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

Report Number..... :	2506B0901SHA-001
Date of issue ..... :	2025-09-25
Total number of pages ..... :	215 pages
Name of Testing Laboratory preparing the Report ..... :	Intertek Testing Services (Shanghai FTZ) Co., Ltd.
Applicant's name..... :	GlobTek, Inc.
Address ..... :	186 Veterans Drive Northvale NJ 07647, USA
Test specification:	
Standard ..... :	IEC 62368-1:2023
Test procedure..... :	CB Scheme
Non-standard test method..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2024, Ed.1.7
Test Report Form No. ..... :	IEC62368_1F
Test Report Form(s) Originator.... :	UL Solutions (US)
Master TRF ..... :	Dated 2025-06-13

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General disclaimer:

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Test item description .....:	ICT/ITE Power Supply
Trade Mark(s) .....:	GlobTek, Inc.
Manufacturer.....:	Same as applicant
Model/Type reference .....:	GT*96180-******, GT*96300-******, GT*91120-******, GTM91128LI*CEL**-****, GTM91128LI1CEL, GTM91128LI2CEL, GTM91128LI3CEL, GTM91128***-**** (Refer to page 7-12 for details)
Ratings .....:	Input: 100-240V~, 50-60Hz or 50/60Hz, 0.6A / 1.0A / 1.5A; Output: 3.2-56VDC, Max. 4.5A, Max. 36W

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	Intertek Testing Services (Shanghai FTZ) Co., Ltd.	
Testing location/ address ..... :		Building 86, No.1198, Qinzhou North Road, Shanghai, China	
Tested by (name, function, signature) ..... :		Adage Zhang (Engineer)	
Approved by (name, function, signature) .. :		Sam Li (Reviewer)	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name, function, signature)			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

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

Page 86 – 110: Group and national differences for the CENELEC countries
Page 111 – 118: National differences for US
Page 119 – 127: National differences for Canada
Page 128 – 133: National differences for Japan
Page 134 – 136: Annex IEC 60799:2018, IEC 60799:2018/AMD1:2022 for cord set
Page 137 – 138: Equipment combined with two-pole plug (Class II)
Page 139 – 140: Dimensions of integral plug
Page 141: Photo of Plug
Page 142: Mechanical durability test for non-standard interchangeable plug adapters according to IEC 61984: 2008
Page 143 – 215: Photos

Summary of testing:

All tests are performed and the most disadvantageous results are recorded. We conclude that the appliances comply with this standard.

Tests performed (name of test and test clause):	**Testing location: (CBTL, SPTL, CTF, Subcontractor)**
5.2, Classification of electrical energy sources 5.3.2, Annex V, Accessibility to electrical energy sources and safeguards (Accessibility test) 5.4.1.4, 6.3, 6.4, 9.0, B.2.6, B.3, B.4, Annex G.5.3, G.5.4, Heating test and abnormal &fault condition test 5.4.1.8, Determination of working voltage 5.4.1.10.3, Ball pressure test 5.4.2, 5.4.3, Annex X, Measurement of Clearance and Creepage Distances 5.4.8, Humidity test 5.4.9, Electric strength test 5.5.2.2, Safeguards against capacitance discharge test 5.6.6, Resistance of the protective bonding system (Ground continuity test) 5.7.2.1, Measurement of touch current 5.7.4, Unearthed accessible part test 5.7.5, Earthed accessible conductive part test 6.2.2, Electrical Power Source (PS) measurements for classification 6.2.3.1, Determination of Potential Ignition Sources (Arcing PIS) 6.2.3.2, Determination of Potential Ignition Sources (Resistive PIS) 6.4.8.3.3, 6.4.8.3.4, 6.4.8.3.5, Openings of the fire enclousre Annex B.2.5, Input test Annex B.3, B4, Simulated abnormal operating and single fault Conditions Annex F.3.10, Durability, legibility and permanence of markings Annex Q.1, Limited power source test (LPS) Annex T.4, T.5, Steady force test, 100N or 250N Annex T.7, Drop test Annex T.8, Stress relief test	Building 86, No.1198, Qinzhou North Road, Shanghai, China

Summary of compliance with National Differences

- IECEE Member countries that are also CENELEC members

  Compliance with Group Differences evaluated ☒ **yes** ☐ **No** ☐ N/A
- IECEE Member countries with published National Differences which were evaluated:

  US, Canada, Japan
- IECEE Member countries that did not publish any National Differences:

  N/A

To support compliance with published National Differences, attach a compilation of relevant ND and/or GD TRFs to the Test Report

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

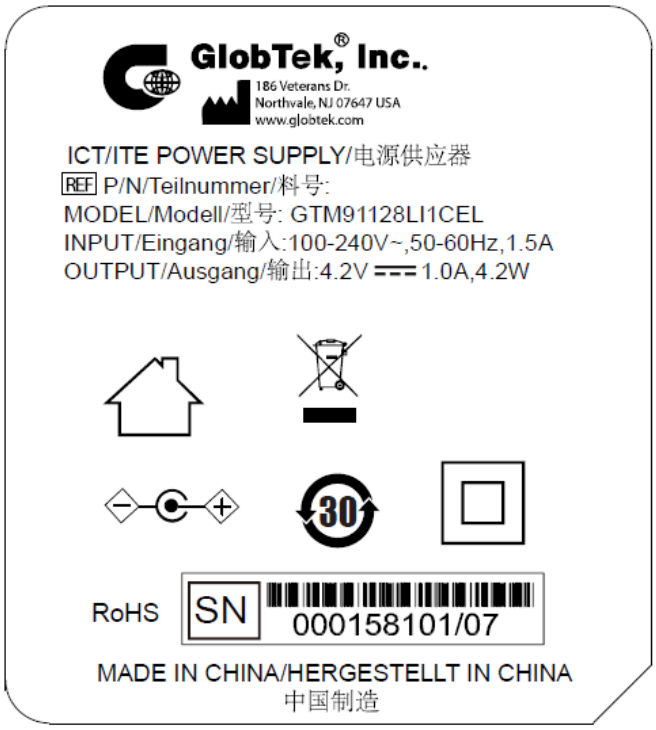
☐ Other: … (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

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: For other models, marking plates are the same except for model name and output ratings.

Test item particulars:	
Product group ..... :	end product / built-in component
Classification of use by ..... :	Ordinary person / Children likely present
Supply connection ..... :	AC mains
Supply tolerance ..... :	+10%/-10%
Supply connection – type ..... :	pluggable equipment type A appliance coupler / direct plug-in
Considered current rating of protective device ..... :	16A or 20A; Location: building
Equipment mobility ..... :	transportable / direct plug-in / for building-in
Overvoltage category (OVC) ..... :	OVC II
Class of equipment ..... :	Class I (See 'Model Differences' for details)/ Class II (See 'Model Differences' for details)
Special installation location ..... :	N/A
Pollution degree (PD) ..... :	PD 2
Manufacturer's specified T_{ma} ..... :	40°C
IP protection class ..... :	IPX0
Power systems ..... :	TN / IT - 230 V L-L
Altitude during operation (m) ..... :	5000m
Altitude of test laboratory (m) ..... :	2000 m or less
Mass of equipment (kg) ..... :	Less than 1kg

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 .....:	2025-06-11
Date (s) of performance of tests .....:	2025-07-07 to 2025-08-19

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.

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When determining the test conclusion, the Measurement Uncertainty of test has been considered.

The samples submitted for evaluation are representative of the products from each factory.

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** ☐ **Not applicable**

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

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

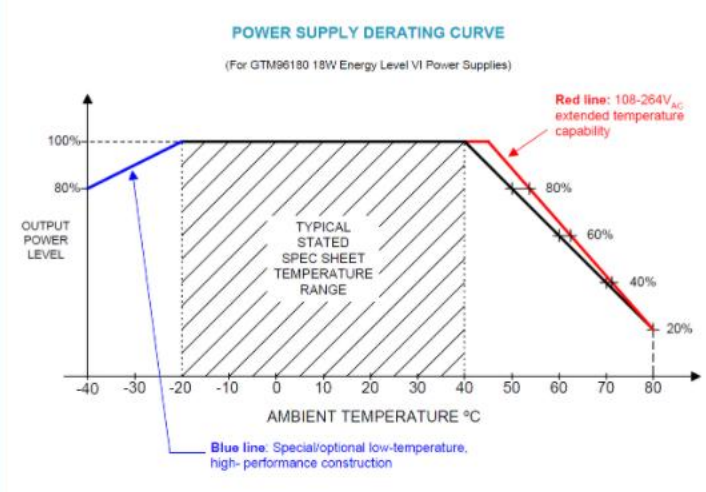
General product information and other remarks:

Product covered by this report is ICT/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	23W
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	11.76	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.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Primary circuit before transformer	Ordinary	N/A	N/A	Plastic enclosure
ES1: Secondary circuit after transformer	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS3: All circuits (except data ports)	All combustible materials on mainboard	Ignition not occur	Fire enclosure	N/A
PS2: data ports	All combustible materials on mainboard	Ignition not occur	N/A	N/A
PS1: data ports	All combustible materials on mainboard	N/A	N/A	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edges and corners	Ordinary	N/A	N/A	N/A
MS1: Equipment mass	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Accessible part	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: Indicating lights	Ordinary	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM
Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems. Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings
☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☒ **RS**

IEC 62368-1			
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	No accessible part which could cause injury.	P
4.1.4	Specified ambient temperature for outdoor use (°C) .....:		N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids, refrigerants and liquid filled components (LFCs)	(See Clause G.15)	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.3, T.4, T.5)	P
4.4.3.3	Drop tests	(See Clause T.7)	P
4.4.3.4	Impact tests	(See Clause T.6)	N/A
4.4.3.5	Internal accessible safeguard tests	(See Clause T.3)	N/A
4.4.3.6	Glass impact tests	(See Clause T.9)	N/A
4.4.3.7	Glass fixation test		N/A
	Glass impact test (1J)	(See Clause T.9)	N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Clause T.8)	P
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	Compliance checked.	P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	(See Annex K)	N/A
4.5	**Explosion**		P
4.5.1	General		P
4.5.2	No explosion during normal/abnormal operating conditions	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	**Fixing of conductors and conductive parts**		P
	Fix conductors and conductive parts not to defeat a safeguard		P
	Compliance is checked by test.....:	(See Clause T.2)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard ... :	Not direct plug-in plug	N/A
4.7.3	Torque (Nm) .....:		N/A
4.8	**Equipment containing coin or button cell batteries**		N/A
4.8.1	General		N/A
4.8.2	Instructional safeguard.....:		N/A
4.8.3	Coin or button cell battery compartment, door or cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test	(See Clause T.8)	N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test	(See Clause T.7)	N/A
4.8.4.5	Impact test	(See Clause T.6)	N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		P
4.10	**Component requirements**		P
4.10.1	Disconnect device	(See Annex L)	P
4.10.2	Switches and relays	(See Annex G)	N/A
4.10.3	Mains power supply cords	(See Clause G.7)	N/A
4.10.4	Batteries and their protection circuits	(See Annex M)	P

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1 and ES2 limits		P
5.2.2.2	Steady-state voltage and current limits..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits ..... :	(See appended table 5.2)	P
5.2.2.4	Single pulse limits..... :	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses..... :	(See appended table 5.2)	N/A
5.2.2.6	Ringing signals	(See Annex H)	N/A
5.2.2.7	Audio signals	(See Clause E.1)	N/A
5.3	**Protection against electrical energy sources**		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.1 a)	ES2/ES3 circuits that are not ES2/ES3 mains		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES2 or ES3 source cannot accessed by ordinary persons and ES3 source cannot accessed by instructed persons. Double or reinforced safeguard is provided between ES2 or ES3 and ordinary persons	P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		P
	Test with test probe from Annex V..... :	Test probe V.1, V.2 applied.	—
5.3.2.2 a)	Air gap – electric strength test potential (V)..... :	(See appended table 5.4.9)	P
5.3.2.2 b)	Air gap – distance (mm) ..... :	No openings on enclosures as received and after mechanical test	N/A
5.3.2.3	Compliance		P
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material	Hygroscopic materials are not used for insulating material.	P
5.4.1.3	Compliance		P
	Non-hygroscopic materials		P
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
5.4.1.5	Pollution degrees..... :	PD2	—
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 test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating 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
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Bobbin materials of all transformers are Phenolic that is accepted without further tests.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.2	Vicat test ..... :	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure test..... :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance		P
	Temporary overvoltage ..... :	2000V	—
5.4.2.3	Procedure 2 for determining clearance		P
5.4.2.3.2.2	AC mains transient voltages ..... :	2500V	—
5.4.2.3.2.3	DC mains transient voltages ..... :		—
5.4.2.3.2.4	External circuit transient voltages ..... :		—
5.4.2.3.2.5	Transient voltage determined by measurement..... :		—
5.4.2.3.3	Exceptions of determining required withstand voltage..... :		N/A
5.4.2.3.4	Determining clearances using required withstand voltage..... :	(See appended table 5.4.2, 5.4.3)	P
5.4.2.4	Determining the adequacy of a clearance using an electric strength test ..... :	(See appended table 5.4.2, 5.4.3)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages..... :	Multiplication factor is 1.48 for altitude up to 5000m.	—
5.4.2.6	Clearance measurement..... :	(See appended table 5.4.2, 5.4.3)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group and CTI..... :	Material group IIIb assumed.	—
5.4.3.4	Creepage distances measurement..... :	(See appended table 5.4.2, 5.4.3)	P
5.4.4	Solid insulation		P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		P
5.4.4.6.1	General requirements		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.2	Separable thin sheet material	(See appended table 5.4.9)	P
	Number of layers (pcs) ..... :	2	P
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....:	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V).....:	(See appended table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), K_R .....:	(See appended tables 5.4.4.9 and 5.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ) .....:		N/A
	Electric strength test ..... :	(See appended table 5.4.9)	N/A
5.4.6	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 (%), temperature (°C), duration (h).....:	Performed at 40 °C, 95% R.H. for 120h.	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		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.....:		N/A
5.4.10.2.3	Steady-state test .....:	(See appended table 5.4.9)	N/A
5.4.10.3	Verification for insulation breakdown .....:		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Surge suppressors bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V) .....:		—
	Nominal voltage U_{peak} (V) .....:		—
	Max increase due to variation ΔU_{sp} .....:		—
	Max increase due to ageing ΔU_{sa} .....:		—
5.4.11.3	Test method and compliance.....:	(See appended table 5.4.9)	N/A
	Test voltage (V) of additional test .....:		—
	Measured current (mA) of additional test.....:		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid.....:	(See appended table 5.4.9)	N/A
5.4.12.3	Compatibility of an insulating liquid		N/A
	Thermal classification of IEC 60085 .....:		—
5.4.12.4	Container for insulating liquid		N/A
5.5	**Components as safeguards**		P
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Capacitor discharge after disconnection of a connector.....:	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Clause G.5.3)	P
5.5.4	Optocouplers	(See Clause 5.4 or Clause G.12)	P
5.5.5	Relays	(See Clause 5.4)	N/A
5.5.6	Resistors	(See Clause G.10)	N/A
	Application type of resistors .....:		—
5.5.7	Surge suppressors	(See Clause G.8)	N/A
	GDT……:		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable .....:		N/A
	Insulation resistance (MΩ) .....:		N/A
	Electric strength test ..... :	(See appended table 5.4.9)	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) .....:		—
5.6	**Protective conductor**		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2	Requirements for protective conductors		P
5.6.2.1	General requirements	Class I AC inlet used for models GT**-***-T3/T3A/R3A/F/P3*	P
5.6.2.2	Colour of insulation	Green-and-yellow wire used. For class I equipment	P
5.6.3	Requirements for protective earthing conductors		P
	Protective earthing conductor size (mm^2) .....:	Approved inlet used	—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2).....:		—
5.6.4.2	Protective current rating (A) .....:		—
5.6.5	Terminals for protective conductors	AC inlet direct connect to protective bonding wire	P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm) .....:	Approved inlet used	P
	Terminal size for connecting protective bonding conductors (mm)..... :		N/A
	Relevant IEC standard ..... :		N/A
5.6.5.2	Corrosion	Complied.	P
5.6.6	Resistance of the protective bonding system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test method .....:	(See appended table 5.6.6)	N/A
5.6.6.3	Resistance (Ω) or voltage drop .....:	(See appended table 5.6.6)	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2) .....:		N/A
	Class II with functional earthing marking .....:		N/A
	Appliance inlet cl & cr (mm) .....:		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		P
5.7.2.2	Measurement of voltage		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts.....:	(See appended table 5.7.4)	P
5.7.5	Earthed accessible conductive parts .....:	(See appended table 5.7.5)	P
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA) .....:		N/A
	Instructional Safeguard .....:		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to an earthed external circuit, current (mA).....:		N/A
	b) Equipment connected to an unearthed external circuit, current (mA).....:		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES ..... :	(See appended table 5.8)	N/A
	Air gap (mm) ..... :	(See appended table 5.4.2, 5.4.3)	N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	**Classification of power sources and potential ignition sources**		P
6.2.2	Power source circuit classifications ..... :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS ..... :	(See appended table 6.2.3.2)	P
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....:	(See appended table 5.4.1.4, 9.3, B.1.5 and B.2.6)	P
	Combustible materials not inside a fire enclosure.... :	(See appended table 5.4.1.4, 9.3, B.1.5 and B.2.6) No ignition occurred, and no part of the equipment attained a temperature value greater than 300 °C.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method ..... :	The method “Control fire spread” is selected.	—
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	Supplementary safeguards		N/A
6.4.3.2	Single fault conditions ..... :	(See appended table B.4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards	All components in a PS2 are mounted on V-0 class material of printed boards and comply with the requirements of the relevant IEC components standard.	P
6.4.6	Control of fire spread in PS3 circuits	Providing fire enclosure for PS3 circuit.	P
6.4.7	Separation of combustible materials from a PIS		P
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier	Providing fire enclosure for PS3 circuit.	P
6.4.8	Fire enclosures and fire barriers		P
6.4.8.2	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		P
6.4.8.2.2	Requirements for a fire enclosure		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 and properties		P
	Openings dimensions (mm) ..... :	No opening	P
	Flammability tests for the top of a fire enclosure	(See Clause S.2)	N/A
6.4.8.3.4	Bottom openings and properties		P
	Openings dimensions (mm) ..... :	No opening	P
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard ..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Side openings and properties		P
	Openings dimensions (mm) .....:	No opening	P
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) .....:		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating.....:	plastic enclosure: V-0.	P
6.4.9	Flammability of insulating liquid		N/A
	Auto ignition temperature (°C) .....:		N/A
	Flashpoint temperature (°C).....:		N/A
6.5	**Internal and external wiring**		P
6.5.1	General requirements	Less than 0.5 mm^2 UL Approved output cord used.	P
6.5.2	Requirements for interconnection to building wiring .....:		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets .....:		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		P

7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	**Reduction of exposure to hazardous substances**		N/A
7.3	**Ozone exposure**		N/A
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		N/A
	Personal safeguards and instructions.....:		—
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010) .....:		—

8	**MECHANICALLY-CAUSED INJURY**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		N/A
8.4	**Safeguards against parts with sharp edges and corners**		N/A
8.4.1	Requirements		N/A
	Instructional Safeguard ..... :		N/A
8.4.2	Compliance criteria		N/A
8.5	**Safeguards against moving parts**		N/A
8.5.1	Requirements		N/A
	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	A manually activated stopping device for moving MS3		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard ..... :		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m) ..... :		N/A
	Space between end point and nearest fixed mechanical part (mm)..... :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly..... :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts ..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N) ..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test ..... :		N/A
8.5.5.3	Glass particles dimensions (mm)..... :		N/A
8.6	**Stability of equipment**		N/A
8.6.1	Requirements		N/A
	Instructional safeguard for MS2 and MS3 television sets..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.2	Static stability		N/A
8.6.2.2	Static stability test ..... :		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) ..... :		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test..... :		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		N/A
8.7.1	Requirements		N/A
	Mount means type ..... :		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N) ..... :		N/A
	Horizontal force to a wall or another structure		N/A
	Test 2, number of attachment points and test force (N) ..... :		N/A
	Test 3, nominal diameter (mm) and applied torque (Nm) ..... :		N/A
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles ..... :		—
	Weight applied (kg)..... :		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions ..... :		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) ..... :		N/A
8.10.4	Cart, stand or carrier impact test	(See Clause T.6)	N/A
	Loading force applied (N) on each supporting surface ..... :		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N)..... :		N/A
8.10.6	Thermoplastic temperature stability	(See Clause T.8)	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General		N/A
8.11.2	Requirements		N/A
	Instructional Safeguard ..... :		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force applied (N) ..... :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance criteria		N/A
8.12	**Telescoping or rod antennas**		N/A
	No sharp edges or points		N/A
	Button/ball diameter (mm)..... :		N/A
9	**THERMAL BURN INJURY**		P
9.2	**Thermal energy source classifications**		P
9.3	**Touch temperature limits**		P
9.3.1	Touch temperatures of accessible parts..... :	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance		P
9.4	**Safeguards against thermal energy sources**		N/A
9.5	**Requirements for safeguards**		N/A
9.5.1	Equipment safeguard		N/A
9.5.2	Instructional safeguard ..... :		N/A
9.6	**Requirements for wireless power transmitters**		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance criteria..... :	(See appended table 9.6)	N/A
10	**RADIATION**		P
10.2	**Radiation energy source classifications**		P
10.2.1	General classification		P
	Lasers.....:		—
	Lamps and lamp systems .....:	RS1: Indication LED	—
	Image projectors .....:		—
	X-Ray .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Personal music player.....:		—
10.3	**Safeguards against laser radiation**		N/A
	The standard(s) equipment containing laser(s) comply..... :		N/A
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		N/A
10.4.1	General requirements		N/A
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location..... :		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for equipment safeguards		N/A
	UV radiation exposure..... :	(See Annex C)	N/A
10.4.3	Instructional safeguard.....:		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons.....:		N/A
10.5.3	Maximum radiation (pA/kg) .....:	(See appended tables B.3 & B.4)	N/A
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A) ..... :		N/A
	Unweighted RMS output voltage (mV) ..... :		N/A
	Digital output signal (dBFS) ..... :		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30)..... :		N/A
	Warning for MEL ≥ 100 dB(A)..... :		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards .....:		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Listening device input voltage (mV) .....:		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
B.1.6	Specific output conditions		N/A
B.2	**Normal operating conditions**		P
B.2.1	General requirements .....:	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment containing an audio amplifiers .....:	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test.....:	(See appended table B.2.5) (See Clause E.3 for audio amplifier)	P
B.2.6.4	Equipment intended for building-in or rack-mounting	Considered.	P
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General		P
B.3.2	Covering of ventilation openings		N/A
	Instructional safeguard.....:		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		P
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions	(See Clause E.3.2)	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions .....:	(See appended table B.3, B.4)	P
B.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance criteria during and after single fault conditions .....:	(See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	(See Annex M)	N/A
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements		N/A
C.1.3	Test method and compliance criteria		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 test		N/A
C.2.4	Xenon-arc light-exposure test		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 INTENDED TO AMPLIFY AUDIO SIGNALS**		N/A
E.1	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W) .....:		—
	Rated load impedance (Ω) .....:		—
	Open-circuit output voltage (V) .....:		—
	Instructional safeguard.....:		—
E.2	**Audio signals used during test**		N/A
E.2.1	Pink noise test signal		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
E.2.2	Sine-wave signal		N/A
E.3	**Operating conditions of equipment containing an audio amplifier**		N/A
E.3.1	Normal operating conditions	(See appended table B.2.5, E.3.1)	N/A
E.3.2	Abnormal operating conditions	(See appended table B.3, B.4)	N/A
E.3.3	Audio equipment temperature measurement conditions……:		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language .....:	In English. Versions in other languages will be provided when national certificate approval.	—
F.2	**Letter symbols and graphical symbols**		P
F.2.1	Letter symbols according to IEC 60027-1		P
F.2.2	Graphic symbols according to 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 page	P
F.3.2.2	Model identification .....:	See marking page	P
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 the supply voltage .....:	See marking page	P
F.3.3.4	Rated voltage .....:	See marking page	P
F.3.3.5	Rated frequency .....:	See marking page	P
F.3.3.6	Rated current or rated power .....:	See marking page	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Markings on terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings :		N/A
F.3.5.2	Switch position identification marking .....:		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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: T1.6A, 250V / T3.15A 250V	P
	Instructional safeguards for neutral fuse.....:		N/A
F.3.5.4	Replacement battery identification marking.....:	(See Clause M.10)	N/A
F.3.5.5	Neutral conductor terminal		P
F.3.5.6	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment		P
F.3.6.1.1	Protective earthing conductor terminal .....:	For models GT**-*** T3/T3A/R3A/F/P3**	P
F.3.6.1.2	Protective bonding conductor terminals .....:		N/A
F.3.6.2	Equipment class marking.....:	For models GT**-***-T2/T2A/R2/FW/P2** GTM91128LI*CEL**-**** and GTM91128***-**** and GTM91128LI1CEL, GTM91128LI2CEL, GTM91128LI3CEL The symbol ⧈ on the label.	P
F.3.6.3	Functional earthing terminal marking.....:		N/A
F.3.7	Equipment IP rating marking.....:		N/A
F.3.8	External power supply unit output marking.....:		N/A
F.3.9	Durability, legibility and permanence of markings		P
F.3.10	Test for permanence of markings		P
F.4	**Instructions**		P
	– Information prior to installation and initial use		P
	– Equipment for use in locations where children not likely to be present	In manual.	P
	– Instructions for installation and interconnection		N/A
	– Equipment intended for use only in restricted access area		N/A
	– Equipment intended to be fastened in place		N/A
	– Instructions for audio equipment terminals		N/A
	– Protective earthing used as a safeguard		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	– Protective conductor current exceeding ES2 limits		N/A
	– Graphic symbols used on equipment	User guide provided with use indications and specifications	P
	– Permanently connected equipment not provided with all-pole mains switch		N/A
	– Replaceable components or modules providing safeguard function		N/A
	– Equipment containing insulating liquid		N/A
	– Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		P
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance criteria		N/A
G.2	**Relays**		N/A
G.2.1	Requirements and compliance criteria		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance criteria		N/A
G.3	**Protective devices**		P
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730-1 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance criteria		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance criteria		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices		P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.3, B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings	The appliance inlet complied with IEC 60320-1.	P
G.4.2	Mains connectors configuration .....:	The appliance inlet complied with IEC 60320-1.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	**Wound components**		P
G.5.1	Wire insulation in wound components	Approved TIW used for primary and secondary winding of transformer.	P
G.5.1.2	Protection against mechanical stress		P
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle).....:		—
	Test temperature (°C) .....:		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	Compliance criteria		N/A
G.5.3	Transformers		P
G.5.3.1	General		P
	Compliance method .....:	Meet the requirements in G.5.3.2 and G.5.3.3.	P
G.5.3.2	Insulation		P
	Protection from displacement of windings .....:		—
G.5.3.3	Transformer overload tests		P
G.5.3.3.1	Test conditions		P
	Position.....:	T1	P
	Method of protection .....:	TIW used.	P
G.5.3.3.2	Winding temperatures		P
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation .....:		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload 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) .....:		—
	Electric strength test ..... :	(See appended table 5.4.9)	N/A
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test ..... :	(See appended table 5.4.9)	N/A
G.5.4.5.3	Alternative method		N/A
	Electric strength test ..... :	(See appended table 5.4.9)	N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature (°C) .....:		N/A
	Electric strength test ..... :	(See appended table 5.4.9)	N/A
G.5.4.6.3	Alternative method		N/A
	Electric strength test ..... :	(See appended table 5.4.9)	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 (V) .....:		—
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains power supply cords and interconnection cables**		P
G.7.1	General requirements		P
	Type .....:	PVC sheathed, non-detachable power supply cord and having a mass not exceeding 3 kg	—
G.7.2	Cross sectional area (mm^2 or AWG).....:	0.75mm^2	P
G.7.3	Cord anchorages and strain relief		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N) .....:	30	P
G.7.3.2.2	Strain relief mechanism failure		P
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....:	Complied.	P
G.7.3.2.4	Strain relief and cord anchorage material		P
G.7.4	Cord Entry		P
G.7.5	Non-detachable cord bend protection		P
G.7.5.1	Requirements		P
G.7.5.2	Test method and compliance criteria		P
	Overall diameter or minor overall dimension, *D* (mm).....:	5.6	—
	Radius of curvature after test (mm) .....:	9.0	—
G.7.6	Supply wiring space		P
G.7.6.1	General requirements		P
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements		P
G.8.2	Safeguards against fire		P
G.8.2.1	General		P
G.8.2.2	Varistor overload test		P
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A) .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Manufacturers' defined drift .....:		—
G.9.2	Test Program		N/A
G.9.3	Compliance criteria		N/A
G.10	**Resistors**		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
	Changes of resistance (%).....:		N/A
	Measured current with the lowest resistance value :		N/A
G.10.4	Voltage surge test		N/A
	Changes of resistance (%).....:		N/A
G.10.5	Impulse test		N/A
	Changes of resistance (%).....:		N/A
G.10.6	Overload test		N/A
	Changes of resistance (%).....:		N/A
G.11	**Capacitors and RC units**		P
G.11.1	General requirements	X-Capacitors and Y-Capacitors used as safeguard and complied with IEC/EN 60384-14. (See appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5 with specifics	The optocouplers used in the equipment are complied with IEC/EN 60747-5-5. (See appended table 4.1.2)	N/A
	Type test voltage $V_{ini,a}$ .....:	See above.	—
	Routine test voltage, $V_{ini,b}$ .....:	See above.	—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Distance through insulation.....:		N/A
	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.13.6.2	Test method and compliance criteria		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements .....:	(See Clause G.13)	N/A
G.15	**Pressurized liquid filled components or LFC assemblies**		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance criteria for self-contained LFC		N/A
G.15.2.1	Hydrostatic pressure test, applied test pressure.....:		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test, the change of tensile strength (%) .....:		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test, test temperature (°C) .....:		N/A
G.15.2.6	Force test		N/A
G.15.2.7	Compliance criteria		N/A
G.15.3	Test methods and compliance for a modular LFC		N/A
G.15.3.2	Hydrostatic pressure test, applied test pressure.....:		N/A
G.15.3.3	Creep resistance test		N/A
G.15.3.4	Tubing and fittings compatibility test, the change of tensile strength (%) .....:		N/A
G.15.3.5	Thermal cycle test, test temperature (°C) .....:		N/A
G.15.3.6	Force test		N/A
G.15.3.7	Compliance criteria		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test .....:		—
	Mains voltage that impulses to be superimposed on .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test .....:		—
G.16.3	Capacitor discharge test .....:	(See appended table 5.5.2.2)	N/A
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		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 condition current (mA): .....:		—
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		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) .....:		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		P
J.1	**General**		P
	Winding wire insulation .....:	Approved TRIPLE INSULATION WIRE	—
	Solid round winding wire, diameter (mm).....:		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2) .....:		N/A
J.2/J.3	Tests and Manufacturing	(See separate test report)	—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard.....:		N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
K.6.1	Endurance requirement		N/A
K.7	**Interlock circuit isolation**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm) .....:		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm) .....:		N/A
	Electric strength test before and after the test of K.7.2 .....:	(See appended table 5.4.9)	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 5.4.9)	N/A
L	**DISCONNECT DEVICES**		P
L.1	**General requirements**		P
L.2	**Permanently connected equipment**		N/A
	Instructions for permanently connected equipment		N/A
L.3	**Parts that remain energized**	When the power cord is removed from the inlet no remaining parts with hazardous voltage in the equipment.	P
L.4	**Single-phase equipment**	The disconnect device disconnects both poles simultaneously.	P
	Instructions for single pole disconnect device		N/A
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
	Instructions for pluggable equipment		—
L.8	**Multiple power sources**		N/A
	Instructional safeguard .....:		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	**General requirements**		N/A
M.2	**Safety of batteries and their cells**		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards.....:	(see appended table 4.1.2)	N/A
M.3	**Protection circuits for batteries provided within the equipment**		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance criteria	(See appended table M.3)	N/A
M.4	**Additional safeguards for equipment containing a secondary lithium battery**		N/A
M.4.1	General		N/A
	IEC 62133-2 batteries used for sub-system power powering application .....:		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Test		N/A
M.4.2.2.1	General		N/A
M.4.2.2.2	Abnormal operating conditions		N/A
M.4.2.2.3	Single fault conditions		N/A
M.4.2.3	Compliance criteria .....:	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure .....:		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): .....:		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance criteria		N/A
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance criteria		N/A
M.6	**Safeguards against short-circuits**		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance criteria		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
	Calculated hydrogen generation rate .....:		N/A
M.7.2	Test method and compliance criteria		N/A
	Minimum air flow rate, Q (m^3/h) .....:		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%) .....:		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate .....:		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) .....:		N/A
M.7.4	Marking.....:		N/A
M.8	**Protection against internal ignition from external spark sources of rechargeable batteries with aqueous electrolyte**		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		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**		N/A
	Instructional safeguard.....:		N/A
N	**ELECTROCHEMICAL POTENTIALS**		P
	Material(s) used .....:	Considered	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Value of *X* (mm) .....:	Considered	—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		P
P.1	**General**		P
P.2	**Safeguards against entry or consequences of entry of a foreign object**		P
P.2.1	General		P
	Location and Dimensions (mm) .....:	No opening.	—
P.2.2	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.4 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts .....:		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
P.2.3	Consequence of entry test .....:		N/A
P.3	**Safeguards against spillage of internal liquids**		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance criteria		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) .....:		—
	Duration (weeks) .....:		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	**Limited power sources**		P
Q.1.1	Requirements		P
	a) Inherently limited output		N/A
	b) Impedance limited output		P
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance criteria .....:	(See appended table Q.1)	P
	Current rating of overcurrent protective device (A) :		N/A
Q.2	**Test for external circuits – paired conductor cable**		N/A
	Maximum output current (A) .....:		N/A
	Current limiting method .....:		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**		N/A
R.2	**Test setup**		N/A
	Overcurrent protective device for test .....:		—
R.3	**Test method**		N/A
	Cord/cable used for test .....:		—
R.4	**Compliance criteria**		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**		N/A
	Samples, material .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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).....:		—
	- Material did not show any additional holes for combustible materials		N/A
	- Cheesecloth did not ignite for top openings		N/A
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance criteria		N/A
	Mounting of samples .....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	**Flammability classification of materials**		P
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
S.6	**Grille covering material, cloth, and reticulated foam**		N/A
	Samples, material .....:		—
	Measured distance from the centre of the fuel tablet (mm)……:		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N .....:**	(See appended table T.2, T.3, T.4, T.5)	P
T.3	**Steady force test, 30 N .....:**	(See appended table T.2, T.3, T.4, T.5)	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T.4	**Steady force test, 100 N .....:**	(See appended table T.2, T.3, T.4, T.5)	N/A
T.5	**Steady force test, 250 N .....:**	(See appended table T.2, T.3, T.4, T.5)	P
T.6	**Enclosure impact test**	(See appended table T.6, T.9)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	**Drop test .....:**	(See appended table T.7)	P
T.8	**Stress relief test .....:**	(See appended table T.8)	P
T.9	**Glass Impact Test..... :**	(See appended table T.6, T.9)	N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted ..... :		N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) .....:		N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard**.....:**		N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A
U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		P
V.1	**Accessible parts of equipment**		P
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	**Accessible part criterion**		N/A
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		N/A
	Clearance..... :	(See appended table X)	N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		N/A
Y.1	**General**		N/A
Y.2	**Resistance to UV radiation**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Y.3	**Resistance to corrosion**		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by .....:		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure.....:		N/A
Y.3.5	Compliance criteria		N/A
Y.4	**Gaskets**		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests, changes of tensile strength and elongation ..... :		N/A
	Alternative test methods.....:		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance, change of swell / shrink (%)..... :		N/A
Y.4.6	Securing means	(See Clause P.4)	N/A
Y.5	**Protection of equipment within an outdoor enclosure**		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3.....:		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
	Relevant tests of IEC 60529 or Y.5.5.2 or Y.5.5.3 ..:		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		N/A
Y.6.1	General		N/A
Y.6.2	Impact test.....:	(See appended table T.6, T.9)	N/A

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

5.2	**TABLE: Classification of electrical energy sources**						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
264V,60Hz	Primary circuit (for all models)	Normal	264	--	--	--	ES3
		Abnormal	264	--	--	--	
		Single fault – SC/OC	264	--	--	--	
264V,60Hz	Sec. output + to -	Normal	48.1 Vdc	--	SS	--	ES1
		Abnormal	48.1 Vdc	--	SS	--	
		Single fault – T1 sec. (SC)	0	--	SS	--	
5.2.2.3 - Capacitance Limits							
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			Capacitance, nF		Upk (V)		
264V,60Hz	CX1	Normal	0.47uF		370		ES3
		Abnormal – output (OL)	--		--		
		Single fault - SC	--		--		
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. Note: Max. values are recorded in this report.							

5.4.1.8	**TABLE: Working voltage measurement**				P
Location	Peak voltage (V)	RMS voltage (V)	Frequency (Hz)	Comments	
--	--	--	--	--	
Supplementary information:					
Note: Max. values are recorded in this report.					

5.4.1.10.2	**TABLE: Vicat softening temperature of thermoplastics**	N/A

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

5.4.1.10.3	**TABLE: Ball pressure test of thermoplastics**				P
Allowed impression diameter (mm) .....:		≤ 2 mm			—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)	
Enclosure	See table 4.1.2	3.0	125	1.4	
Supplementary information:					
The bobbin material of transformer (T1) are phenolic, no test is needed.					

5.4.2, 5.4.3	**TABLE: Minimum Clearances/Creepage distance**							P
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq [1] (Hz)	Required cl (mm)	cl (mm)	E.S. [2] (V)	Required cr (mm)	cr (mm)
GTM96180 series								
L to N before fuse(FI)	2000	240	--	2.3	3.75	--	2.5	3.75
Two poles of fuse(FI)	2000	240	--	2.3	2.70	--	2.5	2.70
Primary to protective earth (Class I)(RI)	2000	240	--	4.5	6.10	--	5.0	6.10
Live parts to accessible parts(RI)	2000	240	--	4.5	8.20	--	5.0	8.20
Primary circuits to secondary circuits(RI)	2000	240	--	4.5	6.53	--	5.0	6.53
Primary winding to secondary winding(RI)	2000	240	--	4.5	6.50	--	5.0	6.50
Secondary winding to core(RI)	2000	240	--	4.5	7.20	--	5.0	7.20
Core to secondary parts(RI)	2000	240	--	4.5	7.10	--	5.0	7.10
GTM96300 series								
L to N before fuse(FI)	2000	240	--	2.3	7.12	--	2.5	7.12
Two poles of fuse(FI)	2000	240	--	2.3	2.60	--	2.5	2.60
Primary to protective earth (Class I)(RI)	2000	240	--	4.5	6.10	--	5.0	6.10
Live parts to accessible parts(RI)	2000	240	--	4.5	8.20	--	5.0	8.20
Primary circuits to secondary circuits(RI)	2000	240	--	4.5	6.66	--	5.0	6.66
Primary winding to secondary winding(RI)	2000	240	--	4.5	7.20	--	5.0	7.20

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

Secondary winding to core(RI)	2000	240	--	4.5	6.85	--	5.0	6.85
Core to secondary parts(RI)	2000	240	--	4.5	7.10	--	5.0	7.10
GTM91120series								
L to N before fuse(FI)	2000	240	--	2.3	4.60	--	2.5	4.60
Two poles of fuse(FI)	2000	240	--	2.3	2.62	--	2.5	2.62
Primary to protective earth (Class I)(RI)	2000	240	--	4.5	6.10	--	5.0	6.10
Live parts to accessible parts(RI)	2000	240	--	4.5	8.20	--	5.0	8.20
Primary circuits to secondary circuits(RI)	2000	240	--	4.5	7.70	--	5.0	7.70
Primary winding to secondary winding(RI)	2000	240	--	4.5	8.40	--	5.0	8.40
Secondary winding to core(RI)	2000	240	--	4.5	6.85	--	5.0	6.85
Core to secondary parts(RI)	2000	240	--	4.5	7.10	--	5.0	7.10
GTM91128 series								
L to N before fuse(FI)	2000	240	--	2.3	4.20	--	2.5	4.20
Two poles of fuse(FI)	2000	240	--	2.3	4.30	--	2.5	4.30
Live parts to accessible parts(RI)	2000	240	--	4.5	7.25	--	5.0	7.25
Primary circuits to secondary circuits(RI)	2000	240	--	4.5	7.25	--	5.0	7.25
Primary winding to secondary winding(RI)	2000	240	--	4.5	13.00	--	5.0	13.00
Secondary winding to core(RI)	2000	240	--	4.5	12.50	--	5.0	12.50
Core to secondary parts(RI)	2000	240	--	4.5	9.28	--	5.0	9.28

Supplementary information:

Note 1: Only for frequency above 30 kHz
Note 2: See table 5.4.2.4 if this is based on electric strength test
Note 3: Provide Material Group
FI: Function insulation; BI: Basic insulation; RI: Reinforced insulation
With the equipment to be operated at 5000m above sea level max. the minimum clearances is multiplied by the factor 1.48.

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

5.4.4.2	TABLE: Minimum distance through insulation				P
Distance through insulation (DTI) at/of		Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)
Enclosure		2000	Reinforced	0.4	Min. 2.0
Bobbin of T1		2000	Reinforced	0.4	Min. 0.45
Insulation tape on T1 and secondary heat-sink		2000	Reinforced	0.4	See appended table 4.1.2
Insulation sheet		2000	Reinforced	0.4	See appended table 4.1.2
Supplementary information:					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz	N/A

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
Line to Neutral (with fuse disconnect)		DC	2500V	No
Reinforced:				
Primary circuit to body (RI)		DC	4000V	No
Primary circuit to protective earth(RI)		DC	4000V	No
Primary circuit to secondary circuit (RI)		DC	4000V	No
Primary winding to secondary winding of T1 (RI)		DC	4000V	No
Primary winding to core (RI)		DC	4000V	No
Insulation tape around transformer per layer (RI)		DC	4000V	No
Insulation sheet (RI)		DC	4000V	No
Supplementary information:				
Note: The tests mentioned above were performed after humidity test.				

5.5.2.2	TABLE: Stored discharge on capacitors				P
Location	Supply voltage (V)	Operating and fault condition [1)]	Switch position	Measured voltage (Vpk)	ES Class
Line-Neutral	264V	N	--	24V	ES1

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

Line-Neutral	264V	S(R1 open)	--	120V	ES2
Supplementary information:					
X-capacitors installed for testing: CX1: 0.47uF [X] bleeding resistor rating: R1, R2: each 1MΩ [ ] ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit All models have been considered and the maximum value has been recorded.					

5.6.6	**TABLE: Resistance of protective conductors and terminations**				P
Location		Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
AC inlet inside to outside		40	2	0.45	0.010
Supplementary information:					
Tested with model GTM96300-3648-T3A					

5.7.4	**TABLE: Unearthed accessible parts**					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
All unearthed accessible conductive parts (plastic enclosure /output port)	(See table B.2, B.3, B.4 for details, maximum result recorded)	264V,60Hz	--	0.176mApk		ES1
			--	0.176mApk		
			--	0.176mApk		
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	**TABLE: Earthed accessible conductive part**			P
Supply voltage (V) ..... :	264V ac			—
Phase(s) ..... :	[X] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System ..... :	[X] TN [ ]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Between PE terminal of AC inlet to protective earthing conductor (earthing wire)	1 (earth open)	0.143	ES1	
	2 (neutral open)	0.122	ES1	
Supplementary Information:				
Tested with normal, abnormal and single-fault condition, and maximum value was recorded.				

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

5.8	**TABLE: Backfeed safeguard in battery backed up supplies**	N/A

6.2.2	**TABLE: Power source circuit classifications**					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
Primary circuit	--	--	--	--	--	PS3(declared)
Model: GTM96300-2307.5-2.5-R2						
DC output	max. test values are recorded. recorded)	4.8	5.4	33.9	5	PS2
Model: GTM96300-3648-R2						
DC output	max. test values are recorded. recorded)	47.74	0.77	42.7	5	PS2
Model: GTM96180-1807-2.0-T2						
DC output	max. test values are recorded. recorded)	4.77	3.90	24.6	5	PS2
Model: GTM96180-1848-T2						
DC output	max. test values are recorded. recorded)	48.25	0.46	26.6	5	PS2
Model: GTM91120-2007.5-2.5-T2						
DC output	max. test values are recorded. recorded)	4.8	4.5	21.6	5	PS2
Model: GTM91120-3048-T2						
DC output	max. test values are recorded. recorded)	48	0.85	38.4	5	PS2
Model: GTM91128LI3CEL						
DC output	max. test values are recorded. recorded)	12	2.0	31.2	5	PS2
Model: GTM91128LI3CEL-12614						
DC output	max. test values are recorded. recorded)	12.8	1.41	21.9	5	PS2
Model: GTM91128LI1CEL-T2-04220						
DC output	max. test values are recorded. recorded)	4.3	2.1	12.7	3	PS1
Model: GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019						
DC output	max. test values are recorded. recorded)	14.2	2.0	32.2	5	PS2
Model: GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019						
DC output	max. test values are recorded. recorded)	12.7	1.3	18.9	5	PS2

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

Model: GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036						
DC output	max. test values are recorded. recorded)	5.12	3.7	24.3	5	PS2
Model: GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036						
DC output	max. test values are recorded. recorded)	4.3	1.9	11.9	5	PS1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3. Note: The maximum power is measured under abnormal condition.						

6.2.3.1	**TABLE: Determination of Arcing PIS**			P
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
*	*	*	*	Yes
Supplementary information:				
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. (*) All components located within the power board are considered as arcing PIS.				

6.2.3.2	**TABLE: Determination of resistive PIS**		P
Location	Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes / No
*	*	*	Yes
Supplementary information:			
Abbreviation: SC= short circuit; OC= open circuit 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. (*) All circuits are regarded as Resistive PIS.			

8.5.5	**TABLE: High pressure lamp**	N/A

9.6	**TABLE: Temperature measurements for wireless power transmitters**	N/A

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

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**				P
Supply voltage (V) ..... :	90V, 60Hz	90V, 60Hz	264V, 60Hz	264V, 60Hz	—
Ambient temperature during test T_{amb} (°C) .... :	40.0	24.8	40.0	24.9	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Model: GTM96180-1807-2.0-T2					
T1 winding	105	--	99	--	110
T1 core	102	--	94	--	Ref.
Electrolytic capacitor C1	101	--	91	--	105
Optocoupler U3	93	--	84	--	110
Varistor MOV1	82	--	60	--	105
Y-capacitor CY1	101	--	95	--	125
X-capacitor CX1	85	--	63	--	110
PCB near T1	111	--	105	--	130
Plastic enclosure inside near transformer	90	--	88	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	74	--	73	77
Model: GTM96180-1817.9-5.9-T2					
T1 winding	95	--	92	--	110
T1 core	93	--	92	--	Ref.
Electrolytic capacitor C1	99	--	79	--	105
Optocoupler U3	76	--	75	--	110
Varistor MOV1	77	--	59	--	105
Y-capacitor CY1	86	--	83	--	125
X-capacitor CX1	77	--	60	--	110
PCB near T1	94	--	80	--	130
Plastic enclosure inside near transformer	76	--	77	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	52	--	53	77
Model: GTM96180-1838-2.0-T3A					
T1 winding	97	--	88	--	110
T1 core	95	--	88	--	Ref.

