



Test Report issued under the responsibility of:



## TEST REPORT

IEC 62368-1

### Audio/video, information and communication technology equipment

#### Part 1: Safety requirements

Report Number .....: E147630-A6002-CB-1

Date of issue.....: 2021-12-13

Total number of pages .....: 112

Name of Test Laboratory .....: UL RTP

preparing the Report .....: 12 Laboratory Drive, Research Triangle Park , NC, 27709, USA

Applicant's name.....: UNIPOWER L L C

Address .....: 210 N University Dr, Suite 700  
Coral Springs FL 33065  
UNITED STATES

#### Test specification:

Standard .....: IEC 62368-1:2014

Test procedure .....: CB Scheme

Non-standard test method.....: N/A

TRF template used .....: IECEE OD-2020-F1:2020, Ed.1.3

Test Report Form No.....: IEC62368\_1D

Test Report Form(s) Originator .....: UL(US)

Master TRF.....: Dated 2021-02-04

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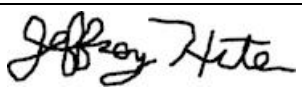

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**This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.**

#### General disclaimer:

The test results presented in this report relate only to the object tested.

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Test Item description .....	Switch-Mode Power Supply	
Trade Mark(s) .....	None	
Manufacturer .....	UNIPOWER L L C 210 N University Dr, Suite 700 Coral Springs FL 33065 UNITED STATES	
Model/Type reference .....	Series AM-120UA-XYZ-B, AF-180P-XYZ-B A = blank or A X = S (single), D (dual), T (triple) or Q (quad) outputs Y = Output Voltage Configuration (up to 4 digits) 0: 1.5V to 4V, 1: >4V to 5.7V, 2: >10V to 13.8V, 3: >13.8V to 16.5V, 4: >21V to 26V, 5: >32V to 48V, 6: >5.7V to <8V, 7: 26V to 32V, 8: >16.5V to 21V, 9: 8V to 10V Z = Configuration (up to 4 digits/alpha numeric suffix) or blank B = Customer specific configuration. Up to 4 digits with or without a "-"	
Ratings .....	Series AM-120UA-XYZ-B: Input: 100-240 Vac, 3.15 A, 47-63 Hz  Series AF-180P-XYZ-B: Input: 100-240 Vac, 5 A, 47-63 Hz  See test report for output ratings	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/> CB Testing Laboratory:		
Testing location/ address .....	UL RTP, 12 Laboratory Drive, Research Triangle Park , NC, 27709, USA	
Tested by (name, function, signature).....	Jeff Hite / Project Handler	
Approved by (name, function, signature).....	Michael Lockhart / Reviewer	
<input type="checkbox"/> Testing procedure: CTF Stage 1:		
Testing location/ address .....		
Tested by (name, function, signature).....		
Approved by (name, function, signature).....		
<input type="checkbox"/> Testing procedure: CTF Stage 2:		

Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) ...:			
Approved by (name, function, signature).....:			
<input type="checkbox"/>	Testing procedure: CTF Stage 3:		
<input type="checkbox"/>	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):**

National Differences (30 pages)

Enclosures (109 pages)

**Summary of testing:****Tests performed (name of test and test clause):**

CLASSIFICATION OF ELECTRICAL ENERGY SOURCES (5.2.2.1-5.2.2.6)

DETERMINATION OF WORKING VOLTAGE (5.4.1.8)

SEPARABLE THIN SHEET MATERIAL (5.4.4.6.2)

HUMIDITY CONDITIONING (5.4.8)

ELECTRIC STRENGTH TEST – TYPE TESTING OF SOLID INSULATION (5.4.9.1)

SAFEGUARDS AGAINST CAPACITOR DISCHARGE AFTER DISCONNECTION OF A CAPACITOR (5.5.2.2)

TOUCH CURRENT MEASUREMENT – EARTHED ACCESSIBLE CONDUCTIVE PARTS – SINGLE-PHASE EQUIPMENT ON TN OR TT SYSTEM (5.7.4)

INPUT TEST: SINGLE PHASE (B.2.5)

NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT (B.2.6, 5.4.1.4, 6.3, 9.2)

**Testing Location:****CBTL: UL RTP, 12 Laboratory Drive, Research Triangle Park , NC, 27709, USA**

Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test for SELV Circuits (2.2) was covered in the Test Report Ref.

No. E147630-A11-CB-3, CB Cert US-27777-A1-UL. Additionally tested as part of this investigation.

Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Clause 2.10.2 "Determination of working voltage" was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL

Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Clause 2.9.2 "Humidity conditioning" was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL

Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test for Electric Strength (5.2) was covered in the Test Report Ref.

No. E147630-A11-CB-3, CB Cert US-27777-A1-UL. Additionally tested as part of this investigation.

Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Input: Single-Phase (1.6.2) was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL.

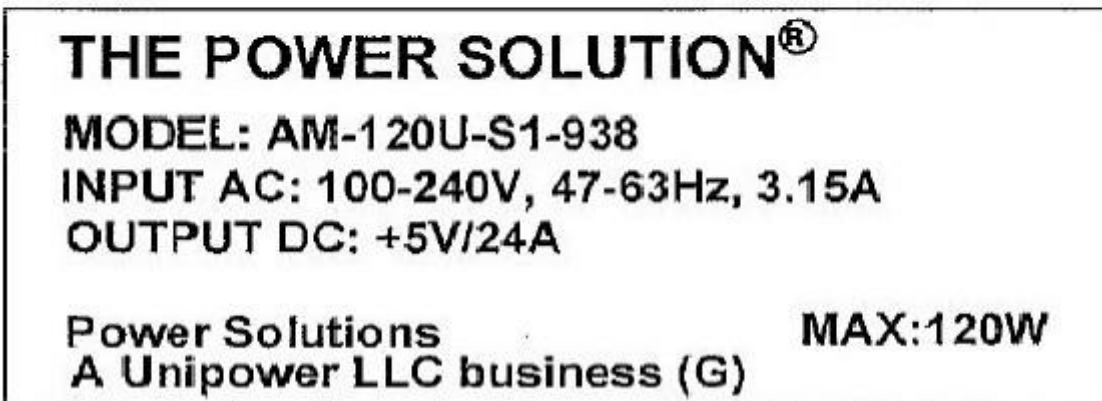
Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Heating (4.5.1, 1.4.12, 1.4.13) was covered in the Test Report Ref. No.



SIMULATED ABNORMAL OPERATING CONDITIONS (B.3)	<p>E147630-A11-CB-3, CB Cert US-27777-A1-UL.</p> <p>Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Component Failure (5.3.1, 5.3.4, 5.3.7) was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL.</p>
SIMULATED SINGLE FAULT CONDITIONS (B.4)	<p>Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Component Failure (5.3) was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL.</p>
TEST FOR THE PERMANENCE OF MARKINGS (ANNEX F.3.10)	<p>Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Durability (1.7.11) was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL.</p>
TRANSFORMER OVERLOAD (ANNEX G.5.3.3)	<p>Testing conducted in accordance with IEC 60950-1:2005(Second Edition); Am1:2009+Am2:2013 was considered representative. Test of Power Supply Output Short-Circuit/Overload (5.3.7) was covered in the Test Report Ref. No. E147630-A11-CB-3, CB Cert US-27777-A1-UL.</p>
<b>Summary of compliance with National Differences:</b>	
<b>List of countries addressed:</b> Australia / New Zealand, EU Group and National Differences, Japan, USA / Canada	
<input checked="" type="checkbox"/> <b>The product fulfils the requirements of:</b> EN 62368-1:2014 + A11:2017, UL 62368-1 2nd Edition, Issued December 1, 2014, CSA CAN/CSA-C22.2 No. 62368-1 2nd Edition, Issued December 1, 2014	
<b>Statement concerning the uncertainty of the measurement systems used for the tests</b>	
<input type="checkbox"/> <b>Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:</b>	
<b>Procedure number, issue date and title:</b>	
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.	
<input checked="" type="checkbox"/> <b>Statement not required by the standard used for type testing</b>	
(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)	

**Copy of marking plate:**

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



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

<b>TEST ITEM PARTICULARS:</b>	
Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	Built-in
Considered current rating of protective device as part of building or equipment installation	building; 20 A;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	40
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	approx.100m m
Mass of equipment (kg)	1.3 kg max
<b>POSSIBLE TEST CASE VERDICTS:</b>	
- 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)
<b>TESTING:</b>	
Date of receipt of test item..... :	2007-06-18, 2007-07-31, 2007-08-14, 2007-08-20, 2007-08-21, 2007-09-04, 2007-09-06, 2007-09-07, 2007-09-10, 2007-09-12, 2007-09-25, 2007-10-22, 2007-11-09, 2007-11-14, 2007-11-27, 2007-12-04, 2007-12-11, 2008-04-28, 2013-12-03, 2021-09-01, 2021-10-12, 2021-11-12
Date (s) of performance of tests..... :	2007-08-10 to 2007-08-28, 2007-09-18 to 2008-01-02, 2008-05-19, 2008-05-20, 2014-03-26 to 2014-03-28, 2021-09-24 to 2021-09-28, 2021-11-15, 2021-11-17
<b>GENERAL REMARKS:</b>	
<p>“(See Enclosure #)” refers to additional information appended to the report.  “(See appended table)” refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60068-2-1:</b>	

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 .....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b>	GREEN CUBES TECHNOLOGY CORP TAIWAN BRANCH 7th Fl 6 Lane 497 Chung Cheng Rd Hsin Tien District New Taipei 23148 TAIWAN
<b>GENERAL PRODUCT INFORMATION:</b>	
<b>Report Summary</b> All applicable tests according to the referenced standard(s) have been carried out.	
<b>Product Description</b> The Model Series AM-120UA-XYZ and AF-180P-XYZ are opened framed U-Shaped switch-mode power supplies. The units are designed for building-in and provide basic insulation from primary to chassis/earth and reinforced insulation from primary to secondary.	
<b>Model Differences</b> All units within a family series are similar except for output power ratings and configuration.  Series AM-120UA-XYZ-B, AF-180P-XYZ-B A = blank or A X = S (single), D (dual), T (triple) or Q (quad) outputs Y = Output Voltage Configuration (up to 4 digits) 0: 1.5V to 4V, 1: >4V to 5.7V, 2: >10V to 13.8V, 3: >13.8V to 16.5V, 4: >21V to 26V, 5: >32V to 48V, 6: >5.7V to <8V, 7: 26V to 32V, 8: >16.5V to 21V, 9: 8V to 10V Z = Configuration (up to 4 digits/alpha numeric suffix) B = Customer specific configuration. Up to 4 digits with or without a "-"	
<b>Additional application considerations – (Considerations used to test a component or sub-assembly) -</b> All labels are identical except for the model number and output ratings. Marking label in report is representative of all models (input current rating may vary).  Models with Suffix "(F)" - T1 is Class F Insulation System.  Output Ratings:  AM-120UA-XYZ: 80 W with convection cooling and 120 W with forced-air cooling except for single output models AM-120U-S0 (rated 60 W with convection cooling; 80 W with forced-air cooling) and AM-120U-S1 (75 W with convection cooling)	

Output	Voltage	Max Current
V1	+/-1.5 to +/-48	24.0
V2	+/-1.5 to +/-48	6.0
V3	+/-1.5 to +/-48	2.0
V4	+/-1.5 to +/-48	2.0

The combined total output power does not exceed 120 W.

AF-180P-XYZ: 110 W with convection cooling and 180 W with forced-air cooling except for model AF-180P-S0 (60 W convection-cooled and 99 W forced air-cooled) and AF-180P-S1 (100 W convection-cooled and 150 W forced air-cooled)

Output	Voltage	Max Current
V1	+/-1.5 to +/- 48	30.0
V2	+/-1.5 to +/-48	18.0
V3	+/-1.5 to +/-48	6.0
V4	+/-1.5 to +/-48	6.0

The combined total output power does not exceed 180 W.

#### Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 40°C
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : +10%/-10%
- The product was investigated to the following additional standard : EN 62368-1:2014 + A11:2017, CSA CAN/CSA-C22.2 NO. 62368-1 2nd Ed, Issued December 1, 2014, UL 62368-1 2ND Ed, Issued December 1, 2014

#### Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Model AM-120UA-XYZ, Primary-SELV: 374 Vrms, 860 Vpk , Primary-Earthed Dead Metal: 259 Vrms, 356 Vpk, Model AF-180P-XYZ, Primary-SELV: 389 Vrms, 800 Vpk, Primary-Earthed Dead Metal: 289 Vrms, 580 Vpk
- The following output circuits are at ES1 energy levels : All
- The following output circuits are at PS3 energy levels : All
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral : CON1 or J1 - The input/output connectors have not been evaluated for field connections and are only intended for connection to mating connectors of internal wiring inside the end-use product.
- The following end-product enclosures are required : Electrical, Fire, Mechanical
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C) : For models with "(F)" suffix, T1 is (Class F). For models without "(F)" suffix, T1 (Class B). LE1 (Class B), LE2 (Class B), LE3 (Class B, only applicable to AF-180P series).
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing : T1. Also, LE1, LE2, and LE3 have been accepted for use at higher temperatures based on the materials used since only functional insulation is required.
- The maximum continuous power supply output (Watts) relied on forced air cooling from : A 30 CFM fan located at a distance 50 mm (2 inches) from the unit Input with air-flow directed from Input to Output was used for all tests except the convection heating tests.
- The power supply was evaluated to be used at altitudes up to : "2,000 m"
- 1.20 The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: T1. Also, LE1, LE2, and LE3 have been accepted for use at higher temperatures based on the materials used since only functional insulation is required.
- Touch current does not exceed the limits of 3.5mA. Additional testing should be considered in the end product depending on design.

**ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:**

(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)

(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.

**Electrically-caused injury (Clause 5):**

(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)

Example: +5 V dc input

ES1

Source of electrical energy	Corresponding classification (ES)
Mains Input	ES3
Output	ES1

**Electrically-caused fire (Clause 6):**

(Note: List sub-assembly or circuit designation and corresponding energy source classification)

Example: Battery pack (maximum 85 watts):

PS2

Source of power or PIS	Corresponding classification (PS)
Mains Input	PS3
Outputs	PS3

**Injury caused by hazardous substances (Clause 7)**

(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)

Example: Liquid in filled component

Glycol

Source of hazardous substances	Corresponding chemical
N/A	N/A

**Mechanically-caused injury (Clause 8)**

(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)

Example: Wall mount unit

MS2

Source of kinetic/mechanical energy	Corresponding classification (MS)
Weight	MS1

**Thermal burn injury (Clause 9)**

(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)

Example: Hand-held scanner – thermoplastic enclosure

TS1

Source of thermal energy	Corresponding classification (TS)
N/A	To be tested in the end product

**Radiation (Clause 10)**

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

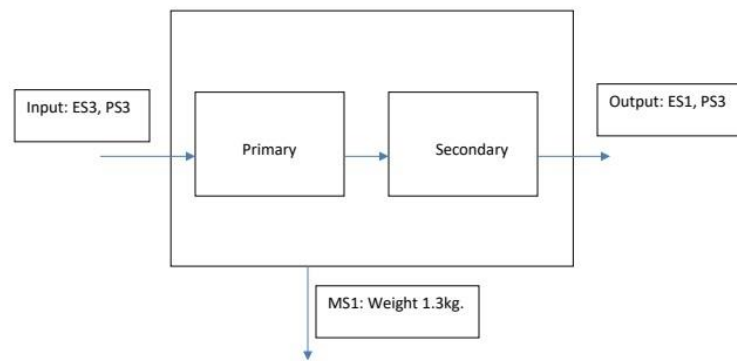
Example: DVD – Class 1 Laser Product

RS1

Type of radiation	Corresponding classification (RS)
N/A	N/A

**ENERGY SOURCE DIAGRAM**

Indicate which energy sources are included in the energy source diagram. Insert diagram below

☒ **ES**    ☒ **PS**    ☒ **MS**    ☐ **TS**    ☐ **RS**



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3:Mains Input	-	-	Enclosure provided by the End Product.
Ordinary	ES1:Output	-	-	-
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Product	PS3:Input and output	Temperature tests in the end product to ensure no ignition.	All parts mounted on V-1, made of V-2 min. No ignition during faults.	Enclosure provided by the end product.
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	-	-	-	-
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1:weight	-	-	-
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS: To be considered in the end product.			
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	-	-	-	-
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		Pass
4.1.1	Acceptance of materials, components and subassemblies		Pass
4.1.2	Use of components		Pass
4.1.3	Equipment design and construction		Pass
4.1.15	Markings and instructions .....	(See Annex F)	Pass
4.4.4	Safeguard robustness		N/A
4.4.4.2	Steady force tests .....	(See Annex T.4, T.5)	N/A
4.4.4.3	Drop tests .....	(See Annex T.7)	N/A
4.4.4.4	Impact tests .....	(See Annex T.6)	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests .....	(See Annex T.3)	N/A
4.4.4.6	Glass Impact tests .....	(See Annex T.9, Annex U)	N/A
4.4.4.7	Thermoplastic material tests .....	(See Annex T.8)	N/A
4.4.4.8	Air comprising a safeguard .....	(See Annex T)	N/A
4.4.4.9	Accessibility and safeguard effectiveness		N/A
4.5	Explosion	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
4.6	Fixing of conductors		Pass
4.6.1	Fix conductors not to defeat a safeguard		Pass
4.6.2	10 N force test applied to .....	Force applied during previous 60950-1 investigation.	Pass
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard .....		N/A
4.7.3	Torque (Nm) .....		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery .....		—
4.8.4	Battery Compartment Mechanical Tests .....	(See Table 4.8.4)	N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object .....	The product is for building-in. Installation should be evaluated	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
		as part of the end product investigation.	
<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		Pass
5.2.1	Electrical energy source classifications .....	(See appended table 5.2)	Pass
5.2.2	ES1, ES2 and ES3 limits	Product contains ES3 and ES1.	Pass
5.2.2.2	Steady-state voltage and current .....	(See appended table 5.2)	Pass
5.2.2.3	Capacitance limits .....	(See appended table 5.2)	N/A
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	Ring 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		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V .....		N/A
	b) Electric strength test potential (V) .....		N/A
	c) Air gap (mm) .....		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		Pass
5.4.1.2	Properties of insulating material		Pass
5.4.1.3	Humidity conditioning .....	(See sub-clause 5.4.8)	Pass
5.4.1.4	Maximum operating temperature for insulating materials .....	(See appended table 5.4.1.4)	Pass
5.4.1.5	Pollution degree .....	2	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		Pass
5.4.1.9	Insulating surfaces		Pass
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Evaluated on LE1 and LE2 bobbin material.	Pass
5.4.1.10.2	Vicat softening temperature .....	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure .....	(See appended table 5.4.1.10.3)	Pass
5.4.2	Clearances		Pass
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	Pass
5.4.2.3	Determining clearance using required withstand voltage .....	(See appended table 5.4.2.3)	Pass
	a) a.c. mains transient voltage .....	2500	—
	b) d.c. mains transient voltage .....	-	—
	c) external circuit transient voltage .....	-	—
	d) transient voltage determined by measurement... :	-	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....		N/A
5.4.3	Creepage distances .....	(See appended table 5.4.3)	Pass
5.4.3.1	General		Pass
5.4.3.3	Material Group .....	IIIb	—
5.4.4	Solid insulation		Pass
5.4.4.2	Minimum distance through insulation .....	(See appended table 5.4.4.2)	Pass
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices	Evaluated as part of the optical Isolator	N/A
5.4.4.5	Cemented joints	A used.	Pass
5.4.4.6	Thin sheet material		Pass
5.4.4.6.1	General requirements		Pass
5.4.4.6.2	Separable thin sheet material		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
	Number of layers (pcs) .....	Three layers where 1 layer passes electric strength for Supplemental Insulation. One layer of insulation between PWB and case measuring min 0.2 mm thick for Basic insulation.	Pass
5.4.4.6.3	Non-separable thin sheet material		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		Pass
5.4.4.9	Solid insulation at frequencies >30 kHz..... :	(See appended Table 5.4.4.9)	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
	Insulation resistance (MΩ) .....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard .....	(See appended table 5.4.4.2) To be evaluated in the end product.	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		Pass
	Relative humidity (%) .....	93+/- 2%	—
	Temperature (°C) .....	40	—
	Duration (h) .....	120	—
5.4.9	Electric strength test..... :	(See appended table 5.4.9)	Pass
5.4.9.1	Test procedure for a solid insulation type test		Pass
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test .....	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry .....	(See appended table 5.4.9)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage $U_{op}$ (V) .....		—
	Nominal voltage $U_{peak}$ (V) .....		—
	Max increase due to variation $U_{sp}$ .....		—
	Max increase due to ageing $\Delta U_{sa}$ .....		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....		—
5.5	Components as safeguards		Pass
5.5.1	General		Pass
5.5.2	Capacitors and RC units		Pass
5.5.2.1	General requirement		Pass
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....	(See appended table 5.5.2.2)	Pass
5.5.3	Transformers	(See Annex G.5.3)	Pass
5.5.4	Optocouplers	(See sub-clause 5.4 or Annex G.12)	Pass
5.5.5	Relays	(See Annex G.2)	N/A
5.5.6	Resistors	(See Annex G.10)	N/A
5.5.7	SPD's	(See Annex G.8) - MOV between Functional insulation only.	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable .....	(See Annex G.10.3)	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements	Equipment for building-in. To Be determined in the end product.	N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors	Equipment for building-in.	N/A
	Protective earthing conductor size (mm <sup>2</sup> ) .....		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm <sup>2</sup> ).....		—
	Protective current rating (A) .....	20A	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm <sup>2</sup> ), nominal thread diameter (mm).....:	required size is less than 1mm <sup>2</sup> from table G.5 so no size is required.	N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance ( $\Omega$ ).....:	(See appended table 5.6.6.2) Test to be done in the end product.	N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		Pass
5.7.2	Measuring devices and networks		Pass
5.7.2.1	Measurement of touch current.....:	(See appended table 5.7.4)	Pass
5.7.2.2	Measurement of prospective touch voltage		Pass
5.7.3	Equipment set-up, supply connections and earth connections		Pass
	System of interconnected equipment (separate connections/single connection).....:	Single Connection	—
	Multiple connections to mains (one connection at a time/simultaneous connections).....:	-	—
5.7.4	Earthed conductive accessible parts .....	(See appended Table 5.7.4)	Pass
5.7.5	Protective conductor current		N/A
	Supply Voltage (V) .....		—
	Measured current (mA) .....		—
	Instructional Safeguard .....	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA) .....		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA) .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		Pass
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		Pass
6.2.2	Power source circuit classifications		Pass
6.2.2.1	General	Product is a PS3 product	Pass
6.2.2.2	Power measurement for worst-case load fault.....:	(See appended table 6.2.2)	Pass
6.2.2.3	Power measurement for worst-case power source fault .....:	(See appended table 6.2.2)	Pass
6.2.2.4	PS1 .....:	(See appended table 6.2.2)	N/A
6.2.2.5	PS2 .....:	(See appended table 6.2.2)	N/A
6.2.2.6	PS3 .....:	(See appended table 6.2.2)	Pass
6.2.3	Classification of potential ignition sources		Pass
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	Pass
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	Pass
6.3	Safeguards against fire under normal operating and abnormal operating conditions		Pass
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....:	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	Pass
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		Pass
6.4.1	Safeguard Method	Control of fire spread used.	Pass
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions .....:	(See appended table 6.4.3)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		Pass
6.4.5.2	Supplementary safeguards .....:	(See appended tables 4.1.2 and Annex G)	Pass
6.4.6	Control of fire spread in PS3 circuit		Pass
6.4.7	Separation of combustible materials from a PIS		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
6.4.7.1	General .....	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....		N/A
	Flammability tests for the bottom of a fire enclosure .....		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating .....		N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....		—
6.5.3	Requirements for interconnection to building wiring .....	(See Annex Q.)	N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A
<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Personal safeguards and instructions.....:		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010).....:		—
7.6	Batteries .....	(See Annex M)	N/A
<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		Pass
8.1	General		Pass
8.2	Mechanical energy source classifications		Pass
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard .....		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....:	(See Annex F.4 and Annex K)	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard .....		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N).....:		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test .....	(See appended table 8.5.5.2)	N/A
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard .....		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force.....:		—
8.6.2.3	Downward Force Test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt ..... :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force) ..... :		N/A
	Position of feet or movable parts ..... :		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) ..... :		N/A
8.7.2	Direction and applied force ..... :		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force ..... :		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard ..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force..... :		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C) ..... :		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i> ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas ..... :	(See Annex T)	N/A
	Button/Ball diameter (mm) ..... :		—
<b>9</b>	<b>THERMAL BURN INJURY</b>		Pass
9.2	Thermal energy source classifications		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....		N/A
<b>10</b>	<b>RADIATION</b>		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation		N/A
	Laser radiation that exists in the equipment:		—
	Normal, abnormal, single-fault .....	(See attached laser test report)	N/A
	Instructional safeguard.....		—
	Tool .....		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons ..... :		N/A
10.4.1.b)	RS3 accessible to a skilled person ..... :		N/A
	Personal safeguard (PPE) instructional safeguard .....		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 ..... :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions .....	(See appended table B.3 & B.4)	N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque ..... :		N/A
10.4.1.f)	UV attenuation ..... :		N/A
10.4.1.g)	Materials resistant to degradation UV .....		N/A
10.4.1.h)	Enclosure containment of optical radiation ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.i)	Exempt Group under normal operating conditions ..... :		N/A
10.4.2	Instructional safeguard ..... :		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment : Normal, abnormal, single fault conditions Equipment safeguards ..... : Instructional safeguard for skilled person ..... :	(See appended table B.3 & B.4)	N/A
			N/A
			N/A
			N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition..... :	(See appended table B.3 & B.4)	N/A
	Maximum radiation (pA/kg) ..... :		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A) ..... :		N/A
	Output voltage, unweighted r.m.s. .... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards ..... :		N/A
	Equipment safeguard prevent ordinary person to RS2 ..... :		—
	Means to actively inform user of increase sound pressure ..... :		—
	Equipment safeguard prevent ordinary person to RS2 ..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) $L_{Aeq}$ acoustic pressure output ..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A) ..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict

<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		Pass
B.2	Normal Operating Conditions		Pass
B.2.1	General requirements .....	(See Test Item Particulars and appended test tables)	Pass
	Audio Amplifiers and equipment with audio amplifiers .....	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		Pass
B.2.5	Input test .....	(See appended table B.2.5)	Pass
B.3	Simulated abnormal operating conditions		Pass
B.3.1	General requirements .....	(See appended table B.3)	Pass
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector .....		N/A
B.3.5	Maximum load at output terminals .....	(See appended table B.3)	Pass
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		Pass
B.4	Simulated single fault conditions		Pass
B.4.2	Temperature controlling device open or short-circuited .....	(See appended table B.4)	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature .....	(See Clause G.5)	N/A
B.4.4	Short circuit of functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
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		Pass
B.4.6	Short circuit or disconnect of passive components		Pass
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.9	Battery charging under single fault conditions .....	(See Annex M)	N/A
<b>C</b>	<b>UV RADIATION</b>		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		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
<b>D</b>	<b>TEST GENERATORS</b>		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V) .....		—
	Rated load impedance ( $\Omega$ ) .....		—
E.2	Audio amplifier abnormal operating conditions		N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		Pass
F.1	General requirements		Pass
	Instructions – Language .....	product is for building in, no instructions provided.	—
F.2	Letter symbols and graphical symbols		Pass
F.2.1	Letter symbols according to IEC60027-1		N/A
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		Pass
F.3	Equipment markings		Pass
F.3.1	Equipment marking locations		Pass
F.3.2	Equipment identification markings		Pass
F.3.2.1	Manufacturer identification .....	See copy of marking plate.	—
F.3.2.2	Model identification .....	See copy of marking plate.	—
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage .....	See copy of marking plate.	—
F.3.3.4	Rated voltage .....	See copy of marking plate.	—
F.3.3.5	Rated frequency .....	See copy of marking plate.	—
F.3.3.6	Rated current or rated power .....	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		Pass
F.3.5.1	Mains appliance outlet and socket-outlet markings .....		N/A
F.3.5.2	Switch position identification marking .....		N/A
F.3.5.3	Replacement fuse identification and rating markings .....	Marked on the PWB "Replace only with the same type and rating."	Pass
F.3.5.4	Replacement battery identification marking .....		N/A
F.3.5.5	Terminal marking location		Pass
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal	equipment is for building in	N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking .....		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		Pass
F.3.10	Test for permanence of markings	Tested with compliant results	Pass
F.4	Instructions		N/A
	a) Equipment for use in locations where children not likely to be present - marking	To be provided in the end product.	N/A
	b) Instructions given for installation or initial use		N/A
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
<b>G</b>	<b>COMPONENTS</b>		Pass
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
<b>G.2</b>	<b>Relays</b>		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
<b>G.3</b>	<b>Protection Devices</b>		Pass
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H) .....		—
	Single Fault Condition .....		—
	Test Voltage (V) and Insulation Resistance ( $\Omega$ ) ..		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.3	PTC Thermistors	PTC not relied on as a Safeguard.	N/A
G.3.4	Overcurrent protection devices		Pass
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions .....	(See appended Table B.4)	N/A
<b>G.4</b>	<b>Connectors</b>		N/A
G.4.1	Spacings	To be evaluated in the end product.	N/A
G.4.2	Mains connector configuration .....		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
<b>G.5</b>	<b>Wound Components</b>		Pass
G.5.1	Wire insulation in wound components .....	(See Annex J)	Pass
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		Pass
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s) .....		—
	Temperature (°C) .....		—
G.5.2.3	Wound Components supplied by mains		N/A
<b>G.5.3</b>	<b>Transformers</b>		Pass
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....	Requirements of 62368 applied.	Pass
	Position .....	T1	—
	Method of protection .....	Over current protection by circuit design.	—
G.5.3.2	Insulation	UL R/C (OBJY2) Class B and Class F insulation systems. (see appended table 1.5.1) and Diagrams.	Pass
	Protection from displacement of windings .....	Triple insulated wire and tape provided.	—
G.5.3.3	Overload test.....	(See appended table B.3)	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.3.1	Test conditions		Pass
G.5.3.3.2	Winding Temperatures testing in the unit		Pass
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
<b>G.5.4</b>	<b>Motors</b>		N/A
G.5.4.1	General requirements		N/A
	Position .....		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V).....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....		N/A
	Electric strength test (V) .....		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V).....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....		—
<b>G.6</b>	<b>Wire Insulation</b>		Pass
G.6.1	General		Pass
G.6.2	Solvent-based enamel wiring insulation	primary to secondary transformer wiring is triple insulated.	N/A
<b>G.7</b>	<b>Mains supply cords</b>		N/A
G.7.1	General requirements		N/A
	Type .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A) .....		—
	Cross-sectional area (mm <sup>2</sup> ), (AWG) .....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N) .....		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ...		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry .....	(See appended table 5.4.11.1)	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) .....		—
	Diameter (m) .....		—
	Temperature (°C) .....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
<b>G.8</b>	<b>Varistors</b>		N/A
G.8.1	General requirements	MOV not used as a safeguard. See 5.5.7	N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test .....	(See appended table B.3)	N/A
G.8.3.3	Temporary overvoltage .....	(See appended table B.3)	N/A
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....		—
G.9.1 d)	IC limiter output current (max. 5A) .....		—
G.9.1 e)	Manufacturers' defined drift .....		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.4	Test Program 3		N/A
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General requirements	Bleed resistors faulted as part of capacitor discharge test.	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
<b>G.11</b>	<b>Capacitor and RC units</b>		Pass
G.11.1	General requirements		Pass
G.11.2	Conditioning of capacitors and RC units		Pass
G.11.3	Rules for selecting capacitors		Pass
<b>G.12</b>	<b>Optocouplers</b>		Pass
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) .....	The optocoupler complied with standard IEC/EN 60747-5-5	Pass
	Type test voltage V <sub>ni</sub> .....	See Above.	—
	Routine test voltage, V <sub>ni,b</sub> .....	See Above.	—
<b>G.13</b>	<b>Printed boards</b>		Pass
G.13.1	General requirements		Pass
G.13.2	Uncoated printed boards		Pass
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction) .....		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....	(See appended table 5.4.4.5)	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.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.6.2c)	Abrasion resistance test		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements .....: (See G.13)		N/A
<b>G.15</b>	<b>Liquid filled components</b>		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
G.16 a)	Humidity treatment in accordance with sc 5.4.8 – 120 hours		N/A
G.16 b)	Impulse test using circuit 2 with $U_c =$ to transient voltage .....: :		N/A
G.16 C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
G.16 C2)	Test voltage .....: :		—
G.16 D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
G.16 D2)	Capacitance .....: :		—
G.16 D3)	Resistance .....: :		—
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz) .....: :		—
H.3.1.2	Voltage (V) .....: :		—
H.3.1.3	Cadence; time (s) and voltage (V) .....: :		—
H.3.1.4	Single fault current (mA): .....: :		—

