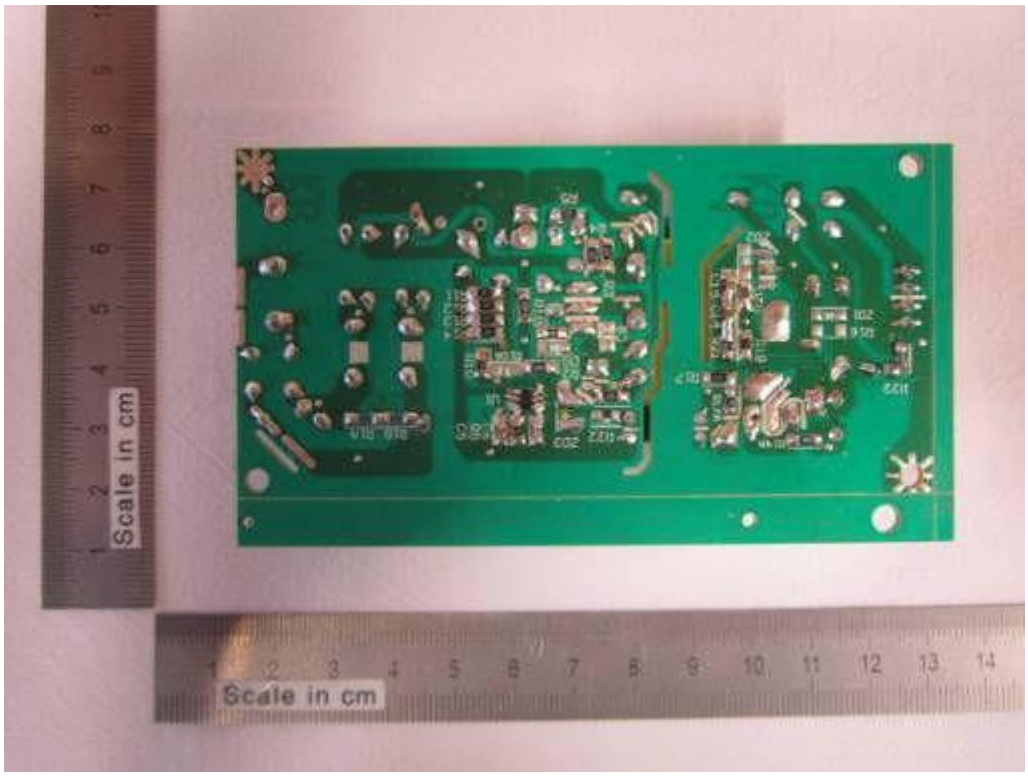
External view for GTM91120 series (Open frame)




External view for GTM91120 series (Open frame)



External view for GTM91120 series (Open frame)

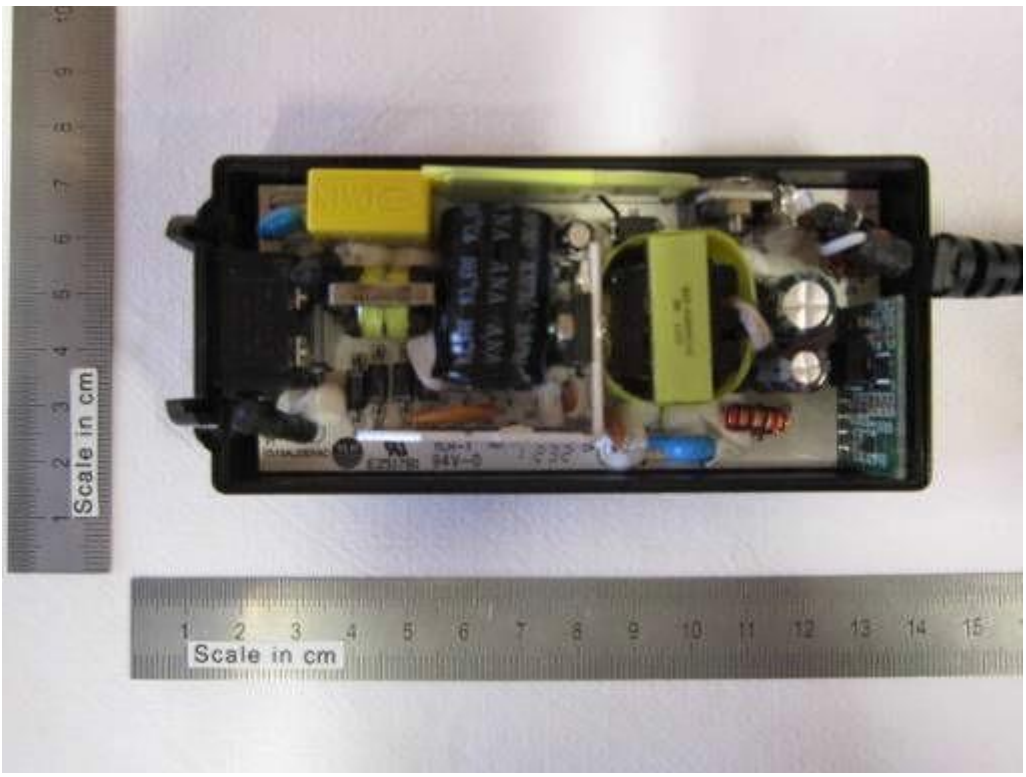



External view for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL

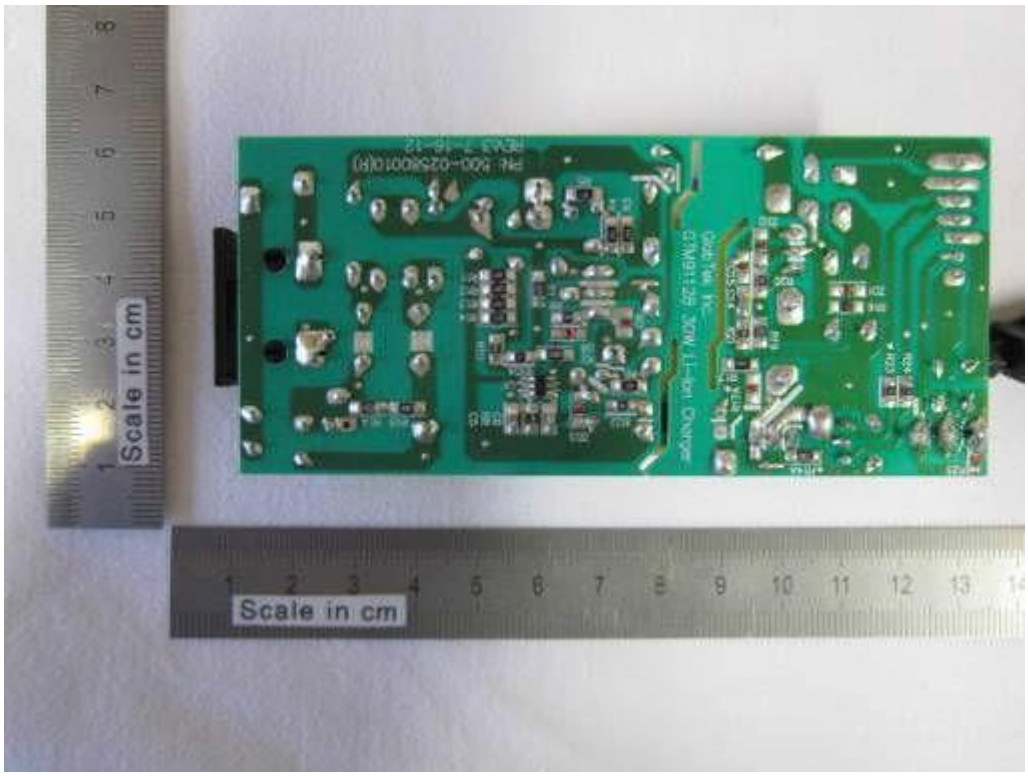
External view for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL


External view for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL

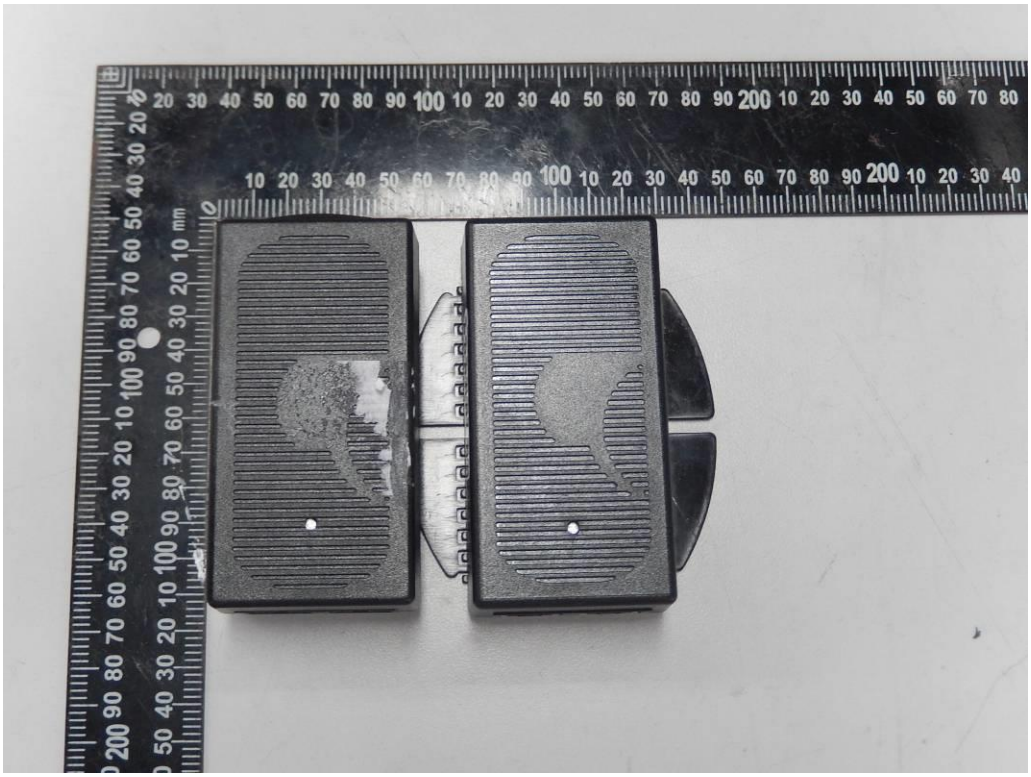
PCB for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL