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

Electrolytic capacitor C1	96	--	73	--	105
Optocoupler U3	76	--	70	--	110
Varistor MOV1	74	--	55	--	105
Y-capacitor CY1	81	--	75	--	125
X-capacitor CX1	71	--	55	--	110
PCB near T1	93	--	74	--	130
Plastic enclosure inside near transformer	71	--	66	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	53	--	47	77
Model: GTM96180-1848-T3					
T1 winding	92	--	86	--	110
T1 core	94	--	89	--	Ref.
Electrolytic capacitor C1	98	--	78	--	105
Optocoupler U3	73	--	69	--	110
Varistor MOV1	77	--	57	--	105
Y-capacitor CY1	90	--	84	--	125
X-capacitor CX1	77	--	58	--	110
PCB near T1	95	--	75	--	130
Plastic enclosure inside near transformer	75	--	71	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	51	--	57	77
Model: GTM91120-1507.5-2.5-P2					
T1 winding	69.6	--	68.9	--	110
T1 core	70.9	--	70.6	--	Ref.
Optocoupler U3	70.3	--	69.7	--	110
Varistor MOV1	54.2	--	52.6	--	105
Y-capacitor CY1	64.6	--	63.5	--	125
X-capacitor CX1	57.8	--	56.7	--	110
PCB near T1	68.1	--	67.3	--	130
Plastic enclosure inside near transformer	66.4	--	65.5	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	45.4	--	43.2	77
Model: GTM96300-2307.5-2.5-R2					
T1 winding	106	--	102	--	110

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

T1 core	98	--	93	--	Ref.
Electrolytic capacitor C1	95	--	84	--	105
Optocoupler U3	96	--	90	--	110
Varistor MOV1	66	--	55	--	105
Y-capacitor CY1	90	--	86	--	125
X-capacitor CX1	75	--	63	--	110
PCB near T1	88	--	84	--	130
Plastic enclosure inside near transformer	81	--	77	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	58	--	55	77
Model: GTM96300-3617.9-5.9-R3A					
T1 winding	105	--	98	--	110
T1 core	105	--	98	--	Ref.
Electrolytic capacitor C1	102	--	81	--	105
Optocoupler U3	97	--	92	--	110
Varistor MOV1	72	--	56	--	105
Y-capacitor CY1	107	--	99	--	125
X-capacitor CX1	85	--	64	--	110
PCB near T1	96	--	88	--	130
Plastic enclosure inside near transformer	83	--	76	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	58	--	53	77
Model: GTM96300-3624-R2					
T1 winding	105	--	88	--	110
T1 core	105	--	91	--	Ref.
Electrolytic capacitor C1	103	--	76	--	105
Optocoupler U3	92	--	87	--	110
Varistor MOV1	72	--	54	--	105
Y-capacitor CY1	98	--	87	--	125
X-capacitor CX1	89	--	62	--	110
PCB near T1	95	--	81	--	130
Plastic enclosure inside near transformer	84	--	74	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	59	--	55	77

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

Model: GTM96300-3648-R3A					
T1 winding	103	--	90	--	110
T1 core	101	--	90	--	Ref.
Electrolytic capacitor C1	100	--	76	--	105
Optocoupler U3	98	--	90	--	110
Varistor MOV1	67	--	52	--	105
Y-capacitor CY1	95	--	86	--	125
X-capacitor CX1	79	--	58	--	110
PCB near T1	104	--	86	--	130
Plastic enclosure inside near transformer	88	--	81	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	58	--	55	77
Model: GTM91128LI3CEL-12614					
T1 winding	105	--	107	--	110
T1 core	106	--	111	--	Ref.
Electrolytic capacitor C2	99	--	95	--	105
Optocoupler U3	101	--	102	--	110
Varistor MOV1	72	--	70	--	105
Y-capacitor CY1	84	--	86	--	125
X-capacitor CX1	80	--	78	--	110
PCB near T1	99	--	95	--	130
Output cord	70	--	65	--	80
Plastic enclosure inside near transformer	82	--	83	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	51	--	52	77
Model: GTM91128LI1CEL-T2-04220					
T1 winding	104	--	109	--	110
T1 core	102	--	107	--	Ref.
Electrolytic capacitor C2	84	--	86	--	105
Optocoupler U3	95	--	98	--	110
Varistor MOV1	66	--	67	--	105
Y-capacitor CY1	93	--	96	--	125
X-capacitor CX1	71	--	71	--	110
PCB near T1	87	--	88	--	130

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

Output cord	64	--	63	--	80
Plastic enclosure inside near transformer	82	--	83	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	50	--	53	77
Model: GTM91128LI3CELM-1260214019					
T1 winding	109	--	104	--	110
T1 core	108	--	103	--	Ref.
Electrolytic capacitor C2	104	--	96	--	105
Optocoupler U3	109	--	107	--	110
Varistor MOV1	74	--	62	--	105
Y-capacitor CY1	96	--	91	--	125
X-capacitor CX1	82	--	68	--	110
PCB near T1	121	--	107	--	130
Output cord	51	--	51	--	80
Plastic enclosure inside near transformer	84	--	88	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	59	--	57	77
Model: GTM91128LI3CELM-1261214010					
T1 winding	106	--	105	--	110
T1 core	105	--	104	--	Ref.
Electrolytic capacitor C2	101	--	96	--	105
Optocoupler U3	109	--	108	--	110
Varistor MOV1	72	--	63	--	105
Y-capacitor CY1	92	--	90	--	125
X-capacitor CX1	80	--	69	--	110
PCB near T1	116	--	107	--	130
Output cord	50	--	51	--	80
Plastic enclosure inside near transformer	81	--	80	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	54	--	58	77
Model: GTM91128LI1CELM-0420405036					
T1 winding	87	--	87	--	110
T1 core	84	--	85	--	Ref.
Electrolytic capacitor C2	84	--	78	--	105

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

Optocoupler U3	85	--	84	--	110
Varistor MOV1	59	--	56	--	105
Y-capacitor CY1	75	--	75	--	125
X-capacitor CX1	59	--	60	--	110
PCB near T1	84	--	72	--	130
Output cord	46	--	48	--	80
Plastic enclosure inside near transformer	74	--	73	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	53	--	53	77
Model: GTM91128LI1CELM-0421805024					
T1 winding	98	--	99	--	110
T1 core	96	--	96	--	Ref.
Electrolytic capacitor C2	91	--	84	--	105
Optocoupler U3	94	--	93	--	110
Varistor MOV1	62	--	59	--	105
Y-capacitor CY1	87	--	87	--	125
X-capacitor CX1	67	--	64	--	110
PCB near T1	91	--	77	--	130
Output cord	49	--	51	--	80
Plastic enclosure inside near transformer	82	--	81	--	115
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	59	--	58	77
Ambient temperature during test T_{amb} (°C) :	75.0*	24.8	75.0*	24.9	—
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)
Model: GTM96180-1830-12.0					
T1 winding	86	--	87	--	110
T1 core	85	--	85	--	Ref.
Electrolytic capacitor C1	85	--	84	--	105
Optocoupler U3	82	--	82	--	110
Varistor MOV1	80	--	78	--	105
Y-capacitor CY1	84	--	85	--	125
X-capacitor CX1	82	--	81	--	110
PCB near T1	87	--	87	--	130
Plastic enclosure inside near transformer	80	--	81	--	115

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

Below temperatures are adjusted to ambient of 25 °C.							
Plastic enclosure outside near transformer		--	26	--	27	77	
Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							
* indicated thermocouple method was used to measure the winding, so the limit value reduced 10K. Note 1: Tma should be considered as directed by appliable requirement Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9) Note 3: Test was repeated for three times as the temperature of T1 winding was close to limited value. *Derating load (output load 18Vdc, 0.3A) is considered because of derating under 75°C.							

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Model: GTM96180-1807-2.0-T2 & GTM96180-1807-2.0								
90	50/60	0.4062	--	22.64	--	F1/F2	0.4062	Max. normal load
100	50/60	0.3675	0.6	22.27	--	F1/F2	0.3675	
240	50/60	0.1901	0.6	21.95	--	F1/F2	0.1901	
264	50/60	0.1758	--	22.18	--	F1/F2	0.1758	
Model: GTM96180-1817.9-5.9-T2 & GTM96180-1817.9-5.9								
90	50/60	0.3974	--	22.13	--	F1/F2	0.3974	Max. normal load
100	50/60	0.3647	0.6	21.86	--	F1/F2	0.3647	
240	50/60	0.1859	0.6	21.35	--	F1/F2	0.1859	
264	50/60	0.1731	--	21.52	--	F1/F2	0.1731	
Model: GTM96180-1838-2.0-T2 & GTM96180-1838-2.0								
90	50/60	0.3851	--	21.35	--	F1/F2	0.3851	Max. normal load
100	50/60	0.3530	0.6	21.11	--	F1/F2	0.3530	
240	50/60	0.1806	0.6	20.55	--	F1/F2	0.1806	
264	50/60	0.1653	--	20.61	--	F1/F2	0.1653	
Model: GTM96180-1848-T2 & GTM96180-1848								
90	50/60	0.3794	--	20.94	--	F1/F2	0.3794	Max. normal load
100	50/60	0.3481	0.6	20.69	--	F1/F2	0.3481	
240	50/60	0.1774	0.6	20.26	--	F1/F2	0.1774	
264	50/60	0.1648	--	20.41	--	F1/F2	0.1648	
Model: GTM96300-2307.5-2.5-R3A								
90	50/60	0.5931	--	31.03	--	F1/F2	0.5931	Max. normal load

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

100	50/60	0.5285	1.0	30.53	--	F1/F2	0.5285	
240	50/60	0.2643	1.0	30.59	--	F1/F2	0.2643	
264	50/60	0.2332	--	30.71	--	F1/F2	0.2332	
Model: GTM96300-3614.5-2.5-R3A								
90	50/60	0.8171	--	43.36	--	F1/F2	0.8171	Max. normal load
100	50/60	0.7227	1.0	42.68	--	F1/F2	0.7227	
240	50/60	0.3547	1.0	42.07	--	F1/F2	0.3547	
264	50/60	0.3133	--	41.93	--	F1/F2	0.3133	
Model: GTM96300-3624-R3A								
90	50/60	0.8007	--	42.30	--	F1/F2	0.8007	Max. normal load
100	50/60	0.7162	1.0	41.84	--	F1/F2	0.7162	
240	50/60	0.3407	1.0	40.80	--	F1/F2	0.3407	
264	50/60	0.3109	--	40.86	--	F1/F2	0.3109	
Model: GTM96300-3648-R3A								
90	50/60	0.7682	--	41.46	--	F1/F2	0.7682	Max. normal load
100	50/60	0.6849	1.0	41.03	--	F1/F2	0.6849	
240	50/60	0.3343	1.0	39.91	--	F1/F2	0.3343	
264	50/60	0.3019	--	39.86	--	F1/F2	0.3019	
Model: GTM96300-3656-T3-APOE								
90	50/60	0.7245	--	40.92	--	F1/F2	0.7245	Max. normal load
100	50/60	0.6158	1.0	40.23	--	F1/F2	0.6158	
240	50/60	0.3205	1.0	39.37	--	F1/F2	0.3205	
264	50/60	0.2987	--	38.89	--	F1/F2	0.2987	
Model: GTM91120-2007.5-2.5-T2								
90	50/60	0.52	--	27.0	--	F1/F2	0.52	Max. normal load
100	50/60	0.47	1.0	26.2	--	F1/F2	0.47	
240	50/60	0.24	1.0	26.1	--	F1/F2	0.24	
264	50/60	0.22	--	26.1	--	F1/F2	0.22	
Model: GTM91120-3014.5-2.5-T2								
90	50/60	0.70	--	36.1	--	F1/F2	0.70	Max. normal load
100	50/60	0.64	1.0	35.7	--	F1/F2	0.64	
240	50/60	0.32	1.0	35.0	--	F1/F2	0.32	
264	50/60	0.29	--	35.1	--	F1/F2	0.29	
Model: GTM91120-3024-T3A								

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

90	50/60	0.65	--	35.0	--	F1/F2	0.65	Max. normal load
100	50/60	0.59	1.0	34.6	--	F1/F2	0.59	
240	50/60	0.30	1.0	33.8	--	F1/F2	0.30	
264	50/60	0.28	--	33.6	--	F1/F2	0.28	
Model: GTM91120-3048-T2								
90	50/60	0.66	--	35.2	--	F1/F2	0.66	Max. normal load
100	50/60	0.61	1.0	34.9	--	F1/F2	0.61	
240	50/60	0.30	1.0	33.6	--	F1/F2	0.30	
264	50/60	0.28	--	34.2	--	F1/F2	0.28	
Model: GTM91128LI3CEL-12614								
90	50/60	0.454	--	21.82	--	F1/F2	0.454	Max. normal load
100	50/60	0.422	1.0	21.71	--	F1/F2	0.422	
240	50/60	0.225	1.0	21.91	--	F1/F2	0.225	
264	50/60	0.209	--	21.89	--	F1/F2	0.209	
Model: GTM91128LI1CEL-T2-04220								
90	50/60	0.286	--	12.43	--	F1/F2	0.286	Max. normal load
100	50/60	0.264	1.0	12.45	--	F1/F2	0.264	
240	50/60	0.140	1.0	12.67	--	F1/F2	0.140	
264	50/60	0.131	--	12.76	--	F1/F2	0.131	
Model: GTM91128LI3CELM-1261214010(full load on Charger output)								
90	50/60	0.395	--	18.58	--	F1/F2	0.395	Max. normal load
100	50/60	0.366	1.0	18.50	--	F1/F2	0.366	
240	50/60	0.192	1.0	18.52	--	F1/F2	0.192	
264	50/60	0.181	--	18.75	--	F1/F2	0.181	
Model: GTM91128LI3CELM-1260214019(full load on power supply output)								
90	50/60	0.596	--	30.51	--	F1/F2	0.596	Max. normal load
100	50/60	0.553	1.0	30.27	--	F1/F2	0.553	
240	50/60	0.294	1.0	30.05	--	F1/F2	0.294	
264	50/60	0.274	--	30.12	--	F1/F2	0.274	
Model: GTM91128LI1CELM-0421805024(full load on Charger output)								
90	50/60	0.258	--	11.04	--	F1/F2	0.258	Max. normal load
100	50/60	0.237	1.0	11.01	--	F1/F2	0.237	
240	50/60	0.128	1.0	11.39	--	F1/F2	0.128	
264	50/60	0.122	--	11.54	--	F1/F2	0.122	

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

Model: GTM91128LI1CELM-0420405036(full load on power supply module output)								
90	50/60	0.474	--	22.61	--	F1/F2	0.474	Max. normal load
100	50/60	0.442	1.0	22.50	--	F1/F2	0.442	
240	50/60	0.230	1.0	22.41	--	F1/F2	0.230	
264	50/60	0.216	--	22.66	--	F1/F2	0.216	
Supplementary information:								
The maximum measured current under rated voltage did not exceed 110% of the rated current.								

B.2.5, E.3.1	**TABLE: Input test for equipment containing audio amplifiers**	N/A

B.3, B.4	**TABLE: Abnormal operating and fault condition tests**					P
Ambient temperature T_{amb} (°C)..... :		25.0, if not stated below.				—
Power source for EUT: Manufacturer, model/type, outputrating .. :		-				—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Output (5V series)	OL	264	1h	F1/F2	0.858A	Load to 5.44A, EUT protected immediately, no hazards. Temperature recorded: T1 winding = 94℃ Enclosure: 58℃
Output (48V series)	OL	264	1h	F1/F2	0.803A	Load to 0.768A, EUT protected immediately, no hazards. Temperature recorded: T1 winding = 109℃ 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

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

BD1	SC	90/264	<1s	F1/F2	10*	EUT shut down immediately, fuse opened, repeat 10 times, no hazards
For model GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019						
Charger output	OL	264	1h	F1/F2	0.187	Load to 1.21A, EUT protected immediately, no hazards. Temperature recorded: T1 winding=105°C Enclosure=73°C
Charger output	OL	90	1h	F1/F2	0.405	Load to 1.21A, EUT protected immediately, no hazards. Temperature recorded: T1 winding=106°C Enclosure=69°C
Power supply output	OL	264	1h	F1/F2	0.281	Load to 2.01A, EUT protected immediately, no hazards. Temperature recorded: T1 winding=104°C Enclosure=72°C
Power supply output	OL	90	1h	F1/F2	0.605	Load to 2.01A, EUT protected immediately, no hazards. Temperature recorded: T1 winding=109°C 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
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	FS1/ FS2	>10	EUT shut down immediately, fuse opened, repeat 10 times, 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. Temperature recorded: T1 winding=99°C Enclosure=77°C
Charger output	OL	90	1h	F1/F2	0.269	Load to 1.81A, EUT protected immediately, no hazards.

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

						Temperature recorded: T1 winding= 98°C Enclosure= 77°C
Power supply output	OL	264	1h	F1/F2	0.225	Load to 1.21A, EUT protected immediately, no hazards. Temperature recorded: T1 winding= 87°C Enclosure= 69°C
Power supply output	OL	90	1h	F1/F2	0.486	Load to 1.21A, EUT protected immediately, no hazards. Temperature recorded: T1 winding= 87°C Enclosure= 69°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
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. Temperature recorded: T1 winding= 109°C Enclosure= 82°C
Output	OL	90	1h	F1/F2	0.478	Load to 1.41 A, EUT protected immediately, no hazards. Temperature recorded: T1 winding= 105°C 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
C2	SC	90/264	40min	F1/F2	>10A	EUT shut down immediately,

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

						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. Temperature recorded: T1 winding= 109°C Enclosure= 83°C
Output	OL	90	1h	F1/F2	0.295	Load to 2.10A, EUT protected immediately, no hazards. Temperature recorded: T1 winding= 106°C 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
Supplementary information:						
Abbreviation: S-C= short circuit; O/L = overload NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal. Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4. 1) The test result shown all safeguards remained effective and didn’t lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions. 2) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition. 3) The overloaded condition is applied according to annex G.5.3.3. Winding Limit for T1: 175-10=165°C						

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

M.3	TABLE: Protection circuits for batteries provided within the equipment	N/A

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery	N/A

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						P
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
Model: GTM96300-2307.5-2.5-R2							
Output	Output OC	5.14	5	0	8	0	100
	Output O/L	5.14	5	5.44	8	33.9	100
	Single fault: Primary current limitation disabled. (R13 short)	5.14	5	0	8	0	100
Model: GTM96300-3648-R2							
Output	Output OC	48.09	5	0	8	0	100
	Output O/L	48.09	5	0.768	8	42.7	100
	Single fault: Primary current limitation disabled. (R13 short)	48.09	5	0	8	--	100
Model: GTM96180-1807-2.0-T2							
Output	Output OC	5.112	5	0	8	0	100
	Output O/L	5.112	5	3.9	8	24.6	100
	Single fault: Primary current limitation disabled. (R13 short)	5.112	5	0	8	0	100
Model: GTM96180-1848-T2							
Output	Output OC	48.44	5	0	8	0	100
	Output O/L	48.44	5	0.465	8	26.6	100
	Single fault: Primary current limitation disabled. (R13 short)	48.44	5	0	8	0	100
Model: GTM91120-2007.5-2.5-T2							
Output	Output OC	5.13	5	0	8	0	100
	Output O/L	5.13	5	4.5	8	21.6	100
	Single fault: Primary current limitation disabled. (R11 short)	5.13	5	0	8	0	100
Model: GTM91120-3048-T2							
Output	Output OC	48.03	5	0	8	0	100
	Output O/L	48.03	5	0.85	8	38.4	100

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

	Single fault: Primary current limitation disabled. (R11 short)	48.03	5	0	8	0	100
Model: GTM91128LI3CEL-12614							
Output	Output OC	12.36	5	0	8	0	100
	Output O/L	12.36	5	1.41	8	21.91	100
	Single fault: Primary current limitation disabled. (R13 short)	12.36	5	0	8	0	100
Model: GTM91128LI1CEL-T2-04220							
Output	Output OC	3.80	5	0	8	0	100
	Output O/L	3.80	5	2.10	8	12.76	100
	Single fault: Primary current limitation disabled. (R13 short)	3.80	5	0	8	0	100
Model: GTM91128LI3CELM-1261214010, GTM91128LI3CELM-1260214019							
Power supply output	Output OC	13.2	5	0	8	0	100
	Output O/L	13.2	5	2.01	8	31.54	100
	Single fault: Primary current limitation disabled. (R13 short)	13.2	5	0	8	0	100
Charger output	Output OC	12.3	5	0	8	0	100
	Output O/L	12.3	5	1.21	8	18.92	100
	Single fault: Primary current limitation disabled. (R13 short)	12.3	5	0	8	0	100
Model: GTM91128LI1CELM-0421805024, GTM91128LI1CELM-0420405036							
Power supply output	Output OC	4.57	5	0	8	0	100
	Output O/L	4.57	5	3.60	8	23.80	100
	Single fault: Primary current limitation disabled. (R13 short)	4.57	5	0	8	0	100
Charger output	Output OC	3.80	5	0	8	0	100
	Output O/L	3.80	5	1.81	8	11.97	100
	Single fault: Primary current limitation disabled. (R13 short)	3.80	5	0	8	0	100
Supplementary Information:							
Abbreviation: SC= short circuit; O/L = overload; OC=Open circuit							

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

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Internal components	--	--	Figure V.1	10	5	The clearance and creepage distances do not be reduced below the required values.
External plastic enclosure	See table 4.1.2	See table 4.1.2	Figure V.1	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:						

T.6, T.9	TABLE: Impact test	N/A

T.7	TABLE: Drop test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
External plastic enclosure	See table 4.1.2	See table 4.1.2	1000	All safeguards remained effective.	
Supplementary information:					

T.8	TABLE: Stress relief test				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
External plastic enclosure	See table 4.1.2	See table 4.1.2	100	7	All safeguards remained effective.
Supplementary information:					

X	TABLE: Alternative method for determining minimum clearances distances	N/A

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

4.1.2	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ Trademark**	**Type No./model No./**	**Technical data**	**Standard No./, Edition**	**Mark(s) & Certificates of conformity[1)]**
Cord set: According to the manufacturer's declaration, the unit will be supplied with a power attachment cord and plug which meet the national requirements which have been approved to relevant national and international standards.					
Enclosure (all parts)	SABIC INNOVATIVE PLASTICS B V	945	PC, Min. V-1, Min. thickness: 2.0mm, 120°C	UL 94 IEC/EN 62368-1	UL E45329 & Tested with appliance
Alt.	SABIC INNOVATIVE PLASTICS B V	HF500R	PC, V-0, Min. thickness: 2.0mm, 125°C	UL 94 IEC/EN 62368-1	UL E45329 & Tested with appliance
Alt.	SABIC JAPAN L L C	945	PC, Min. V-1, Min. thickness: 2.0mm, 120°C	UL 94 IEC/EN 62368-1	UL E207780 & Tested with appliance
Alt.	TEIJIN CHEMICALS LTD	LN-1250P, LN-1250G	PC, Min. V-0, Min. thickness: 2.0mm, 115°C	UL 94 IEC/EN 62368-1	UL E50075 & Tested with appliance
Appliance inlet Class I units(C6 type)	Zhejiang LECI Electronics Co., Ltd.	DB-6	2.5A, 250Vac	IEC/EN 60320-1 UL 498	VDE 40032465 UL E302229
Alt.	Rich Bay Co., Ltd.	R-30790, R-307	2.5A, 250Vac	IEC/EN 60320-1 UL 498	VDE 40030381 UL E184638
Alt.	TECX-UNIONS Technology Corporation	TU-333	2.5A, 250Vac	IEC/EN 60320-1 UL 498	ENEC 00633 UL E220004
Alt.	Rong Feng Industrial Co., Ltd.	RF-190	2.5A, 250Vac	IEC/EN 60320-1 UL 498	VDE 40030379 UL E102641
Alt.	Zhe Jiang Bei Er jia	ST-A04 Series	2.5A, 250Vac	IEC/EN 60320-1 UL 498	VDE 40016045 UL E225980
Appliance	Zhejiang LECI	DB-14	250 Vac; 10A;	IEC/EN	VDE

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

inlet Class I units (C14 type)	Electronics			60320-1 UL 498	40032137 UL E302229
Alt.	Tecx-Unions Technology Corp	TU-301 Series	250 Vac; 10A;	IEC/EN 60320-1 UL 498	ENEC00647 UL E220004
Alt.	Rich Bay Co Ltd	R-301SN	250 Vac; 10A;	IEC/EN 60320-1 UL 498	VDE 40030228 UL E184638
Alt.	Rong Feng IndustrialCo., Ltd.	SS-120	250 Vac; 10A;	IEC/EN 60320-1 UL 498	VDE 40028101 UL E102641
Alt.	Zhe Jiang BeiErjia	ST-A01 Series	250 Vac; 10A	IEC/EN 60320-1 UL 498	VDE 40013388 UL E225980
Alt.	SCHURTER AG	6010-Series	250 Vac; 10A	IEC/EN 60320-1 UL 498	VDE 40011871 UL E96454
Appliance inlet Class II units (C8 type)	Zhejiang LECI Electronics	DB-8	250 Vac; 2,5A;	IEC/EN 60320-1 UL 498	VDE 40032028 UL E302229
Alt.	Rich Bay Co Ltd	R201SN90	250 Vac; 2,5A	IEC/EN 60320-1 UL 498	VDE 40030384 UL E184638
Alt.	Sun Fair Electric Wire & Cable (HK) Co Ltd	S-01	250 Vac; 2,5A;	IEC/EN 60320-1 UL 498	VDE 40034449 UL E226643
Alt.	Zhe Jiang BeiErjia	ST-A03 Series	250 Vac; 2,5A;	IEC/EN 60320-1 UL 498	VDE 40014833 UL E225980
Alt.	Rong Feng IndustrialCo., Ltd.	RF-180	250 Vac; 2,5A;	IEC/EN 60320-1 UL 498	VDE 40030168 UL E102641
Alt.	TECX-UNIONS TECHNOLOGY CORP	SO-222 series	250 Vac; 2,5A;	IEC/EN 60320-1 UL 498	ENEC-0480 UL E220004
Appliance inlet Class II units (C18 type)	HCR ELECTRONICS CO., LTD	SK05 series	250 Vac; 10A;	IEC/EN 60320-1 UL 498	ENEC NO4018 UL E344254

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

Alt.	Rong Feng Industrial Co.,Ltd	SS-120	250 Vac; 10A;	IEC/EN 60320-1 UL 498	VDE 40028101 UL E102641
Alt.	Rich Bay Co., Ltd	R-301SN	250 Vac; 10A;	IEC/EN 60320-1 UL 498	VDE 40030228 UL E184638
PCB	WALEX ELECTRONIC (WUXI) CO LTD	T2, T2A, T2B T4	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E154355 & Tested with appliance
Alt.	DAFENG AREX ELECTRONICS TECHNOLOGY CO LTD	02V0, 03V0, 04V0,	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E186016 & Tested with appliance
Alt.	SHENZHEN TONGCHUANG XIN ELECTRONICS CO LTD	TCX	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E250336 & Tested with appliance
Alt.	SHANGHAI H-FAST ELECTRONIC CO LTD	211001， 411001, 411002	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E337862 & Tested with appliance
Alt.	JIANGXI ZHONG XIN HUA ELECTRONICS INDUSTRY CO LTD	ZXH-1, ZXH-2,	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E331298 & Tested with appliance
Alt.	SHENZHEN JIA LI CHUANG TECHNOLOGY DEVELOPMENT CO LTD.	JLC-8, JLC-1, JLC-2	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E479892 & Tested with appliance
Alt.	SHUANG MING INDUSTRY CO LTD	T005V0, T015V0	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E78017 & Tested with appliance
Alt.	GUANGDE BOYA XINXING ELECTRONICTECHNOLOGY CO LTD	BY-1	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796 IEC/EN 62368-1	UL E475783 & Tested with appliance

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

Alt.	interchangeable	interchangeable	Min. 1,6 mm thickness, min. V-0, 130°C	UL 796:2016 IEC 60695-11-10:2013(2nd Edition)	UL or other EU certification
Heat-shrinkable tubing (Optional)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR, RSFR-H, RSFR-HPF,	600V, 125°C	UL 510A IEC/EN 62368-1	UL E203950 & Tested within appliance
Alt.	QIFURUI ELECTRONICS CO	QFR-h	600V, 125°C	UL 510A IEC/EN 62368-1	UL E225897 & Tested within appliance
Alt.	DONGGUAN SALIPT CO LTD	SALIPT S-901-300, SALIPT S-901-600	Min. 300V, 125°C	UL 510A IEC/EN 62368-1	UL E209436 & Tested within appliance
Alt.	GUANGZHOU KAIHENG ENTERPRISE GROUP	K-2 (+), K-2 (CB)	Min. 300V, 125°C	UL 510A IEC/EN 62368-1	UL E214175 & Tested within appliance
Alt.	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-HFT	Min. 300V, 125°C	UL 510A IEC/EN 62368-1	UL E180908 & Tested within appliance
Fuse (F1, F2) (F2 is optional)	Conquer Electronics Co., Ltd.	MST	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40017118 UL E82636
Alt.	SUZHOU WALTER ELECTRONIC CO LTD	2010	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40018781 UL E56092
Alt.	SUZHOU WALTER ELECTRONIC CO LTD	ICP	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40012824 UL E56092

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

Alt.	Bel Fuse Ltd.	RST	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40011144 UL E20624
Alt.	Cooper Bussmann LLC	SS-5	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40015513 UL E19180
Alt.	Shenzhen Lanson Electronics Co. Ltd.	SMT	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40012592 UL E221465
Alt.	Dongguan Better Electronics Technology Co., Ltd.	932	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40033369 UL E300003
Alt.	Conquer Electronics Co., Ltd.	MET	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40017157 UL E82636
Alt.	Zhongshan Lanbao Electrical Appliances Co., Ltd.	RTI-10	T1.6A, 250V T3.15A, 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40017009 UL E213695
Bridging resistor (Optional) For model series GT*96180-******use only	TY-Ohm Suzhou Electronic Works Co. Ltd	RT	10MΩ, 1W	IEC/EN 62368-1	UL E321764 & Ttested with appliance
Alt.	Yageo Components (Suzhou) Co. Ltd	HHV	10MΩ, 1W	IEC/EN 62368-1	VDE 40031974 UL E333286

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

Bleeder Resistor (R1, R2 / R1A, R1B, R1A,R1B for GT*91120 and GT*91128 series)	Yageo Corporation	RV series	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-108482-UL)
Alt.	Ralec Electronic Corp	RTV series	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-66106-M1-UL)
Alt.	Guangdong Fenghua Advanced Technology Holding Co.,Ltd.	RVS series	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	Nemko CB (NO109708)
Alt.	Viking Tech Corporation Kaoshiung Branch	HVRC series	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-121748-UL)
Alt.	Viking Tech Corporation Kaoshiung Branch	HVR series	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. NO.: DK-143770-UL)
Alt.	TZAI YUAN ENTERPRISE CO LTD	HSMD OR SMD	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-29431-M1-UL)
Alt.	WALSIN TECHNOLOGY CORP	WF12N, WF20N, WF25N, WF08N,WF06N	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-119162-UL)
Alt.	Yageo Corporation	AH series	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-110207-UL)
Alt.	PROSPERITY DIELECTRICS CO LTD	FVS03,FVS05,FVS06,FVS20,TF25V,TF06V,TF08V,TF12V,TF20V,FVS25	Max. 1.2MΩ, Min. 1/4W	IEC/EN 62368-1	UL CB (Cert. No.: DK-101615-UL)
Y capacitor (CY1, CY2) (Optional)	TDK CORPORATION	CD	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40029780 UL E37861

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

Alt.	Success Electronics Co., Ltd.	SE	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40037211 VDE 40020002 UL E114280
Alt.	Success Electronics Co., Ltd.	SB	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40037221 VDE 40020001 UL E114280
Alt.	Murata Mfg. Co., Ltd.	KX	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40002831 UL E37921
Alt.	JYA-NAY Co., Ltd.	JN	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	TUV 69242987 UL E201384
Alt.	Haohua Electronic Co.	CT 7	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40003902 UL E233106
Alt.	Jyh Chung Electronic Co., Ltd.	JD	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 137027 UL E187963
Alt.	Guangdong Huiwan Electronics Technology Co.,LTD	AR	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40043989 UL E 480105
Alt.	Shantou High-new Technology Development Zone Songtian Enterprise Co.,Ltd	CD	Y1, min. 250VAC, max 4700pF	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40025754 UL E208107
X capacitor (CX1) (Optional)	Cheng Tung Industrial Co., Ltd.	CTX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	ENEC-01396 UL E193049

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

Alt.	Joey Electronics (Dong Guan) Co., Ltd.	MPX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40032481 UL E216807
Alt.	Ultra Tech Xiphi Enterprise Co. Ltd.	HQX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	UL 60384-14 UL 1414	VDE 40015608 UL E183780
Alt.	Yuon Yu Electronics Co. Ltd.	MPX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40032392 UL E200119
Alt.	Sinhua Electronics (Huzhou) Co., Ltd.	MPX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40014686 UL E237560
Alt.	Dain Electronics Co., Ltd.	MEX, MPX, NPX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018798 UL E147776
Alt.	SHANTOU FREE TRADE ZONE SONGTIAN ELECTRONIC TECHNOLOGY CO.,LTD.	MPX	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018798 UL E147776
Alt.	HUA JUNG COMPONENTS CO LTD	MKP	Min. 250VAC, Max. 0.47μF,110 °C, X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	ENEC: SE-ENEC-2002895R2 UL E149075
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, 55/110/21, 110°C	IEC/EN 60747-5-5 UL 1577	VDE 132249 UL E214129
Alt.	COSMO	K1010/KP1010	Dti=0.6mm Int，dcr=4.0mm, EXT.dcr=5.0mm，thermal cycling test，115℃	IEC/EN 60747-5-5 UL1557	VDE 101347 UL E169586

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

Alt. use	Lite-On Technology Corporation	LTV-817， LTV-817M, LTV-817S	Dti=0.4mm Int， EXT.dcr=7.0mm， thermal cycling test， 115℃	IEC 60747-5-5 UL 1577	VDE 40015248 UL E113898
Alt.	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 60747-5-5 UL1557	VDE 40007240 UL E236324
Varistor (MOV/MOV 1, MOV for GTM91120, GTM91128LI* CEL**-**** and GTM91128***-**** series) (Optional)	Xiamen Set Electronics Co., Ltd.	TFV8S471K, TFV10S471K	Max. Continuous voltage: Min. 300Vac(rms), Min. 105°C, The coating is Min. V-0, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	TUV-RH (J 50554061) TUV-RH (J 50554091) UL E322662
Alt.	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	10D621K, 14D621K	Max. Continuous voltage: Min. 385Vac(rms), Min. 125°C, The coating is Min. V-0, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40023049 UL E330837
Alt.	Guangdong Huiwan Electronics Technology Co.Ltd.	V-621K-10 DEH, V-621K-14 DEH	Max. Continuous voltage: Min. 385Vac(rms), Min. 125°C, The coating is Min. V-0, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE 40043880 UL E480104
Alt.	Thinking Electronic Industrial Co., Ltd.	TVR10621, TVR14621	Max. Continuous voltage: Min. 385Vac(rms), Min. 125°C, The coating is Min. V-0, 6KV/3KA, pulse test passed	IEC 61051-1, IEC 61051-2, IEC 61051-2-2	VDE005944 UL E314979
Earthing wire for Class I or class II with functional earth	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	1015, 1007, 1185	Min. 20AWG, Min. 300V, Min. 80°C	UL 758 IEC/EN 62368-1	UL E333601 & Tested with appliance
Alt.	Interchangeable	Interchangeable	Min. 20AWG, min. 300Vac, min. 80°C	UL 758 IEC/EN 62368-1	S, ETL, UL or other EU certification marks

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

Output cord	KUNSHAN NEW ZHICHENG ELECTRONICS TECHNOLOGIES CO LTD	1185, 2464, 2468, 1015	Min. 24AWG, min. 300Vac, min. 80°C	UL 758 IEC/EN 62368-1	UL E237831 and tested with appliance
Alt.	Interchangeable	Interchangeable	Min. 24AWG, min. 300Vac, min. 80°C	UL 758 IEC/EN 62368-1	S, ETL, UL or other EU certification marks
Thermal conductive pad (Optional)	Suzhou Springgrass Electronic Technology Co., LTD	HRTP-M16	V-0, 130°C, Min. thickness: 5.8mm	UL 94 IEC/EN 62368-1	UL E528141 and tested with appliance
Alt.	SUZHOU HUIMEI PACKAGING PRODUCTS CO LTD	HM-300	V-0, 130°C, Min. thickness: 5.8mm	UL 94 IEC/EN 62368-1	UL E516470 and tested with appliance
Line filter (LF1 for GT*96300 & GT*91120 & GTM91128 series)	GlobTek/HAOPUWEI/HEJIA/BOAM /ENG	LF007	17mH	IEC/EN 62368-1	Tested with appliance
Line filter LF1 (for GT*96180 series)	GlobTek/HAOPUWEI/HEJIA/BOAM /ENG	NF00001D	32mH	IEC/EN 62368-1	Tested with appliance
Transformer (T1)	GlobTek / HAOPUWEI/ /BOAM	See attachment for details	Class B, with critical component listed below	IEC/EN 62368-1	Tested with appliance
- Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U	MW28-C, 130°C	IEC/EN 62368-1 UL 1446	UL E201757 & Tested with appliance
Alt.	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWS/U	MW75-C, 130°C	IEC/EN 62368-1 UL 1446	UL E201757 & Tested with appliance
Alt.	JUNG SHING WIRE CO LTD	UEW-4	MW75C, 130°C	IEC/EN 62368-1	UL E174837 & Tested with

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

				UL 1446	appliance
Alt.	JUNG SHING WIRE CO LTD	UEY-2	MW28-C, 130°C	IEC/EN 62368-1 UL 1446	UL E174837 & Tested with appliance
Alt.	JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD	2UEW/130	MW75-C, 130°C	IEC/EN 62368-1 UL 1446	UL E335065 & Tested with appliance
Alt.	CHANGZHOU DAYANG WIRE & CABLE CO LTD	2UEW	MW75-C, 130°C	IEC/EN 62368-1 UL 1446	UL E158909 & Tested with appliance
Alt.	NINGBO JINTIAN NEW MATERIAL CO LTD	2UEW/130	MW75-C, 130°C	IEC/EN 62368-1 UL 1446	UL E227047 & Tested with appliance
Alt.	WUXI JUFENG COMPOUND LINE CO LTD	2UEWB	MW75#, 130°C	IEC/EN 62368-1 UL 1446	UL E206882 & Tested with appliance
Alt.	JIANGSU DARTONG M & E CO LTD	UEW	MW 75-C, 130°C	IEC/EN 62368-1 UL 1446	UL E237377 & Tested with appliance
Alt.	SHANDONG SAINT ELECTRIC CO LTD	UEW/130	MW75#, 130°C	IEC/EN 62368-1 UL 1446	UL E194410 & Tested with appliance
Alt.	ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD	UEW	MW 79#, 130°C	IEC/EN 62368-1 UL 1446	UL E222214 & Tested with appliance
-Triple-insulated wire (Secondary)	Great Leoflon Industrial Co., Ltd.	TRW (B)	Class B, 130°C, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 136581 UL E211989
Alt.	COSMOLINK CO. Ltd.	TIW-M	Class B, 130°C, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 138053 UL E213764
Alt.	Furukawa Electric Co., Ltd. Electronics & Automotive	TEX-E	Class B, 130°C, reinforced insulation	IEC/EN 62368-1 UL 2353	VDE 006735 UL E206440

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

	Systems Company Global Business Development Division			UL 60601-1	
Alt.	TOTOKU ELECTRIC CO LTD	TIW-2X$+	Class B, 130°C, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 40005152 UL E166483
Alt.	HOI LUEN ELECTRICAL MFR CO LTD	THL-F-xx, THL-F-SB-xx	Class B, 130°C, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 40020365 UL E257525
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J, T375HF	V-0, 150°C, thickness 0,45 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	UL E59481 & Tested with appliance
Alt.	CHANG CHUN PLASTICS CO LTD	4130	V-0, 140°C, thickness 0,74 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	UL E59481 & Tested with appliance
Alt.	SUMITOMO BAKELITE CO LTD	PM-9820，PM-9630, PM-9823	V-0, 150°C, thickness 0,45 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	UL E41429 & Tested with appliance
Alt.	HITACHI CHEMICAL CO LTD	CP-J-8800	V-0, 150°C, thickness 0,45 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	UL E42956 & Tested with appliance
-Insulating tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1, 1350T-1, 44	Min.130°C	IEC/EN 62368-1 UL 510	UL E17385 & Tested with appliance
Alt.	BONDTEC PACIFIC CO LTD	370S	Min.130°C	IEC/EN 62368-1 UL 510	UL E175868 & Tested with appliance
Alt.	JINGJIANG YAHUA	PZ,	Min.130°C	IEC/EN 62368-1	UL E165111 & Tested with

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

	PRESSURE SENSITIVE GLUE CO LTD	CT, WF		UL 510	appliance
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A	Min.130°C	IEC/EN 62368-1 UL 510	UL E246950 & Tested with appliance
Alt.	Chang Shu Liang Yi Tape Industry Co Ltd	LY-XX	Min.130°C	IEC/EN 62368-1 UL 510	UL E246820 & Tested with appliance
-PTFE tubing	Great Holding Industrial Co Ltd	TFT / TFS	Min. 300V, 200°C	IEC/EN 62368-1 UL 510	UL E156256 & Tested with appliance
Alt.	Shenzhen Woer Heat-Shrinkable Material Co Ltd	WF	600V, 200°C	IEC/EN 62368-1 UL 510	UL E203950 & Tested with appliance
Alt.	Changyuan Electronics (Shenzhen) Co Ltd	CB-TT-T, CB-TT-S	Min. 300V, 200°C	IEC/EN 62368-1 UL 510	UL E180908 & Tested with appliance
Mylar sheet (Optional)	FORMEX	FORMEX GK-(a)(d)(f2)	Rated V-0, 115 degC. Min. 0.4 mm thick.	UL 94 IEC/EN 62368-1	UL E121855 & Tested with appliance
Alt.	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX PP BK-10 series, KLX PP BK-17, KLX PP WT-10 series	Rated V-0, 105 degC. Min. 0.4 mm thick.	UL 94 IEC/EN 62368-1	UL E315185 & Tested with appliance
Alt.	Sichuan Longhua Film Co Ltd	PP-(i)(j)	Rated V-0, 105 degC. Min. 0.4 mm thick.	UL 94 IEC/EN 62368-1	UL E254551 & Tested with appliance
Alt.	ITW Materials Technology (Shanghai) Co.,LTD	FORMEX GK-(a)(d)(f2)	Rated V-0, 115 degC. Min. 0.4 mm thick.	UL 94 IEC/EN 62368-1	UL E256266 & Tested with appliance
Alt.	F&S China Co., Ltd.	EFR95(yy)	Rated V-0, 130degC. Min. 0.4 mm thick.	UL 94 IEC/EN 62368-1	UL E539253 & Tested with appliance
AC Power Plug of Power cord (optional) (For	Self-Man Industrial Co., Ltd.	SH-037	250V, 2.5A	DIN VDE 0620 Teil 101:1992-05; EN 50075:1990	VDE 101016

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

GT*91120 P2 series model)					
Alt.	YUNG- LI CO LTD	YP-21A	250V, 2.5A	DIN VDE 0620 Teil 101:1992-05; EN 50075:1990	VDE 40022312
Flexible cable of power cord (optional) (GT*91120 P2 series model)	Yung-Li Co. Ltd..	H03VVH2-F	2X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 40010145
Alt.	I-Sheng Electric Wire & Cable	H03VVH2-F	2X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 40015762
Alt.	Suzhou Tongyuan Electric	H03VVH2-F	2X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 128253
Alt.	Interchangeable	Interchangeable	2X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011 UL 758	S, ETL, UL or other EU certification marks
AC Power Plug of Power cord (optional) (For GT*91120 P3 series model)	Self-Man Industrial Co., Ltd.	SH-025	250V, 16A	DIN VDE 0620-2-1 (VDE 0620-2-1):2016-01DIN VDE 0620-2-1/A1 (VDE 0620-2-1/A1):2017-09 DIN VDE 0620-2-1/A1 (VDE 0620-2-	VDE 40008942

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

				1/A1):2023-09	
Flexible cable of power cord (optional) (GT*91120 P3 series model)	I-Sheng ElectricWire & Cable	H05VV-F	3X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 40015762
Alt.	Yung-Li Co. Ltd..	H05VV-F	3X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 40010145
Alt.	Suzhou Tongyuan Electric	H05VV-F	3X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 128253
Alt.	Interchangeable	Interchangeable	3X0.75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011 UL 758	S, ETL, UL or other EU certification marks
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-2039. 2) License available upon request.					