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2	Tripping device and monitoring voltage .....		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....		—
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		Pass
	General requirements	Certified Triple Insulated wire, see Construction Transformer Diagrams.	Pass
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism .....	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance .....	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....		N/A
K.7.2	Overload test, Current (A).....		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....	(See appended table 5.4.9)	N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		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
L.8	Multiple power sources		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance ..... :	(See appended Tables and Annex M.3 and M.4)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature ..... :	(See Annex M.4)	—
M.4.2.2 b)	Single faults in charging circuitry ..... :	(See Annex B.4)	—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....		N/A
M.6.2	Leakage current (mA) .....		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume $V_z$ (m <sup>3</sup> /s) .....		—
M.8.2.3	Correction factors .....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....		N/A
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Metal(s) used .....	The product is for building-in. Installation should be evaluated as part of the end product investigation.	—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		Pass
	Figures O.1 to O.20 of this Annex applied.....	Annex Applied	—
<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS</b>		N/A
P.1	General requirements	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	None used.	N/A
P.4.2 a)	Conditioning testing		N/A
	T <sub>c</sub> (°C)..... :		—
	T <sub>r</sub> (°C) ..... :		—
	T <sub>a</sub> (°C) ..... :		—
P.4.2 b)	Abrasion testing ..... :	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing ..... :	(See Annex T)	N/A
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) ..... :		—
	Current limiting method..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). : .....		N/A
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
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 : .....		—
	Wall thickness (mm) : .....		—
	Conditioning (°C) : .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material : .....		—
	Wall thickness (mm) : .....		—
	Conditioning (°C) : .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material : .....		—
	Wall thickness (mm) : .....		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosure materials of equipment with a steady-state power exceeding 4000 W		N/A
	Samples, material : .....		—
	Wall thickness (mm) : .....		—
	Conditioning (test condition), (°C).....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		Pass
T.1	General requirements		Pass
T.2	Steady force test, 10 N .....	(See appended table T.2)	Pass
T.3	Steady force test, 30 N .....	(See appended table T.3)	N/A
T.4	Steady force test, 100 N .....	(See appended table T.4)	N/A
T.5	Steady force test, 250 N .....	(See appended table T.5)	N/A
T.6	Enclosure impact test	(See appended table T.6)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test .....	(See appended table T.7)	N/A
T.8	Stress relief test .....	(See appended table T.8)	N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J) .....		—
	Height (m).....		—
T.10	Glass fragmentation test.....	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) .....		—
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen .....	(See Annex T)	N/A
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		N/A
V.1	Accessible parts of equipment	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
V.2	Accessible part criterion		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>	
The following components are located in all models	--	--	--	--	-- , --	
Input Connector	Taiwan King Pin	P8800 I	Min 250 V, 5 A	UL 1977 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E118260) , -	
Input Connector	Chyao Shiunn	JS-4001 Series	Min 250 V, 5 A	UL 1977 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E113875) , -	
Input Connector - Alternate	Dinkle	DT-35, DT-45, DT-4 Series	Min 250 V, 20 A, 12-22 AWG need torque?	UL 1059 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E102914) , --	
Input Connector- Alternate	How Der Electronic Co LTD	FTB-80, HD-81, HI-20 Series	Min 250 V, 10 A, 16-22 AWG need torque?	UL 1059 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E112196) , --	
X-Capacitor (CX2)	Pilkor (Cowell Fashion Co LTD.)	PCX2 335M Series	0.1 uF, 250 Vac min, X2, 110C.	EN 60384-14:2013+A1, UL 60384-14	UL (E165646) , Semko, (Cert SE/0256-2G)	
X-Capacitor (CX2)- Alternate	Matsushita (Panasonic)	ECQUG Series	0.1 uF, 250 Vac min, X1, 100C	IEC 60384-14:2013+A1:201, UL60384-14	UL (E62674) , VDE(Cert # 129845)	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
X-Capacitor (CX2) - Alternate	Matsushita (Panasonic)	ECQUL Series	0.1 uF, 250 Vac min, X2, 100C	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E62674) , VDE(Cert # 121548)
X-Capacitor (CX2) - Alternate	Iskra, D.O.O	KNB1530, KNB1532, KNB1533 Series	0.1 uF, 250 Vac min, X2, 100C	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E145156) , VDE (Cert # 139447)
X-Capacitor (CX2)- Alternate	Iskra, D.O.O	KNB1560, KNB1562, KNB1563 Series	0.1 uF, 250 Vac min, X2, 110C	IEC 60384- 14:2013+A1:2016, UL60384-14	UL(E145156) , VDE Cert # 139106)
X-Capacitor (CX2) - Alternate	Interchangeable	Interchangeable	0.1 uF, 250 Vac min, X2 min	UL60384-14	UL , --
Y-Capacitor (CY1, CY2) - Optional	Walsin Technology Corp (Pan Overseas)	AC Series	2200 pF, 250 V min, Y2, 125C	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E146544) , VDE(Cert # 40001829)
Y-Capacitor (CY1, CY2) - Optional - Alternate	Jyh Chung Electronics Co., LTD	JY Series	2200 pF max., 250 V min, Y2, 125C	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E187963) , VDE (Cert # 123326)
Y-Capacitor (CY1, CY2) - Optional - Alternate	TDK Corporation	CS Series	2200 pF max., 250 V min, Y2, 125C	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E37861) , VDE (Cert # 40029781)
Y-Capacitor (CY1, CY2) - Optional - Alternate	Interchangeable	Interchangeable	2200 pF max., 250 V min, Y2 min	UL60384-14	UL , --
Power MOSFET (Q1)	Fuji Electric Company	2SK2648	9 A, 800 V min.	Evaluated as part of End Product.	-- , --
Power MOSFET (Q1) - Alternate	Interchangeable	Interchangeable	9 A, 800 V min.	Evaluated as part of End Product.	-- , --
Bridge Diode (BD1)	Liteon	PB605	6 A, 600 V min.	Evaluated as part of End Product.	-- , --
Bridge Diode (BD1) - Alternate	Interchangeable	Interchangeable	6 A, 600 V min.	Evaluated as part of End Product.	-- , --
Bleeder Resistor (R2)	Interchangeable	Interchangeable	330 kohm, ½ W	Evaluated as part of End Product..	-- , --
Alternate Bleeder Resistor (R2)	Interchangeable	Interchangeable	200 kohm, x 2 (1206 chip	Evaluated as part of End Product.	-- , --

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
			resistor) in series, ½ W		
Optical Isolator (PC1, PC2)	Lite-on	LTV-817	5000 Vrms isolation voltage, Isolation Thickness > 0.4 mm	IEC 60747-5- 5:2007+A1:2013 UL 1577	UL (E113898) , VDE (Cert # 40015248)
Optical Isolator (PC1, PC2) - Alternate	Cosmo electronics corp	K1010	5000 Vrms isolation voltage, Isolation Thickness > 0.4 mm	EN60747-5- 5:2011+A1:2015, UL 1577	UL (E169586) , VDE (Cert # 101347)
Optical Isolator (PC1, PC2) - Alternate	Sharp	PC123	5000 Vrms isolation voltage, Isolation Thickness > 0.4 mm	IEC 60747-5- 5:2007+A1:2013, UL 1577	UL (E64380) , VDE(Cert # 40008087)
Optical Isolator (PC1, PC2) - Alternate	Interchangeable	Interchangeable	3000Vrms isolation voltage, Isolation Thickness > 0.4 mm	UL 1577	UL , --
Tubing (covering components)	Sumitomo	Sumitube F2, F32 Series	600 V, 125 °C, VW-1	UL224 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E48762) , --
Tubing (covering components) - Alternate	Raychem (Tyco Electronics Corp)	Versafit V2	600V, 125 °C, VW-1	UL224 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E35586) , --
Tubing (covering components - alternate	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 125 °C, 240 V	UL224	UL , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
PWB	Interchangeable	Interchangeable	Min V-1, 130 °C	UL796	UL , --
Label	Symbio Inc	P002, P032 Series	Pressure-sensitive adhesive on silver polyester film rated 150 °C, for application to Metal	UL969, IEC60950-1	UL(MH13008) , --
Label- Alternate	KK Enterprise	KK-TACK-TLT1 Series	Pressure-sensitive adhesive on silver polyester film rated 125 °C, for application to Metal	UL969, IEC60950-1	UL (MH13600) , - -
Label - Alternate	Avery Dennison Korea	S-333 Series	Pressure-sensitive adhesive on silver polyester film rated 150 °C, for application to Metal	UL969, IEC60950-1	UL(MH17025) , --
Label - Alternate	Flexcon	Thermifilm MM-200-SM Series	Pressure-sensitive adhesive on silver polyester film rated 150 °C, for application to Metal	UL969, IEC60950-1	UL (MH16635) , - -
Diode/Transistor Insulator Covers	Pioneer Material Precision Tech	PMP-P-100, PMP-P-300, PMP-P-400 Series	V-2 min, 105 °C	UL746C UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL(E153203) , --
Diode/Transistor Insulator Covers - Alternate	Saint-Gobain	TF1869 Series	V-2 min, 105 °C	UL746C UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL(E57750) , --
Diode/Transistor Insulator Covers - Alternate	Interchangeable	Interchangeable	V-2 min, 105 °C	UL746C UL Standard has requirements that	UL , --



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
				meet or exceed the relevant IEC requirements.	
Plastic Washers	NAN YA Plastics	1403G3 Series	V-0, 130 °C	UL746C UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E130155) , --
Plastic Washers - Alternate	Interchangeable	Interchangeable	V-2 or VTM-2 min, 105 °C min	UL746C UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL , --
Insulation Sheet (MYLAR -bottom of PSU)	Garware	EM6, ER Series	V-2 or VTM-2 min, 105°C min. Min 0.2 mm thick	UL746C UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E110983) , --
Insulation Sheet (MYLAR -bottom of PSU) - Alternate	Interchangeable	Interchangeable	V-2 or VTM-2 min, 105°C min. Min 0.2 mm thick	UL746C UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL , --
---	--	--	--	--	-- , --
Model (AM- 120UA-XYZ Rev- 1)	--	--	--	Evaluated as part of End Product.	-- , --
Chassis	Interchangeable	Metal	U-Shaped overall 127 x 83 x 32 mm, min 2.5 mm thick.	Evaluated as part of End Product.	-- , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Chassis, Alternate	Interchangeable	Metal	U-Shaped. See Diagrams 4-19 and 4-20.	Evaluated as part of End Product.	-- , --
X-Capacitor (CX1)	pilkor (Cowell Fashion Co LTD.)	PCX2 335M Series	0.33 uF, 250 Vac min, X2	EN 60384- 14:2013+A1, UL 60384-14	UL (E165646) , Semko, (Cert SE/0256-2G)
X-Capacitor (CX1) - Alternate	Matsushita (Panasonic)	ECQUG Series	0.33 uF, 250 Vac min, X2	IEC 60384- 14:2013+A1:201, UL60384-14	UL (E62674) , VDE(Cert # 129845)
X-Capacitor (CX1) - Alternate	Matsushita (Panasonic)	ECQUL Series	0.33 uF, 250 Vac min, X2	IEC 60384- 14:2013+A1:201 UL60384-14	UL (E62674) , VDE(Cert # 121548)
X-Capacitor (CX1) - Alternate	Iskra, D.O.O	KNB1530, KNB1532, KNB1533 Series	0.33 uF, 250 Vac min, X2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E145156) , VDE (Cert # 139447)
X-Capacitor (CX1) - Alternate	Iskra, D.O.O	KNB1560, KNB1562, KNB1563 Series	0.33 uF, 250 Vac min, X2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL(E145156) , VDE Cert # 139106)
X-Capacitor (CX1) -Alternate	Interchangeable	Interchangeable	0.33 uF, 250 Vac min, X2 min	UL60384-14	UL , --
Y-Capacitor (CY3) - Optional	Walsin Technology Corp (Pan Overseas)	AC Series	2200 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E146544) , VDE(Cert # 40001829)
Y-Capacitor (CY3) - Optional - Alternate	Jyh Chung Electronics Co., LTD	JY Series	2200 pF max., 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E187963) , VDE (Cert # 123326)
Y-Capacitor (CY3) - Optional - Alternate	TDK Corporation	CS Series	2200 pF max., 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E37861) , VDE (Cert # 40029781)
Y-Capacitor (CY3) - Optional - Alternate	Interchangeable	Interchangeable	2200 pF max., 250 V min, Y2 min	UL60384-14	UL , --
Varistor (MOV1)	Joyin	10S471K	MCOV 300 Vac (min. 2.5KV, 1.25KVA min surge), Body is V- 0, 85C	IEC 61051- 1:2007, IEC 61051- 2:1991+A1:2009, UL1449	UL(E325508) , VDE (Cert # 40004658)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Varistor (MOV1) - Alternate	Centra Science	CNR-10V471K	300 Vac (min. 6KV, 3KVA min surge), Body is V-0, 105C	IEC 61051-1:2007, IEC 61051-2:1991+A1:2009, UL1449	UL (E316325) , VDE (Cert # 127092)
Alternate Varistor MOV1	Interchangeable	Interchangeable	300 Vac min. Type 3, thermally protected type, SPD Type 5, Body is V-0, 85C	UL1449	UL , --
Fuse, F1	Cooper Bussmann	S506	T3.15 A, 250 V	UL248-1, UL 248-14, IEC 60127-1:2006+A1:2011+A2:2015, IEC 60217-2:2014	UL (E19180) , VDE (Cert 40011926)
Fuse, F1 - Alternate	Conquer electronics co ltd	UTE-A (Pigtail), MET (Micro Fuse)	T3.15 A, 250 V	UL248-1, UL 248-14, IEC 60127-1:2006+A1:2011+A2:2015, MET only IEC 60217-3:2015	UL (E82636) , VDE (Cert 40008019, MET Cert 40017157)
Fuse, F1 - Alternate	Littelfuse	218	T3.15 A, 250 V	UL248-1, UL 248-14, IEC 60127-1:2006+A1:2011+A2:2015, IEC 60217-2:2014	UL (E10480) , VDE (Cert 40013496)
Fuse, F1 - Alternate	Bel	5STP (Pigtail), MRT (Micro)	T3.15 A, 250 V	UL248-1, UL 248-14, IEC 60127-1:2006+A1:2011+A2:2015, IEC 60217-2:2014 MRT only IEC 60127-3:2015	UL (E20624) , VDE (Cert 4000507, MRT Cert 40001000)
Fuse, F1 - Alternate	Interchangeable	Interchangeable	T3.15 A, 250 V	UL248-1, UL 248-14,	UL , --

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
NTC (NTCR)	Thinking Electronic	SCK-055	Rated: 120/240Vac, I <sub>max</sub> 5.0A, ISC 5.0A.	UL 1434	UL(E138827) , -
Capacitor (C1)	Jamicon	Electrolytic	270 uF max, 400 V, min 105 °C	Evaluated as part of End Product.	-- , --
Capacitor (C1) - Alternate	Interchangeable	Electrolytic	270 uF max, 400 V, min 105 °C	Evaluated as part of End Product.	-- , --
Coupling Capacitors (CY4, CY5) - Optional	Walsin Technology Corp (Pan Overseas)	AC Series	1000 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E146544) , VDE(Cert # 40001829)
Coupling Capacitors (CY4, CY5) - Optional - Alternate	Jyh Chung	JY Series	1000 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E187963) , VDE (Cert # 123326)
Coupling Capacitors (CY4, CY5) - Optional - Alternate	TDK	CS Series	1000 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E37861) , VDE (Cert # 40029781)
Coupling Capacitors (CY4, CY5) - Optional - Alternate	Interchangeable	Interchangeable	1000 pF, 250 V min, Y2 min	UL60384-14	UL , --
Line Choke, LE1, LE2	Ultraper (UTI)	G030-8233-3001	Split bobbin type, overall 20 x 21 x 27 mm. Contains R/C (OBMW2) magnet wire on thermoplastic bobbin rated min V-1, min 0.7 mm thick.  Using R/C (OBJY2) Class B insulation system, Type HIS-8A, by	Evaluated as part of End Product.	Tested during product evaluation. Hong Chan Electronics Co., Ltd is one of Ultraper Technology Inc's (UTI) factories, and Send Power Electronics Co., Ltd. is

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
			Ultrapower Technology		their Sales company. , --
Line Choke, LE1, LE2, Alternate	Ultrapower (UTI)	G030-5163- 3002C	Toroidal type, overall 28 x 14.5 x 20 mm. Contains R/C (OBMW2) magnet wire (type MW-75C on thermoplastic bobbin rated min V-1, min 0.7 mm thick.  Min. 130C rating on the bobbin and magnet wire for functional insulation.	Evaluated as part of End Product.	Tested during product evaluation. Hong Chan Electronics Co., Ltd is one of Ultrapower Technology Inc's (UTI) factories, and Send Power Electronics Co., Ltd. is their Sales company. , --
Transformer, T1	Ultrapower (UTI)	G050-6502- XYZWAB Series (X,Y,Z,W mean any number from 0 to 9, or letter from A to Z). G050-6502- 3041AB (Quad), G050-6502- 3015AB (Triple), G050-6502- 303BAB (Double), G050-6502- 3015AB (single - S5), G050-6502- 8000AB (single - S3), G050-6502- 3012AB (single - S2), G050-6502- 3010AB (single - S1)	Provides Reinforced Insulation. Contains R/C (OBMW2) magnet wire on R/C (QMFZ2) phenolic bobbin rated min V-1, min 0.7 mm thick.  Using R/C (OBJY2) Class B insulation system, Type HIS-8A, by Ultrapower Technology	Evaluated as part of End Product.	Tested during product evaluation. Hong Chan Electronics Co., Ltd is one of Ultrapower Technology Inc's (UTI) factories, and Send Power Electronics Co., Ltd. is their Sales company. , --
Transformer, T1	Ultrapower (UTI)	G050-6502- XYZWAB Series (X,Y,Z,W mean any number from 0 to 9, or letter from A to Z).	Provides Reinforced Insulation. Contains R/C (OBMW2) magnet wire on R/C	Evaluated as part of End Product.	Tested during product evaluation. Hong Chan Electronics Co., Ltd is

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
		G050-6502-3041AB (Quad), G050-6502-3015AB with or without H, (Triple), G050-6502-303BAB (Double), G050-6502-3015AB (single - S5), G050-6502-8000AB (single - S3), G050-6502-3012AB (single - S2), G050-6502-3010AB (single - S1)	(QMFZ2) phenolic bobbin rated min V-1, min 0.7 mm thick.  Using R/C (OBJY2) Class B insulation system, Type HIS-8A, by Ultrapower Technology		one of Ultrapower Technology Inc's (UTI) factories, and Send Power Electronics Co., Ltd. is their Sales company. , --
Alternate Insulation System for G050-6502-XYZAB and G0506502-XXXXABH Series -Transformer, T1 (only used on models with "(F)" suffix	SUMITOMO BAKELITE CO. LTD., or RONG CHYUAN TECHNOLOGY CORP (E184138), or DONGGUAN ZHANGMUTOU HONG CHAN ELECTRONICS CO LTD (E231049), or SHOWWELL GROUP CO LTD (E257040).	SBI5.1	Provides Reinforced Insulation. Class F insulation system	UL 1446 UL Standard has requirements that meet or exceed the relevant IEC requirements.	UL (E209189) , --
---	--	--	--	--	-- , --
Model (AF-180P)	--	--	--	--	-- , --
Chassis	Interchangeable	Metal	U-Shaped overall 172 x 96 x 32 mm, min 3.0 mm thick	Evaluated as part of End Product.	-- , --
X-Capacitor (CX1)	Pilkor (Cowell Fashion Co LTD.)	PCX2 335M, PCX2 337 Series	0.1 uF, 250 V min, X2	EN 60384-14:2013+A1, UL 60384-14	UL (E165646) , Semko, (Cert PCX2 335M SE/0256-2G,

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
					PCX2 337 SE/0256-10)
X-Capacitor (CX1) - Alternate	Matsushita (Panasonic)	ECQUG, -UL Series	0.1 uF, 250 V min, X2	IEC 60384- 14:2013+A1:201, UL60384-14	UL (E62674) , VDE(Cert # 129845)
X-Capacitor (CX1) - Alternate	Iskra, D.O.O	KNB1530, KNB1532, KNB1533 Series	0.1 uF, 250 V ac min, X2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E145156) , VDE (Cert # 139447)
X-Capacitor (CX1) - Alternate	Iskra, D.O.O	KNB1560, KNB1562, KNB1563 Series	0.1 uF, 250 V ac min, X2	IEC 60384- 14:2013+A1:2016 4, UL60384-14	UL(E145156) , VDE Cert # 139106)
X-Capacitor (CX1) - Alternate	Interchangeable	Interchangeable	0.1 uF, 250 V min, X2 min	UL60384-14	UL , --
Y-Capacitor (CY3) - Optional	Walsin Technology Corp (Pan Overseas)	AC Series	4700 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E146544) , VDE(Cert # 40001829)
Y-Capacitor (CY3) - Optional - Alternate	Jyh Chung Electronics Co., LTD	JY Series	4700 pF max, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E187963) , VDE (Cert # 123326)
Y-Capacitor (CY3) - Optional - Alternate	TDK	CS Series	4700 pF max, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E37861) , VDE (Cert # 40029781)
Y-Capacitor (CY3) - Optional - Alternate	Interchangeable	Interchangeable	4700 pF max, 250 V min, Y2 min	UL60384-14	UL , --
Varistor (MOV1, MOV2) - Optional	Centra Science	CNR-14V271K CNR-14D271K	175 Vac (both are in series across line), body rated V-0, 105.	IEC 61051- 1:2007, IEC 61051- 2:1991+A1:2009, UL1449	UL (E316325) , VDE (Cert # 127092)
Alternate Varistor (MOV1, MOV2) - Optional	Joyin	14S271K	175 Vac (both are in series across line), body rated V-0, 85.	IEC 61051- 1:2007, IEC 61051- 2:1991+A1:2009, UL1449	UL(E325508) , VDE (Cert # 40004658)
Fuse, F1, F2	Cooper (Bussmann)	S506	T5.0 A, 250 V	UL248-1, UL 248- 14, IEC 60127- 1:2006+A1:2011+ A2:2015, IEC 60217-2:2014	UL (E19180) , VDE (Cert 40011926)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Fuse, F1, F2 - Alternate	Conquer	UTE, UTE-A (Pig Tail),	T5.0 A, 250 V	UL248-1, UL 248- 14, IEC 60127-1, IEC 60217-2	UL (E82636) , VDE (Cert 40008019)
Fuse, F1, F2 - Alternate	Littelfuse	218	T5.0 A, 250 V	UL248-1, UL 248- 14, IEC 60127- 1:2006+A1:2011+ A2:2015, IEC 60217-2:2014	UL (E10480) , VDE (Cert 40013496)
Fuse, F1, F2 - Alternate	Bel	5ST, 5STP (Pig Tail)	T5.0 A, 250V	UL248-1, UL 248- 14, IEC 60127- 1:2006+A1:2011+ A2:2015, IEC 60217-2:2014 MRT only IEC 60127-3:2015	UL (E20624) , VDE (Cert 4000507, MRT Cert 40001000)
Fuse Holder (for use in AF-180P- Q1224-501A, and AF-180P-S2- 938A only)	Schuter	OGN		UL 4248-1, IEC 60127- 1:2006+A1:2011+ A2:2015	UL(E39328 ) , VDE (40001042)
NTC (NTCR)	Thinking Electronics	SCK-056	Rated 240Vac, I <sub>max</sub> 6.0A, ISC 6.0A	UL 1443	UL(3138827) , -
NTC (NTCR) - alternate	Thinking Electronics	SCK-0512	Rated 120/240Vac, I <sub>max</sub> 12.0A, ISC 12.0A	UL 1443	UL(3138827) , -
Capacitor (C1, C2) - Optional	Interchangeable	Electrolytic	330 uF, 200 V, min 105 °C	--	-- , --
Coupling Capacitors (CY4, CY5) - Optional	Walsin Technology Corp (Pan Overseas)	AC Series	4700 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E146544) , VDE(Cert # 40001829)
Coupling Capacitors (CY4, CY5) - Optional - Alternate	Jyh Chung Electronics Co., LTD	JY Series	4700 pF, 250 V min, Y2	IEC 60384- 14:2013+A1:2016, UL60384-14	UL (E187963) , VDE (Cert # 123326)



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Coupling Capacitors (CY4, CY5) - Optional - Alternate	TDK	CS Series	4700 pF, 250 V min, Y2	IEC 60384-14:2013+A1:2016, UL60384-14	UL (E37861) , VDE (Cert # 40029781)
Coupling Capacitors (CY4, CY5) - Optional - Alternate	Interchangeable	Interchangeable	4700 pF, 250 V min, Y2 min	IEC 60384-14, UL60384-14	UL , --
Coupling Capacitors (CY4) - Optional when using one Coupling Capacitor	Walsin Technology Corp (Pan Overseas)	AH Series	2200 pF, 250 V min, Y1, 125C.	IEC 60384-14:2013+A1:2016, UL60384-14	UL (E146544) , VDE(Cert # 40001804)
Coupling Capacitors (CY4) - Optional when using one Coupling Capacitor - Alternate	Jyh Chung	JD Series	2200 pF, 250 V min, Y1	IEC 60384-14:2013+A1:2016, UL60384-14	UL (E187963) , VDE(Cert # 137027)
Coupling Capacitors (CY4) - Optional when using one Coupling Capacitor - Alternate	TDK	CD Series	2200 pF, 250 V min, Y1	IEC 60384-14:2013+A1:2016, UL60384-14	UL(E37861) , VDE(Cert # 40029780)
Coupling Capacitors (CY4) - Optional when using one Coupling Capacitor - Alternate	Interchangeable	Interchangeable	2200 pF, 250 V min, Y1 min	UL60384-14	UL , --
Line Choke (LE1, LE3)	Ultrapower (UTI)	G030-8902-3501	Split bobbin type, 27 mm x 22 mm x 21 mm. Contains R/C (OBMW2) magnet wire on thermoplastic bobbin rated min	Evaluated as part of End Product.	Tested during product evaluation. Hong Chan Electronics Co., Ltd is one of Ultrapower

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
			V-1, min 0.7 mm thick.  Using R/C (OBJY2) Class B insulation system, Type HIS-8A, by Ultrapower Technology		Technology Inc's (UTI) factories, and Send Power Electronics Co., Ltd. is their Sales company. , --
PFC Choke, (LE2)	Ultrapower (UTI)	G030-7352-3001	Split bobbin type, 28 x 27 x 30 mm. Contains R/C (OBMW2) magnet wire on R/C (QMFZ2) phenolic bobbin rated min V-1, min 0.7 mm thick.  Using R/C (OBJY2) Class B insulation system, Type HIS-8A, by Ultrapower Technology	Evaluated as part of End Product.	-- , --
Transformer, T1	Ultrapower (UTI)	G050-6602-XYZWAB Series (X,Y,Z,W mean any number from 0 to 9, or letter from A to Z). G050-6602-2515ZAB (single - S5), G050-6602-2511ZAB (single - S2)	Provides Reinforced Insulation. Contains R/C (OBMW2) magnet wire on R/C (QMFZ2) phenolic bobbin rated min V-1, min 0.7 mm thick.  Using R/C (OBJY2) Class B insulation system, Type HIS-8A, by Ultrapower Technology	Evaluated as part of End Product.	Tested during end product evaluation. Hong Chan Electronics Co., Ltd is one of Ultrapower Technology Inc's (UTI) factories, and Send Power Electronics Co., Ltd. is their Sales company. , --