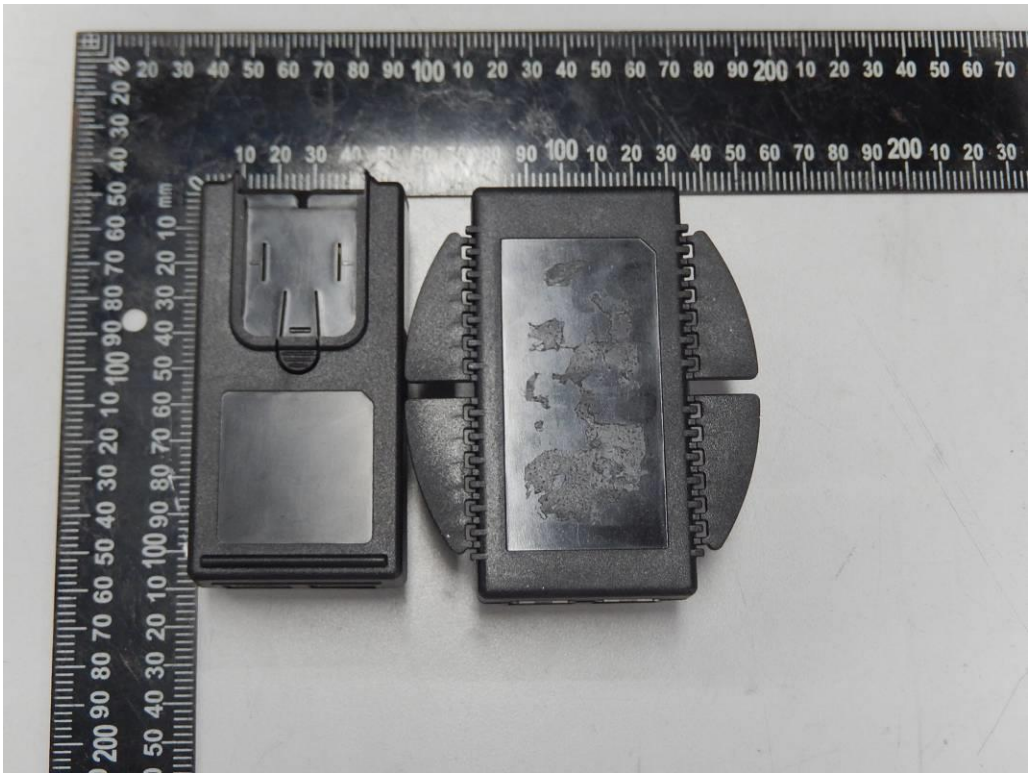

PCB for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL



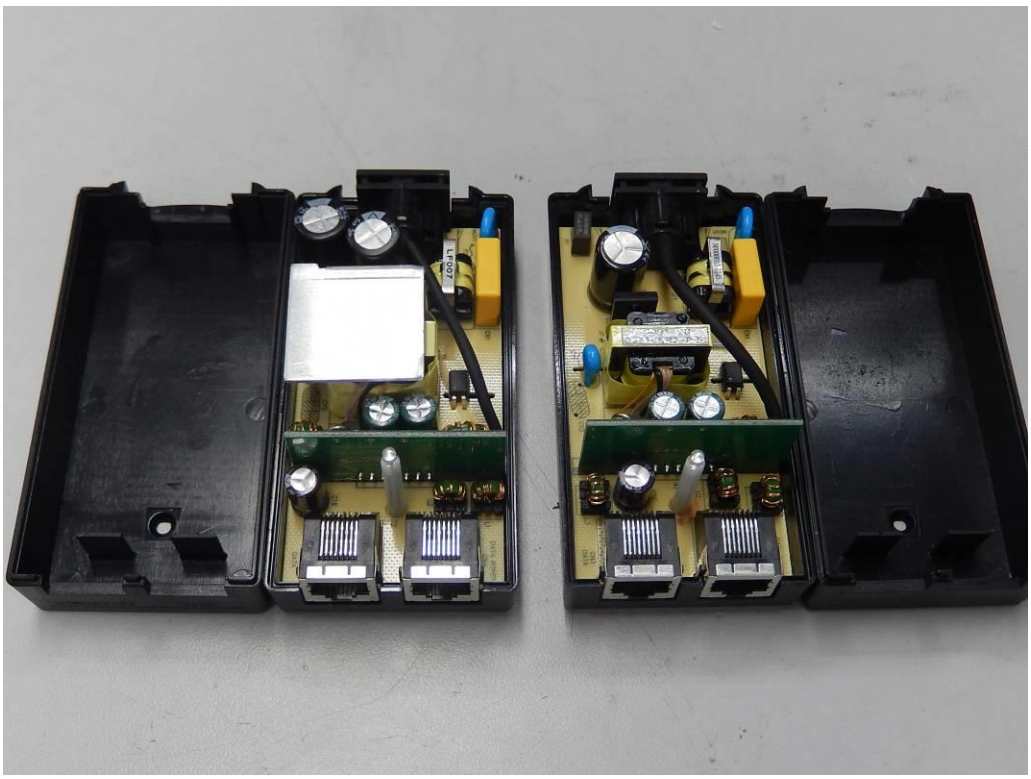
External view for POE series



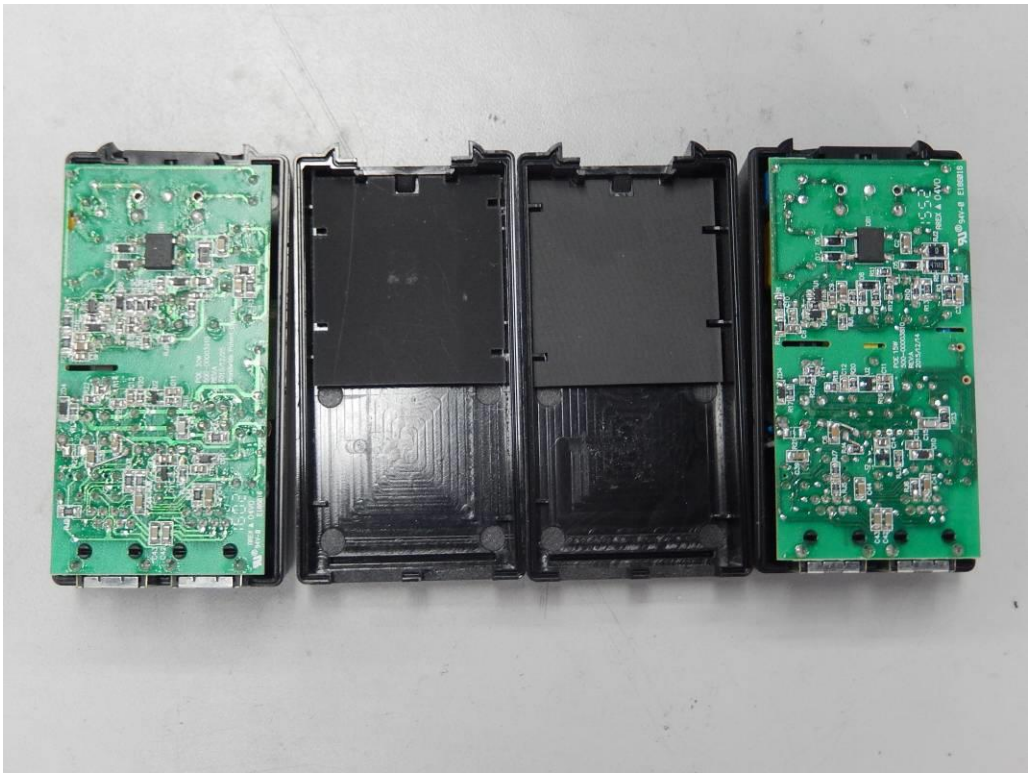
External view for POE series



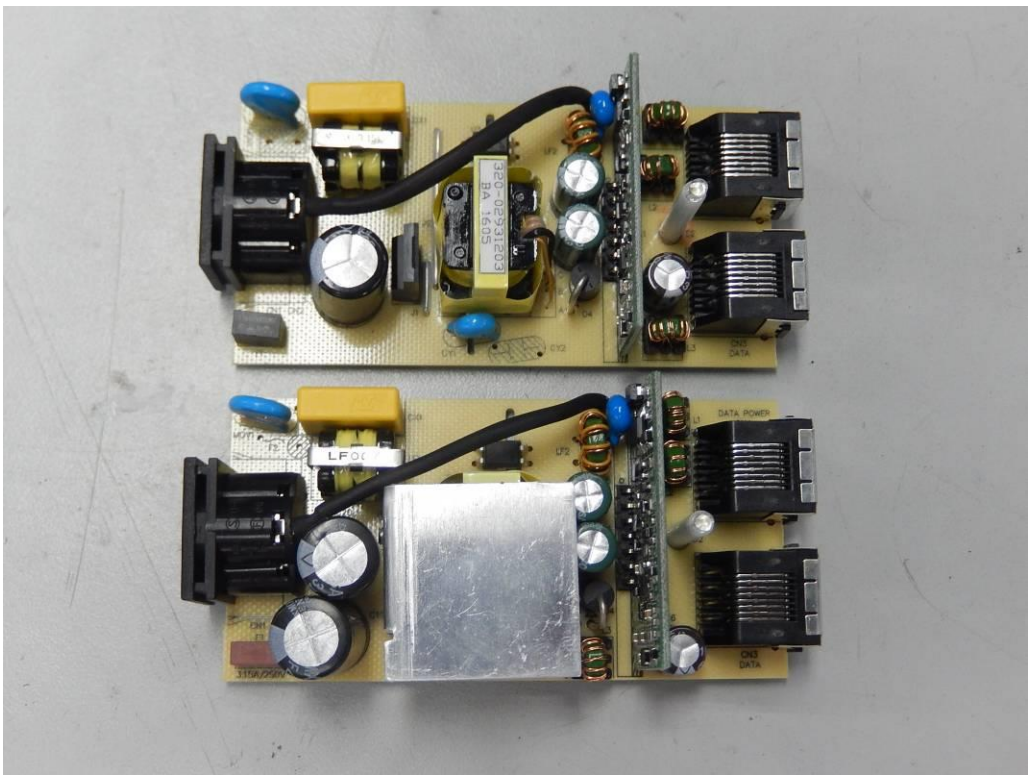
Internal view for POE series



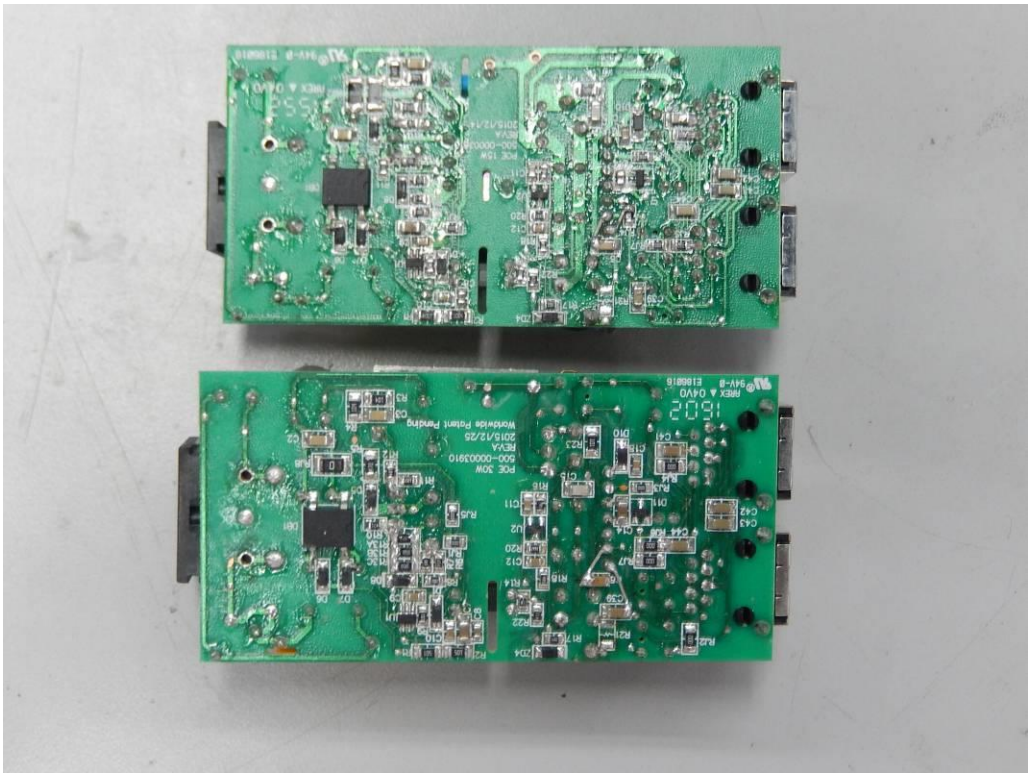
Internal view for POE series



PCB for POE series

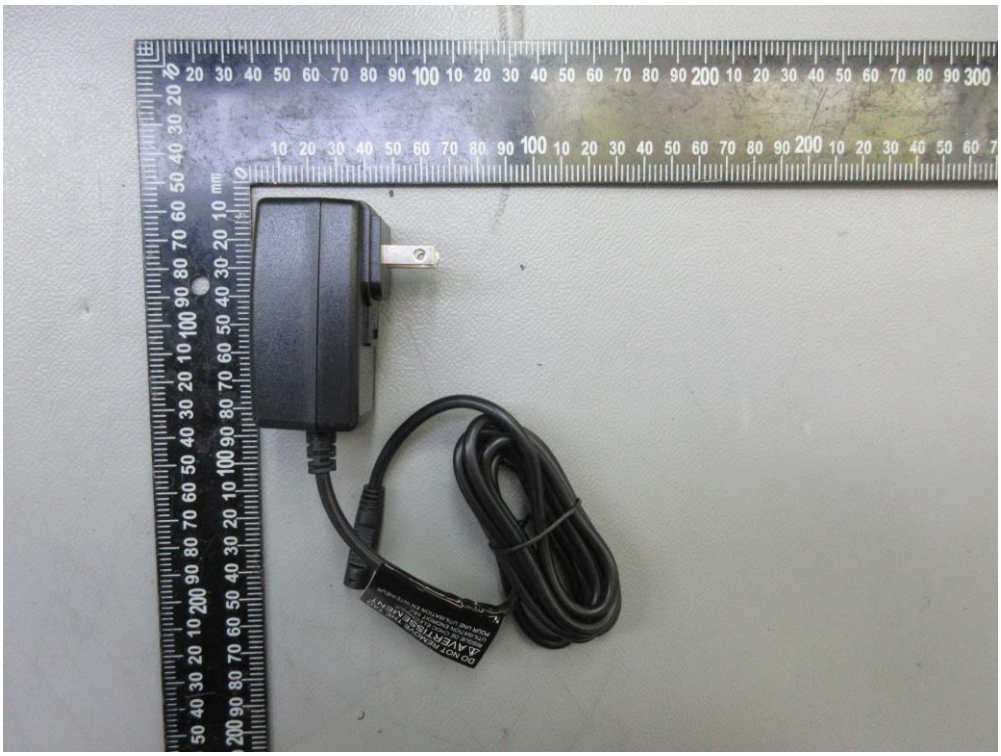


PCB for POE series



External view for model GTM96180-1830-12.0

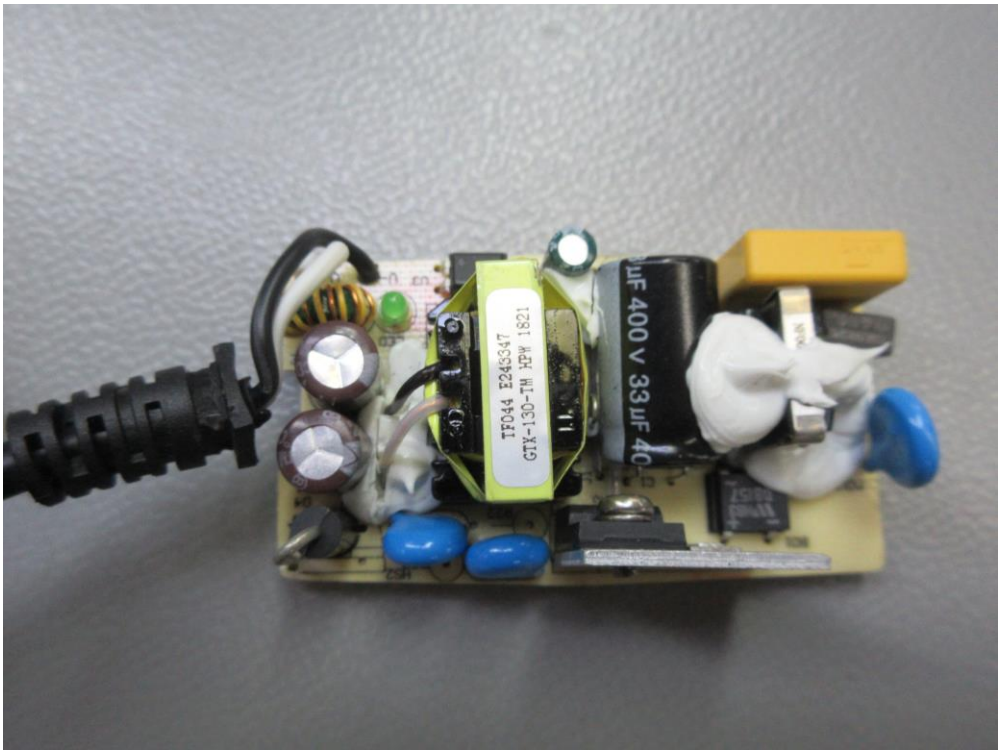
External view for model GTM96180-1830-12.0



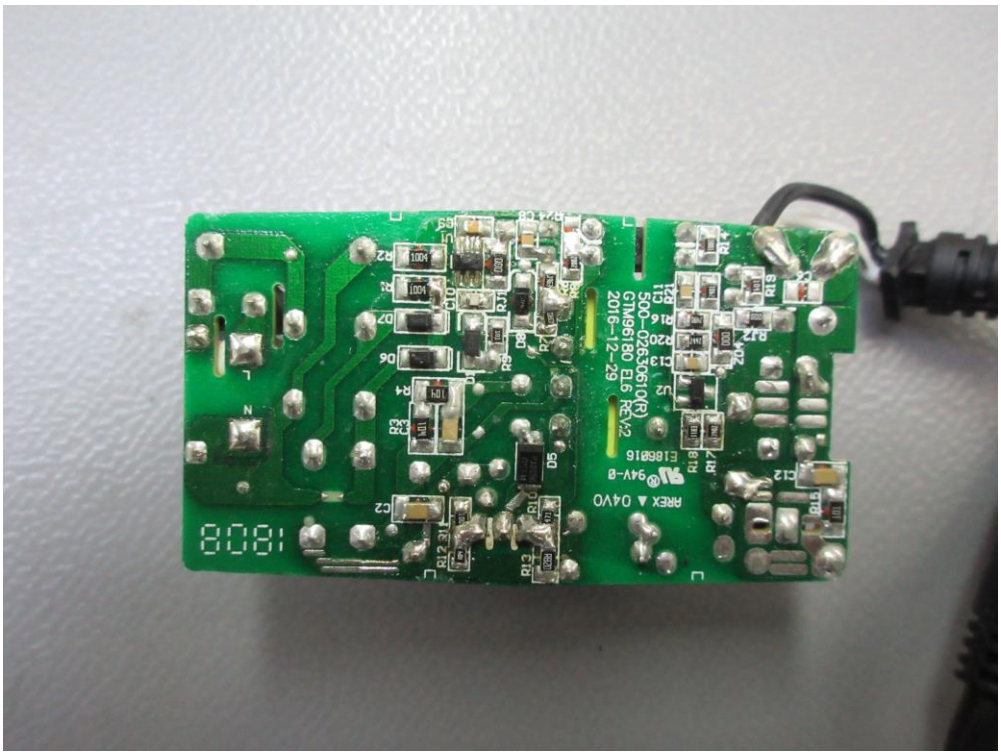
External view for model GTM96180-1830-12.0

Internal view for model GTM96180-1830-12.0

PCB view for model GTM96180-1830-12.0



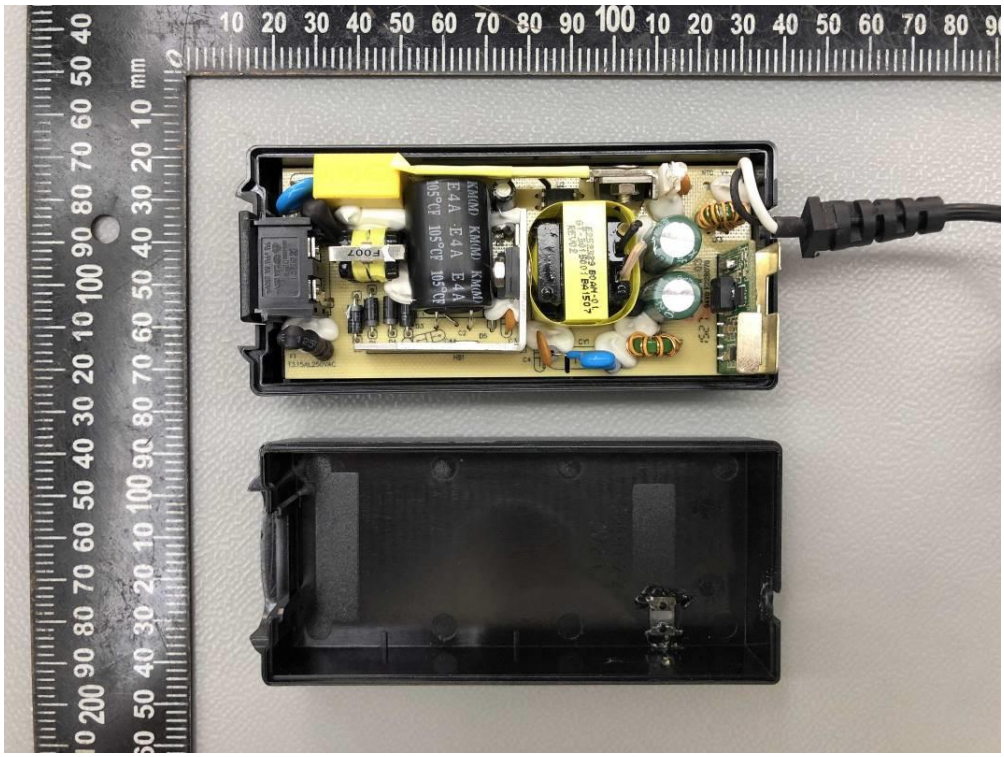

PCB view for model GTM96180-1830-12.0



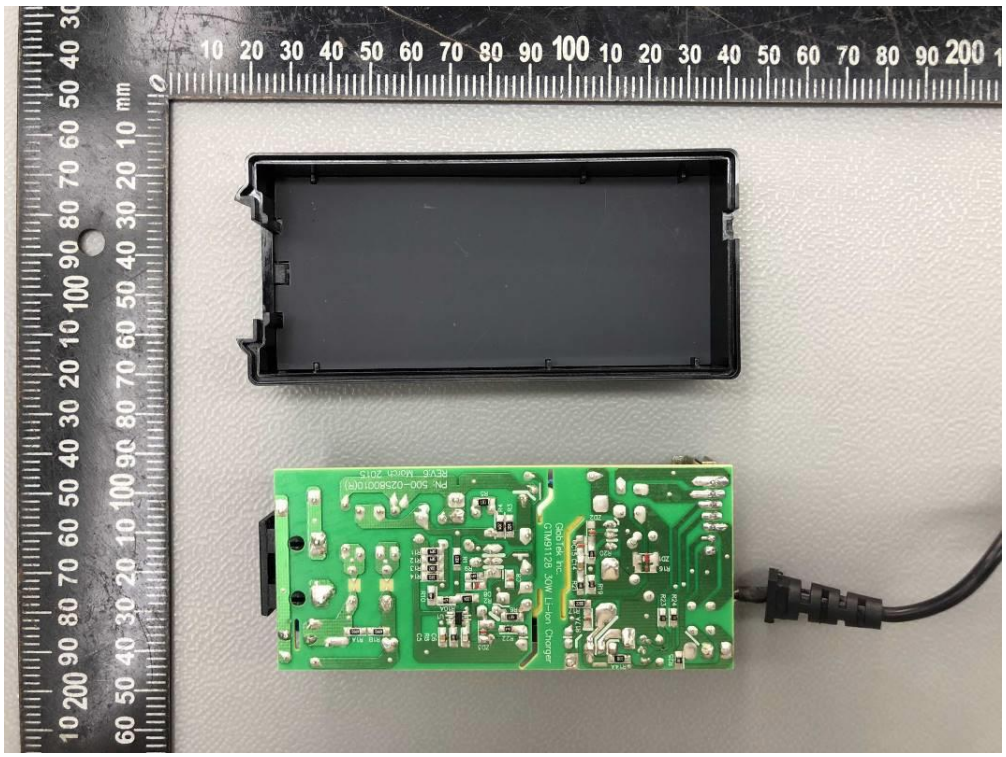
External view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****


External view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****

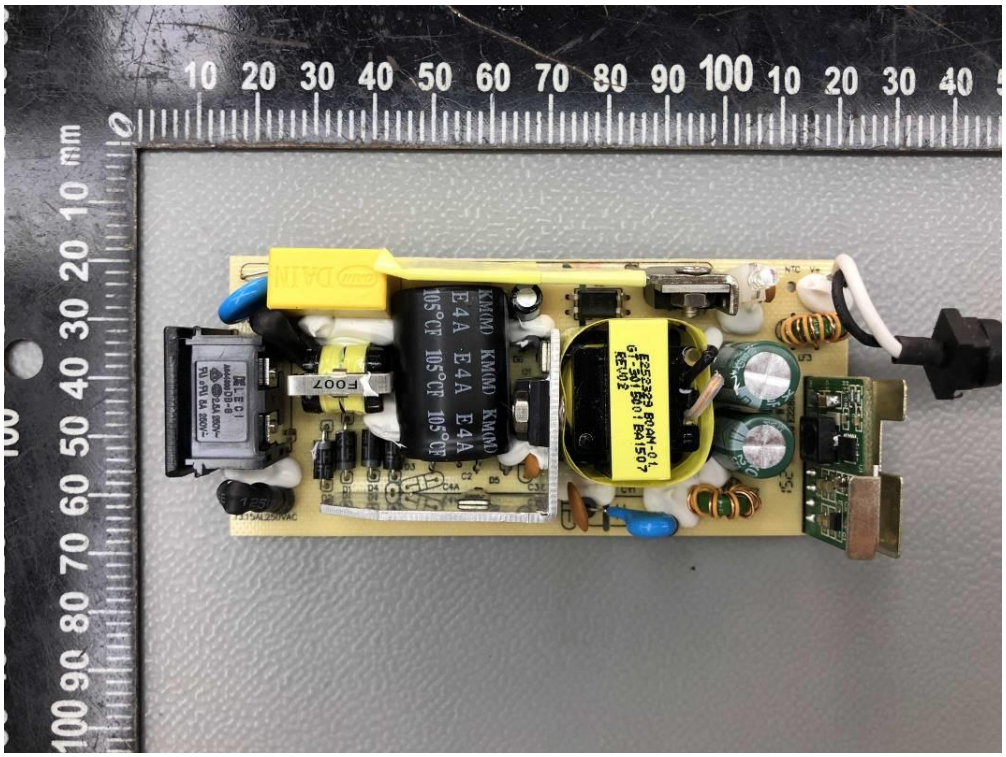
Internal view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



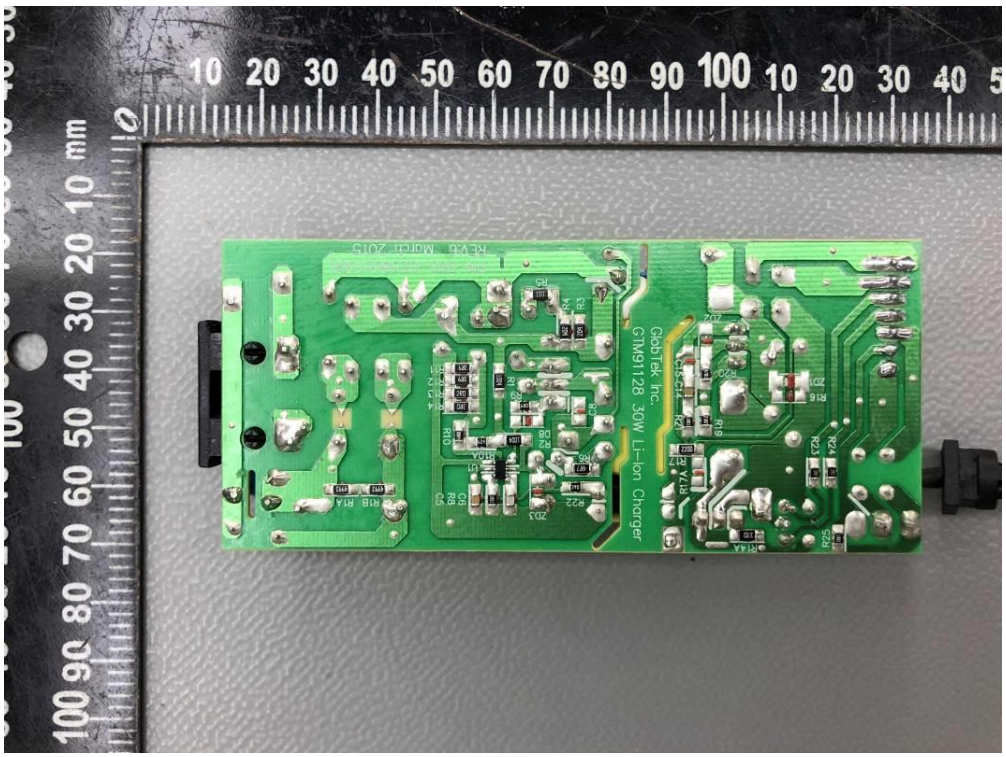
Internal view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



PCB view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



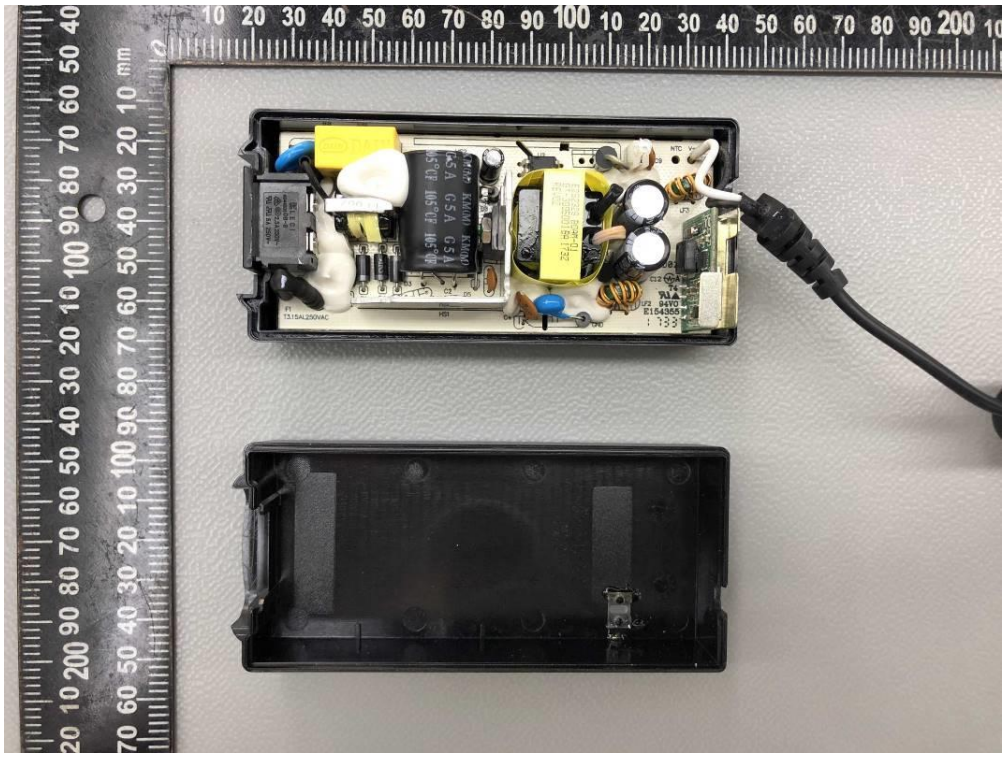
PCB view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