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**-****; GTM91128***-**** series;	5.0-7.5V for power supply output, 3.2V-5.9V for charger output	GT-3005001
	7.6V-10.5V	GT-3009001	GTM91128LI1CEL GTM91128LI2CEL GTM91128LI3CEL	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

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 IEC 62368-1:2024 + A11:2024
TRF template used ..... :	IECEE OD-2020-F2:2022, Ed. 1.2
Attachment Form No. ..... :	EU_GD_IEC 62368_1F
Attachment Originator ..... :	UL Solutions (Demko)
Master Attachment..... :	2024-05-16

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	CENELEC COMMON MODIFICATIONS (EN)	P
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2024+A11:2024. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2023. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2023 are prefixed “Z”.	P

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

	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
1	**MODIFICATION to the whole document**	
	Delete all the “country” notes in the reference document according to the following list:	P

0.2.1	Note 1 and Note 2		1	Note 4 and Note 5		3.3.8.1	Note 2
3.3.8.3	Note 1		4.1.15	Note		4.7.3	Note 1 and Note 2
5.4.2.3.2.2 Table 12	Note c		5.4.2.3.2.4	Note 1 and Note 3		5.4.2.3.2.4 Table 13	Note 2
5.4.2.5	Note 2		5.4.5.1	Note		5.4.10.2.1	Note
5.4.10.2.2	Note		5.4.10.2.3	Note			
5.5.2.1	Note		5.5.6	Note		5.6.4.2.1	Note 2 and Note 3 and Note 4
5.6.8	Note 2		5.7.7.1	Note 1 and Note 2		8.5.4.2.3	Note
10.2.1 Table 39	Note 3 and Note 4 and Note 5		10.5.3	Note 2		10.6.1	Note 3
F.3.3.4	Note 2		F.3.3.6	Note 3		Y.4.1	Note
Y.4.5	Note						

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

2	**Modification to Clause 1**		
1	**Add** the following note at the end of Clause 1: “NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.” **Add** the following paragraph and note after Note 5: “This document is a type test standard. NOTE Z2 **Routine tests** of complete equipment, sub-assemblies or components are covered by EN 62911.”		P
3	**Modification to Clause 2**		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
2	***Add*** *the following references:* *EN 71-1:2014+A1:2018, Safety of toys - Part 1: Mechanical and physical properties* *EN 50332-1:2013, Sound system equipment: Headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 1: General method for "one package equipment"* *EN 50332-2:2013, Sound system equipment: Headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardised connectors between the two allowing to combine components of different manufacturers or different design* *EN 50332-3:2017, Sound system equipment: headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 3: Measurement method for sound dose management* *IEC/TR 62471-2, Photobiological safety of lamps and lamp systems - Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety*		N/A
4	**Modification to Clause 4**		
4	**Add** the following new subclause 4.Z1 after subclause 4.9: “For compliance with B.3 and B.4 in circuits connected to an AC **mains**, protective **devices** shall be provided, subject to the following: - for **pluggable equipment type A**, the protective **devices** shall be included as parts of the equipment, with the exception of components in series with the **mains** input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, for which the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet;		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- for **pluggable equipment type B** or **permanently connected equipment**, the protection may be the dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, for example a fuse or circuit breaker, is fully specified in the installation instructions. Where protective **devices** are required within the equipment, the protective **devices** within the equipment shall operate before or at the same time the expected building installation protection will operate. For earth faults in single-phase equipment, it is not necessary to provide 2 protective **devices**. It is expected that the building installation will protect against earth faults. This applies also in countries where an IT power distribution system is used."		N/A
5	**Modification to subclause 4.1.9**		
4.1.9	Add the following paragraph at the end of this subclause: "Products need to comply with the requirements of this document with appropriate measurement uncertainty. NOTE Z1 See also the RED ADCO position on 'Measurement uncertainty in published harmonized standards'."		P
6	**Modification to subclause 5.4.9.1**		
5.4.9.1	**Add** the following note after the 5th paragraph: "NOTE Z1 For guidance on the use of high voltage source, see IEC 60060-1, Clause 8 of IEC 60243-1 and IEC 61180."		N/A
7	**Modification to subclause 5.4.2.3.2.4**		
5.4.2.3.2.4	**Add** the following at the end of this subclause: "The requirement for interconnection with **external circuit** in a HBES/BACS network is in addition given in EN IEC 63044-3:2018."		N/A
8	**Modification to subclause 5.6.6.2**		
5.6.6.2	**Replace** item d) with the following: "d) For equipment powered from a DC mains, if the protective current rating of the circuit under test exceeds 25 A, the test current shall be minimum as required in item a), unless the manufacturer specifies a higher value."		N/A
9	**Modification to subclause 9.3.1**		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.1	**Replace** the second paragraph with the following: "An **accessible** part that, while in contact with the body, is likely to drop in temperature upon touch can be evaluated under the limits of Annex A of IEC Guide 117:2010 using the test method of 4.5 of IEC Guide 117."		N/A
10	**Modification to subclause 10.2.1**		
10.2.1	**Add** the following to c) and d) in Table 38: "For additional requirements, see 10.5.1."		N/A
11	**Modification to subclause 10.4.1**		
10.4.1	**Replace** the second paragraph of 10.4.1 with: "Electronic light effect equipment does not have to comply with the requirements of 10.4. However, 114 IEC/TR 62471-2 shall be considered and proper installation instructions shall be provided. **Replace** the ninth paragraph of 10.4.1 with: The following information shall be provided in the user manual for safe operation and installation. This information shall also be provided for safe operation by a skilled person who may be exposed to Risk Group 3 energy levels. Adequate instructions for proper assembly, installation, maintenance and safe use, including clear warnings concerning precautions to avoid possible exposure to hazardous optical radiation; and Advice on safe operating procedures and warnings concerning **reasonably foreseeable misuse,** malfunctions and hazardous failure modes. Where servicing and maintenance procedures are detailed, they shall include explicit instructions on safe procedures to be followed; and The marking on the equipment shall be reproduced in the user manual. A yellow background is not required in the user manual.		N/A
12	**Modification to subclause 10.4.4**		
10.4.4	**Replace** the last paragraph of 10.4.4 with: "Compliance against material degradation from UV radiation is checked by the applicable tests of Annex C."		N/A
13	**Modification to subclause 10.5.1**		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: "For RS1 compliance is checked by measurement under the following conditions: In addition to the **normal operating conditions**, all controls adjustable from the outside of the equipment by hand, by any object such as a **tool** or a coin, and those internal adjustments or pre-sets 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. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm2, at any point at a distance of 10 cm from the outer surface of the equipment. 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. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 2013/59/Euratom of 5 December 2013."		N/A
14	**Modification to subclause 10.5.3**		
10.5.3	**Replace** the second paragraph of 10.5.3 with: "The amount of radiation is determined by means of a radiation monitor of the ionizing chamber type with an effective area of 1 000 mm2 ± 10 mm2 or by measuring equipment of other types giving equivalent results."		N/A
15	**Modification to Clause 10**		
	Replace 10.6 with the following:		N/A
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	**General**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: - is designed to allow the user to listen to audio or audiovisual content / material; and - uses a listening **device**, such as headphones or earphones that can be worn in or on or around the ears; and - has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Listening **devices** sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: - **professional equipment**; NOTE 3 **Professional equipment** is equipment sold through special sales channels. All products sold through normal electronics stores or general public sales channels are considered not to be **professional equipment**. - hearing aid equipment and other devices for assistive listening; - the following type of analogue personal music players: - long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and - cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. - a player while connected to an external amplifier that does not allow the user to walk around while in use; - hearing protection devices (HPD) that comply with EN 352-8 For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2014+A1:2018, 4.20 and the related tests methods and measurement distances apply.		
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 h) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3:2017. For classifying the acoustic output *L*Aeq,*T*, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term *L*Aeq,*T*) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, *T* becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term *L*Aeq,*T*) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the *L*Aeq,*T* acoustic output shall be ≤ 85 dB when playing the fixed "programme simulation noise" described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 mm headphone/earphone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or −25 dBFS (digital interface) when playing the fixed 214 "programme simulation noise" described in EN 50332-1:2013. The RS1 limits will be updated for all devices as per 10.6.3.2.		N/A
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 100 dB(A) when playing the fixed "programme simulation noise" as described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or −10 dBFS (digital interface) when playing the fixed "programme simulation noise" as described in 226 EN 50332-1:2013.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision 2009/490/EC of 23 June 2009, are given below.		N/A
10.6.3.2	**RS1 limits (new)** RS1 is a class 1 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or −30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1:2013.		N/A
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly **sound exposure level**, as described in EN 50332-3:2017, shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in 249 EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN 50332-3:2017, shall be ≤ 15 mV (analogue interface) or −30 dBFS		N/A
10.6.4	**Requirements for maximum sound exposure**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.4.1	**Measurement methods** All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1:2013 or EN 50332-2:2013 as applicable.		N/A
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered to be a **safeguard.** Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows: - element 1a: the symbol , IEC 60417-6044 (2011–01) - element 2: “High sound pressure” or equivalent text - element 3: “Hearing damage risk” or equivalent text - element 4: “Do not listen at high volume levels for long periods.” or equivalent text An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output level exceeding RS1 limits. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output level exceeding RS1 limits. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to 281 EN 50332-3:2017, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the **safeguards**. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		N/A
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % CSD is reached, and at least at every 100 % further increase of CSD, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to a level in compliance with class RS1 limits. The warning shall at least clearly indicate that listening above 100 % CSD leads to the risk of hearing damage or loss.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3:2017. The EL settling time (time from starting level reduction to reaching target output level) shall be 10 s or less. Test of EL functionality is conducted according to EN 50332-3:2017, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the un-weighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than −10 dBFS for a digital interface. In case the source is known not to be music (or test signal), the EL may be disabled.		N/A
10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB *L*Aeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximizes the measured acoustic output level, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1:2013 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV in 10.6.2.2. or 100 dB and 150 mV in 10.6.2.3.		N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed “programme simulation noise” described in EN 50332-1:2013, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.6.3	**Cordless listening devices** In cordless mode, with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1:2013; and respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.		N/A
10.6.6.4	**Measurement method** Measurements shall be made in accordance with EN 50332-2:2013 as applicable.”		N/A
16	**Modification to subclause G.3.1.2**		
	Add the following note after the first paragraph: “NOTE Z1 An IEC 60730 series standard is considered relevant if the component in question falls within its scope.”		N/A
17	**Modification to subclause G.7.1**		
	Add the following note at the end of the subclause: “NOTE Z1 The harmonized code designations corresponding to the IEC cable types are given in Annex ZD.”		N/A
18	**Modification to subclause M.2**		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Add the following paragraph after the first paragraph: “The size of the battery compartment shall be designed taking into account the battery compartment recommendations of the relevant battery standard. NOTE For general guidance on the design of the battery compartment, see Clause 8 of IEC 62485-4.”		N/A
19	**Modification to Bibliography**		

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

	Add the following notes for the standards indicated: IEC 60060-1 NOTE Harmonized as EN 60060-1. IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60204-1 NOTE Harmonized as EN IEC 60204-1. IEC 60204-11 NOTE Harmonized as EN IEC 60204-11. IEC 60243-1 NOTE Harmonized as EN 60243-1. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5:2005 NOTE Harmonized as EN 60664-5:2007. IEC 60721-3-4 NOTE Harmonized as EN IEC 60721-3-4. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61180 NOTE Harmonized as EN 61180. IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN IEC 61643-331. IEC 61140:2016 NOTE Harmonized as EN 61140:2016. IEC 61439-5:2014 NOTE Harmonized as EN 61439-5:2015. IEC 61969-3 NOTE Harmonized as EN 61969-3. IEC 62040:2017 NOTE Harmonized as EN IEC 62040:2019. IEC 62305-1 NOTE Harmonized as EN 62305-1. IEC 62368-3 NOTE Harmonized as EN 62368-3. IEC 62485-4 NOTE Harmonized as EN IEC 62485-4. ISO 10218-1 NOTE Harmonized as EN ISO 10218-1. ISO 10218-2 NOTE Harmonized as EN ISO 10218-2. ISO 13482 NOTE Harmonized as EN ISO 13482. ISO 13850 NOTE Harmonized as EN ISO 13850.	P
20	**Addition of annexes**	
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.1.15	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: **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. The marking text in the applicable countries shall be as follows: In **Finland**: “Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan” In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: 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
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either -two layers of thin sheet material, each of which shall pass the electric strength test below, or -one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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 -passes the tests and inspection criteria of 5.4.7 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 -is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14, subclass Y2. A capacitor classified Y3 according to EN 60384-14, may bridge this insulation under the following conditions: -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 5.4.10; -the additional testing shall be performed on all the test specimens as described in EN 60384-14; -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.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power distribution system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: 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.10.3.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: -the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: -in certain cases, the **protective current rating** of the circuit supplied from the **mains** is taken as 20 A instead of 16 A. *Justification:* In France, according to NF C15-100 standard, in certain cases, the maximum rated current of the protective **device** circuit-breaker is 20 A.		N/A
5.6.5.1	**Ireland and United Kingdom** To the second paragraph the following is added: 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: 1,25 mm2 to 1,5 mm2 in cross-sectional area.		N/A
5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.7.1	**Norway and Sweden** To the end of the subclause the following is added: 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.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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. 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: “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)” 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 RMS, 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “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.” Translation to Swedish: ”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.”.		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of EN IEC 60204-1 and EN ISO 13850 is required where there is a risk of personal injury.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: 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	**United Kingdom** To the end of the subclause the following is added: 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
G.7.1	**United Kingdom** To the first paragraph the following is added: 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. 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** To the first paragraph the following is added: 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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: 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** The following requirement applies: 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. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49–531–592–6320, Internet: http://www.ptb.de		N/A
ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		N/A

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

N/A

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H
Cords insulated and sheathed with halogen-free thermoplastic compounds		
Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F

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

ATTACHMENT TO TEST REPORT

IEC 62368-1:2023

US NATIONAL DIFFERENCES
(**AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT – PART 1:SAFETY REQUIREMENTS**)

Differences according to ..... :	UL 62368-1:revised October 22, 2021
TRF template used:.....:	IECEE OD-2020-F3:2022, Ed. 1.2
Attachment Form No. ..... :	US_ND_IEC62368_1F
Attachment Originator..... :	UL Solutions (US)
Master Attachment..... :	Dated 2023-10-05

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US 62368-1, revised October 22, 2021 (also known as CSA/UL 62368-1:2019) is an adoption of IEC 62368-1:2018 with national conditions that deviate from it. However, the NCB will accept use of IEC 62368-1:2023 for the purpose of demonstration of compliance with UL 62368-1, revised October 22, 2021)also known as CSA/UL 62368-1:2019), provided that the following national conditions are addressed.
When this document is used, the requirements of IEC 62368-1:2023 apply except as modified below.

IEC 62368-1 - US National Differences

Special National Conditions based on Regulations and Other National Differences

1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. 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 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits (≤ 200V per conductor to earth).		N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		P
4.1 (4.1.17)	For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		P
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	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
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		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.		N/A
	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.		N/A
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked “W.”		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 Vpeak or 60 Vd.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 Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to 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. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	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 is required to comply 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) are required to 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 minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	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 that are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.”		N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted **disconnect switches** and **circuit breakers** with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) 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
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.		N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 (G.7)	Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		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 required to be in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm^2) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		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, is required to comply 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

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

ATTACHMENT TO TEST REPORT

IEC 62368-1:2023

CANADA NATIONAL DIFFERENCES

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT PART 1: SAFETY REQUIREMENTS

Differences according to ..... :	National standard CSA C22.2 No. 62368-1:19
TRF template used:.....:	IECEE OD-2020-F3:2022, Ed. 1.2
Attachment Form No. ..... :	CA_ND_IEC62368_1F
Attachment Originator..... :	CSA Group
Master Attachment..... :	2023-09-12

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CSA C22.2 No. 62368-1:19 is an adoption with deviations of IEC 62368-1:2018. The NCB will, however, accept use of IEC 62368-1:2023 for the purpose of demonstration of compliance with CSA C22.2 No. 62368-1:19, provided that the following National Deviations are addressed.

	National Differences		P
Table 13	Replace this table with Table 13 of CSA C22.2 No. 62368-1:19.		N/A
5.4.2.4	Replace this subclause with 5.4.1.4 of CSA C22.2 No. 62368-1:19		N/A
5.5.2.2	Replace this subclause with 5.5.2.2 of CSA C22.2 No. 62368-1:19		P
5.5.7	Replace the 2nd dash of the 3rd paragraph as following: "– the GDT shall comply with: •.....The electric strength test of 5.4.9.1 for BASIC INSULATION; and •.....The external CLEARANCE and CREEPAGE DISTANCE requirements of 5.4.2 and 5.4.3 respectively for BASIC INSULATION"		P
6.2.3.2	Replace this subclause with 6.2.3.2 of CSA C22.2 No. 62368-1:19.		P
6.4.3.1	Replace this subclause with 6.4.3.1 of CSA C22.2 No. 62368-1:19		N/A
6.4.5.2	Replace this subclause with 6.4.5.2 of CSA C22.2 No. 62368-1:19.		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Replace this 6.4.8.3.5 with 6.4.5.2 of CSA C22.2 No. 62368-1:19.		P
G.15.3.2	The test duration of hydrostatic pressure test for self-contained LFC shall be 2 min.		N/A
P.2.1	Delete the following: "– side openings that do not exceed 11 times the thickness of the enclosure, as described in Figure P.3."		N/A
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. 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 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits (≤ 200V per conductor to earth).		N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		P
4.1 (4.1.17)	*For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.*		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	*Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.*		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		P
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	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
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
	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.		N/A
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked “W.”		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 Vpeak or 60 Vd.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 Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	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 is required to comply 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) are required to 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 minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet 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)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	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 that are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.”		N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted **disconnect switches** and **circuit breakers** with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) 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
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.		N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		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 (G.7)	Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		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 are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		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 required to be in accordance with the NEC/CEC.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm^2) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.5.4)	Wire temperature ratings		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, is required to comply 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

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

ATTACHMENT TO TEST REPORT

IEC 62368-1:2023

JAPAN NATIONAL DIFFERENCES

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT – PART 1: SAFETY REQUIREMENTS

Differences according to ..... : J62368-1(2023)

TRF template used:.....: IECEE OD-2020-F3:2022, Ed. 1.2

Attachment Form No. ..... : JP_ND_IEC62368_1F

Attachment Originator..... : UL Solutions (JP)

Master Attachment..... : Dated 2023-10-19

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J62368-1(2023) is an adoption of IEC 62368-1:2018 with national conditions that deviate from it. However, the NCB will accept use of IEC 62368-1:2023 for the purpose of demonstration of compliance with J62368-1(2023) only for the products out of scope of the Electrical Appliance and Materials Safety Acts (also known as PSE), provided that the following National Differences are addressed.

	National Differences		P
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 document 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 interconnection coupler shall comply with Clause G.4.2A if they are incorporated as part of the equipment.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2.1	Connection for protective conductor of class 0I equipment provided with instructional safeguard in accordance with Clause F.3.6.1A is considered to make earlier and break later than supply connection. Mains plug having a lead wire for protective earthing connection of class 0I equipment shall comply with all of the following: – Not to be used for equipment having a rated voltage of 150 V or more – Clip is not used for the earthing connection of the lead wire. – The lead wire for earthing is at least 10 cm long If class 0I equipment provides an independent main protective earthing terminal and is intended to be installed by ordinary person, earthing wire shall be provided in the package of the equipment.		N/A
5.6.2.2	Internal earthing conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector need not be green-and-yellow.		N/A
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: – 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 – 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, JIS C 8300 or JIS C 8303, or that is provided with mains appliance outlet as specified in JIS C 8283 series 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
5.7.5	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 60990:2016.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.3.2	A fuse complying with JIC C 6575 series or a fuse having equivalent characteristics shall open within 1 s. A fuse having time/current characteristics other than those specified in IEC 60127 shall be tested with the characteristics taken into account. In case of 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”.		N/A
8.5.4.3.1	Only three-phase stationary equipment rated more than AC 200 V 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
8.5.4.3.2	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.		P
8.5.4.3.4	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
8.5.4.3.5	The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts.		N/A
F.3.5.1	When the mains socket-outlet is configured in accordance with JIS C 8282 series, JIS C 8300 or JIS C 8303, the assigned current or power shall be marked. If the voltage of the socket-outlet is the same as the mains voltage, the voltage need not be marked. Instructional safeguard of Class 0I equipment shall be provided with an instructional safeguard in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303 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 shall be included.		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1A	Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.2 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions shall be provided regarding the earthing connection. In addition to the above, for class 0I equipment, an instruction to connect earthing before and disconnect earthing after the connection of supply conductors shall be marked on the visible place of the main body or shall be in the text of an accompanying document.		N/A
F.3.6.2	Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment.		N/A
F.3.8A	Attention marking for aging deterioration of CRT television Year of manufacture, standard usage period by design according to JIS C 9921-5 and cautionary statement for possible risks of aging deterioration when used beyond the specified period shall be marked on CRT television except for industrial use CRT television.		N/A
F.4	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, the instructions shall require that the external wiring connected to these terminals shall be installed by a skilled person, or shall be connected by means of ready-made leads or cords that are constructed in a way that would prevent contact with any ES3 circuit. For class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided in the package of the equipment, if the protective earthing connection is made by instructed person or skilled person, the suitable installation instruction for the protective earthing connection shall be provided.		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

IEC 62368-1			
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 applicable JIS or IEC standard in accordance with 4.1.2 or shall have equivalent or better properties. Such a protective device shall have adequate breaking (rupturing) capacity to interrupt the maximum fault current (including short-circuit current) that can flow.		N/A
G.4.1	This requirement does not apply to connectors covered in Clauses G.4.2 and G.4.2A.		N/A
G.4.2	Mains connectors, mains plugs and socket-outlets shall comply with JIS C 8283 series, JIS C 8285, IEC 60309 series, JIS C 8282 series, JIS C 8300, JIS C 8303, or have equivalent or better properties. 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. Construction shall prevent mechanical stress not to transmit to the soldering part of appliance inlet terminal. When an equipment is rated not more than 125 V and all of the following are met, Type C14 and C18 appliance inlet complying with JIS C 8283-3 can be considered as rated 15 A. – The temperature of appliance inlet does not exceed the value specified in JIS C 8283-1 under the most unfavourable normal operating condition as specified in Clause B.2.1. – "Use only designated cord set attached in this equipment" or equivalent text is described in the operating instruction. If the cord set is not provided in the package of the equipment, suitable information regarding to the cord set is described in the operating instruction.		N/A
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.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.2 Table G.7	Cross-sectional area of equipment rated up to and including 3 A shall be 0.75 mm^2.		N/A
G.7.6.1 Table G.9	The cross-sectional area of mains cords according to JIS C 3010 may comply with relevant Japanese wiring regulation. For cables other than those complying with JIS C 3662 series or JIS C 3663 series, the terminals shall be suitable for the size of the intended cables.		N/A

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

Annex IEC 60799:2018, IEC 60799:2018/AMD1:2022 for cord set

4	**GENERAL REQUIREMENTS**		
	Cord sets and interconnection cord sets designed and constructed that in normal use their performance is reliable and without danger to the user or surroundings		P
5	**REQUIREMENTS**		
5.1	**Requirements for component parts**		P
	Plug of cord set complies with the standard IEC 60884-1	The plug is certified by EN 50075 which covers IEC 60884-1	P
	Plugs for use in a cord set for higher ambient temperatures complies with the standard Annex H of IEC 60884-1:2022		P
	Connector of a cord set or of an interconnection cord set complies with the standard IEC 60320-1	No Connector	N/A
	Connector of a cord set or of an interconnection cord set for use at higher ambient temperatures complies with the requirements of Annex E of IEC 60320-1		N/A
	Plug connector of interconnection cord set complies with the standard IEC 60320-1		N/A
	Plug connector of interconnection cord set for use at higher ambient temperatures complies with the requirements of Annex E of IEC 60320-1:2021		N/A
	Connector, with a degree of protection higher than IPX0, of a cord set or an interconnection cord set complies with the requirements of IEC 60320-2-3		N/A
	Plug connector, with a degree of protection higher than IPX0, of an interconnection cord set complies with the requirements of IEC 60320-2-3		N/A
	Cord complies with the requirements of relevant IEC standard		P
5.2	**Requirements for the assembly**		P
5.2.1	Rated voltage		P
	Rated voltage of connector and cord (V) not less than rated voltage of plug ..... :	Cord: 300/500V	P
	Rated voltage of plug (V) ..... :	Plug: 250V	—
	Rated voltage of connector (V) same than rated voltage of plug connector ..... :		N/A
	Rated voltage of plug connector (V) ..... :		—
5.2.2	Rated current		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current of plug (A) not less than rated current of connector ..... :		N/A
	Rated current of plug connector (A) not less than rated current of connector ..... :		N/A
	Rated current of connector (A)..... :		—
5.2.3	Class of equipment		P
	Plug, connector and plug connector intended for the connection of the same class of equipment ..... :	Class I, Class II	P
	A cord set with connector for class II equipment may comprise a plug with three pins according to IEC TR 60083		N/A
5.2.4	Marking		P
	Plug, connector and plug connector marked as specified in the relevant standard		P
	Maker's or responsible vendor's name or trademark		P
	Marking easily discernible, durable and easily legible		P
	Not marked with the symbol for Class II		P
5.2.5	Type of cord		P
	Rated current of connector or plug connector (A) .... :	Plug: 2.5A, 16A	—
	Class of equipment..... :	Class I, Class II	—
	For condition ..... :	cold / hot	—
	Flexible cable not lighter than specified..... :	not lighter	P
	Specified type according Table 1..... :	60227 IEC 52, 60227 IEC 53 or 60245 IEC 53	—
	Cross-sectional area (mm²) not less than specified..... :	0.75mm^2	P
	Specified cross-sectional area (mm²) according Table 1 ..... :		—
	Length of cord (m) ..... :	not exceeding 2 m	—
	Length of cord not more than 2 m, if: - rated current 0,2 A - 0,5 mm² with rated current 2,5 A for class II - 0,75 mm² with rated current 10 A - 1,0 mm² with rated current 16 A		P
	Temperature rating of cord min 90°C for connectors and plug connectors for higher ambient temperatures		N/A
5.2.6	Derated current of cord set for use at higher ambient temperatures		P
	Maximum ambient temperature at rated current t_a of cord set is equal to the lowest ambient temperatures t_a of plug and connector		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.7	Derated current of interconnection cord set for use at higher ambient temperatures		N/A
	Maximum ambient temperature at rated current t_a of interconnection cord set is equal to the lowest ambient temperatures t_a of plug connector and connector		N/A
6	**CONTINUITY AND POLARITY**		
	For use in polarized systems, the continuity between corresponding plug-pins/plug connector-pins and connector-contacts maintained in each pole		N/A
7	**EMC REQUIREMENTS**		
7.1	**Immunity**		P
	Cord sets and interconnection cord sets not incorporating electronic components: No immunity tests are required	Cord set is tested with appliance	P
7.2	**Emission**		P
	Cord sets and interconnection cord sets not incorporating electronic components: No emission tests are necessary		P
ZA	ANNEX ZA TO EN IEC 60799:2021 Normative references to international publications with their corresponding European publications (NORMATIVE)		P
ZB	ANNEX ZB TO EN IEC 60799:2021 Special national conditions		N/A
5.1	Denmark		N/A
	Group A and B shall not be used in Denmark		N/A
5.2.3	Denmark		N/A
	Delete the second paragraph		N/A

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

Equipment combined with two-pole plug (Class II)

Supplementary tests on plug portion according to EN 50075:1990

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 power supply's 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 power supply. (See test report for power supply)

5. Insulation Resistance and Electric Strength (Clause 11 of EN 50075) N/A

(See test report for power supply)

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. P

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

(Clause 13.1 of EN 50075)

6.2 The plug is tested in a tumbling barrel. N/A
(Clause 13.2 of EN 50075, fall number is shown in test report for power supply)
After the test, the plug shall show no damage within the meaning of this standard,
in particular:
--- no part shall become detached or loosened.
--- the pin shall not turn when a torque of 0.4Nm is applied.
Note: A section of the pin is square constructed for preventing the rotation.

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

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. P
(Clause 15.1 & 15.2 of EN 50075)

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

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

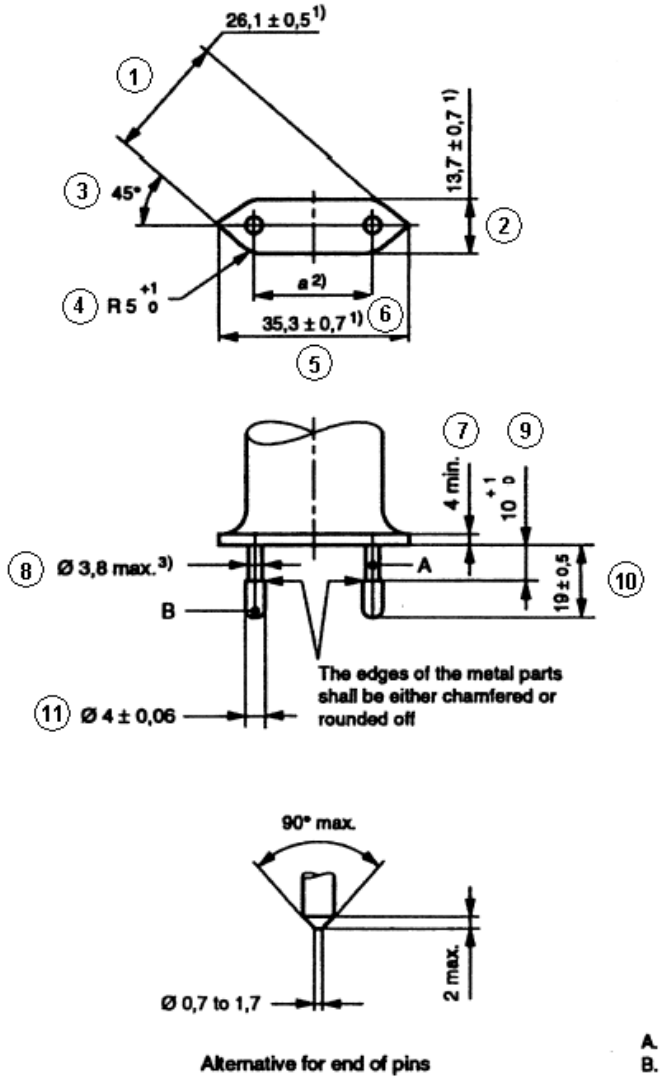
Dimension Checking for Two-pin plug according to EN50075

	DIMENSIONS 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

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

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.

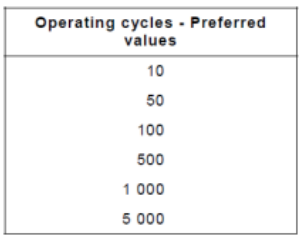
The sketches are not intended to govern design except as regards the dimensions shown.

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

Photo for plug portion according to EN 50075:1990

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

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

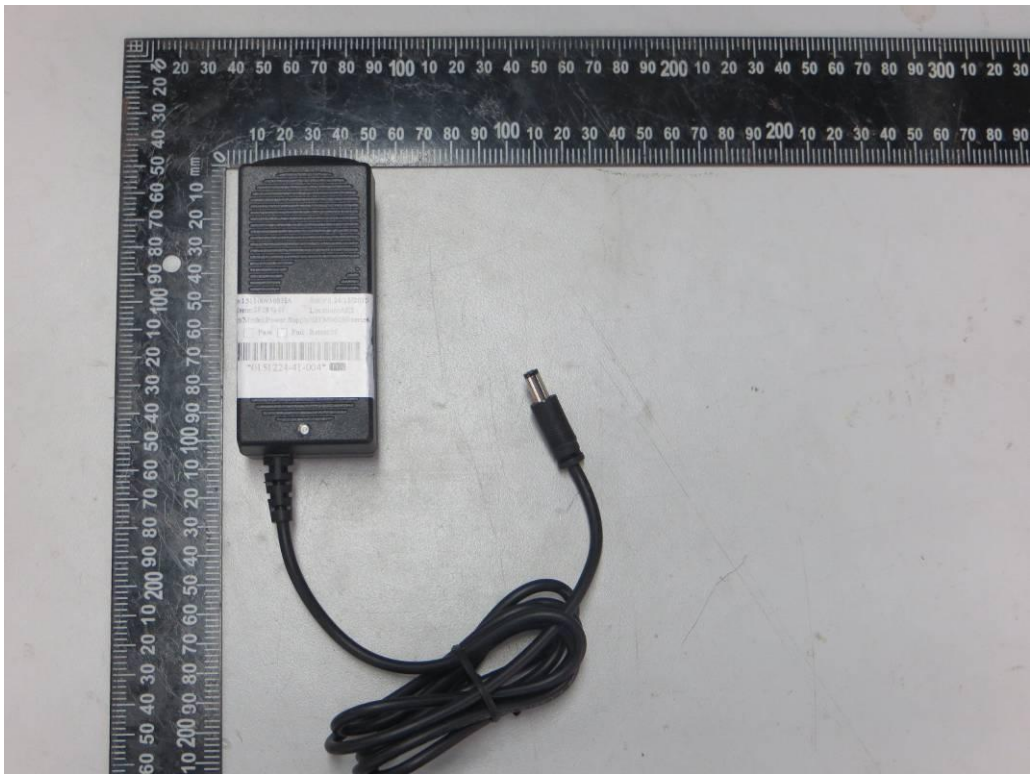
IEC 61984: 2008			
6.14.1	**MECHANICAL ENDURANCE (COC AND CBC)**		P
	A connector, either COC or CBC, shall meet the mechanical operations without load as specified in the DS or in the manufacturer's specification (preferred numbers of operating cycles are given in Table 4a).	100 cycles	P
7.3.9	**MECHANICAL 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
		100 cycles	P

Operating cycles - Preferred values
10
50
100
500
1 000
5 000

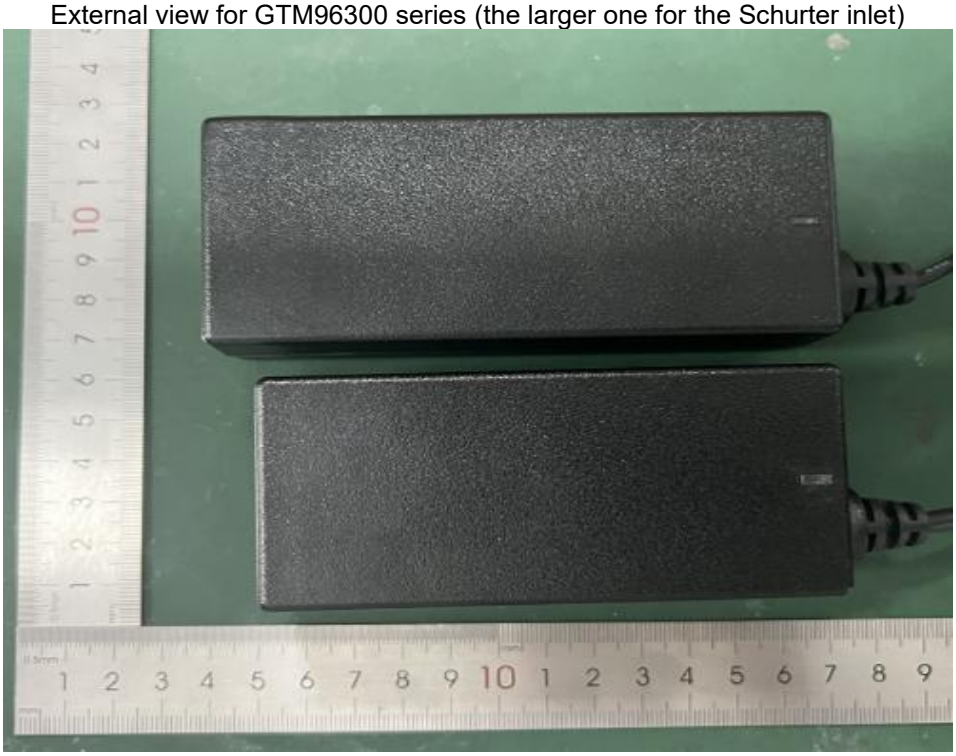
Appendix I Photograph of the Equipment under test (EUT)

External view for GTM96300 series

External view for GTM96300 series



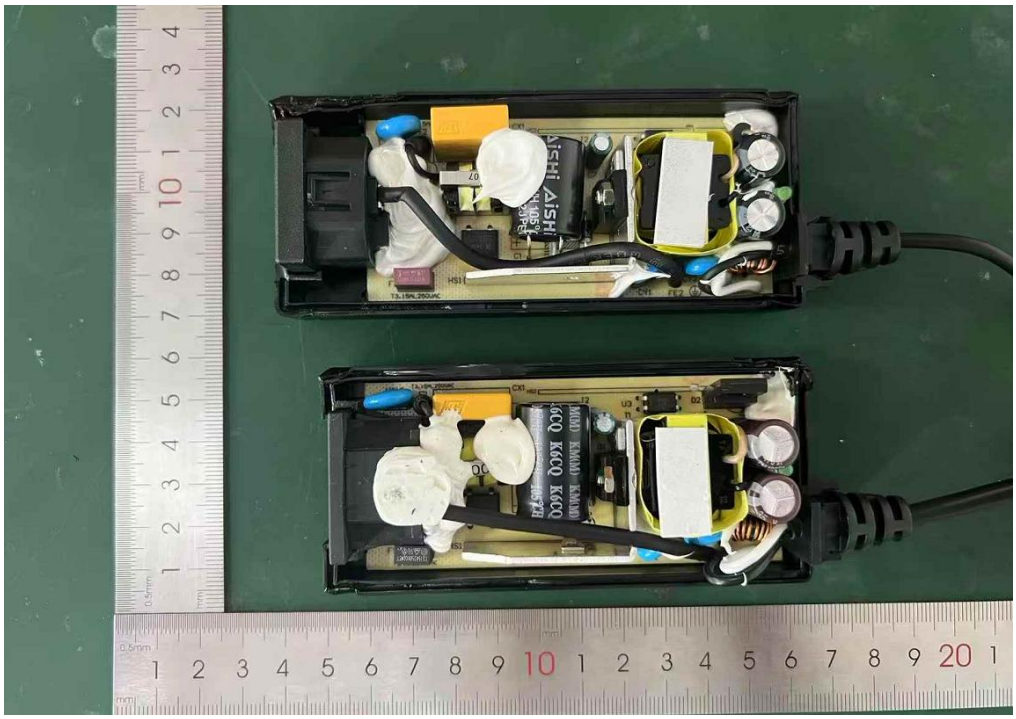
External view for GTM96300 series (the larger one for the Schurter inlet)



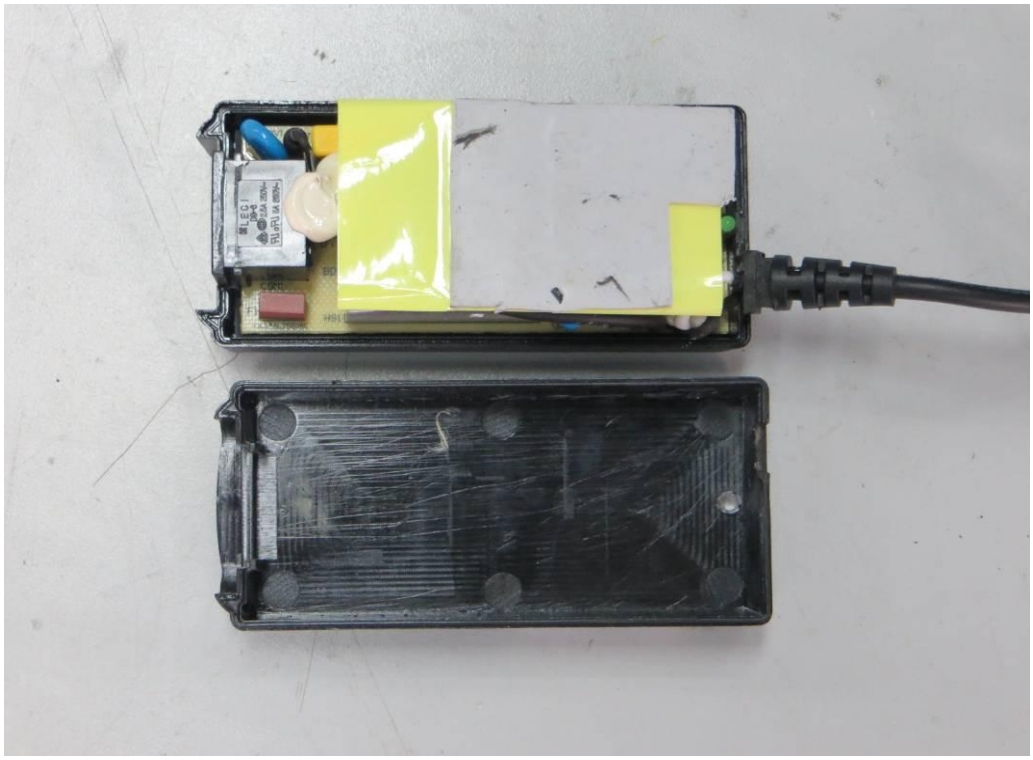
External view for GTM96300 series (the larger one for the Schurter inlet)

Internal view for GTM96300 series (the larger one for the Schurter inlet)

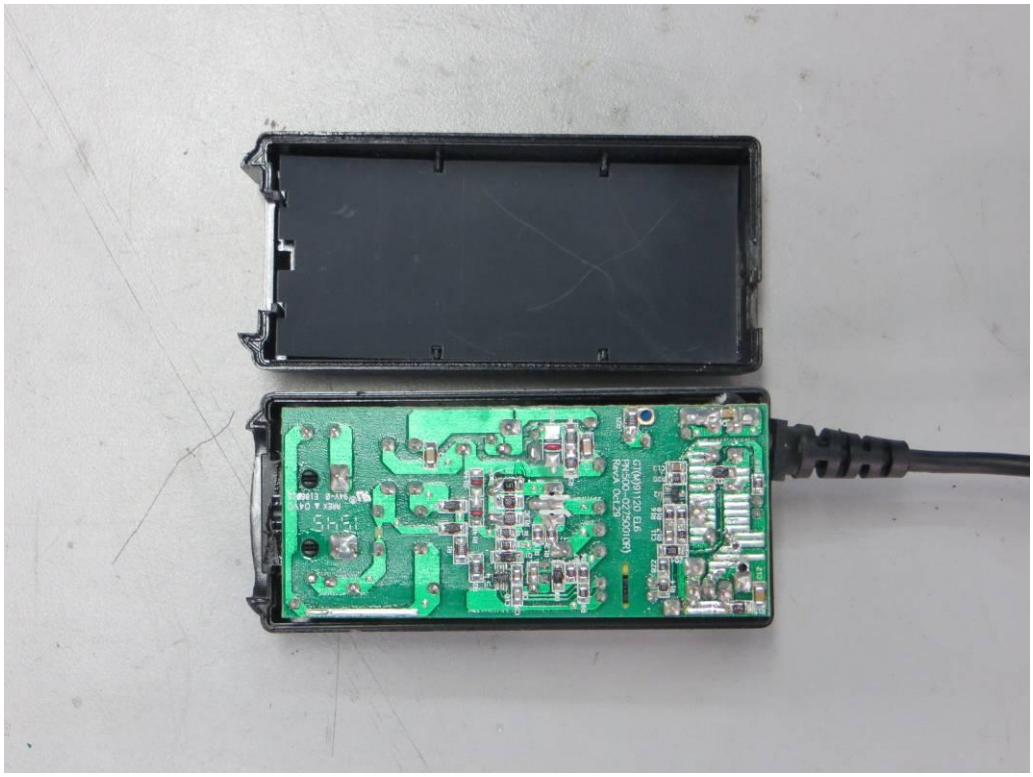
Internal view for GTM96300 series (the larger one for the Schurter inlet)



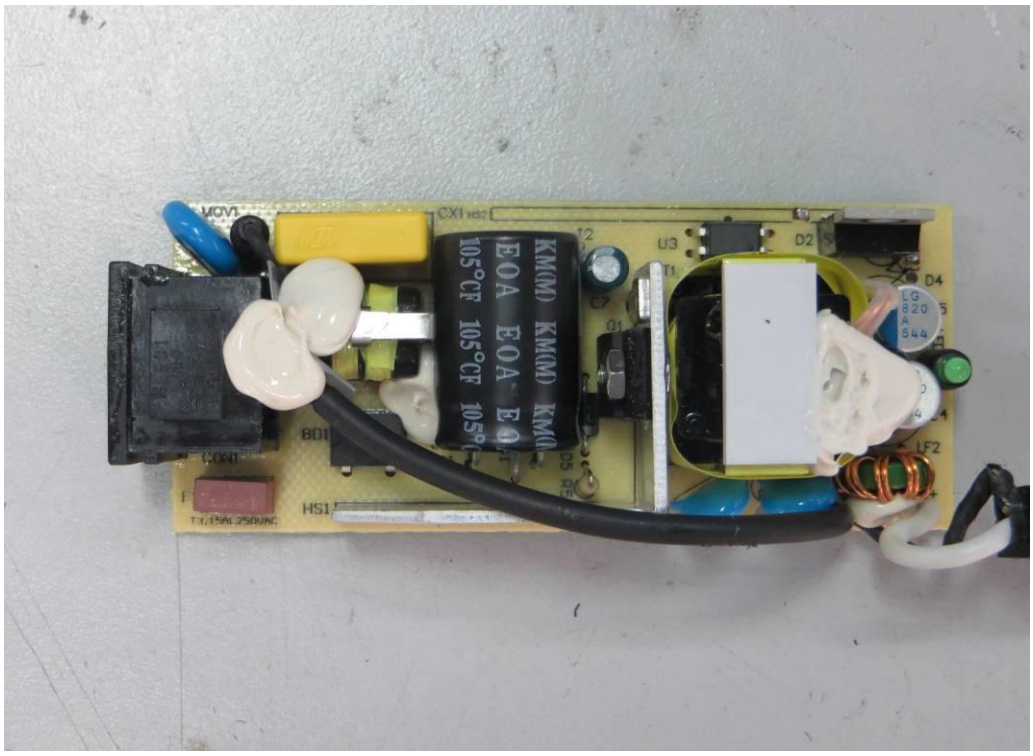
Internal view for GTM96300 series (Class I)



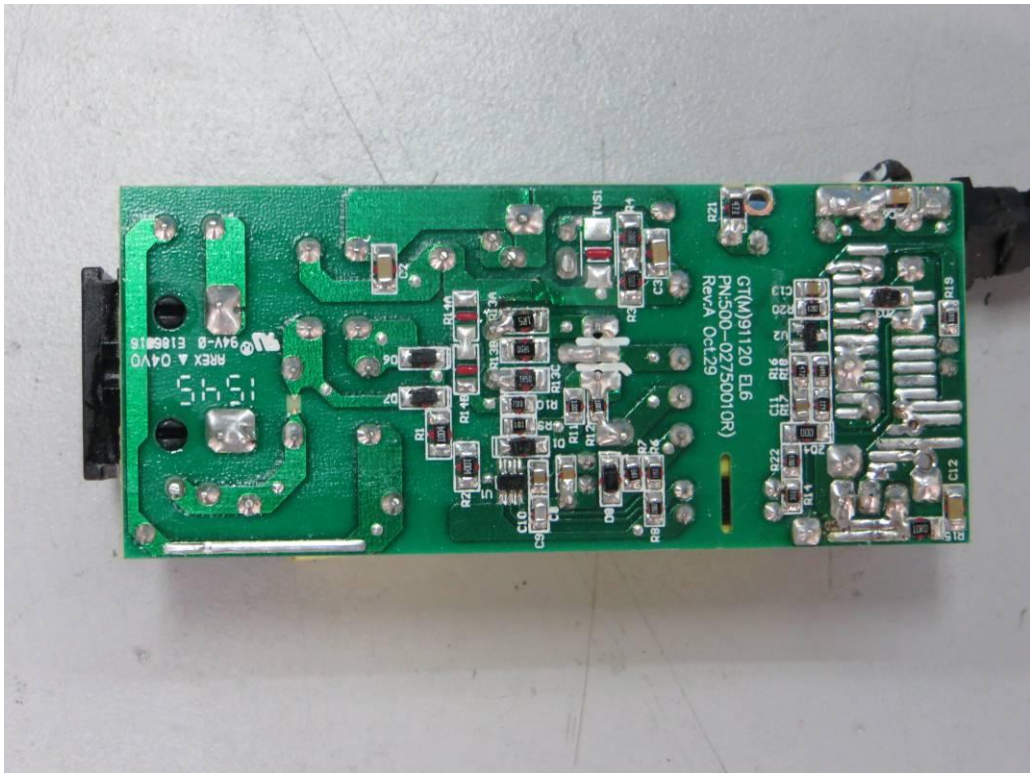
Internal view for GTM96300 series (Class I)



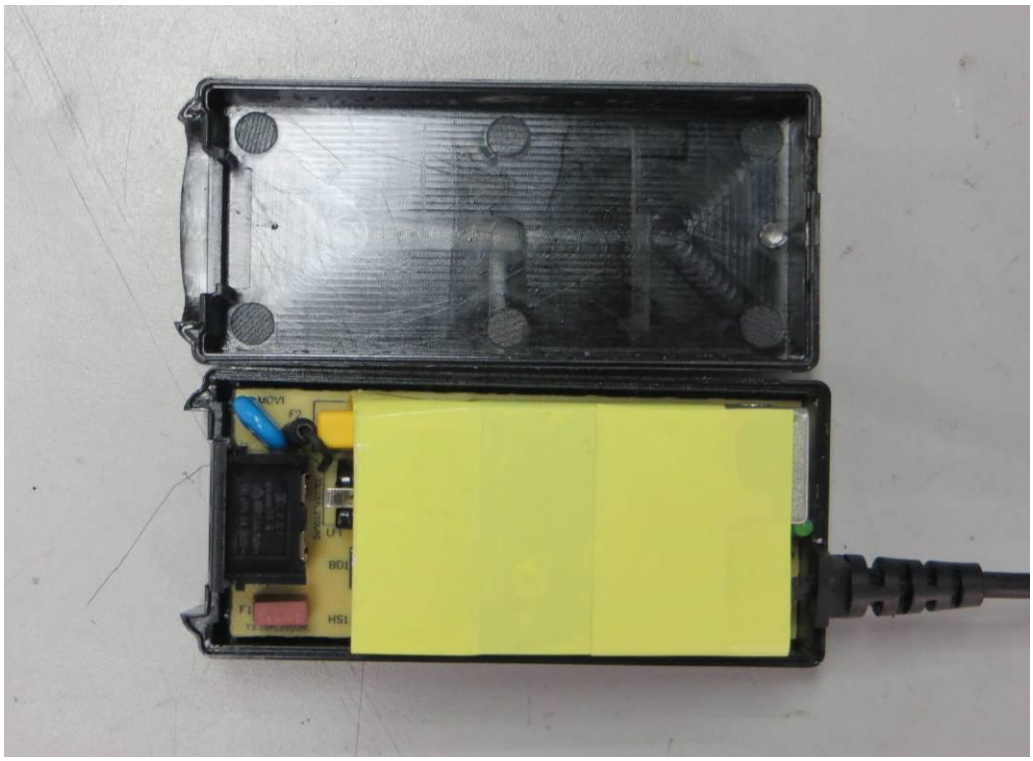
PCB for GTM96300 series (Class I)



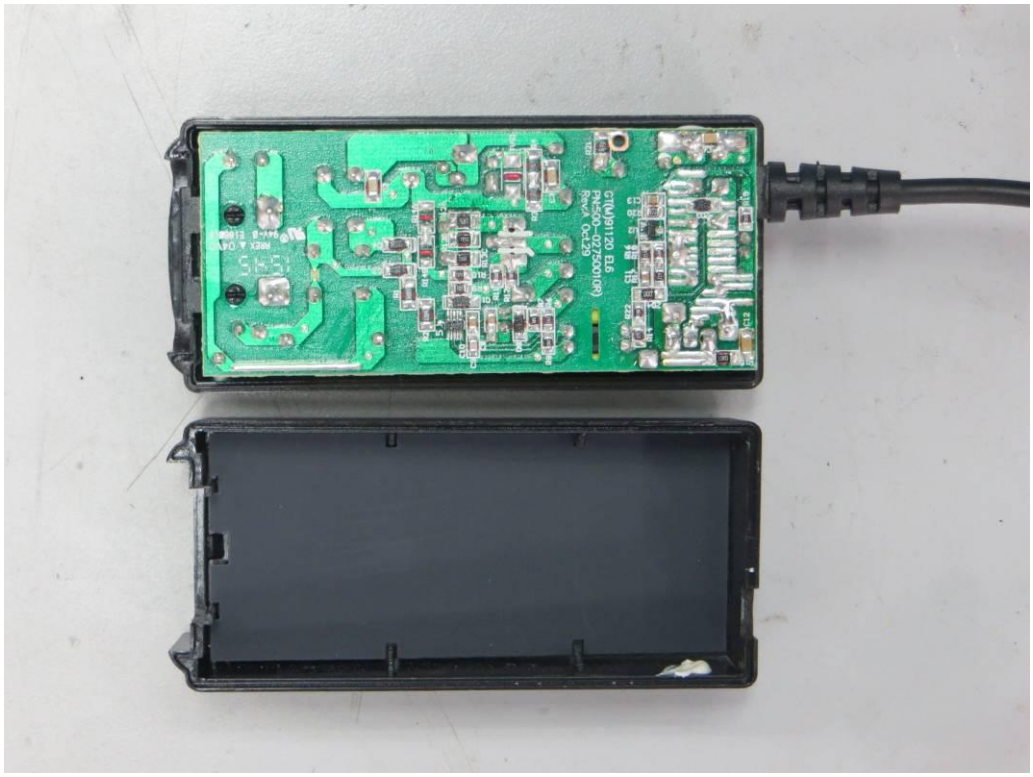
PCB for GTM96300 series (Class I)



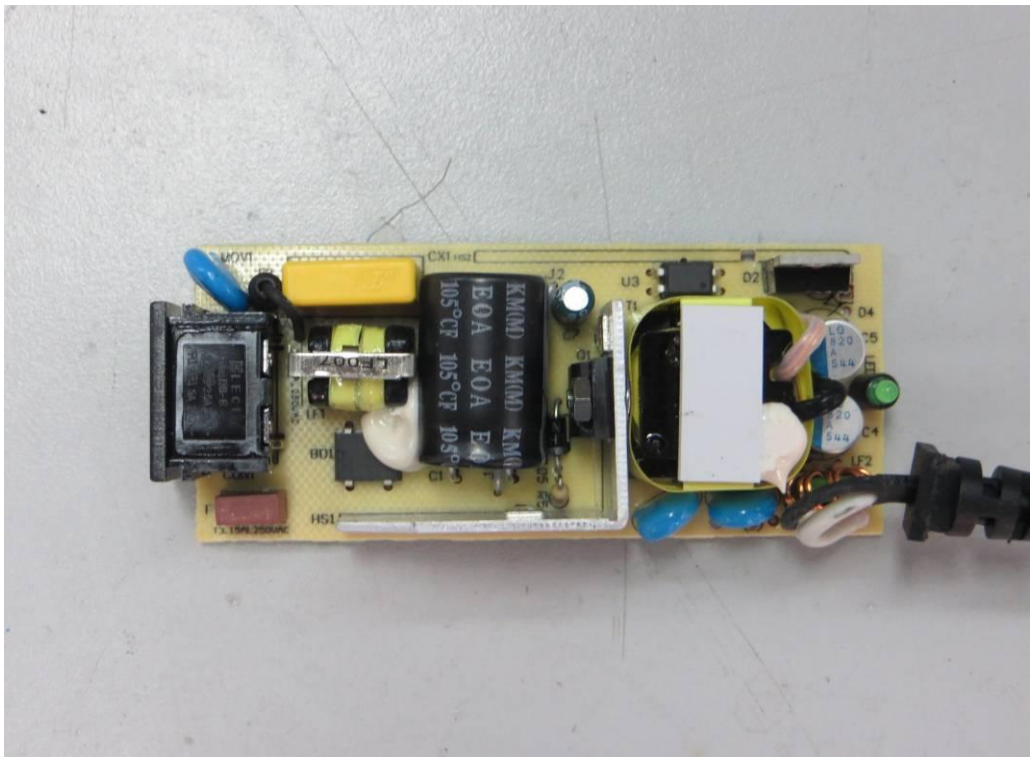
Internal view for GTM96300 series (Class II)