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Alternate Insulation System for G050- 6602-XYZAB Series - Transformer, T1	SUMITOMO BAKELITE CO. LTD.	SBI5.1	Provides Reinforced Insulation. Class F insulation system	UL 1446	UL (E209189) , --
Secondary side Resistor - all models noted	Interchangeable	Interchangeable	See Enclosure for models and values.	-	- , -
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test			—
Battery part no. .... :				—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
		1		
		2		
		3		
		4		
		5		
		6		
		8		
		9		
		10		
4.8.4.4	TABLE: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
			1	
			2	
			3	
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:				

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result	N/A
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Test position	Surface tested	Force (N)	Duration force applied (s)
Supplementary information:			

5.2		Table: Classification of electrical energy sources					Pass
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264V, 60Hz	Model AM-120U-S5 Rev-1 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - SC L1	49.6Vdc	-	-	
2	264V, 60Hz	AM-120U-Q1224 Rev-1 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - L1 (AA ->AA)	7.0 Vpk	-	-	
3	264V, 60Hz	AM-120U-Q1224 Rev-1- V2 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - L1 (B - > B)	14.8 Vdc	AC Input: 0.26A.	-	
4	264V, 60Hz	AM-120U-Q1225 Rev-1 - V3 Output to Ground	Normal	-	-	-	
			Abnormal	-	-	-	
			Single fault – SC/OC - D11+to-	-12.5 Vdc	-	-	
5	264V, 60Hz	AM-120U-Q1225 Rev-1 - V3 Output to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - L4 (A-> A-)	-21.4 Vdc	-	-	
6	264V, 60Hz	AM-120U-Q1225 Rev-1 - V4 Output to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - D12-	47.6 Vdc	-	-	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
7	264V, 60Hz	AM-120U-Q1225 Rev-1 - V4 Output to Ground	Normal	-	-	-	ES1
			Abnormal	-	--	-	
			Single fault – SC/OC - L4 (B - > B)	58.4 Vdc	-	-	
8	264V, 60Hz	AF-180P-S5 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC – SC C30+	0.0	-	-	
9	264V, 60Hz	AF-180P-S5 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC- SC C27+	0.0	-	-	
10	264V, 60Hz	AF-180P-S5 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC- SC Q7 c-e	48.0Vdc	-	-	
11	90V, 60Hz	AF-180P-S5 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC- SC L1	0.0 (output folds back)	-	-	
12	90V, 60Hz	AF-180P-Q1225 - V1 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - SC L1 (A to A)	5.2 Vdc, (Output folds back)	-	-	
13	90V, 60Hz	AF-180P-Q1225 – V2 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - SC L1 (B to B)	21.7 Vdc, (Supply shuts down)	-	-	
14	90V, 60Hz	AF-180P-Q1225 – V3 Out to Ground	Normal	-	-	-	ES1
			Abnormal	-	-	-	
			Single fault – SC/OC - SC L1 (C- to C-)	21.7 Vdc, (Supply shuts down)	-	-	
15	90V, 60Hz		Normal	-	-	-	ES1
			Abnormal	-	-	-	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
		AF-180P-Q1225 – V4 Out to Ground	Single fault – SC/OC - SC L1 (D to D)	0.0V (Supply shuts down)	-	-	
16	100-240Vac	Input	Normal	-	-	-	ES3
			Abnormal	-	-	-	
			Single fault – SC/OC	-	-	-	
17	264V 60 Hz	AF-180P-Q1224-501A , - V1	Normal	4.6	2.3mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	37mV	0.2mA	-	
18	264V 60 Hz	AF-180P-Q1224-501A , - V2	Normal	10.7	5.3mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	40mV	0.2mA	-	
19	264V 60 Hz	AF-180P-Q1224-501A , - V3	Normal	-10.5	5.1mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	41mV	0.2mA	-	
20	264V 60 Hz	AF-180P-Q1224-501A , - V4	Normal	22.9	11.0mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	40mV	0.2mA	-	
21	264V 60 Hz	AM-120U-Q1224A , - V1	Normal	4.6	2.4mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	101mV	0.2mA	-	
22	264V 60 Hz	AM-120U-Q1224 , - V2	Normal	12.4	0.13mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	101mV	0.2mA	-	
23	264V 60 Hz	AM-120U-Q1224 , - V3	Normal	10.8	0.12mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	104mV	0.2mA	-	

IEC 62368-1							
Clause		Requirement + Test			Result - Remark		Verdict
24	264V 60 Hz	AM-120U-Q1224 , - V4	Normal	23.5	0.13mA	-	ES1
			Abnormal	-	-	-	
			Single Fault – Lift Leg of Opto PC1	106mV	0.2mA		
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
-	-	-	Normal	-	-	-	
			Abnormal	-	-		
			Single fault – SC/OC	-	-		
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
-	-	-	Normal	-	-	-	-
			Abnormal	-	-	-	
			Single fault – SC/OC	-	-	-	
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
-	-	-	Normal	-	-	-	-
			Abnormal	-	-	-	
			Single fault – SC/OC	-	-	-	
Test Conditions:							
Normal –							
Abnormal -							
Supplementary information: SC=Short Circuit, OC=Open Circuit							
-							

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					Pass
	Supply voltage (V) ..... :	See Below	See Below	See Below	See Below	—
	Ambient T <sub>min</sub> (°C) ..... :	-	-	-	-	—



IEC 62368-1						
Clause	Requirement + Test	Result - Remark				Verdict
	Ambient $T_{\max}$ (°C) .....	See Below	See Below	See Below	See Below	—
	Tma (°C) .....	-	-	-	-	—
Maximum measured temperature T of part/at:		T (°C)				Allowed $T_{\max}$ (°C)
Condition.		90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AM-120U-S1 Rev-1		120W	120W	75W	75W	-
Ambient		22	21	21	22	-
LEI - Coil		57	32	86	64	110
LE2 - Coil		59	32	86	61	110
C1 - Top		41	34	62	60	105
T1 - Core		75	64	78	76	110
T1 - Pri Coil		82	68	82	79	110
T1 - Sec Coil		87	74	86	83	110
PWB near Q1		67	53	84	79	130
Duration		120 min	110 min	120 min	130 min	-
-		-	-	-	-	-
Condition.		90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AM-120U-S2 Rev-1		120W	120W	80W	80W	-
Ambient		23	23	24	24	-
LEI - Coil		55	31	78	53	110
LE2 - Coil		53	29	77	54	110
C1 - Top		36	31	56	54	105
T1 - Core		54	50	65	66	110
T1 - Pri Coil		58	52	68	68	110
T1 - Sec Coil		65	59	73	73	110
PWB near Q1		63	50	76	72	130
Duration		75 min	75 min	90 min	70 min	-
-		-	-	-	-	-
Condition.		90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AM-120U-Q1225 Rev-1		120W	120W	80W	80W	-
Ambient		22	24	23	24	-

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
LEI - Coil	50	30	92	60	110
LE2 - Coil	54	29	91	60	110
C1 - Top	42	35	65	62	105
T1 - Core	50	50	73	75	110
T1 - Pri Coil	56	55	77	79	110
T1 - Sec Coil	66	68	83	89	110
PWB near Q1	57	51	79	79	130
Duration	100 min	110 min	115 min	145 min	-
-	-	--	-	-	-
Condition.	90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AF-180P-S2	180W	180W	120W	130W	-
Ambient	24.0	23.0	23.3	23.0	-
LEI - Coil	52.2	33.8	93.3**	63.6	110
LE2 - Coil	86.1	44.6	110**	69.8	110
LE3 - Coil	76.7	33.7	86.9**	62.1	110
C1 - Top	60.8	47.7	71.4	68.9	105
T1 - Core	72.1	67.7	77.3	79.3	110
T1 - Pri Coil	76.7	75.0	81.5**	83.2	110
T1 - Sec Coil	85.8	78.8	83.0	85.9	110
PWB near Q1	99.8	107.4	94.8	105.5	130
-	-	-	-	-	-
Condition.	90Vac, 60Hz, Cond.B	-	-	-	-
AF-180P-S2	110W	-	-	-	-
Ambient	22.7	-	-	-	-
LEI - Coil	85.7	-	-	-	110
LE2 - Coil	100.9	-	-	-	110
LE3 - Coil	85.0	-	-	-	110
C1 - Top	--	-	-	-	-
T1 - Core	--	-	-	-	-
T1 - Pri Coil	66.5	-	-	-	110
T1 - Sec Coil	--	-	-	-	-
PWB near Q1	--	-	-	-	-
--	-	-	-	-	-

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Condition.	90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AF-180P-S5-916 Oven tested @ 50C and converted to Tma of 40C	180W	180W	130W	130W	-
LE1 - Coil	69.7	49.8	98.0	66.9	110
LE2 - Coil	93.0	62.6	115.5	76.8	110
LE3 - Coil	71.3	50.3	92.9	65.0	110
C1 - Top	67.8	60.3	81.3	75.1	105
T1 - Core	82.9	84.3	87.4	93.7	110
T1 - Pri Coil	87.7	89.9	94.9	99.1	110
T1 - Sec Coil	94.7	96.5	95.2	101.1	110
PWB near Q1	92.2	91.6	94.7	95.9	130
-	-	-	-	-	-
Condition.	90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AF-180P-S1	150W	150W	100W	100W	-
Ambient	23.5	23.5	24.2	23.5	-
LE1 - Coil	38.0	26.6	79.4	57.7	110
LE2 - Coil	46.7	27.9	91.1	63.3	110
LE3 - Coil	52.6	29.7	90.7	60.8	110
C1 - Top	38.2	32.7	65.9	66.2	105
T1 - Core	70.6	61.8	80.7	79.1	110
T1 - Pri Coil	66.4	59.9	80.5	83.6	110
T1 - Sec Coil	80.5	68.2	88.8	88.1	110
PWB near Q1	70.5	60.2	80.6	79.7	130
Duration	2 hrs	6 hrs	1 hr	1 hr	-
-	-	-	-	-	-
Condition.	90Vac, 60Hz, Cond.A	264Vac, 50Hz, Cond.A	90Vac, 60Hz, Cond.B	264Vac, 50Hz, Cond.B	-
AF-180P-Q1225	180W	180W	100W	110W	-
Ambient	23.1	23.0	23.7	23.0	-
LE1 - Coil	49.3	29.7	73.9	58.1	110
LE2 - Coil	68.3	35.8	83.7	66.8	110
LE3 - Coil	65.1	34.4	84.5	65.6	110
C1 - Top	52.1	42.2	64.6	69.4	105

IEC 62368-1							
Clause	Requirement + Test			Result - Remark		Verdict	
T1 - Core	68.5	62.5	72.3	82.3	110		
T1 - Pri Coil	76.6	68.3	76.7	86.6	110		
T1 - Sec Coil	72.9	64.7	79.8	90.3	110		
PWB near Q1	107.1	107.1	86.4	106.2	130		
Duration	1 hr 36 min	3 hrs	4 hrs	2.5 hrs	-		
-	-	-	-	-	-		
Model AM-120UA-T122-944, Output Condition: 120W: 5Vdc, 12A; 12Vdc, 4A; - 12Vdc, 1A	90Vac, 60Hz, Cond.B, 120W	264Vac, 50Hz, Cond.B, 120W	-	-	-		
Tma	40	40	-	-	-		
Ambient	24.6	24.5	-	-	-		
PWB near BD1	30.9	28.2	-	-	130		
LE1 - Coil	35.8	29.6	-	-	110		
LE2 - Coil	31.3	26.9	-	-	110		
C1 - Top	35.3	33.0	-	-	105		
T1 - Core	58.1	55.3	-	-	110		
T1 – Coil, Primary side	60.1	54.4	-	-	110		
T1 – Coil, Secondary side	66.7	60.5	-	-	110		
PWB near Q1	36.6	34.8	-	-	130		
L1 - Coil	63.8	67.8	-	-	110		
L4 - Coil	44.2	46.4	-	-	110		
Duration	3Hr	3Hr	-	-	-		
Supplementary information:							
-							
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
-	-	-	-	-	-	-	-
Supplementary information:							
Note 1: Tma should be considered as directed by applicable requirement							
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)							
Testing done as part of the CB Report to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, CB Repot E147630-A11-CB-3, CB Cert US-27777-A1-UL							
All tests conducted on the bench at 25°C unless otherwise stated.							

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

The Tmax limits were adjusted for a T<sub>ma</sub> of 40°C and normalized to the worst case measure room ambient except for Model AF-180P-S5-916 data which was oven tested at 50°C. The data above for this model has been extrapolated downward for a recommended ambient of 40°C.

Condition A (air cooled) - Tests were conducted using a 30 CFM fan located at a distance 50 mm (2 inches) from the unit Input with air-flow directed from Input to Output. All outputs per loaded as per the Input tests, see Electrical Table B.2.5

Condition B (Convection) - No fan and outputs were loaded as follows:

AM-120U-S1 Rev-1: Condition B (75W): Output V1:5V/15A

AM-120U-S2 Rev-1: Condition B (80W): Output V1:12V/6.7A

AM-120U-Q1224 Rev-1 - Condition B (80W): Output V1:5V/6.5A, V2:12V/2.5A, V3:-12V/0.5A, V4:24V/0.5A

AM-120U-Q1225 Rev-1 - Condition B (80W): Output V1:5V/7A, V2:12V/2A, V3:-12V/0.75A, V4:48V/0.25A

AF-180P-S1: Condition B (100W): Output V1:5V/20A

AF-180P-S2: Condition B (110W): Output V1:12V/9.2A

AF-180P-S5: Condition B (130W): Output V1:48V/2.7A

AF-180P-Q1225 - Condition B (110W): Output V1:5V/12A, V2:12V/2A, V3:-12V/0.2A, V4:48V/0.5A

\*\* Denotes for information only and the test was repeated at a lower output wattage.

Model AM-120UA-T122-944 - T<sub>ma</sub> of 40C was considered when confirming that the measured temperatures meet the limits when tested at a 24.5C ambient.

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm).....:			—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)	
Supplementary information:			

<b>5.4.1.10.3</b>	<b>TABLE: Ball pressure test of thermoplastics</b>		Pass
Allowed impression diameter (mm) .....	≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
LE1/LE2 BOBBIN (G030-8233-3001)	Dupon De Nemours Inc, FR-530 - Rynite, 30% Glass Reinforced PET.	230	Tested as part of the component certification with a test method from EIC 60695-10-2. See Enclosures.

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

## Supplementary information:

Test waived on other bobbin materials as they are a phenolic type.

<b>5.4.2.2, 5.4.2.4 and 5.4.3</b>	<b>TABLE: Minimum Clearances/Creepage distance</b>						Pass
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) <sup>1</sup>	Required cl (mm)	cl (mm) <sup>2</sup>	Required <sup>3</sup> cr (mm)	cr (mm)
Model AM-120U-S5 Rev-1	--	--	-		--		--
Primary (T1 pin 6) to Secondary (T1 pin 7)	860	374	-	2.54*	8.4	7.84	8.4
Primary (T1 pin 6) to Earth	320	259	-	1.27*	4.0	2.59	4.0
--	--	--	-		--		--
Model AM-120U-Q1224 Rev-1	--	--	-		--		--
Primary (T1 pin 6) to Secondary (T1 pin 7)	580	270	-	2.54*	8.0	5.4	8.0
Primary (T1 pin 6) to Earth	356	214	-	1.27*	4.0	2.14	4.0
--	--	--	-		--		--
Model AF-180P-S5	--	--	-		--		--
Primary (T1 pin 2) to Secondary (T1 pin 7)	800	307	-	2.54*	8.0	6.14	8.0
Primary (T1 pin 6) to Secondary (T1 pin 7)	760	389	-	2.54*	8.0	7.78	8.0
Primary (T1 pin 6) to Earth	580	289	-	1.27*	4.0	2.89	4.0
--	--	--	-		--		--
Model AF-180P-Q1225	--	--	-		--		--
Primary (T1 pin 2) to Secondary (T1 pin 9)	576	411	-	2.54*	8.4	8.22	8.4
Primary (T1 pin 2) to Earth	416	208	-	1.27*	4.0	2.08	4.0
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							
*See table 5.4.2.3 as required withstand voltage values are higher.							

<b>5.4.2.3</b>	<b>TABLE: Minimum Clearances distances using required withstand voltage</b>		Pass
	<b>Overvoltage Category (OV):</b>	II	
	<b>Pollution Degree:</b>	2	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
Model AM-120U-S5 Rev-1	-	-	--
Primary (T1 pin 6) to Secondary (T1 pin 7)	2500	3.0	8.4
Primary (T1 pin 6) to Earth	2500	1.5	4.0
-	-	-	--
Model AM-120U-Q1224 Rev-1	-	-	--
Primary (T1 pin 6) to Secondary (T1 pin 7)	2500	3.0	8.0
Primary (T1 pin 6) to Earth	2500	1.5	4.0
-	-	-	--
Model AF-180P-S5	-	-	--
Primary (T1 pin 2) to Secondary (T1 pin 7)	2500	3.0	8.0
Primary (T1 pin 6) to Secondary (T1 pin 7)	2500	3.0	8.0
Primary (T1 pin 6) to Earth	2500	1.5	4.0
-	-	-	--
Model AF-180P-Q1225	-	-	--
Primary (T1 pin 2) to Secondary (T1 pin 9)	2500	3.0	8.4
Primary (T1 pin 2) to Earth	2500	1.5	4.0
Supplementary information:			

<b>5.4.2.4</b>	<b>TABLE: Clearances based on electric strength test</b>			N/A
Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No	
Supplementary information:				

<b>5.4.4.2, 5.4.4.5 c) 5.4.4.9</b>	<b>TABLE: Distance through insulation measurements</b>					Pass
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Transformer Bobbins for both series	-	-	Phenolic	0.4	0.9
LE1 and LE2 Inductor	340	60	Type FR530	0.4	0.9
Supplementary information:					

5.4.9	TABLE: Electric strength tests			Pass
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
-	-	-	-	
Basic/supplementary:				
AF-180P-Q1224-501A – Primary to Ground	DC	2500	No	
AM-120U-Q1224 – Primary to Ground	DC	2500	No	
1 Layer of Transformer Insulation Tape by Symbio Inc, Type MY130, 0.025 mm thick	DC	2500	No	
Reinforced:				
**Plastic Insulation Barrier located on bottom of chassis by Garware, Type ER measuring 0.2 mm thick	DC	4242	No	
-	-	-	-	
AF-180P-Q1224-501A – Primary to Secondary – Represents all AF-180 models.	DC	4000	No	
AM-120U-Q1224 – Primary to Secondary – Represents all AF-120 models.	DC	4000	No	
Routine Tests:				
Supplementary information:				
** Testing done as part of the CB Report to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, CB Repot E147630-A11-CB-3, CB Cert US-27777-A1-UL				

<b>5.5.2.2</b>	<b>TABLE: Stored discharge on capacitors</b>					Pass
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
264V, 60Hz	AF-180P-Q1224-501A, -	N	N/A	16V	ES1	



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Input – Line to Ground				
264V, 60Hz	AF-180P-Q1224-501A,- Input – Neutral to Ground	N	N/A	16V	ES1
264V, 60Hz	AF-180P-Q1224-501A, - Input – Line to Neutral	N	N/A	1.5V	ES1
264V, 60Hz	AF-180P-Q1224-501A, - Input – Line to Ground	S- R2 open	N/A	15.2V	ES1
264V, 60Hz	AF-180P-Q1224-501A, - Input – Line to Ground	S- open R13 only	N/A	15.2V	ES1
264V, 60Hz	AF-180P-Q1224-501A,- Input – Neutral to Ground	S- R2 open	N/A	13.7V	ES1
264V, 60Hz	AF-180P-Q1224-501A,- Input – Neutral to Ground	S- open R13 only	N/A	15.2V	ES1
264V, 60Hz	AF-180P-Q1224-501A, - Input – Line to Neutral	S- R2 open	N/A	0.8V	ES1
264V, 60Hz	AF-180P-Q1224-501A, - Input – Line to Neutral	S- open R13 only	N/A	0.8V	ES1
264V, 60Hz	AM-120U-Q1224A, - Input – Line to Ground	N	N/A	15.2V	ES1
264V, 60Hz	AM-120U-Q1224,- Input –	N	N/A	15.2V	ES1

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Neutral to Ground				
264V, 60Hz	AM-120U-Q1224, - Input – Line to Neutral	N	N/A	1.5V	ES1
264V, 60Hz	AM-120U-Q1224, Input – Line to Ground	S- R2 open	N/A	26.6	ES1
264V, 60Hz	AM-120U-Q1224, Input – Neutral to Ground	S- R2 open	N/A	18.3	ES1
264V, 60Hz	AM-120U-Q1224, Input – Line to Neutral	S- R2 open	N/A	25.9	ES1
Supplementary information:					
<p>X-capacitors installed for testing are:</p> <p>[ ] bleeding resistor rating:</p> <p>[ ] ICX:</p> <p>Notes:</p> <p>A. Test Location:</p> <p>Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth</p> <p>B. Operating condition abbreviations:</p> <p>N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition</p>					

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

<b>5.6.6.2</b>	<b>TABLE: Resistance of protective conductors and terminations</b>			N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance ( $\Omega$ )
Supplementary information:				

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		Pass		
Supply voltage .....:		264V 60Hz	—		
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)		
AF-180P-Q1224-501A 1. Bench ground to metal chassis – N U3 =0.42Vrms : U3/500 =0.84mA Bench ground to metal chassis – R U3 = 0.44Vrms: U3/500 =0.88mA 2. Bench ground to metal chassis – N U3 = 0.68Vrms: U3/500 =1.36mA Bench ground to metal chassis – R U3 =0.68Vrms : U3/500 =1.36mA		1	see column to the left.		
		2*	see column to the left.		
		3			
		4			
		5			
		6			
		AM-120U-Q1224 1. Bench ground to metal chassis – N U3 = 0.29Vrms: U3/500 =0.58mA Bench ground to metal chassis – R U3 = 0.28Vrms: U3/500 =0.56mA 2. Bench ground to metal chassis – N U3 = 0.44Vrms: U3/500 =0.88mA Bench ground to metal chassis – R U3 =0.44Vrms : U3/500 =0.88mA		8	
Supplementary Information:					
Measurements made with figure 5.					
Notes:					
[1] Supply voltage is the anticipated maximum Touch Voltage					
[2] Earthed neutral conductor [Voltage differences less than 1% or more]					
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3					
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.					

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

[5] (\*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

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

6.2.2	Table: Electrical power sources (PS) measurements for classification					Pass
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification	
A	All	Power (W) :	-	-	PS3	
		V <sub>A</sub> (V) :	-	-		
		I <sub>A</sub> (A) :	-	-		
Supplementary Information:						
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits						

<b>6.2.3.1</b>	<b>Table: Determination of Potential Ignition Sources (Arcing PIS)</b>				Pass
Location		Open circuit voltage After 3 s (V <sub>p</sub> )	Measured r.m.s current (I <sub>rms</sub> )	Calculated value (V <sub>p</sub> x I <sub>rms</sub> )	Arcing PIS? Yes / No
All		-	-	-	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 <sub>p</sub> ) and normal operating condition rms current (I <sub>rms</sub> ) is greater than 15.					

<b>6.2.3.2</b>	<b>Table: Determination of Potential Ignition Sources (Resistive PIS)</b>				Pass
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
All	-	--	-	-	Yes
Supplementary Information:					
<p>A combination of voltmeter, VA and ammeter I<sub>A</sub> may be used instead of a wattmeter.</p> <p>If a separate voltmeter and ammeter are used, the product of (V<sub>A</sub> x I<sub>A</sub>) is used to determine Resistive PIS classification.</p> <p>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.</p>					

<b>8.5.5</b>	<b>TABLE: High Pressure Lamp</b>		N/A
Description		Values	Energy Source Classification
Lamp type .....			—
Manufacturer .....			—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cat no. ....:		—	
Pressure (cold) (MPa) .....		MS_	
Pressure (operating) (MPa) .....		MS_	
Operating time (minutes) .....		—	
Explosion method .....		—	
Max particle length escaping enclosure (mm) ..		MS_	
Max particle length beyond 1 m (mm) .....		MS_	
Overall result .....			
Supplementary information:			

B.2.5 TABLE: Input test								Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
--	-	--	--	--	-	--	--	AM-120U-S1 Rev-1: Output 5V, 24A
90, 60 Hz	60	2.5 A	3.15	167	-	--	2.5 A	Condition A
100, 60 Hz	60	2.3 A	3.15	164	-	--	2.3 A	Condition A
120, 60 Hz	60	2.0 A	3.15	161	-	--	2.0 A	Condition A
127, 60 Hz	60	1.9 A	3.15	161	-	--	1.9 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.4 A	3.15	163	-	--	1.4 A	Condition A
220, 50 Hz	50	1.3 A	3.15	163	-	--	1.3 A	Condition A
240, 50 Hz	50	1.2 A	3.15	163	-	--	1.2 A	Condition A
264, 50 Hz	50	1.1 A	3.15	163	-	--	1.1 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AM-120U-S2 Rev-1: Output 12V, 10A
90, 60 Hz	60	2.4 A	3.15	156	-	--	2.4 A	Condition A
100, 60 Hz	60	2.2 A	3.15	154	-	--	2.2 A	Condition A

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
120, 60 Hz	60	1.9 A	3.15	151	-	--	1.9 A	Condition A
127, 60 Hz	60	1.8 A	3.15	150	-	--	1.8 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.3 A	3.15	147	-	--	1.3 A	Condition A
220, 50 Hz	50	1.2 A	3.15	147	-	--	1.2 A	Condition A
240, 50 Hz	50	1.2 A	3.15	148	-	--	1.2 A	Condition A
264, 50 Hz	50	1.0 A	3.15	148	-	--	1.0 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AM-120U-S5 Rev-1: Output 12V, 10A
90, 60 Hz	60	2.3 A	3.15	151	-	--	2.3 A	Condition A
100, 60 Hz	60	2.1 A	3.15	149	-	--	2.1 A	Condition A
120, 60 Hz	60	1.8 A	3.15	146	-	--	1.8 A	Condition A
127, 60 Hz	60	1.8 A	3.15	145	-	--	1.8 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.3 A	3.15	144	-	--	1.3 A	Condition A
220, 50 Hz	50	1.2 A	3.15	145	-	--	1.2 A	Condition A
240, 50 Hz	50	1.1 A	3.15	146	-	--	1.1 A	Condition A
264, 50 Hz	50	1.0 A	3.15	147	-	--	1.0 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AM-120U-Q1225 Rev-1: Output: See below
90, 60 Hz	60	2.7 A	3.15	157	-	--	2.7 A	Condition A
100, 60 Hz	60	2.4 A	3.15	149	-	--	2.4 A	Condition A
120, 60 Hz	60	2.1 A	3.15	149	-	--	2.1 A	Condition A

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
127, 60 Hz	60	2.1 A	3.15	149	-	--	2.1 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.3 A	3.15	147	-	--	1.3 A	Condition A
220, 50 Hz	50	1.2 A	3.15	148	-	--	1.2 A	Condition A
240, 50 Hz	50	1.1 A	3.15	148	-	--	1.1 A	Condition A
264, 50 Hz	50	1.1 A	3.15	149	-	--	1.1 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AF-180P-S1: Output 5V, 30A
90, 60 Hz	60	3.7 A	5.0	235	-	--	3.7 A	Condition A
100, 60 Hz	60	3.5 A	5.0	233	-	--	3.5 A	Condition A
120, 60 Hz	60	3.1 A	5.0	229	-	--	3.1 A	Condition A
127, 60 Hz	60	2.9 A	5.0	228	-	--	2.9 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.8 A	5.0	198	-	--	1.8 A	Condition A
220, 50 Hz	50	1.7 A	5.0	220	-	--	1.7 A	Condition A
240, 50 Hz	50	1.5 A	5.0	240	-	--	1.5 A	Condition A
264, 50 Hz	50	1.4 A	5.0	264	-	--	1.4 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AF-180P-S2: Output 12V, 15A
90, 60 Hz	60	4.3 A	5.0	245	-	--	4.3 A	Condition A
100, 60 Hz	60	4.0 A	5.0	241	-	--	4.0 A	Condition A
120, 60 Hz	60	3.4 A	5.0	236	-	--	3.4 A	Condition A
127, 60 Hz	60	3.3 A	5.0	234	-	--	3.3 A	Condition A



IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.9 A	5.0	227	-	--	1.9 A	Condition A
220, 50 Hz	50	1.7 A	5.0	225	-	--	1.7 A	Condition A
240, 50 Hz	50	1.6 A	5.0	227	-	--	1.6 A	Condition A
264, 50 Hz	50	1.5 A	5.0	227	-	--	1.5 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AF-180P-S5: Output 48V, 3.75A
90, 60 Hz	60	4.0 A	5.0	228	-	--	4.0 A	Condition A
100, 60 Hz	60	3.6 A	5.0	218	-	--	3.6 A	Condition A
120, 60 Hz	60	3.1 A	5.0	218	-	--	3.1 A	Condition A
127, 60 Hz	60	3.0 A	5.0	218	-	--	3.0 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.7 A	5.0	216	-	--	1.7 A	Condition A
220, 50 Hz	50	1.6 A	5.0	210	-	--	1.6 A	Condition A
240, 50 Hz	50	1.5 A	5.0	213	-	--	1.5 A	Condition A
264, 50 Hz	50	1.4 A	5.0	211	-	--	1.4 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AF-180P-T122: Output: See below
90, 60 Hz	60	4.0 A	5.0	259	-	--	4.0 A	Condition A
100, 60 Hz	60	3.7 A	5.0	254	-	--	3.7 A	Condition A
120, 60 Hz	60	3.3 A	5.0	251	-	--	3.3 A	Condition A
127, 60 Hz	60	3.2 A	5.0	251	-	--	3.2 A	Condition A
--		--	--	--	-	--	--	--

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
198, 50 Hz	50	2.0 A	5.0	243	-	--	2.0 A	Condition A
220, 50 Hz	50	1.8 A	5.0	242	-	--	1.8 A	Condition A
240, 50 Hz	50	1.7 A	5.0	242	-	--	1.7 A	Condition A
264, 50 Hz	50	1.5 A	5.0	242	-	--	1.5 A	Condition A
--		--	--	--	-	--	--	--
--		--	--	--	-	--	--	AF-180P-Q1225: Output: See below
90, 60 Hz	60	4.0 A	5.0	251	-	--	4.0 A	Condition A
100, 60 Hz	60	3.7 A	5.0	246	-	--	3.7 A	Condition A
120, 60 Hz	60	3.2 A	5.0	243	-	--	3.2 A	Condition A
127, 60 Hz	60	3.1 A	5.0	243	-	--	3.1 A	Condition A
--		--	--	--	-	--	--	--
198, 50 Hz	50	1.9 A	5.0	228	-	--	1.9 A	Condition A
220, 50 Hz	50	1.7 A	5.0	228	-	--	1.7 A	Condition A
240, 50 Hz	50	1.6 A	5.0	229	-	--	1.6 A	Condition A
264, 50 Hz	50	1.5 A	5.0	230	-	--	1.5 A	Condition A
-		-	-	-	-	-	-	Model AM-120UA-T122-944
90Vac	**	2.83	-	155.2	-	F1	2.83	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
100 Vac	**	2.56	3.15A	153.4	-	F1	2.56	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
120 Vac	**	2.20	3.15A	151.2	-	F1	2.20	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
132 Vac	**	2.04	3.15A	150.4	-	F1	2.04	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
207 Vac	**	1.26	3.15A	149.0	-	F1	1.26	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
230 Vac	**	1.18	3.15A	149.1	-	F1	1.18	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
240 Vac	**	1.15	3.15A	149.2	-	F1	1.15	120W output: 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
264 Vac	**	1.10	-	149.2	-	F1	1.10	120W output 5Vdc, 12A; 12Vdc, 4A; -12Vdc, 1A
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								
AM-120U-Q1224 Rev-1- Condition A: Output V1:5V/10A, V2:12V/3A, V3:-12V/0.84A, V4:24V/1A								
AM-120U-Q1225 Rev-1 - Condition A: Output V1:5V/9A, V2:12V/3A, V3:-12V/1A, V4:48V/0.57A								
AF-180P-T122 - Condition A: Output V1:5V/18A, V2:12V/6A, V3:-12V/1.5A								
AF-180P-Q1225 - Condition A: Output V1:5V/16A, V2:12V/3.5A, V3:-12V/0.85A, V4:48V/1A								
Testing done as part of the CB Report to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, CB Repot E147630-A11-CB-3, CB Cert US-27777-A1-UL								
** Frequency not noted in original investigation.								