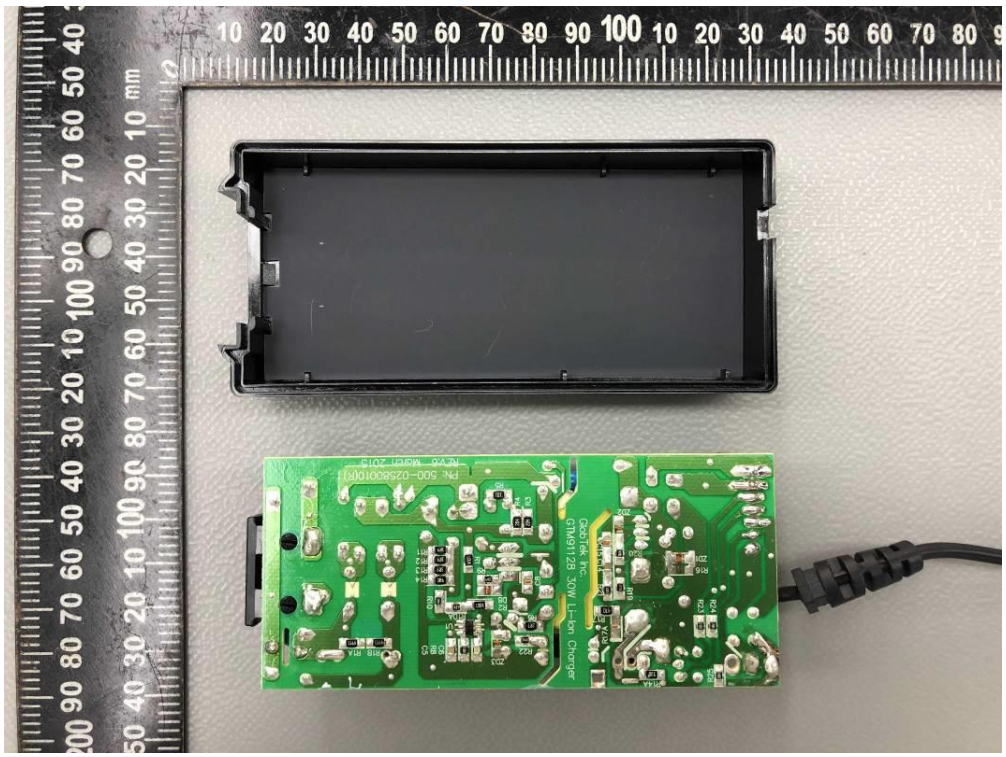
External view for GTM91128LI3CEL-****


External view for GTM91128LI3CEL-****

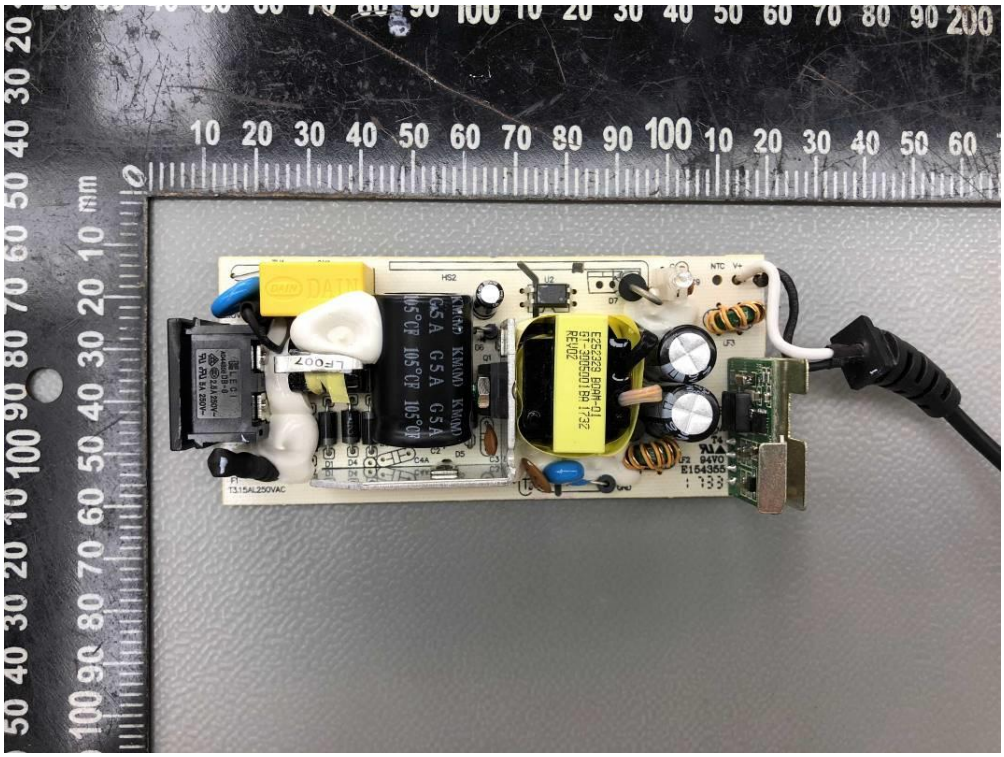
Internal view for GTM91128LI3CEL-****



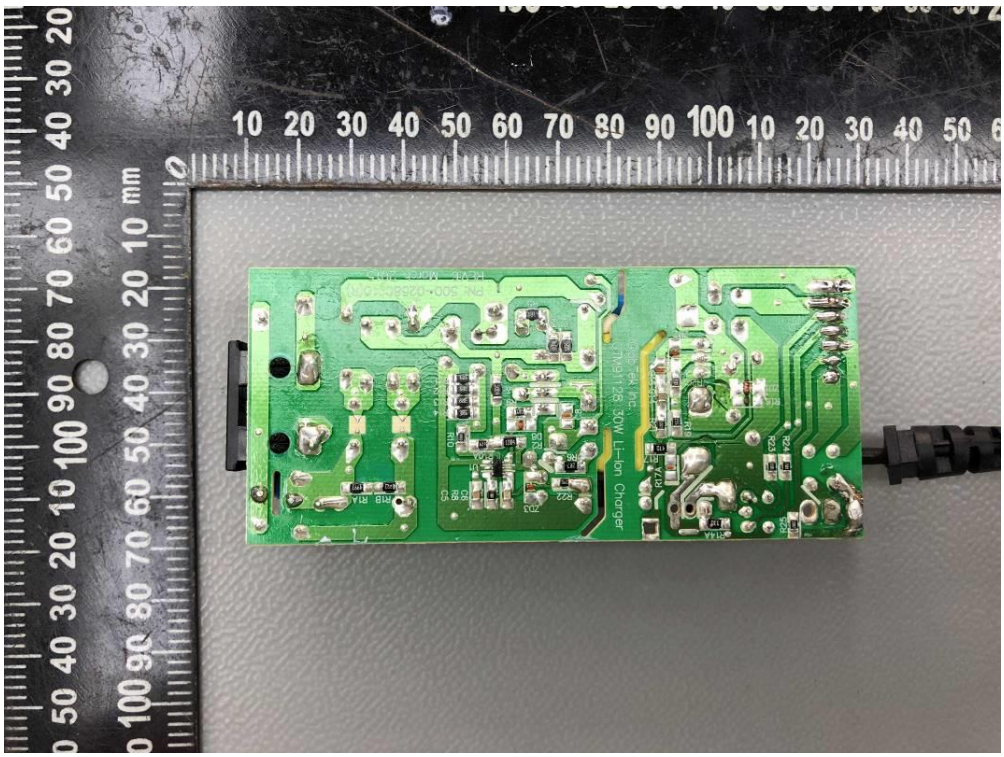
Internal view for GTM91128LI3CEL-****



PCB view for GTM91128LI3CEL-****



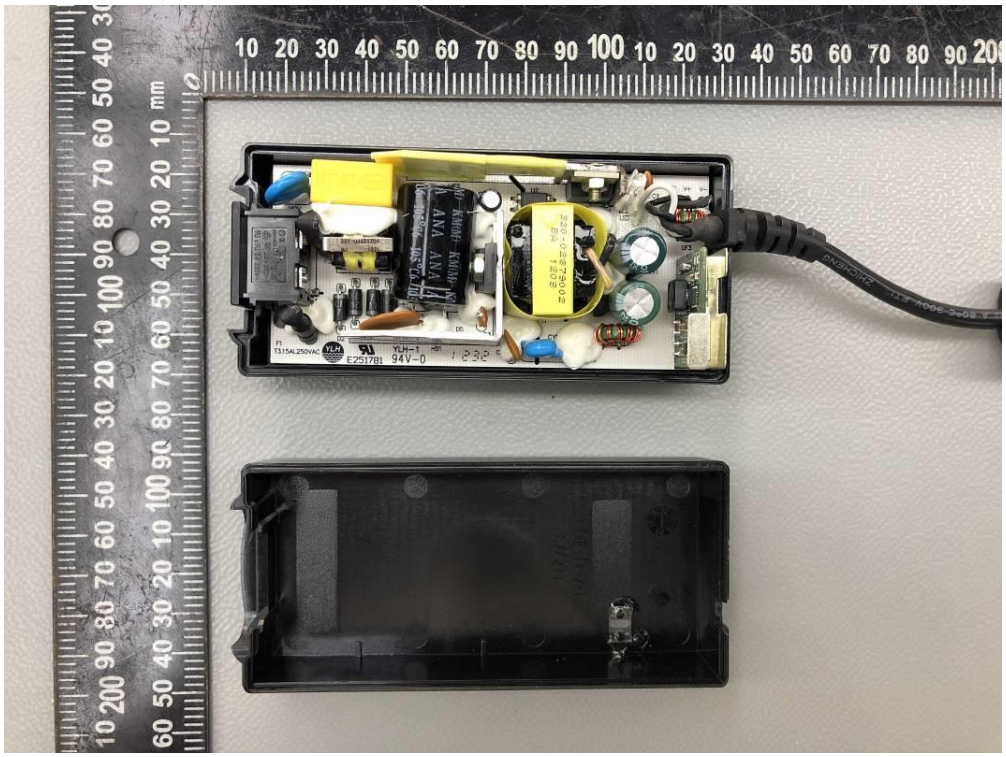
PCB view for GTM91128LI3CEL-****



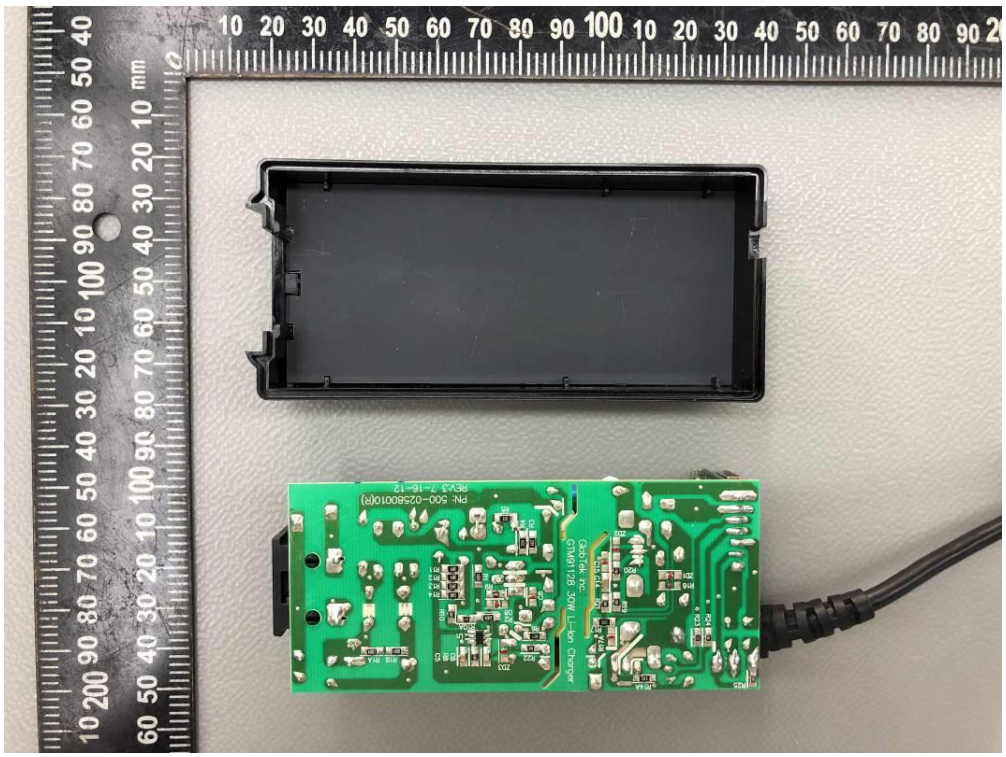
External view for GTM91128LI3CELM-**** or GTM91128*DUALC-****

External view for GTM91128LI3CELM-**** or GTM91128*DUALC-****

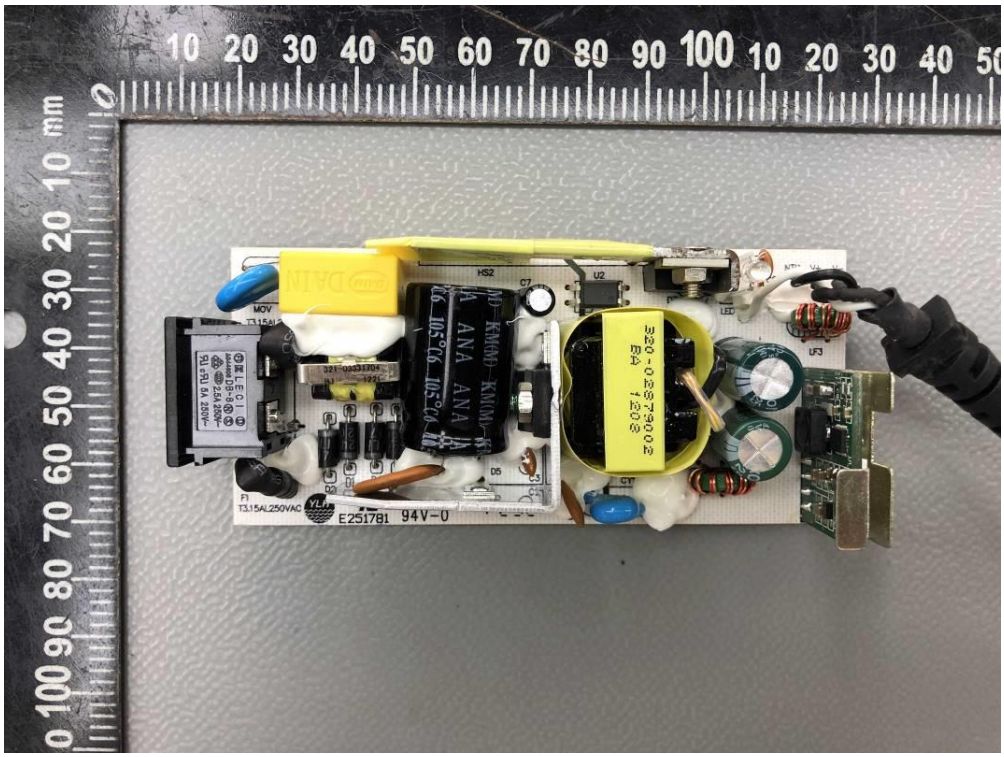
Internal view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



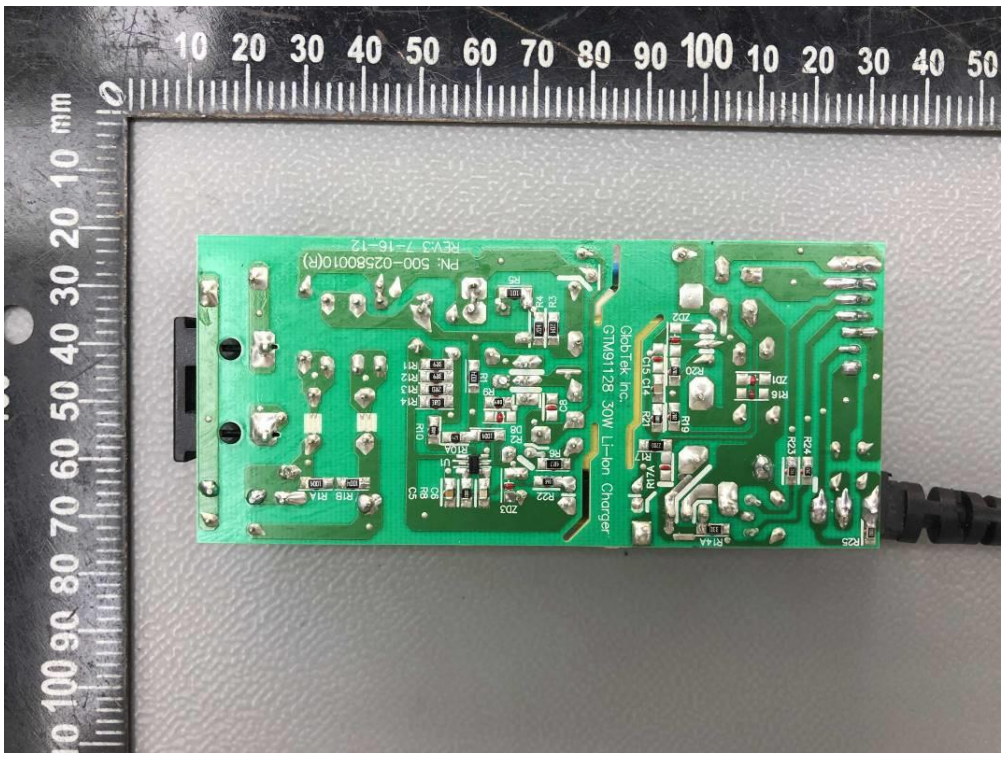
Internal view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