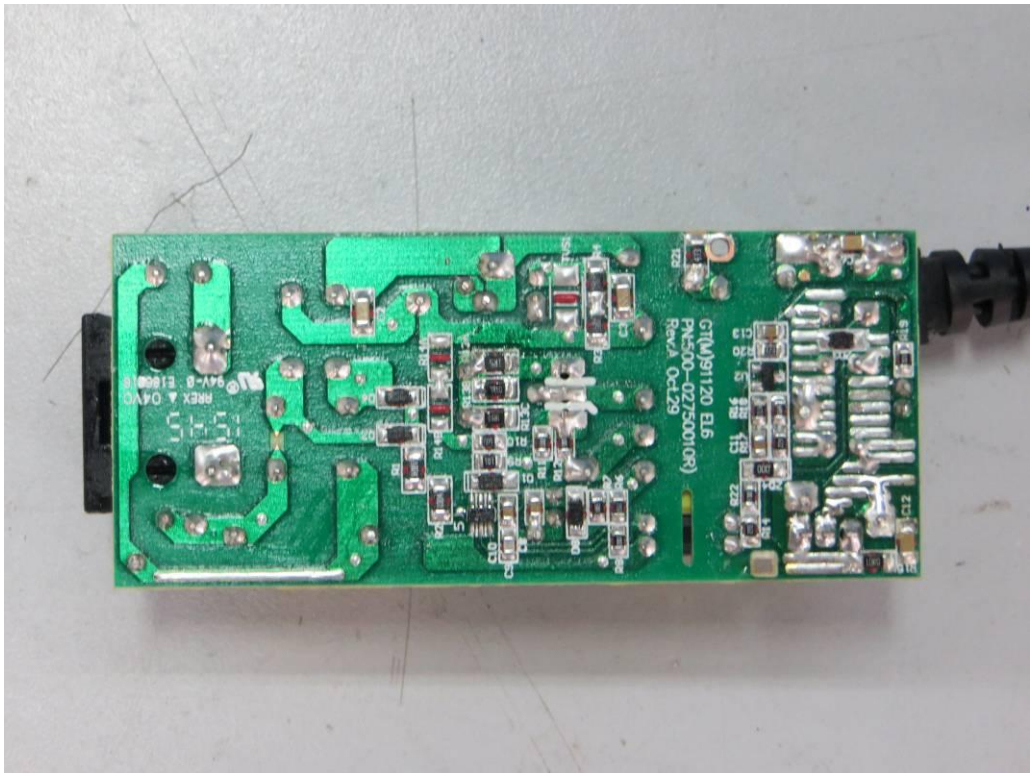
Internal view for GTM96300 series (Class II)



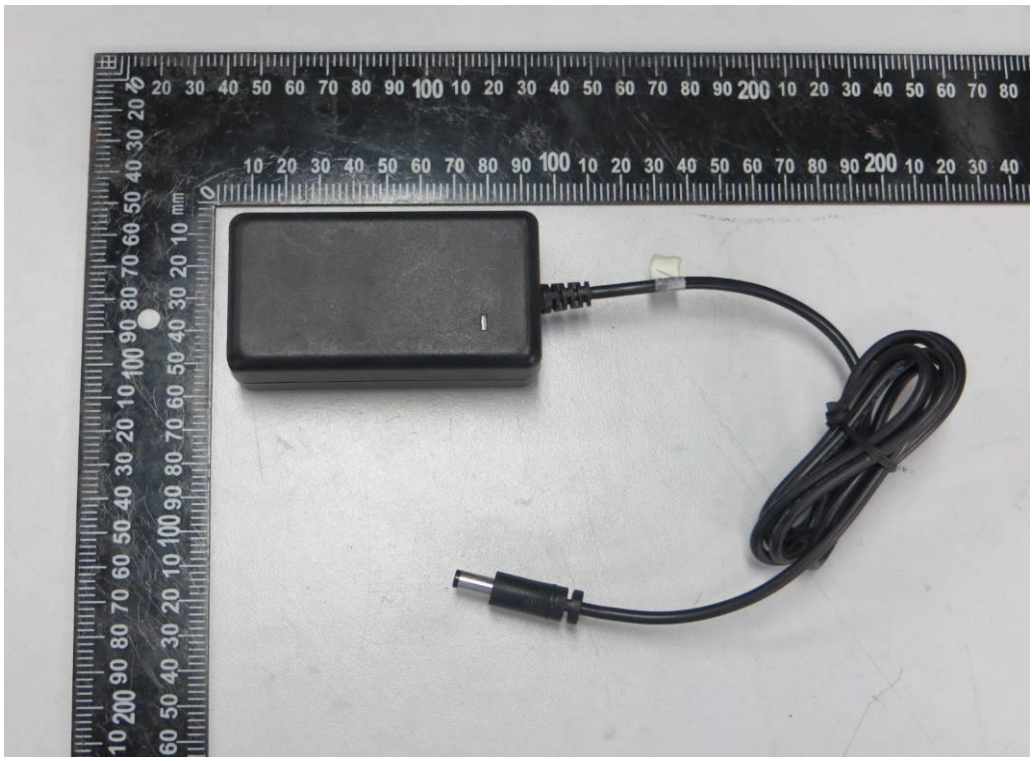
PCB for GTM96300 series (Class II)



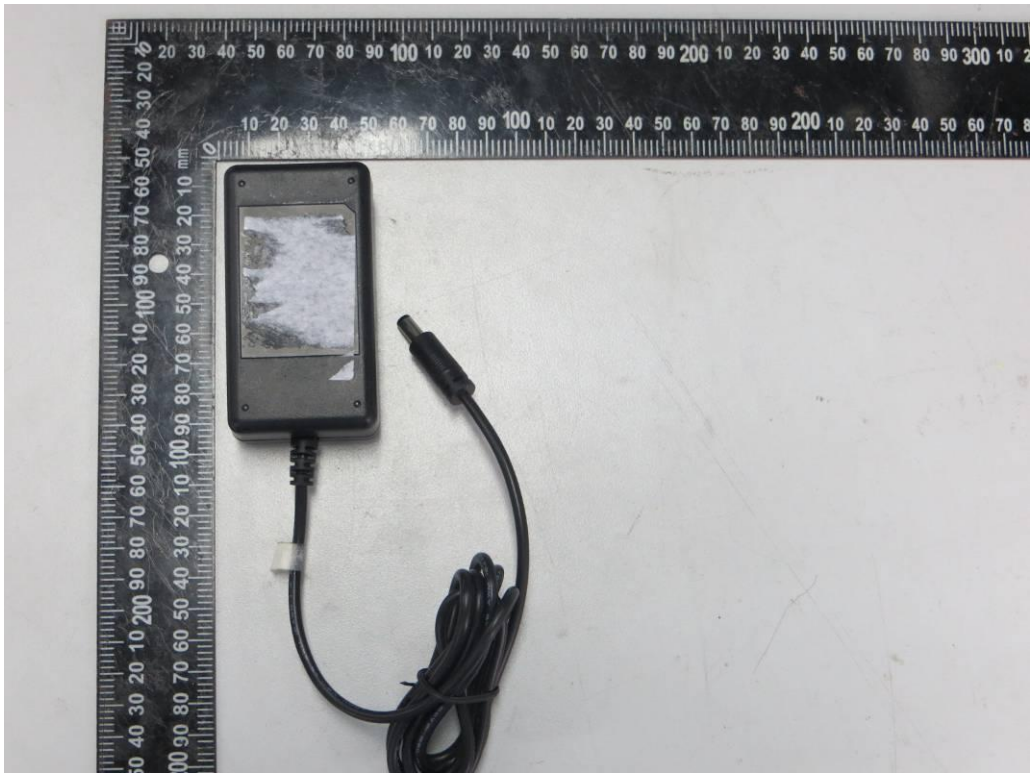
PCB for GTM96300 series (Class II)



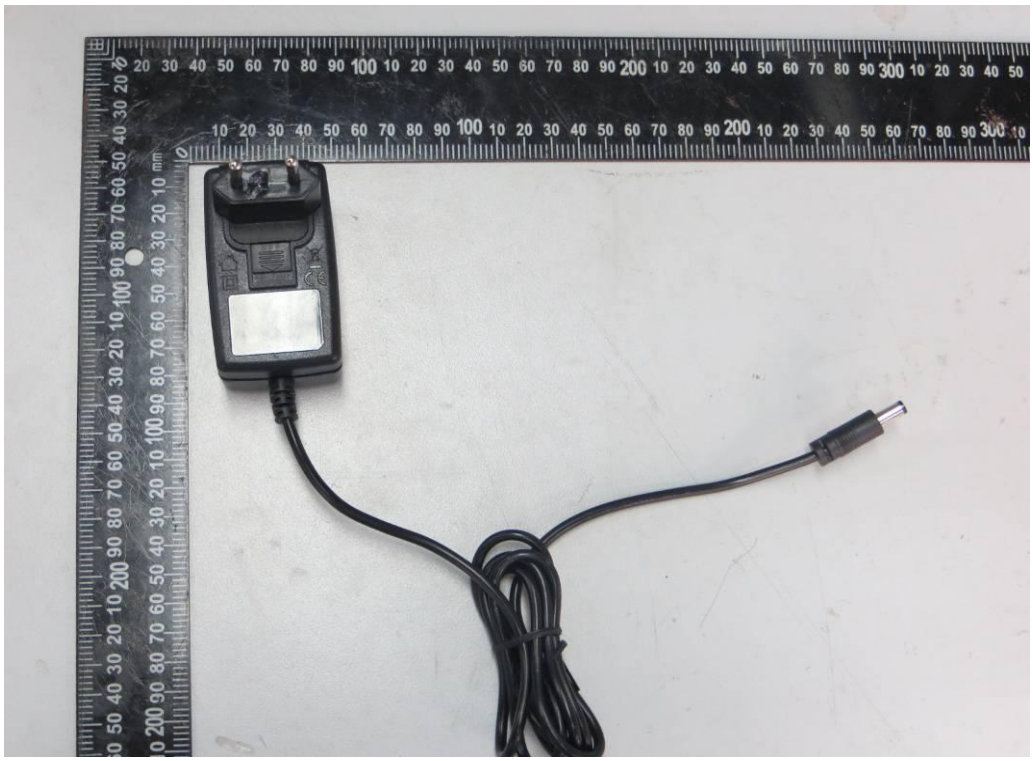
External view for GTM96180 series (desktop)



External view for GTM96180 series (desktop)

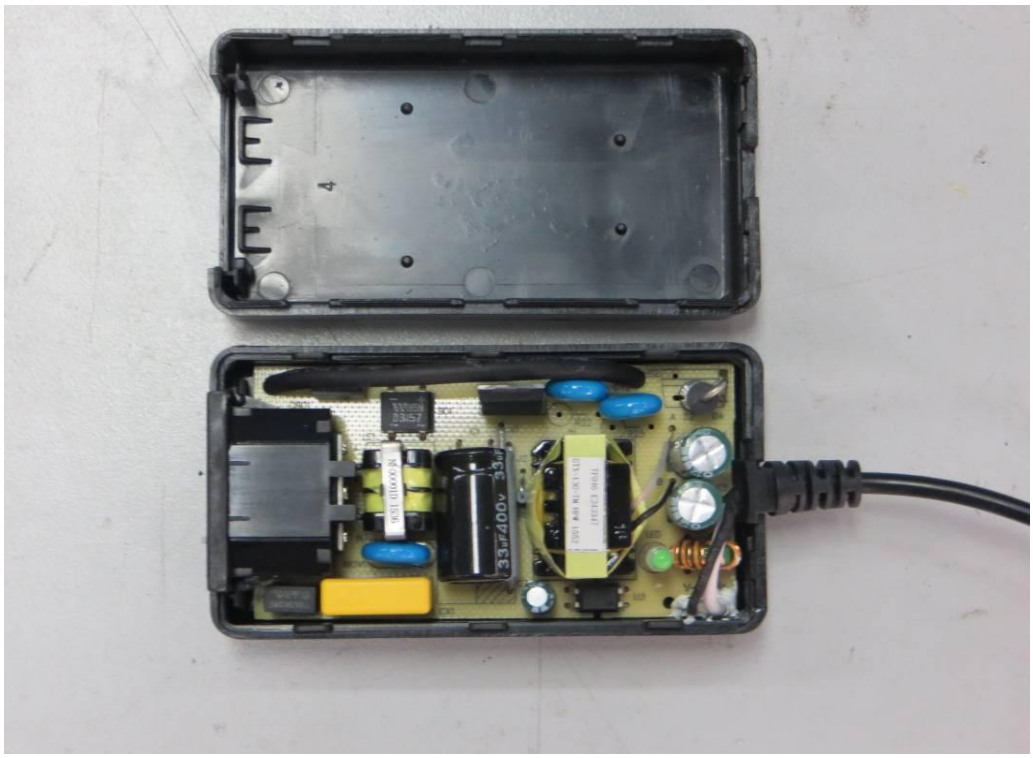


External view for GTM96180 series (Interchangeable plug)



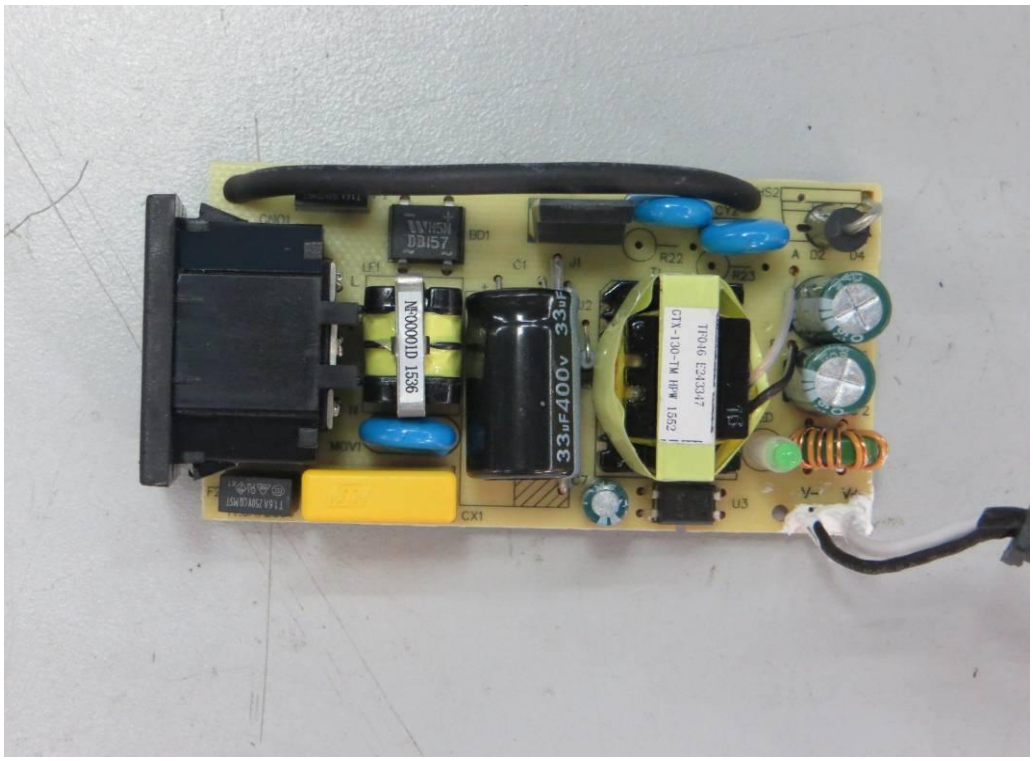
External view for GTM96180 series (Interchangeable plug)

Internal view for GTM96180 series (Class I)

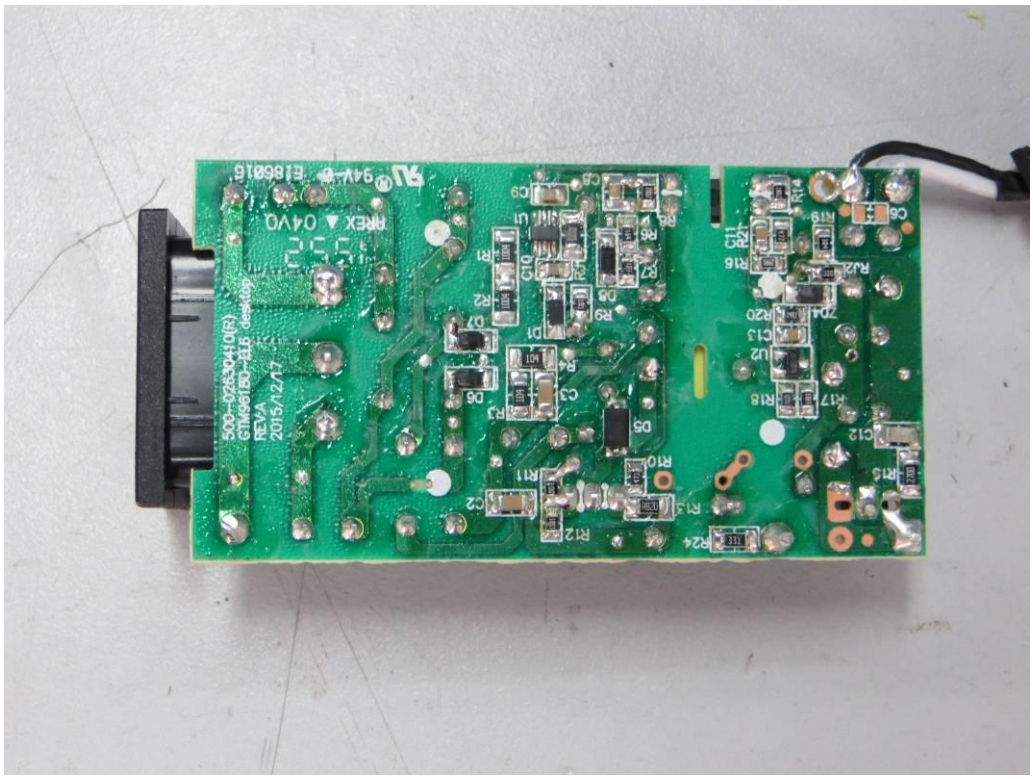


Internal view for GTM96180 series (Class I)

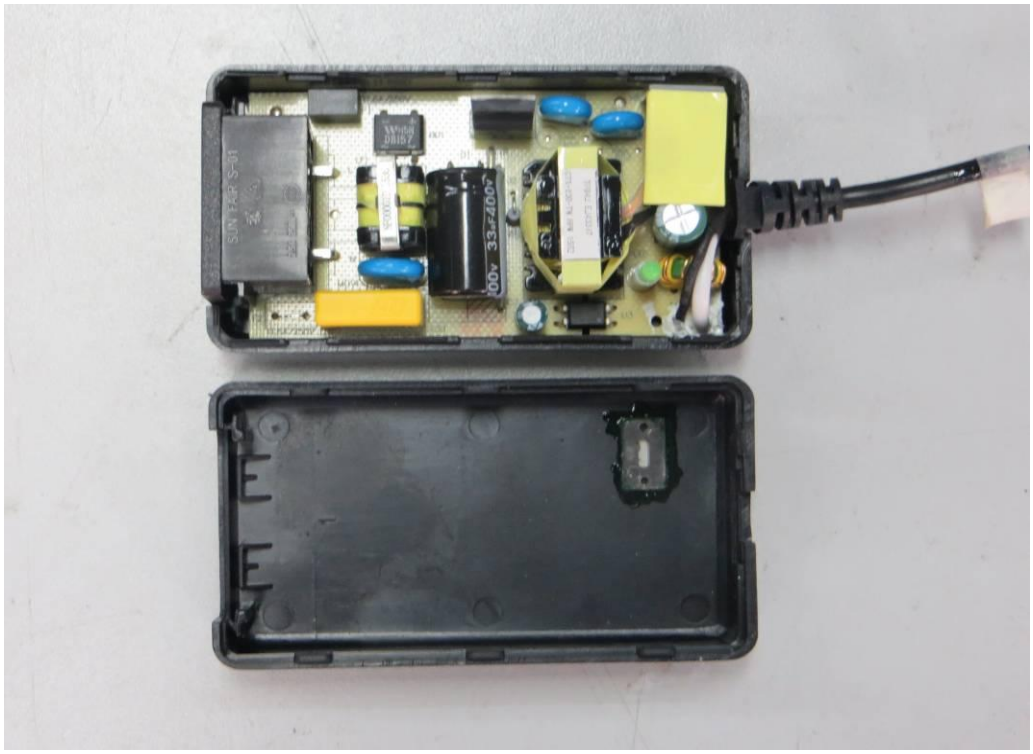
PCB for GTM96180 series (Class I)



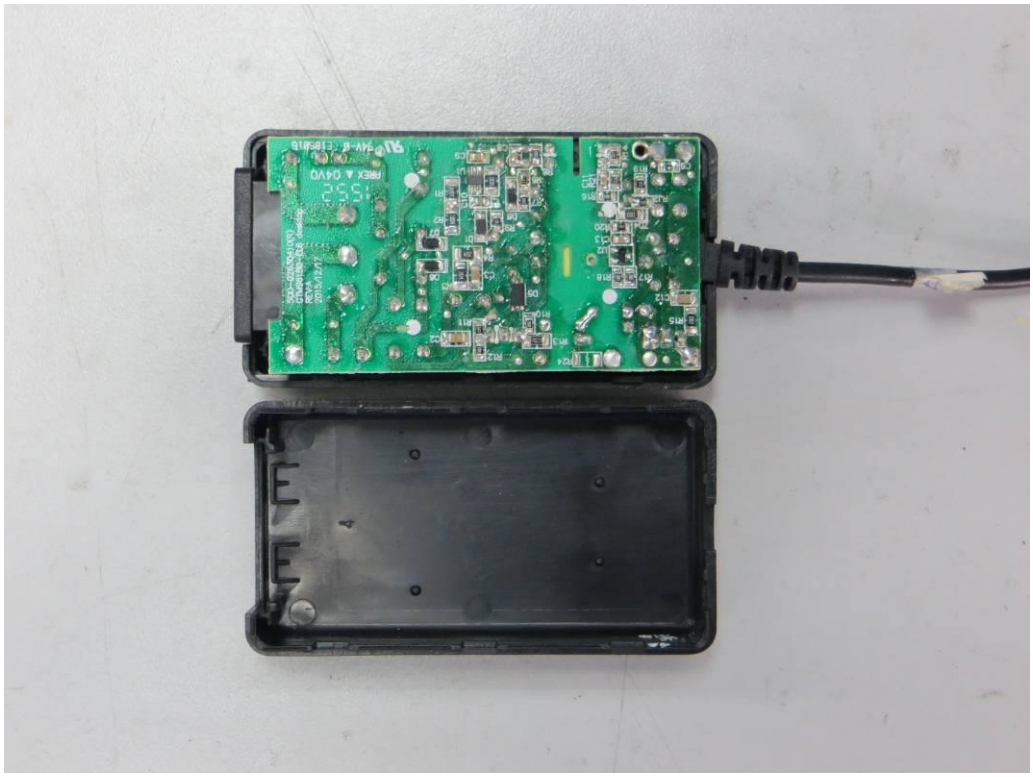
PCB for GTM96180 series (Class I)



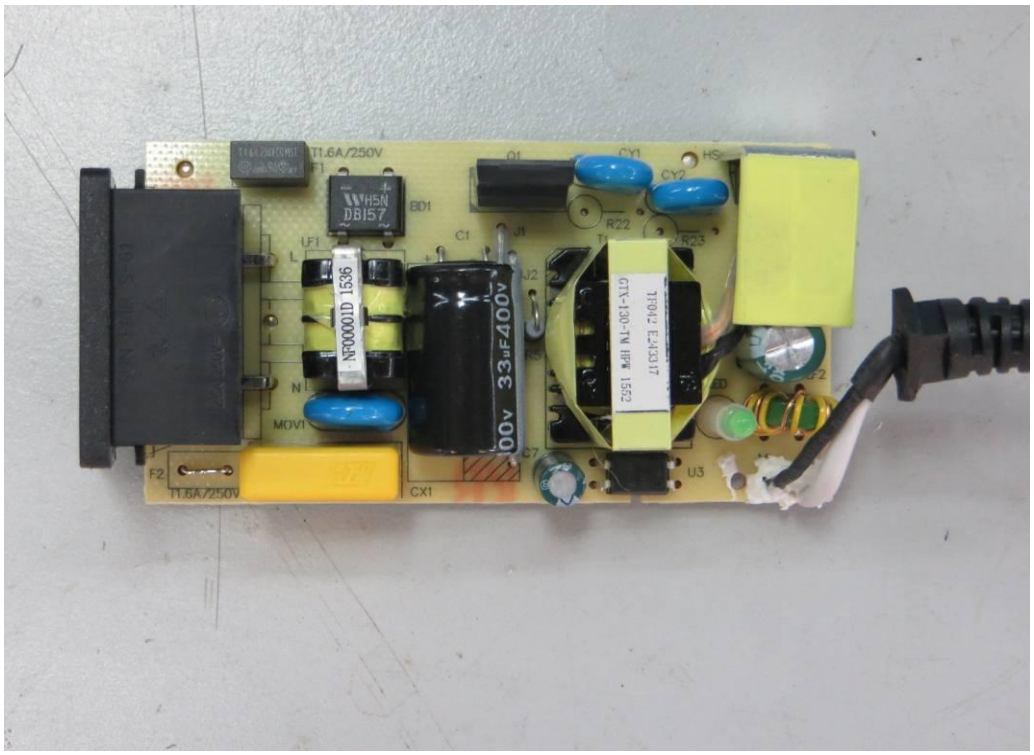
Internal view for GTM96180 series (Class II)



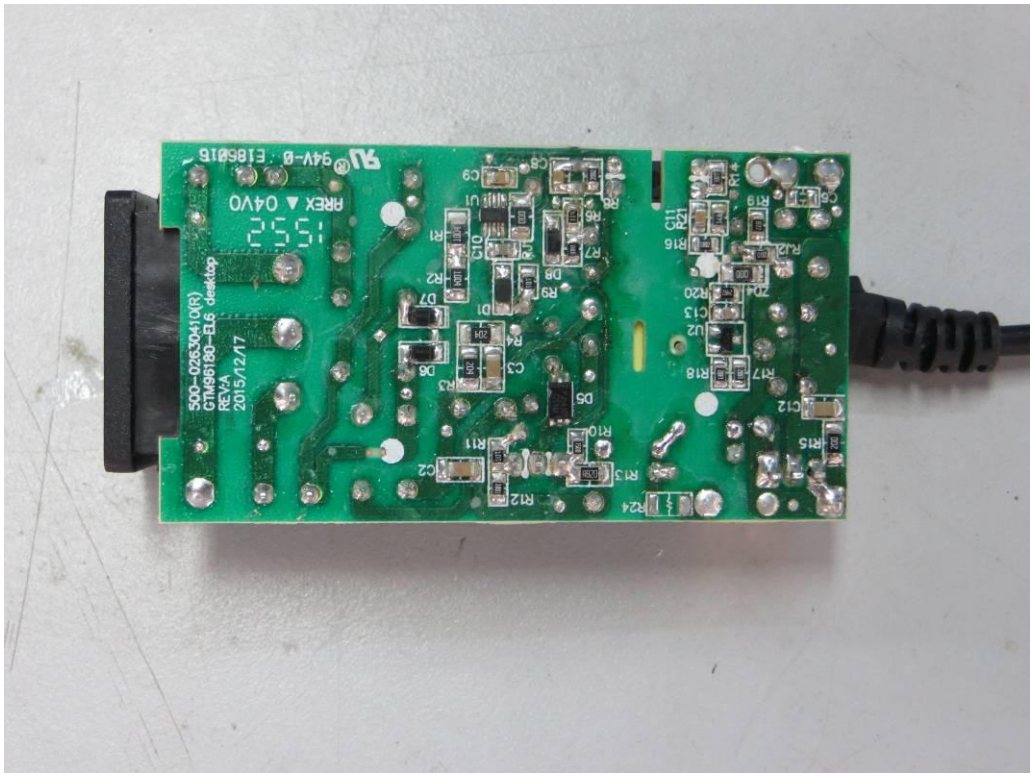
Internal view for GTM96180 series (Class II)



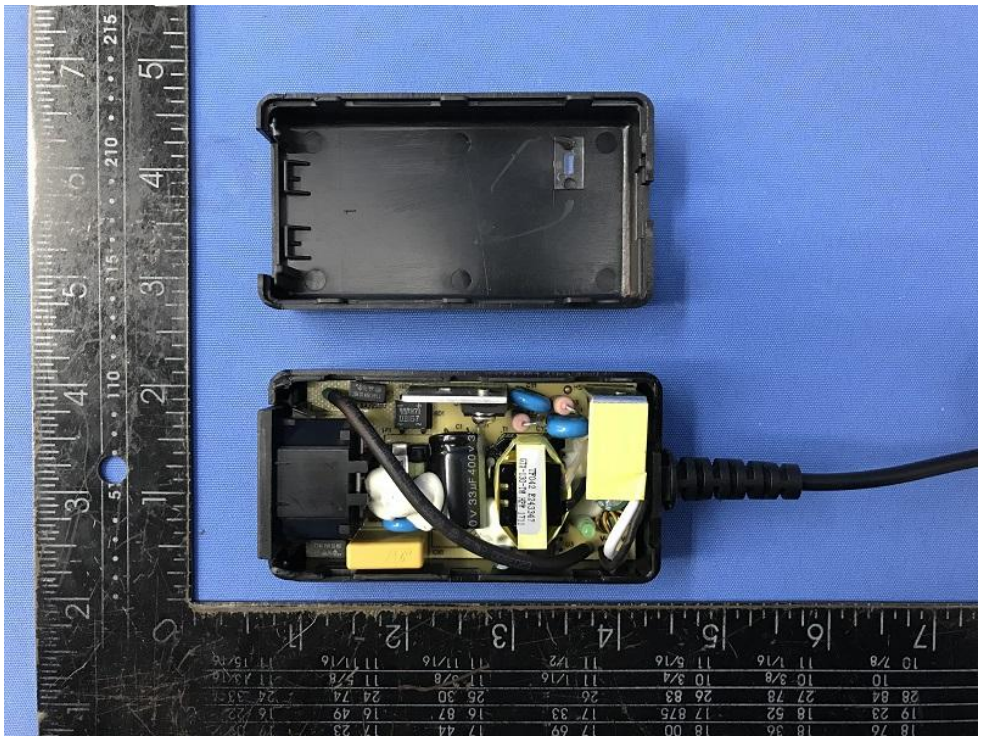
PCB for GTM96180 series (Class II)



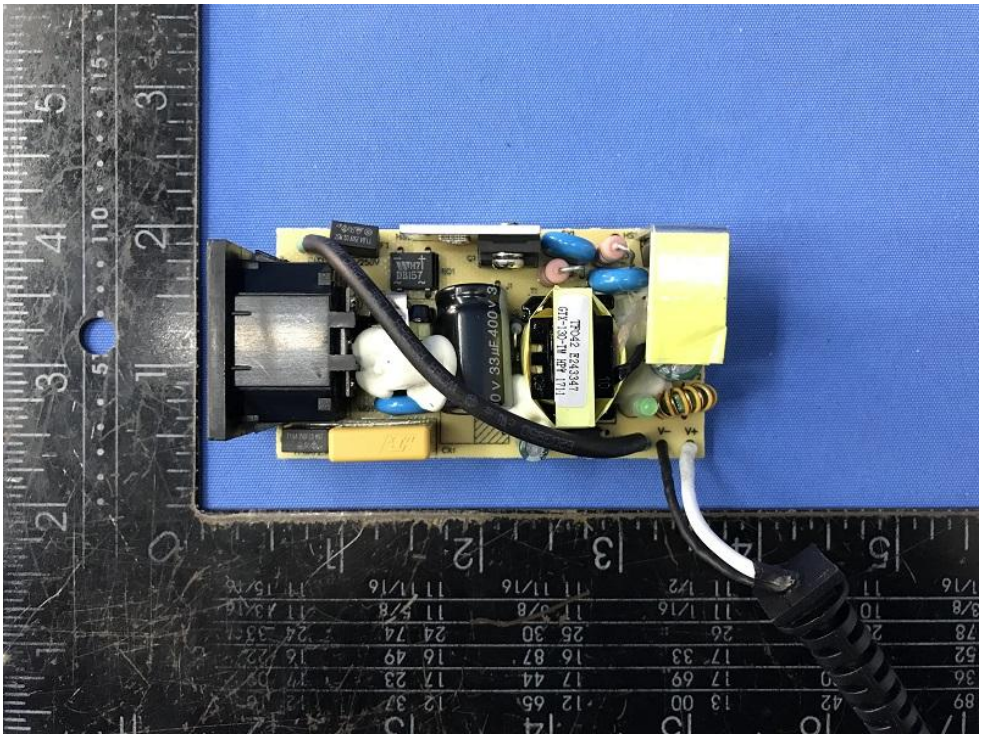
PCB for GTM96180 series (Class II)



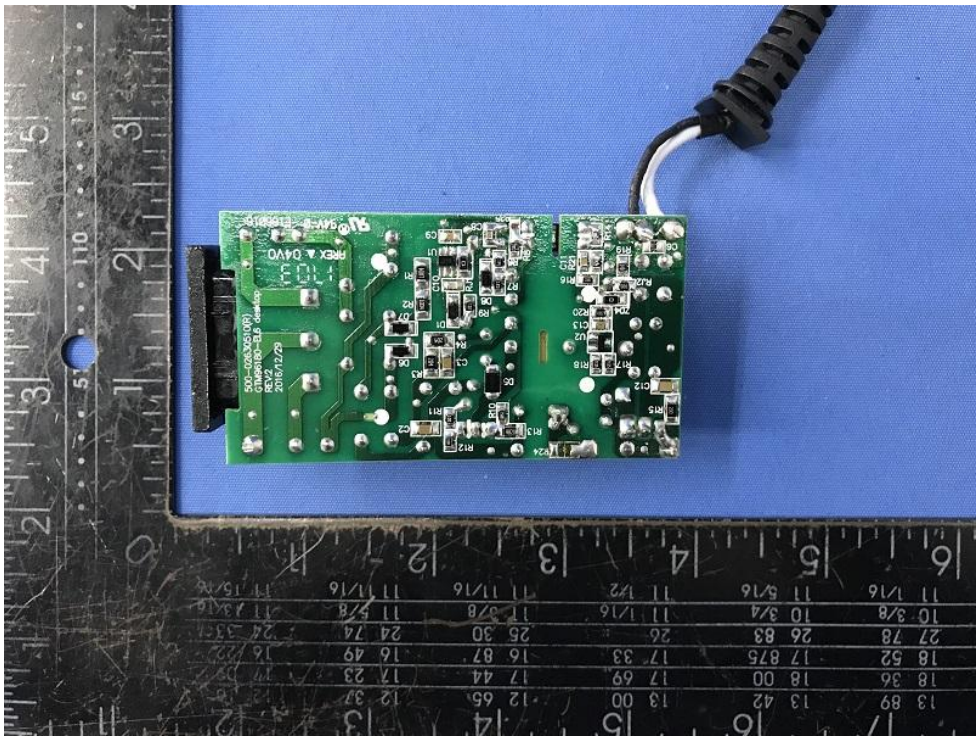
Internal view for GTM96180 series (Class I) with R22, R23 and without R24



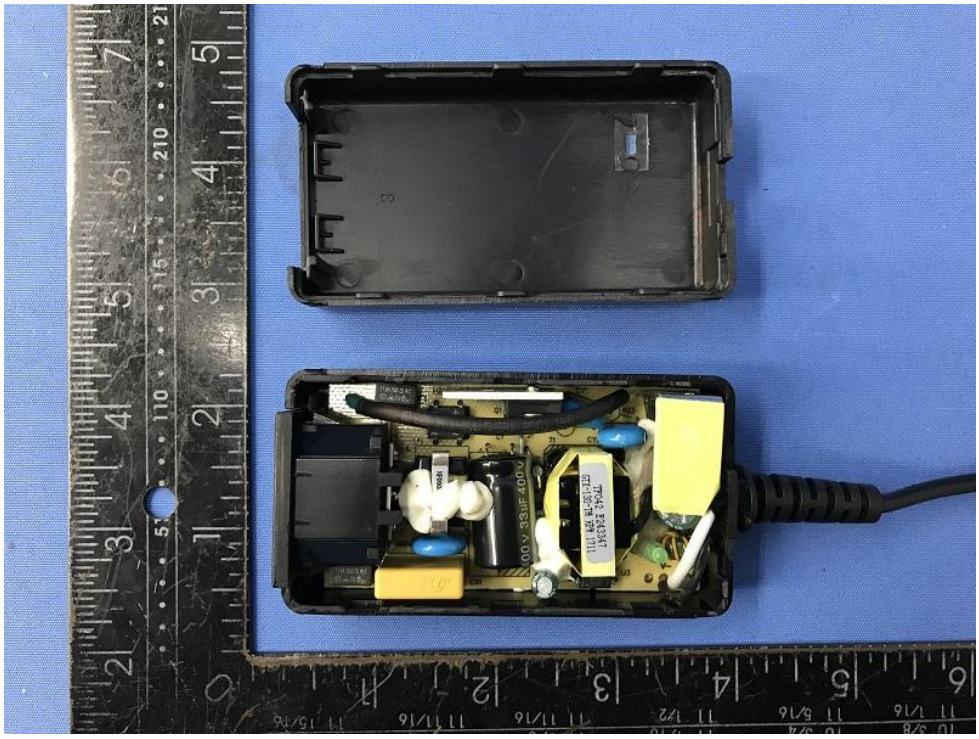
PCB view for GTM96180 series (Class I) with R22, R23 and without R24



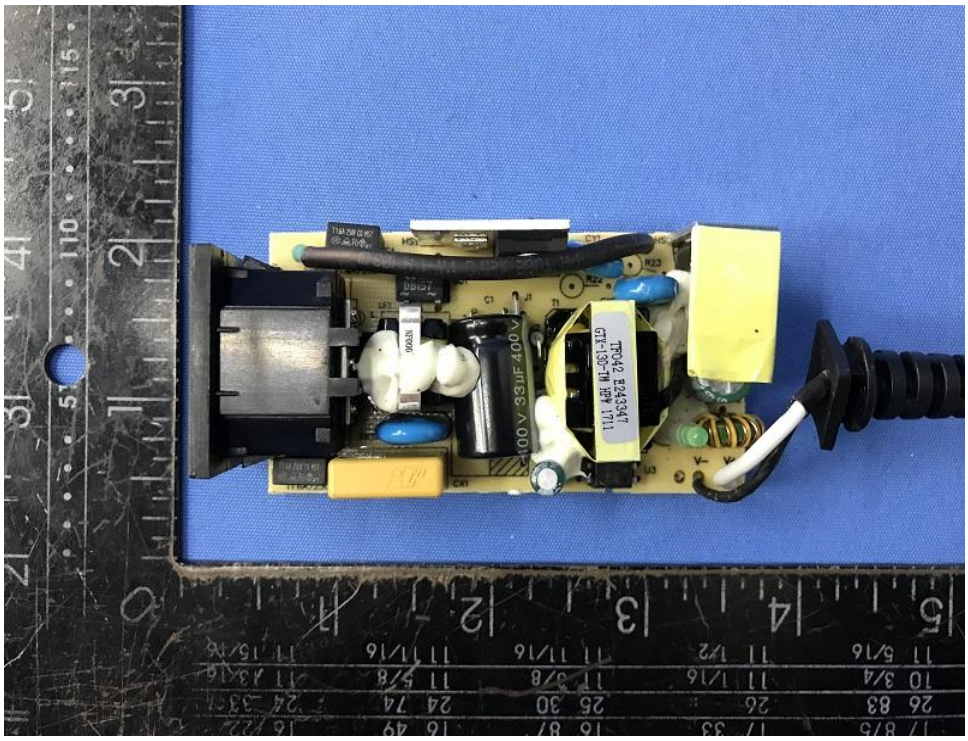
PCB view for GTM96180 series (Class I) with R22, R23 and without R24



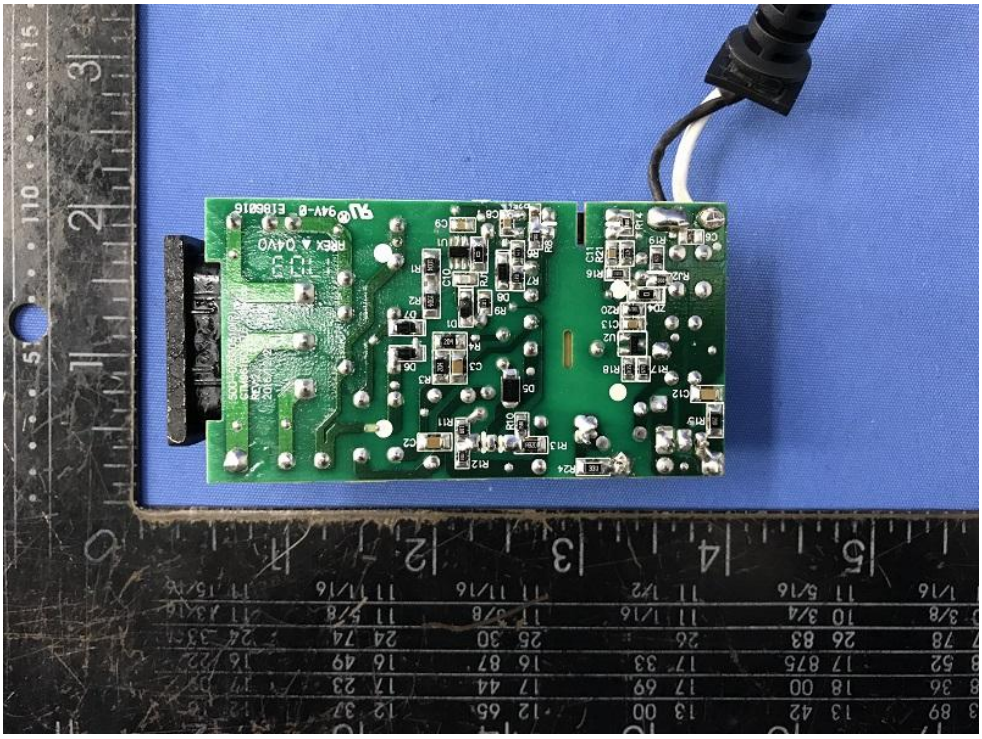
Internal view for GTM96180 series (Class I) without R22, R23 and with R24



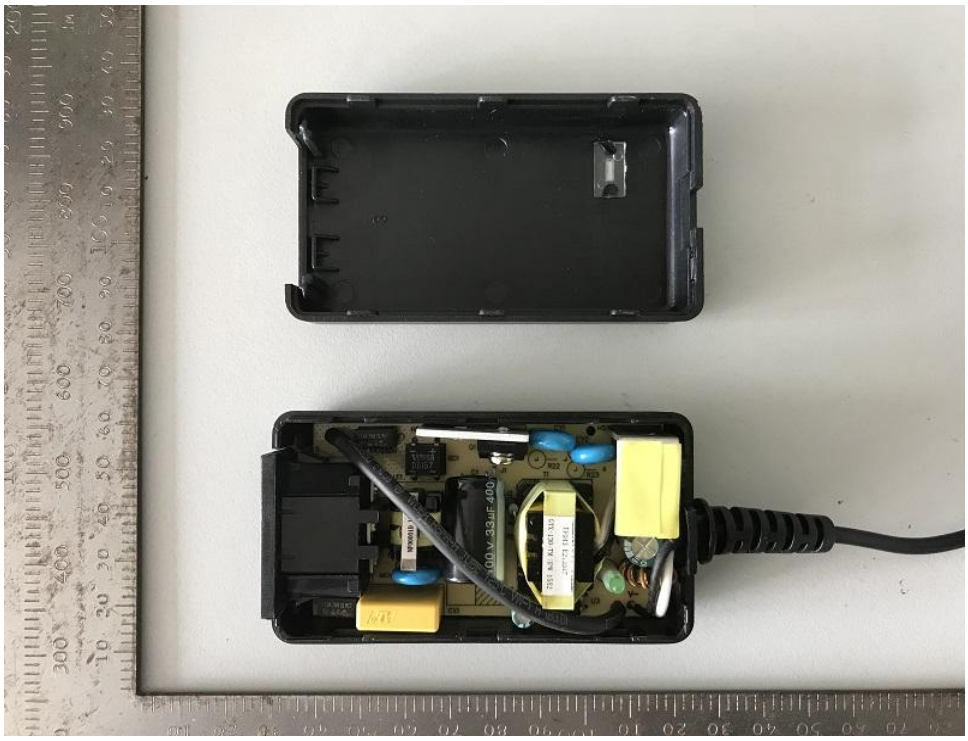
PCB view for GTM96180 series (Class I) without R22, R23 and with R24



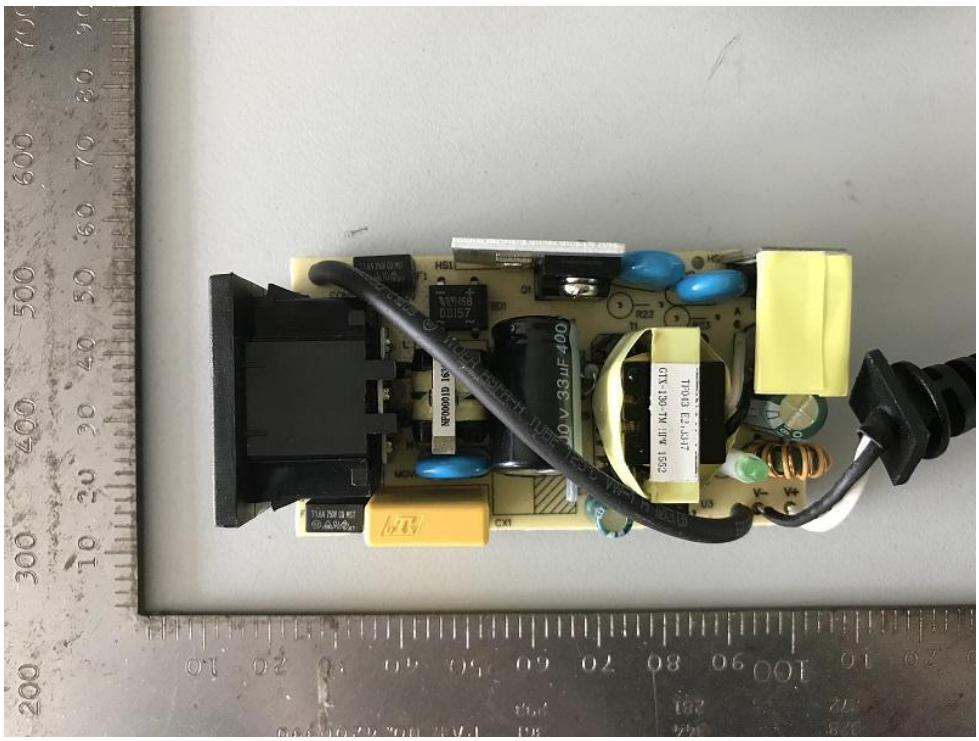
PCB view for GTM96180 series (Class I) without R22, R23 and with R24



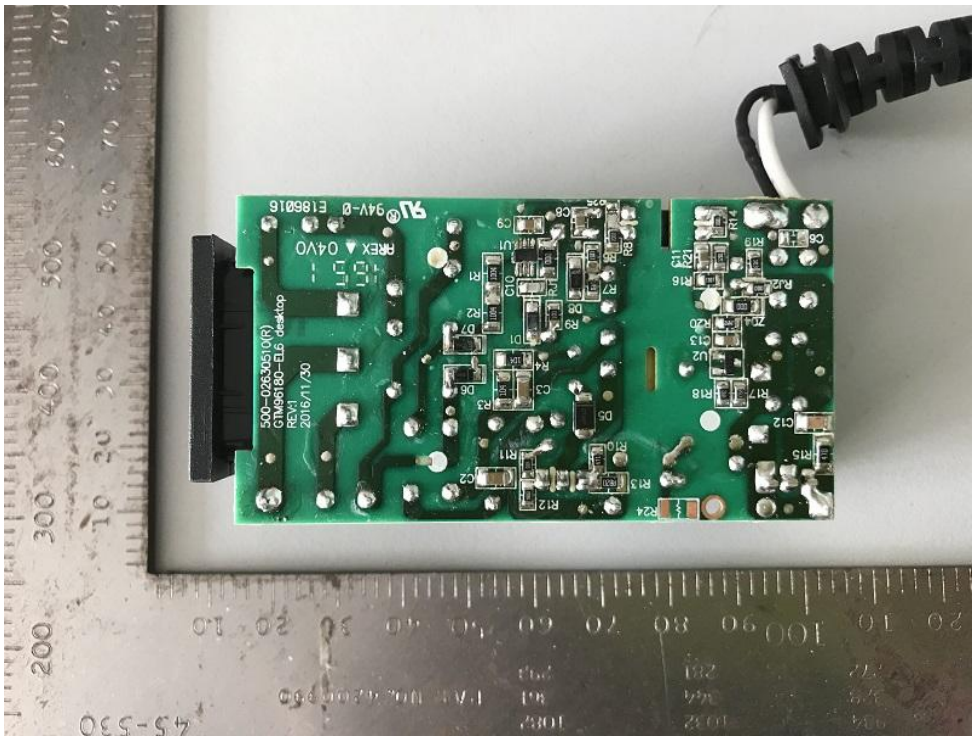
Internal view for GTM96180 series (Class I) without R22, R23 and with R24