B.3		TABLE: Abnormal operating condition tests						Pass
Ambient temperature (°C) .....					See Below			—
Power source for EUT: Manufacturer, model/type, output rating ...:					See Below			—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
--	AM-120U-S1 Rev-1	--	--	--	--	-	-	--
V1 OUT	Overload	100V, 60 Hz	56 min. 30 min.	--	2.3 2.3	-	-	Vo_4.0Vdc, I_25.0A, LE1_52°C, LE2_45°C, XFRM_76°C, Amb_22°C Comments: Temperature s stabilized.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								<p>Vo_3.8Vdc, I_25.5A, LE1_52°C, LE2_45°C, XFRM_79°C, Amb_22°C Comments: Temperature s stabilized. NC, NT, NB.</p> <p>Power supply foldback at 25.75 Amps.</p>
V1 OUT	Overload	240V, 50 Hz	45 min.  50 min.  30 min.	--	1.3  1.4  1.4	-	-	<p>Vo_4.2Vdc, I_26.0A, LE1_33°C, LE2_31°C, XFRM_71°C, Amb_22°C Comments: Temperature s stabilized.</p> <p>Vo_4.1Vdc, I_27.5_A, LE1_34°C, LE2_32°C, XFRM_77°C, Amb_22°C. Comments: Temperature s stabilized.</p> <p>Vo_3.9Vdc, I_28.5A, LE1_35°C, LE2_32°C, XFRM_79°C, Amb_20°C Comments: Temperature s stabilized. NC, NT, NB.</p> <p>Power supply foldback at 29.25 Amps.</p>
V1 OUT	SC	240V, 50 Hz	5 min.	--	0.0	-	-	<p>Vo_5.0Vdc, I_0A,</p>

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								LE1_°C, LE2_°C, XFRM_°C, Amb_°C Comment: Unit foldback immediately. Ran for 5 minutes. Unit remained in foldback. NC, NT, NB.
--	AM-120U-S2 Rev-1	--	--	--	--	-	-	--
V1 OUT	Overload	100V, 60 Hz	45 min.  40 min.	--	2.4  2.5	-	-	Vo_11.5Vdc, I_11.0A, LE1_57°C, LE2_46°C, XFRM_84°C, Amb_23°C Comment: Temperature s stabilized.  Vo_11.1Vdc, I_11.75A, LE1_60°C, LE2_49°C, XFRM_92°C, Amb_23°C Comment: Temperature s stabilized. NC, NT, NB.  Power supply foldback at 11.8 Amps.
V1 OUT	SC	100V, 60 Hz	5 min.	--	0.0	-	-	Vo_12.0Vdc, I_0A, LE1_°C, LE2_°C, XFRM_°C, Amb_°C Comment: Unit foldback immediately. Ran for 5 minutes. Unit remained in foldback. Unit returns to normal

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								output when short is removed and input power is cycled off/on. NC, NT, NB.
V1 OUT	SC	240V, 50 Hz	5 min.	--	0.0	-	-	Vo_12.0Vdc, I_0A, LE1_°C, LE2_°C, XFRM_°C, Amb_°C Comment: Unit foldback immediately. Ran for 5 minutes. Unit remained in foldback. Unit returns to normal output when short is removed and input power is cycled off/on. NC, NT, NB.
--	AM-120U-Q1224 Rev-1	--	--	--	--	-	-	--
V1 OUT	Overload	100V, 60Hz	50 min. 30 min. ----- 60 min.	--	2.6 2.7 ----- 2.7	-	-	Vo_4.2Vdc, I_14.5A, LE1_59°C, LE2_61°C, XFRM_75°C, Amb_21°C Comments: Temperature s stabilized.  Vo_4.2Vdc, I_15.0A, LE1_60°C, LE2_62°C, XFRM_78°C, Amb_21°C Comments: Temperature s stabilized. NC, NT, NB.  Power supply foldsback at

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								15.25 Amps on V1.  Output Load information: V2/12.4 V, A2/3.0 A; V3/12.9 V, A3/0.84 A; V4/26.2 V, A4/1.0 A.  ----- Vo_3.9Vdc, I_20.7A, LE1_60°C, LE2_62°C, XFRM_96°C, Amb_22°C Comments: Temperature stabilized. NC, NT, NB.  Power supply foldsback at 20.8 A on V1.  Output Load information: V2/13.2 V, A2/0.5 A; V3/13.1 V, A3/0.84 A; V4/26.6 V, A4/1.0 A.
V1 OUT	SC	100V, 60Hz	5 min.	--	0.0	-	-	Vo_4.3Vdc, I_10.0A, LE1_°C, LE2_°C, XFRM_°C, Amb_-°C Comments: Power supply foldsback immediately. Output voltage and current measurements were taken

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								prior to short. NT, NC, NB,  Output Load information: V2/12.1 V, A2/3.0 A; V3/12.5 V, A3/0.9 A; V4/25.3 V, A4/1.0 A.
V1 OUT	SC	240V, 50Hz	5 min.	--	0.0	-	-	Vo_4.6Vdc, I_10.0A, LE1_°C, LE2_°C, XFRM_°C, Amb_°C Comments: Power supply foldsback immediately. Output voltage and current measurements were taken prior to short. NC, NT, NB.  Output Load information: V2/11.8 V, A2/3.0 A; V3/12.4 V, A3/0.9 A; V4/25.3 V, A4/1.0A.
V2 OUT	Overload	100V, 60Hz	60 min. ----- 60 min. 70 min.	--	2.6 ----- 2.5 2.6	-	-	Vo_11.9Vdc, I_5.0A, LE1_58°C, LE2_61°C, XFRM_69°C, Amb_22°C Comments: Temperature stabilized. NC, NT, NB.  Power supply foldsback at 5.1 A.



IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								<p>Output Load information: V1/4.6 V, A1/10.0A; V3/12.6 V, A3/0.9 A; V4/24.4 V, A4/1.0 A.</p> <p>-----</p> <p>Vo_10.7Vdc, I_11.0A, LE1_54°C, LE2_56°C, XFRM_76°C, Amb_21°C</p> <p>Comments: Temperature s stabilized.</p> <p>Vo_10.6Vdc, I_11.4A, LE1_57°C, LE2_60°C, XFRM_80°C, Amb_22°C</p> <p>Comments: Temperature stabilized. NC, NT, NB.</p> <p>Power supply foldsback at 11.5 A.</p> <p>Output Load information: V1/5.0 V, A1/1.2 A; V3/12.0 V, A3/0.2 A; V4/24.5 V, A4/0.2 A.</p>
V2 OUT	Overload	240V, 50Hz	60 min.	--	1.2	-	-	<p>Vo_10.8Vdc, I_10.0A, LE1_31°C, LE2_32°C, XFRM_64°C, Amb_21°C</p>

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								Comments: Temperature stabilized.  Power supply foldsback at 10.3 A.  Output Load information: V1/5.0 V, A1/1.2 A; V3/12.0 V, A3/0.2 A; V4/24.5 V, A4/0.2 A.
V2 OUT	SC	240V, 50Hz	5 min.	--	0.0	-	-	Vo_ 11.9Vdc, I_ 3.0A, LE1_ °C, LE2_ °C, XFRM _ - (C, Amb _ °C Comments: Power supply foldsback immediately. Output voltage and current measurement s were taken prior to short. NT, NC, NB.  Output Load information: V1/4.3 V, A1/10.0 A; V3/12.4 V, A3/0.9 A; V4/25.2 V, A4/1.0 A.
V3 OUT	Overload	100V, 60Hz	75 min. ==== 15 min. --- 5 min.	--	2.6 ==== 2.3 --- 2.3	-	-	Vo_ 12.0Vdc, I_ 2.75A, LE1_ 56°C, LE2_ 53°C, XFRM_ 69°C, Amb_ 22°C Comments: Temperature s stabilized. NC, NT, NB.

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
			---		---		<p>Power supply foldsback at 2.8 A.</p> <p>Output Load information: V1/4.6 V, A1/10.0; V2/12.1 V, A2/3.0 A; V4/25.4 V, A4/1.0 A.</p> <p>====</p> <p>Vo_7.9Vdc, I_10.5A, LE1_°C, LE2_°C, XFRM_°C, Amb_°C</p> <p>Comments: Power supply foldback. Component L4 V3 winding shorted to V4 winding. NC, NT, NB.</p> <p>Output Load information: V1/5 V, A1/1.2A; V2/12.1 V, A2/0.6 A; V4/25.4 V, A4/0.2 A.</p> <p>====</p> <p>Vo_8.9Vdc, I_10.0A, LE1_34°C, LE2_34°C, XFRM_64°C, Amb_21°C</p> <p>Comments: Power supply foldsback. Component L4 V3</p>

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								winding shorted to V4 winding. NC, NT, NB.  Output Load information: V1/5 V, A1/1.2 ; V2/12.1 V, A2/0.6 A; V4/25.4 V, A4/0.2 A. ---
V3 OUT con't	--	--	55 min.  30 min.  40 min.	--	1.4  1.6  1.8	-	-	===== Vo_10.6Vdc, I_5.0A, LE1_37°C, LE2_34°C, XFRM_50°C, Amb_23°C Comments: Temperature s stabilize.  Vo_9.9Vdc, I_6.0A, LE1_41°C, LE2_37°C, XFRM_57°C, Amb_23°C Comments: Temperature s stabilized.  Vo_10.1Vdc, I_6.75A, LE1_43°C, LE2_39°C, XFRM_62°C, Amb_23°C Comments: Power supply foldback. Component L4 V3 winding shorted to V4 winding. NC, NT, NB.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								Output Load information: V1/5.0 V, A1/1.2 ; V2/11.8 V, A2/0.6 A; V4/24.6 V, A4/0.2 A.
V3 OUT	SC	100V, 60Hz	5 min.	--	0.0	-	-	Vo_ 12.5Vdc, I_ 0.9A, LE1_ °C, LE2_ °C, XFRM_ °C, Amb_ °C  Comments: Power supply foldsback immediately. Output voltage and current measurements were taken prior to short. NT, NC, NB.  Output Load information: V1/4.6 V, A1/10.0 A; V2/12.1 V, A3/3.0 A; V4/25.3 V, A4/1.0 A.
V3 OUT	SC	240V, 50Hz	5 min.	--	0.0	-	-	Vo_ -12.4Vdc, I_ 0.9A, LE1_ °C, LE2_ °C, XFRM_ °C, Amb_ °C  Comments: Power supply foldsback immediately. Output voltage and current measurements were taken prior to short. NT, NC, NB.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								Output Load information: V1/4.3 V, A1/10.0 A; V2/11.9 V, A2/3.0 A; V4/25.2 V, A4/1.0 A.
V4 OUT	Overload	100V, 60Hz	90 min.	--	2.5	-	-	Vo_25.0Vdc, I_1.75A, LE1_53°C, LE2_56°C, XFRM_79°C, Amb_22°C  Comments: Temperature s stabilized.  Vo_24.9Vdc, I_2.0A, LE1_57°C, LE2_61°C, XFRM_83°C, Amb_22°C  Comments: Temperature s stabilized. NC, NT, NB.  Power supply foldsback at 2.1 A..  Output Load information: V1/4.6 V, A1/10.0 ; V2/11.8 V, A2/3.0 A; V3/12.5 V, A3/0.9 A.  ==== Vo_22.6Vdc, I_3.5A, LE1_49°C, LE2_44°C, XFRM_61°C, Amb_23°C
			45 min.		2.6			
			====		====			
			65 min.		1.8			
			45 min.		2.1			
			35 min.		2.3			
			----		---			

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								<p>Comments: Temperature s stabilized.</p> <p>Power supply foldsback at 5.8 A..</p> <p>Vo_22.0Vdc, I_4.25A, LE1_57°C, LE2_51°C, XFRM_74°C, Amb_22°C</p> <p>Comments: Temperature s stabilized.</p> <p>Vo_21.4Vdc, I_5.0A, LE1_67°C, LE2_61°C, XFRM_94°C, Amb_23°C</p> <p>Comments: Unit shut down after 35 min. of operation. NB, NT, NC. L4 discolored. No other visible damage noted.</p> <p>Output Load information: V1/5.0 V, A1/1.2 ; V2/11.9V, A2/0.6 A; V3/12.0 V, A3/0.2 A.</p>
V4 OUT con't	--	--	70 min.  30 min.  25 min.	--	2.1  2.2  2.3	-	-	<p>====</p> <p>Vo_21.9Vdc, I_4.5A, LE1_56°C, LE2_47°C, XFRM_78°C, Amb_23°C</p>

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
			====		====		<p>Comments: Temperature s stabilize.</p> <p>Vo_21.4Vdc, I_4.75A, LE1_60°C, LE2_49°C, XFRM_84°C, Amb_23°C</p> <p>Comments: Temperature s stabilized.</p> <p>Power supply foldsback at 5.25 A.</p> <p>Vo_21.3Vdc, I_5.0A, LE1_66°C, LE2_52°C, XFRM_91°C, Amb_22°C</p> <p>Comments: Unit shut down after 25 min. of operation. NB, NC, NT. L4 discolored. No other visible damage noted.</p> <p>Output Load information: V1/5.0 V, A1/1.2 ; V2/11.9V, A2/0.6 A; V3/11.8 V, A3/0.2 A.</p> <p>====</p> <p>Vo_21.9Vdc, I_5.0A, LE1_52°C, LE2_49°C,</p>
			40 min,		2.3		
			60 min.		2.4		
			60 min.		2.5		



IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								<p>XFRM_78°C, Amb_21°C Comments: Temperature s stabilized.</p> <p>Vo_21.5Vdc, I_5.2A, LE1_55°C, LE2_52°C, XFRM_85°C, Amb_23°C Comments: Temperature s stabilized.</p> <p>Vo_21.1Vdc, I_5.5A, LE1_59°C, LE2_55°C, XFRM_93°C, Amb_22°C Comments: Unit shut down after 60 min. of operation. NC, NT, NB. L4 discolored. No other visible damage noted.</p> <p>Power supply foldsback at 5.6 A.</p> <p>Output Load information: V1/5.0 V, A1/1.2; V2/11.7V, A2/0.6 A; V3/11.8 V, A3/0.2 A.</p>
V4 OUT	SC	240V, 50Hz	5 min.	--	0.0	-	-	<p>Vo_25.2Vdc, I_1.0A, LE1_°C, LE2_°C,</p>

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								<p>XFRM °C, Amb °C</p> <p>Comments: Power supply foldsback immediately. Output voltage and current measurement s were taken prior to short. NT, NC, NB.</p> <p>Output Load information: V1/4.3 V, A1/10.0 A; V2/11.9 V, A2/3.0 A; V3/12.4 V, A3/0.9 A.</p>
V4 OUT	SC	100V, 60Hz	5 min.	--	0.0	-	-	<p>Vo_25.3Vdc, I_1.0A, LE1 °C, LE2 °C, XFRM °C, Amb °C</p> <p>Comments: Power supply foldsback immediately. Output voltage and current measurement s were taken prior to short. NT, NC, NB.</p> <p>Output Load information: V1/4.6 V, A1/10.0 A; V2/12.1 V, A3/3.0 A; V3/12.5 V, A3/0.9 A.</p>
--	AF-180P-S1	--	--	--	--	-	-	--
V1 OUT	Overload	100V, 60Hz	2 hrs	--	--	-	-	<p>Vo_3.2Vdc, I_36.1A,</p>

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								LE1_38.9°C, LE2_48.3°C, LE3_54.6°C, T1_82.7°C, Amb_24.5°C CT, NC, NT,NB
V1 OUT	SC	240V, 50Hz	1 hr	--	--	-	-	Vo_0.0Vdc, I_0.0A, LE1_28.6°C, LE2_31.4°C, LE3_27.5°C, T1_55.5°C, Amb_22.5°C NC, NT, NB, CT OUTPUT FOLDS BACK
--	AF-180P-S2	--	--	--	--	-	-	--
V1 OUT	Overload	90V, 60Hz	1 hr	--	--	-	-	Vo_4.8Vdc, I_18.8A, LE1_69.4°C, LE2_93.5°C, LE3_57.4°C, XFRM _71.0°C NC, NT, NB, CT
V1 OUT	SC	90V, 60Hz	1 hr	--	--	-	-	Vo_0.0Vdc, I_5.08A, LE1_26.2°C, LE2_26.4°C, LE3_25.1°C, XFRM _30.0°C, NC, NT, NB, CT
--	AF-180P-Q1225	--	--	--	--	-	-	--
V1 OUT	Overload	100V, 60Hz	2hrs	--	--	-	-	Vo_4.6Vdc, I_30A, LE1_63.4°C, LE2_81.5°C, LE3_66.1°C, T1_109°C, Amb_22.5°C NC, NT, NB, CT

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								Comment: Outputs folds back at Current > 30 amps
V1 OUT	SC	240V, 50Hz	1 hr	--	--	-	-	Vo_0.0Vdc, I_0.0A, LE1_32.3°C, LE2_38.1°C, LE3_31.0°C, T1_54.1°C, Amb_22.5°C NC, NT, NB, CT Comment: Output Folds Back
V2 OUT	Overload	100V, 60Hz	2 hrs	--	--	-	-	Vo_10.5Vdc, I_13.0A, LE1_71°C, LE2_91°C, LE3_88°C, T1_141°C, Amb_22.6°C NC, NT,CT, NB V2 Comment: Folds Back At Current > 13 A
V2 OUT	SC	240V, 50Hz	1hr	--	--	-	-	Vo_0.0Vdc, I_0.0A, LE1_27.1°C, LE2_29.8°C, LE3_36.2°C, T1_44.6°C, Amb_22.2°C NC, NT, CT,NB Comment: Output folds back
V3 OUT	Overload	100V, 60Hz	2 hrs	--	--	-	-	Vo_8.8Vdc, I_11A, LE1_70°C, LE2_91°C, LE3_88°C, T1_141°C, Amb_22.5°C

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								NC, NT, NB, CT, CD Comment: The sample malfunctioned after 2 hrs of operation
V3 OUT	Overload	100V, 60Hz	1 hr 39 minutes	--	--	-	-	Vo_10.5Vdc, I_11A, LE1_25.8°C, LE2_43.2°C, LE3_43.8°C, T1_57.8°C, Amb_22.5°C NC, NT, CT, NB Comment: Sample malfunctioned 1 hr 39 minutes during test.
V3 OUT	SC	240V, 50Hz	1 hr	--	--	-	-	Vo_0.0Vdc, I_0.0A, LE1_23.5°C, LE2_25.2°C, LE3_23.3°C, T1_32.5°C, Amb_23.2°C NC, NT, CT, NB Comment: Output Folds Back
V4 OUT	Overload	100V, 60Hz	1 hr	--	--	-	-	Vo_42.9Vdc, I_3A, LE1_37.6°C, LE2_59.6°C, LE3_47.7°C, T1_68.6°C, Amb_23.6°C NC, NT, CT, NB
V4 OUT	SC	240V, 50Hz	1 hr	--	--	-	-	Vo_0.0Vdc, I_0.0A, LE1_24.3°C, LE2_26.3°C, LE3_24.1°C, T1_27.1°C, Amb_23.5°C

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								NC, NT, CT, NB Comment: Output Folds Back
AF-180P-Q4112A	-	-	-	-	-	-	-	-
24V Output	Overload	90	30 min	F1	3.97	-	-	T1 coil Temp: 47.6
5V Output	Overload	90	30 min	F1	3.94	-	-	T1 coil Temp: 39.3
-5V Output	Overload	90	30 min	F1	3.74	-	-	T1 coil Temp: 40.6
12V Output	Overload	90	30 min	F1	4.27	-	-	T1 coil Temp: 48.9
5Vdc/16.5A output	overload	90Vac 60Hz	3 hrs	F1	4.06	-	-	Model AM-120UA-T122-944 Output Voltage= 4.22 Vdc Output Overload current: 19.28 A LE1= 47.1 C LE2= 38.6C T1= 113.0 C Ambient= 24.4 C Current Limit / foldsback @ 19.32 A Codes: NT, NC, NB, CT
5Vdc/16.5A output	Short circuit	90Vac 60Hz	3 hrs	F1	0.4 to 0.9	-	-	Model AM-120UA-T122-944 Max Output Voltage= 0.0 Vdc Output Overload current: 0.0 A LE1= 28.1 C LE2= 26.3 C

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								T1= 56.0 C Ambient= 24.4 C Current Limit @ 0.0 A Codes: NT,NC,NB,C T * Unit went into Hiccup Operation, stayed within SELV limits.
Supplementary information:								
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. Testing done as part of the CB Report to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, CB Repot E147630-A11-CB-3, CB Cert US-27777-A1-UL  Model AM-120UA-T122-944 - Tma of 40C was considered when confirming that the measured temperatures meet the limits when tested at a 24.5C ambient.								

B.4		TABLE: Fault condition tests						Pass
Ambient temperature (°C) .....					See Below			—
Power source for EUT: Manufacturer, model/type, output rating ..:					See Below			—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Component Failure	AM-120U-XYZ Rev-1 Series	--	--	--	--	-	-	--
BD1	SC (+ to -)	264V, 60Hz	1 sec	F1	--	-	-	Comments Fuse F1 open IP, NB, NC, NT
D1	SC	264V, 60Hz	21 min	F1	--	-	-	XFRM_79.3° C Comments Q1 damaged and Fuse F1 open, IP, CD, NB, NC, NT

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
C4+	SC	240V, 60Hz	50 min.	F1	1.3 A	-	-	LE1_39°C, LE2_36°C, XFRM_56°C  Comments: Outputs remain at normal levels after short. NC, NT, NB.
Q1	SC (d-s)	240V, 60Hz	1 sec.	F1	0.05	-	-	Comments: Fuse F1 opened. IP, NC, NT, NB.
Q4	SC (c-e on control PWB)	240V, 60Hz	1 sec.	F1	0.05	-	-	Comments: Unit folds back. Input current goes to 0.05A. No damage noted to components. Unit output returns to normal level after short is removed and input voltage turned off for one minute and then turned back on. NC, NT, NB.
SCR1	SC (+to- on control PWB)	240V, 60Hz	1 sec.	F1	--	-	-	Comments: Unit folds back. Input current goes to 0.05A. No damage noted to components. Unit output returns to normal level after short is removed. NC, NT, NB.
--	AM-120U- S1 Rev-1	--	--	--	--	-	-	
D9-	XFRM Overload	100V, 60Hz	45 min.	--	2.4	-	-	Vo_3.8Vdc, I_25.5A,



IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								LE1_50°C, LE2_45°C, XFRM_90°C, Amb_23°C Comments: Output loaded to 24 Amps, transformer loaded an additional 1.5 Amps. Temperature stabilized. NC, NT, NB. Power supply foldback at 26.0 Amps.
D9-	XFMR Overload	240V, 50Hz	120 min.	--	1.5	-	-	Vo_4.1Vdc, I_29.0A, LE1_33°C, LE2_31°C, XFRM_83°C, Amb_20°C Comments: Output loaded to 24 Amps, transformer loaded an additional 5 Amps. Temperatures stabilized. NC, NT, NB. Power supply foldback at 29.5 Amps.
D11-	XFMR Overload	100V, 60Hz	150 min.	--	2.3	-	-	Vo_6.8Vdc, I_0.2A, LE1_53°C, LE2_60°C, XFRM_81°C, Amb_22°C Comments: Output loaded to 24 Amps. Temperature

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								stabilized. NC, NT, NB.  Unit foldsback when D11 is loaded to 0.3 A.
--	AM-120U-S2 Rev-1	--	--	--	--	-	-	--
D9-	XFMR Overload	100V, 60Hz	60 min.  30 min.  15 min.  30 min.  1 min,	--	2.7  2.7  2.7  2.7  2.7	-	-	Vo_12.3Vdc, I_2.0A, LE1_60°C, LE2_66°C, XFRM_75°C, Amb_22°C  Comments: Output loaded to 10 Amps. Temperatures stabilized.  Vo_12.2Vdc, I_2.25A, LE1_62°C, LE2_68°C, XFRM_78°C, Amb_23°C  Comments: Output loaded to 10 Amps. Temperatures stabilized.  Vo_11.8Vdc, I_2.5A, LE1_63°C, LE2_69°C, XFRM_80°C, Amb_23°C  Comments: Output loaded to 10 Amps. Temperatures stabilized.  Vo_10.9Vdc, I_3.0A,

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								LE1_64°C, LE2_71°C, XFRM_84°C, Amb_°C Comments: Output loaded to 10 Amps. Temperature stabilized.  Vo_9.9Vdc, I_3.25A, Comments: Output loaded to 10 Amps. Fuse F1 opened. NC, NT, NB.
D11-	XFMR Overload	100V, 60Hz	65 min.	--	2.2	-	-	Vo_7.0Vdc, I_0.2A, LE1_55°C, LE2_54°C, XFRM_74°C, Amb_23°C Comments: Output loaded to 10 Amps. Temperatures stabilized. NC, NT, NB.  Unit foldsback at 0.3 Amps load.
D11-	XFMR Overload	240V, 50Hz	55 min.	--	1.1	-	-	Vo_5.6Vdc, I_0.2A, LE1_34°C, LE2_34°C, XFRM_64°C, Amb_22°C Comments: Output loaded to 10 Amps. Temperatures stabilized. NC, NT, NB.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								Unit foldsback at 0.25 A load.
--	AM-120U- Q1224 Rev 1	--	--	--	--	-	-	--
D9-	XFMR Overload	100V, 60Hz	60 min.  30 min.	--	2.4  2.6	-	-	<p>Vo_4.9Vdc, I_2.5A, LE1_73°C, LE2_63°C, XFRM_69°C, Amb_22°C</p> <p>Comments: Output loaded to 10.0 Amps, transformer loaded an additional 2.5 Amps. Temperature stabilized.</p> <p>Vo_4.9Vdc, I_3.5A, LE1_72°C, LE2_66°C, XFRM_70(C, Amb_21°C</p> <p>Comments: Output loaded to 10.0 Amps, transformer loaded an additional 3.5 Amps. Temperatures stabilized. NC, NT, NB.</p> <p>Power supply foldsback at 3.75 Amps load.</p> <p>Output Load information: V1/4.6 V, A1/10.0 A; V2/12.2 V, A2/3.0 A;</p>

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								V3/12.6 V, A3/0.9 A; V4/25.6 V, A4/1.0 A.
D10-	XFMR Overload	100V, 60Hz	45 min.  25 min.	--	1.7  1.9	-	-	<p>Vo_11.6Vdc, I_4.75A, LE1_46°C, LE2_37°C, XFRM_49°C, Amb_23°C</p> <p>Comments: unable to run at Condition A. Power supply foldsback immediately when load is applied to transformer winding. Temperatures stabilize.</p> <p>Vo_11.6Vdc, I_5.6A, LE1_49°C, LE2_39°C, XFRM_52°C, Amb_23°C</p> <p>Comments: Temperatures stabilized. NC, NT, NB.</p> <p>Unit foldsback at 5.8 Amps.</p> <p>Output Load information: V1/5.0 V, A1/1.2 A; V2/11.7 V, A2/0.6 A; V3/12.0 V, A3/0.2 A; V4/24.5 V, A4/0.2 A.</p>
D11+	XFMR Overload	100V, 60Hz	--	--	--	-	-	Vo_ - Vdc, I_ - A, LE1_ - (C, LE2_ °C,