PCB view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



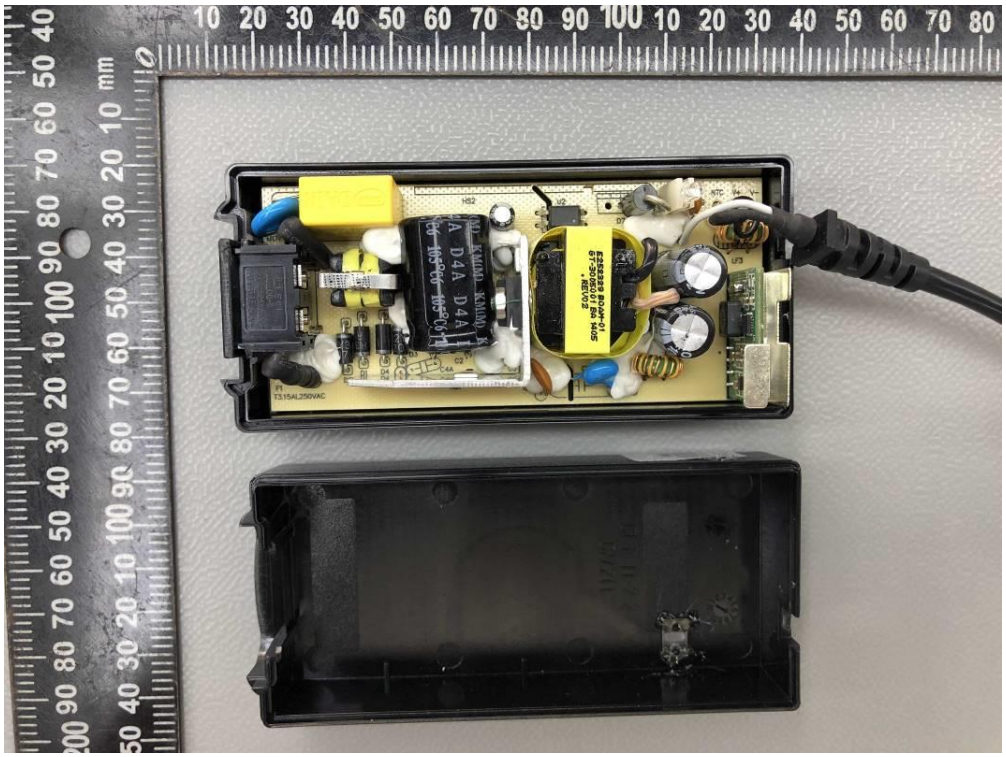

PCB view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



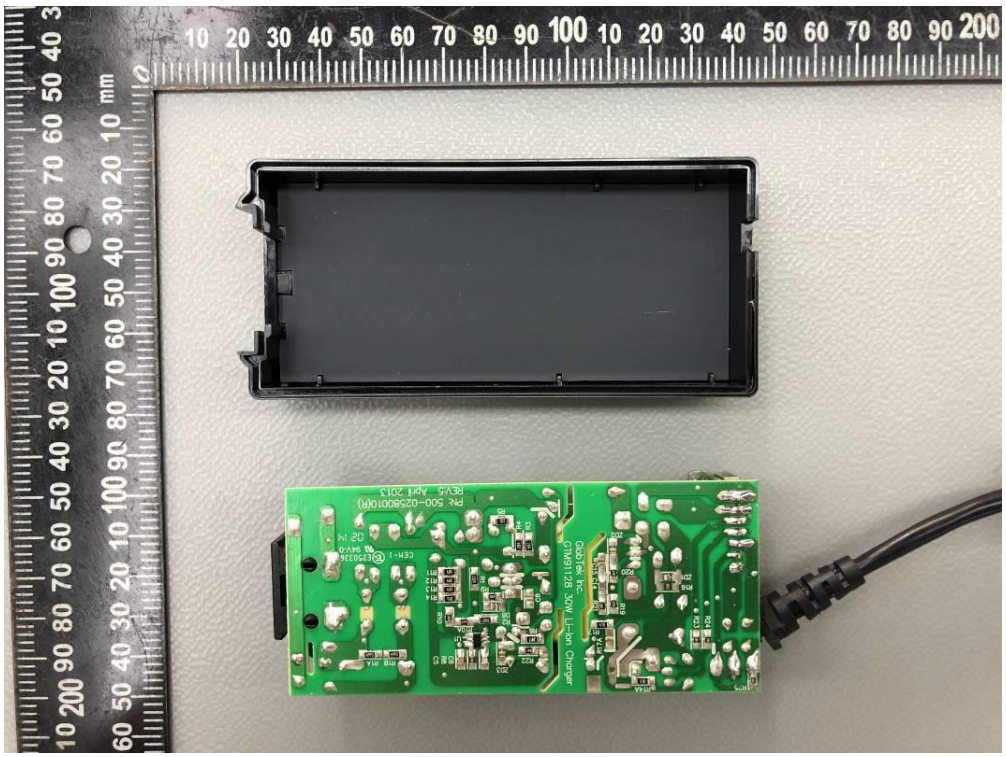
External view for GTM91128LI1CELM-****

External view for GTM91128LI1CELM-****

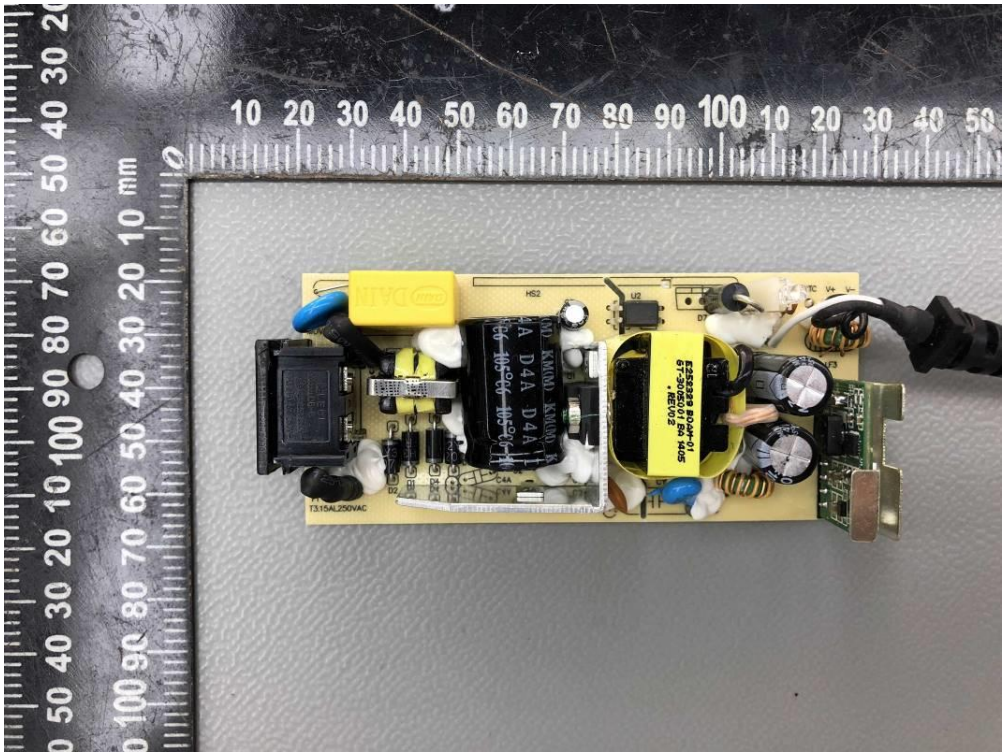
Internal view for GTM91128LI1CELM-****



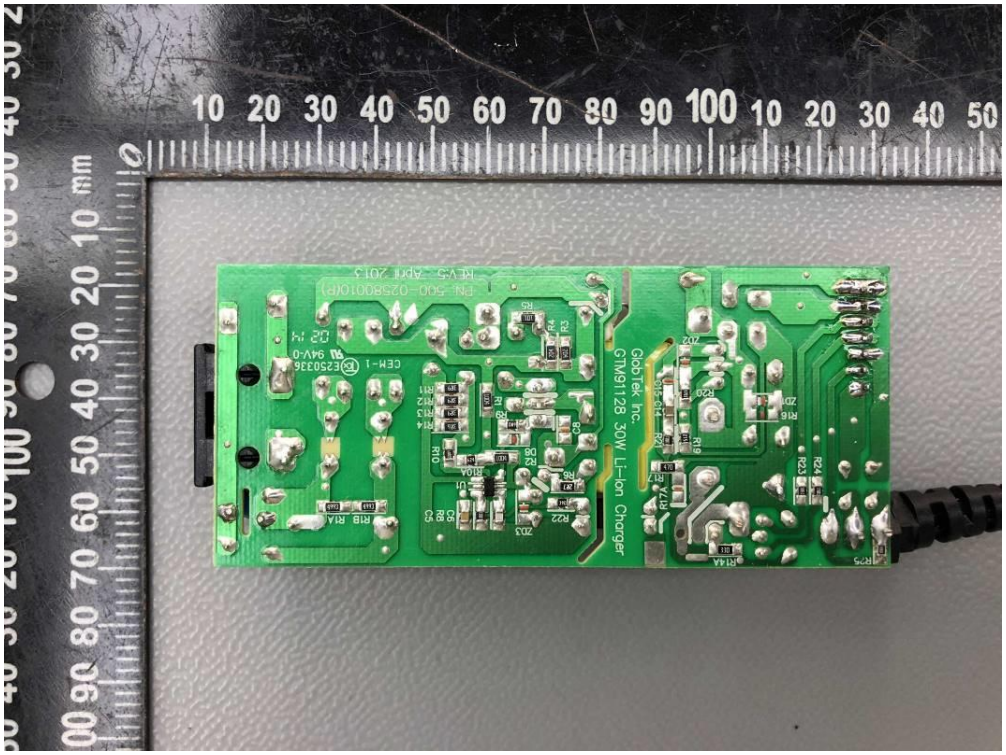
Internal view for GTM91128LI1CELM-****



PCB view for GTM91128LI1CELM-****



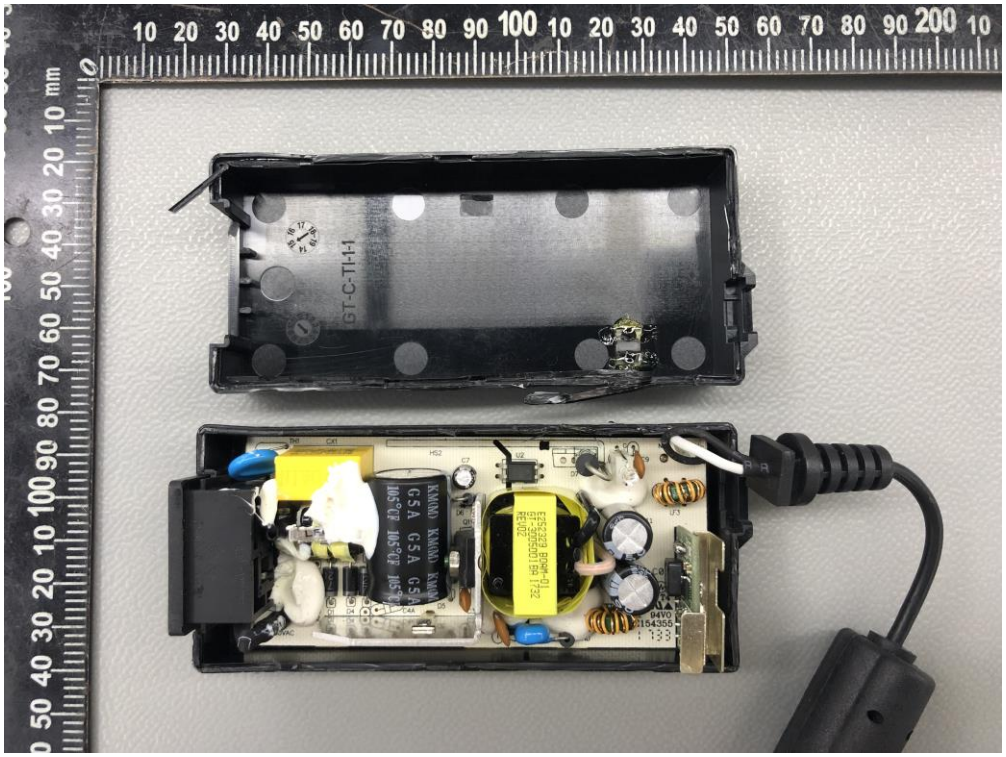
PCB view for GTM91128LI1CELM-****



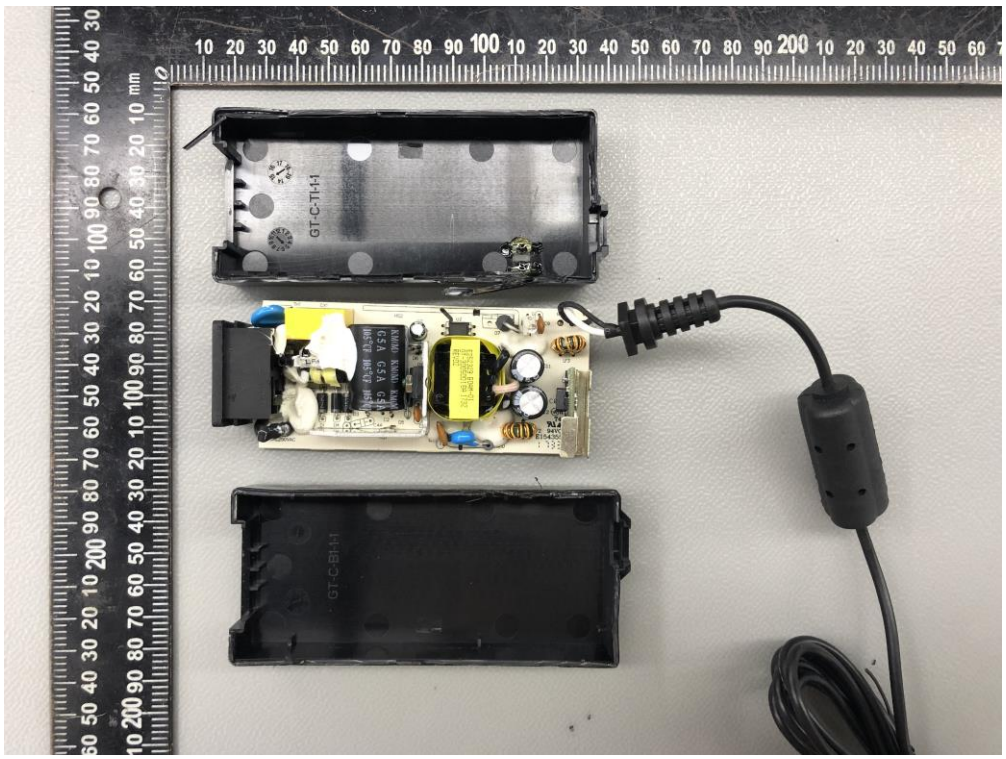
External view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****

External view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****

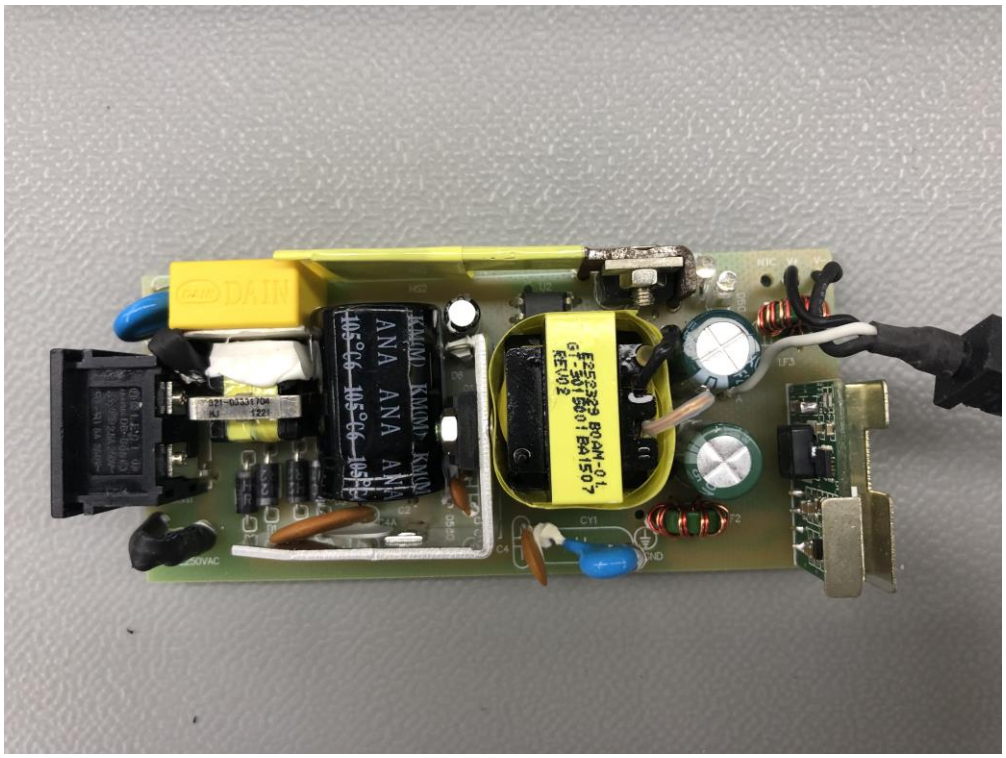
Internal view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****



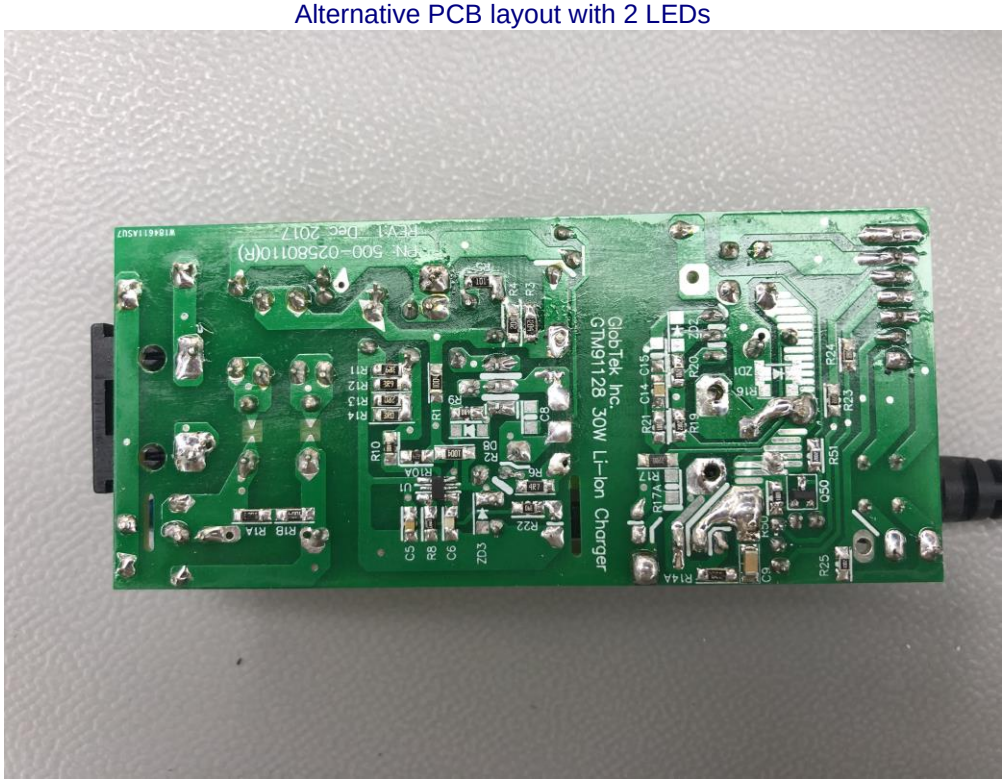

Internal view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****



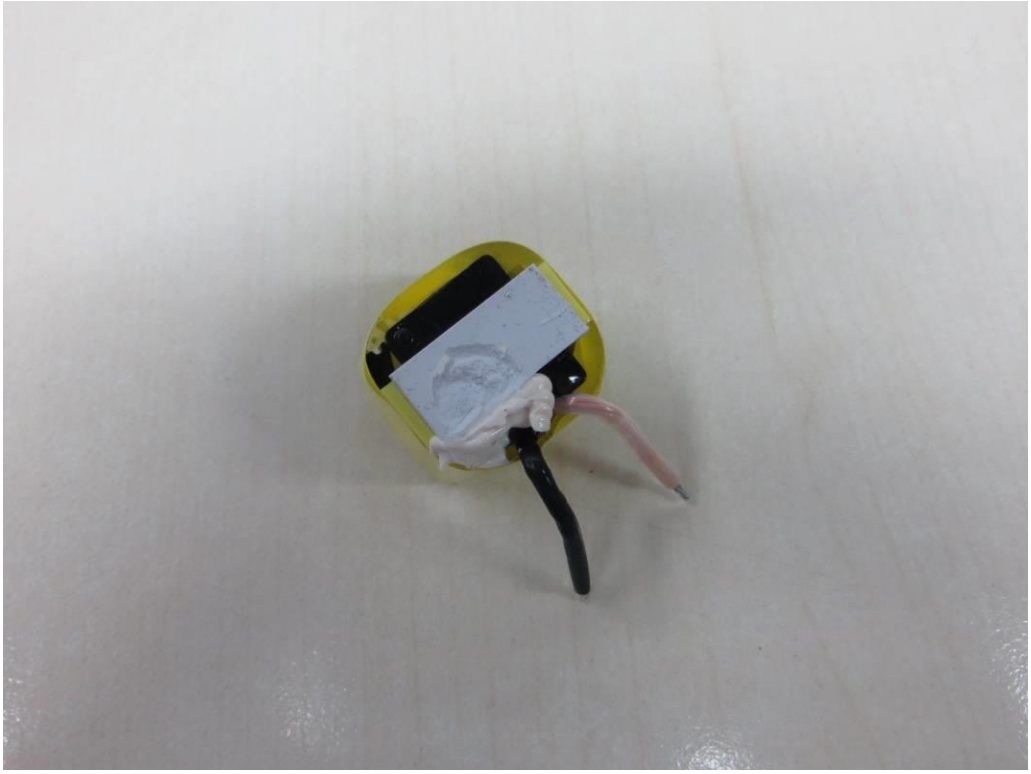
Alternative PCB layout with 2 LEDs



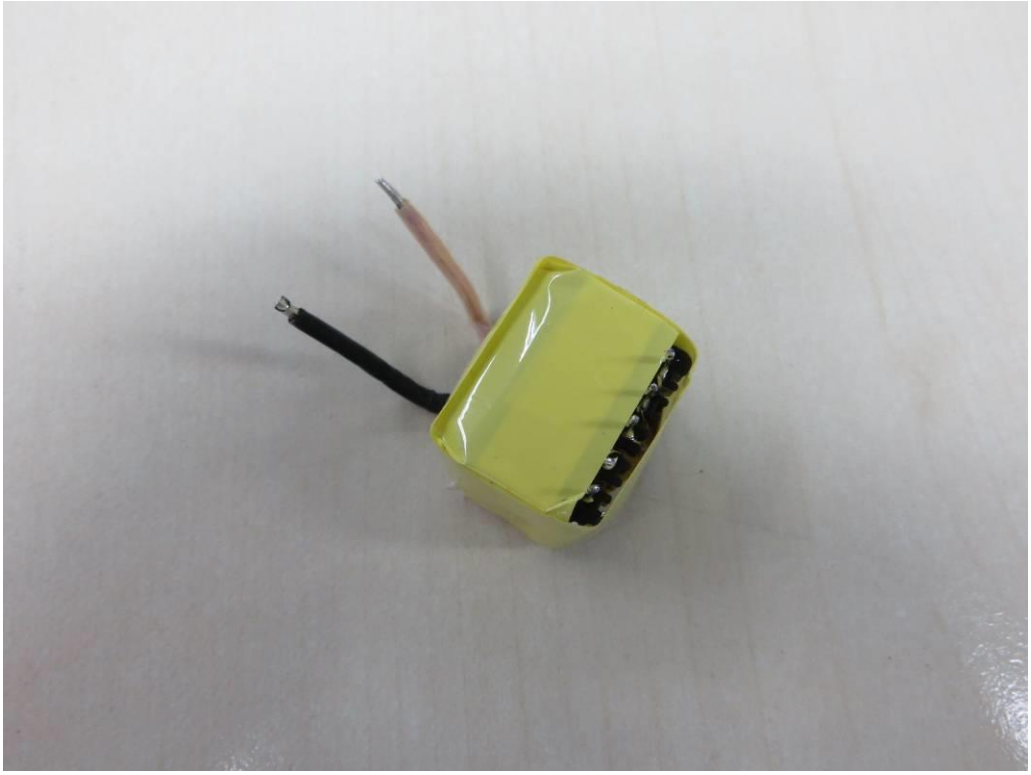
Alternative PCB layout with 2 LEDs



Transformer (EE22)

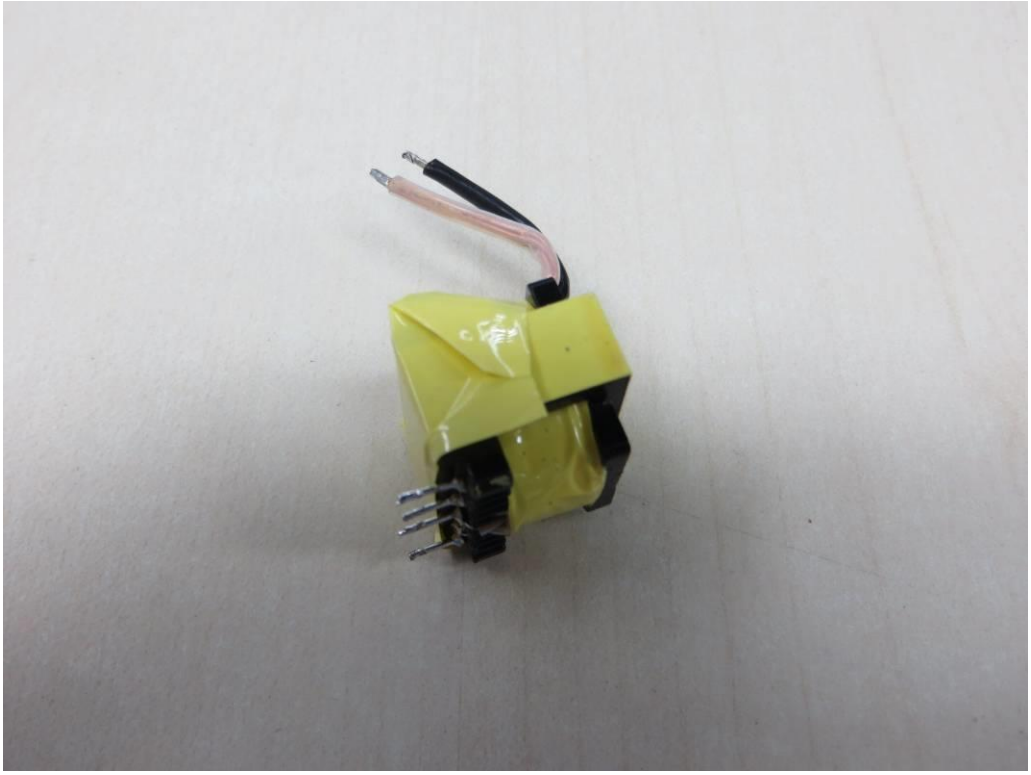


Transformer (EE22)

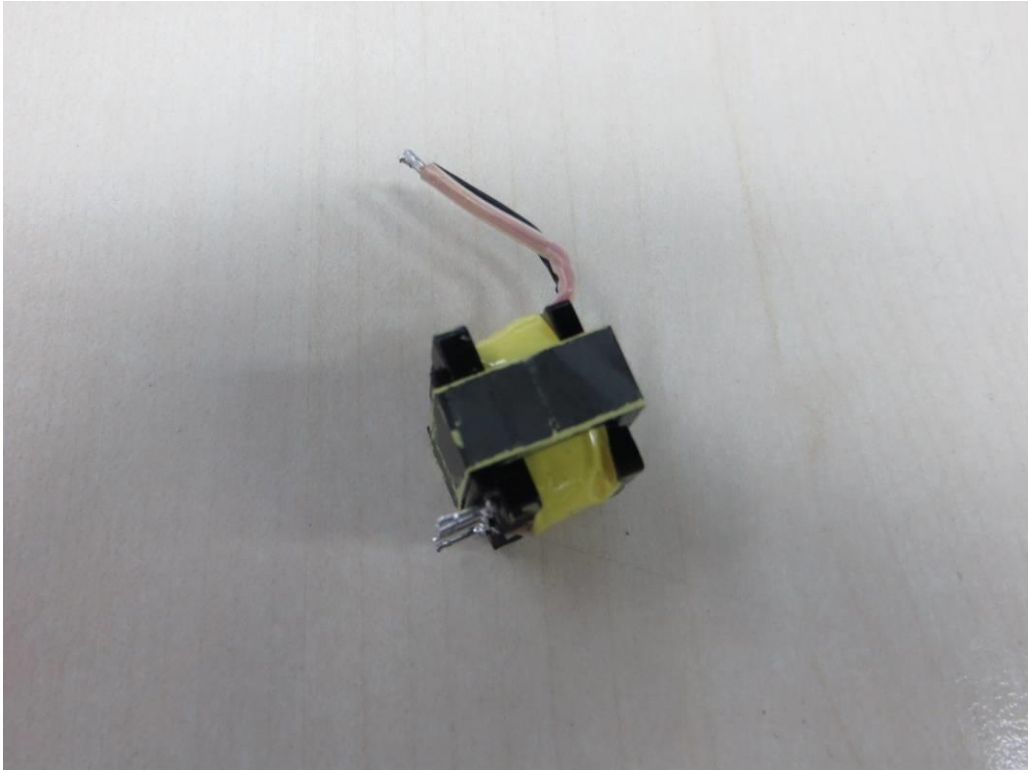


Transformer (EE22)

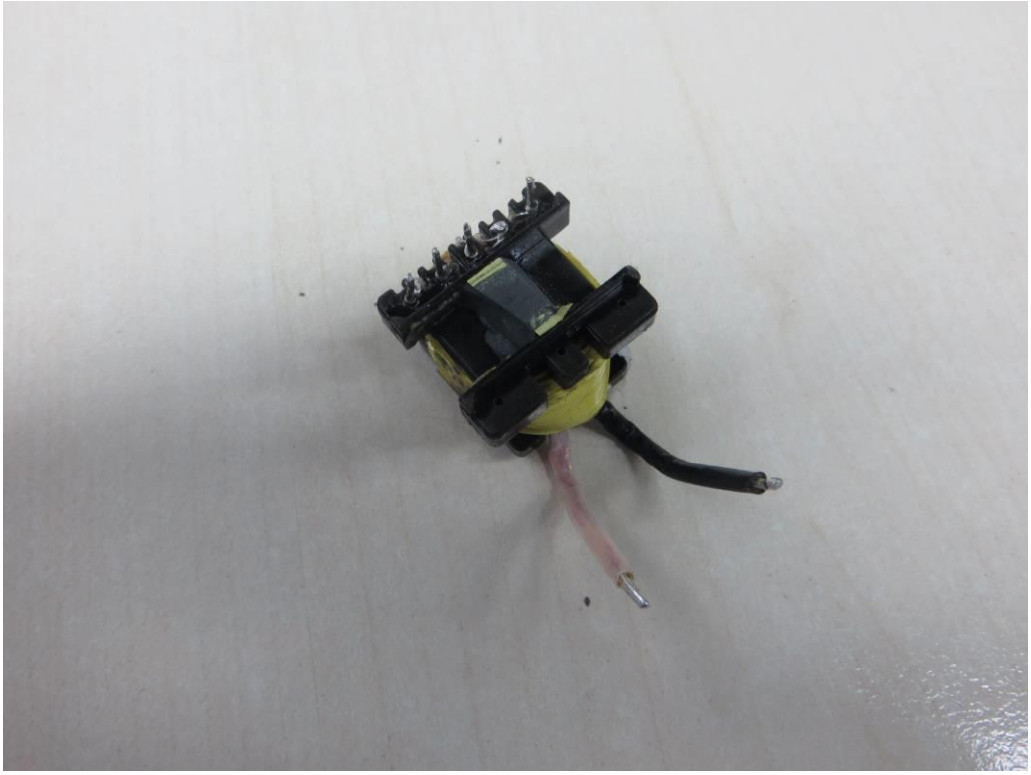
Transformer (EE22)



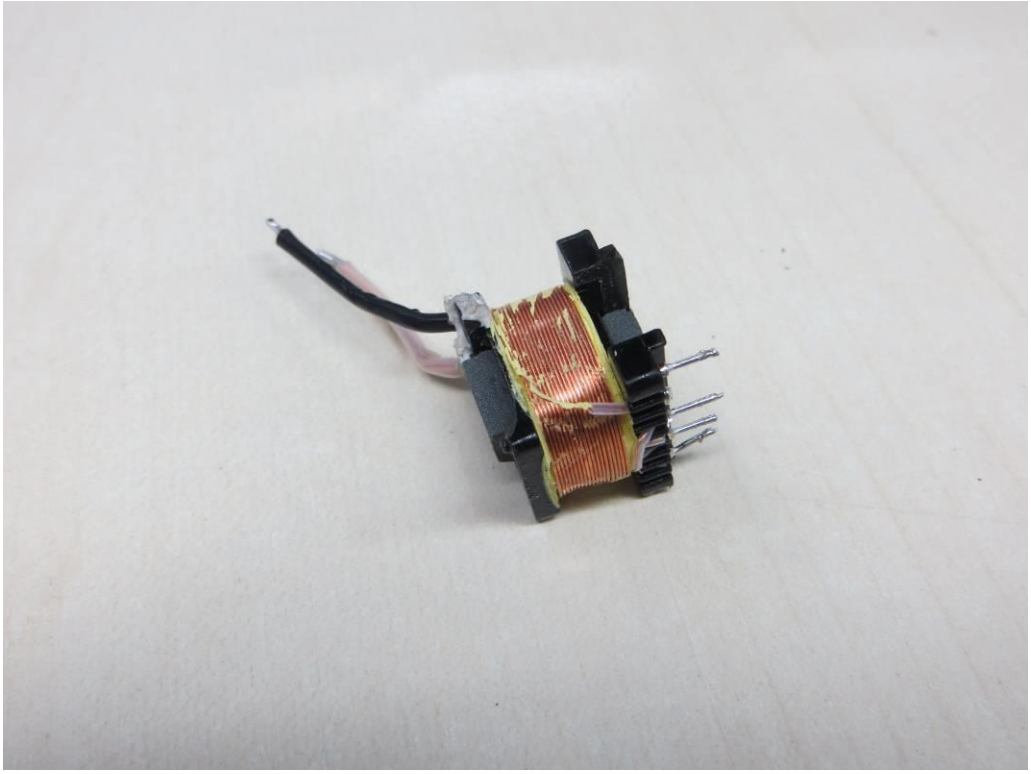
Transformer (EE22)