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

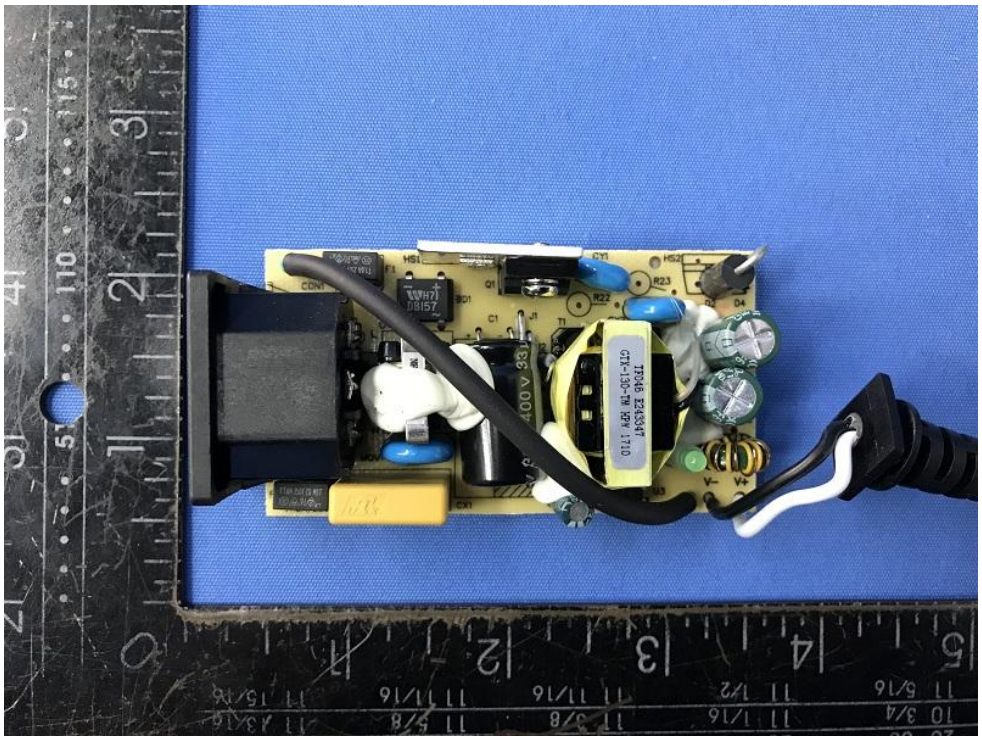


PCB view for GTM96180 series (Class I) without R22, R23 and with R24

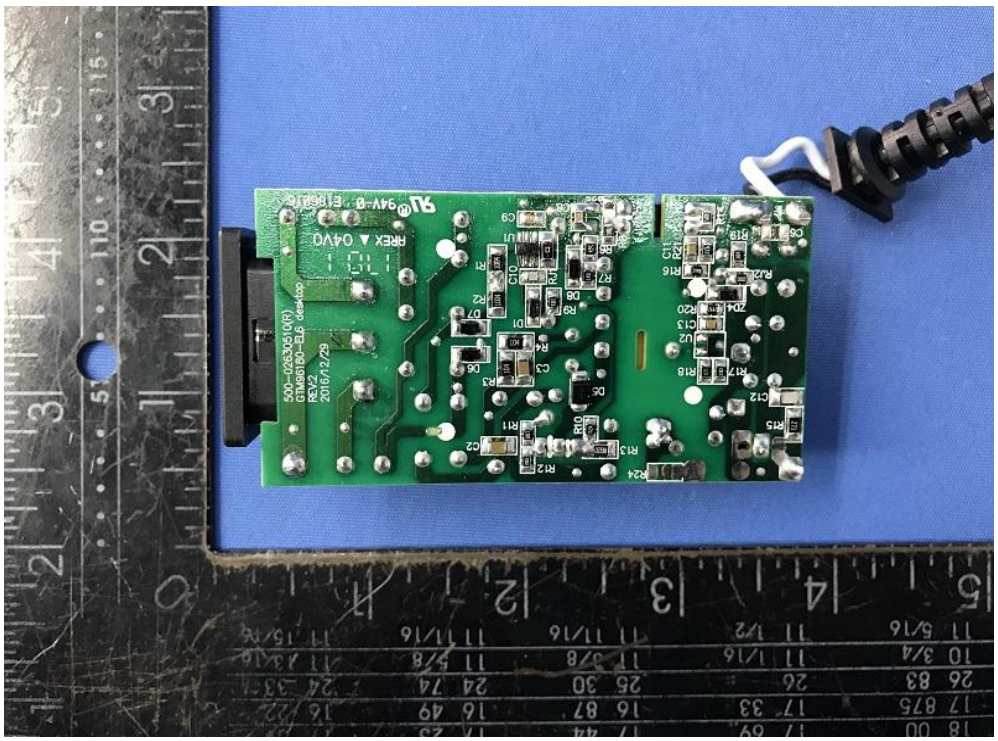


Internal view for GTM96180 series (Class I) without heatsink for D2

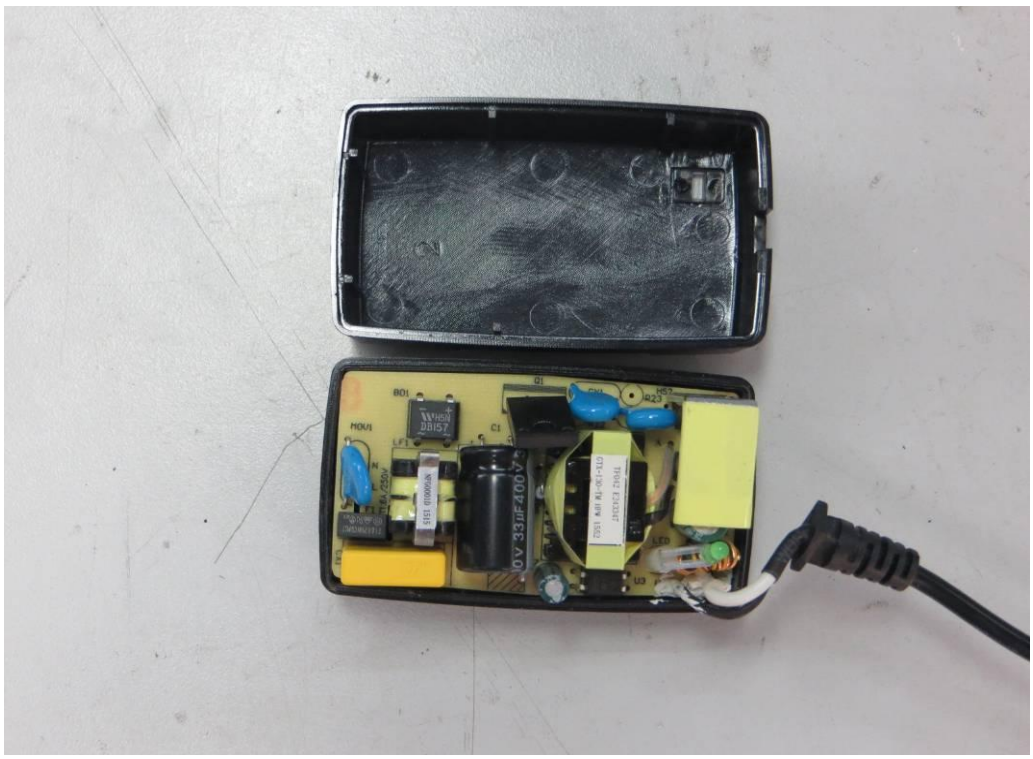
PCB view for GTM96180 series (Class I) without heatsink for D2



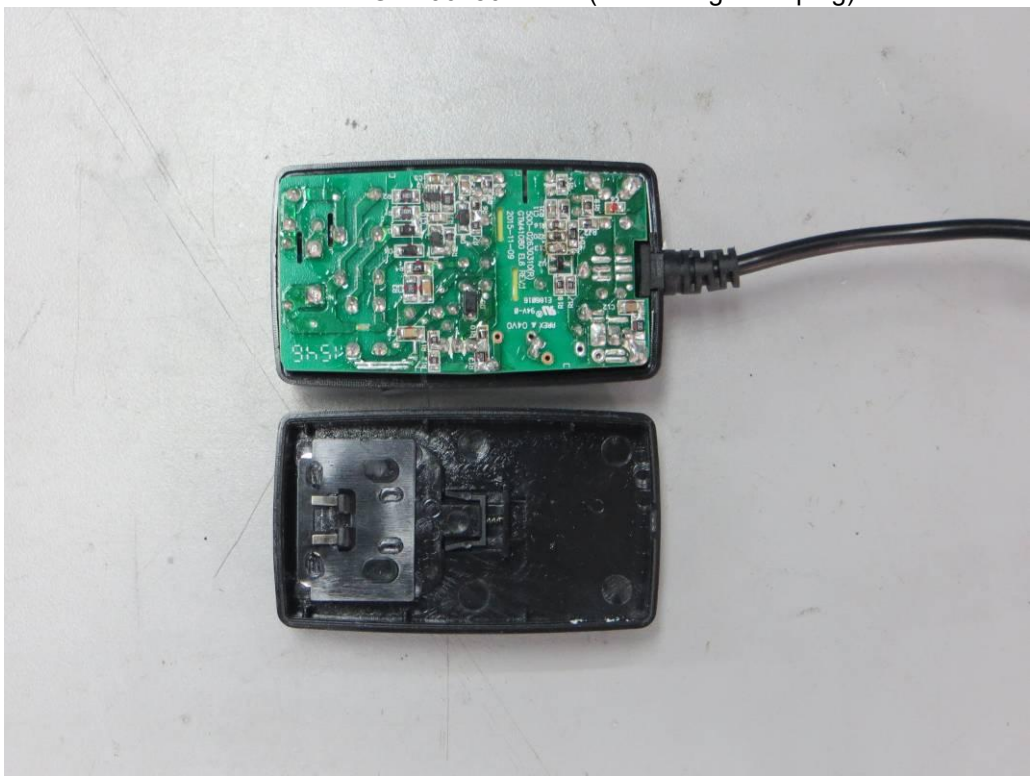
PCB view for GTM96180 series (Class I) without heatsink for D2



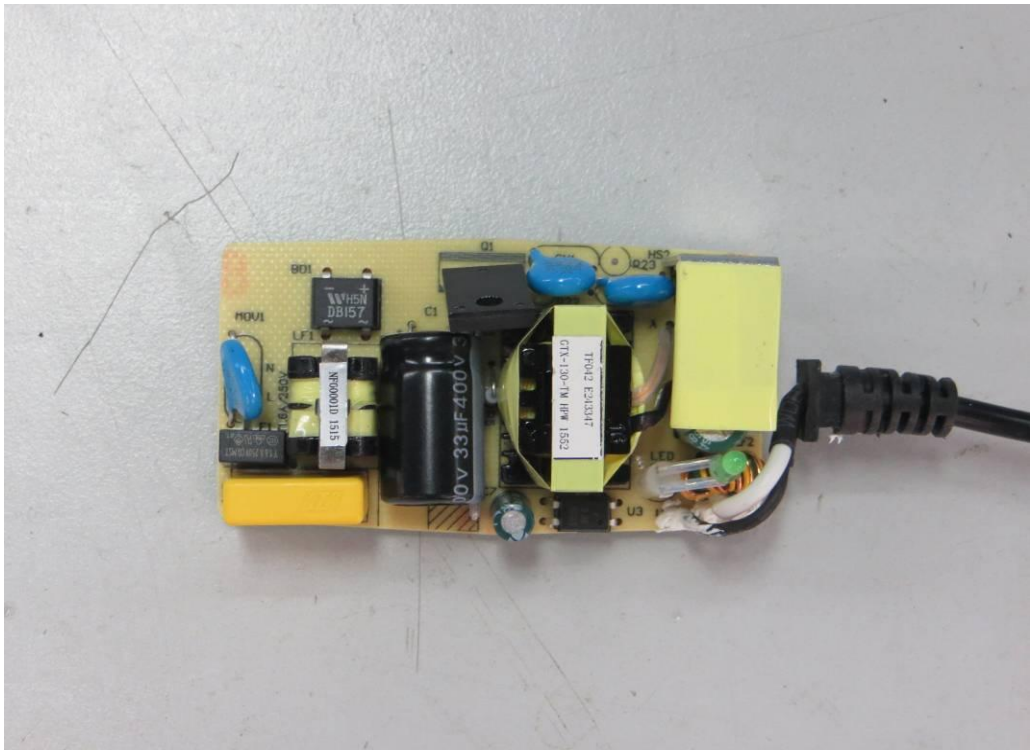
Internal view for GTM96180 series (Interchangeable plug)



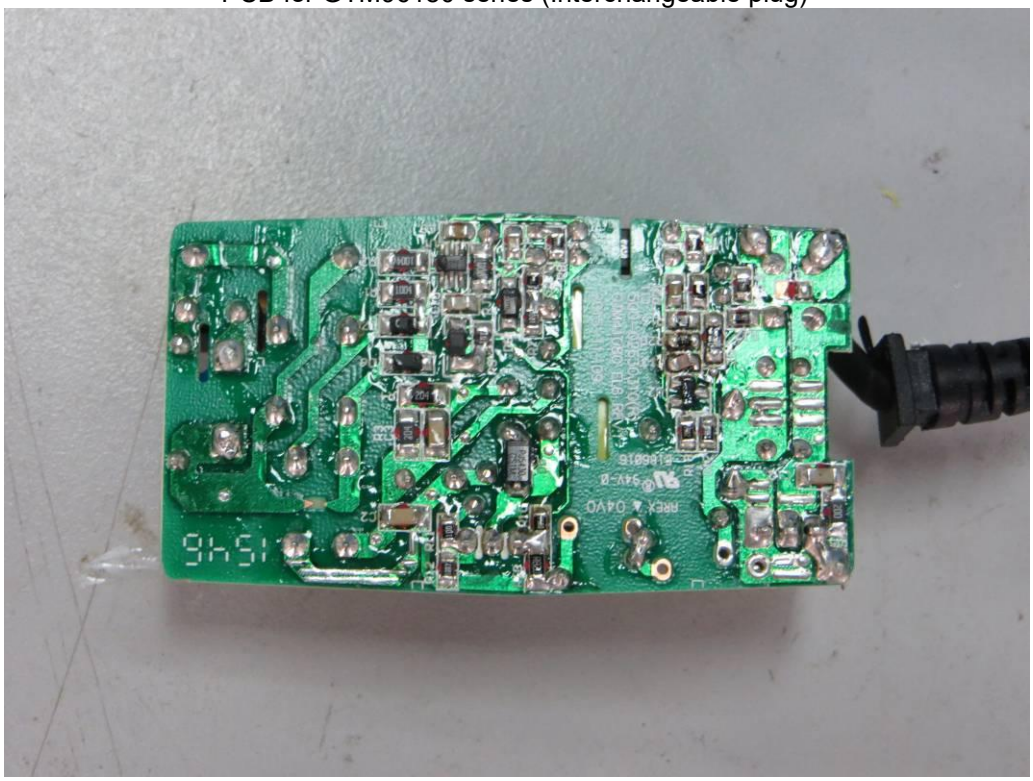
Internal view for GTM96180 series (Interchangeable plug)



PCB for GTM96180 series (Interchangeable plug)



PCB for GTM96180 series (Interchangeable plug)



External view for GTM91120 series

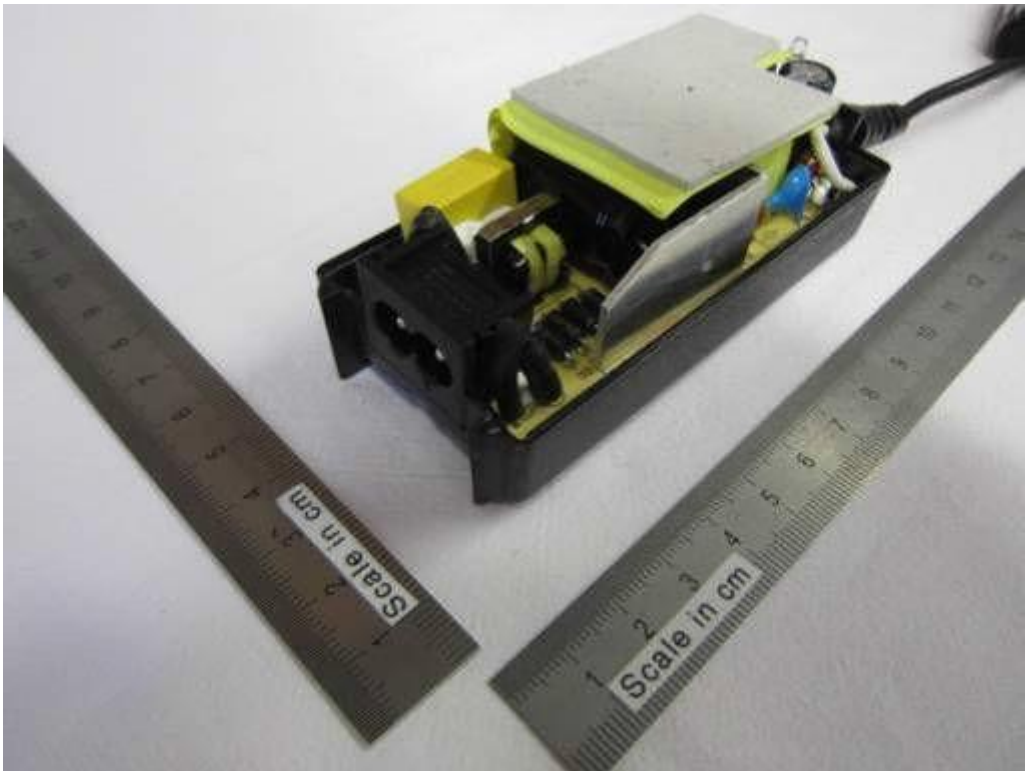
External view for GTM91120 series

External view for GTM91120 series

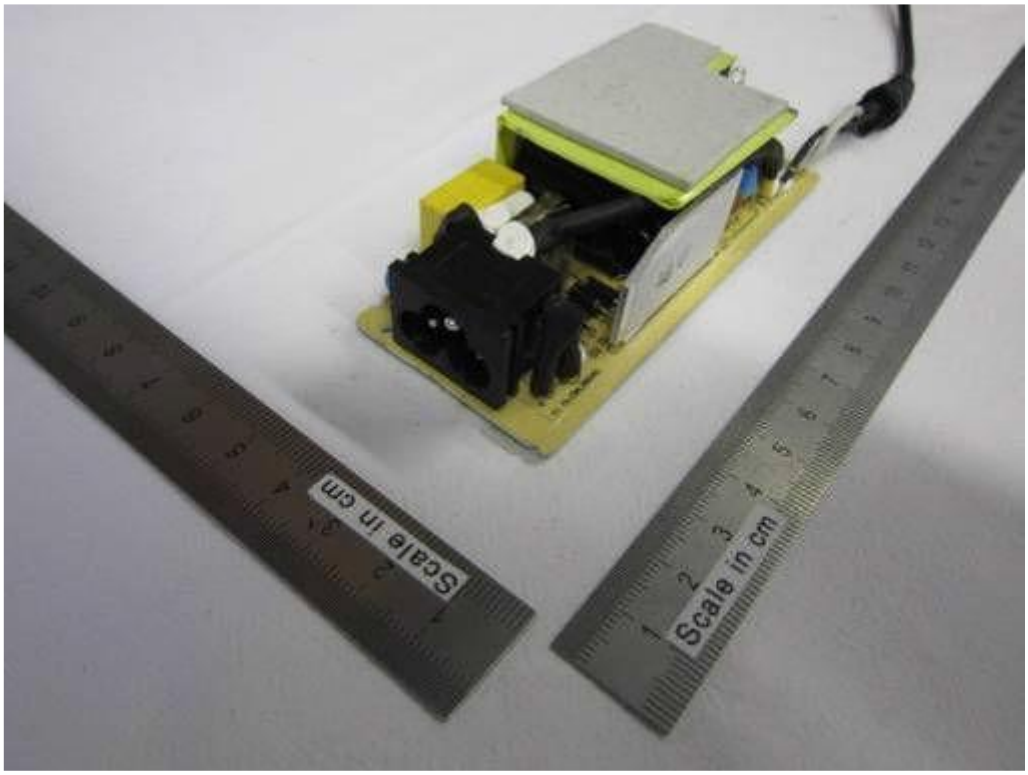
External view for GTM91120 series

Internal view for GTM91120 series

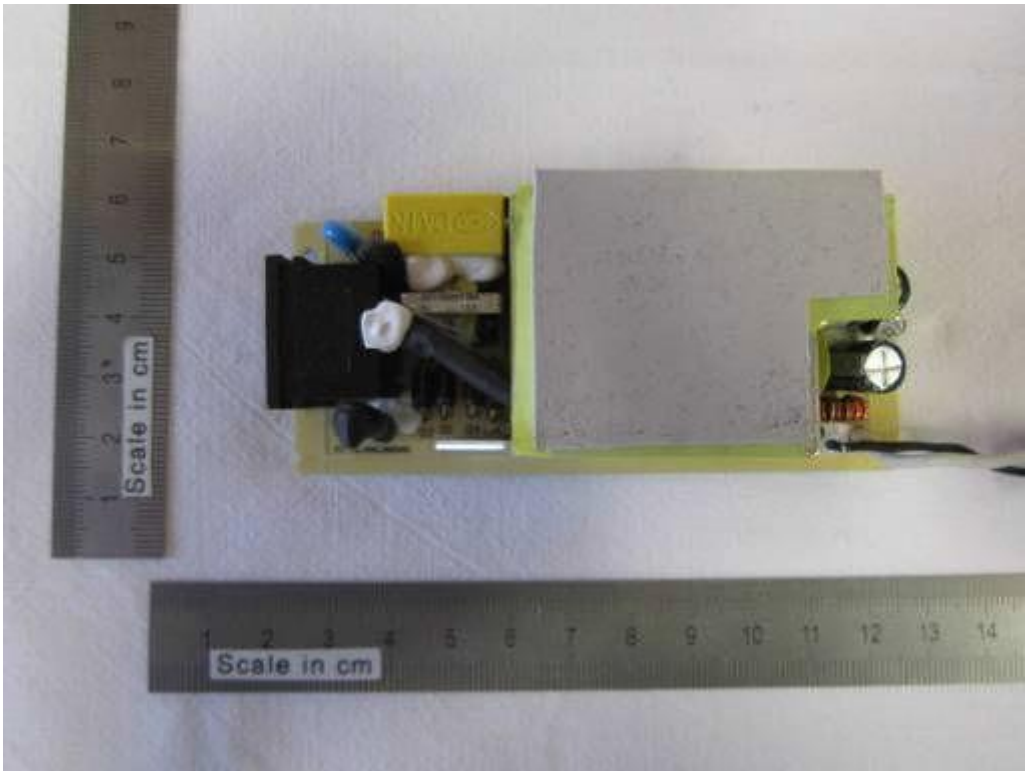
Internal view for GTM91120 series



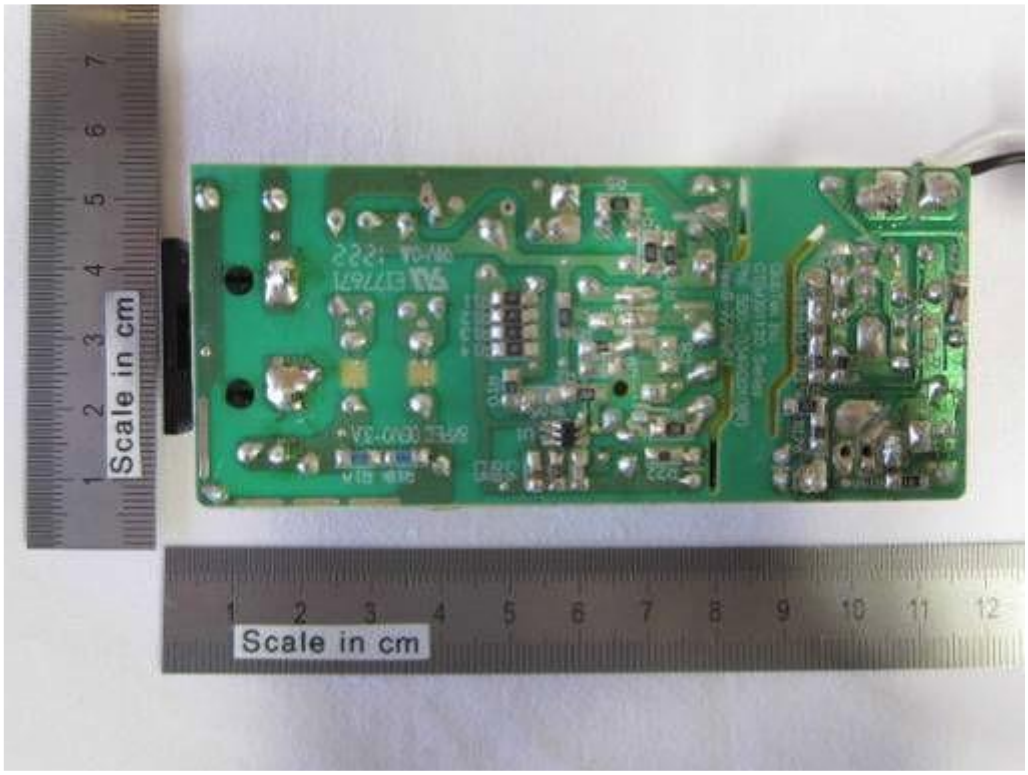
Internal view for GTM91120 series



Internal view for GTM91120 series

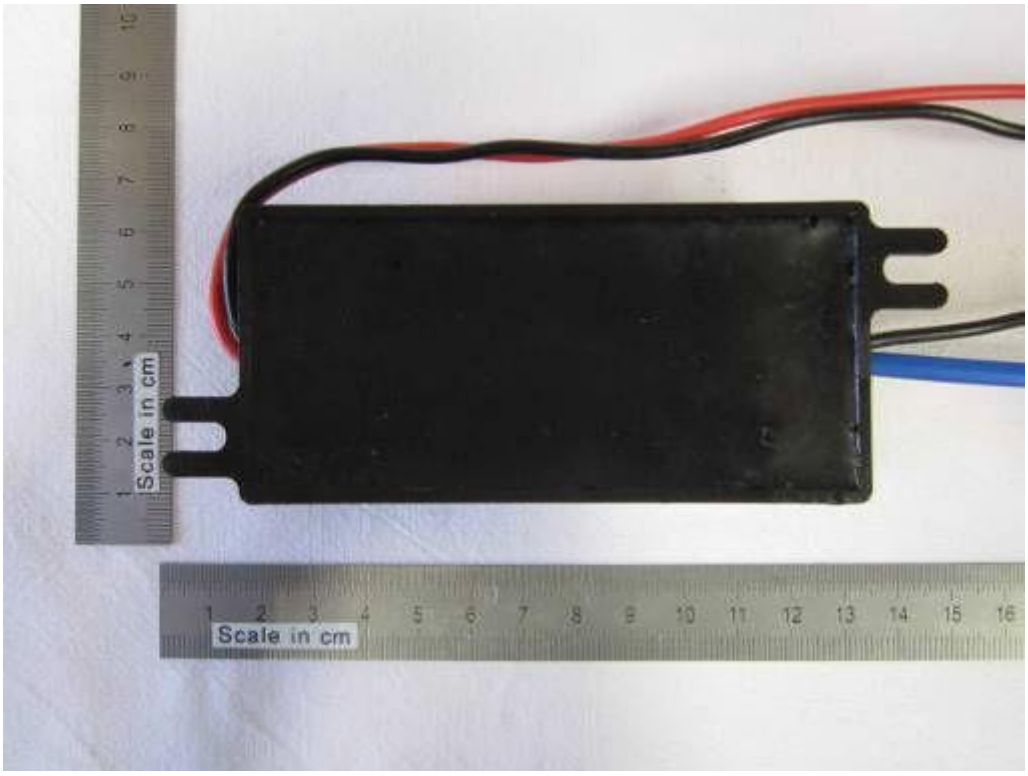


Internal view for GTM91120 series

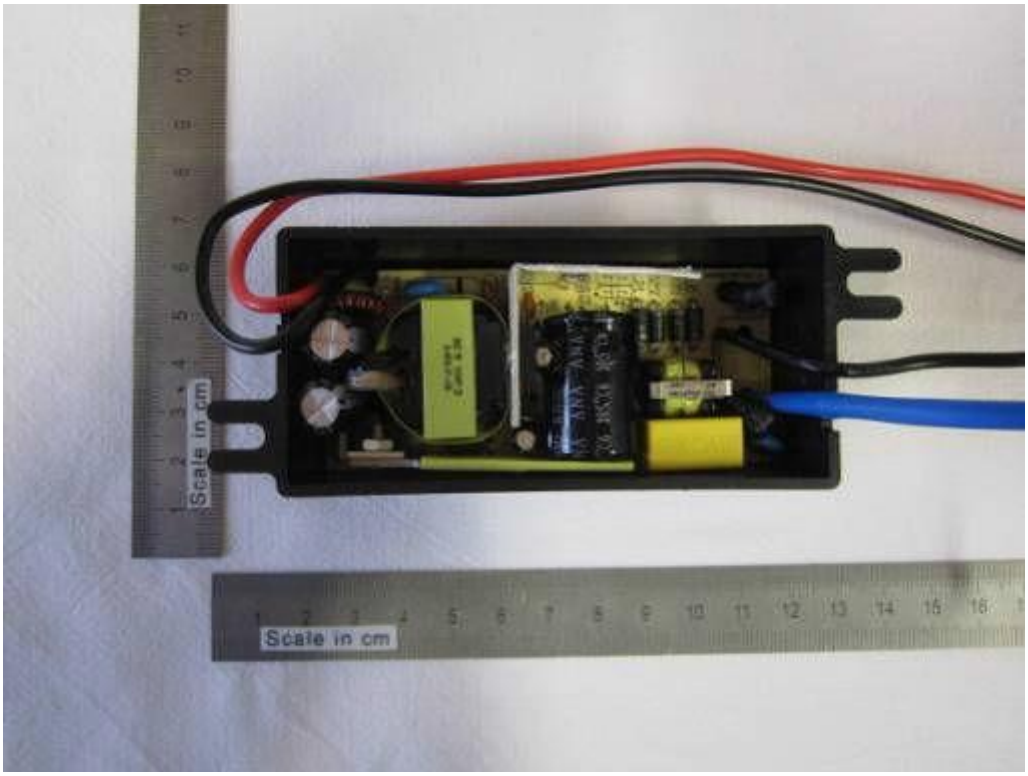


External view for GTM91120 series (Encapsulated)

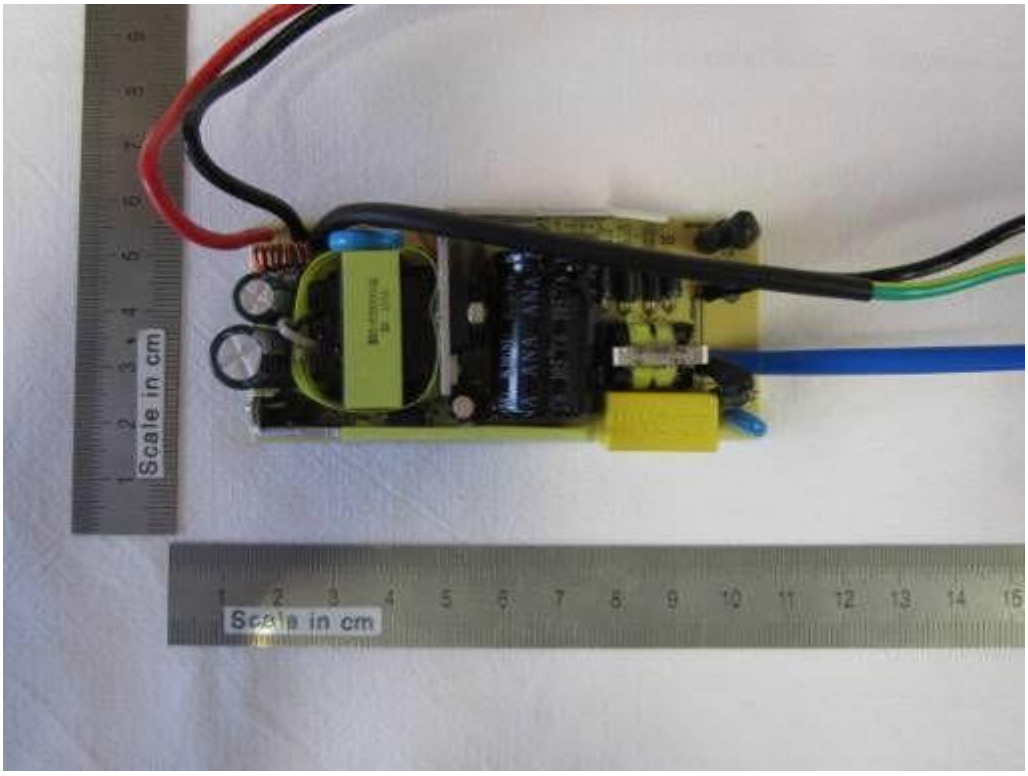
External view for GTM91120 series (Encapsulated)



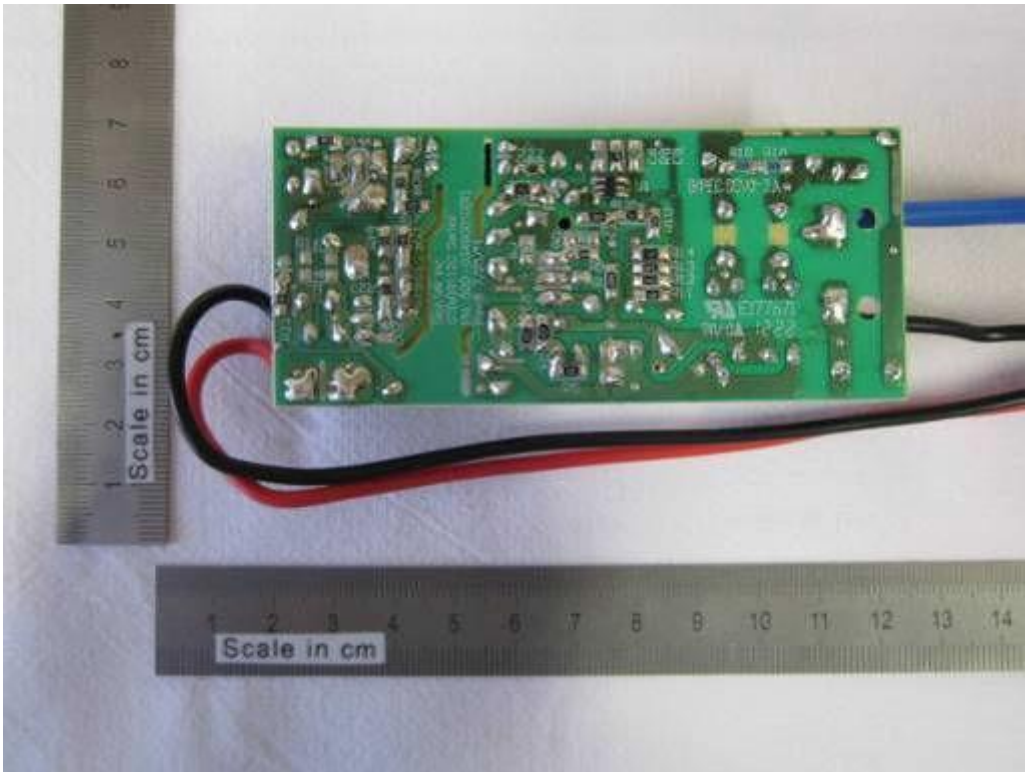
Internal view for GTM91120 series (Encapsulated)



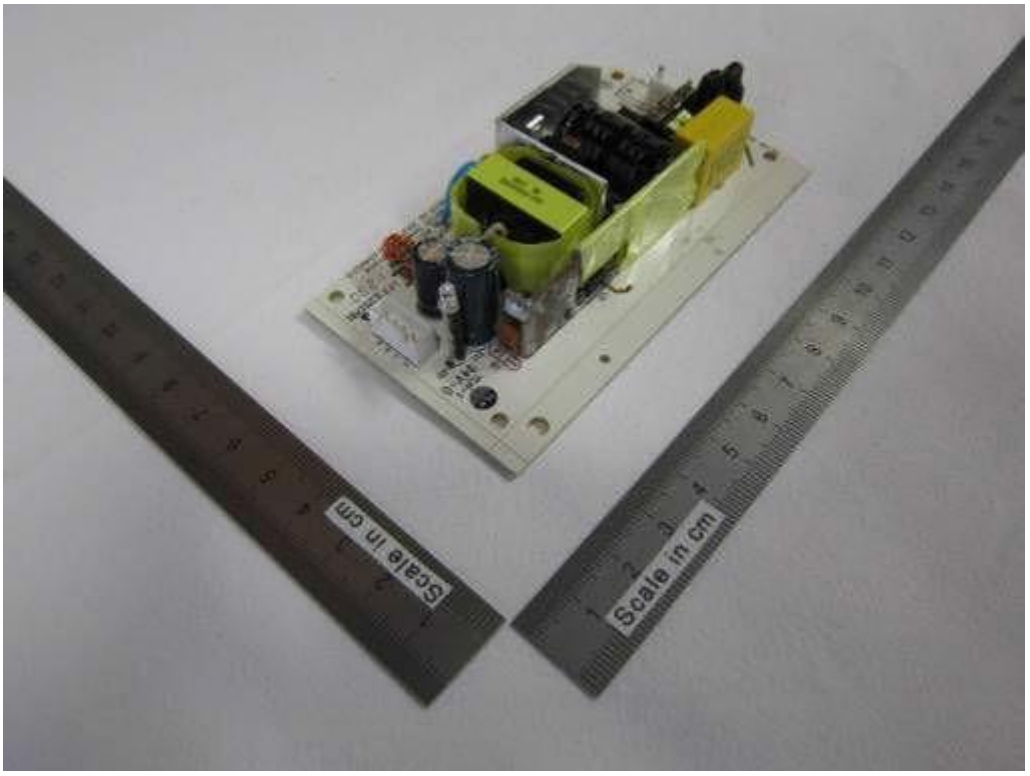
Internal view for GTM91120 series (Encapsulated)



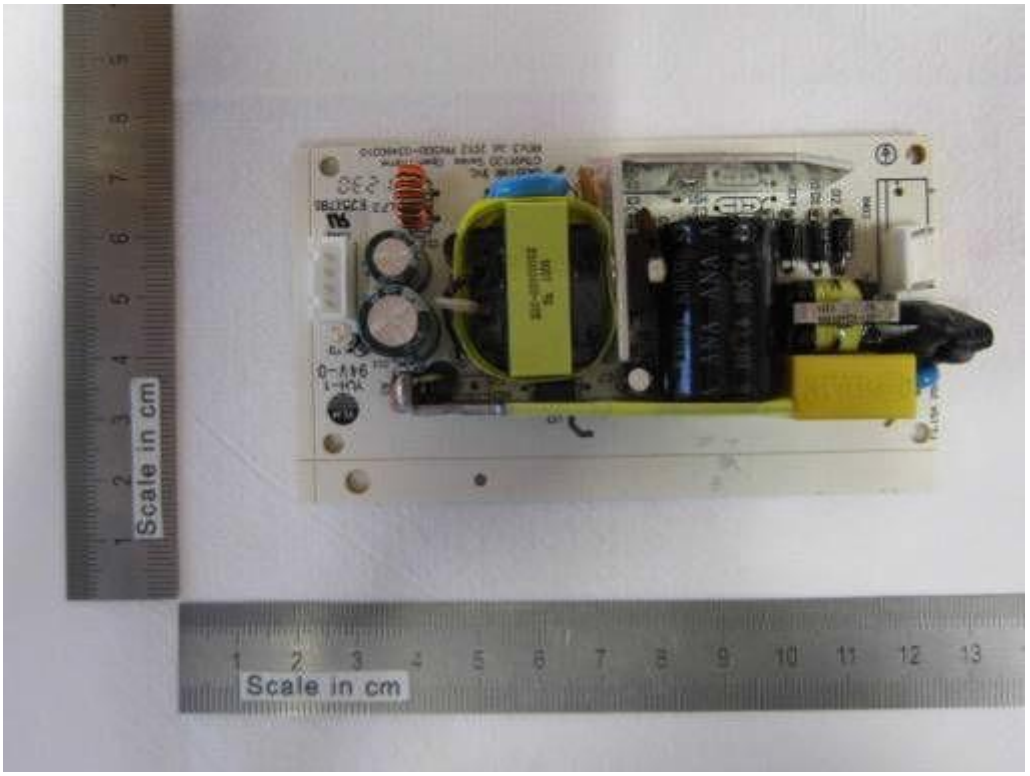
Internal view for GTM91120 series (Encapsulated)



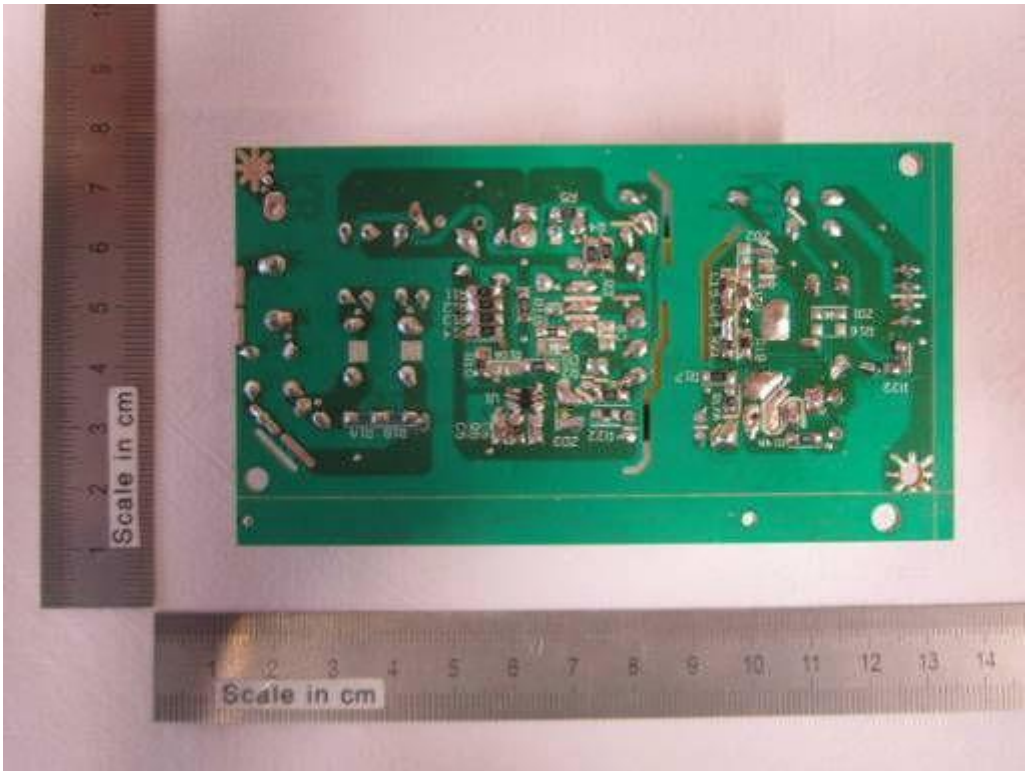
External view for GTM91120 series (Open frame)



External view for GTM91120 series (Open frame)



External view for GTM91120 series (Open frame)



External view for GTM91120 series (Encapsulated)

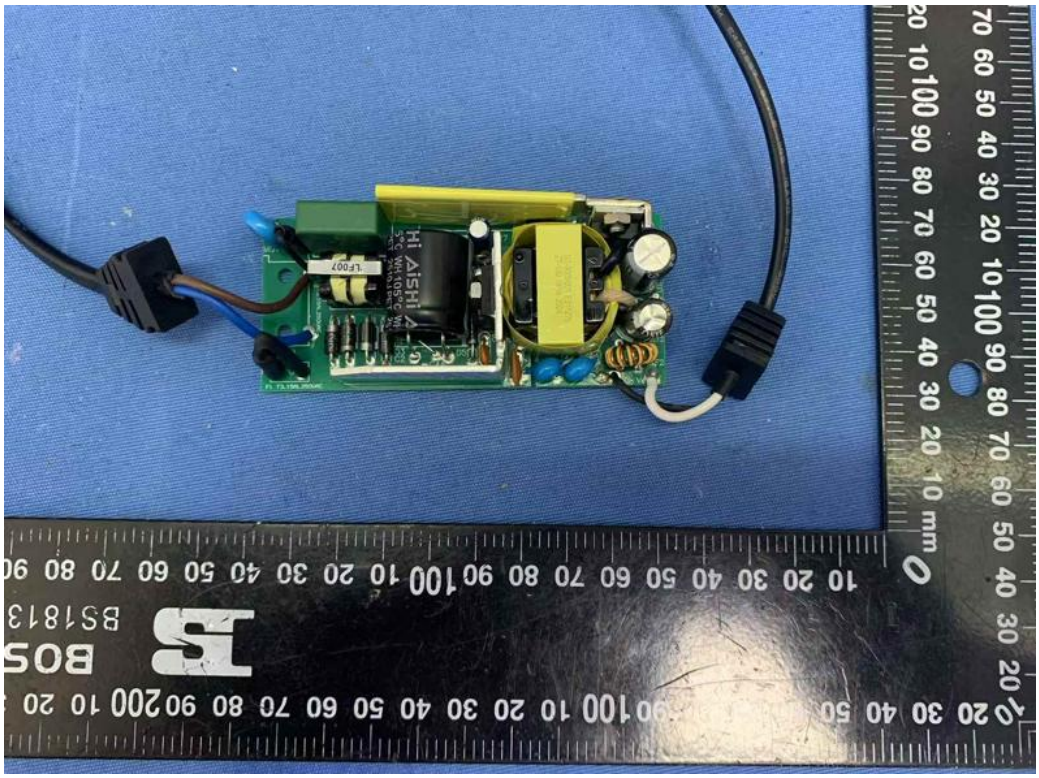
External view for GTM91120 series (Encapsulated)

External view for GTM91120 series (Encapsulated)

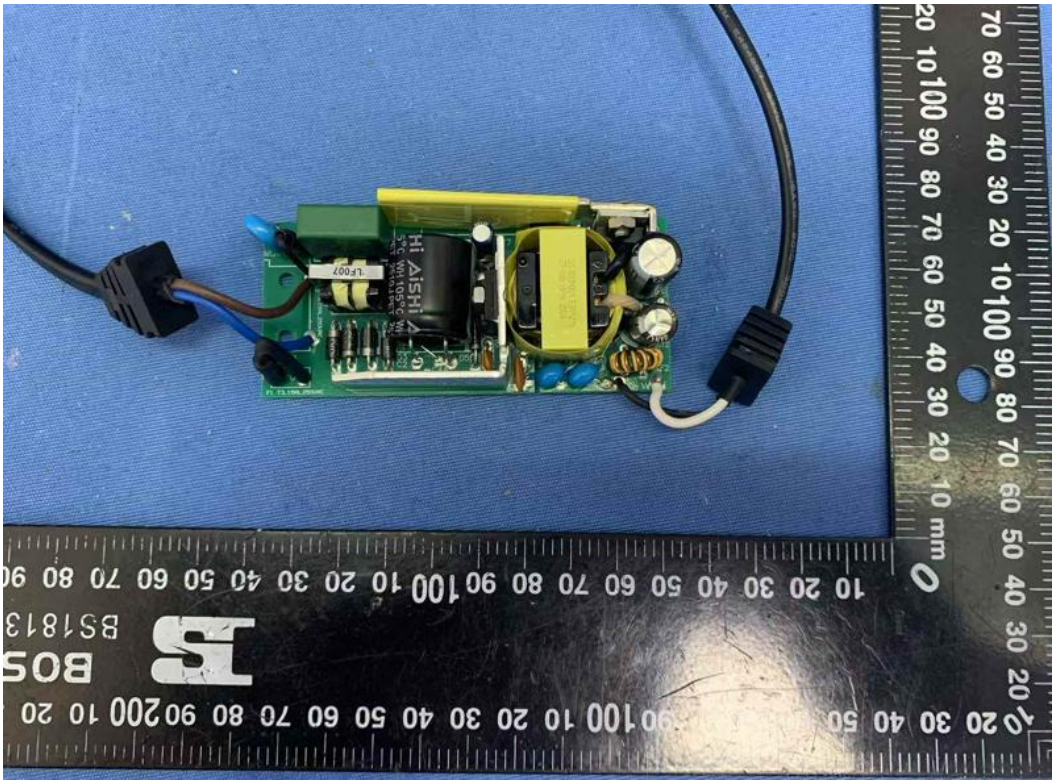
External view for GTM91120 series (Encapsulated)

Internal view for GTM91120 series (Encapsulated)