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								XFRM _°C, Amb _°C Comments: Power supply would not permit loading at the point D11 to return. Power supply immediately shut down. Testing on an AM-120U-Q1225 exhibited the same behavior of the unit shutting down when a load is applied at D11 to return.
D12-	XFMR Overload	100V, 60Hz	--	--	--	-	-	Comments: Power supply would not permit loading at the point D12 to return. Power supply immediately shut down. Testing on an AM-120U-Q1225 exhibited the same behavior of the unit shutting down when a load is applied at D12 to return.
Component Failure	AF-180P-XYZ Series	--	--	--	--	-	-	-
D1-	SC	264Vac, 60Hz	1 hr	--	--	-	-	LE1_55.4°C, LE2_59.1°C, LE3_55.0°C, XFRM _55.8°C, Amb_23°C

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								NC, NT, NB, CT
D2-	SC	264Vac, 60Hz	1hr	--	--	-	-	LE1_39.0°C, LE2_41.8°C, LE3_38.1°C, XFRM_34.7°C, Amb_23°C. NC, NT, NB, CT
D3-	SC	264V, 60Hz	1hr	--	--	-	-	LE1_63.9°C, LE2_73.9°C, LE3_67.7°C, XFRM_90.0°C, Amb_23°C NC, NT, NB, CT
C6+	SC	264V, 60Hz	2.5 hrs	--	--	-	-	LE1_73.3°C, LE2_84.3°C, LE3_78.0°C, XFRM_104.2°C, Amb_23°C NC, NT, NB, CT
Q7	SC (c-e)	264V, 60Hz	1 hr	--	--	-	-	LE1_73.9°C, LE2_84.5°C, LE3_77.8°C, XFRM_110.5°C, Amb_23°C NC, NT, NB, CT
--	AF-180P-S1	--	--	--	--	-	-	--
D9-	XFMR Overload	100V, 60Hz	5hrs	--	--	-	-	V1_4.7Vdc, I_36A, LE1_45.8°C, LE2_60.8°C, LE3_71.5°C, T1_84.5°C, Amb_24.0°C NC,NT,CT,N B
D11-	XFMR Overload	100V, 60Hz	5 sec	--	--	-	-	V1_0.0Vdc, I_0.0A, LE1_°C, LE2_°C, LE3_°C, T1_°C, Amb_°C

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								NC, NT, NB, CT, CD, IP(F1)
D11-	XFMR Overload	100V, 60Hz	1 hr	--	--	-	-	V1_4.7Vdc, I_30A, LE1_38.2°C, LE2_40.5°C, LE3_34.3°C, T1_101.7°C, Amb_24.2°C NC, NT, CD, CT, IP(F1)
D11-	XFMR Overload	100V, 60Hz	1 hr 58 min	--	--	-	-	V1 4.7 Vdc, I=30 A, LE1_74.8°C, LE2= 86.6°C, LE3=57.0°C, T1= 144.8°C, Amb =23.8 °C NC, NT, CT, IP(F1), CD
--	AF-180P-S2	--	--	--	--	-	-	--
D10-	XFMR Overload	90V, 60Hz	1 sec	--	--	-	-	Vo_12Vdc, I_10A, LE1_27.5°C, LE2_26.4°C, LE3_25.1°C, XFRM_30.0°C NC, NT, (CD-R1, Q1, d10, F1), NB
D11-	XFMR Overload	90V, 60Hz	2.0 hrs	--	--	-	-	Vo_11.6Vdc, I_15A, LE1_115.4°C, LE2_116.4°C, LE3_79.4°C, XFRM_58.4°C NC, NT, NB, CT
D10-	XFMR Overload	90V, 60Hz	2.25 hrs	--	--	-	-	Vo_8Vdc, I_7.1_A, LE1_68.2°C, LE2_91.0°C, LE3_53.2°C, XFRM_76.0°C



IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								NC, NT,NB, CD( R1, Q1,D10)
--	AF-180P-Q1225	--	--	--	--	-	-	--
D10-	XFMR Overload	100V, 60Hz	1 hr	--	--	-	-	Vo_4.7Vdc, I_13A, LE1_34.8°C, LE2_46.6°C, LE3_49.8°C, T1_70.0°C, Amb_24.1°C NC, NT,CT, NB Comments : D10 was loaded to 3 amps and Vo was loaded to 10 amps. The supply folds back at currents greater than 3 amps.
D11-	XFMR Overload	100V, 60Hz	1 hr	--	--	-	-	Vo_11.8Vdc, I_2.9A, LE1_33.6°C, LE2_46.9°C, LE3_50.0°C, T1_52.1°C, Amb_23.3°C NC, NT,CT, NB Comments : Vo was load to 2.5 amps and the maximum current before fold back on D11 is .67 amps.
D13+	XFMR Overload	100V, 60Hz	1 hr	--	--	-	-	Vo_-12.5Vdc, I_0.41A, LE1_34.7°C, LE2_49.1°C, LE3_51.7°C, T1_72.0°C, Amb_23.6°C NC, NT,CT, NB

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
								Comments : Vout was loaded to .41 amps and D13 was load to .43 amps. The supply folds back if D13 is loaded to a current greater than .43 amps.
D15-	XFMR Overload	100V, 60Hz	2 hrs	--	--	-	-	Vo_48.1Vdc, I_0.41A, LE1_41.3°C, LE2_57.5°C, LE3_51.6°C, T1_66.6°C, Amb_24.0°C NC, NT,CT, NB Comments : The supply folds back with a load applied to D15 and Vout, so the load at Vout was reduced to 0 amps and the load at D15 was increased to the values above.
Supplementary information:								
Testing done as part of the CB Report to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, CB Repot E147630-A11-CB-3, CB Cert US-27777-A1-UL								
Model AM-120UA-T122-944 - Tma of 40C was considered when confirming that the measured temperatures meet the limits when tested at a 24.5C amb								

Annex M.3	TABLE: Batteries					N/A
The tests of Annex M are applicable only when appropriate battery data is not available						
Is it possible to install the battery in a reverse polarity position? ..... :						
	Non-rechargeable batteries		Rechargeable batteries			
	Discharging		Charging	Discharging	Reversed charging	

IEC 62368-1									
Clause	Requirement + Test				Result - Remark				Verdict
	Meas. current	Manuf. Specs.	Un-intentional charging	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									
- Chemical leaks									Verdict
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information:									

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp (°C)		
	Normal					
	Abnormal					
	Single fault –SC/OC					
Supplementary Information:						
Battery identification	Charging at T <sub>lowest</sub> (°C)	Observation	Charging at T <sub>highest</sub> (°C)	Observation		
Supplementary Information:						

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)	
			Meas.	Limit	Meas.	Limit

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Supplementary Information:						
SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5	TABLE: Steady force test					Pass
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Components	Various	various	10	5	Components do not reduce spacings.	
Supplementary information:						

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

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Supplementary information:					

T.8	TABLE: Stress relief test					N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Supplementary information:						

**Enclosure**  
**National Differences**

Australia / New Zealand

EU Group and National Differences

Japan

USA / Canada

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT	
IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)	
Differences according to	AS/NZS 62368.1:2018
TRF template used	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No.	AU_NZ_ND_IEC62368_1D
Attachment Originator	JAS-ANZ
Master Attachment	2021-04-19
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	NATIONAL DIFFERENCES	Pass
Appendix ZZ	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand	Pass
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)	Pass
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:	Pass
2	<p>Add the following to the list of normative references:</p> <p>The following normative documents are referenced in Appendix ZZ:</p> <p>-AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i></p> <p>-AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i></p> <p>-AS/NZS 3191, <i>Electric flexible cords</i></p> <p>-AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i></p> <p>-AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i></p> <p>-AS/NZS 60320.2.2, <i>Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i></p> <p>-AS/NZS 60695.2.11, <i>Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i></p>	Pass

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>-AS/NZS 60695.11.5, <i>Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i></p> <p>-AS/NZS 60695.11.10, <i>Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <p>-AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p>-AS/NZS 60950.1:2015, <i>Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p>IEC 61032:1997, <i>Protection of persons and equipment by enclosures—Probes for verification</i></p> <p>-AS/NZS 61558.1:2008 (including Amendment 2:2015), <i>Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)</i></p> <p>-AS/NZS 61558.2.16, <i>Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p>		
4.1.1	<p><b>Application of requirements and acceptance of materials, components and subassemblies</b></p> <p>1 Replace the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.</p> <p>2 Replace the text 'IEC 60065' with 'AS/NZS 60065'.</p>		Pass
4.7	<b>Equipment for direct insertion into mains socket-outlets</b>		N/A
4.7.2	<p><b>Requirements</b></p> <p>Delete the text of the second paragraph and replace with the following:</p> <p>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>		N/A
4.7.3	<p><b>Compliance Criteria</b></p> <p>Delete the first paragraph and Note 1 and Note 2 and replace with the following:</p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.		
4.8	Delete existing clause title and replace with the following: <b>4.8 Products containing coin/button cell batteries</b>		N/A
4.8.1	<b>General</b> 1 Second dashed point, delete the text and replace with the following: – include coin/button cell batteries with a diameter of 32 mm or less. 2 After the second dashed point, insert the following Note: NOTE 1: Batteries are specified in IEC 60086-2. 3 After the third dashed point, renumber the existing Note as 'NOTE 2'. 4 Fifth dashed point, delete the word 'lithium'.		N/A
4.8.2	<b>Instructional Safeguard</b> First line, delete the word 'lithium'.		N/A
4.8.3	<b>Construction</b> First line, after the word 'Equipment' insert the words 'containing one or more coin/button batteries and'		N/A
4.8.5	<b>Compliance criteria</b> Delete the first paragraph and replace with the following: Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.		N/A
5.4.10.2	<b>Test Methods</b>		N/A
5.4.10.2.1	<b>General</b> Delete the first paragraph and replace with the following: In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3.		N/A
Table 29	Replace the table with the following:		N/A



## IEC62368\_1D – ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict																									
	<table><tr><td>Parts</td><td colspan="2">Impulse test</td><td colspan="2">Steady state test</td></tr><tr><td></td><td>New Zealand</td><td>Australia</td><td>New Zealand</td><td>Australia</td></tr><tr><td>Parts indicated in Clause 5.4.10.1 a) <sup>a</sup></td><td>2.5 kV 10/700 µs</td><td>7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs</td><td>1.5 kV</td><td>3 kV</td></tr><tr><td>Parts indicated in Clause 5.4.10.1 b) and c) <sup>a</sup></td><td colspan="2">1.5 kV 10/700 µs<sup>c</sup></td><td>1.0 kV</td><td>1.5 kV</td></tr><tr><td colspan="5"><sup>a</sup> Surge suppressors shall not be removed. <sup>b</sup> Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. <sup>c</sup> During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.</td></tr></table>	Parts	Impulse test		Steady state test			New Zealand	Australia	New Zealand	Australia	Parts indicated in Clause 5.4.10.1 a) <sup>a</sup>	2.5 kV 10/700 µs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs	1.5 kV	3 kV	Parts indicated in Clause 5.4.10.1 b) and c) <sup>a</sup>	1.5 kV 10/700 µs <sup>c</sup>		1.0 kV	1.5 kV	<sup>a</sup> Surge suppressors shall not be removed. <sup>b</sup> Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. <sup>c</sup> During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.						
Parts	Impulse test		Steady state test																									
	New Zealand	Australia	New Zealand	Australia																								
Parts indicated in Clause 5.4.10.1 a) <sup>a</sup>	2.5 kV 10/700 µs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs	1.5 kV	3 kV																								
Parts indicated in Clause 5.4.10.1 b) and c) <sup>a</sup>	1.5 kV 10/700 µs <sup>c</sup>		1.0 kV	1.5 kV																								
<sup>a</sup> Surge suppressors shall not be removed. <sup>b</sup> Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. <sup>c</sup> During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.																												
5.4.10.2.2	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows:  NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.  NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		N/A																									
5.4.10.2.3	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows:  NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.  NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A																									
6	<b>Electrically-caused fire</b>		Pass																									
6.1	General  After the first paragraph, <i>insert</i> the following new paragraph:  Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202		Pass																									
6.6	After Clause 6.6, add the new Clauses 6.201 and 6.202 as follows:  <b>6.201 External power supplies, docking stations and other similar devices and</b> <b>6.202 Resistance to fire—Alternative tests</b>  (see special national conditions)		N/A																									
8.5.4	<b>Special categories of equipment comprising moving parts</b>		N/A																									
8.5.4.1	<b>Large data storage equipment</b>  In the first dashed row and the second dashed rows replace 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'.		N/A																									
8.6	<b>Stability of equipment</b>		N/A																									
8.6.1 and Table 36	<b>Requirements</b>  1. Table 36, <i>insert</i> Footnote c at the end of the 'Glass slide' heading, and add a new Footnote c		N/A																									

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>after the text of Footnote b in the last row of Table 36 as follows:</p> <p>c The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display.</p> <p>2. Table 36, fifth row, <i>insert</i> '201' at the end of 'No stability requirements'</p> <p>3. Table 36, ninth row, <i>insert</i> '201' at the end of 'No stability requirements'</p> <p>4. Table 36, add the following new footnote:</p> <p>201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply.</p> <p>5. Second paragraph beneath Table 36, delete the words 'MS2 and MS3 television sets' and replace with 'MS2 and MS3 television sets and display devices'</p>		
8.6.1	<p>After Clause 8.6.1 <i>add</i> the following new clauses:</p> <p><b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b></p> <p>(see special national conditions)</p>		N/A
Annex F Paragraph F.3.5.1	<p><b>Mains appliance outlet and socket-outlet markings</b></p> <p><i>Replace</i> 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.</p>		N/A
Annex G Paragraph G.4.2	<p><b>Mains connectors</b></p> <p>1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'.</p> <p>2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series'</p> <p>3 <i>Add</i> the following new paragraph:</p> <p>10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.</p>		N/A
Paragraph G.5.3.1	<p><b>Transformers, General</b></p> <p>1 In the third dashed point replace 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'</p> <p>2 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.</p>		Pass

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Paragraph G.7.1	<b>Mains supply cords, General</b> In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Table G.5	<b>Sizes of conductors</b> 1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5' 2 In the second row, second column, <i>delete</i> '0,75' and <i>replace</i> with '0.75 <sup>b</sup> 3 <i>Delete</i> Note 1. 4 <i>Replace</i> 'NOTE 2' with 'NOTE:'. 5 <i>Delete</i> the text of 'Footnote b' and <i>replace</i> with the following: <sup>b</sup> This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm <sup>2</sup> three-core supply flexible cords are not permitted; see AS/NZS 3191). 6 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M Paragraph M.3.2	<b>Protection circuits for batteries provided within the equipment, Test method</b> After the first dashed point add the following Note: NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		N/A
	<b>Special national conditions (if any)</b>		Pass
6.201	<b>External power supplies, docking stations and other similar devices</b> For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— – at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher.</p> <p>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.</p> <p>Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4</p>		
6.202	<b>Resistance to fire - Alternative tests</b>		N/A
6.202.1	<p><b>General</b></p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:</p> <p>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.</p> <p>b) The following parts which would contribute negligible fuel to a fire:</p> <p>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;</p> <p>– small electrical components, such as capacitors with a volume not exceeding 1 750 mm<sup>3</sup>, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.</p> <p>NOTE: In considering how to minimize propagation of fire and what ‘small parts’ are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.</p> <p><i>Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.</i></p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p>		
6.202.2	<p><b>Testing of non-metallic materials</b></p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.</p> <p>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.</p>		N/A
6.202.3	<p><b>Testing of insulating materials</b></p> <p>Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE: Contacts in components such as switch contacts are considered to be connections</p>		N/A
	<p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test.</p> <p>However, parts shielded by a barrier which meets the needle-flame test need not be tested</p>		N/A
	<p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications</p>		N/A

IEC62368_1D – ATTACHMENT													
Clause	Requirement + Test		Result - Remark	Verdict									
	<table><tr><td>Clause of AS/NZS 60695.11.5</td><td>Change</td></tr><tr><td>9 Test procedure</td><td></td></tr><tr><td>9.2 Application of needle-flame</td><td>Delete the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.  The duration of application of the test flame shall be 30 s +1 s.</td></tr><tr><td>9.3 Number of test specimens</td><td>Replace with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.</td></tr><tr><td>11 Evaluation of test results</td><td>Replace with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</td></tr></table> <p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested.</p>	Clause of AS/NZS 60695.11.5	Change	9 Test procedure		9.2 Application of needle-flame	Delete the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.  The duration of application of the test flame shall be 30 s +1 s.	9.3 Number of test specimens	Replace with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.	11 Evaluation of test results	Replace with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.		
Clause of AS/NZS 60695.11.5	Change												
9 Test procedure													
9.2 Application of needle-flame	Delete the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.  The duration of application of the test flame shall be 30 s +1 s.												
9.3 Number of test specimens	Replace with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.												
11 Evaluation of test results	Replace with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.												
6.202.4	<p><b>Testing in the event of non-extinguishing material</b></p> <p>If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glow wire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p>			N/A									
6.202.5	<p><b>Testing of printed boards</b></p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause</p>			N/A									

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.</p> <p>The test is not carried out if—</p> <ul style="list-style-type: none"> <li>– the printed board does not carry any potential ignition source;</li> <li>– the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or</li> <li>– the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.</li> </ul> <p><i>Conformance</i> shall be determined using the smallest thickness of the material.</p> <p>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.</p>		
6.202.6	<p><b>For open circuit voltages greater than 4 kV</b></p> <p>Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.</p>		N/A
8.6.1.201	<p><b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b></p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall or ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5</p> <p>which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment.</p> <p>The elements of the instructional safeguard shall be as follows:</p> <ul style="list-style-type: none"> <li>– element 1a: not available;</li> <li>– element 2: 'Stability Hazard' or equivalent wording;</li> <li>– element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text;</li> <li>– element 4: the following or equivalent text:</li> </ul> <p>To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions</p>		
8.6.1.202	<p><b>Restraining device</b></p> <p>MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage.</p> <p>Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation.</p>		N/A



IEC62368_1D – ATTACHMENT			
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 62368-1:2014+A11:2017
Attachment Form No.	EU_GD_IEC62368_1D_II
Attachment Originator	Nemko AS
Master Attachment	Date 2021-02-04
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	CENELEC COMMON MODIFICATIONS (EN)					Pass																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed “Z”.					Pass																																				
CONTENT S	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					Pass																																				
	Delete all the “country” notes in the reference document (IEC 62368-1:2014) according to the following list: <table border="1"><tr><td>0.2.1</td><td>Note</td><td>1</td><td>Note 3</td><td>4.1.15</td><td>Note</td></tr><tr><td>4.7.3</td><td>Note 1 and 2</td><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 13</td><td>Note c</td></tr><tr><td>5.4.2.3.2.4</td><td>Note 1 and 3</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3</td></tr><tr><td>5.7.5</td><td>Note</td><td>5.7.6.1</td><td>Note 1 and 2</td><td>10.2.1 Table 39</td><td>Note 2, 3 and 4</td></tr><tr><td>10.5.3</td><td>Note 2</td><td>10.6.2.1</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td></tr></table>					0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	Pass
0.2.1	Note	1	Note 3	4.1.15	Note																																					
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c																																					
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note																																					
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10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																					
	For special national conditions, see Annex ZB.					Pass																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.			See Letter of Assurance		Pass																																				
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:					Pass																																				
	a) Included as parts of the equipment			Product contains fuses.		Pass																																				
	b) For components in series with the mains; by devices in the building installation			The product is for building-in. Installation should be evaluated as part of the end product investigation.		N/A																																				

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Clause	Requirement + Test	Result - Remark	Verdict
	c) For pluggable type B or permanently connected; by devices in the building installation	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
5.4.2.3.2.4	<b>Add</b> the following to the end of this subclause: The requirement for interconnection with <b>external circuit</b> is in addition given in EN 50491-3:2009.		Pass
10.2.1	<b>Add</b> the following to c) and d) in table 39: For additional requirements, see 10.5.1.		N/A
10.5.1	<b>Add</b> the following after the first paragraph: For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. 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 cm <sup>2</sup> , at any point 10 cm from the outer surface of the apparatus. 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 96/29/Euratom of 13 May 1996.		N/A
10.6.1	<b>Add</b> the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	<b>Add</b> the following new subclause after 10.6.5. <b>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</b> The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566	See Letter of Assurance	N/A
G.7.1	<b>Add</b> the following note: NOTE Z1 The harmonized code designations		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	corresponding to the IEC cord types are given in Annex ZD.		
Bibliography	<p><b>Add</b> the following standards:</p> <p><b>Add</b> the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		Pass
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		Pass
4.1.15	<p><b>Denmark, Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p><b>Class I pluggable equipment type A</b> 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 <b>accessible</b> parts, have a marking stating that the equipment shall be connected to an earthed <b>mains</b> socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In <b>Denmark</b>: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In <b>Finland</b>: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In <b>Norway</b>: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In <b>Sweden</b>: "Apparaten skall anslutas till jordat uttag"</p>	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
4.7.3	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>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.</p> <p>Also see Annex G.4.2 of this annex</p>		N/A
5.2.2.2	<p><b>Denmark</b></p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking <b>safeguard</b>) for high <b>touch</b></p>	Touch current does not exceed the limits of 3.5mA. Additional testing should be considered in the end product depending on design.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>current</b> is required if the <b>touch current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		
5.4.11.1 and Annex G	<p><b>Finland and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>• two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>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</p> <ul style="list-style-type: none"> <li>• passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and</li> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11;</li> <li>• 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.</li> </ul>		N/A
5.5.2.1	<p><b>Norway</b></p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	<b>Finland, Norway and Sweden</b> To the end of the subclause the following is added: Resistors used as <b>basic safeguard</b> or bridging <b>basic insulation in class I pluggable equipment type A</b> shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	<b>Denmark</b> <b>Add</b> to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	<b>Ireland and United Kingdom</b> After the indent for <b>pluggable equipment type A</b> , the following is added: – the <b>protective current rating</b> is taken to be 13 A, this being the largest rating of fuse used in the <b>mains</b> plug.		N/A
5.6.5.1	<b>Ireland and United Kingdom</b> 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 mm <sup>2</sup> to 1,5 mm <sup>2</sup> in cross-sectional area.		N/A
5.7.5	<b>Denmark</b> To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the <b>protective conductor current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.1	<b>Norway and Sweden</b> 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. 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>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)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>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.”</p> <p>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.”.</p>		
5.7.6.2	<p><b>Denmark</b>  To the end of the subclause the following is added:  The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N/A
B.3.1 and B.4	<p><b>Ireland and United Kingdom</b>  The following is applicable:  To protect against excessive currents and short-circuits in the primary circuit of <b>direct plug-in equipment</b>, 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 <b>direct plug-in equipment</b>, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A
G.4.2	<p><b>Denmark:</b>  Appliances rated ≤13 A provided with a plug according to DS 60884-2-D1:2011.  Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>If a single-phase equipment having rated &gt;13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p>		
G.4.2	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>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.</p>		N/A
G.7.1	<p><b>United Kingdom</b></p> <p>To the first paragraph the following is added:</p> <p>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.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
G.7.1	<p><b>Ireland</b></p> <p>To the first paragraph the following is added:</p> <p>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</p>		N/A
G.7.2	<p><b>Ireland and United Kingdom</b></p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm<sup>2</sup> is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>ZC</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		Pass
10.5.2	<p><b>Germany</b> 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. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. <b>NOTE</b> Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a></p>		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

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

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>conductor), the conductor of protective earthing lead wire shall comply with either of the following:</p> <ul style="list-style-type: none"> <li>– 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</li> <li>– single core cord or single core cab tire cable with 1.25 mm<sup>2</sup> or more cross-sectional area</li> </ul>		
5.7.3	For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series or JIS C 8303, or otherwise being considered to comply with relevant regulations, or that is provided with mains appliance outlet as specified in JIS C 8283-2-2 for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains.		N/A
5.7.4	In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990.		N/A
6.4.3.3	<p>A fuse complying with JIS C 6575 series or a fuse having equivalent characteristics shall open within 1 s.</p> <p>For Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”. A fuse not complying with JIS C 6575 series shall be tested with the breaking capacity taken into account.</p>		N/A
8.5.4.2.1	Only three-phase stationary equipment rated more than 200 V ac can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4.		N/A
8.5.4.2.2	For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional.		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
	independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment.		
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
G.3.4	Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the relevant part of JIS C 6575 (corresponding to IEC60127) or shall have equivalent characteristics.  If there are no applicable IEC standards, overcurrent protective devices used as a safeguard shall comply with their applicable IEC standards.		Pass
G.4.1	This requirement is not applicable to Clauses G.4.2 and G.4.2A.		N/A
G.4.2	Mains connector shall comply with JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series.  Mains plugs and socket-outlets shall comply with JIS C 8282 series, JIS C 8303, IEC 60309 series, or have equivalent or better performance.  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 preventing mechanical stress not to transmit to the soldering part of inlet terminal. Consideration for an equipment rated not more than 125 V provided with Type C14 and C18 appliance coupler complying with JIS C 8283 series.		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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	equipment provided with independent protective earthing conductor.		
G.8.3.3	Withstand $1,71 \times 1.1 \times U_0$ for 5 s.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT	
IEC 62368-1	
U.S.A. AND CANADA NATIONAL DIFFERENCES	
(Audio/video, information and communication technology equipment – Part 1: Safety requirements)	
Differences according to.....:	CSA/UL 62368-1:2014
TRF template used.....:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No.....:	US_CA_ND_IEC62368_1D
Attachment Originator.....:	UL(US)
Master Attachment.....:	Dated 2021-02-04
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IEC 62368-1 - US and Canada National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	The product is for building-in. Installation should be evaluated as part of the end product investigation.	N/A
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment		N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		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
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V <sub>peak</sub> or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex M	Battery packs for stationary applications comply with special component requirements.		N/A
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m <sup>3</sup> (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m <sup>2</sup> (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and “Class 2” or equivalent; marking is located adjacent to the terminals and visible during wiring.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		Pass
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.		N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm <sup>2</sup> ).		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 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

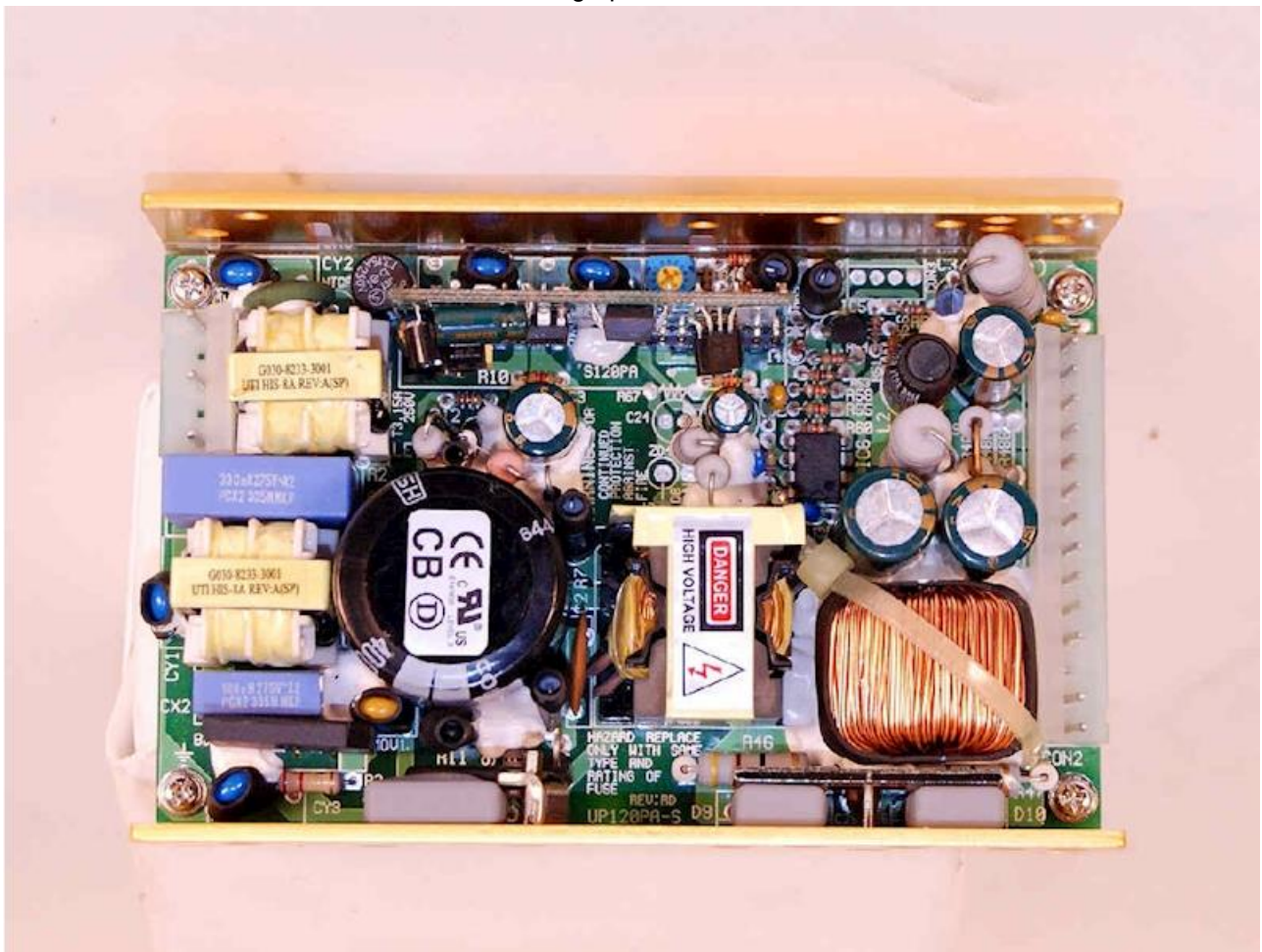
## Enclosures

## Enclosures

Type	Supplement Id	Description
Photographs	03-01	AM-120U-XYZ Rev-1 - Single
Photographs	03-02	AM-120U-XYZ Rev-1 - Quad
Photographs	03-03	AF-180P-XYZ - Single
Photographs	03-06	AF-180P-XYZ - Triple
Photographs	03-07	AF-180P-XYZ - Quad
Diagrams	04-01	Transformer (T1) build-up examples
Diagrams	04-06	Inductors for series
Diagrams	04-18	Alternate T1 for AM-120UA-XYZ
Diagrams	04-19	Longer U Case
Diagrams	04-20	Shorter U Case
Schematics + PWB	05-01	AM-120U-XYZ Rev-1 - Single Output Schematics
Schematics + PWB	05-02	AM-120U-XYZ Rev-1 - Multiple Output Schematics
Schematics + PWB	05-03	AF-180P-XYZ - Single Output Schematic
Schematics + PWB	05-04	AF-180P-XYZ - Multiple Output Schematic
Schematics + PWB	05-05	AM-120U-XYZ Rev-1 - Trace Layouts
Schematics + PWB	05-06	AF-180P-XYZ - Trace Layouts
Schematics + PWB	05-07	AM-120UA-XYZ
Miscellaneous	07-01	Letter of Assurance (LOA)
Miscellaneous	07-02	Resistor List for loading
Licenses	08-01	FR-530 UL Card