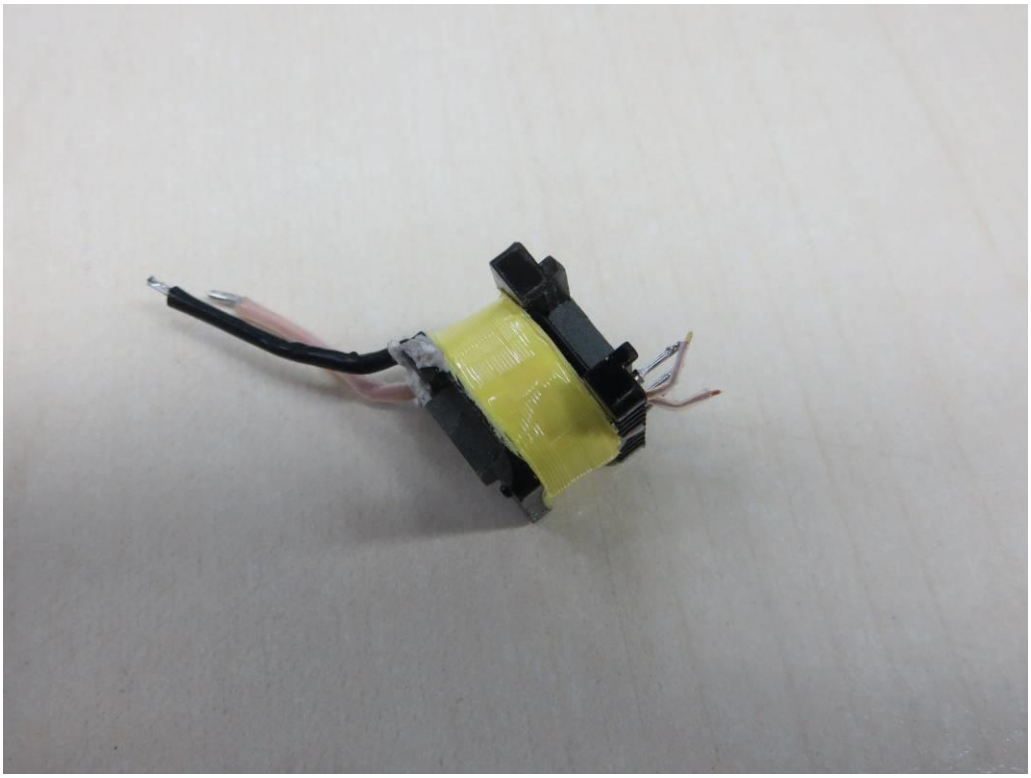
Transformer (EE22)



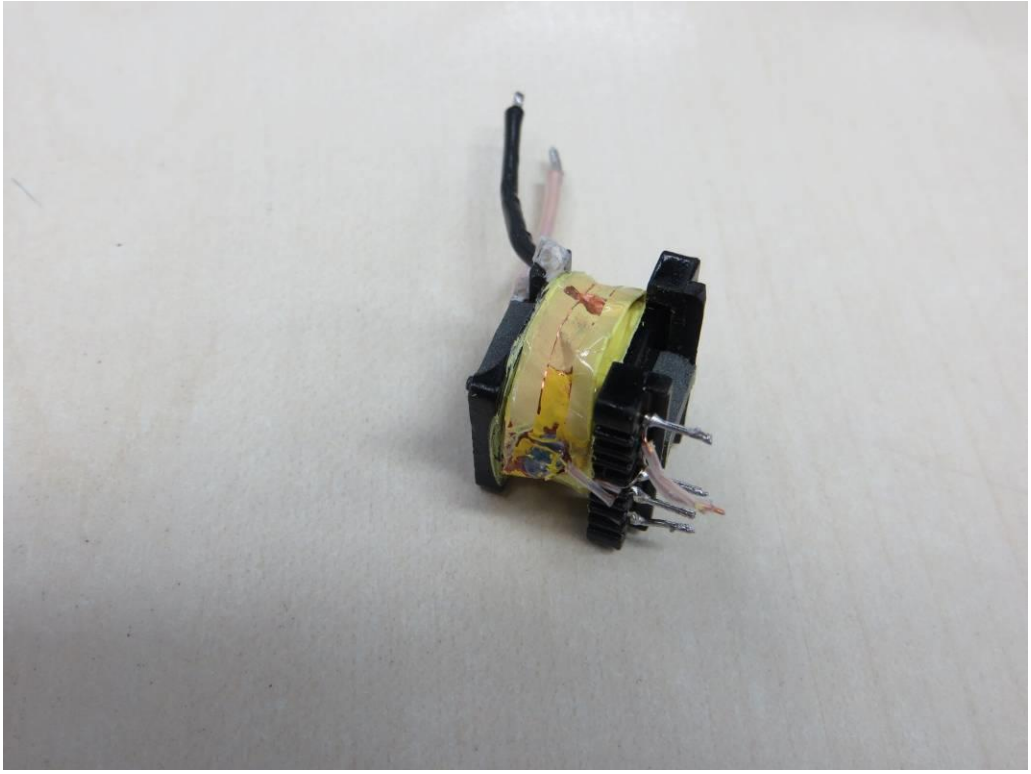
Transformer (EE22)



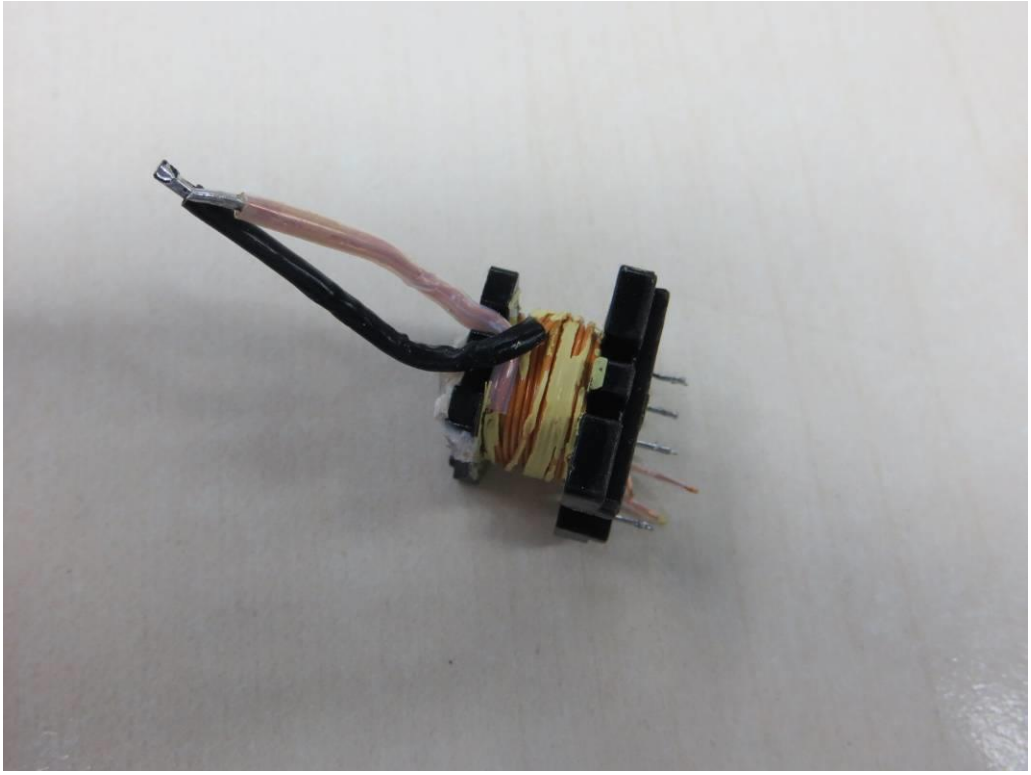
Transformer (EE22)



Transformer (EE22)



Transformer (EE22)



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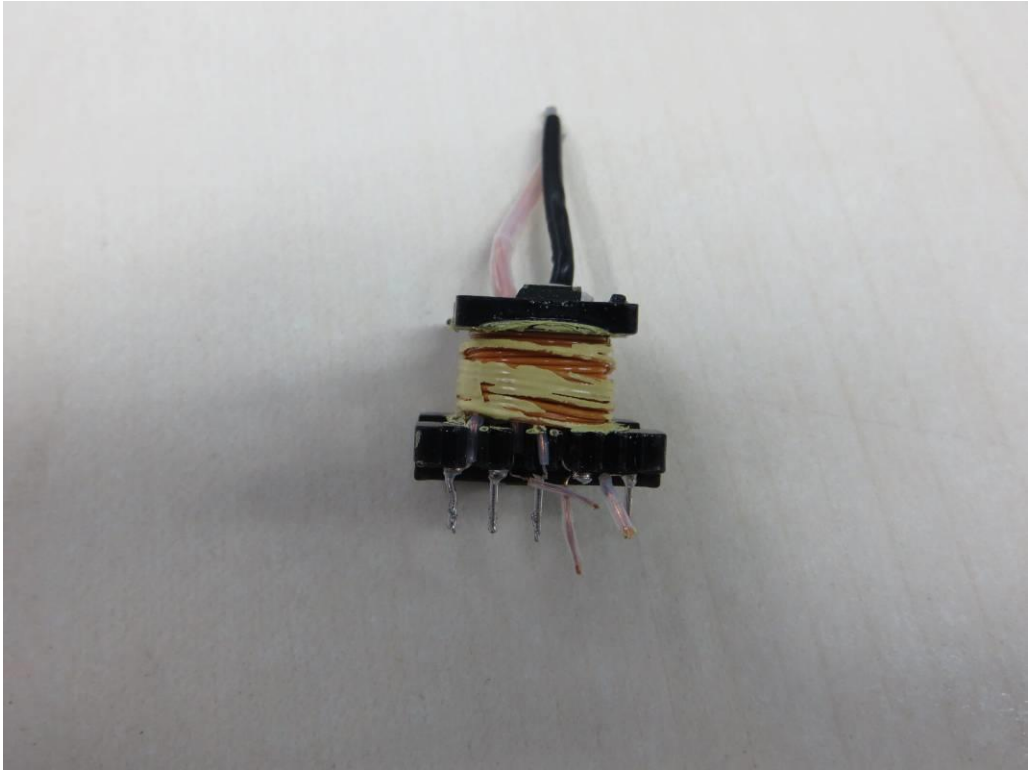

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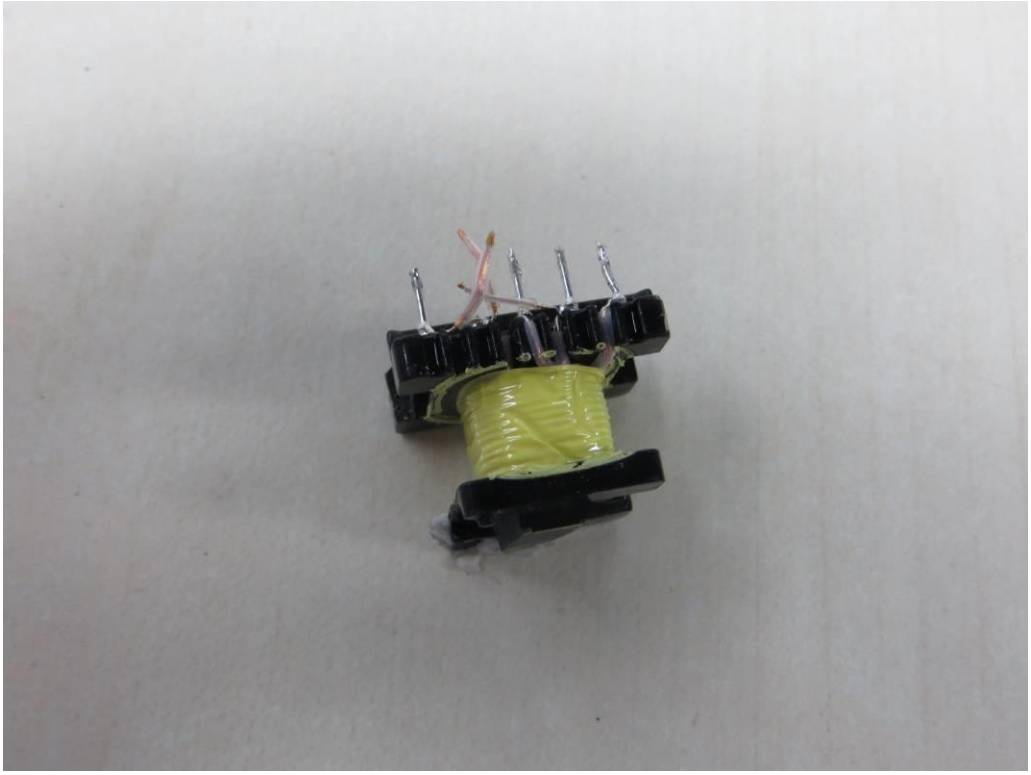

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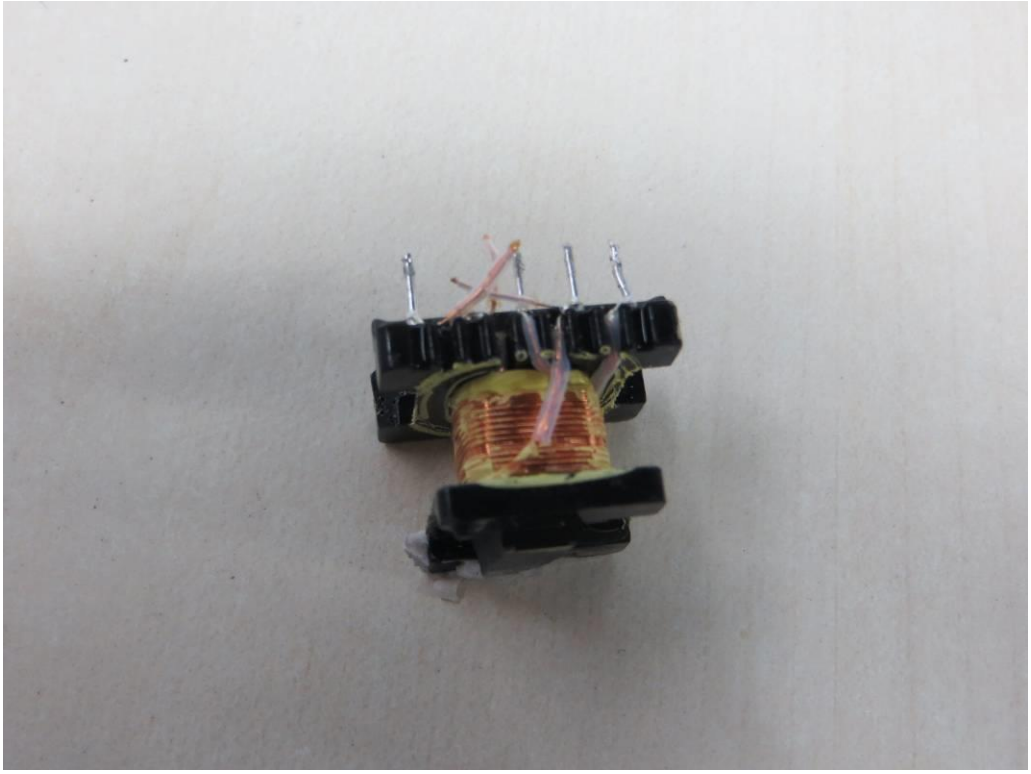
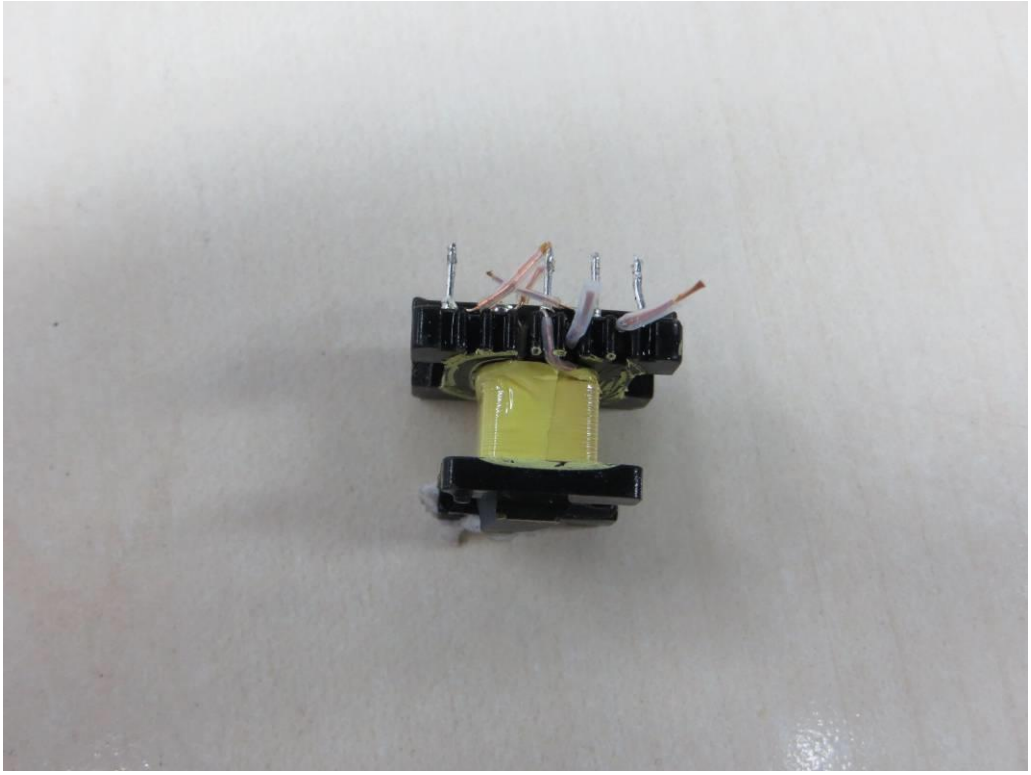


Transformer (EE22)



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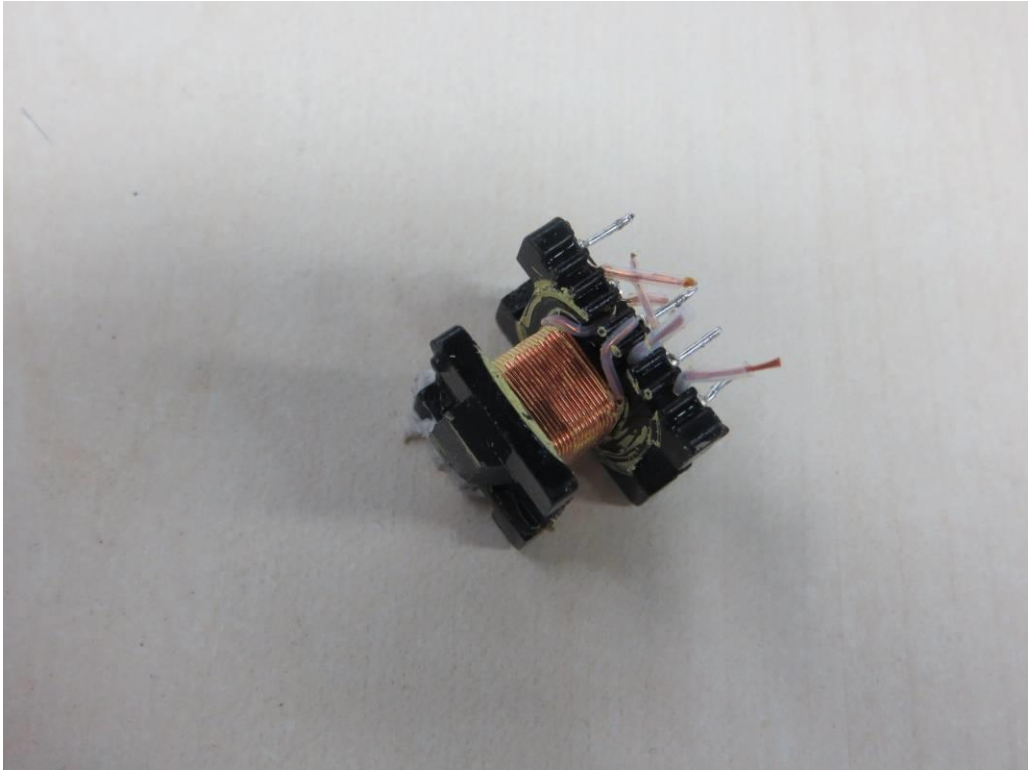
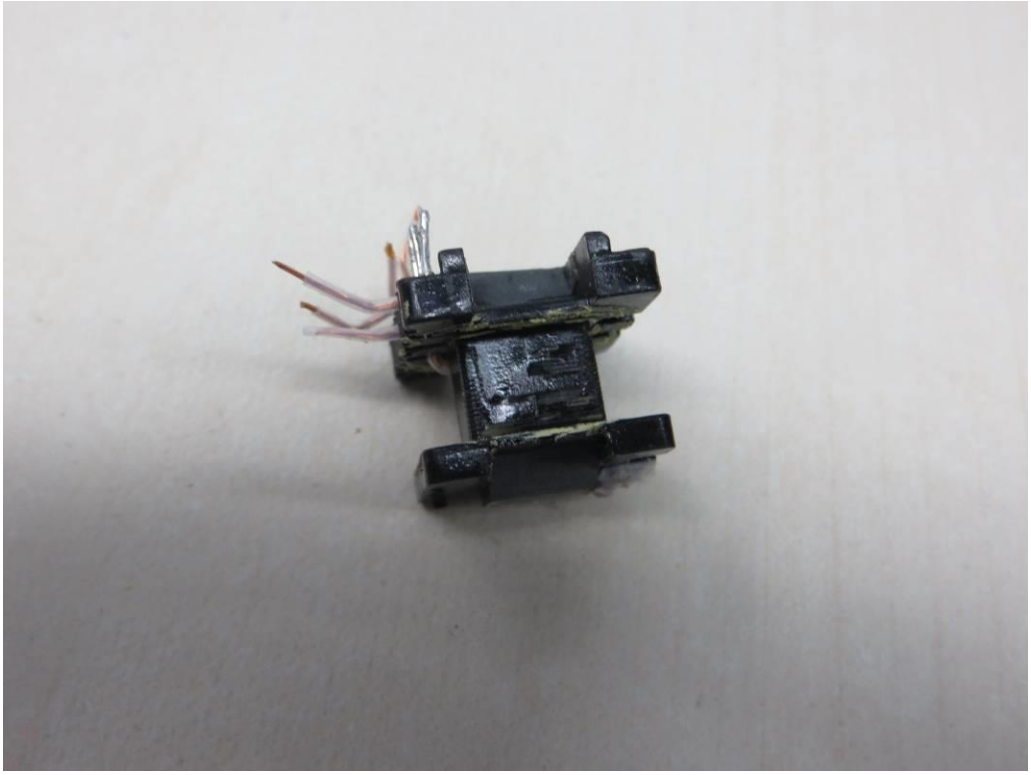
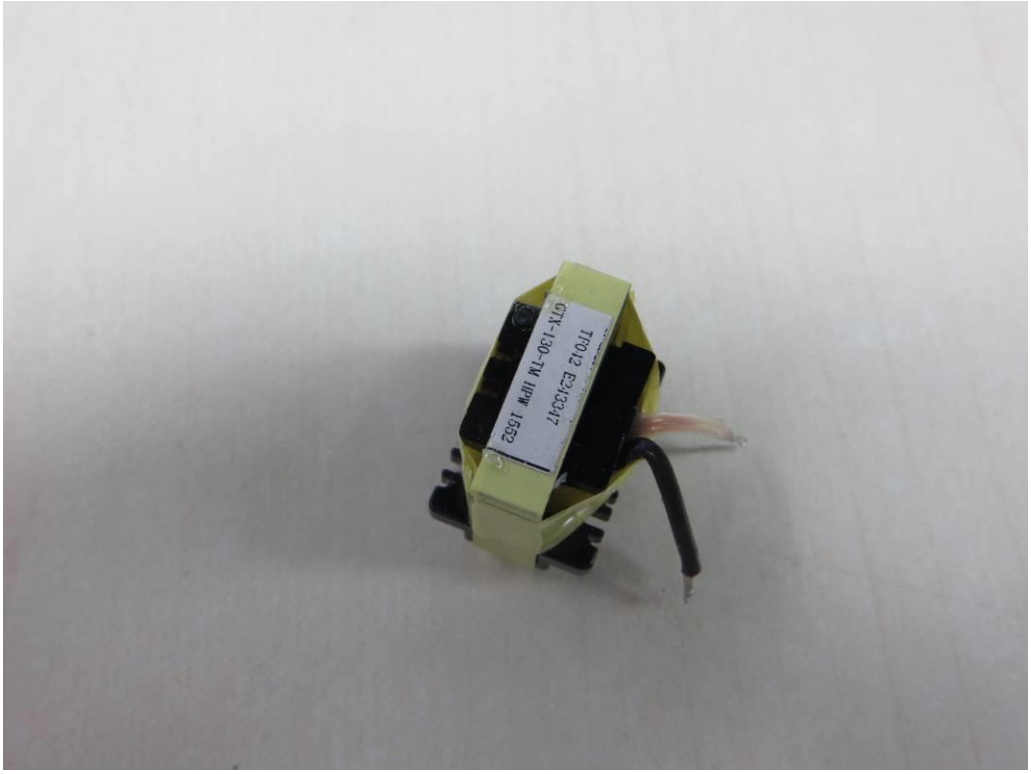