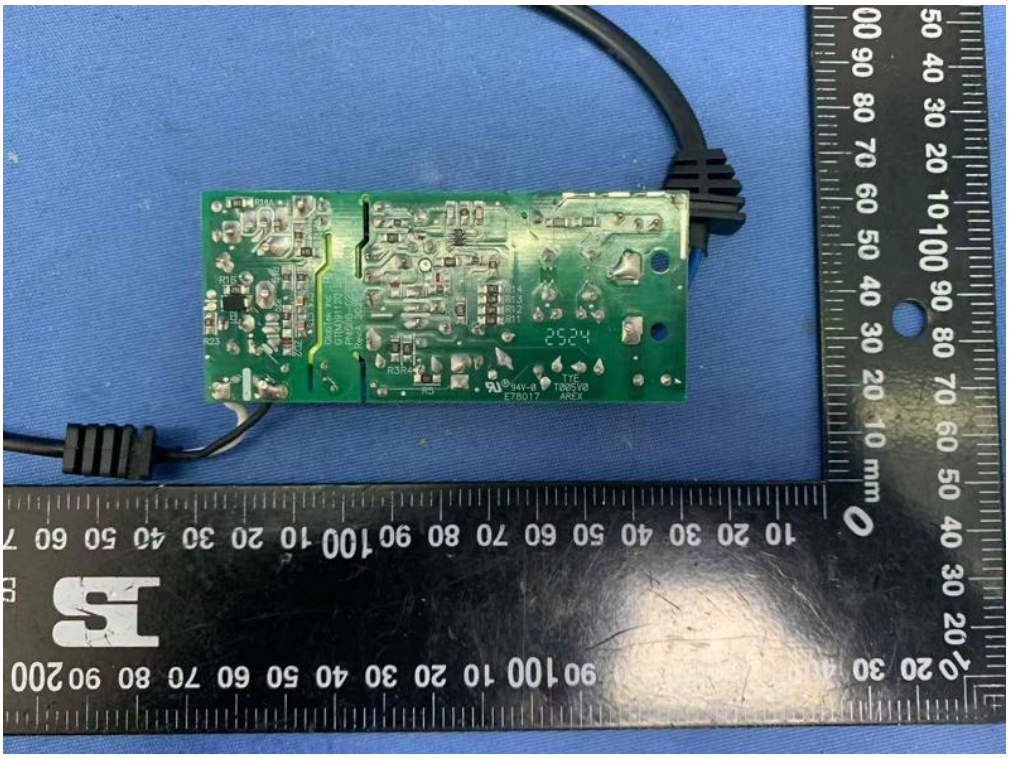
Internal view for GTM91120 series (Encapsulated)



Internal view for GTM91120 series (Encapsulated)



Internal view for GTM91120 series (Encapsulated)

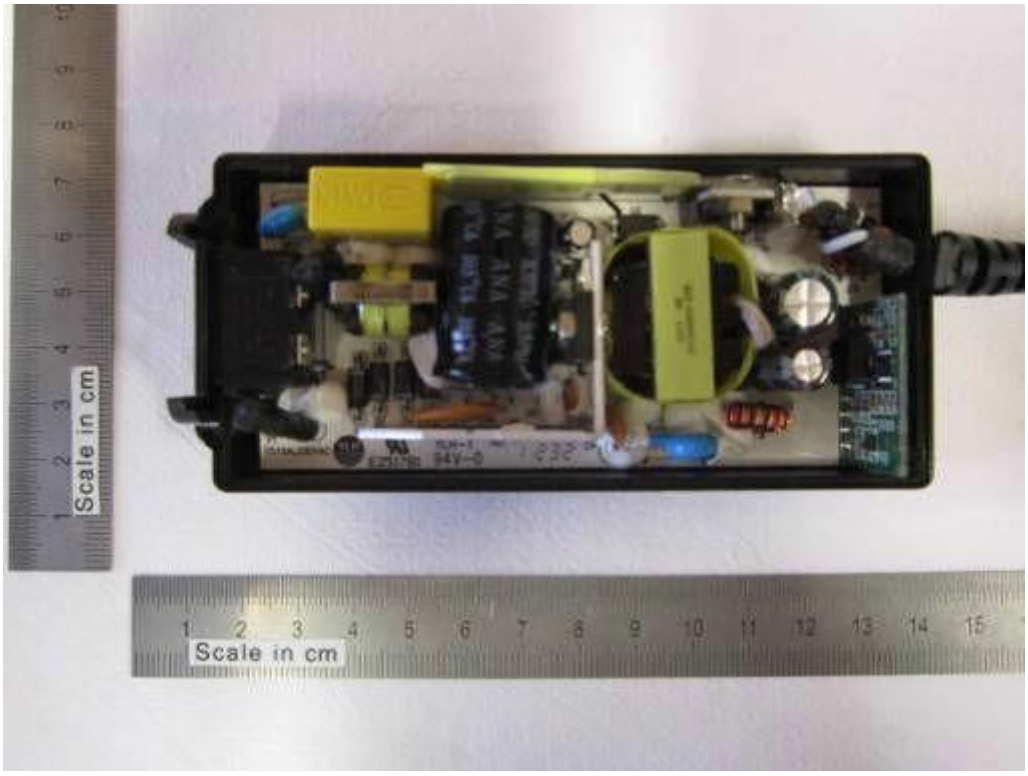


External view for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL

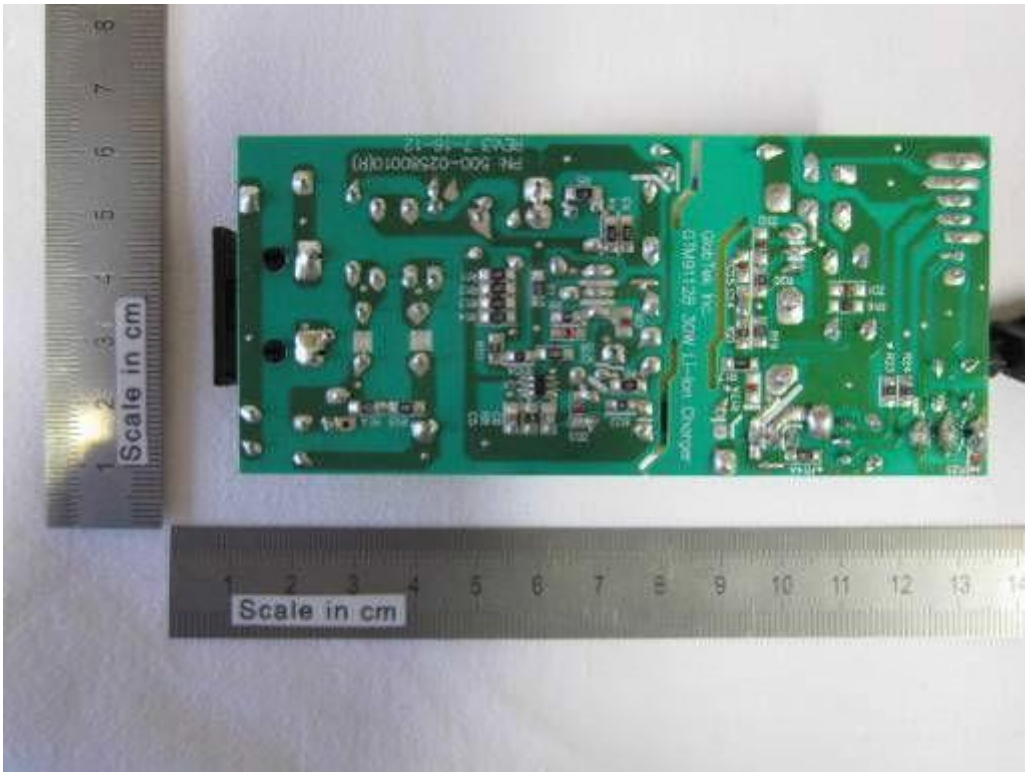
External view for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL

External view for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL

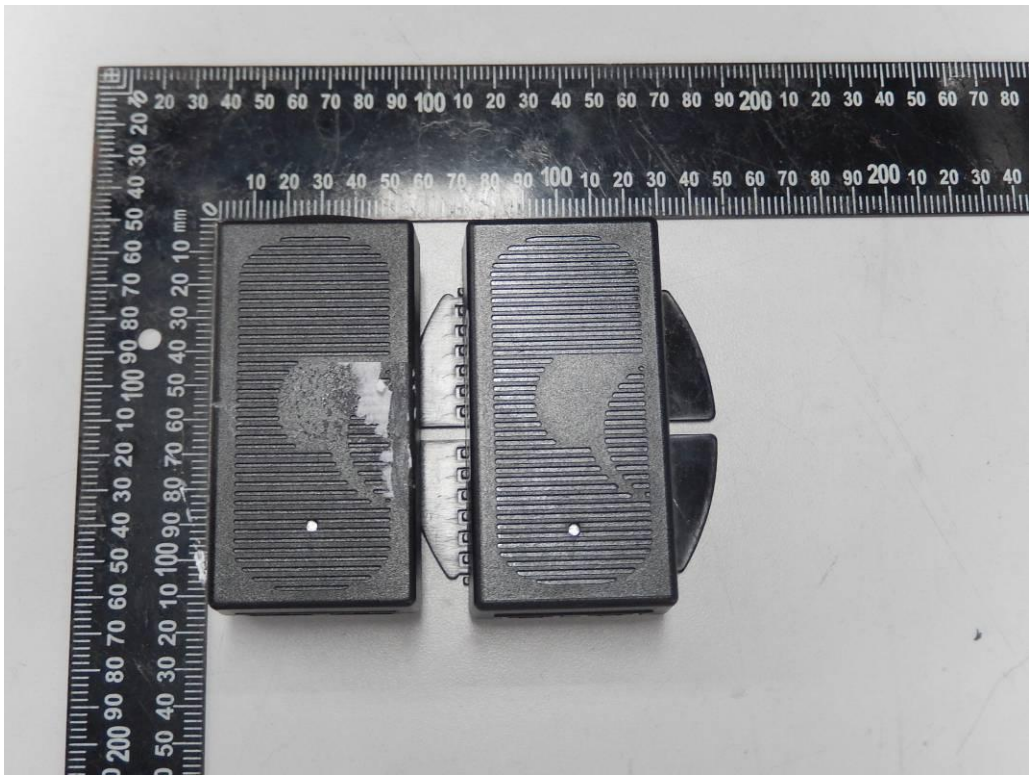
PCB for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL



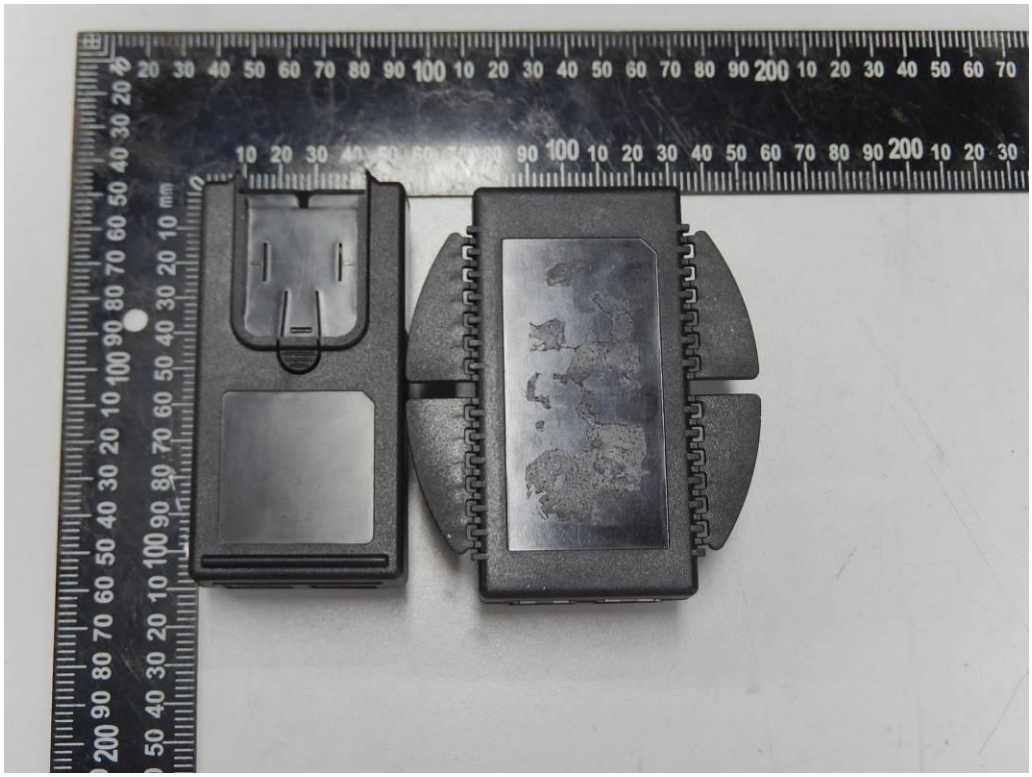
PCB for GTM91128LI1CELL, GTM91128LI2CELL, GTM91128LI3CELL



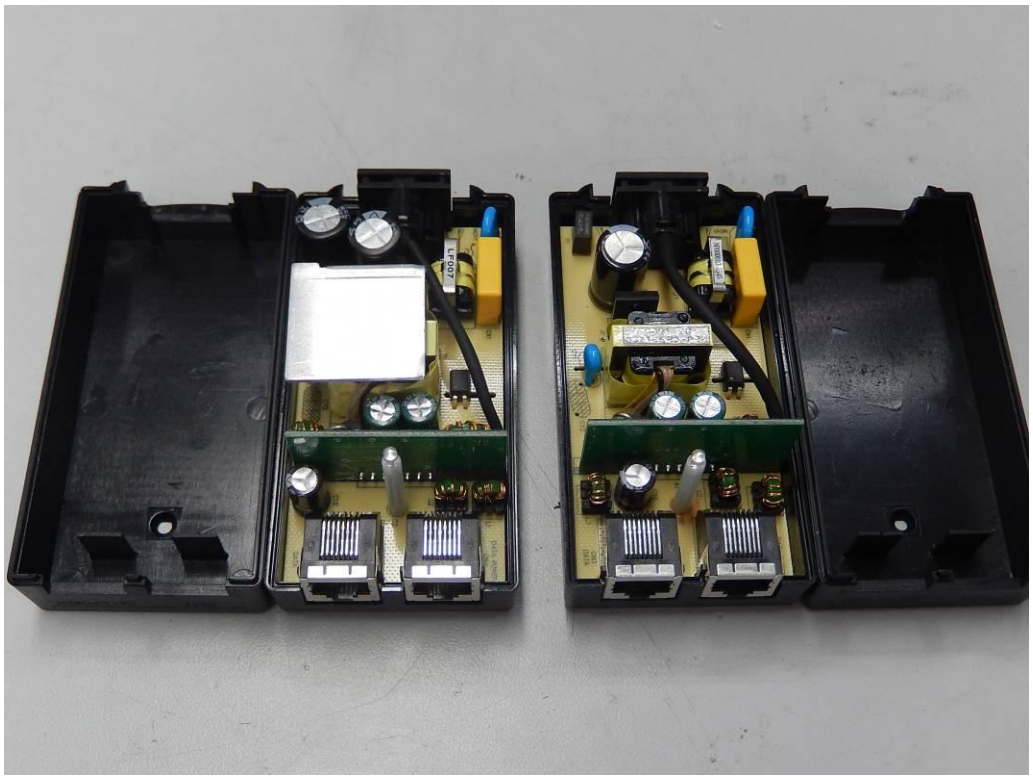
External view for POE series



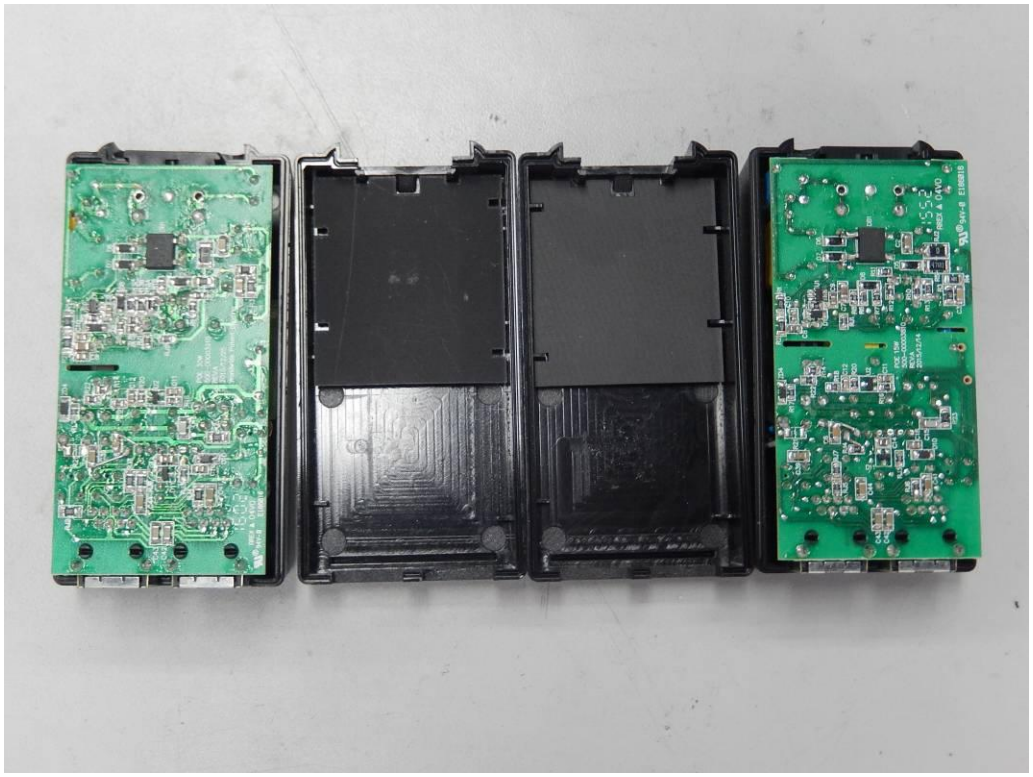
External view for POE series



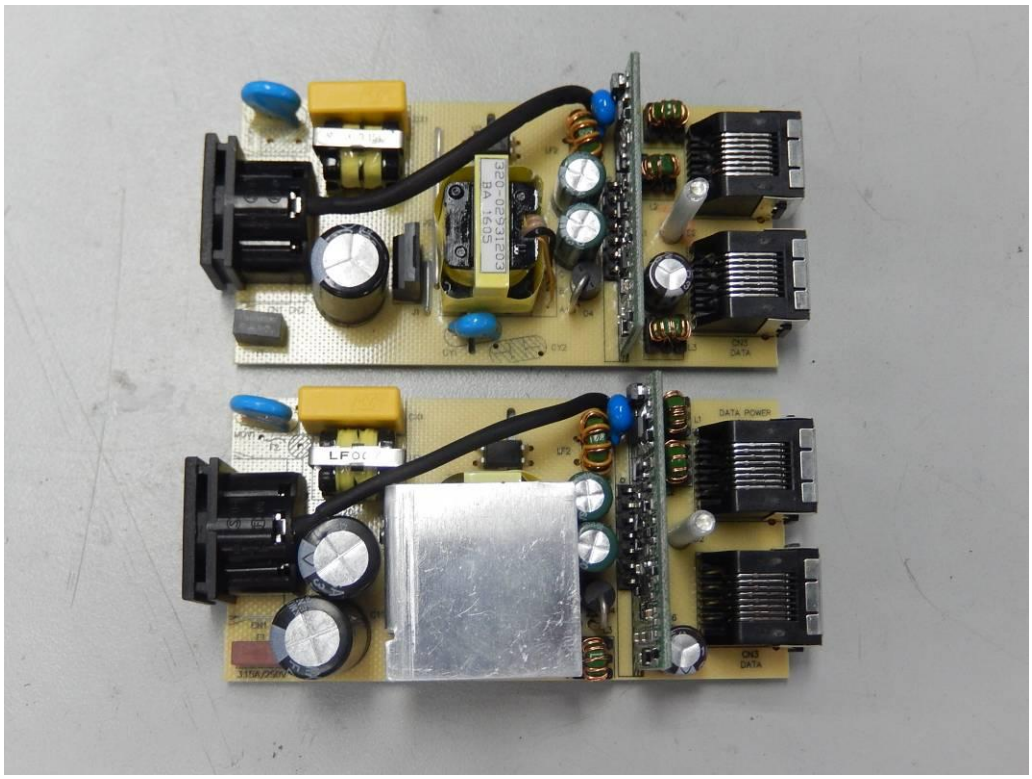
Internal view for POE series



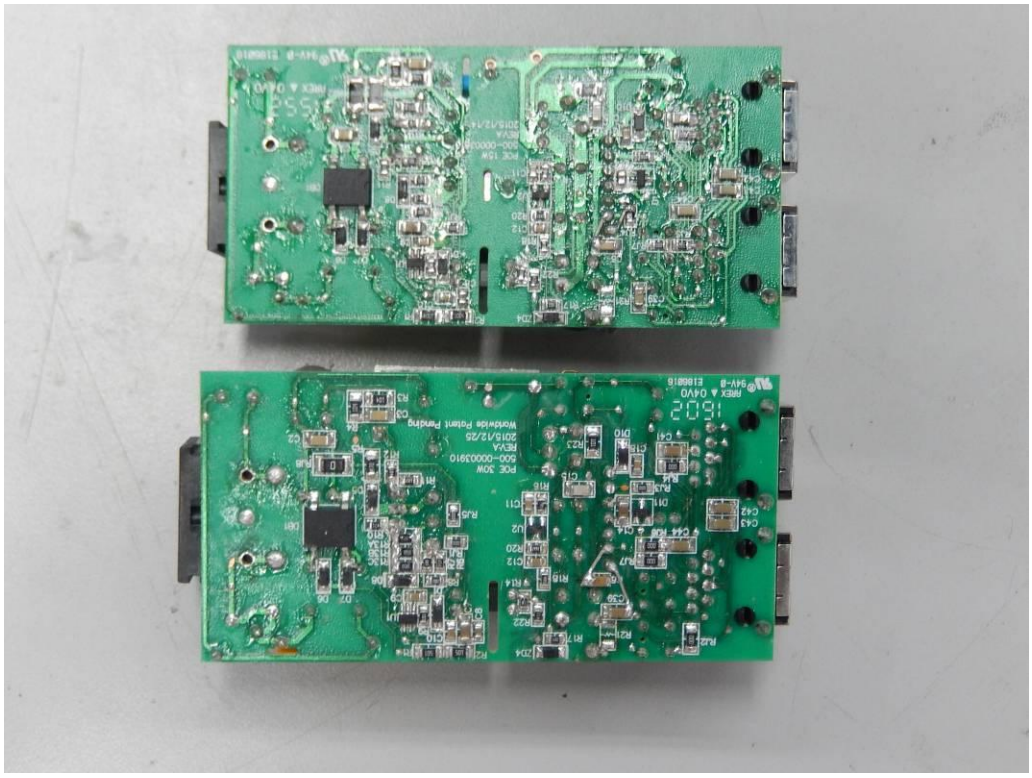
Internal view for POE series



PCB for POE series

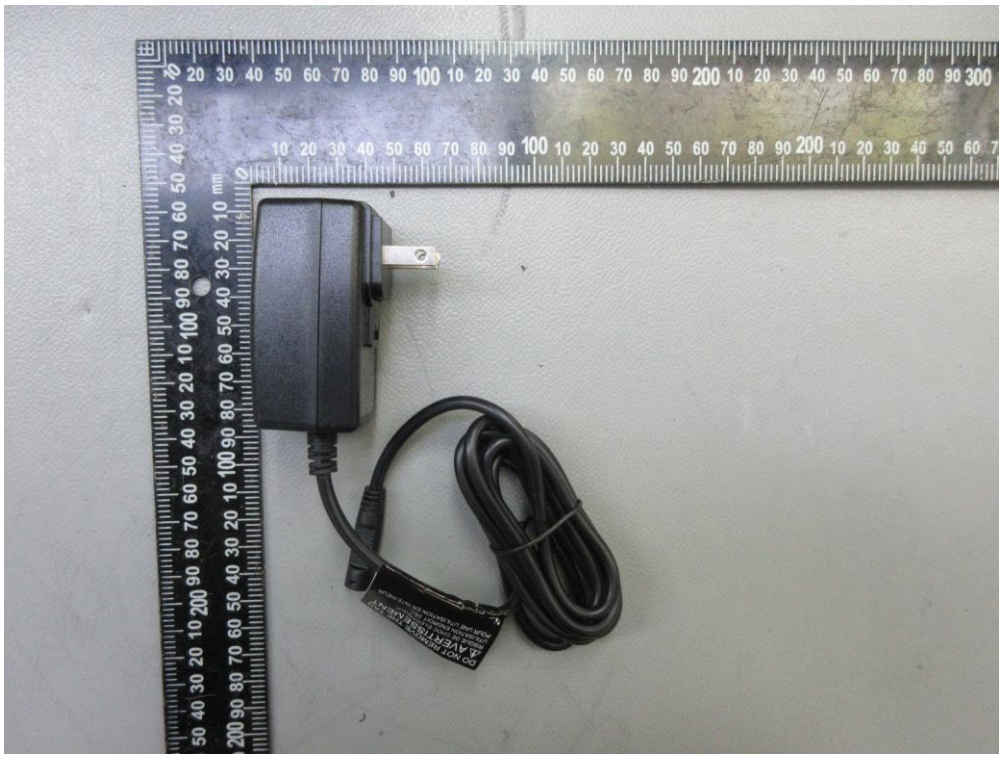


PCB for POE series



External view for model GTM96180-1830-12.0

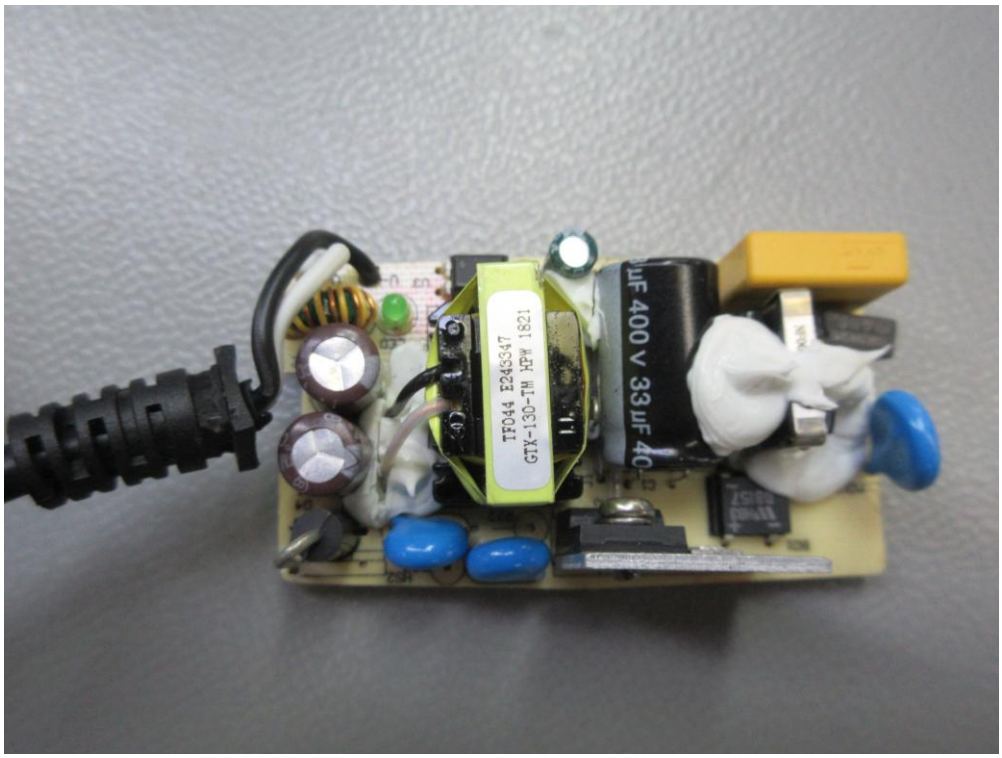
External view for model GTM96180-1830-12.0



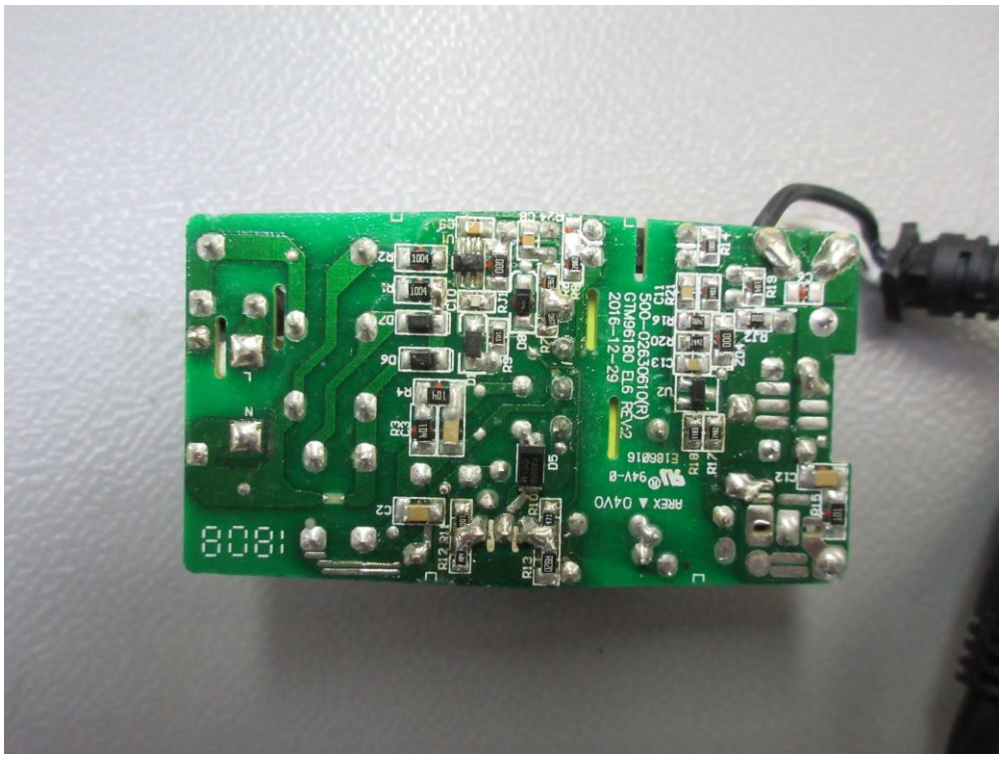
External view for model GTM96180-1830-12.0

Internal view for model GTM96180-1830-12.0

PCB view for model GTM96180-1830-12.0



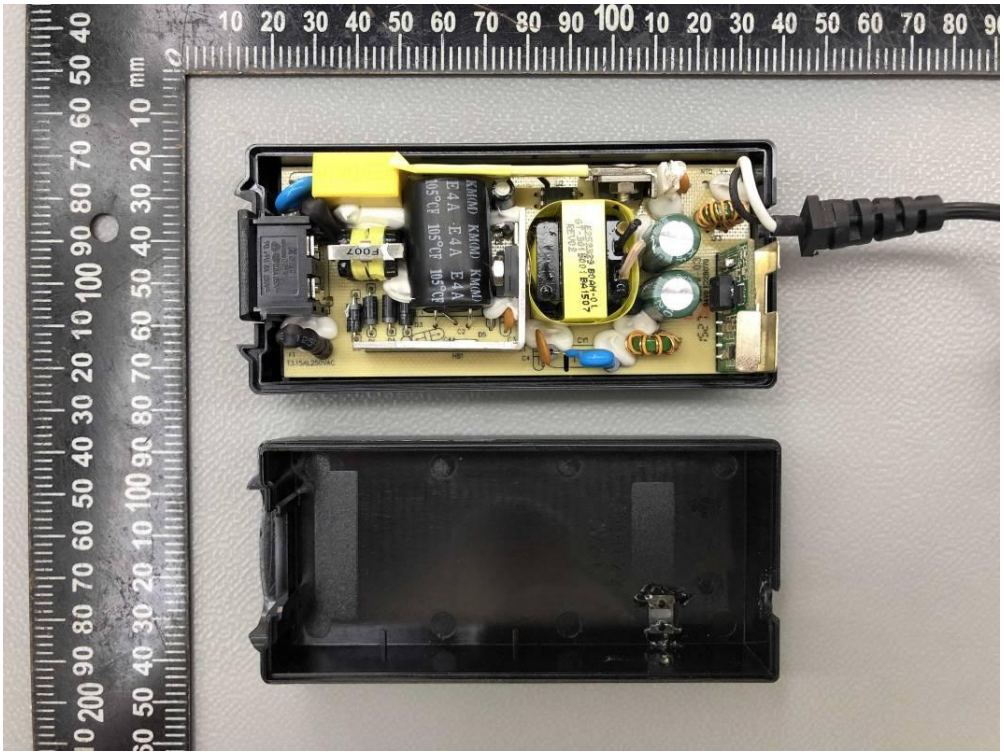
PCB view for model GTM96180-1830-12.0



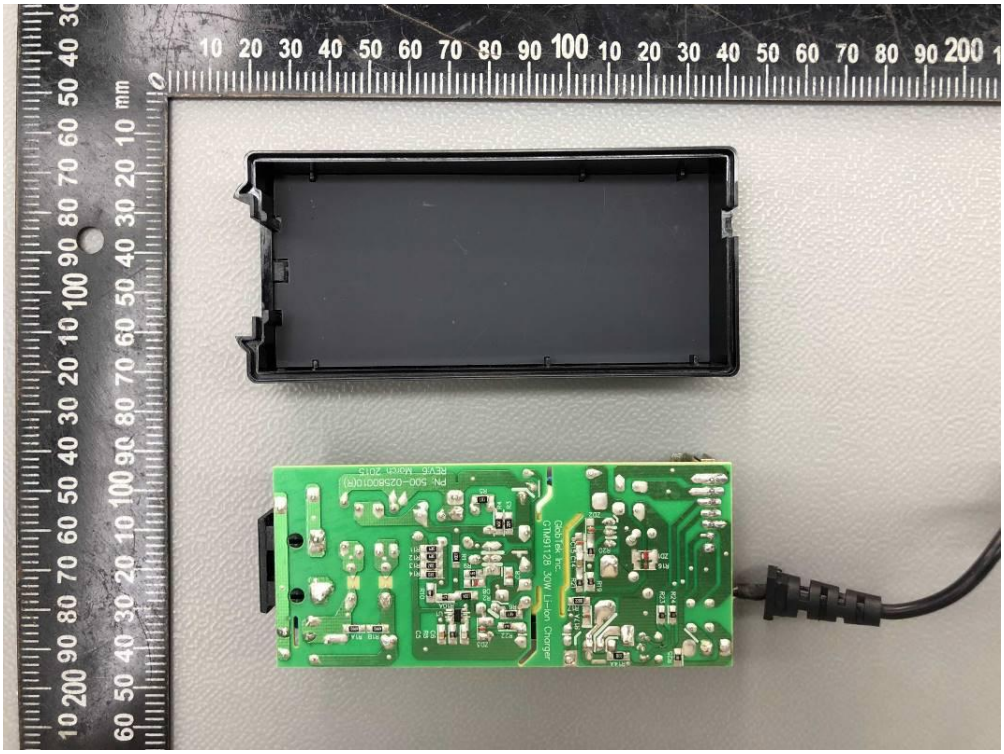
External view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****

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

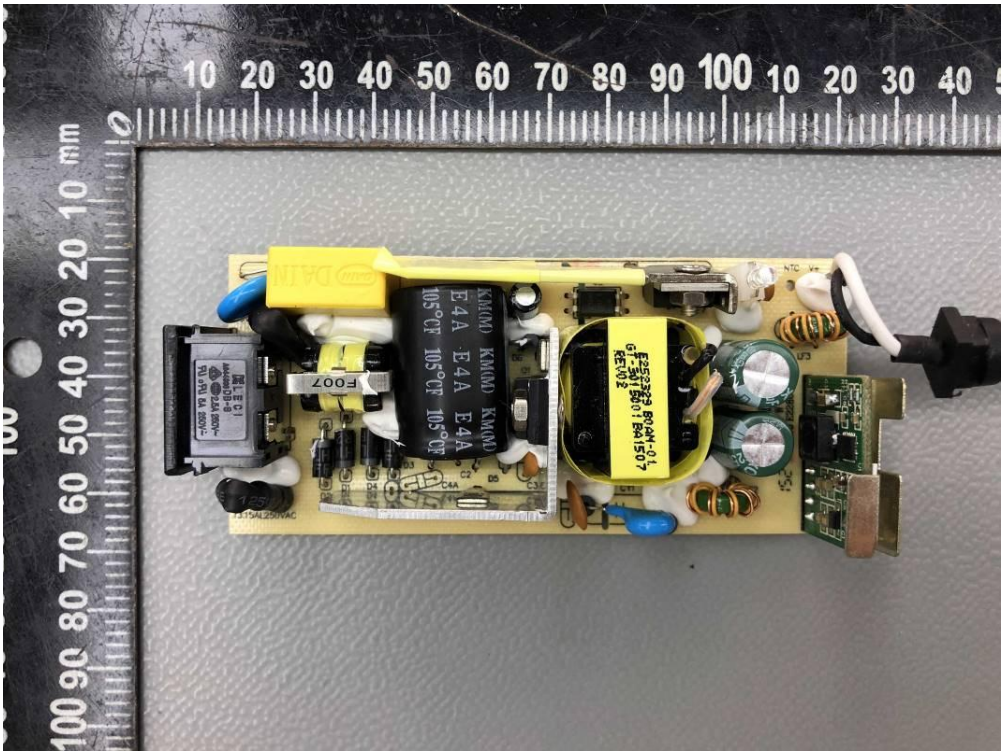
Internal view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



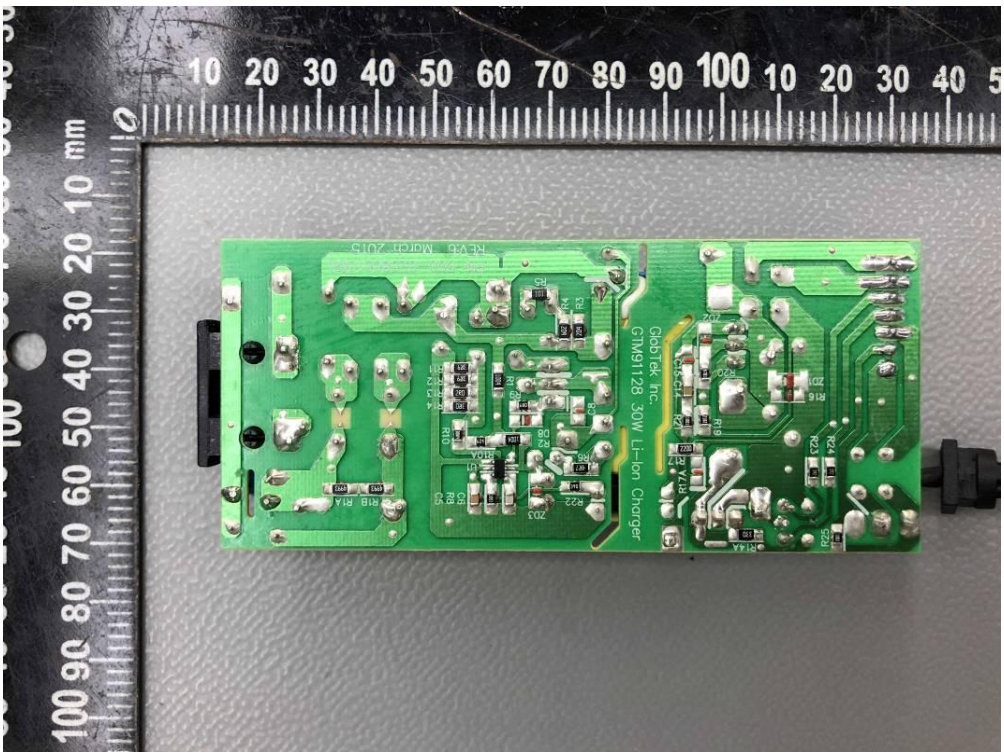
Internal view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



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



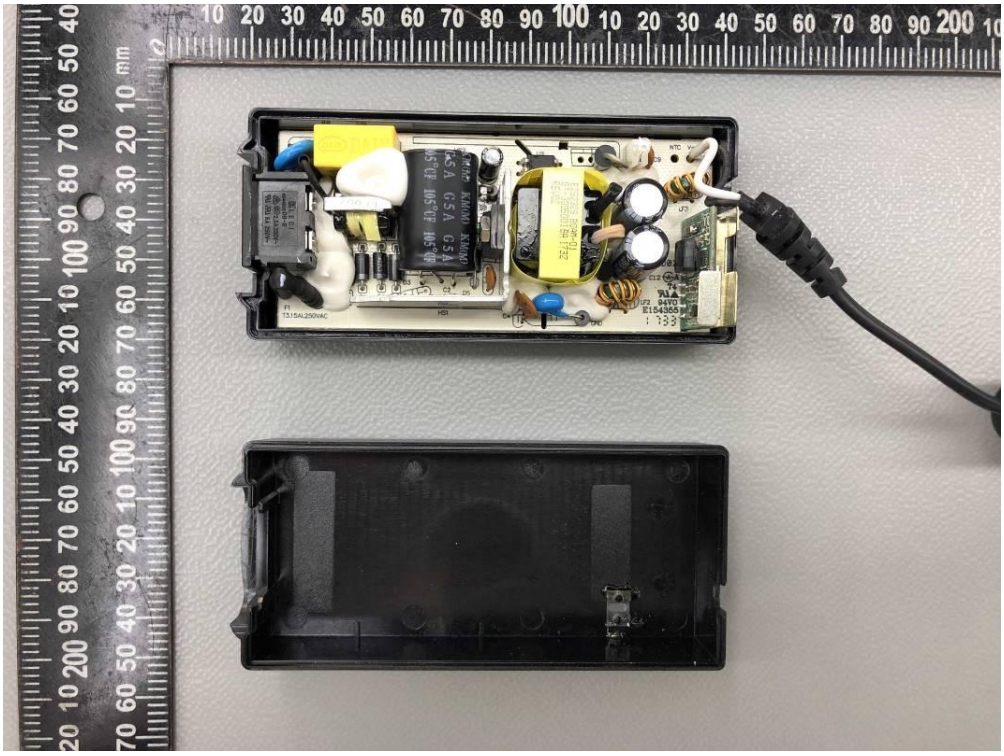
PCB view for GTM91128LI3CEL-**** or GTM91128*CHRGE-****



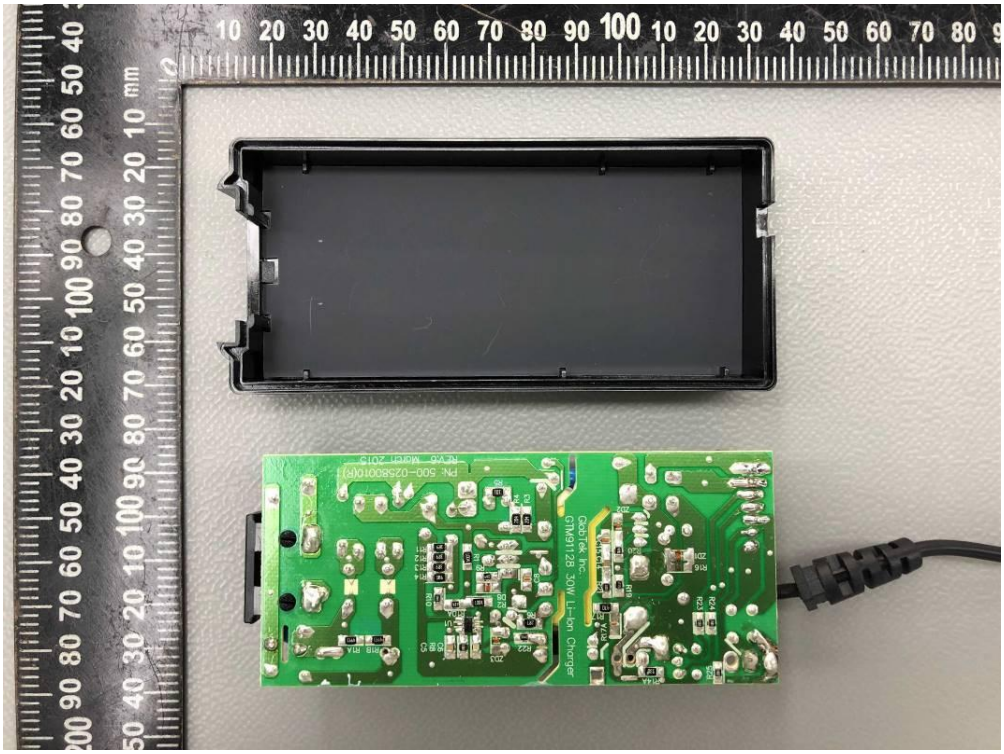
External view for GTM91128LI3CEL-****

External view for GTM91128LI3CEL-****

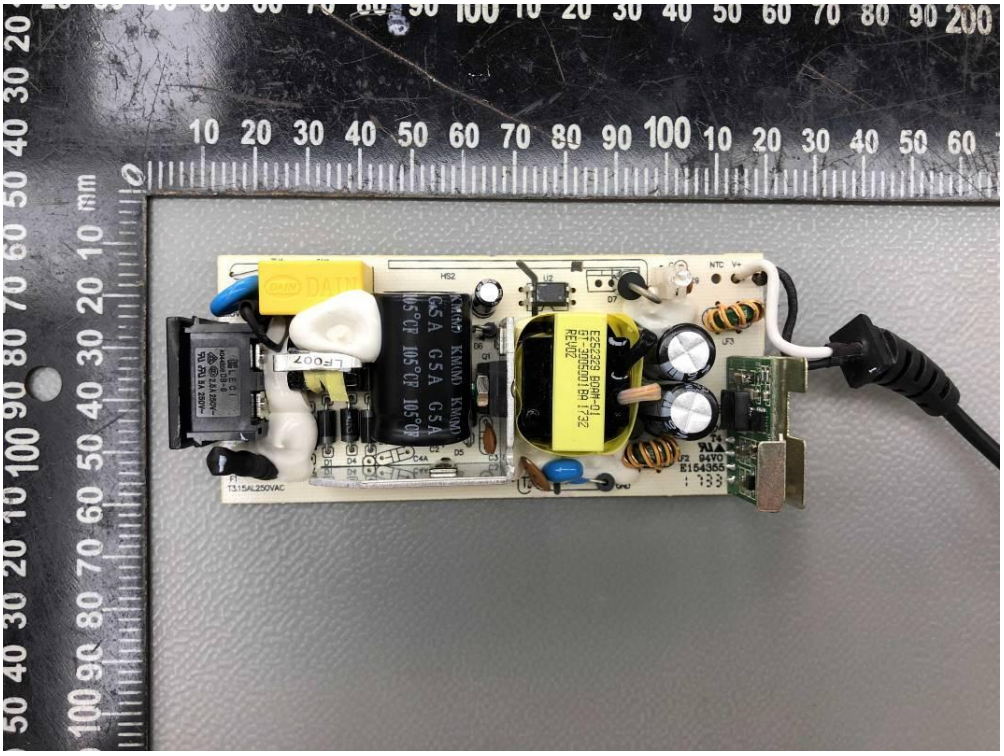
Internal view for GTM91128LI3CEL-****



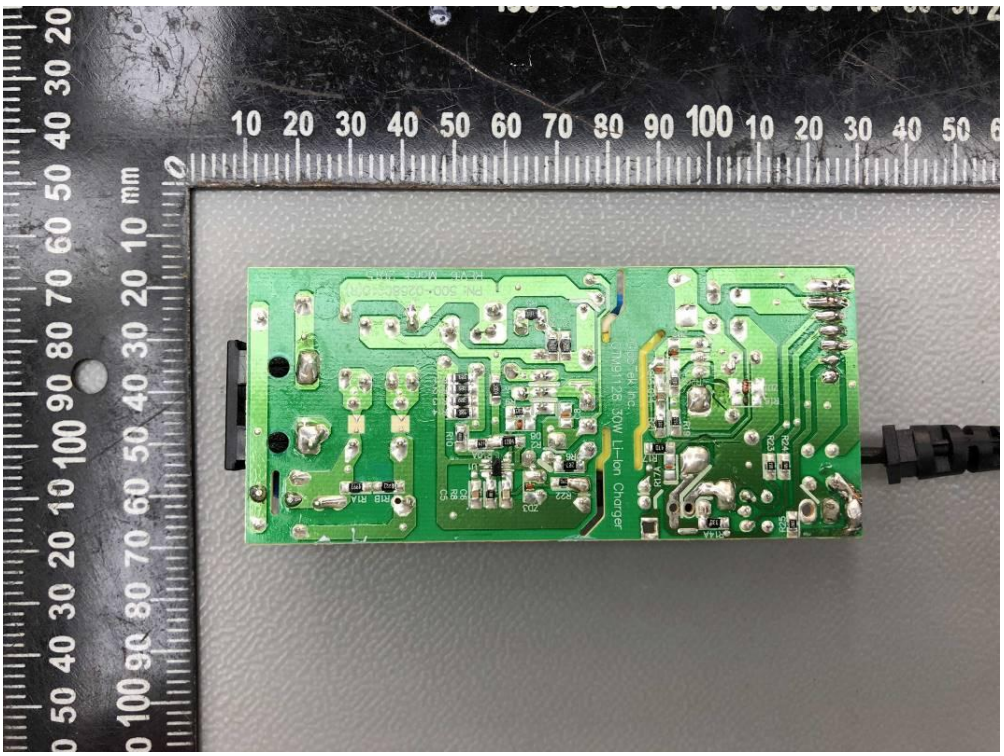
Internal view for GTM91128LI3CEL-****



PCB view for GTM91128LI3CEL-****



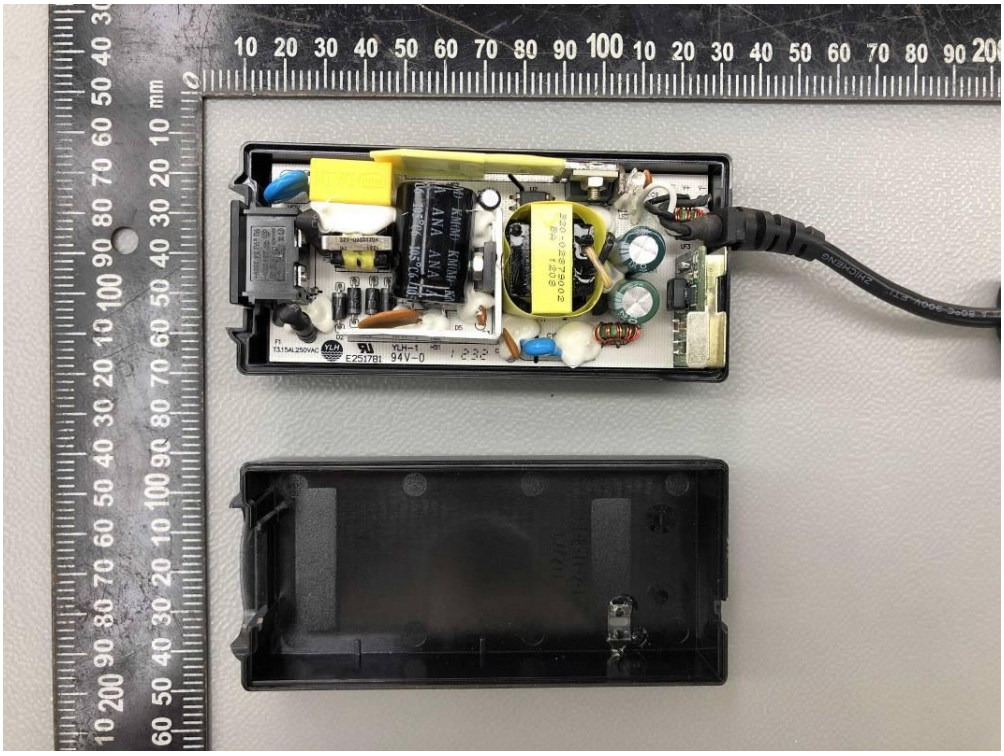
PCB view for GTM91128LI3CEL-****



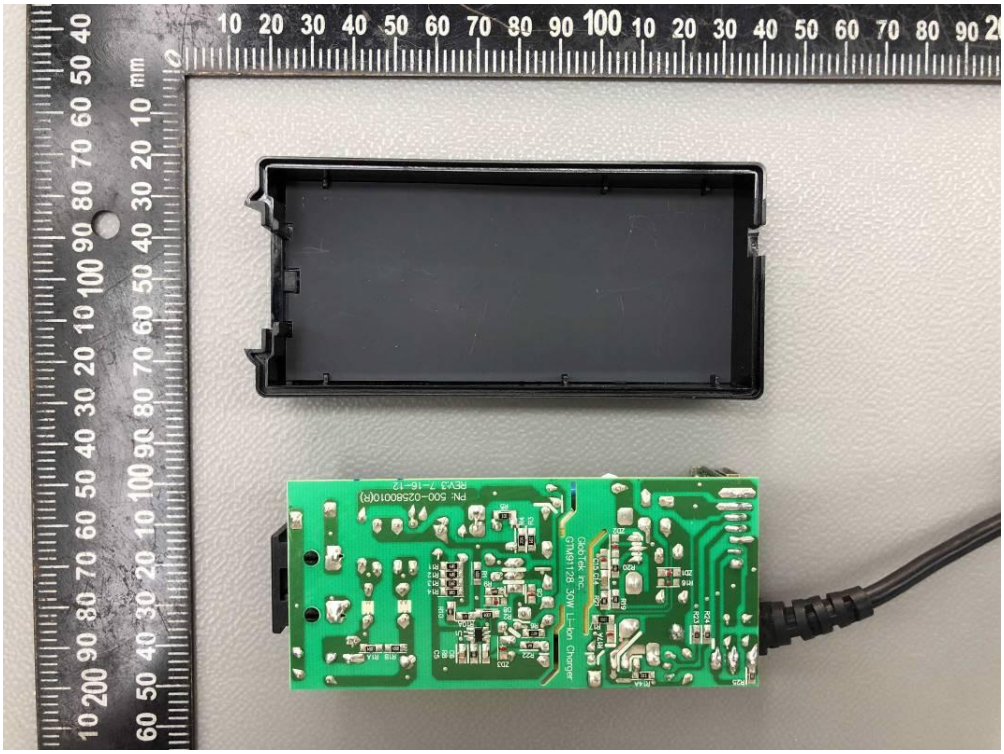
External view for GTM91128LI3CELM-**** or GTM91128*DUALC-****