Enclosures

Photographs ID 03-01



Enclosures

Photographs ID 03-02





Enclosures

Photographs ID 03-03



Enclosures

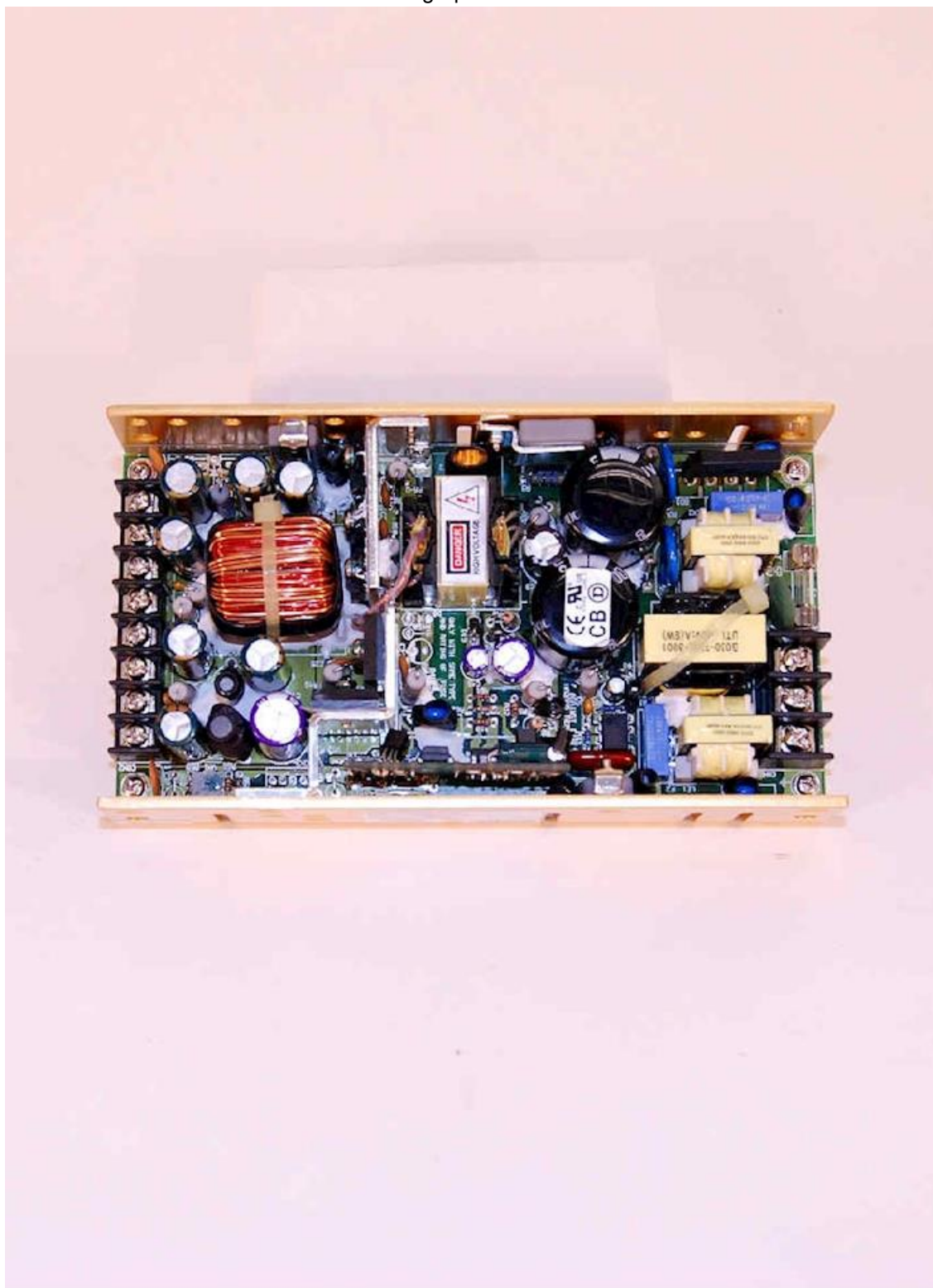
Photographs ID 03-06





Enclosures

Photographs ID 03-07

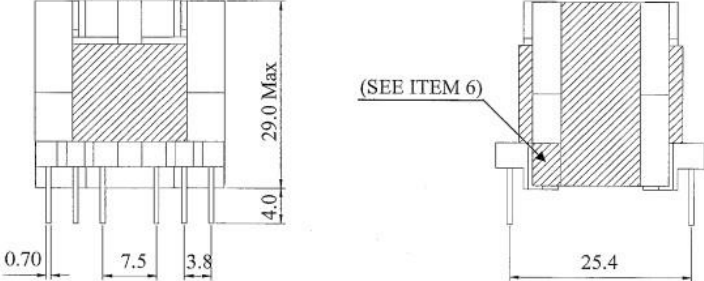
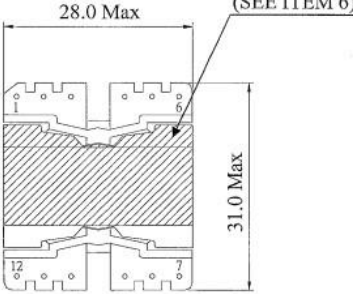





## Enclosures

## Diagrams ID 04-01

A1-1208-51-938

CUSTOMER P/N	G050-6502-3010AB	PART NO	FPQ26255331V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2007,12,18			.xx	.x
DOC.NO		REV	B	PAGE	2 OF 4	±0.1	±0.5
<p>1.DIMENSION :</p> <p>Marking : G050-6502-3010AB U120PA-S1Z(10) UTI REV:B(SWM)</p>  <p>(SEE ITEM 6)</p>  <p>(SEE ITEM 6)</p> <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 3.5 mH ±20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 1/2 , 所有出入線須穿 TEFLON 套管.</p> <p>5.CORE FIXED BY MYLAR TAPE x 2 Ts.</p> <p>6.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>							
 <p><b>展 耐 有 限 公 司</b> <b>SHOWWELL</b> <b>GROUP CO., LTD</b> 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a></p>		APPROVED BY	CHECKED BY	DRAWING BY			
		張 哲 嘉	呂 淑 姿	黃 美 卿			
CUSTOMER P/N	G050-6502-3010AB	PART NO	FPQ26255331V-PF			TOLERANCES	

## Enclosures

## Diagrams ID 04-01

AM-1200-51-948

DESCRIPTION	PQ-26/25	DATE	2007,12,18			.XX	.X
DOC.NO		REV	B	PAGE	3 OF 4	±0.1	±0.5

7.OUTLINE :

8.SCHEMATIC :


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CUSTOMER P/N	G050-6502-3010AB	PART NO	FPQ26255331V-PF	TOLERANCES
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## Enclosures

Diagrams ID 04-01

AM-120U-51-938

DESCRIPTION	PQ-26/25	DATE	2007,12,18			.xx	.x
DOC.NO		REV	B	PAGE	4 OF 4	±0.1	±0.5
Material List							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL				RE-MARK
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)				*
2	CORE	FERRITE CORE : PQ-26/25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)				* * *
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956				*
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292				*
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837				*
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007				*
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979				*
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 展 耐 有 限 公 司 S H O W w e l l G R O U P C O . , L T D 新 北 市 新 莊 區 思 源 路 593 巷 17 號 1 樓 電 話 : (02)8521-5010 傳 真 : (02)8521-5013 http://www.showwell.com.tw			APPROVED BY	CHECKED BY	DRAWING BY		
			張 哲 嘉	呂 淑 姿	黃 美 卿		

## Enclosures

## Diagrams ID 04-01

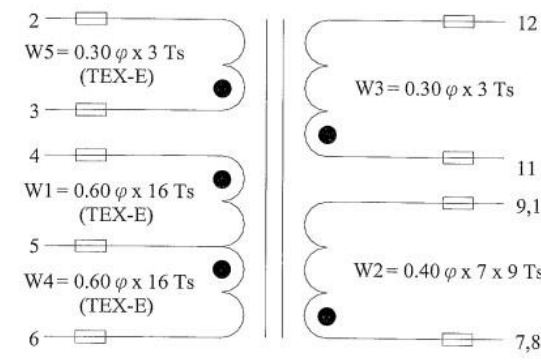
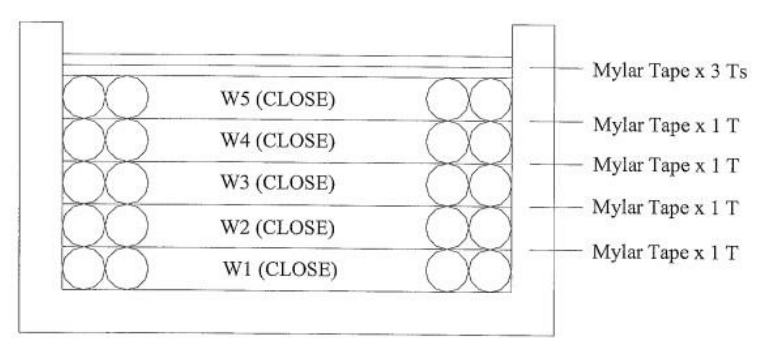

AM-120U-53

CUSTOMER P/N	G050-6502-8000AB	PART NO	FPQ026021046V-PF	TOLERANCES		
DESCRIPTION	PQ-26/25	DATE	2021,11,26	.xx	.x	
DOC.NO		REV	A	PAGE	2 OF 4	±0.1 ±0.5
<p>1.DIMENSION :</p> <p>Marking : G050-6502-8000AB U120PA-S3Y(10) UTI REV:A(SWM)</p> <p>28.0 Max (SEE ITEM 6) 31.0 Max</p> <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 5.0 mH ±20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 1/2 , 所有出入線須穿 TEFLON 套管.</p> <p>5.CORE FIXED BY MYLAR TAPE x 2 TS.</p> <p>6.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>						
<p>展耐有限公司 SHOWwell GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話: (02)8521-5010 傳真: (02)8521-5013 http://www.showwell.com.tw</p>		APPROVED BY	CHECKED BY	DRAWING BY		
		張哲嘉	張庭毓	張家毓		

## Enclosures

## Diagrams ID 04-01


AM-1200-53

CUSTOMER P/N	G050-6502-8000AB	PART NO	FPQ026021046V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.XX	.X
DOC.NO		REV	A	PAGE	3 OF 4	±0.1	±0.5
<p>7.OUTLINE :</p>  <p>2 — <math>W5 = 0.30 \phi \times 3 \text{ Ts}</math> (TEX-E)</p> <p>3 —</p> <p>4 — <math>W1 = 0.60 \phi \times 16 \text{ Ts}</math> (TEX-E)</p> <p>5 — <math>W4 = 0.60 \phi \times 16 \text{ Ts}</math> (TEX-E)</p> <p>6 —</p> <p>12 — <math>W3 = 0.30 \phi \times 3 \text{ Ts}</math></p> <p>11 —</p> <p>9,10 — <math>W2 = 0.40 \phi \times 7 \times 9 \text{ Ts}</math></p> <p>7,8 —</p> <p>8.SCHEMATIC :</p>  <p>W5 (CLOSE)</p> <p>W4 (CLOSE)</p> <p>W3 (CLOSE)</p> <p>W2 (CLOSE)</p> <p>W1 (CLOSE)</p> <p>Mylar Tape x 3 Ts</p> <p>Mylar Tape x 1 T</p> <p>Mylar Tape x 1 T</p> <p>Mylar Tape x 1 T</p> <p>Mylar Tape x 1 T</p>							
 <p>展 尉 有 限 公 司</p> <p>SHOWwell GROUP CO., LTD</p> <p>新北市新莊區思源路 593 巷 17 號 1 樓</p> <p>電話 : (02)8521-5010 傳真 : (02)8521-5013</p> <p><a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a></p>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

Diagrams ID 04-01

AM-120U-52

CUSTOMER P/N	G050-6502-8000AB	PART NO	FPQ026021046V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	4 OF 4	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			* * * *	
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)			*	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007			*	
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
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## Enclosures

## Diagrams ID 04-01

AM-120U-55

CUSTOMER P/N	G050-6502-3015AB	PART NO	FPQ026021047V-PF	TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26	.xx	.x
DOC.NO		REV	A	PAGE	2 OF 4
				±0.1	±0.5

1.DIMENSION :

Marking : G050-6502-3015AB  
U120PA-S5Z(10)  
UTI REV:A(SWM)

28.0 Max

31.0 Max

(SEE ITEM 6)

2.INDUCTANCE : (@1KHz , 0.3V)  
L(4-6) = 5.0 mH ±20%

3.HI-POT :  
PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA.  
PRI & SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.

4.PIN 1 CUTOFF , PIN 5 CUTOFF 1/2 , 所有出入線須穿 TEFLON 套管.

5.CORE FIXED BY MYLAR TAPE x 2 TS.

6.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).

<p>展耐有限公司 SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 http://www.showwell.com.tw</p>	APPROVED BY	CHECKED BY	DRAWING BY
	張哲嘉	張庭毓	張家毓

## Enclosures

## Diagrams ID 04-01

AM-1206-55

CUSTOMER P/N	G050-6502-3015AB	PART NO	FPQ026021047V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	3 OF 4	±0.1	±0.5

7.OUTLINE :

8.SCHEMATIC :


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## Enclosures

Diagrams ID 04-01

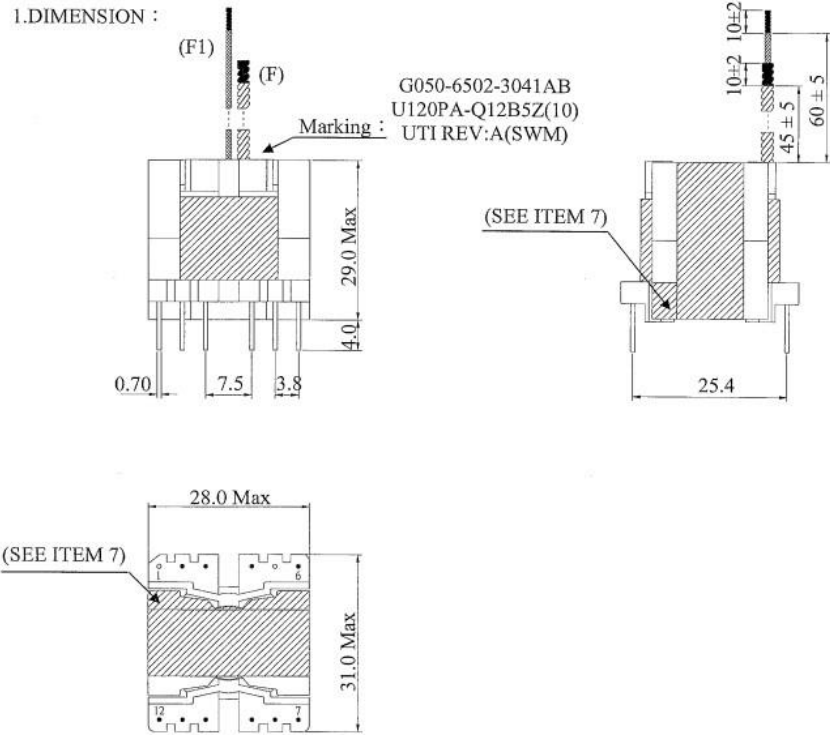

AH-120U-55

CUSTOMER P/N	G050-6502-3015AB	PART NO	FPQ026021047V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	4 OF 4	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)			*	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007			*	
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 <b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>			APPROVED BY	CHECKED BY	DRAWING BY		
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## Enclosures

## Diagrams ID 04-01

AM-1200-01225

CUSTOMER P/N	G050-6502-3041AB	PART NO	FPQ026021048V-PF	TOLERANCES	
DESCRIPTION	PQ-26 / 25	DATE	2021,11,26	.XX	.X
DOC. NO		REV	A	PAGE	2 OF 4
				±0.1	±0.5
<p>1.DIMENSION :</p>  <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 5.0 mH ± 20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 2/3 , 所有出入線須穿 TEFLON 套管.</p> <p>5.F &amp; F1 由 PIN(7-12)上端出線.</p> <p>6.CORE FIXED BY MYLAR TAPE x 2 Ts.</p> <p>7.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>					
 <p><b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 http://www.showwell.com.tw</p>		APPROVED BY	CHECKED BY	DRAWING BY	
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## Enclosures

## Diagrams ID 04-01

AM-120U-Q1225

CUSTOMER P/N	G050-6502-3041AB	PART NO	FPQ026021048V-PF			TOLERANCES	
DESCRIPTION	PQ-26 / 25	DATE	2021,11,26			.xx	.x
DOC. NO		REV	A	PAGE	3 OF 4	±0.1	±0.5

8.OUTLINE :

2  $\square$  W7 = 0.30  $\varphi$  x 3 Ts (TEX-E)  
3  $\square$   
4  $\square$  W1 = 0.60  $\varphi$  x 16 Ts (TEX-E)  
5  $\square$  W6 = 0.60  $\varphi$  x 16 Ts (TEX-E)  
6  $\square$

11  
W2 = 0.30  $\varphi$  x 10 x 4 Ts  
9,10  
W5 = 0.30  $\varphi$  x 12 x 3 Ts  
F  
W3 = 0.30  $\varphi$  x 2 x 7 Ts  
8  
7  
W4 = 0.30  $\varphi$  x 26 Ts  
F1

9.SCHEMATIC :

W7 (CLOSE)  
W6 (CLOSE)  
W5 (CLOSE)  
W3 & W4 (B.F.)  
W2 (CLOSE)  
W1 (CLOSE)


Mylar Tape x 3 Ts  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T

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## Enclosures

Diagrams ID 04-01

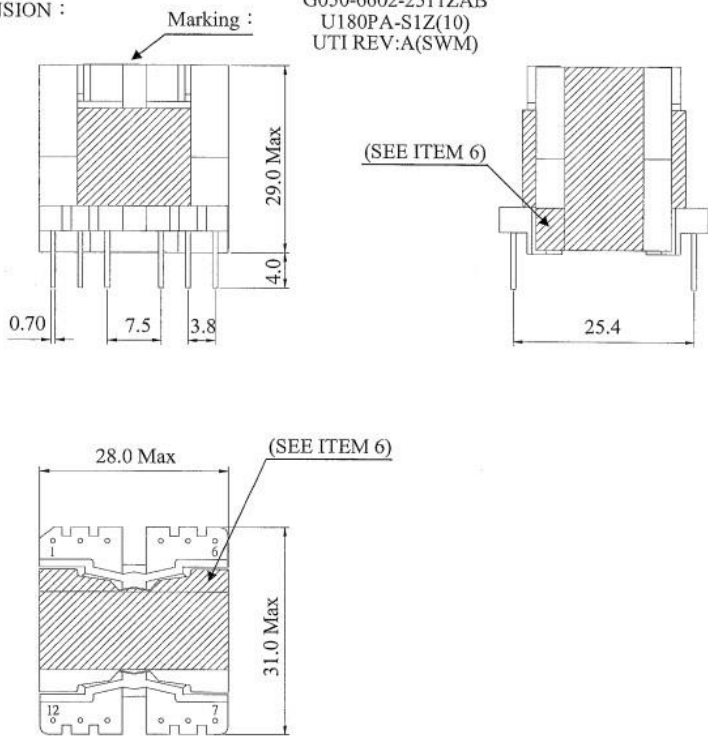

A1-120U-Q1225

CUSTOMER P/N	G050-6502-3041AB	PART NO	FPQ026021048V-PF			TOLERANCES	
DESCRIPTION	PQ-26 / 25	DATE	2021,11,26			.xx	.x
DOC. NO		REV	A	PAGE	4 OF 4	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)			*	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007			*	
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 <b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話: (02)8521-5010 傳真: (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY			
		張 哲 嘉	張 庭 毓	張 家 毓			

## Enclosures

## Diagrams ID 04-01

AF-180P-S10

CUSTOMER P/N	G050-6602-2511ZAB	PART NO	FPQ026021049V-PF	TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26	.XX	.X
DOC.NO		REV	A	PAGE	2 OF 4
				±0.1	±0.5
<p>1.DIMENSION :</p> <p>Marking : G050-6602-2511ZAB U180PA-S1Z(10) UTI REV:A(SWM)</p>  <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 6.3 mH ±20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 1/2 , 所有出入線須穿 TEFLON 套管.</p> <p>5.CORE FIXED BY MYLAR TAPE x 2 TS.</p> <p>6.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>					
 <p><b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a></p>		APPROVED BY	CHECKED BY	DRAWING BY	
		張 哲 嘉	張 庭 毓	張 家 毓	

## Enclosures

## Diagrams ID 04-01

AF-180p-51

CUSTOMER P/N	G050-6602-2511ZAB	PART NO	FPQ026021049V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	3 OF 4	±0.1	±0.5

7.OUTLINE :

2 — — 12  
W5 = 0.30  $\varphi$  x 6 Ts (TEX-E)  
3 — —  
4 — —  
W1 = 0.50  $\varphi$  x 18 Ts (TEX-E)  
5 — —  
W4 = 0.50  $\varphi$  x 18 Ts (TEX-E)  
6 — —  
W3 = 0.30  $\varphi$  x 5 Ts  
11  
9,10  
W2 = 0.40  $\varphi$  x 10 x 3 Ts  
7,8

8.SCHEMATIC :

W5 (CLOSE)  
W4 (CLOSE)  
W3 (CLOSE)  
W2 (CLOSE)  
W1 (CLOSE)


Mylar Tape x 3 Ts  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T

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	張 哲 嘉	張 庭 毓	張 家 毓

## Enclosures

Diagrams ID 04-01

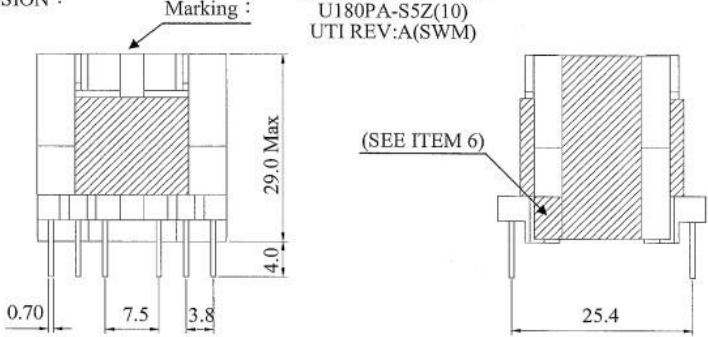
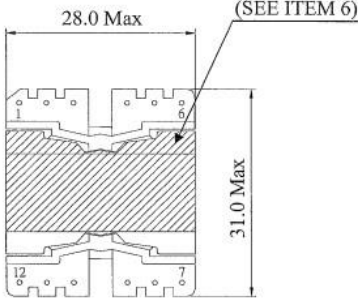

AF-180p-56

CUSTOMER P/N	G050-6602-2511ZAB	PART NO	FPQ026021049V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	4 OF 4	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)			*	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007			*	
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 <b>展 尉 有 限 公 司</b> SHOWwell GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

## Diagrams ID 04-01

AF-180P-SS

CUSTOMER P/N	G050-6602-2515ZAB	PART NO	FPQ026021050V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.XX	.X
DOC.NO		REV	A	PAGE	2 OF 4	±0.1	±0.5
<p>1.DIMENSION :</p> <p>Marking : G050-6602-2515ZAB U180PA-S5Z(10) UTI REV:A(SWM)</p>  <p>(SEE ITEM 6)</p>  <p>(SEE ITEM 6)</p> <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 6.3 mH ±20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 1/2 , 所有出入線須穿 TEFLON 套管.</p> <p>5.CORE FIXED BY MYLAR TAPE x 2 TS.</p> <p>6.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>							
 <p><b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a></p>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

## Diagrams ID 04-01

AF-180p-88

CUSTOMER P/N	G050-6602-2515ZAB	PART NO	FPQ026021050V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	3 OF 4	±0.1	±0.5

7.OUTLINE :

2 — — 12  
W5 = 0.30  $\varphi$  x 6 Ts (TEX-E)  
3 — —  
4 — —  
W1 = 0.50  $\varphi$  x 18 Ts (TEX-E)  
5 — —  
W4 = 0.50  $\varphi$  x 18 Ts (TEX-E)  
6 — —  
W3 = 0.30  $\varphi$  x 5 Ts  
11  
9,10  
W2 = 0.35  $\varphi$  x 4 x 26 Ts  
7,8

8.SCHEMATIC :

W5 (CLOSE)  
W4 (CLOSE)  
W3 (CLOSE)  
W2 (CLOSE)  
W1 (CLOSE)


Mylar Tape x 3 Ts  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T  
Mylar Tape x 1 T

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## Enclosures

Diagrams ID 04-01

AF-180P-SS

CUSTOMER P/N	G050-6602-2515ZAB	PART NO	FPQ026021050V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2021,11,26			.xx	.x
DOC.NO		REV	A	PAGE	4 OF 4	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)			*	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007			*	
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
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## Enclosures

## Diagrams ID 04-01

AM-1200-52

CUSTOMER P/N	G050-6502-3012AB	PART NO	FPQ26256134V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2007,12,18			.xx	.x
DOC.NO		REV	B	PAGE	2 OF 6	±0.1	±0.5
<p>1.DIMENSION : <span style="float: right;">Marking : G050-6502-3012AB U120PA-S2Z(10) UTI HIS-8A REV : A(SWM)</span></p> <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 5.0 mH ±20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 1/2 , 所有出入線須穿 TEFLON 套管.</p> <p>5.CORE FIXED BY MYLAR TAPE x 2 Ts.</p> <p>6.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>							
<p><b>展耐有限公司</b> SHOWWELL GROUP CO.,LTD 台北縣新莊市中正路 649 號 9 樓 電話: (02)2908-7791 傳真: (02)2908-7793 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a></p>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

## Diagrams ID 04-01

AM-120V-62

CUSTOMER P/N	G050-6502-3012AB	PART NO	FPQ26256134V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2007,12,18			.xx	.x
DOC.NO		REV	B	PAGE	3 OF 6	±0.1	±0.5

7.OUTLINE :


8.SCHEMATIC :

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## Enclosures

Diagrams ID 04-01

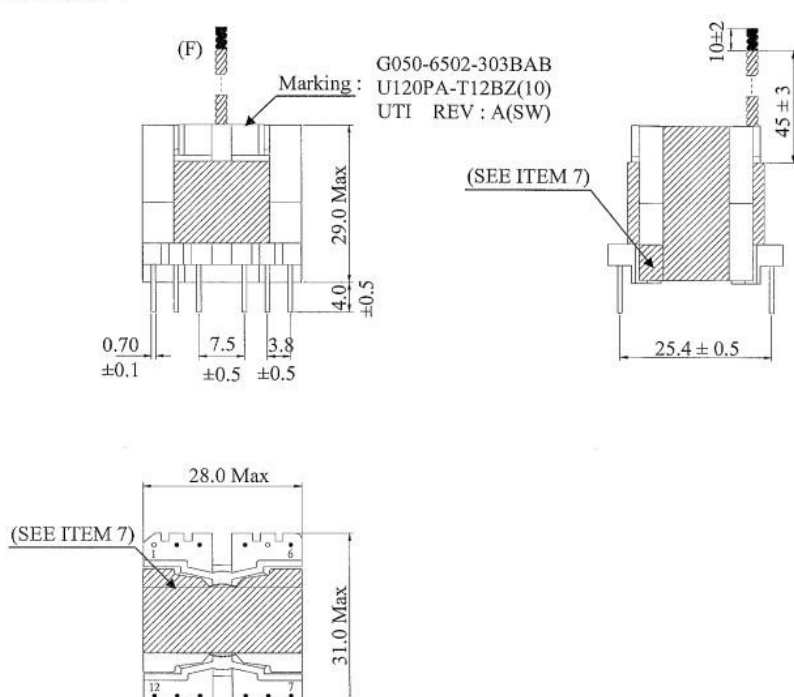

AM-12013-42

CUSTOMER P/N	G050-6502-3012AB	PART NO	FPQ26256134V-PF			TOLERANCES	
DESCRIPTION	PQ-26/25	DATE	2007,12,18			.xx	.x
DOC.NO		REV	B	PAGE	4 OF 6	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATEISU CORPORATION (MB4)			*	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007			*	
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:1.ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
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## Enclosures

## Diagrams ID 04-01

AM-120L-T122

CUSTOMER P/N	G050-6502-303BAB	PART NO	FPQ26255406V-PF			TOLERANCES	
DESCRIPTION	PQ-26 / 25	DATE	2006,01,03			.xx	.x
DOC. NO		REV	A	PAGE	2 OF 6	±0.1	±0.5
<p>1.DIMENSION :</p>  <p>2.INDUCTANCE : (@1KHz , 0.3V) L(4-6) = 5.0 mH ± 20%</p> <p>3.HI-POT : PRI TO SEC : AC 4.0 KV , 1 MINUTE , 5 mA. PRI &amp; SEC TO CORE : AC 2.0 KV , 1 MINUTE , 5 mA.</p> <p>4.PIN 1 CUTOFF , PIN 5 CUTOFF 2/3 , 所有出入線須穿 TEFLON 套管.</p> <p>5.F 由 PIN(7-12)上端出線.</p> <p>6.CORE FIXED BY MYLAR TAPE x 2 Ts.</p> <p>7.下 CORE 靠近 P(1-6)側須貼 MYLAR TAPE x 14mm 成 U 型 , 外側反折貼於 CORE 側面(不得剪破).</p>							
 <p><b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 台北縣新莊市中正路 649 號 9 樓 電話: (02)2908-7791 傳真: (02)2908-7793 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a></p>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

## Diagrams ID 04-01

AM-1201-T122

CUSTOMER P/N	G050-6502-303BAB	PART NO	FPQ26255406V-PF			TOLERANCES	
DESCRIPTION	PQ-26 / 25	DATE	2006,01,03			.xx	.x
DOC. NO		REV	A	PAGE	3 OF 6	±0.1	±0.5

8.OUTLINE :


9.SCHEMATIC :

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## Enclosures

Diagrams ID 04-01

AM-12011-7122

CUSTOMER P/N	G050-6502-303BAB	PART NO	FPQ26255406V-PF	TOLERANCES	
DESCRIPTION	PQ-26 / 25	DATE	2006,01,03	.xx	.x
DOC. NO		REV	A	PAGE	4 OF 6
				±0.1	±0.5
<b>Material List</b>					
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL		RE-MARK
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)		*
2	CORE	FERRITE CORE : PQ-26 / 25	PHILIPS COMPONENTS CO.,LTD (3C90) HIMAG MAGNETIC CORPORATION (MZ-4) KAWATETSU CORPORATION (MB4)		*
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956		*
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292		*
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837		*
6	TUBE	TEFLON TUBE : TFE-TW-300	ZEUS INDUSTRIAL PRODUCT INC., E64007		*
7	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979		*
NOTES:1.ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.					
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## Enclosures

Diagrams ID 04-06

**Unipower LLC**

Line Choke List Frank &amp; Joe 11/26/'21

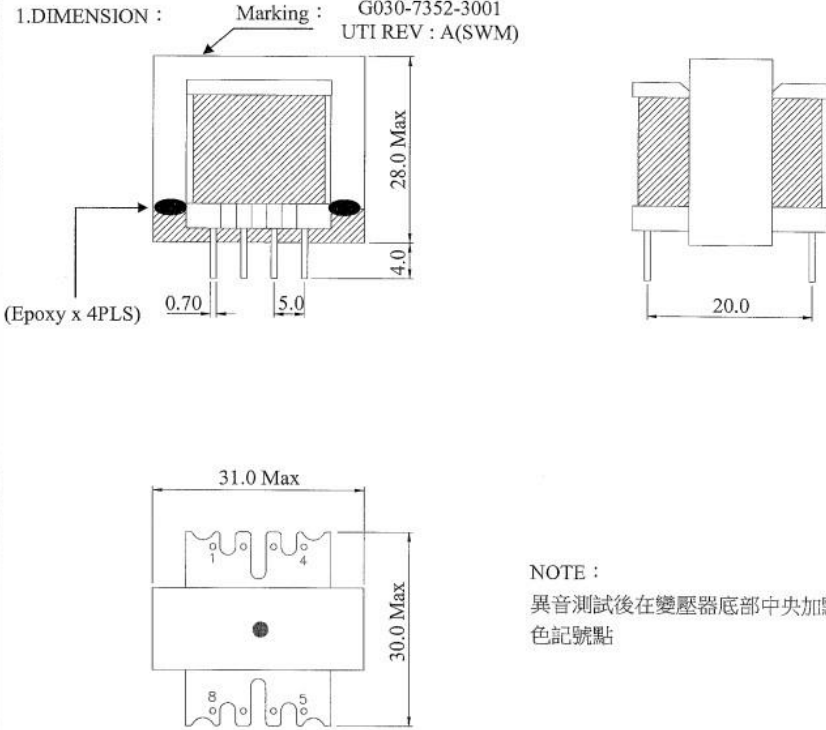

Model Name : AM-120U Series  
AF-180U Series

Vendor	Model/Series	Remark
Showwell(SWM)	G030-7352-3001	LE2 for AF-180U Series
Showwell(SWM)	G030-8902-3501	LE1&LE3 for AF-180U Series LE1 for AM-120U-Q1332-190
Showwell(SWM)	G030-8233-3001	LE1&LE2 for AM-120U Series
Showwell(SWM)	G030-5163-3002C	LE2 for AM-120U-Q1332-190

## Enclosures

## Diagrams ID 04-06

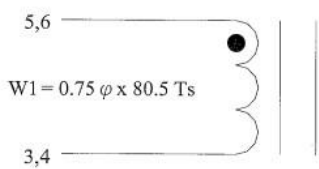
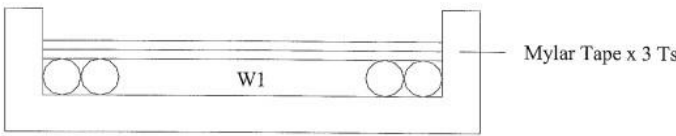

LE2 for AF-180U Series.