Transformer (EE22)



Transformer (EE16)

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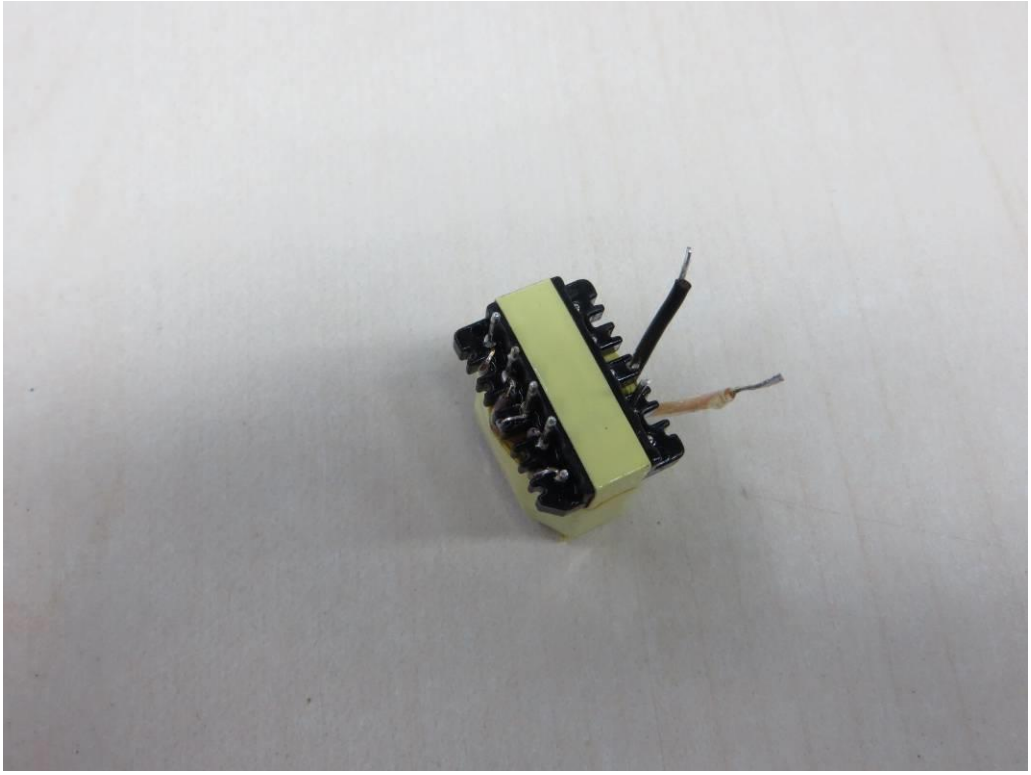
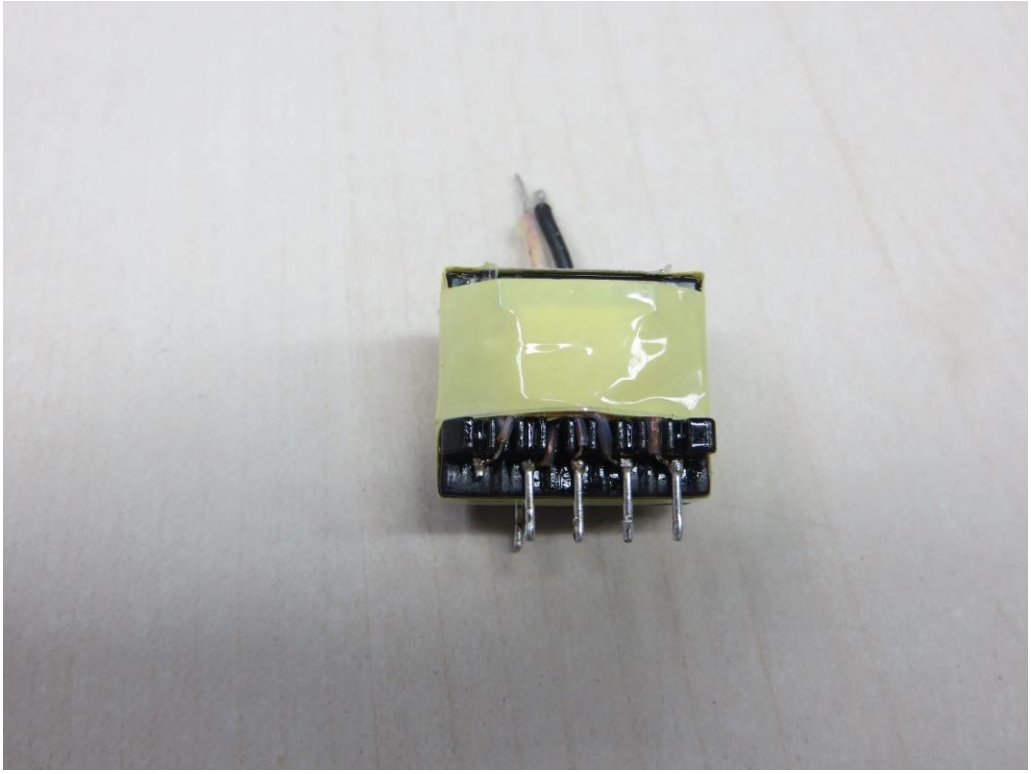
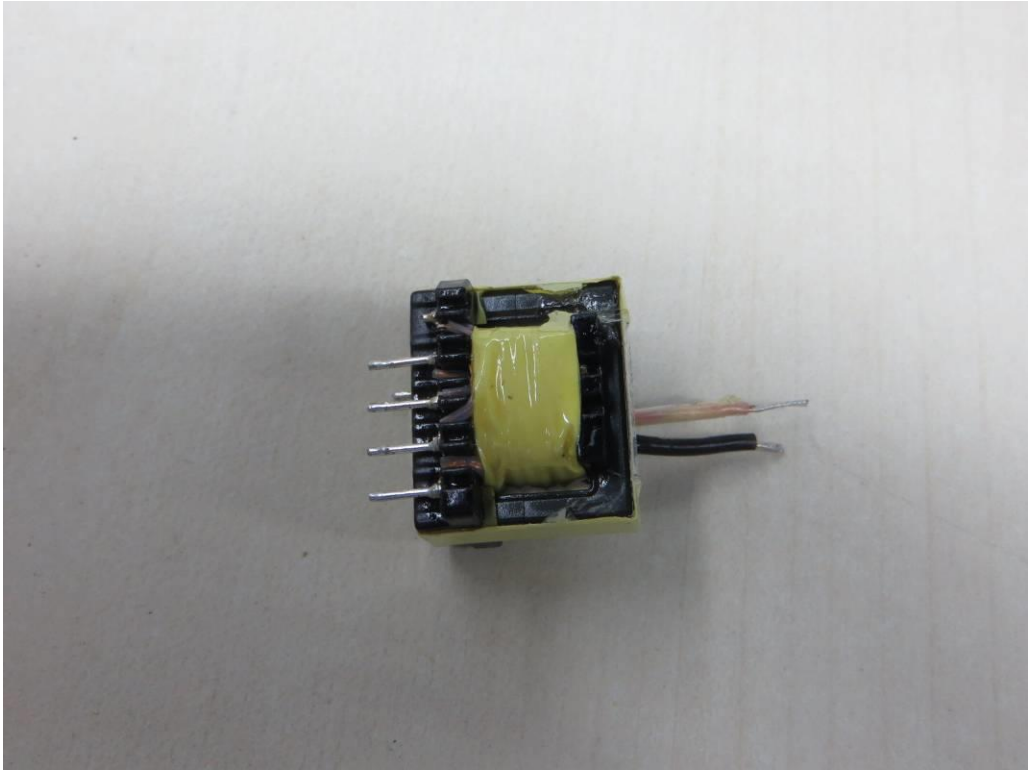


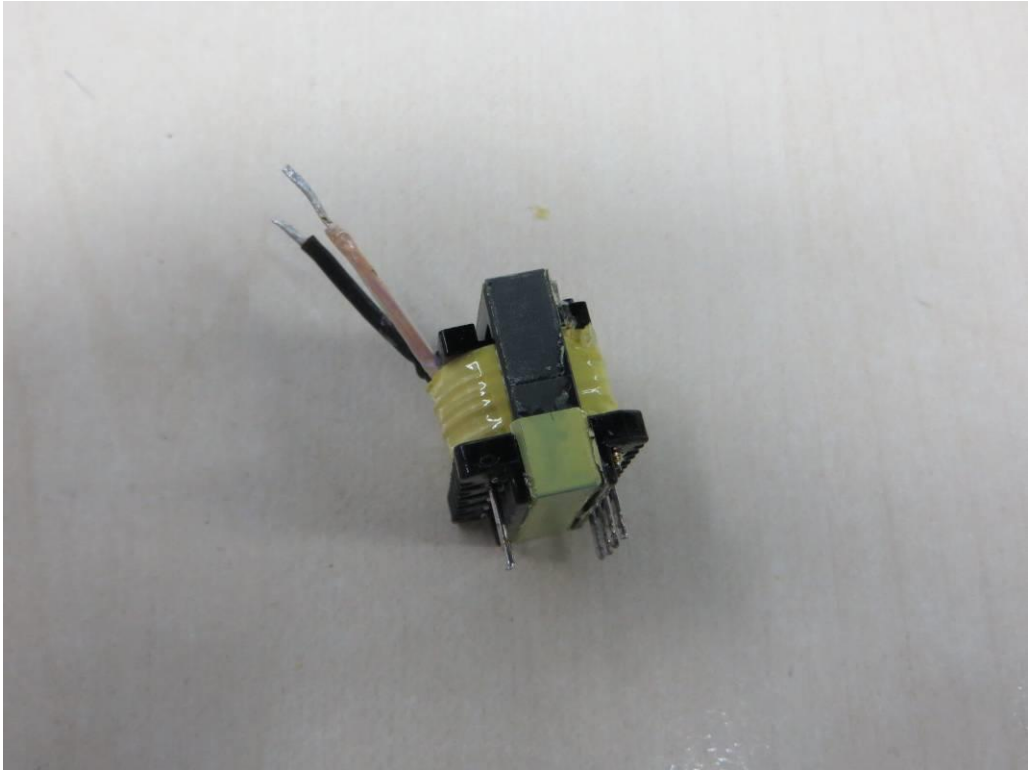
Transformer (EE16)



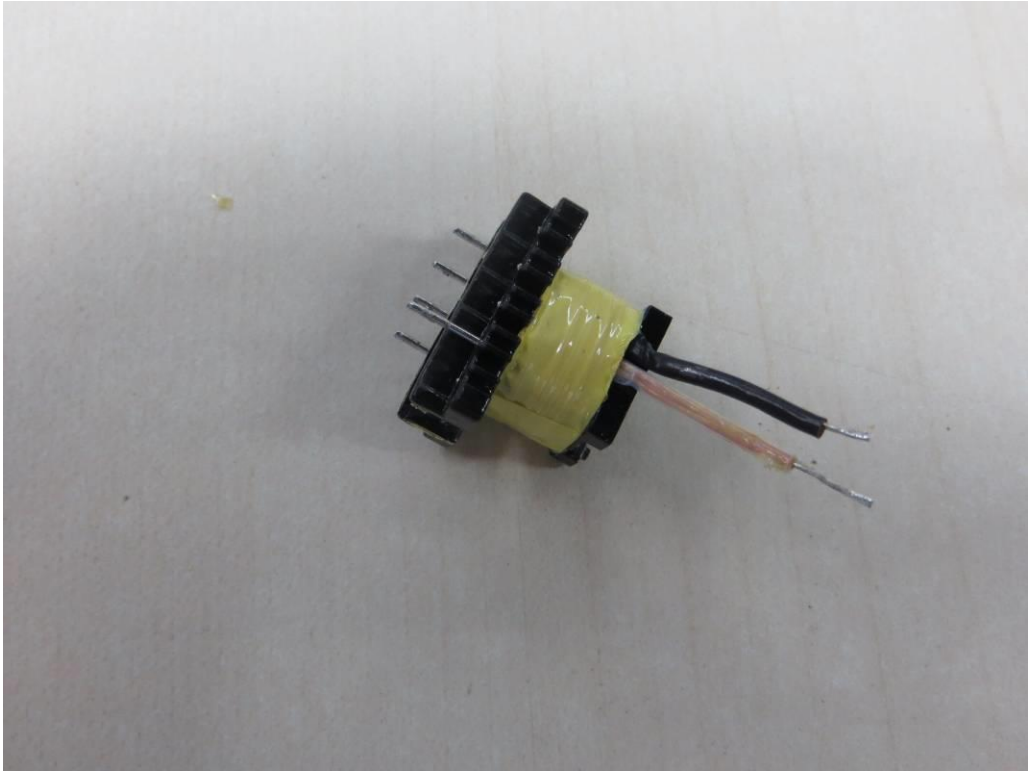
Transformer (EE16)



Transformer (EE16)



Transformer (EE16)



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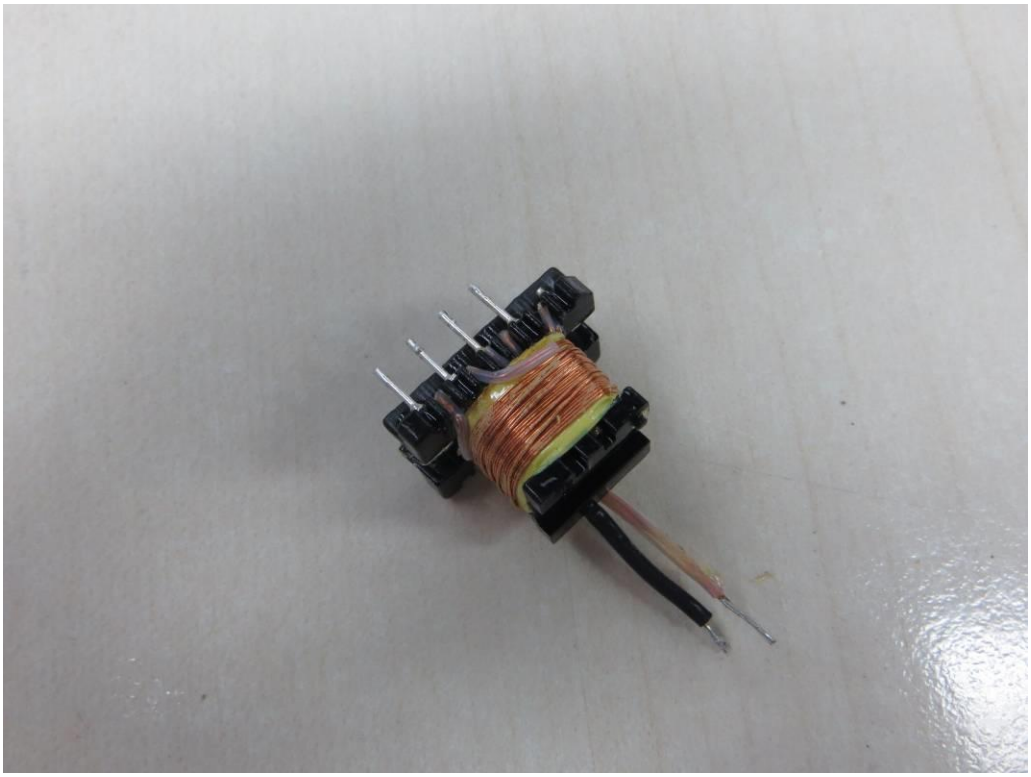

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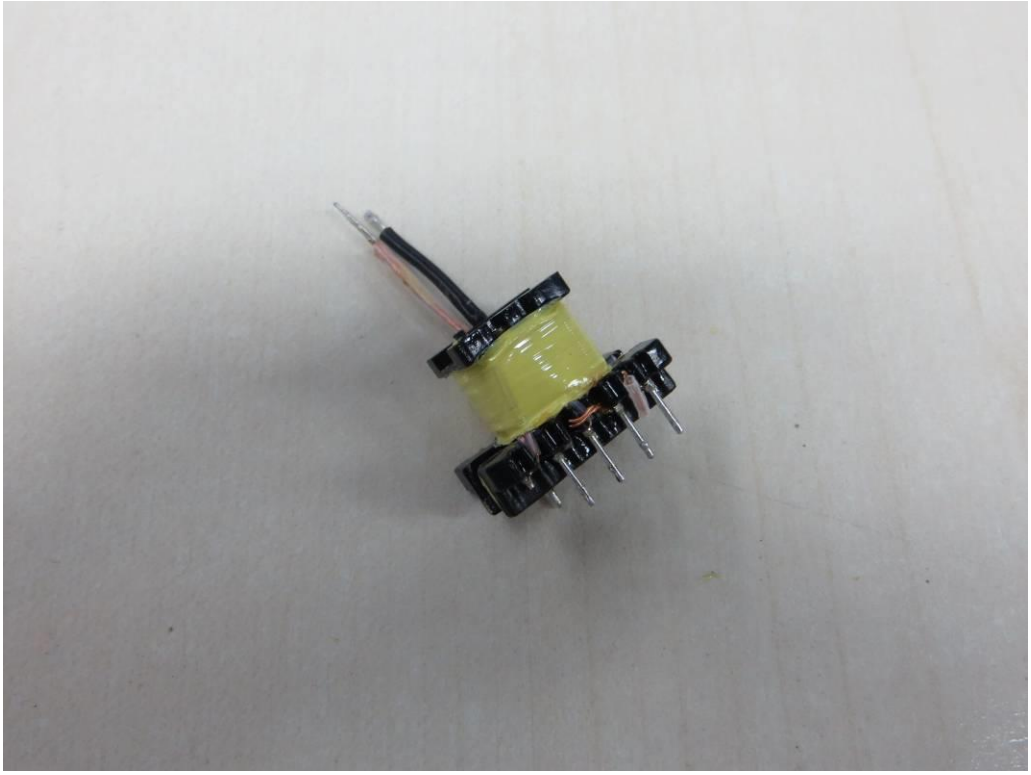
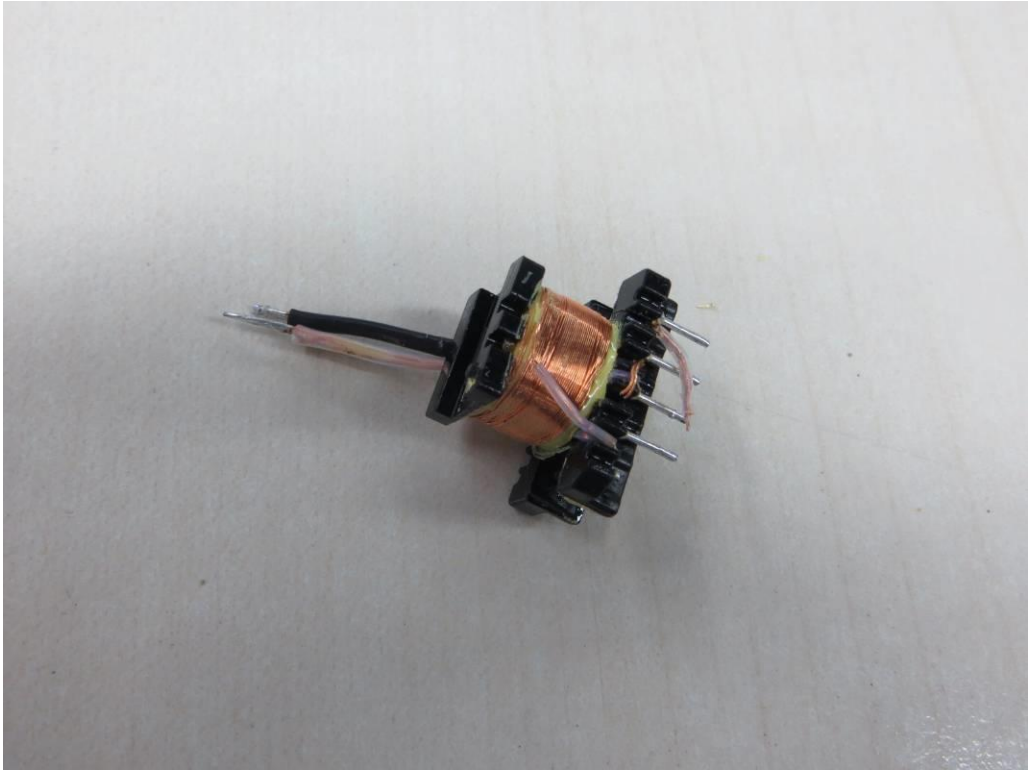
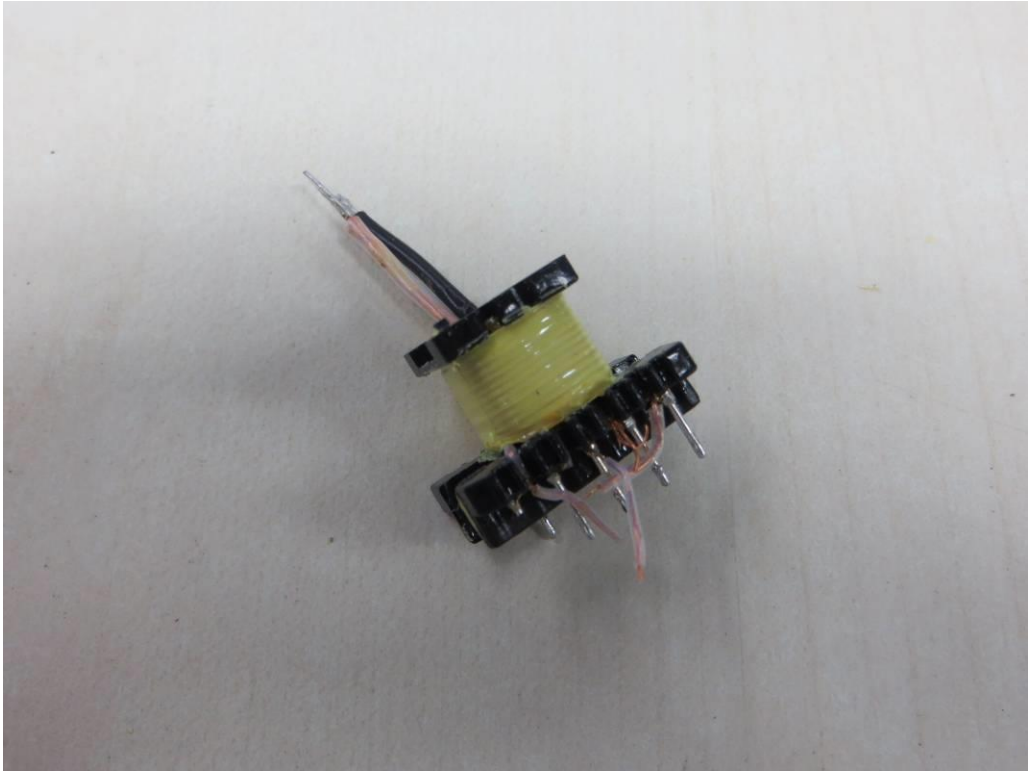