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

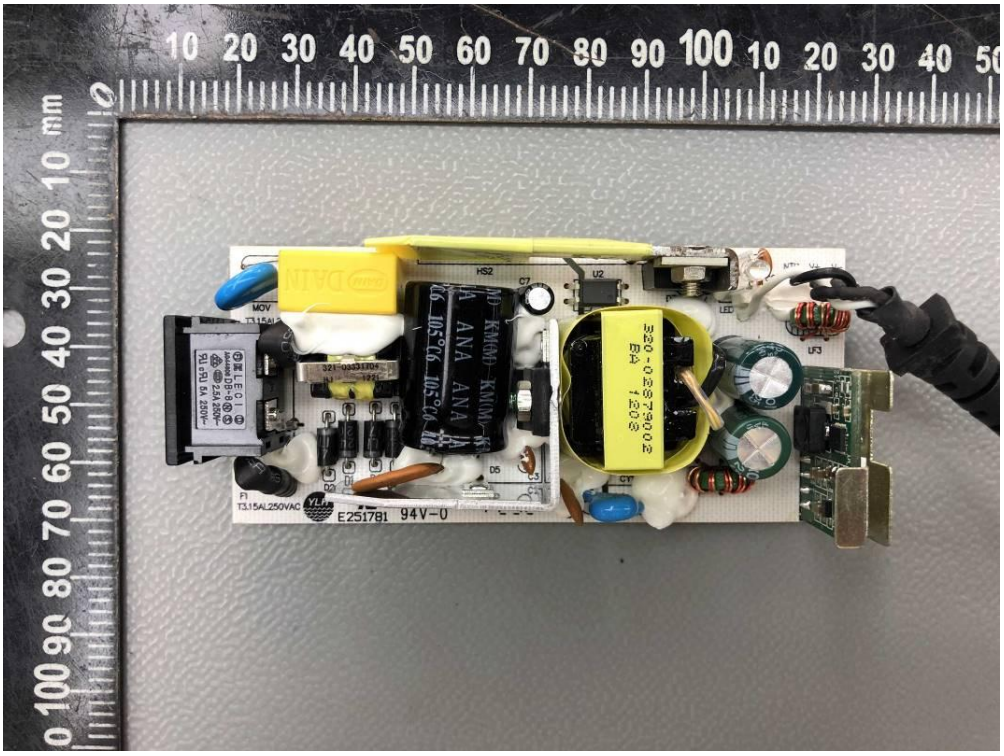
Internal view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



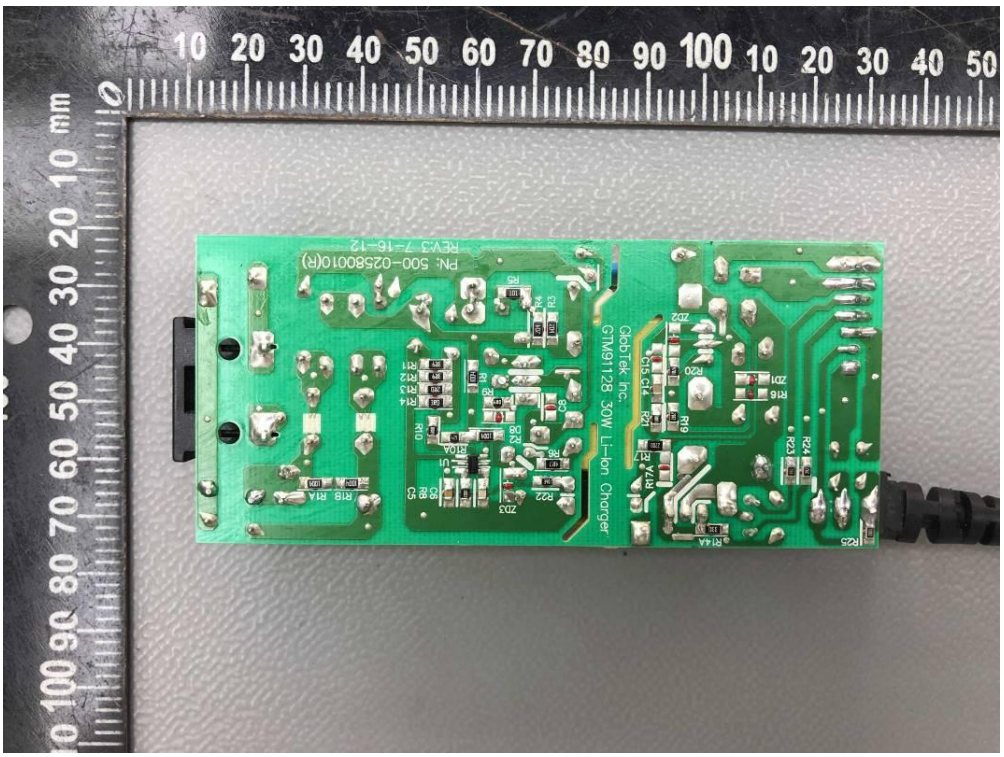
Internal view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



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



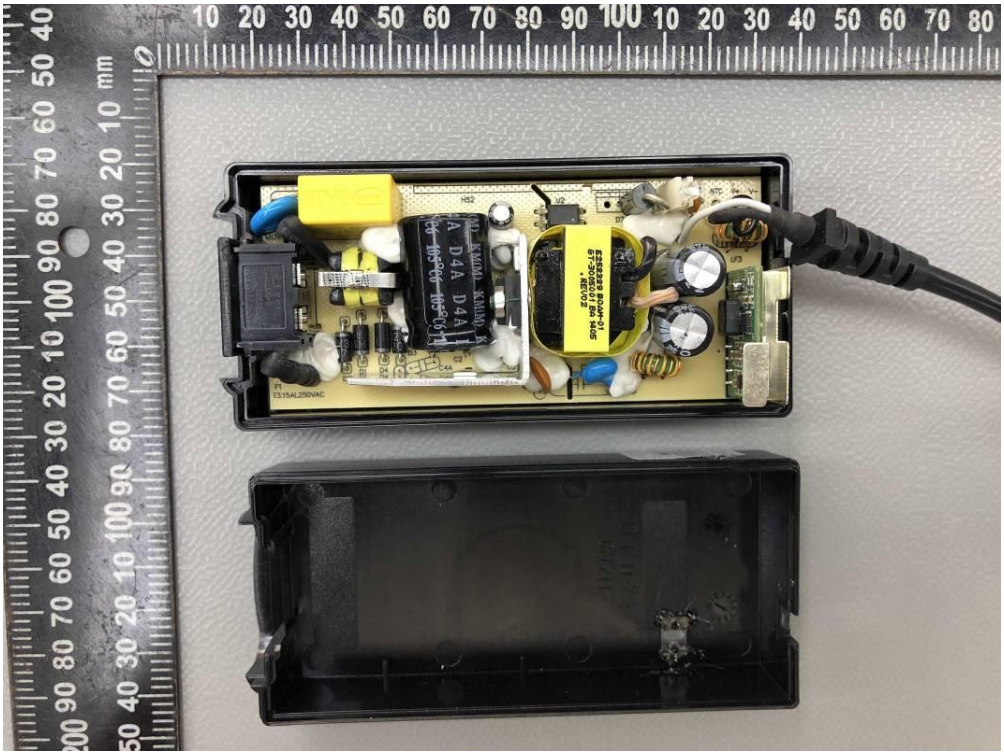
PCB view for GTM91128LI3CELM-**** or GTM91128*DUALC-****



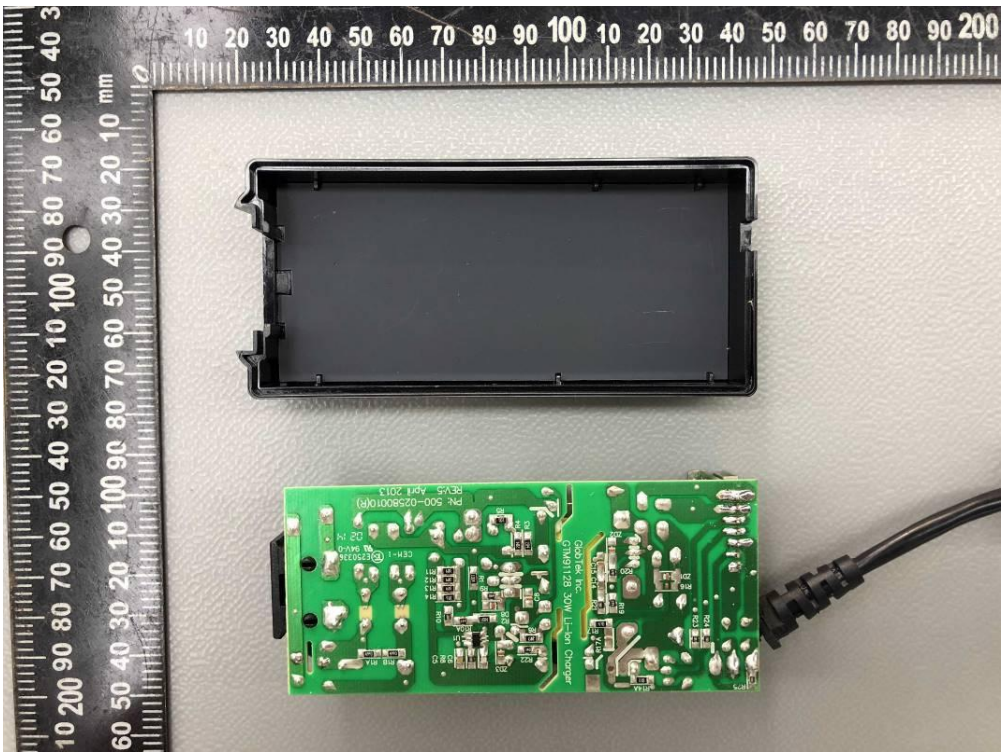
External view for GTM91128LI1CELM-****

External view for GTM91128LI1CELM-****

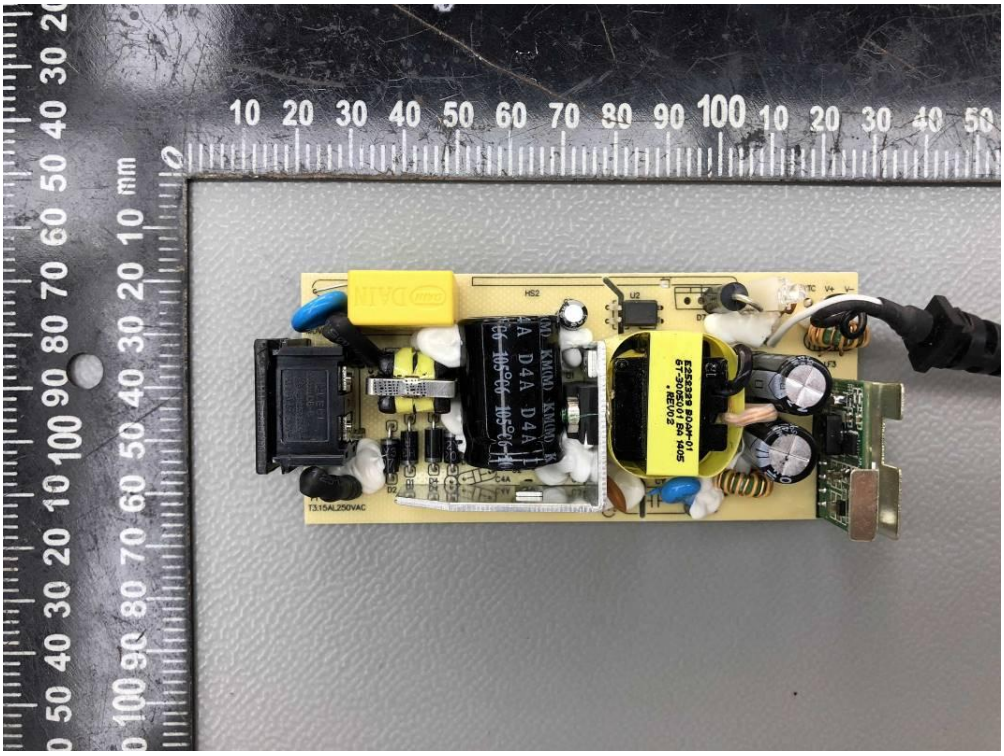
Internal view for GTM91128LI1CELM-****



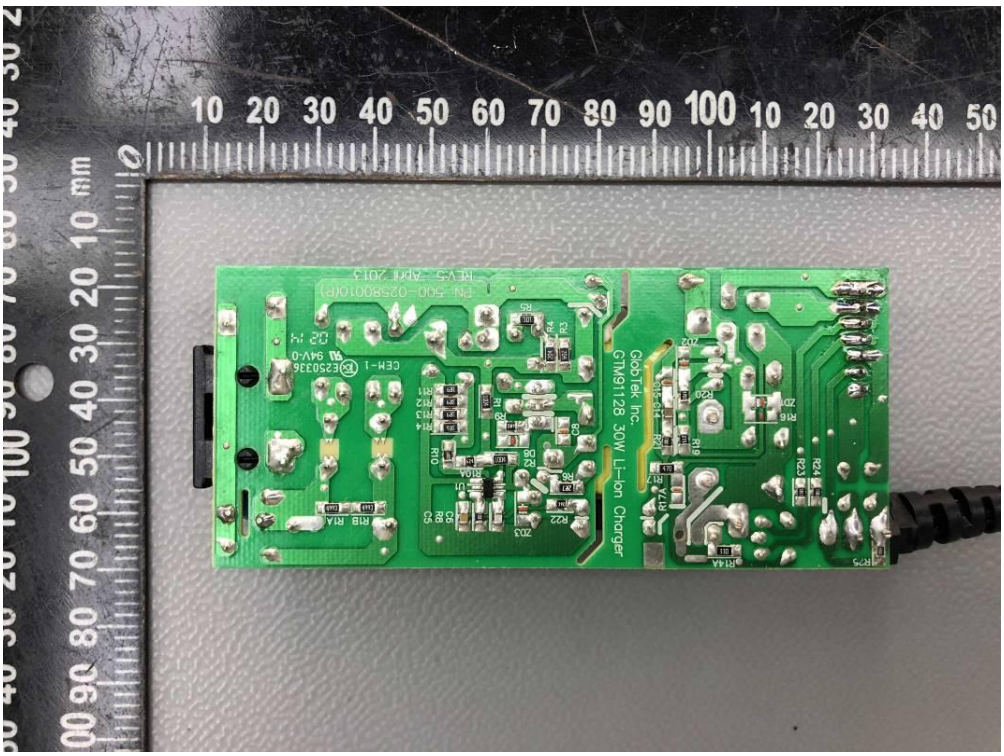
Internal view for GTM91128LI1CELM-****



PCB view for GTM91128LI1CELM-****



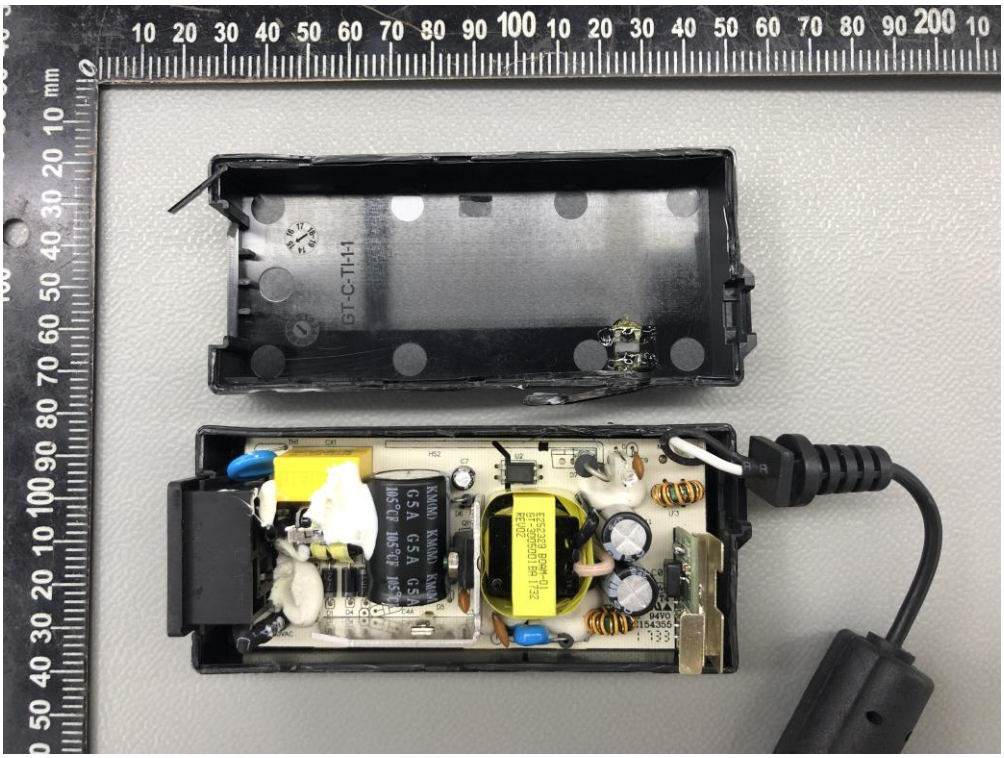
PCB view for GTM91128LI1CELM-****



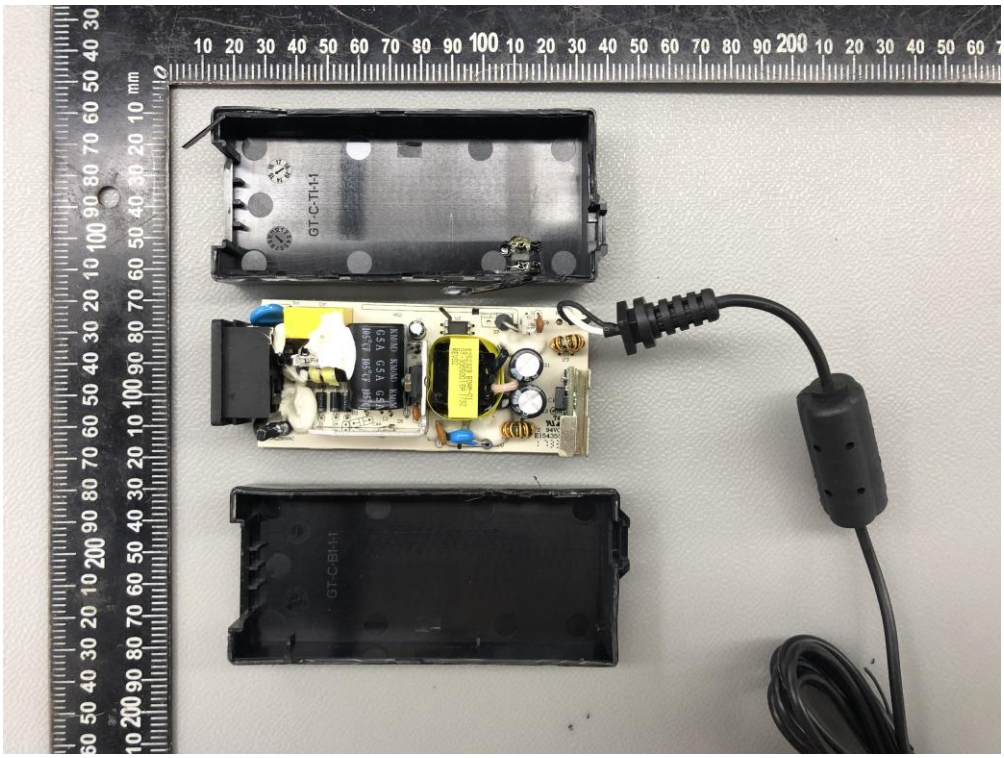
External view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****

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

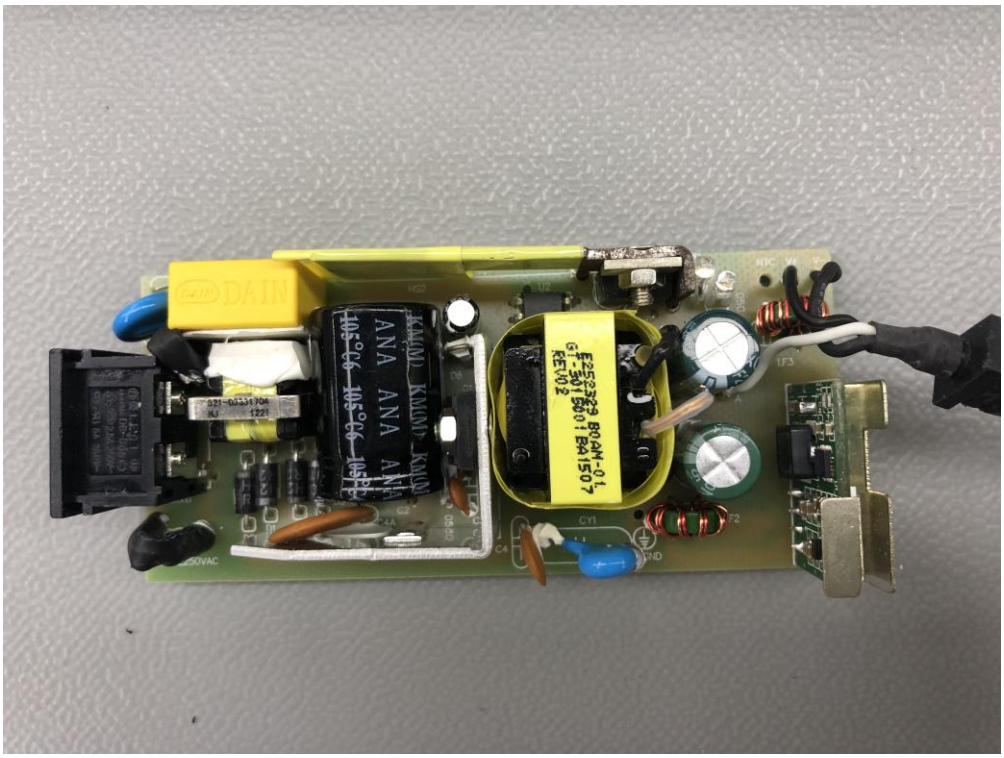
Internal view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****



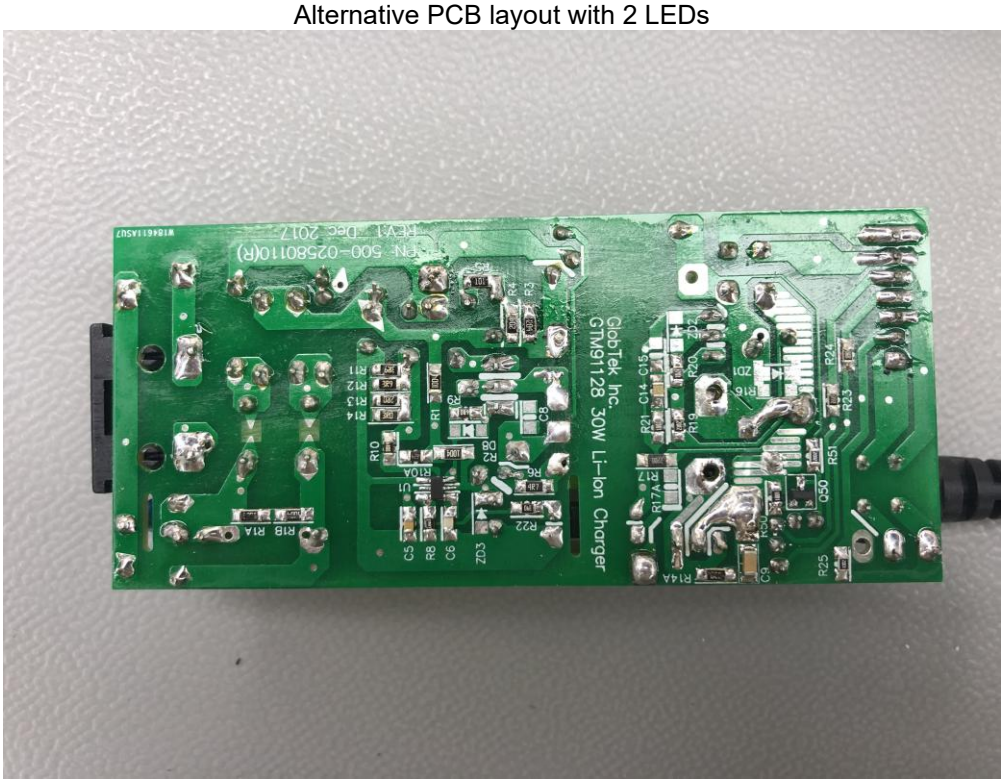
Internal view for GTM91128LI1CEL-T2-**** and GTM91128LI1CEL-T2A-****



Alternative PCB layout with 2 LEDs



Alternative PCB layout with 2 LEDs



Transformer (EE22)

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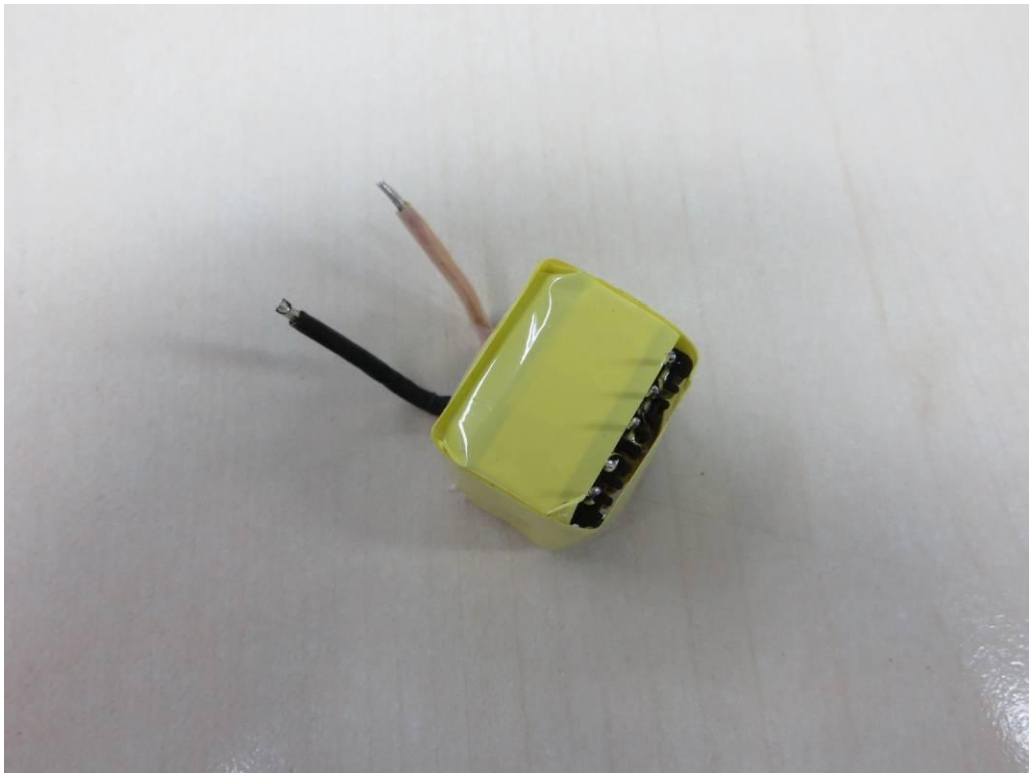
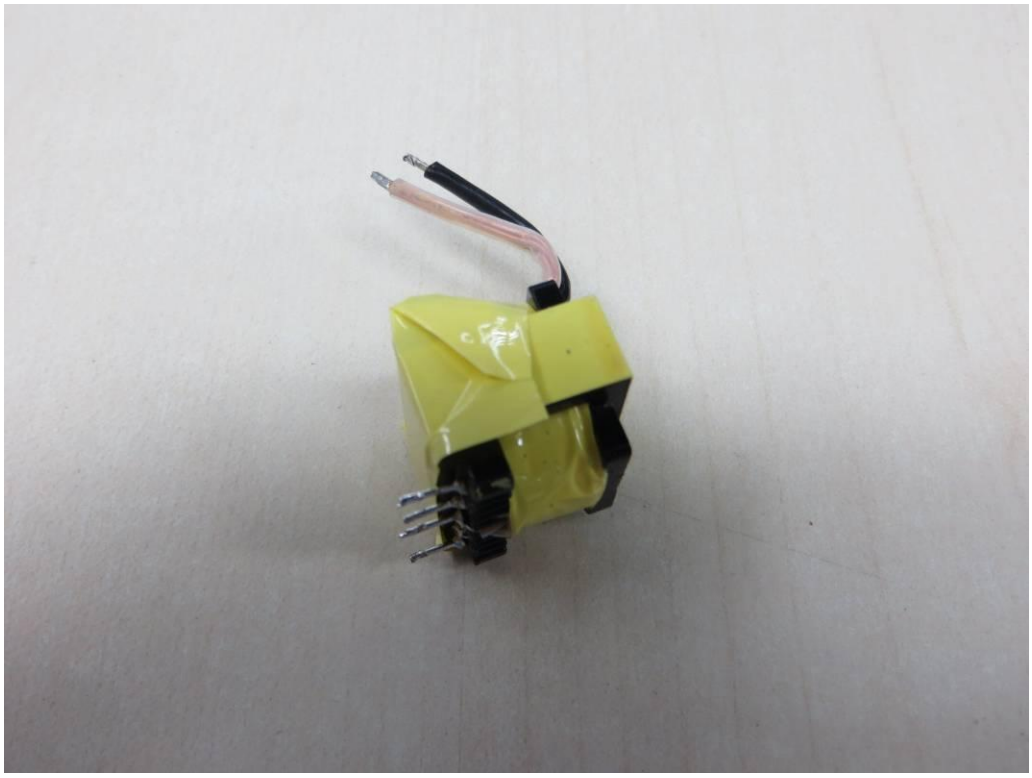
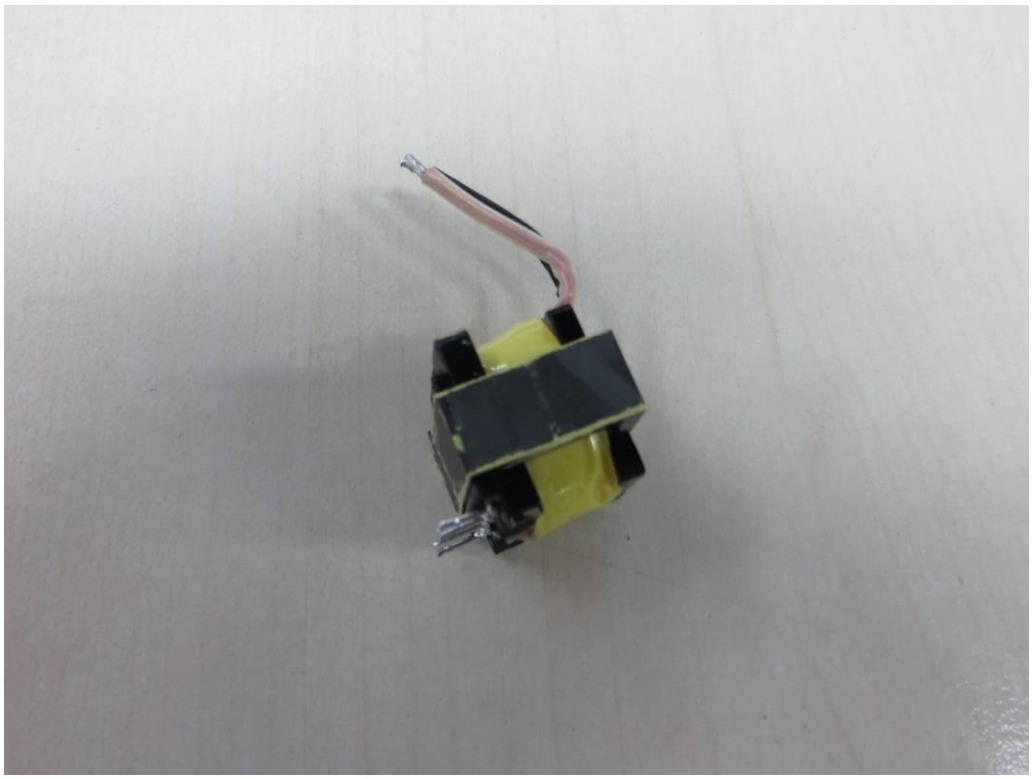


Transformer (EE22)

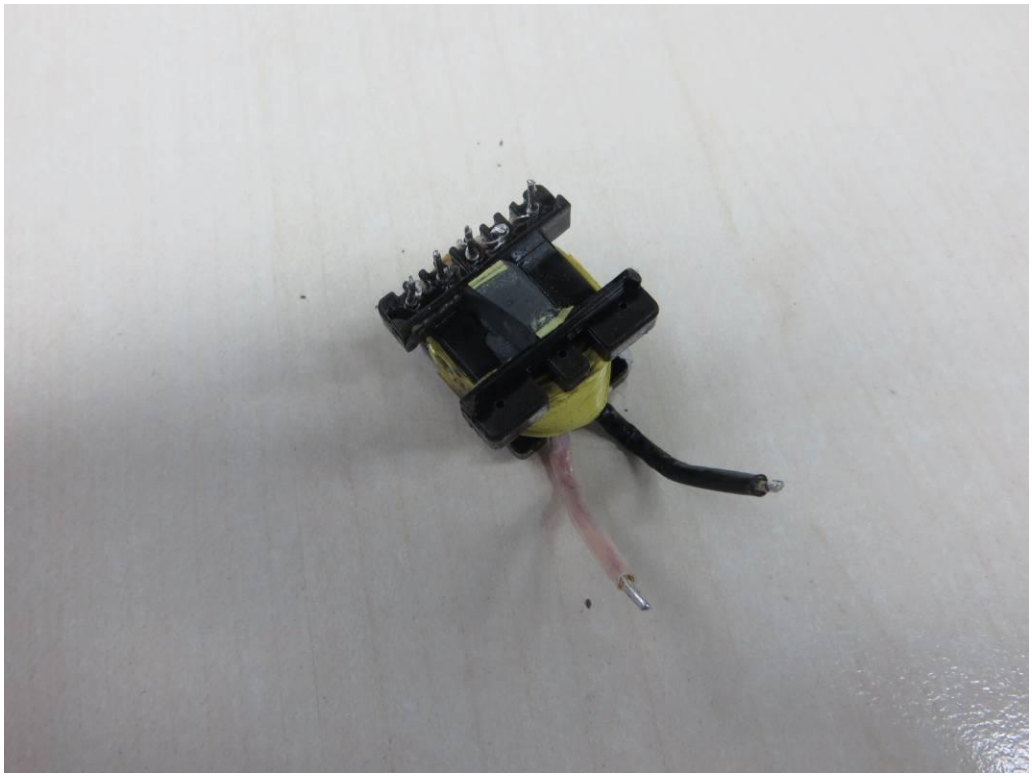
Transformer (EE22)



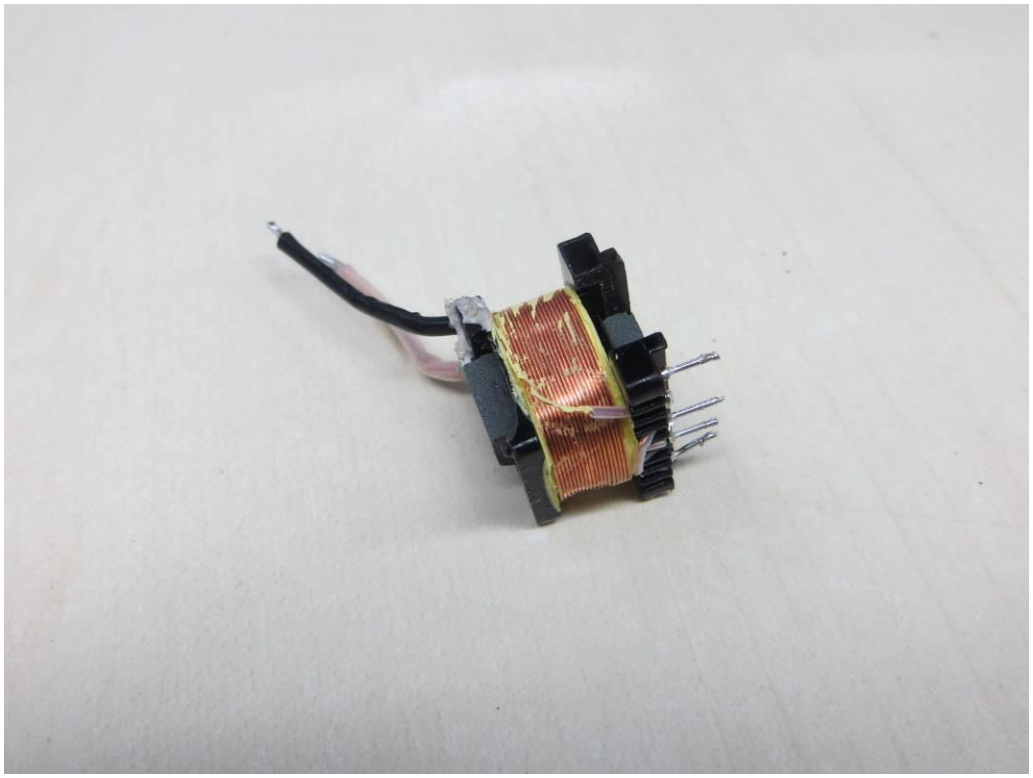
Transformer (EE22)



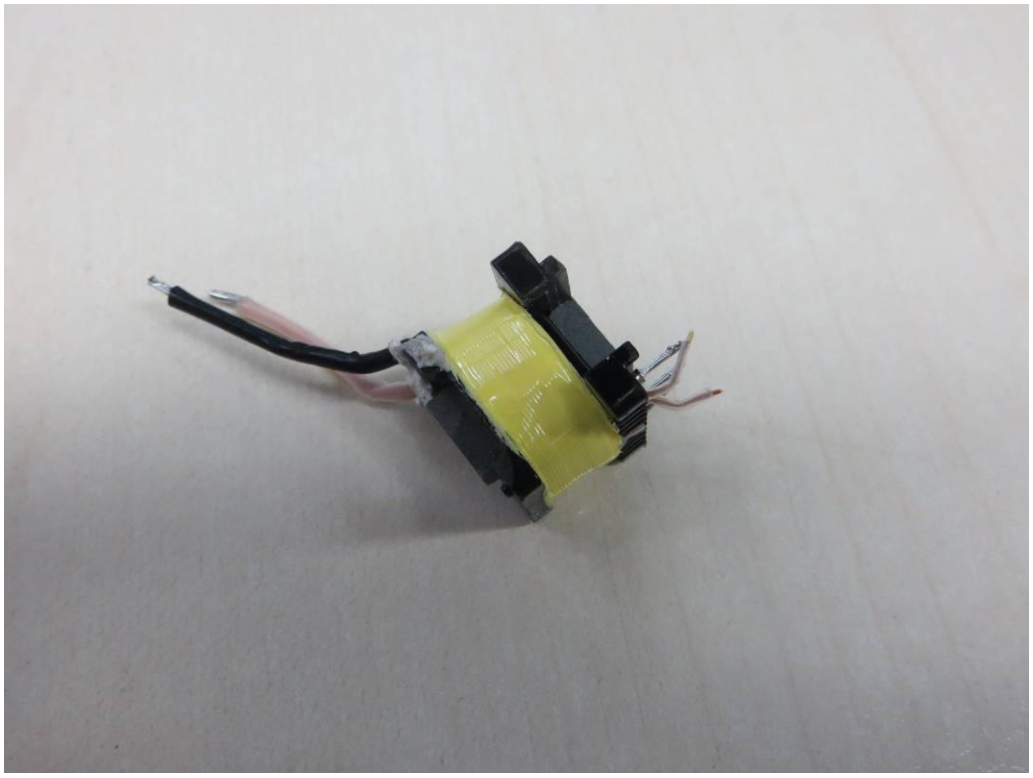
Transformer (EE22)



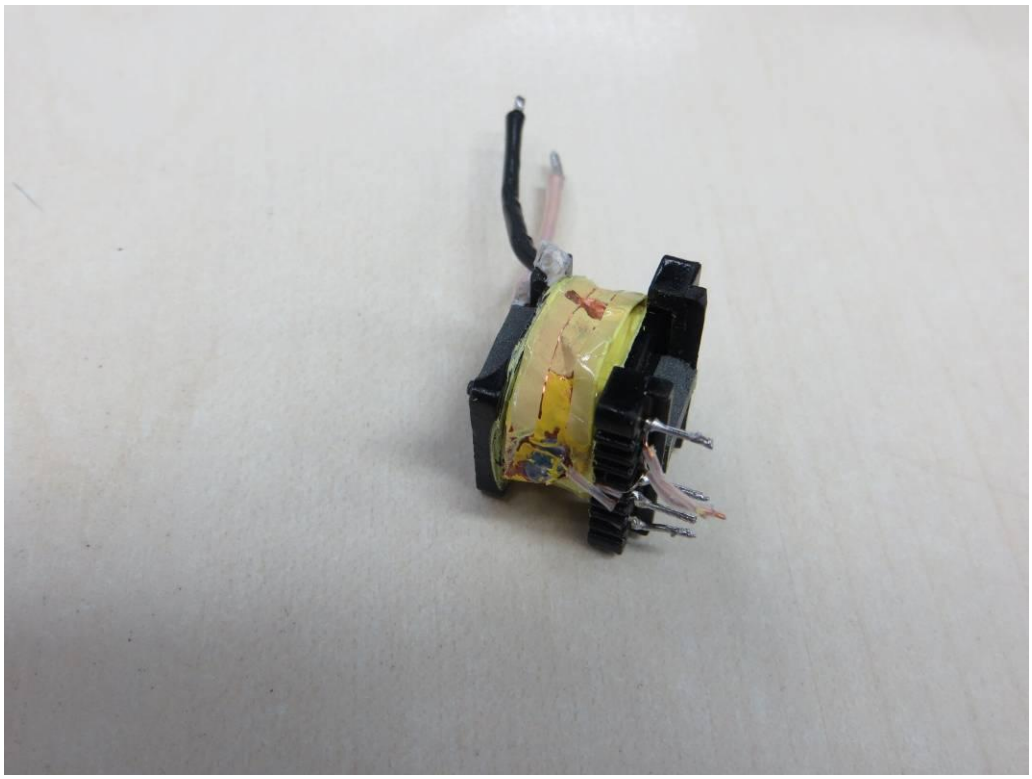
Transformer (EE22)



Transformer (EE22)



Transformer (EE22)



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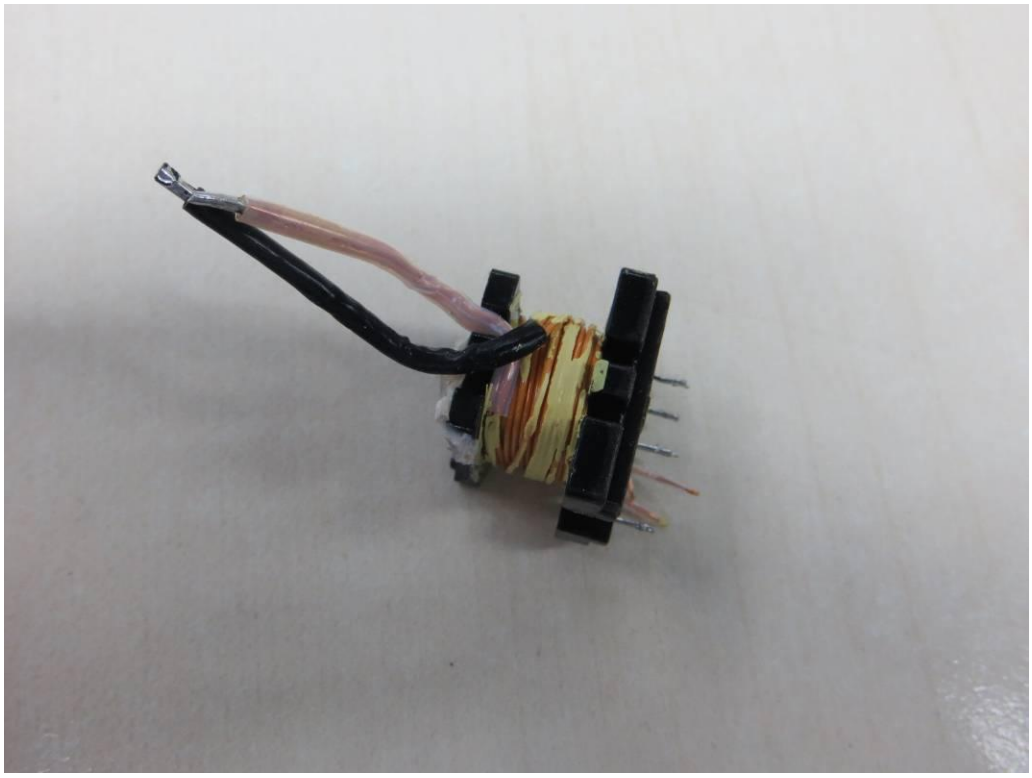