CUSTOMER P/N	G030-7352-3001	PART NO	SEI02805372V-PF			TOLERANCES	
DESCRIPTION	EI-28 x 11	DATE	2011,11,03			.xx	.x
DOC. NO		REV	C	PAGE	2 OF 5	±0.1	±0.5
<p>1.DIMENSION : Marking : G030-7352-3001 UTI REV : A(SWM)</p>  <p>NOTE : 異音測試後在變壓器底部中央加點綠色記號點</p> <p>2.CORE : EI-28 Z11 0.35A 3.INDUCTANCE : (@120Hz, 0.3V) L(5,6-3,4) = 3.5 mH (+ 0.1 mH / - 0.9 mH) 4.HI-POT : PRI TO SEC : AC 1.5 KV, 1 MINUTE, 5 mA. PRI &amp; SEC TO CORE : AC 1.0 KV, 1 MINUTE, 5 mA. 5.PIN 1, 2, 8 CUTOFF. 6.矽鋼片 1 片置於 PIN 端.</p>							
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## Enclosures

## Diagrams ID 04-06


LEZ for AF-180U Series.

CUSTOMER P/N	G030-7352-3001	PART NO	SEI02805372V-PF			TOLERANCES	
DESCRIPTION	EI-28 x 11	DATE	2011,11,03			.XX	.X
DOC. NO		REV	C	PAGE	3 OF 5	±0.1	±0.5
7.OUTLINE :							
							
8.SCHEMATIC :							
							
 <b>展 尉 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

Diagrams ID 04-06

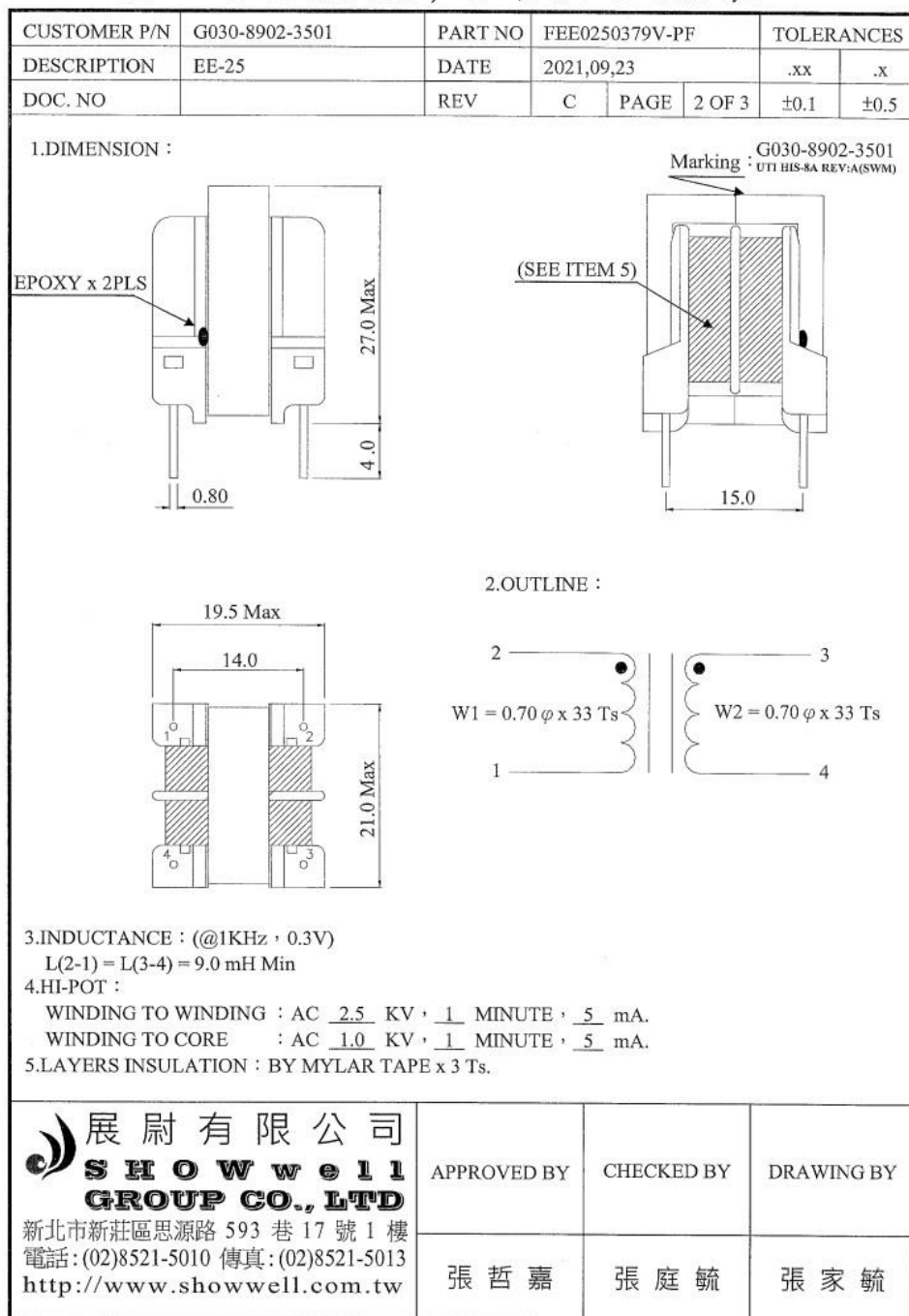
LE2 for AF-1800 Series

CUSTOMER P/N	G030-7352-3001	PART NO	SEI02805372V-PF			TOLERANCES	
DESCRIPTION	EI-28 x 11	DATE	2011,11,03			.XX	.X
DOC. NO		REV	C	PAGE	4 OF 5	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : EI-28 Z11	TOPPER SILICON STEEL(SZ) CO.,LTD DYNAIC STEEL INDUSTRIAL CO.,LTD			* *	
3	BOBBIN	HITACHI : CP-J-8800	HITACHI CHEMICAL CO., E42956			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	1. JUNG SHING WIRE CO.,LTD. E174837			*	
6	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES:1.ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 <b>展 尉 有 限 公 司</b> SHOWwell GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY			
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## Enclosures

## Diagrams ID 04-06


LEI and LE3 For AF-180U Series, LE1 for AM-120U-R1332-190



## Enclosures

## Diagrams ID 04-06

LEI and LE3 for AF-1800 Series. LEI for AM-DOL - Q1332-190

CUSTOMER P/N	G030-8902-3501	PART NO	FEE0250379V-PF			TOLERANCES	
DESCRIPTION	EE-25	DATE	2021,09,23			.xx	.x
DOC. NO		REV	C	PAGE	3 OF 3	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670(UTI)			* * *	
2	CORE	FERRITE CORE : EE-25	ACME ELECTRONICS CORPORATION (A10) NIPPON CERAMIC CO.,LTD (NC-10H) ACME ELECTRONICS CORPORATION (A15)			*	
3	BOBBIN	DUPON RYNITE : FR-530	DUPON DE NEMOURS, INC., E41938			*	
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292			*	
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	JUNG SHING WIRE CO.,LTD. E174837			*	
6	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979			*	
NOTES: ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 <b>展 耐 有 限 公 司</b> <b>SHOWWELL</b> <b>GROUP CO., LTD</b> 新北市新莊區思源路 593 巷 17 號 1 樓 電話: (02)8521-5010 傳真: (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY			
		張 哲 嘉	張 庭 毓	張 家 毓			

## Enclosures

## Diagrams ID 04-06

LE1 and LE2 for AM-120U series.

CUSTOMER P/N	G030-8233-3001	PART NO	FEE0250278V-PF		TOLERANCES	
DESCRIPTION	EE-25	DATE	2021,09,23		.xx	.x
DOC. NO		REV	C	PAGE 2 OF 3	±0.1	±0.5

1.DIMENSION :

EPOXY x 2PLS

Marking : G030-8233-3001  
UTI HIS-8A REV:A(SWM)

(SEE ITEM 5)

2.OUTLINE :

W1 = 0.55  $\phi$  x 52 Ts

W2 = 0.55  $\phi$  x 52 Ts

3.INDUCTANCE : (@1KHz , 0.3V)  
L(2-1) = L(3-4) = 21 mH Min

4.HI-POT :  
WINDING TO WINDING : AC 2.5 KV , 1 MINUTE , 5 mA.  
WINDING TO CORE : AC 1.0 KV , 1 MINUTE , 5 mA.

5.LAYERS INSULATION : BY MYLAR TAPE x 3 Ts.

<b>展 尉 有 限 公 司</b> <b>SHOWWELL</b> <b>GROUP CO., LTD</b> 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>	APPROVED BY	CHECKED BY	DRAWING BY
	張 哲 嘉	張 庭 毓	張 家 毓

## Enclosures

Diagrams ID 04-06

LE1 and LE2 for BM-120d Series.

CUSTOMER P/N	G030-8233-3001	PART NO	FEE0250278V-PF	TOLERANCES	
DESCRIPTION	EE-25	DATE	2021,09,23	.XX	.X
DOC. NO		REV	C	PAGE 3 OF 3	±0.1 ±0.5
<b>Material List</b>					
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL		RE-MARK
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670(UTI)		*
2	CORE	FERRITE CORE : EE-25	ACME ELECTRONICS CORPORATION (A10) NIPPON CERAMIC CO.,LTD (NC-10H) ACME ELECTRONICS CORPORATION (A15)		
3	BOBBIN	DUPON RYNITE : FR-530	DUPON DE NEMOURS, INC., E41938		*
4	TAPE	SYMBIO: MY130 (b)	SYMBIO INC., E50292		
5	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	JUNG SHING WIRE CO.,LTD. E174837		
6	VARNISH	HITACHI: WP-2952F-2G	HITACHI CHEMICAL CO., E72979		
NOTES:ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.					
<b>展 耐 有 限 公 司</b> <b>S H O W w e l l</b> <b>G R O U P C O . , L T D</b> 新北市新莊區思源路 593 巷 17 號 1 樓 電話: (02)8521-5010 傳真: (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY	
		張 哲 嘉	張 庭 毓	張 家 毓	



## Enclosures

## Diagrams ID 04-06

LE2 for AM-1200-Q1332-190

CUSTOMER P/N	G030-5163-3002C	PART NO	FTR022011121V-PF		TOLERANCES	
DESCRIPTION	T22 x 14 x 8	DATE	2021,11,26		.xx	.x
DOC. NO		REV	A	PAGE	2 OF 3	±0.1 ±0.5

1.DIMENSION :

2.OUTLINE :

3.CORE : T 22 x 14 x 8 (R15K + Coating)

4.INDUCTANCE : (@1KHz, 0.3V)

$L(1-4) = L(2-3) = 16 \text{ mH Min}$

5.HI-POT :

WINDING TO WINDING : AC 1.0 KV, 1 MINUTE, 5 mA.

WINDING TO CORE : AC 0.5 KV, 1 MINUTE, 5 mA.

6.繞線採時鐘繞法

7.中間隔板 1.6 mm ; 出入線 FIXED BY EPOXY x 2 PLS.


1 ——— 2  
W1 = 0.80  $\varphi$  x 39 Ts  
4 ——— 3  
W2 = 0.70  $\varphi$  x 39 Ts

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	張 哲 嘉	張 庭 毓	張 家 毓

## Enclosures

Diagrams ID 04-06

LE2 for AM-120U-0332-190.

CUSTOMER P/N	G030-5163-3002C	PART NO	FTR022011121V-PF			TOLERANCES	
DESCRIPTION	T22 x 14 x 8	DATE	2021,11,26			.xx	.x
DOC. NO		REV	A	PAGE	3 OF 3	±0.1	±0.5
<b>Material List</b>							
NO.	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL			RE-MARK	
1	SYSTEM	CLASS 130(B), HIS-8A	GREEN CUBES, E229670 (UTI)			*	
2	CORE	FERRITE CORE : T22 x 14 x 8	ACME ELECTRONICS CORPORATION (A15) VAKOS INDUSTRIES CO., LTD (R15K)			* *	
3	TAPE	TAPE	SYMBIO: MY130 (b)			*	
4	WIRE	POLYURETHANE ENAMELLED COPPER WIRE UEY-2 OR UEYT, 130°C, MW28-C	JUNG SHING WIRE CO.,LTD. E174837			*	
NOTES : ALL THE MATERIAL MAY BE CHANGED BY THE EQUIVALENT MATERIAL.							
 <b>展 耐 有 限 公 司</b> SHOWWELL GROUP CO., LTD 新北市新莊區思源路 593 巷 17 號 1 樓 電話 : (02)8521-5010 傳真 : (02)8521-5013 <a href="http://www.showwell.com.tw">http://www.showwell.com.tw</a>		APPROVED BY	CHECKED BY	DRAWING BY			
		張 哲 嘉	張 庭 毓	張 家 毓			

## Enclosures

Diagrams ID 04-18

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 昂創科技股份有限公司 CUSTOMER PT/NO: G050-6502-3015ABH

DESCRIPTION: TRANSFORMER SP PT/NO.

SAMPLE SUBMIT NO.: SP10H016 ISSUE DATE Feb 09, 2010 REV: A

(1) CONFIGURATION & DESCRIPTION

UNIT : m/m

※ PIN1 CUT OFF, PIN5 CUT OFF2/3.  
 ※ PIN 端 CORE 靠 PIN1-6 側須貼 14mm 膠帶一層,且不可剪開,不能看到有破洞.  
 ※ CORE TAPE 用 11mm 黃色膠帶包 3Ts.  
 ※ F 線由 PIN7-12 側頂部飛出,穿透明 TEFLON 套管絞線而成,套管長 45 ±3mm,鍍錫部分 10±2mm.

NO.	A	B	C	D	E	F	G	H	I	J	K	L
SPECIFICATION	29.0	30.0	3.5	33.0	0.7 $\phi$	3.8	25.4	7.5	45.0	10.0	2.0	
TOLERANCE	MAX	MAX	MIN	MAX	±0.1	±0.3	±0.5	±0.5	±3.0	±2.0	MAX	

APPROVED BY : 陳 99.02.10 淑芬

CHECKED BY : 陳 99.02.10 淑芬

PREPARED BY : 陳 99.02.10 淑芬

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PAGE : 2 / 6

## Enclosures

Diagrams ID 04-18

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 昂創科技股份有限公司 CUSTOMER PT/NO: G050-6502-3015ABH

DESCRIPTION: TRANSFORMER

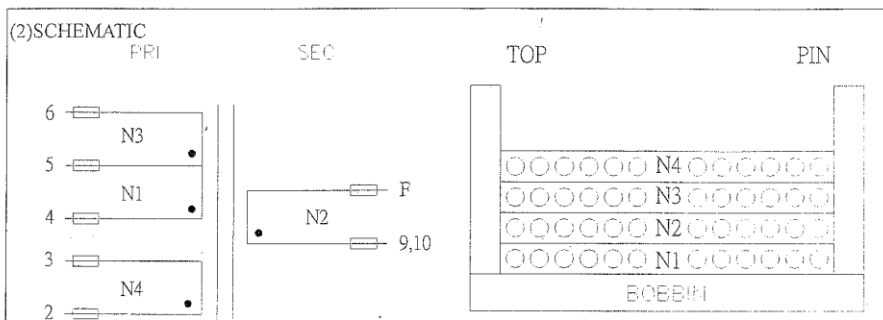
SP PT/NO.

SAMPLE SUBMIT NO.: SP10H016

ISSUE DATE

Feb 09, 2010

REV: A



※ NOTE • START, TEFLON TUBE.

## (3) WINDING CONSTRUCTION

WINDING ORDER	TERMINAL NO. STAR - FISH	WINDING SPECIFICATION	MYLAR TAPE	REMARK
#1	N1	4-5	TIW-3 0.6 $\phi$ *1*16Ts	1Ts
#2	N2	9,10-F	PEW 0.45 $\phi$ *4*14Ts	1Ts
#3	N3	5-6	TIW-3 0.6 $\phi$ *1*16Ts	1Ts
#4	N4	2-3	TIW-3 0.3 $\phi$ *1*4Ts	3Ts
#5				
#6				
#7				
#8				
#9				

APPROVED BY :

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PREPARED BY :

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PAGE : 3 / 6

## Enclosures

Diagrams ID 04-18

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 昂創科技股份有限公司 CUSTOMER PT/NO: G050-6502-3015ABH  
 DESCRIPTION: TRANSFORMER SP PT/NO.  
 SAMPLE SUBMIT NO.: SP10H016 ISSUE DATE Feb 09, 2010 REV: A

ELECTRICAL CHARACTERISTICS				
NO.	PARAMETER	TERMINAL	SPECIFICATION	TEST INSTRUMENTS
1.	INDUCTANCE	4 – 6	5mH ±25%	DELTA UNITED 6021 or EQU.
				@1KHz, 0.3Vrms.
2.	LEAKAGE INDUCTANCE			DELTA UNITED 6021 or EQU.
				@ KHz, Vrms.
3.	DC RESISTANCE	4 – 6	250 mΩ MAX	DELTA UNITED 5010 or EQU.
				@25°C
4.	HI-POT	P-S	AC4.0KV,10mA/ 60SEC	DELTA UNITED 3315 or EQU.
		P-CORE	AC2.0KV,10mA/ 60SEC	(f= 60Hz)
		S-CORE	AC2.0KV,10mA/ 60SEC	
5.	INSULATION RESISTANCE	COIL-COIL	DC 500V,	DELTA UNITED 3315 or EQU.
		COIL-CORE	100M OHM MIN.	
★TEST CONDITION : TEMPERATURE : 25°C				
HUMIDITY : 65% RH				
APPROVED BY :		CHECKED BY :		PREPARED BY :
<div>陳 99.02.10 淑芬</div>		<div>陳 99.02.10 淑芬</div>		<div>陳 99.02.10 淑芬</div>



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## Enclosures

Diagrams ID 04-18

(For AM-1201A-T122-944 (F))

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 昂創科技股份有限公司 CUSTOMER PT/NO: G050-6502-303BABH

DESCRIPTION: TRANSFORMER SP PT/NO. SP10041T-LF

SAMPLE SUBMIT NO.: SP09H006 ISSUE DATE Feb 09, 2010 REV: A

PART MATERIAL IDENTIFICATION					
No	ITEM	MATERIAL	CLASS	UL FILE NO.	MANUFACTURER
1.	INSULATION SYSTEM	CLASS 155(F) SBI5.1		E231049	DONGGUAN ZHANGMUTOU HONG CHAN ELECTRONICS CO.,LTD.
2.	FERRITE CORE	PM2625 6H20			FDK
		EQ2625 PM7			ISU
		PQ2625 N72			EPCOS
		PQ2625W MZ4			HIMAG
3.	BOBBIN	PM9820(HD-059or EQU)	150°C	E41429	SUMTOMO BAKELITE CO LTD
4.	TAPE	NO. MY130	155°C	E50292	SYMBIO INC
		NO.1351-1			
		NO.1351-2	155°C	E17385	3M COMPANY ELECTRICAL PRODUCTS DIV
5.	WIRE	UEWN/U MW80-C	155°C	E201757	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO.,LTD.
		UEF1/U MW79-C			
		DDF-NY MW80-C	155°C	E84081	PACIFIC ELECTRIC WIRE & CABLE CO.,LTD.
6.	TRIPLE WIRE	TEX-F	155°C	E206440	FURUKAWA ELECTRIC CO LTD
		TIW-3X	155°C	E166483	TOTOKU ELECTRIC CO LTD
		TCA3	155°C	E206198	RUBADUE WIRE CO.INC.
7.	VARNISH	BC-346A	155°C	E317427	JOHN C. DOLPH CO.
		V1630FS	155°C	E75225	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC
8.	TUBE	TEFLON (TFL)	200°C	E156256	GREAT HOLDING INDUSTRIAL CO.,LTD.
APPROVED BY :		CHECKED BY :		PREPARED BY :	

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PAGE : 5 / 6

## Enclosures

Diagrams ID 04-18

(For AM-1204A-54-744 (F))

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 昂創科技股份有限公司 CUSTOMER PT/NO: G050-6502-3015ABH

DESCRIPTION: TRANSFORMER SP PT/NO. SP10043T-LF

SAMPLE SUBMIT NO.: SP10H016 ISSUE DATE Feb 09, 2010 REV: A

PART MATERIAL IDENTIFICATION					
No	ITEM	MATERIAL	CLASS	UL FILE NO.	MANUFACTURER
1.	INSULATION SYSTEM	CLASS 155(F) SBI5.1		E231049	DONGGUAN ZHANGMUTOU HONG CHAN ELECTRONICS CO.,LTD.
2.	FERRITE CORE	PM2625 6H20			FDK
		EQ2625 PM7			ISU
		PQ2625 N72			EPCOS
		PQ2625W MZ4			HIMAG
3.	BOBBIN	PM9820(HD-059or EQU)	150°C	E41429	SUMTOMO BAKELITE CO LTD
4.	TAPE	NO. MY130	155°C	E50292	SYMBIO INC
		NO.1351-1	155°C	E17385	3M COMPANY ELECTRICAL PRODUCTS DIV
		NO.1351-2	155°C	E17385	3M COMPANY ELECTRICAL PRODUCTS DIV
5.	WIRE	UEWN/U MW80-C	155°C	E201757	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO.,LTD.
		UEF1/U MW79-C	155°C	E201757	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO.,LTD.
		DDF-NY MW80-C	155°C	E84081	PACIFIC ELECTRIC WIRE & CABLE CO.,LTD.
		DD-F MW79-C	155°C	E84081	PACIFIC ELECTRIC WIRE & CABLE CO.,LTD.
6.	TRIPLE WIRE	TEX-F	155°C	E206440	FURUKAWA ELECTRIC CO LTD
		TIW-3X	155°C	E166483	TOTOKU ELECTRIC CO LTD
		TCA3	155°C	E206198	RUBADUE WIRE CO.INC.
7.	VARNISH	BC-346A	155°C	E317427	JOHN C. DOLPH CO.
		V1630FS	155°C	E75225	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC
8.	TUBE	TEFLON (TFL)	200°C	E156256	GREAT HOLDING INDUSTRIAL CO.,LTD.
APPROVED BY : 陳 99.02.10 淑芬					
CHECKED BY : 陳 99.02.10 淑芬					
PREPARED BY : 陳 99.02.10 淑芬					

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PAGE : 5 / 6

## Enclosures

Diagrams ID 04-18

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 昂創科技股份有限公司 CUSTOMER PT/NO: G050-6502-303BABH

DESCRIPTION: TRANSFORMER SP PT/NO.

SAMPLE SUBMIT NO.: SP09H006 ISSUE DATE Feb 09, 2010 REV: A

(1) CONFIGURATION & DESCRIPTION

UNIT : m/m

※ PIN1 CUT OFF, PIN5 CUT OFF2/3.  
 ※ PIN端 CORE 靠 PIN1-6 側須貼 14mm 膠帶一層,且不可剪開,不能看到有破洞.  
 ※ CORE TAPE 用 11mm 黃色膠帶包 3Ts.  
 ※ F 線由 PIN7-12 側頂部飛出,穿透明 TEFLON 套管絞線而成,套管長 45±3mm,鍍錫部分 10±2mm.