Transformer (EE16)



Transformer (EE16)



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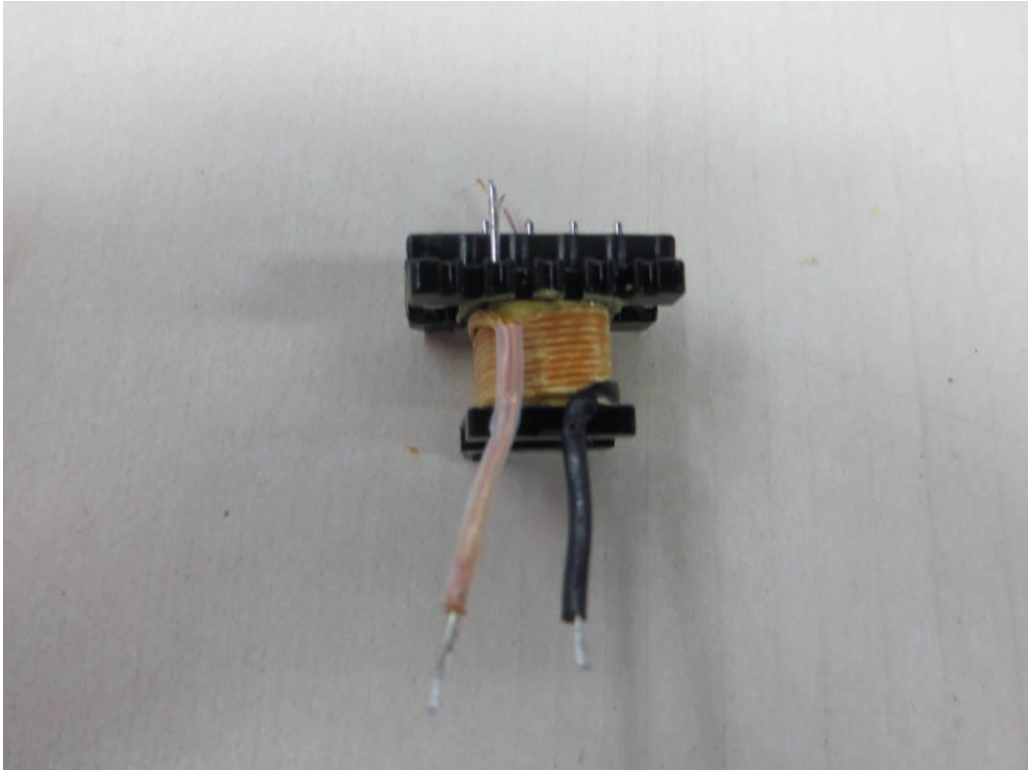

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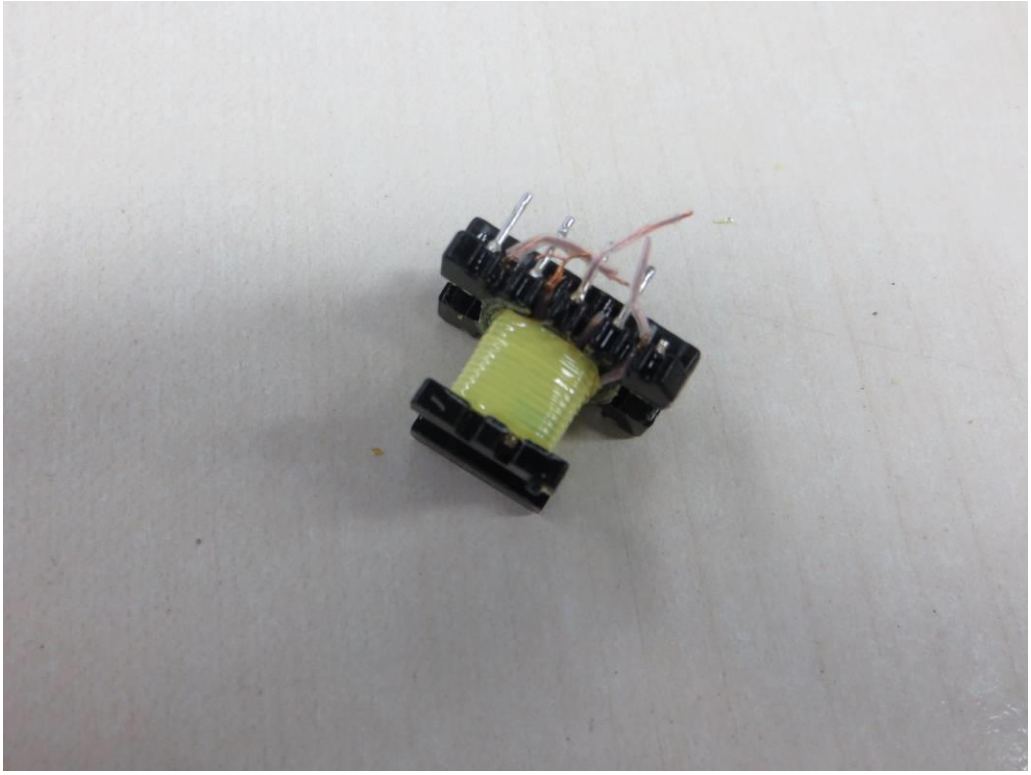
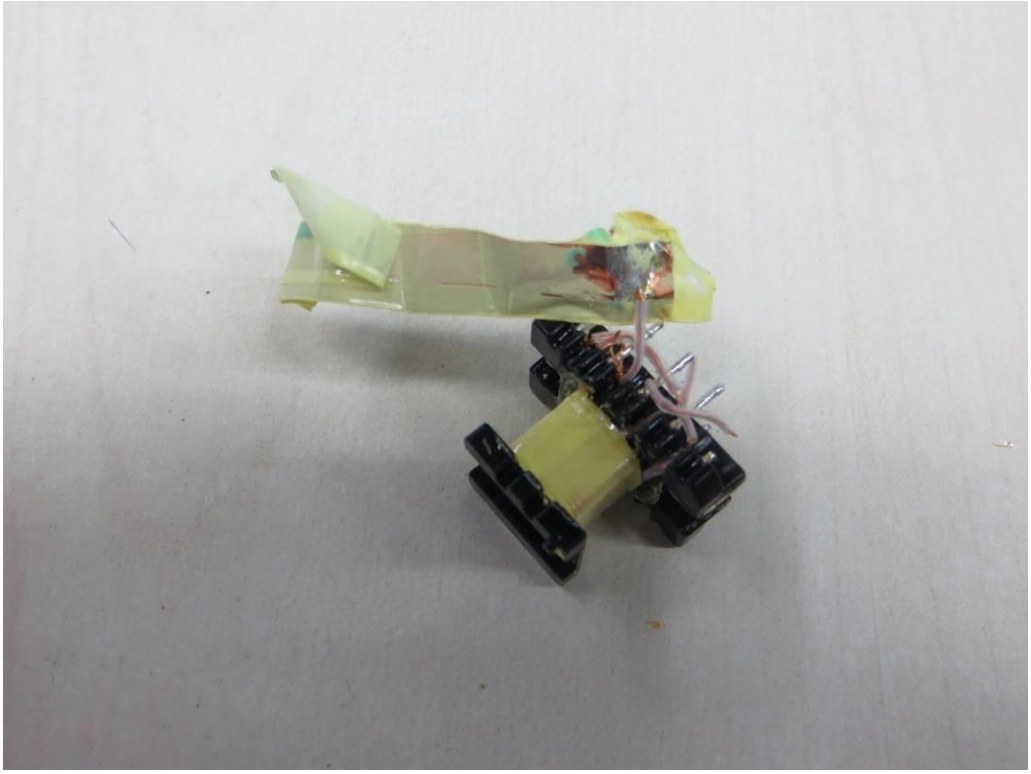
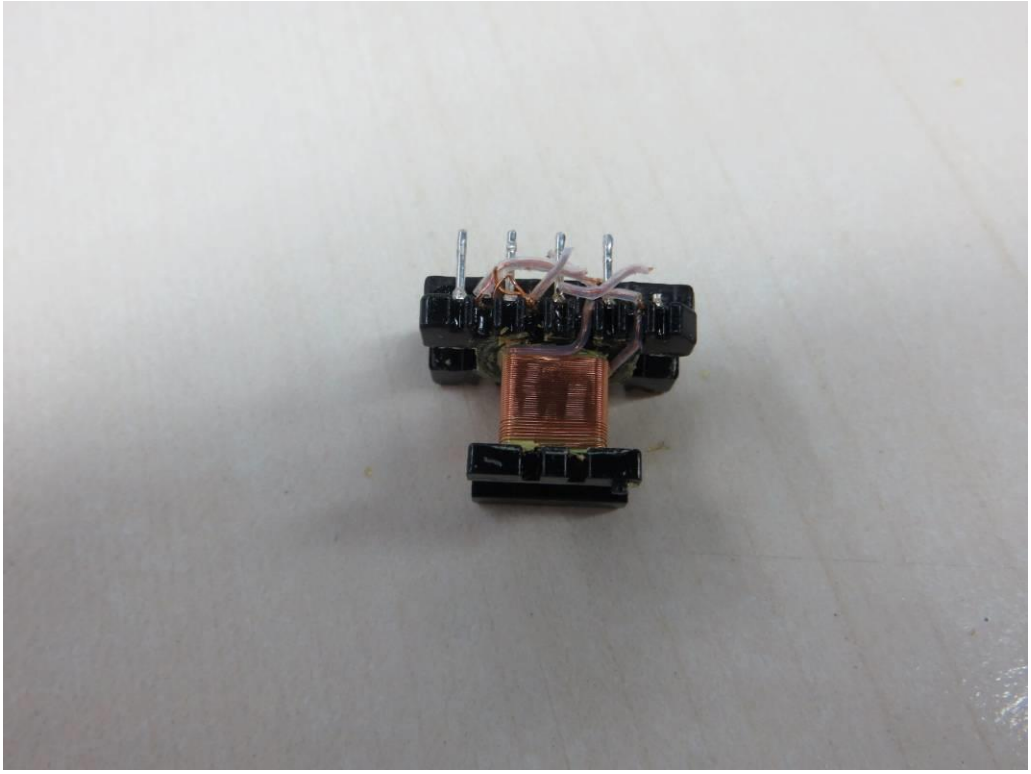


Transformer (EE16)



Transformer (EE16)



Transformer (EE16)

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**Appendix No.2: Group and national differences for the CENELEC countries**

**ATTACHMENT TO TEST REPORT**
**IEC 62368-1**
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

**Differences according to** ..... : EN 62368-1:2014+A11:2017

**Attachment Form No**. ..... : EU_GD_IEC62368_1D_II

**Attachment Originator**..... : Nemko AS

**Master Attachment**..... : Date 2021-02-04



| | | |
|---|---|---|
| | **CENELEC COMMON MODIFICATIONS (EN)** | P |
| | Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z". | -- |
| CONTENTS | **Add** the following annexes:<br>Annex ZA (normative) — Normative references to international publications with their corresponding European publications<br>Annex ZB (normative) — Special national conditions<br>Annex ZC (informative) — A-deviations<br>Annex ZD (informative) — IEC and CENELEC code designations for flexible cords | P |
| | **Delete** all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list: | P |

| | | | | | |
|---|---|---|---|---|---|
| 0.2.1 | Note | 1 | Note 3 | 4.1.15 | Note |
| 4.7.3 | Note 1 and 2 | 5.2.2.2 | Note | 5.4.2.3.2.2 Table 13 | Note c |
| 5.4.2.3.2.4 | Note 1 and 3 | 5.4.2.5 | Note 2 | 5.4.5.1 | Note |
| 5.5.2.1 | Note | 5.5.6 | Note | 5.6.4.2.1 | Note 2 and 3 |
| 5.7.5 | Note | 5.7.6.1 | Note 1 and 2 | 10.2.1 Table 39 | Note 2, 3 and 4 |
| 10.5.3 | Note 2 | 10.6.2.1 | Note 3 | F.3.3.6 | Note 3 |

| | | |
|---|---|---|
| | For special national conditions, see Annex ZB. | P |
| 1 | **Add** the following note:<br>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU. | P |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.Z1 | **Add** the following new subclause after 4.9:<br>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):<br>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;<br>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;<br>c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.<br>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | | P |
| 5.4.2.3.2.4 | **Add** the following to the end of this subclause:<br>The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009. | | N/A |
| 10.2.1 | Add the following to c) and d) in table 39:<br>For additional requirements, see 10.5.1. | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.5.1 | **Add** the following after the first paragraph:<br>*For RS 1 compliance is checked by measurement under the following conditions:*<br>*In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.*<br>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.<br>*The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.*<br>*Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.*<br>*For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.*<br>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996. | | N/A |
| 10.6.1 | **Add** the following paragraph to the end of the subclause:<br>EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply. | | N/A |
| 10.Z1 | **Add** the following new subclause after 10.6.5.<br>**10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz**<br>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).<br>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566 | | N/A |
| G.7.1 | **Add** the following note:<br>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD. | | P |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Bibliography | **Add** the following standards:<br>**Add** the following notes for the standards indicated:<br>IEC 60130-9 NOTE Harmonized as EN 60130-9.<br>IEC 60269-2 NOTE Harmonized as HD 60269-2.<br>IEC 60309-1 NOTE Harmonized as EN 60309-1.<br>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.<br>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.<br>IEC 60664-5 NOTE Harmonized as EN 60664-5.<br>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).<br>IEC 61508-1 NOTE Harmonized as EN 61508-1.<br>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.<br>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.<br>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.<br>IEC 61643-1 NOTE Harmonized as EN 61643-1.<br>IEC 61643-21 NOTE Harmonized as EN 61643-21.<br>IEC 61643-311 NOTE Harmonized as EN 61643-311.<br>IEC 61643-321 NOTE Harmonized as EN 61643-321.<br>IEC 61643-331 NOTE Harmonized as EN 61643-331. | | P |
| **ZB** | **ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)** | | N/A |
| 4.1.15 | **Denmark, Finland, Norway** and **Sweden**<br>To the end of the subclause the following is added:<br>**Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet.<br>The marking text in the applicable countries shall be as follows:<br>In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.”<br>In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"<br>In **Norway**: “Apparatet må tilkoples jordet stikkontakt”<br>In **Sweden**: “Apparaten skall anslutas till jordat uttag” | | N/A |
| 4.7.3 | **United Kingdom**<br>To the end of the subclause the following is added:<br>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.2.2.2 | **Denmark**<br>After the 2nd paragraph add the following:<br>A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | | N/A |
| 5.4.11.1 and Annex G | **Finland and Sweden**<br>To the end of the subclause the following is added:<br>For separation of the telecommunication network from earth the following is applicable:<br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br>• two layers of thin sheet material, each of which shall pass the electric strength test below, or<br>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition<br>• passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and<br>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.<br>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.<br>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:<br>• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11;<br>• the additional testing shall be performed on all the test specimens as described in EN 60384-14;<br>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | | N/A |
| 5.5.2.1 | **Norway**<br>After the 3rd paragraph the following is added:<br>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V). | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.5.6 | **Finland, Norway** and **Sweden**<br>To the end of the subclause the following is added:<br>Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2. | | N/A |
| 5.6.1 | **Denmark**<br>**Add** to the end of the subclause<br>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.<br>*Justification:*<br>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse. | | N/A |
| 5.6.4.2.1 | **Ireland and United Kingdom**<br>After the indent for **pluggable equipment type A**, the following is added:<br>– the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug. | | N/A |
| 5.6.5.1 | To the second paragraph the following is added:<br>The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is:<br>1,25 $mm^2$ to 1,5 $mm^2$ in cross-sectional area. | | N/A |
| 5.7.5 | **Denmark**<br>To the end of the subclause the following is added:<br>The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | | N/A |

| ATTACHMENT | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.6.1 | **Norway and Sweden**<br>To the end of the subclause the following is added:<br>The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.<br>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.<br>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:<br>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”<br>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.<br>Translation to Norwegian (the Swedish text will also be accepted in Norway):<br>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”<br>Translation to Swedish:<br>”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”. | | N/A |
| 5.7.6.2 | **Denmark**<br>To the end of the subclause the following is added:<br>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA . | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.3.1 and B.4 | **Ireland and United Kingdom**<br>The following is applicable:<br>To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met | | N/A |
| G.4.2 | **Denmark**<br>To the end of the subclause the following is added:<br>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.<br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.<br>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.<br>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.<br>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.<br>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a<br>*Justification:*<br>Heavy Current Regulations, Section 6c | | N/A |
| G.4.2 | **United Kingdom**<br>To the end of the subclause the following is added:<br>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply. | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.1 | **United Kingdom**<br>To the first paragraph the following is added:<br>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.<br>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. | | N/A |
| G.7.1 | **Ireland**<br>To the first paragraph the following is added:<br>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard | | N/A |
| G.7.2 | **Ireland and United Kingdom**<br>To the first paragraph the following is added:<br>A power supply cord with a conductor of 1,25 $mm^2$ is allowed for equipment which is rated over 10 A and up to and including 13 A. | | N/A |
| *ZC* | *ANNEX ZC, NATIONAL DEVIATIONS (EN)* | | **N/A** |
| 10.5.2 | **Germany**<br>The following requirement applies:<br>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.<br>*Justification:*<br>German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.<br>**NOTE** Contact address:<br>Physikalisch-Technische Bundesanstalt, Bundesallee 100,<br>D-38116 Braunschweig,<br>Tel.: Int +49-531-592-6320,<br>Internet: http://www.ptb.de | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**Appendix No.3: National differences for US and Canada**

| **ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed.**<br>**U.S.A. NATIONAL DIFFERENCES**<br>Audio/video, information and communication technology equipment – Part 1: Safety requirements | |
|---|---|
| **Differences according to**.....: | CSA/UL 62368-1:2014 |
| **TRF template used: ..... :** | IECEE OD-2020-F3, Ed. 1.1 |
| **Attachment Form No**. .....:<br>**Attachment Originator .....**:<br>**Master Attachment** .....: | US_CA_ND_IEC62368_1D<br>UL(US)<br>Date 2021-02-04 |
|  | |

| **IEC 62368-1 - US and Canadian National Differences**<br>**Special National Conditions based on Regulations and Other National Differences** | | | |
|---|---|---|---|
| 1.1 | All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.<br>Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75. | | P |
| 1.4 | Additional requirements apply to some forms of power distribution equipment, including sub-assemblies. | | P |
| 4.1.17 | For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC. | Should be evaluated during national approval. | N/A |
| | For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings. | Should be evaluated during national approval. | N/A |
| 4.8 | Lithium coin / button cell batteries have modified special construction and performance requirements. | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.3 | Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment | | N/A |
| 5.7.7 | Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests. | Not such equipment | N/A |
| 6.5.1 | PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods. | | N/A |
| Annex F (F.3.3.8) | Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected. | Should be evaluated during national approval. | N/A |
| Annex G (G.7.1) | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | | N/A |
| Annex G (G.7.3) | Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment. | Should be evaluated during national approval. | N/A |
| | Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | Should be evaluated during national approval. | N/A |
| Annex G (G.7.5) | Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms. | Should be evaluated during national approval. | N/A |
| Annex H.2 | Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions. | | N/A |
| Annex H.4 | For circuits with other than ringing signals and with voltages exceeding 42.4 $V_{peak}$ or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions. | | N/A |
| Annex M | Battery packs for stationary applications comply with special component requirements. | No battery. | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Annex DVA (1) | Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release. | Not such equipment or application as below. | N/A |
| | For ITE room applications, automated information storage systems with combustible media greater than 0.76 $m^3$ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | | N/A |
| | Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations. | | N/A |
| | Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors. | | N/A |
| Annex DVA (5.6.3) | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A. | | P |
| Annex DVA (6.3) | The maximum quantity of flammable liquid stored in equipment complies with NFPA 30. | | N/A |
| Annex DVA (6.4.8) | For ITE room applications, enclosures with combustible material measuring greater than 0.9 $m^2$ (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1. | | P |
| Annex DVA (10.3.1) | Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | | N/A |
| Annex DVA (10.5.1) | Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Annex DVA (F.3.3.3) | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.” | | N/A |
| Annex DVA (F.3.3.5) | Equipment identified for ITE (computer) room installation is marked with the rated current | | N/A |
| Annex DVA (G.1) | Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position | | N/A |
| Annex DVA (G.3.4) | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. | | N/A |
| Annex DVA (G.4.2) | Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8). | | N/A |
| Annex DVA (G.4.3) | Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable. | No such fuse provided. | N/A |
| Annex DVA (G.5.3) | Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection. | | N/A |
| Annex DVA (G.5.4) | Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A). | | N/A |
| Annex DVA (Annex M) | For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit. | | N/A |

| ATTACHMENT | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| Annex DVA (Q) | Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1are marked with the voltage rating and “Class 2” or equivalent; marking is located adjacent to the terminals and visible during wiring. | | N/A |
| Annex DVB (1) | Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. | | N/A |
| Annex DVC (1) | Additional requirements apply for equipment intended for mounting under kitchen cabinets. | | N/A |
| Annex DVE (4.1.1) | Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables. | See Table 4.1.2. | P |
| Annex DVH | Equipment for permanent connection to the mains supply is subjected to additional requirements. | | N/A |
| Annex DVH (DVH.1) | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC. | Inlet for detachable power cord. | P |
| Annex DVH (DVH.3.2) | Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified. | | N/A |
| Annex DVH (DVH.3.2) | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 $mm^2$). | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Annex DVH (DVH.4) | Permanently connected equipment is required to have a suitable wiring compartment and wire bending space. | | N/A |
| Annex DVH (DVH 5.5) | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements. | | N/A |
| Annex DVI (6.7) | Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses. | | N/A |
| Annex DVJ (10.6.1) | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements. | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**Appendix No.4: National differences for Australia/New Zealand**

| | | | |
|---|---|---|---|
| **ATTACHMENT TO TEST REPORT**<br>IEC 62368-1<br>(AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES<br>(**Audio/video, information and communication technology equipment**) | | | |
| **Differences according to** ..... : AS/NZS 62368.1:2018 | | | |
| **Attachment Form No**. ..... : AU_NZ_ND_IEC62368_1B<br>**Attachment Originator**..... : JAS-ANZ<br>**Master Attachment**..... : 2021-02-29 | | | |
| **Copyright © 2019 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.** | | | |
| | **National Differences** | | P |
| **Appendix ZZ** | Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand | | P |
| **ZZ1 Scope** | This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0) | | P |
| **ZZ2 Variations** | The following modifications are required for Australian/New Zealand conditions: | | P |
| **2** | *Add* the following to the list of normative references:<br>The following normative documents are referenced in Appendix ZZ:<br>-AS/NZS 3112, *Approval and test specification—Plugs and socket-outlets*<br>-AS/NZS 3123, *Approval and test specification—Plugs, socket-outlets and couplers for general industrial application*<br>-AS/NZS 3191, *Electric flexible cords*<br>-AS/NZS 60065, *Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)*<br>-AS/NZS 60320.1, *Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)*<br>-AS/NZS 60320.2.2, *Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)*<br>-AS/NZS 60695.2.11, *Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products*<br>-AS/NZS 60695.11.5, *Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance*<br>-AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W* | | P |

| ATTACHMENT | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| | *horizontal and vertical flame test methods*<br>-AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements*<br>-AS/NZS 60950.1:2015, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)*<br>IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification*<br>-AS/NZS 61558.1:2008 (including Amendment 2:2015), *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)*<br>-AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.* | | |
| **4.1.1** | **Application of requirements and acceptance of materials, components and subassemblies**<br>1 *Replace* the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.<br>2 *Replace* the text 'IEC 60065' with 'AS/NZS 60065'. | | P |
| **4.7** | **Equipment for direct insertion into mains socket-outlets** | | P |
| **4.7.2** | **Requirements**<br>*Delete* the text of the second paragraph and *replace* with the following:<br>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | | P |
| **4.7.3** | **Compliance Criteria**<br>*Delete* the first paragraph and Note 1 and Note 2 and *replace* with the following:<br>*Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.* | | P |
| **4.8** | *Delete* existing clause title and *replace* with the following:<br>**4.8 Products containing coin/button cell batteries** | | N/A |

| ATTACHMENT | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| **4.8.1** | **General**<br>1 Second dashed point, *delete* the text and *replace* with the following:<br>– include coin/button cell batteries with a diameter of 32 mm or less.<br>2 After the second dashed point, *insert* the following Note:<br>NOTE 1: Batteries are specified in IEC 60086-2.<br>3 After the third dashed point, *renumber* the existing Note as 'NOTE 2'.<br>4 Fifth dashed point, *delete* the word 'lithium'. | | N/A |
| **4.8.2** | **Instructional Safeguard**<br>First line, *delete* the word 'lithium'. | | N/A |
| **4.8.3** | **Construction**<br>First line, after the word 'Equipment' *insert* the words 'containing one or more coin/button batteries and' | | N/A |
| **4.8.5** | **Compliance criteria**<br>*Delete* the first paragraph and *replace* with the following:<br>*Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.* | | N/A |
| **5.4.10.2** | **Test methods** | | N/A |
| **5.4.10.2.1** | **General**<br>*Delete* the first paragraph and *replace* with the following:<br>In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3. | | N/A |
| **Table 29** | *Replace* the table with the following: | | N/A |

| Parts | Impulse test | | Steady state test | |
|---|---|---|---|---|
| | New Zealand | Australia | New Zealand | Australia |
| Parts indicated in Clause 5.4.10.1 a) [a] | 2.5 kV 10/700 µs | 7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs | 1.5 kV | 3 kV |
| Parts indicated in Clause 5.4.10.1 b) and c) [b] | 1.5 kV 10/700 µs [c] | | 1.0 kV | 1.5 kV |

[a] Surge suppressors shall not be removed.
[b] Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment.
[c] During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.