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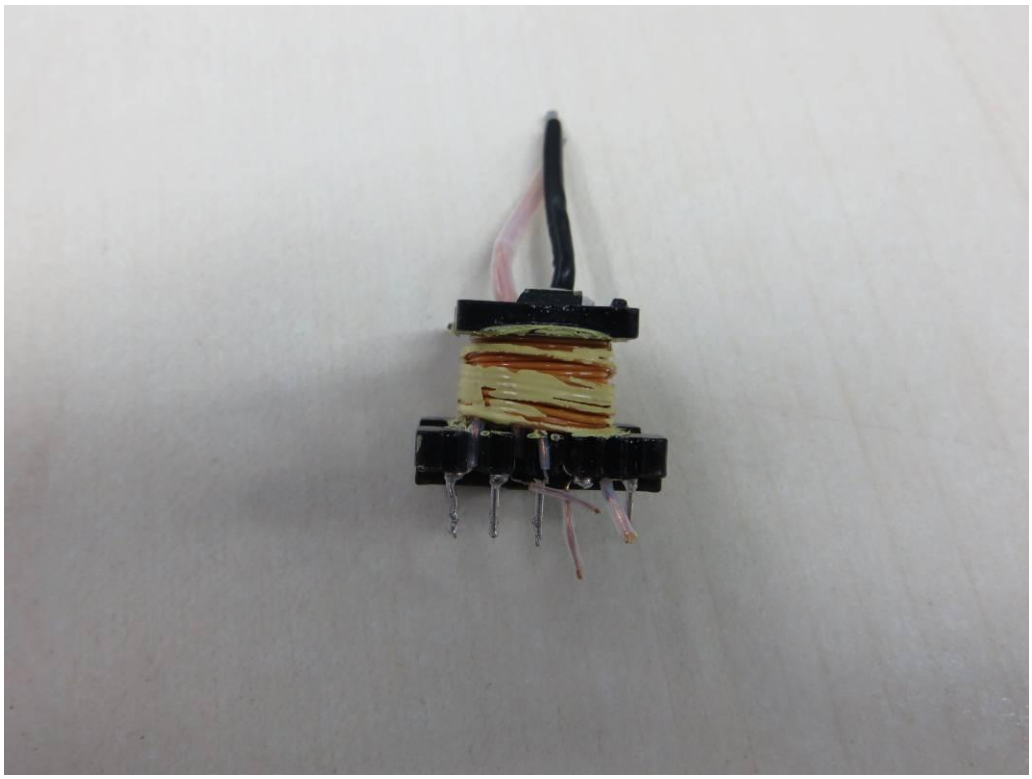

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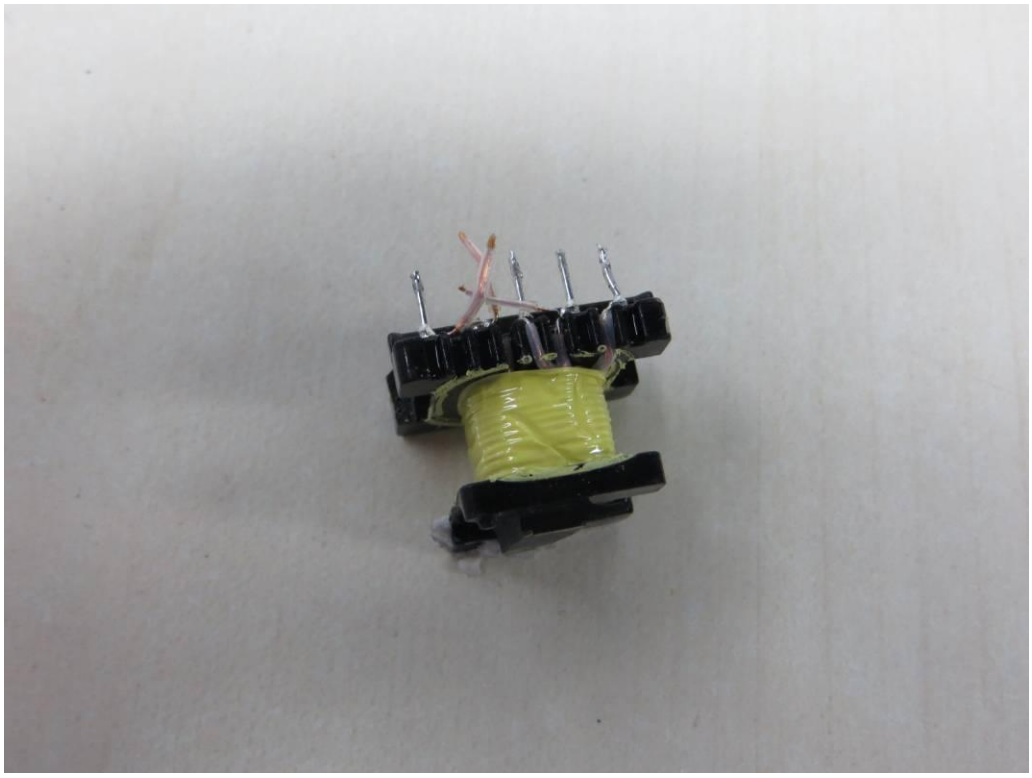

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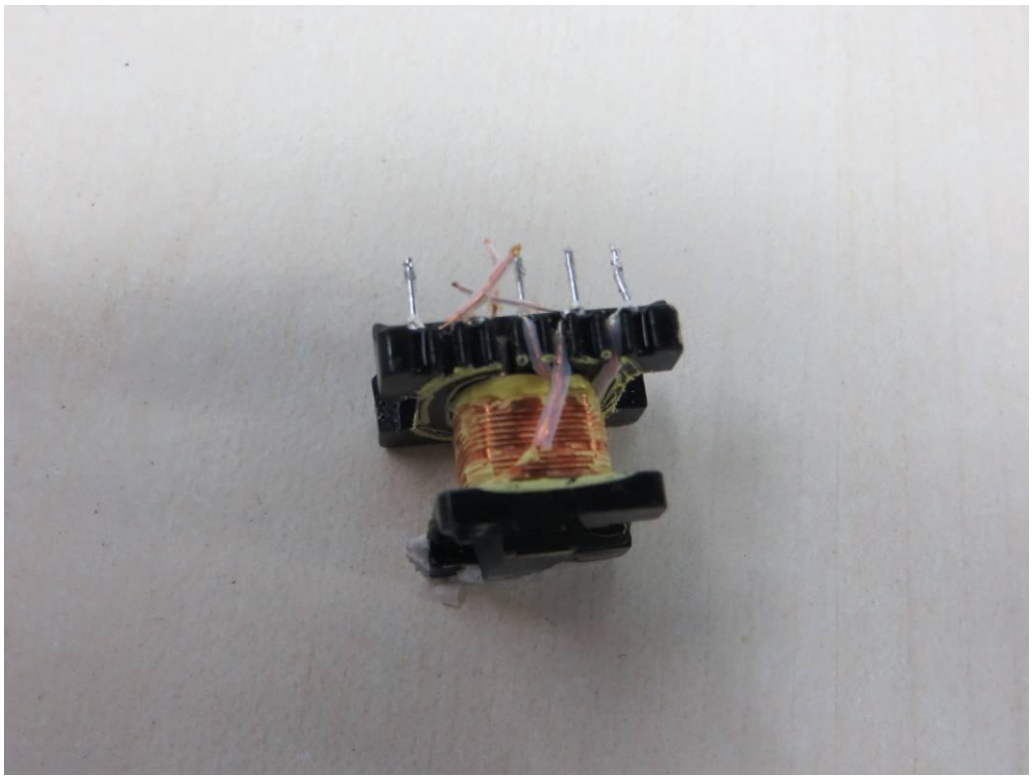

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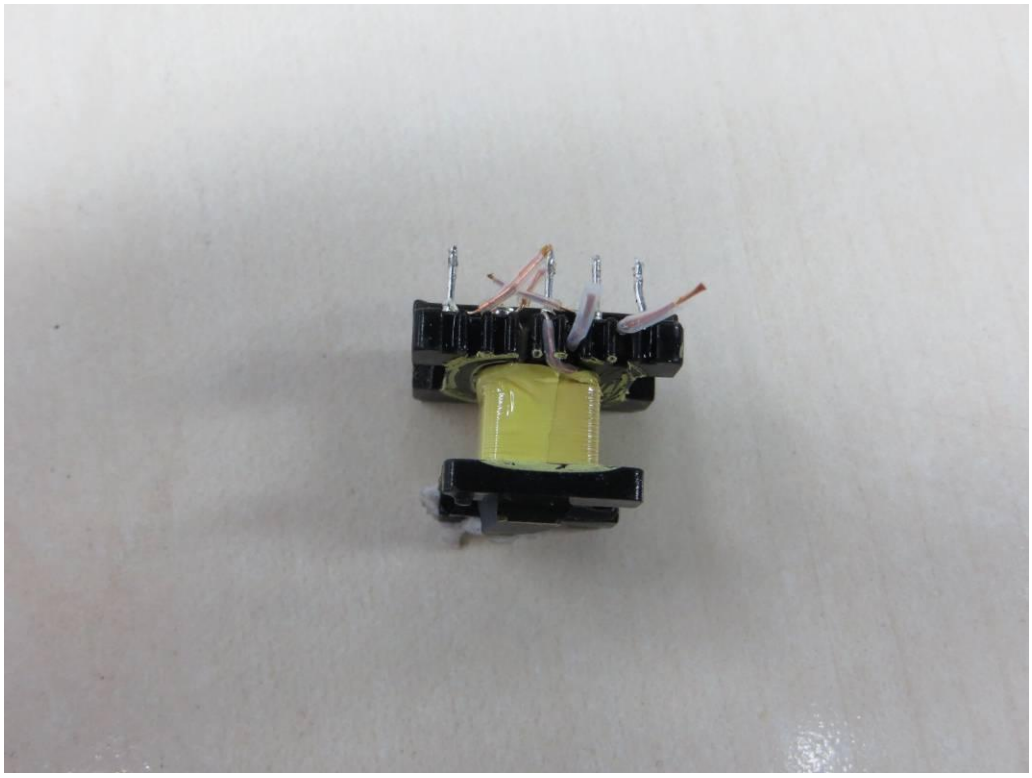

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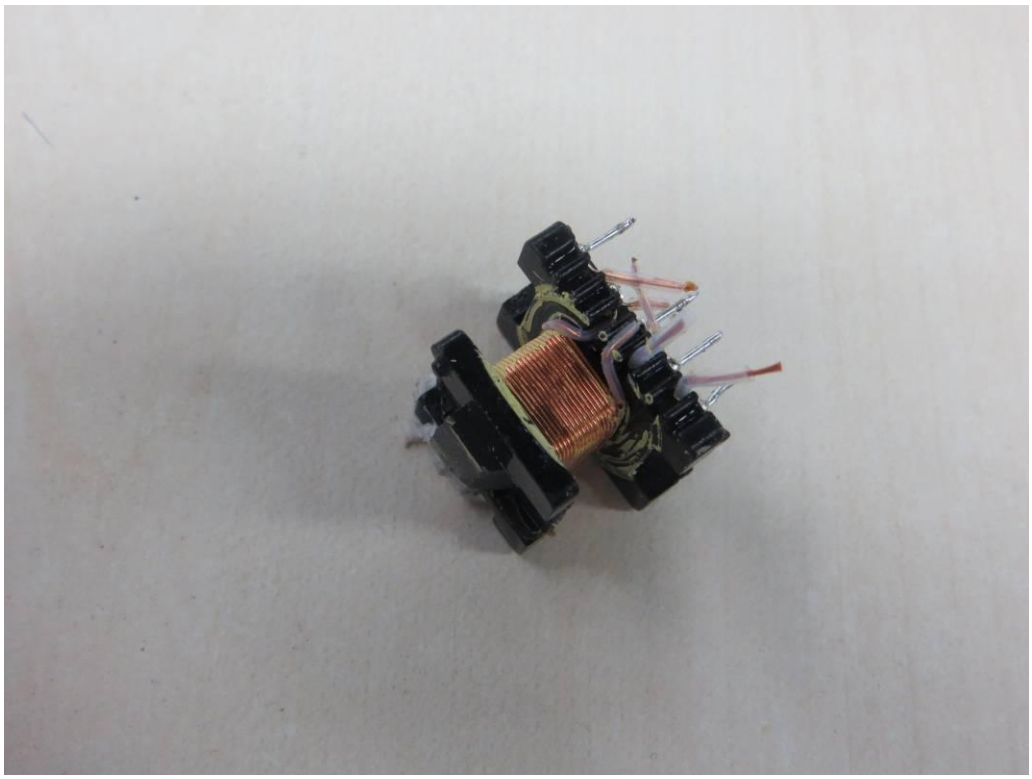

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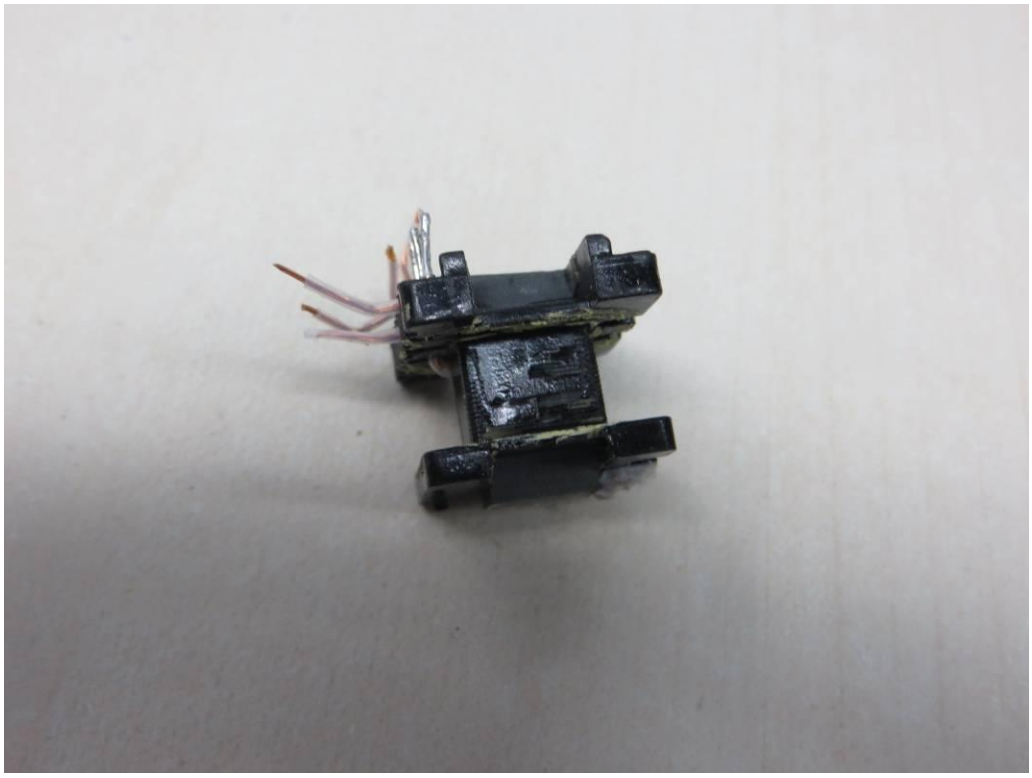

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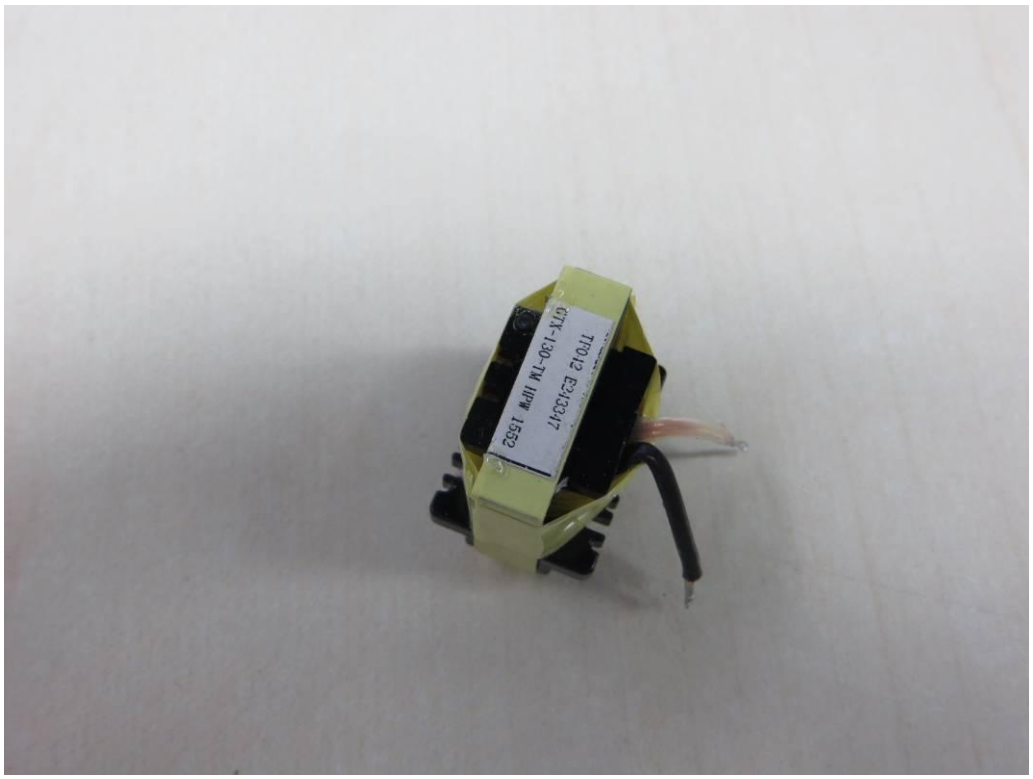

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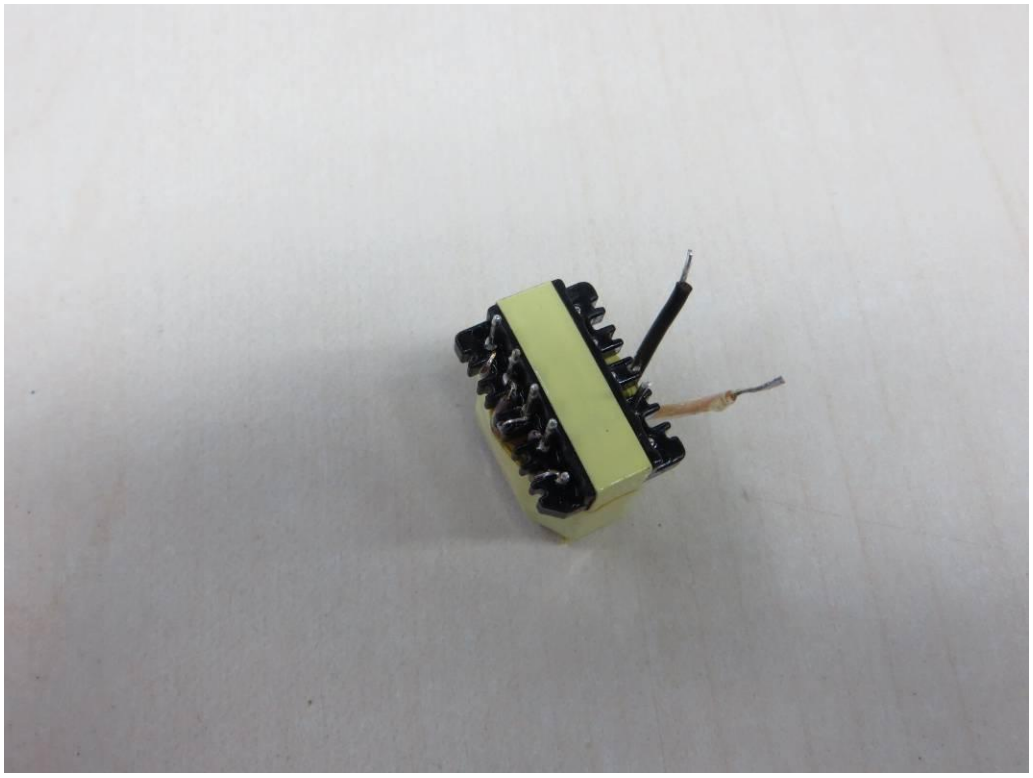

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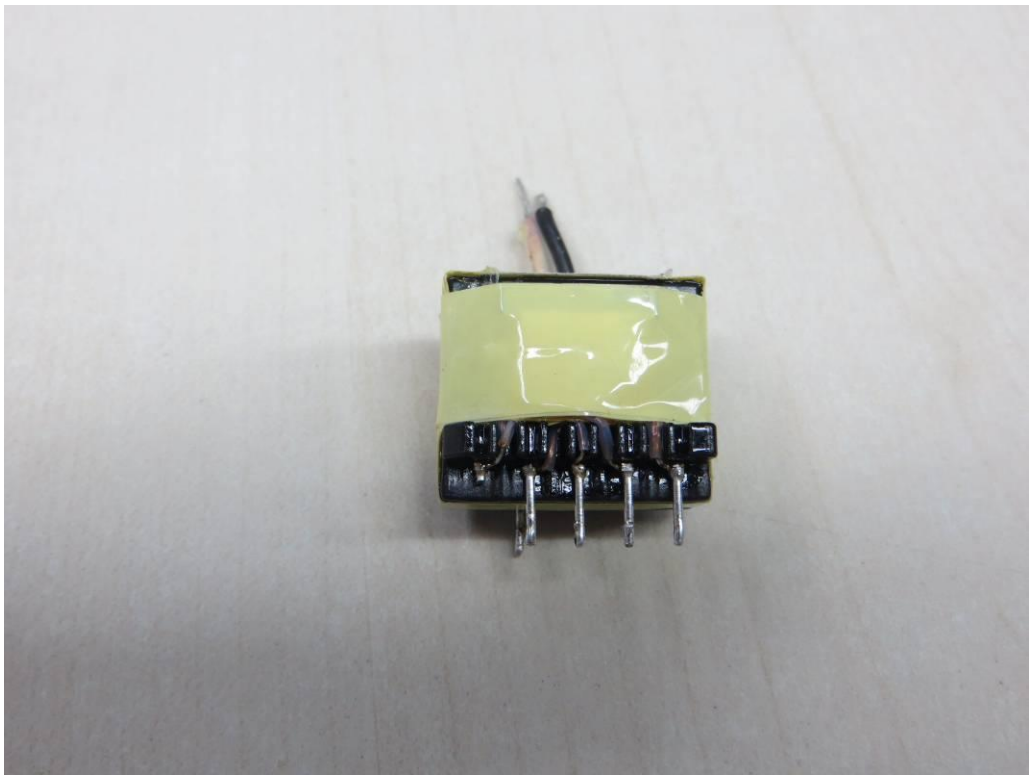

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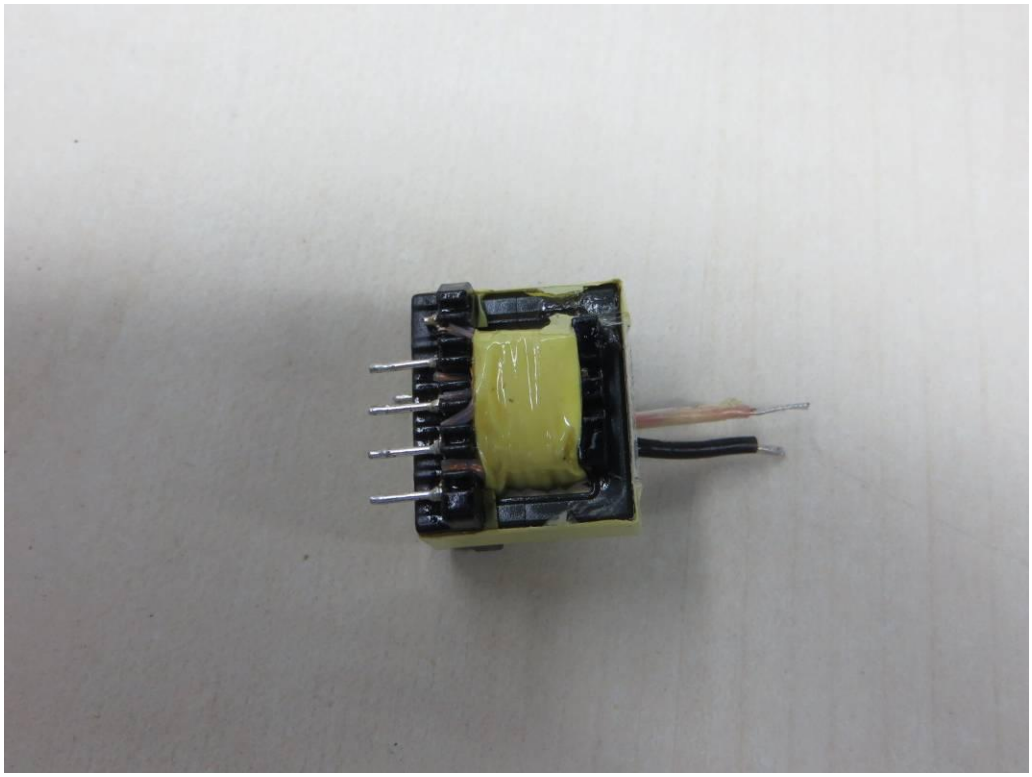

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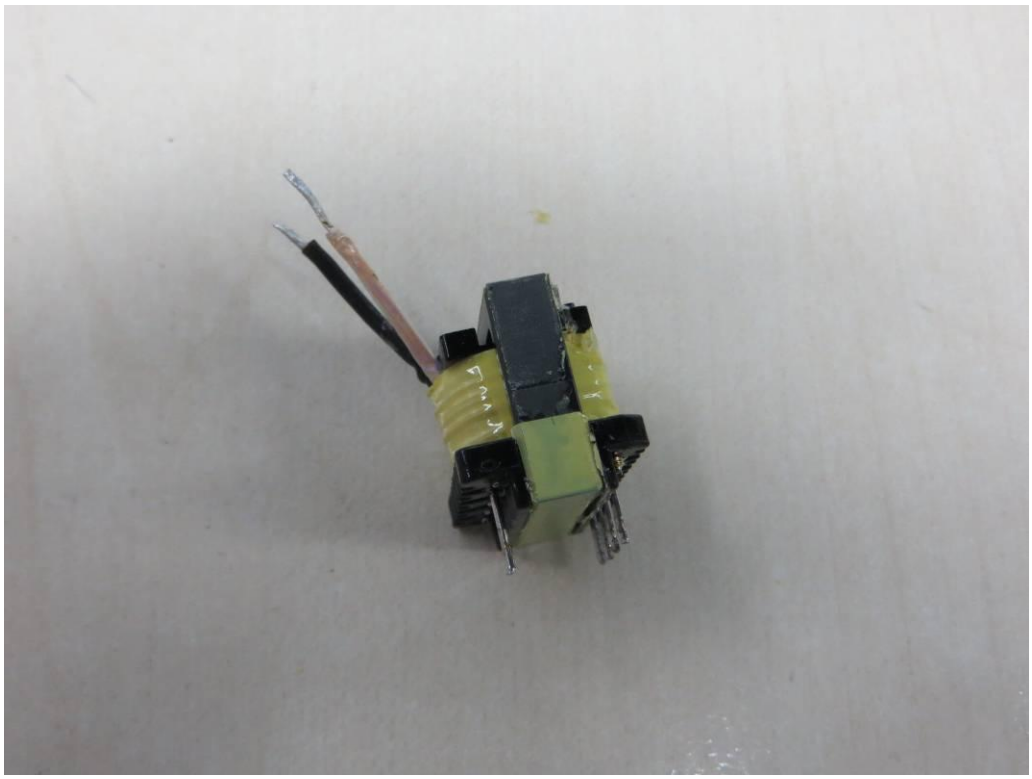

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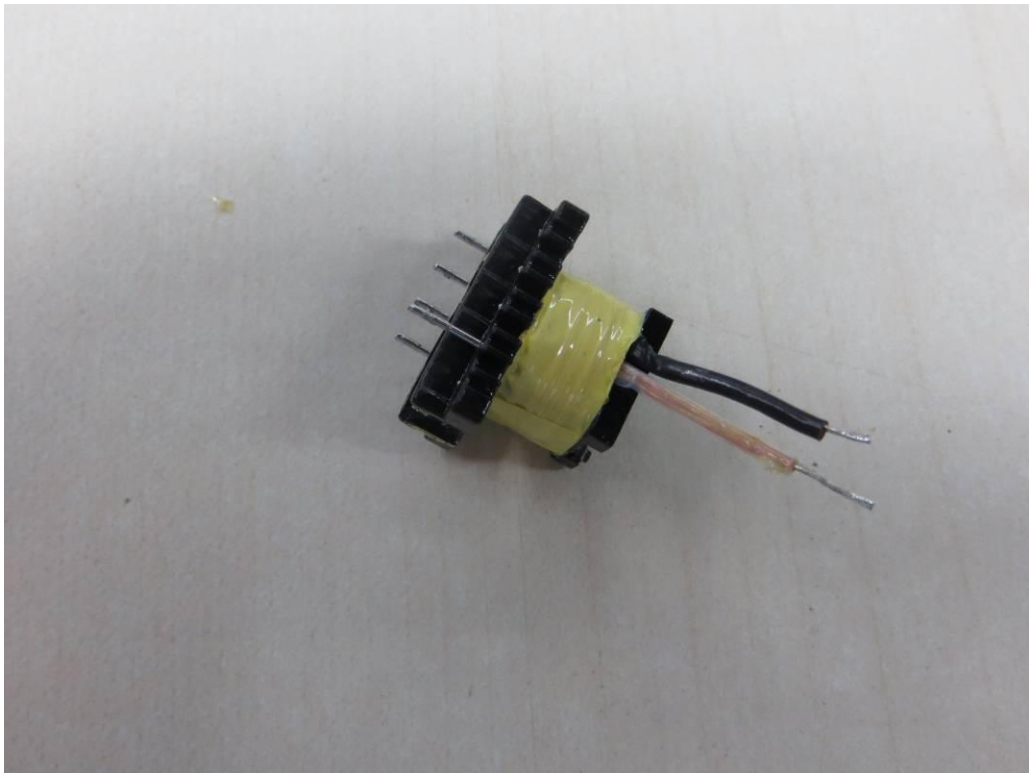

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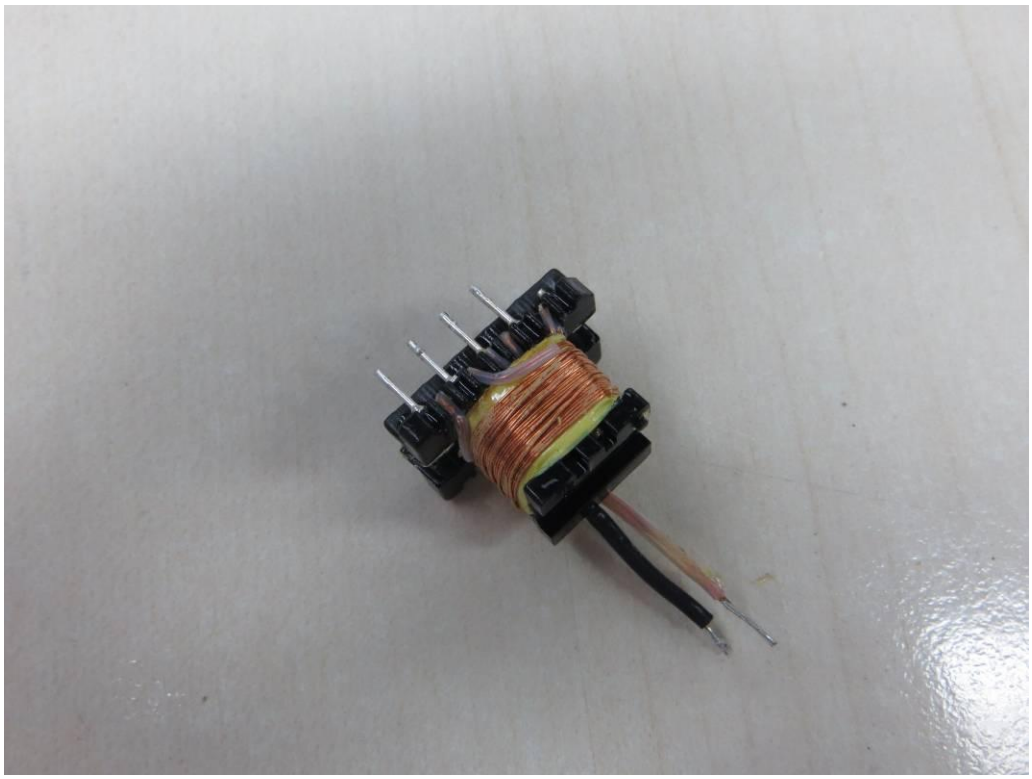

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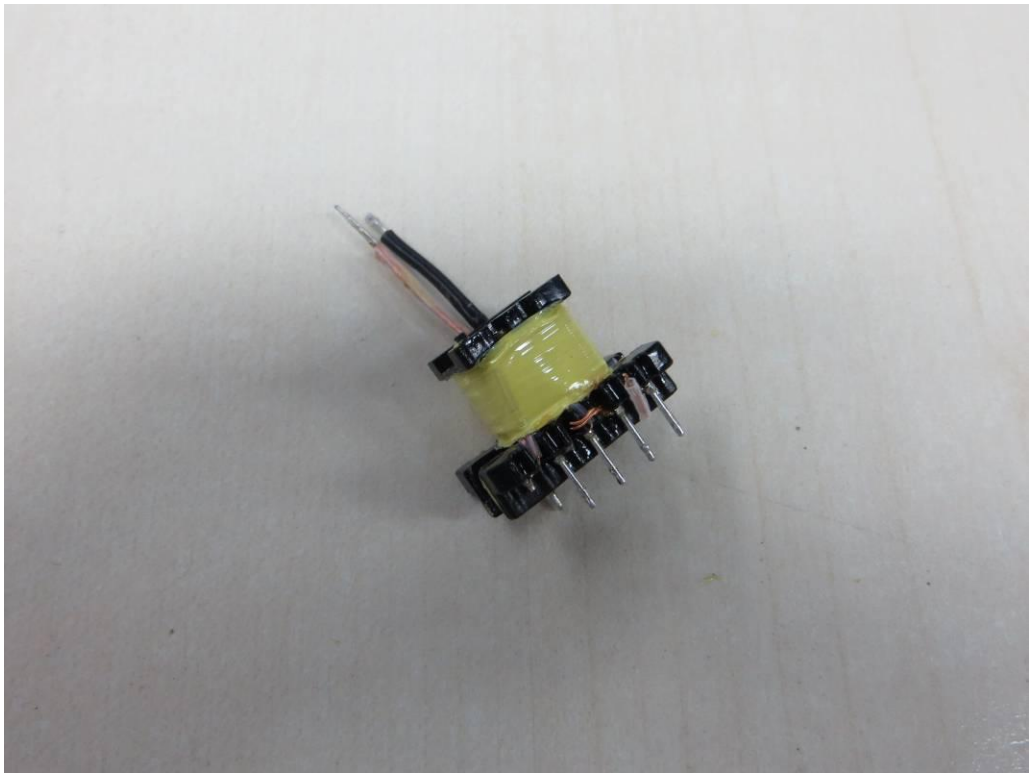

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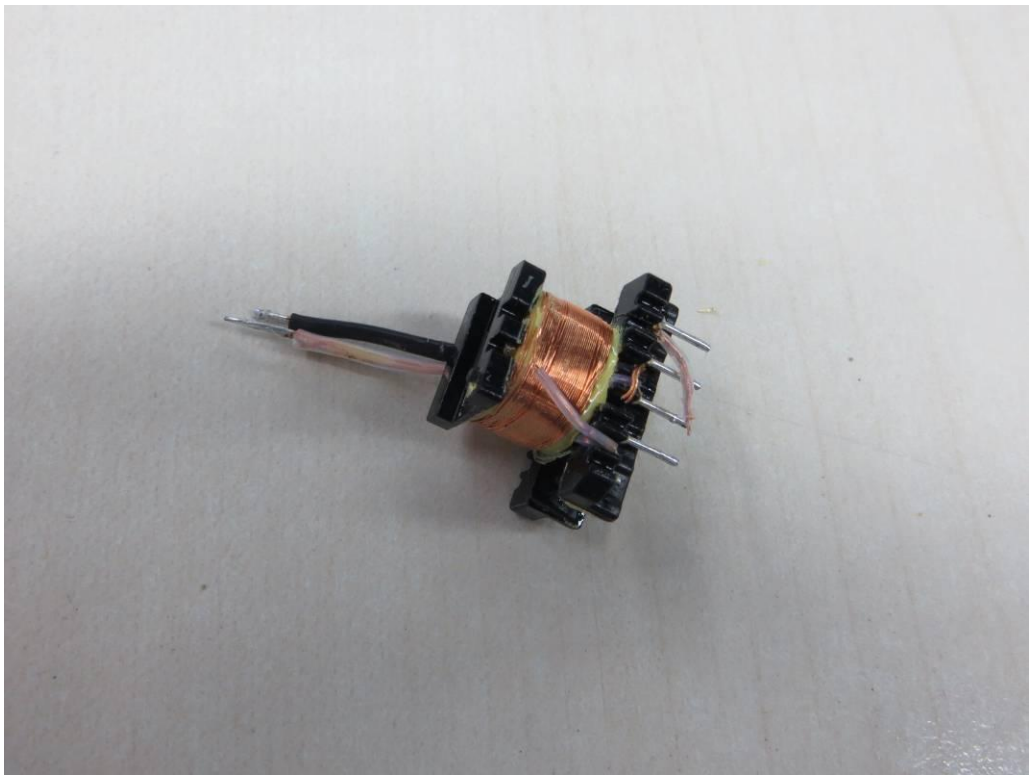

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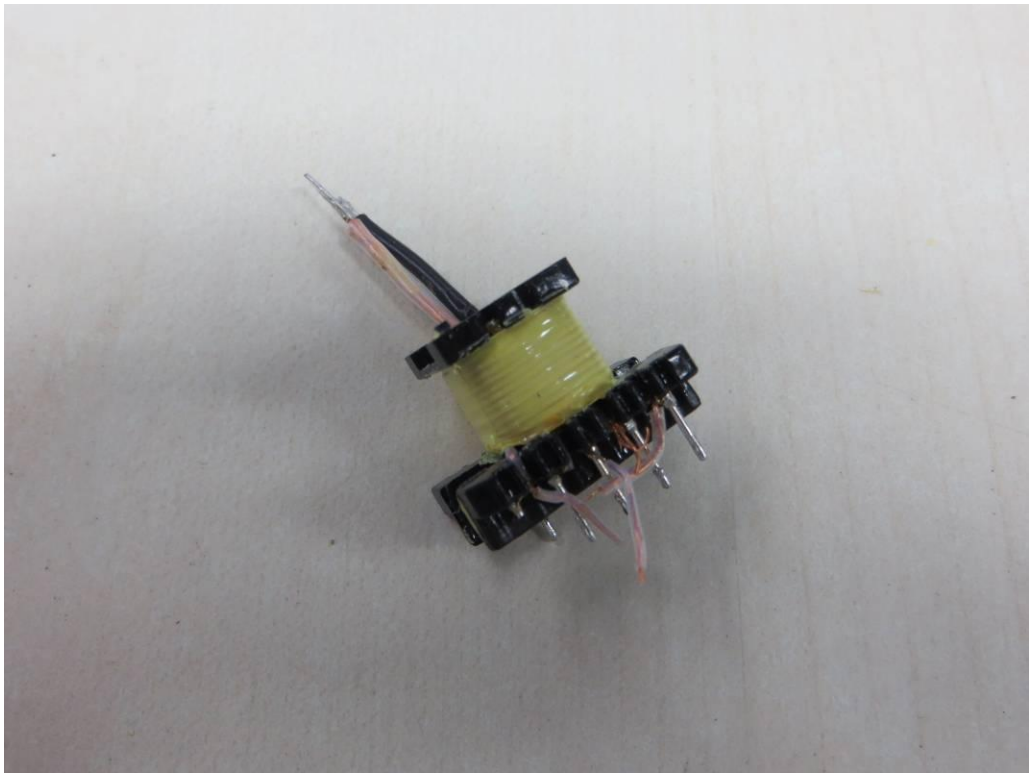

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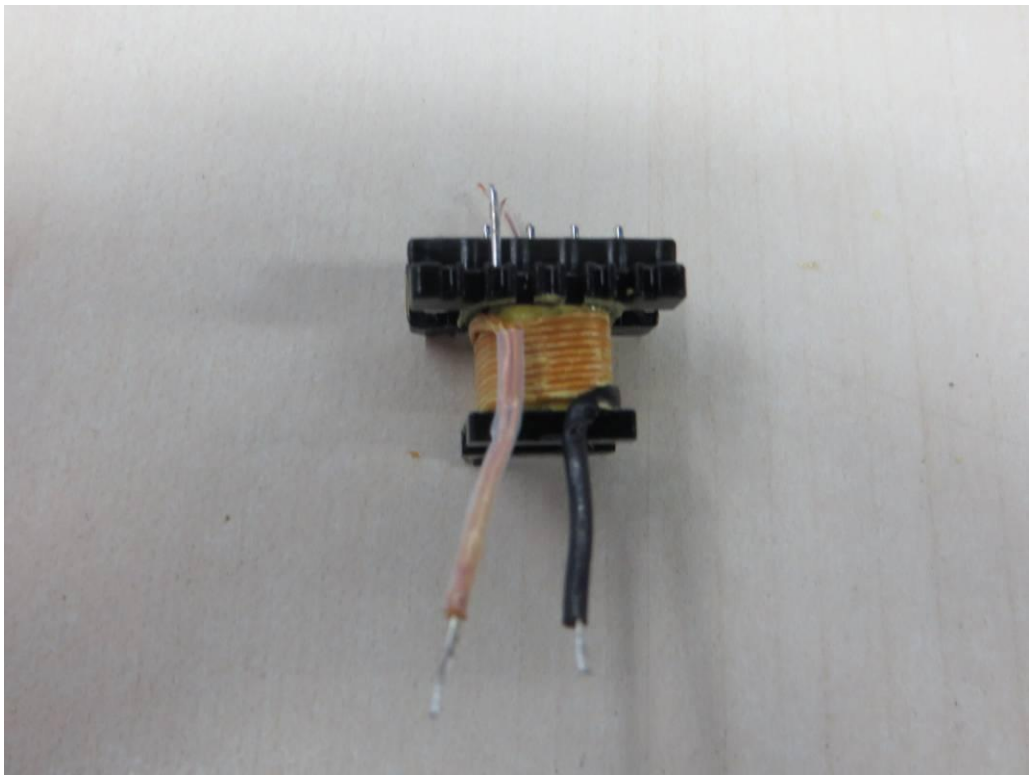

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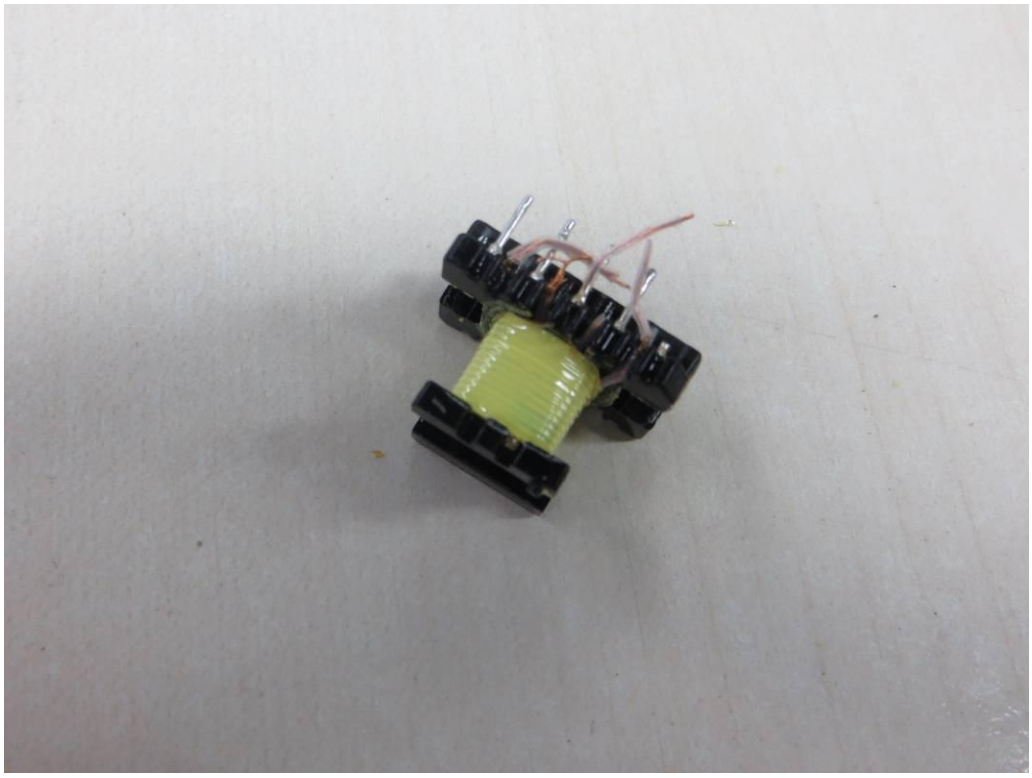

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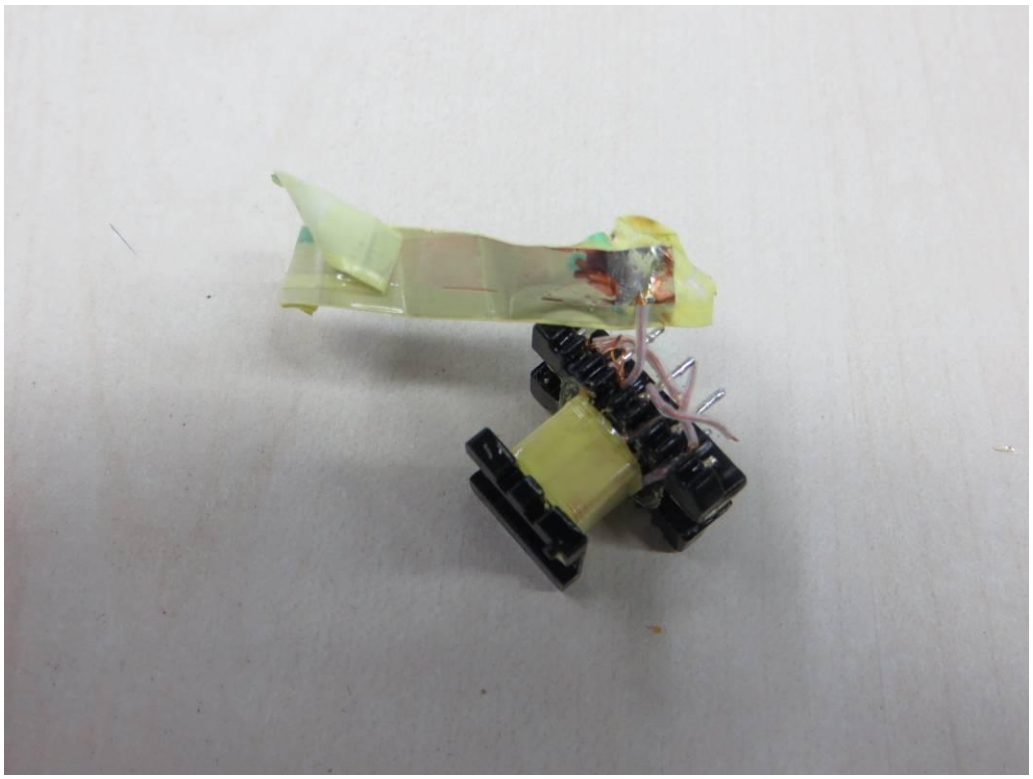

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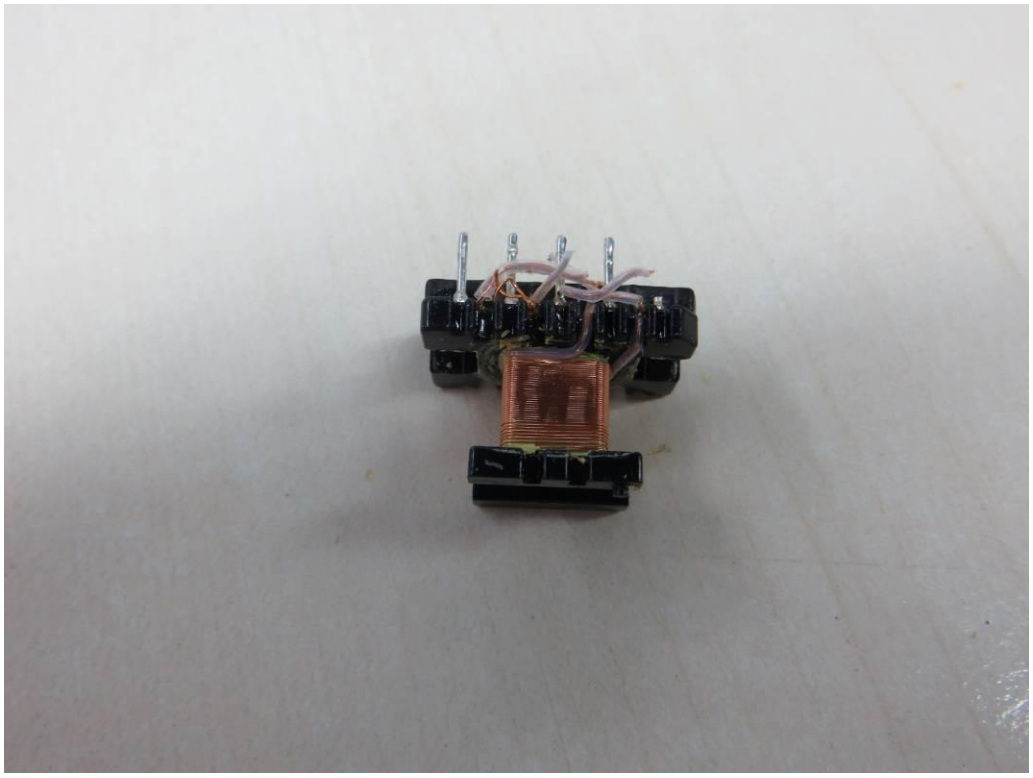

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