N/A

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| Clause | Requirement + Test | Result - Remark | Verdict |
| **5.4.10.2.2** | After the first paragraph, *insert* new Notes 201 and 202 as follows:<br>NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.<br>NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages. | | N/A |
| **5.4.10.2.3** | After the first paragraph, *insert* new Notes 201 and 202 as follows:<br>NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.<br>NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system. | | N/A |
| **6** | **Electrically-caused fire** | | N/A |
| **6.1** | **General**<br>After the first paragraph, *insert* the following new paragraph:<br>Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202 | | N/A |
| **6.6** | After Clause 6.6, *add* the new Clauses 6.201 and 6.202 as follows:<br>**6.201 External power supplies, docking stations and other similar devices** and<br>**6.202 Resistance to fire—Alternative tests**<br>(see special national conditions) | | N/A |
| **8.5.4** | **Special categories of equipment comprising moving parts** | | N/A |
| **8.5.4.1** | **Large data storage equipment**<br>In the first dashed row and the second dashed rows *replace* 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'. | | N/A |
| **8.6** | **Stability of equipment** | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **8.6.1 and Table 36** | **Requirements**<br>1. Table 36, *insert* Footnote c at the end of the 'Glass slide' heading, and *add* a new Footnote c after the text of Footnote b in the last row of Table 36 as follows:<br>[c] The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display.<br>2. Table 36, fifth row, *insert* '[201]' at the end of 'No stability requirements'<br>3. Table 36, ninth row, *insert* '[201]' at the end of 'No stability requirements'<br>4. Table 36, *add* the following new footnote:<br>[201] MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply.<br>5. Second paragraph beneath Table 36, *delete* the words 'MS2 and MS3<br>television sets' and *replace* with 'MS2 and MS3 television sets and display<br>devices' | | N/A |
| **8.6.1** | After Clause 8.6.1 *add* the following new clauses:<br>**8.6.1.201 Instructional safeguard for fixed-mount television sets**<br>(see special national conditions) | | N/A |
| **Annex F**<br>**Paragraph F.3.5.1** | **Mains appliance outlet and socket-outlet markings**<br>*Replace* 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'. | | N/A |
| **Annex G**<br>**Paragraph G.4.2** | **Mains connectors**<br>1 In the second line *insert* 'or AS/NZS 3123' after 'IEC 60906-1'.<br>2 In the second line *insert* 'or AS/NZS 60320 series' after 'IEC 60320 series'<br>3 *Add* the following new paragraph:<br>10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1. | | P |
| **Paragraph G.5.3.1** | **Transformers, General**<br>1 In the third dashed point *replace* 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'<br>2 In the fourth dashed point *replace* 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'. | | P |
| **Paragraph G.7.1** | **Mains supply cords, General**<br>In the fourth dashed paragraph, *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' | | P |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **Table G.5** | **Sizes of conductors**<br>1 In the second row, first column, *delete* '6' and *replace* with '7.5'<br>2 In the second row, second column, *delete* '0,75' and *replace* with '0.75[b]<br>3 *Delete* Note 1.<br>4 *Replace* 'NOTE 2' with 'NOTE:'.<br>5 *Delete* the text of 'Footnote b' and *replace* with the following:<br>[b] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm2 three-core supply flexible cords are not permitted; see AS/NZS 3191).<br>6 In Footnote c *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'<br>7 In Footnote d *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' | | N/A |
| **Annex M**<br>**Paragraph M.3.2** | **Protection circuits for batteries provided within the equipment, Test method**<br>After the first dashed point *add* the following Note:<br>NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test. | | N/A |
| | | | |
| | **Special national conditions (if any)** | | P |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **6.201** | **External power supplies, docking stations and other similar devices**<br>For external power supplies, docking stations and other similar devices, during<br>and after abnormal operating conditions and during single fault conditions the<br>output voltage—<br>– at all ES1 outlets or connectors shall not increase by more than 10% of its<br>rated output voltage under normal operating condition; and<br>– of a USB outlet or connector shall not increase by more than 3 V or 10%<br>of its rated output voltage under normal operating conditions, whichever is higher.<br>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.<br>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.<br>*Compliance shall be checked by measurement, taking into account the abnormal*<br>*operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4* | | P |
| **6.202** | **Resistance to fire—Alternative tests** | | N/A |
| **6.202.1** | **General**<br>Parts of non-metallic material shall be resistant to ignition and spread of fire.<br>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:<br>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings<br>only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.<br>b) The following parts which would contribute negligible fuel to a fire:<br>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;<br>– small electrical components, such as capacitors with a volume not exceeding 1 750 mm3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.<br>NOTE: In considering how to minimize propagation of fire and what 'small parts' are,<br>account should be taken of the cumulative effect of small parts adjacent to each other<br>for the possible effect of propagating the fire from one part to another. | | N/A |

| ATTACHMENT | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
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| | *Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.*<br>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.<br>The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.<br>These tests are not carried out on internal wiring. | | N/A |
| **6.202.2** | **Testing of non-metallic materials**<br>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.<br>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested. | | N/A |
| **6.202.3** | **Testing of insulating materials**<br>Parts of insulating material supporting Potential Ignition Sources shall be subject<br>to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.<br>The test shall be also carried out on other parts of insulating material which are<br>within a distance of 3 mm of the connection.<br>NOTE: Contacts in components such as switch contacts are considered to be connections | | N/A |
| | For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test.<br>However, parts shielded by a barrier which meets the needle-flame test need not be tested | | N/A |
| | The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:<br>**Clause of AS/NZS 60695.11.5** — Change<br>**9 Test procedure**<br>**9.2 Application of needle-flame** — *Delete* the first and second paragraphs and *replace* with the following:<br>The specimen shall be arranged so that the | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.<br>The duration of application of the test flame shall be 30 s 1 s. | | |
| | **9.3 Number of test specimens** — *Replace* with the following:<br>The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further<br>specimens, both of which shall withstand the test. | | |
| | **11 Evaluation of test results** — *Replace* with the following:<br>The duration of burning (tb) shall not exceed 30 s. However,<br>for printed circuit boards, it shall not exceed 15 s. | | |
| | The needle-flame test shall not be carried out on parts of material classified as<br>V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested. | | |
| **6.202.4** | **Testing in the event of non-extinguishing material**<br>If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.<br>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing. | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.<br>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. | | |
| **6.202.5** | **Testing of printed boards**<br>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.<br><br>The test is not carried out if—<br>– the printed board does not carry any potential ignition source;<br>– the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or<br>– the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.<br>*Conformance shall be determined using the smallest thickness of the material.*<br>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected. | V-0 | N/A |
| **6.202.6** | **For open circuit voltages greater than 4 kV**<br>Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | AS/NZS 60695.11.10. | | |
| **8.6.1.201** | **8.6.1.201 Instructional safeguard for fixed-mount television sets**<br>MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment.<br>The elements of the instructional safeguard shall be as follows:<br>– element 1a: not available;<br>– element 2: 'Stability Hazard' or equivalent wording;<br>– element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text;<br>– element 4: the following or equivalent text:<br>To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions | | N/A |
| **8.6.1.202** | **Restraining device**<br>MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage.<br>Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation. | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |

**Appendix No.5: National differences for Japan**

| | | | |
|---|---|---|---|
| **ATTACHMENT TO TEST REPORT**<br>**IEC 62368-1**<br>**(JAPAN) NATIONAL DIFFERENCES**<br>(Audio/video, information and communication technology equipment – Part 1: Safety requirements) | | | |
| **Differences according to** ..... : J62368-1 (2020) | | | |
| **TRF template used:..... :** IECEE OD-2020-F3, Ed. 1.1 | | | |
| **Attachment Form No**. ..... : JP_ND_IEC62368_1D<br>**Attachment Originator**..... : UL (JP)<br>**Master Attachment**..... : Date 2021-02-04 | | | |
| **Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.** | | | |
| | **National Differences** | | — |
| 4.1.2 | Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these. | | P |
| 5.6.1 | Mains socket-outlet and appliance outlet shall comply with Clause G.4.2A if they are incorporated as part of the equipment. | | N/A |
| 5.6.2.1 | Mains connection of class 0I equipment:<br>Instructional safeguard in accordance with Clause F.3.6.1A;<br>Mains plug having a lead wire for protective earthing connection of class 0I equipment;<br>Independent main protective earthing terminal installed by ordinary person. | | P |
| 5.6.2.2 | This requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector. | | N/A |

| ATTACHMENT | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.3 | In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following:<br>– use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire<br>– single core cord or single core cab tire cable with 1.25 $mm^2$ or more cross-sectional area | | N/A |
| 5.7.3 | For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series or JIS C 8303, or otherwise being considered to comply with relevant regulations, or that is provided with mains appliance outlet as specified in JIS C 8283-2-2 for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains. | | N/A |
| 5.7.4 | In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990. | | P |
| 6.4.3.3 | A fuse complying with JIC C 6575 series or a fuse having equivalent characteristics shall open within 1 s.<br>For Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”.<br>A fuse not complying with JIS C 6575 series shall be tested with the breaking capacity taken into account. | | P |
| 8.5.4.2.1 | Only three-phase stationary equipment rated more than 200 V ac can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4. | | N/A |
| 8.5.4.2.2 | For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional. | | N/A |
| 8.5.4.2.4 | The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part. | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.5.4.2.5 | The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part.<br>Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts. | | N/A |
| 9.2.6,<br>Table 38 | Handles, Knobs, grips, etc. and external surfaces either held, touched or worn against the body in normal use (> 1 min) [b,c] | | N/A |
| F.3.5.1 | Instructional safeguard of class 0I equipment in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8303 or relevant regulation to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons. | | N/A |
| F.3.5.3 | If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic. | | P |
| F.3.6.1A | Marking for class 0I equipment<br>The requirements of Clauses F.3.6.1.1 and F.3.6.1.3 shall be applied to class 0I equipment.<br>For class 0I equipment, a marking of instructions and instructional safeguard shall be provided regarding the earthing connection. | | P |
| F.3.6.2.1 | Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment. | | P |
| F.4 | Instruction for audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A.<br>Installation instruction for the protective earthing connection for class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment. | | N/A |
| G.3.2.1 | The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that. | | N/A |

| ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.3.4 | Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the relevant part of JIS C 6575 (corresponding to IEC60127) or shall have equivalent characteristics.<br>If there are no applicable IEC standards, overcurrent protective devices used as a safeguard shall comply with their applicable IEC standards. | | P |
| G.4.1 | This requirement is not applicable to Clauses G.4.2 and G.4.2A. | | N/A |
| G.4.2 | Mains connector shall comply with JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series.<br>Mains plugs and socket-outlets shall comply with JIS C 8282 series, JIS C 8303, IEC 60309 series, or have equivalent or better performance.<br>A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286.<br>Construction preventing mechanical stress not to transmit to the soldering part of inlet terminal.<br>Consideration for an equipment rated not more than 125 V provided with Type C14 and C18 appliance coupler complying with JIS C 8283 series. | | P |
| G.4.2A | Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively. | | N/A |
| G.7.1 | A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor. | | P |
| G.8.3.3 | Withstand 1,71 × 1.1 × $U_0$ for 5 s. | | N/A |

## Appendix no. 6 Equipment combined with two-pole plug (Class II)

Supplementary tests on plug portion according to EN 50075:1990

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| **1.** | **Dimensions (Clause 7 of EN 50075)** | | |
| | Plugs shall comply with standard size. (Standard sheet 1) | | P |
| **2.** | **Protection Against Electric Shock (Clause 8 of EN 50075)** | | |
| 2.1 | Live parts of plugs with the exception of the bare metal parts of the pins, shall not be accessible. (Clause 8.1 of EN 50075) | | P |
| 2.2 | It shall not be possible to make connection between a pin of a plug and a live socket contact of a socket-outlet while the other pin is an accessible. (Clause 8.2 of EN 50075) | | P |
| 2.3 | External parts of plugs, with the exception of pins, shall be of insulating material. (Clause 8.3 of EN 50075) | | P |
| **3.** | **Construction (Clause 9 of EN 50075)** | | |
| 3.1 | The plug cannot be opened by hand or by using a general purpose tool. (Clause 9.1 of EN 50075) | | P |
| 3.2 | Pins of plugs shall be solid and shall have adequate mechanical strength. (Clause 9.3 of EN 50075) | | P |
| 3.3 | Pins of plugs shall be locked against rotation and adequately fixed into the body of the plug. (Clause 9.4 of EN 50075) | | P |
| 3.4 | Plugs shall be provided with soldered, crimped or equally effective permanent connection. (Clause 9.5 of EN 50075) | | P |
| 3.5 | Plug shall be shaped in such a way and made of such a material that they can easily be withdrawn by hand from a socket-outlet. (by gripping the product enclosure, Clause 9.6 of EN 50075) | | P |
| **4.** | **Resistance to Humidity (Clause 10 of EN 50075)** | | N/A |
| | The integrated pins were tested together with the product. (See test report for product) | | |

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| **5.** | **Insulation Resistance and Electric Strength (Clause 11 of EN 50075)** | | N/A |
| | (See test report for product) | | |
| **6.** | **Mechanical Strength (Clause 13 of EN 50075)** | | |
| | Plug shall have adequate mechanical strength to withstand the stresses imposed during use. | | P |
| 6.1 | The plugs are pressed between two flat surfaces with a force of 150N for 5min. 15min after removal of the force, the plug shall not show such deformation as would result in undue alteration of the dimensions which ensure safety. (Clause 13.1 of EN 50075) | | P |
| 6.2 | The plug is tested in a tumbling barrel.<br>(Clause 13.2 of EN 50075, fall number is shown in test report for product)<br>After the test, the plug shall show no damage within the meaning of this standard,<br>in particular:<br>--- no part shall become detached or loosened.<br>--- the pin shall not turn when a torque of 0.4Nm is applied.<br>Note: A section of the pin is square constructed for preventing the rotation. | | P |
| 6.3 | The pins is held in a suitable clamp in such a position that the straight part of a steel wire (D=1+-0.02mm, U-shaped) rests on the plug pin. The plug is caused to move backwards and forwards, so that the wire rubs along the pin. The number of the movements is 20 000, and the rate of the operation is 25 movements per min. (Clause 13.3 of EN 50075) | | P |
| | After the test, the pin show no damage which may effect safety or impair the further use of the plug, in particular, the insulating sleeve shall not have punctured or rucked up. | | P |
| 6.4 | A pull force of 40N is applied for 60s on each pin in turn in the direction of the longitudinal axis of the pin. The pull is applied 60min after the plug has been placed in a heating cabinet of 70°C. After the plug cooling down to ambient temperature, any pin shall not have displaced in the body of the plug more than 1mm. (Clause 13.4 of EN 50075) | | P |

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| **7.** | **Resistance to Heat and to Ageing (Clause 14 of EN 50075)** | | P |
| **8.** | **Current-carrying Parts and Connections (Clause 15 of EN 50075)** | | |
| 8.1 | Connection, electrical and mechanical, shall withstand the mechanical stresses occurring in normal use, and electrical connections shall be designed that contact pressure is not transmitted through insulating material. (Clause 15.1 & 15.2 of EN 50075) | | P |
| 8.2 | Current-carrying parts shall be of copper or an alloy containing at least 58% of copper. (Clause 15.3 of EN 50075) | | P |
| **9.** | **Creepage Distance, Clearances, and Distances Through Insulation (Clause 16 of EN 50075)** | | P |
| **10.** | **Resistance of Insulating Material to Abnormal Heat and to fire (Clause 17 of EN 50075)** | | P |

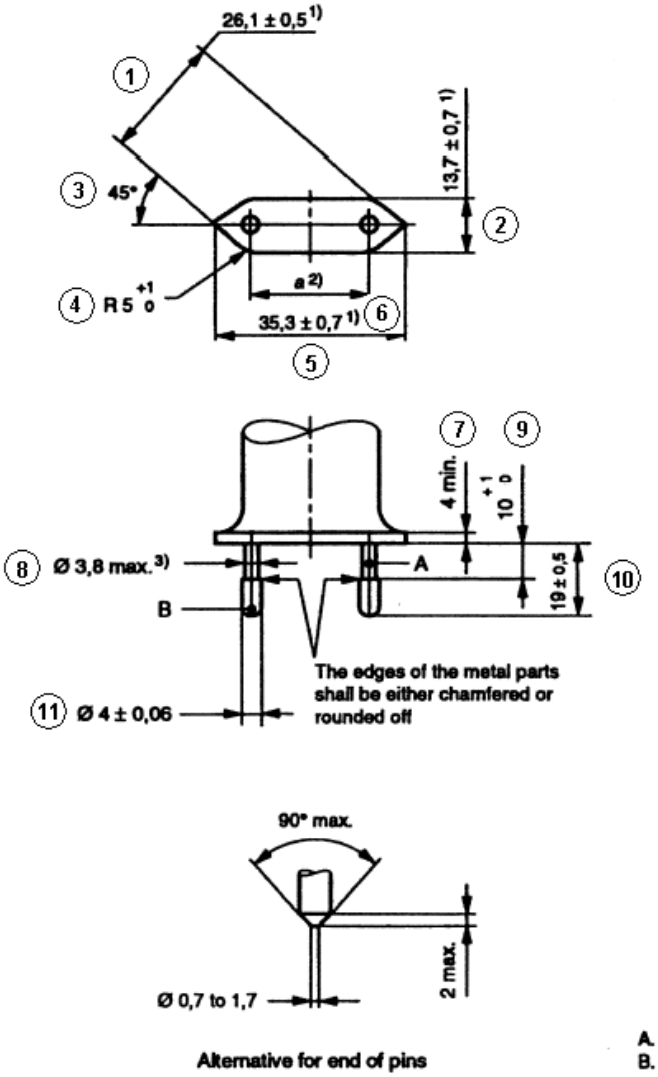
## Appendix no. 7 Dimension Checking for Two-pin plug according to EN50075

| | | |
|---|---|---|
| | **DIMENSIONS**<br>Checked by means of measurement according to EN50075 Standard sheet 1 (see appendix no.5) | P |

| Position | Requirement (mm) | Measured (mm) | Verdict |
|---|---|---|---|
| 1 | 25.6 – 26.6 | 25.84 | P |
| 2 | 13 – 14.4 | 13.98 | P |
| 3 | 45° | 45° | P |
| 4 | R5 – 6 | R5.4 | P |
| 5 | 34.6 – 36 | 35.09 | P |
| 6 | 18-19.2 in the plane of the engagement face | 18.15 | P |
| | 17-18 at the ends of the pins | 17.55 | P |
| 7 | 4min | - | N/A |
| 8 | ϕ3.8max | ϕ3.42 | P |
| 9 | 10-11 | 10.05 | P |
| 10 | 18.5 – 19.5 | 19.12 | P |
| 11 | ϕ3.94 - ϕ4.06 | ϕ3.98 | P |
| | Dimensions of position 1, 2 and 3 shall not be exceeded within a distance of 18mm from the engagement face of the plug | 19.15 | P |
| | The edges of the metal parts shall be either chamfered or rounded off | Rounded off | P |

## Appendix no. 8

**EN50075: 1990 Standard sheet 1**




*Dimensions in millimetres*

1) These dimensions shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

2) Dimension *a* is:

18 mm to 19,2 mm in the plane of the engagement face;

17 mm to 18 mm at the ends of the pins.

3) This dimension may be increased to 4 mm within a distance of 4 mm from the engagement face of the plug.

Pin ends shall be rounded, or conical as shown in detail sketch.

The sketches are not intended to govern design except as regards the dimensions shown.

## Appendix 9: Photo for plug portion according to EN 50075:1990

## APPENDIX NO.10: MECHANICAL DURABILITY TEST FOR NON-STANDARD INTERCHANGEABLE PLUG ADAPTERS ACCORDING IEC 61984: 2008

| IEC 61984: 2008 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **6.14.1** | **MECHANICAL ENDURANCE (COC AND CBC)** | | P |
| | A connector, either COC or CBC, shall meet the mechanical operations without load as specified in the DS or in the manufacturer's specification (preferred numbers of operating cycles are given in Table 4a). | 100 cycles | P |
| **7.3.9** | **MECHANICAL OPERATION** | | P |
| | The object of this test is to assess the mechanical operational endurance of a connector either CBC or COC in the normal operational mode without electrical load. | | P |
| | The test shall be carried out according to test 9a of IEC 60512, under the following conditions, unless otherwise specified. | | P |
| | Test conditions: | | P |
| | The specimens shall be engaged and disengaged by means of a device simulating normal operating conditions. | | P |
| | The preparation and mounting of the specimen shall be as in normal use. | | P |
| | The type and cross sectional area of the cable/wire bundle to be used shall be specified by the manufacturer or by the DS. | | P |
| | The number of operating cycles shall be specified by the manufacturer or by the DS. | | P |
| | Preferred values are indicated in Table 4a. | 100 cycles | P |
| | The speed of insertion and withdrawal shall be approximately 0,01 m/s with a rest in the unmated position of approximately 30 s. | | P |
| Table 4 | Mechanical and electrical durability | | P |
| | Table 4a – Operating cycles – Preferred values | | P |
| | Operating cycles - Preferred values<br>10<br>50<br>100<br>500<br>1 000<br>5 000 | 100 cycles | P |