NO.	A	B	C	D	E	F	G	H	I	J	K	L
SPECIFICATION	29.0	30.0	3.5	33.0	0.7φ	3.8	25.4	7.5	45.0	10.0	2.3	
TOLERANCE	MAX	MAX	MIN	MAX	±0.1	±0.3	±0.5	±0.5	±3.0	±2.0	MAX	

APPROVED BY : 陳淑芬 99.02.10

CHECKED BY : 陳淑芬 99.02.10

PREPARED BY : 陳淑芬 99.02.10

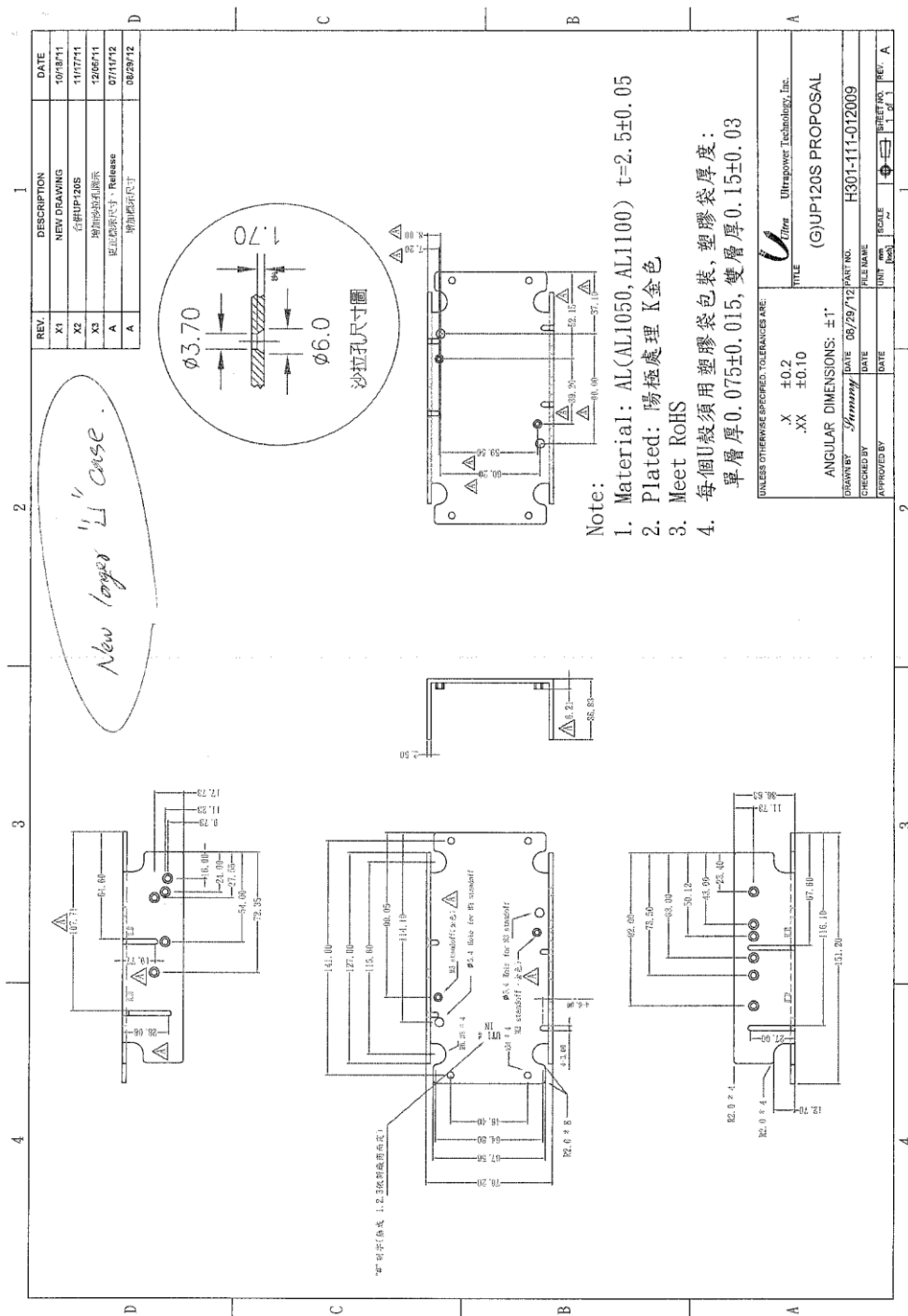
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## Enclosures

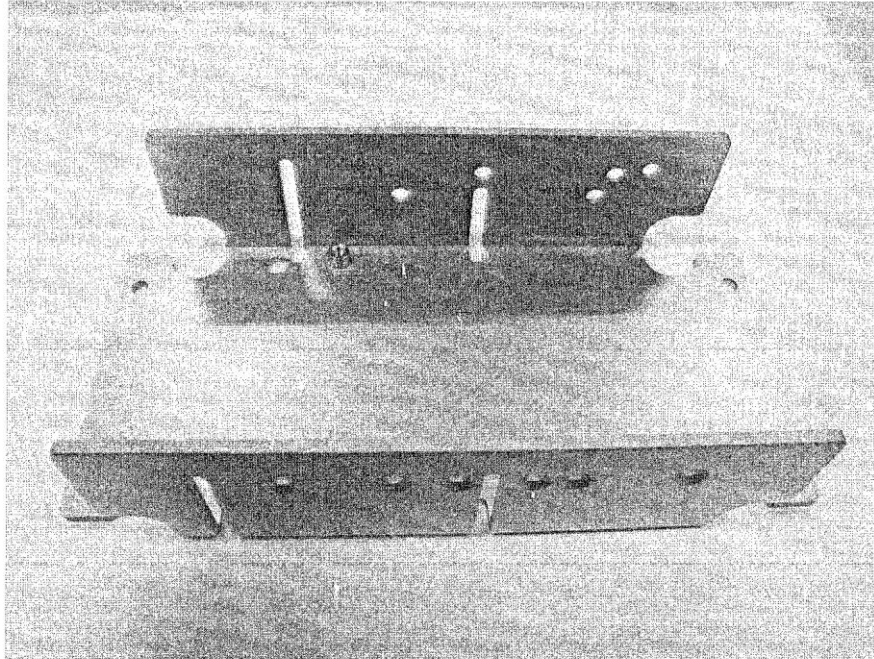
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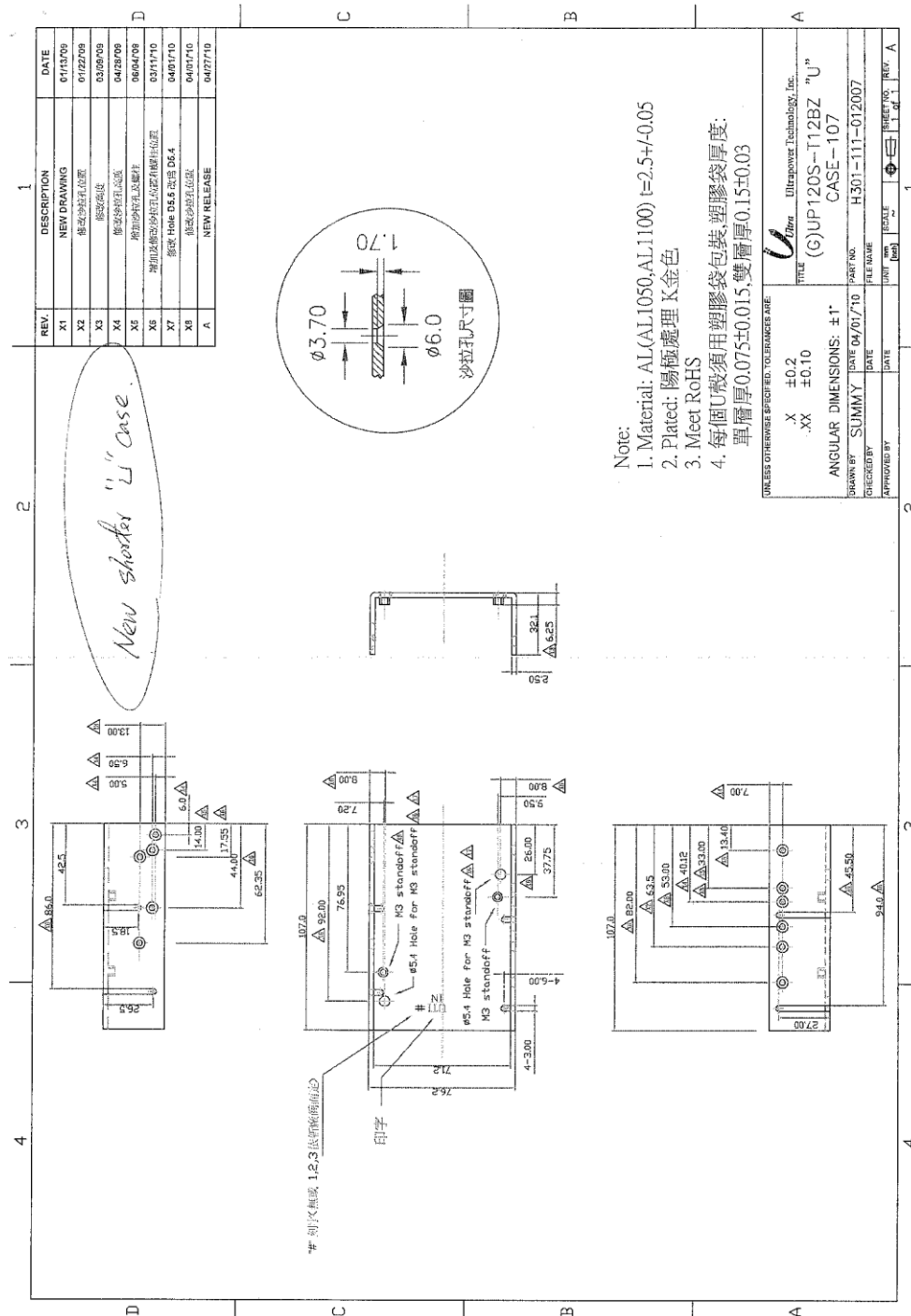
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**H301-111-012009**



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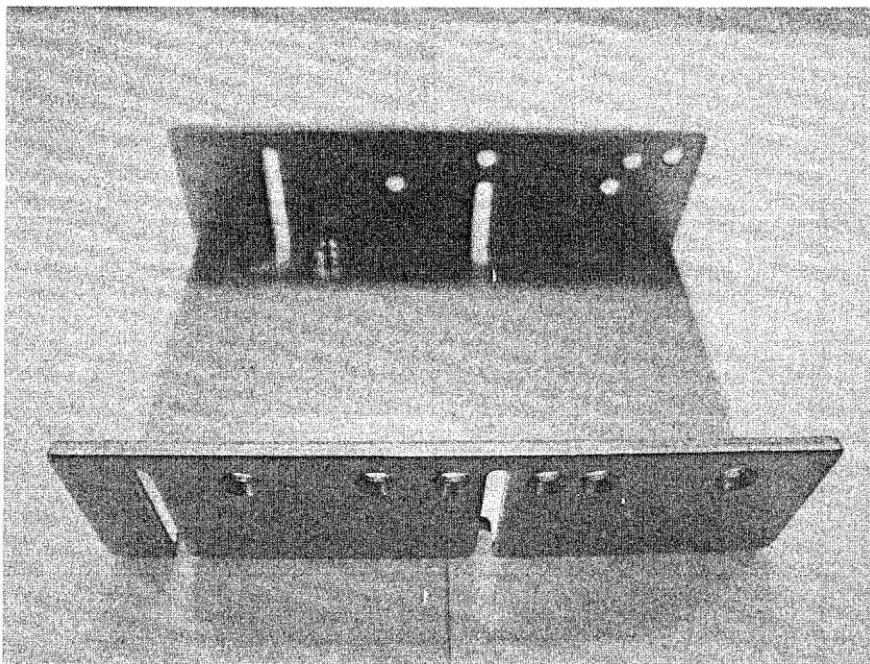
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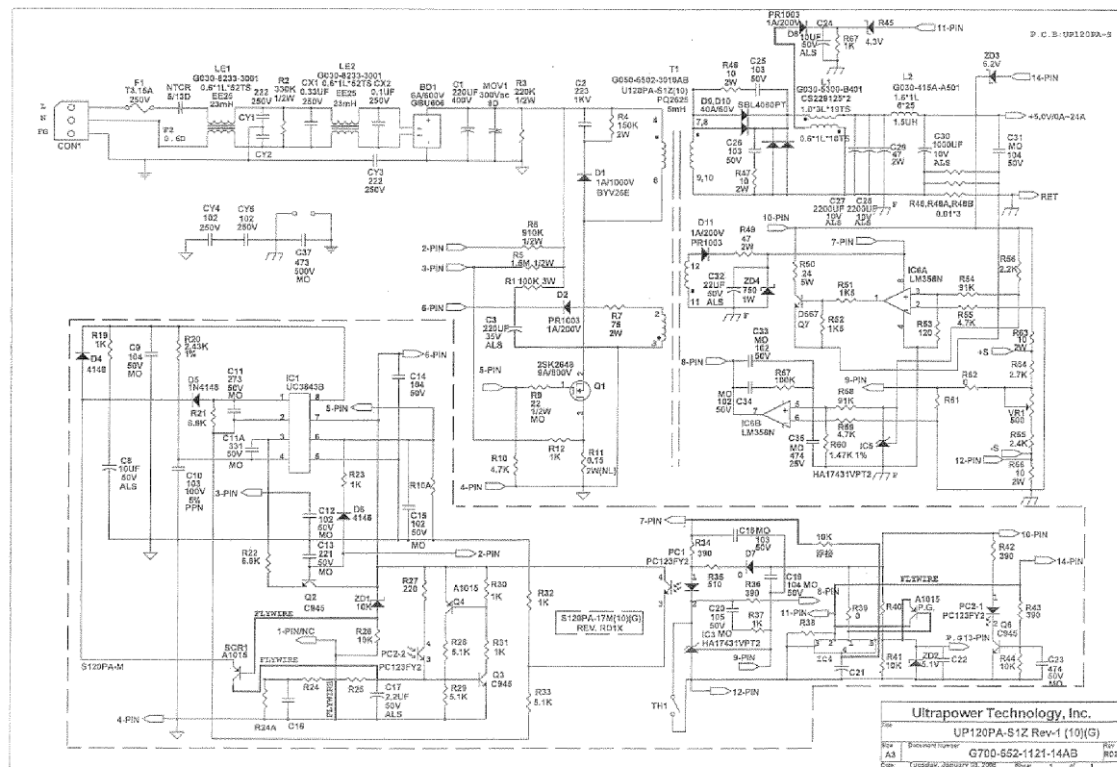
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**H301-111-012007**



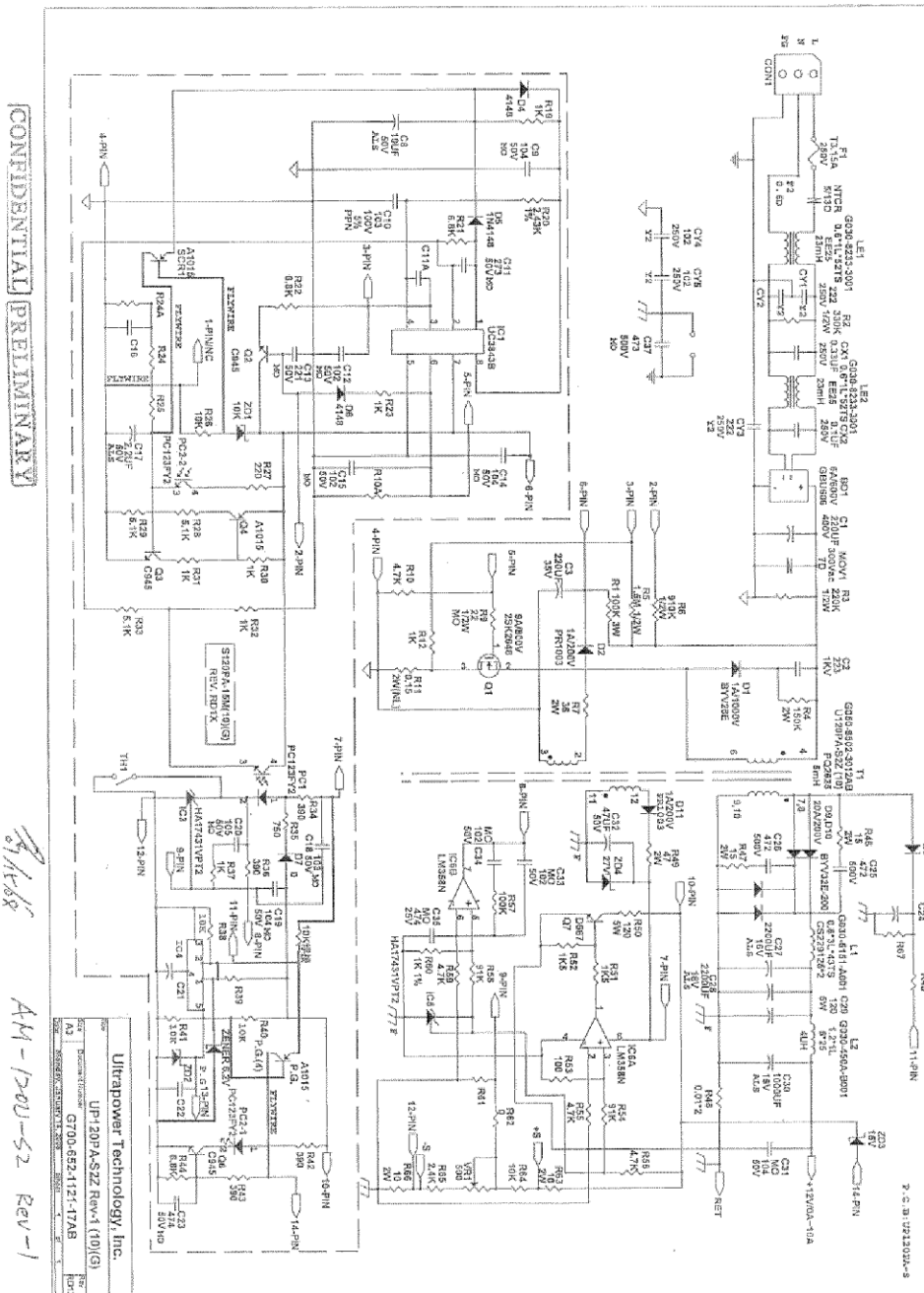
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## Schematics + PWB ID 05-01



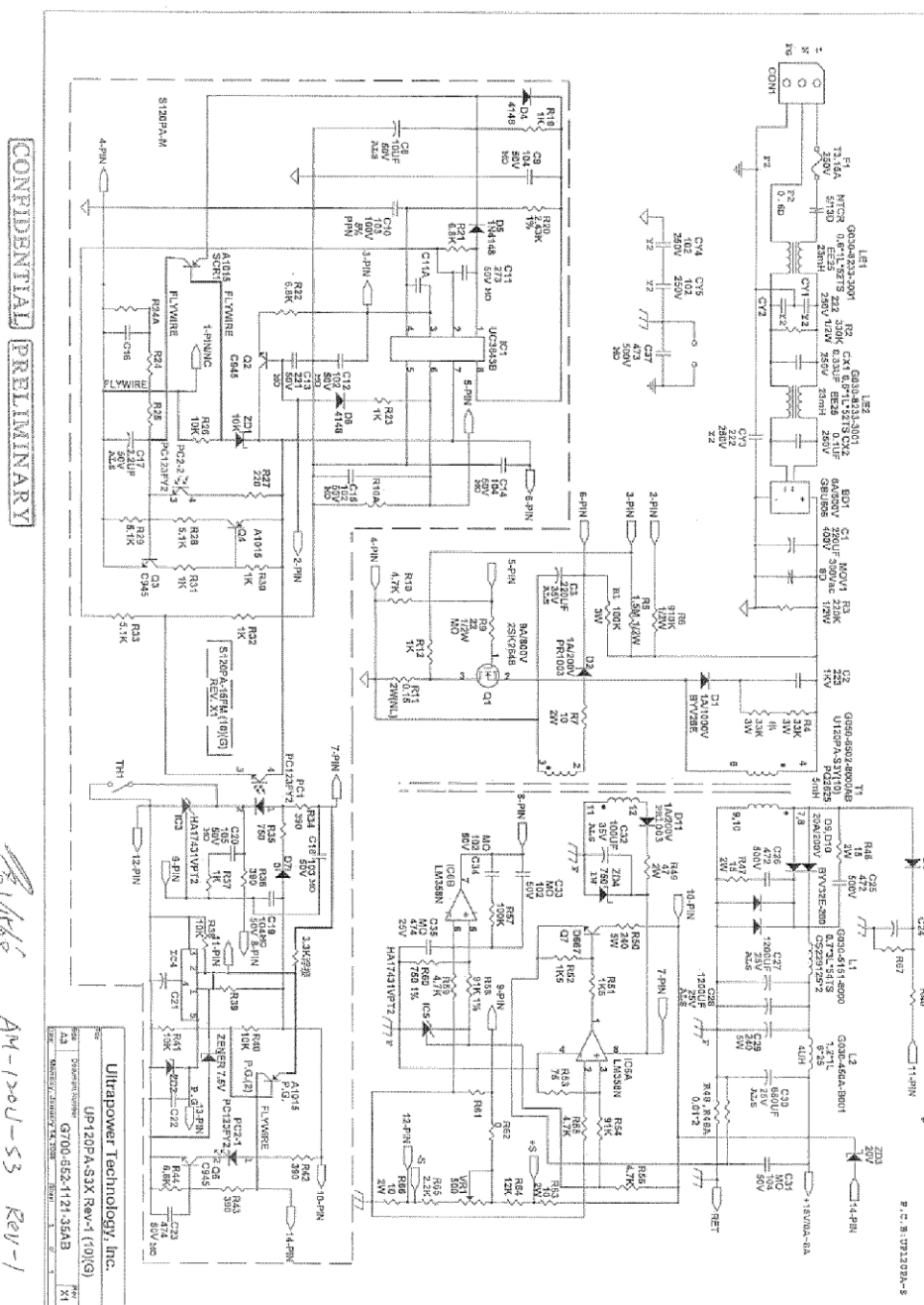
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## Schematics + PWB ID 05-01



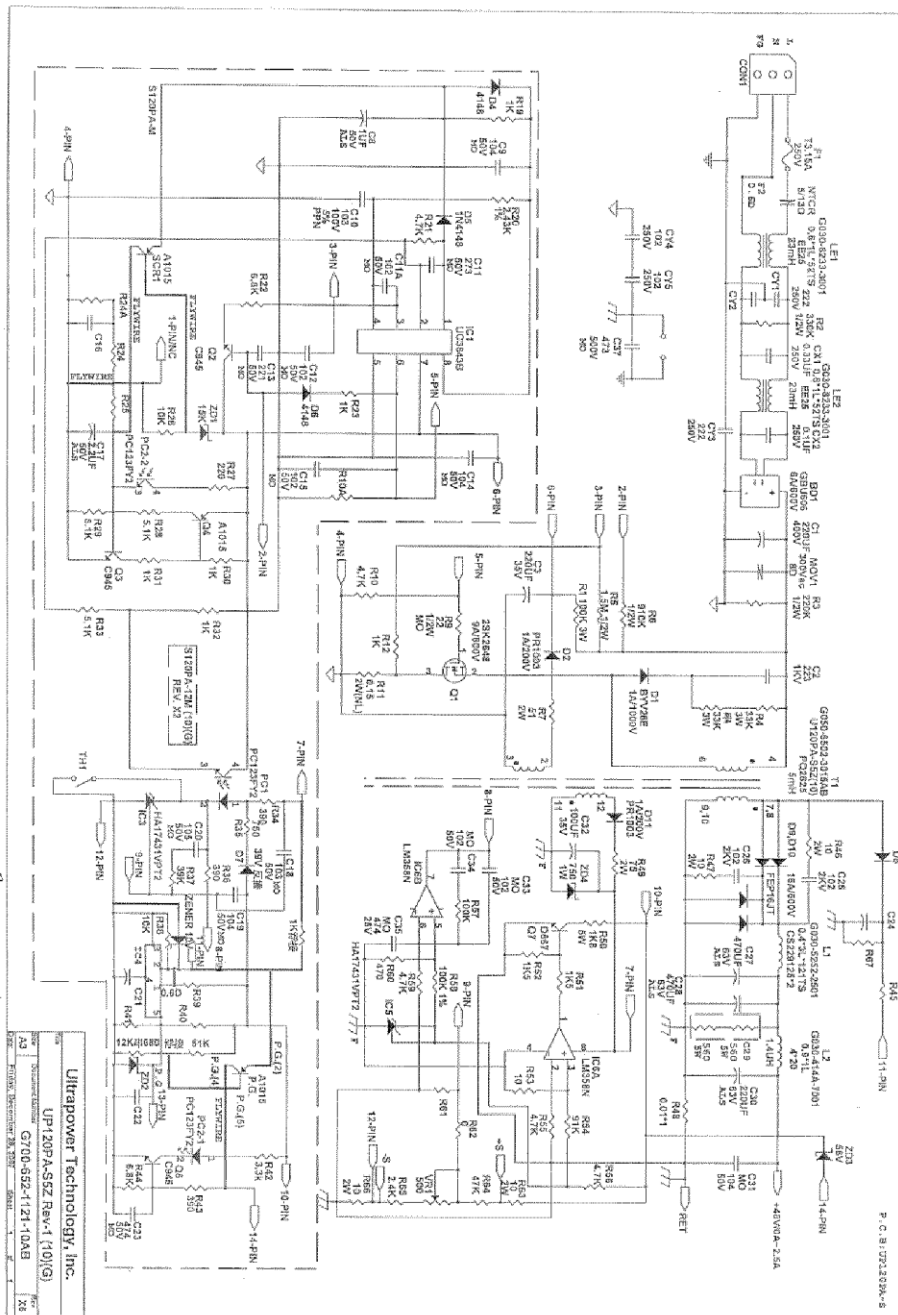
## Enclosures

Schematics + PWB ID 05-01



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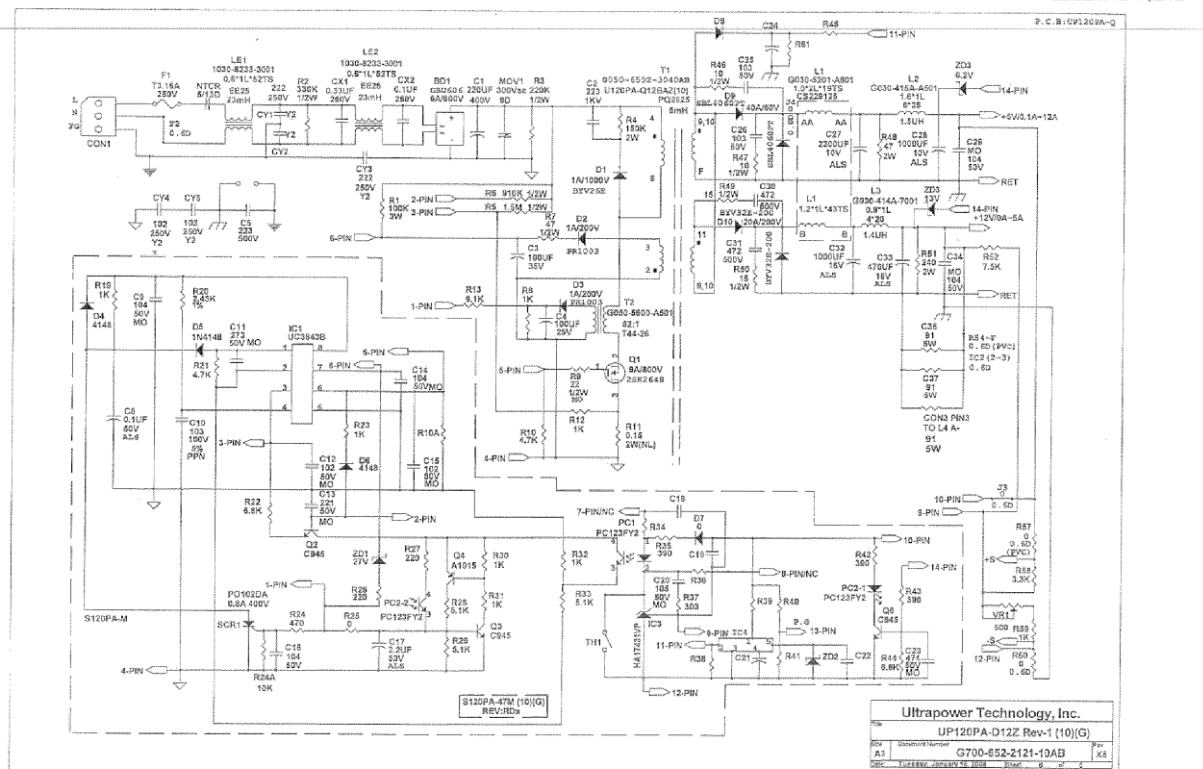
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## Enclosures

## Schematics + PWB ID 05-02

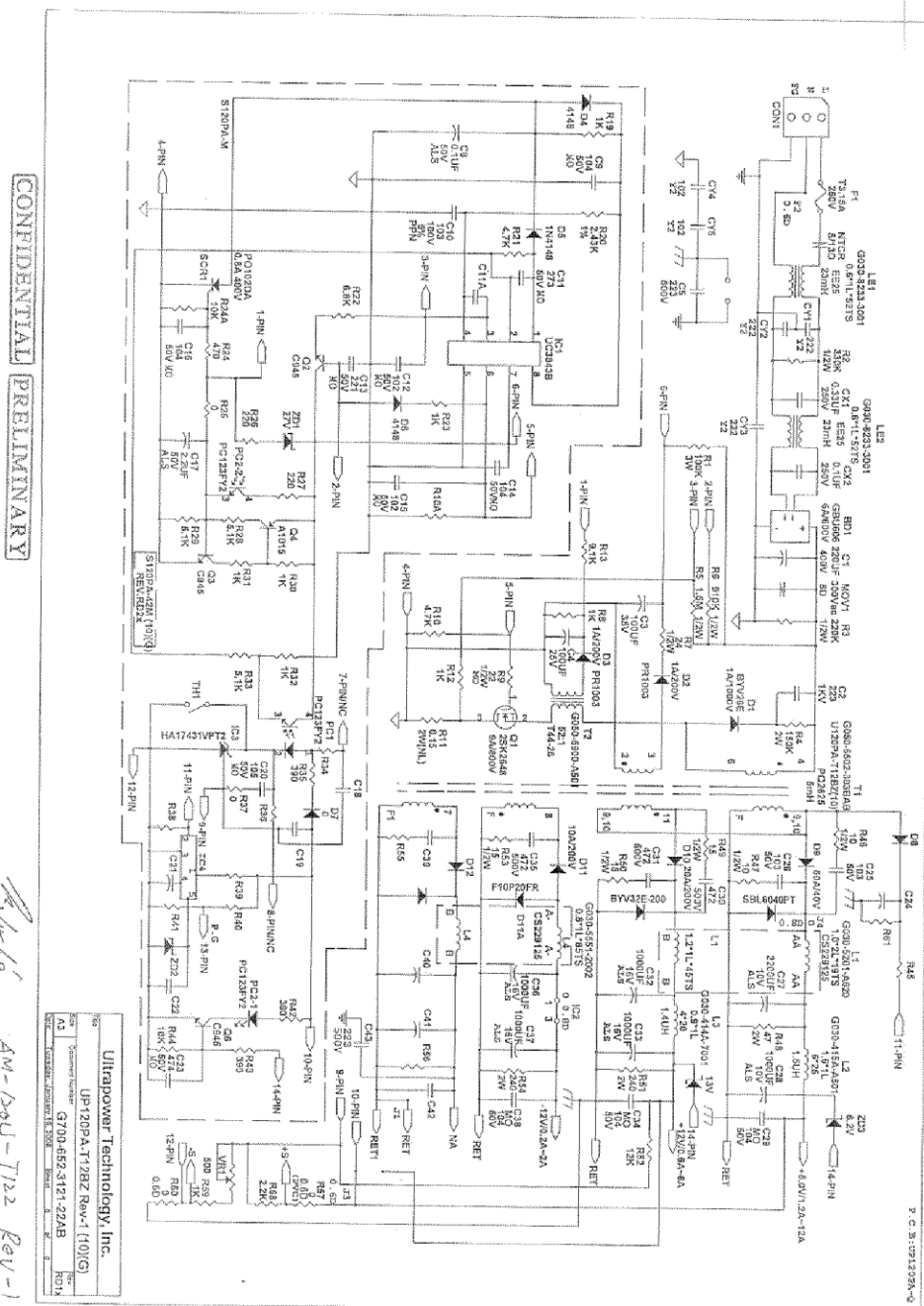


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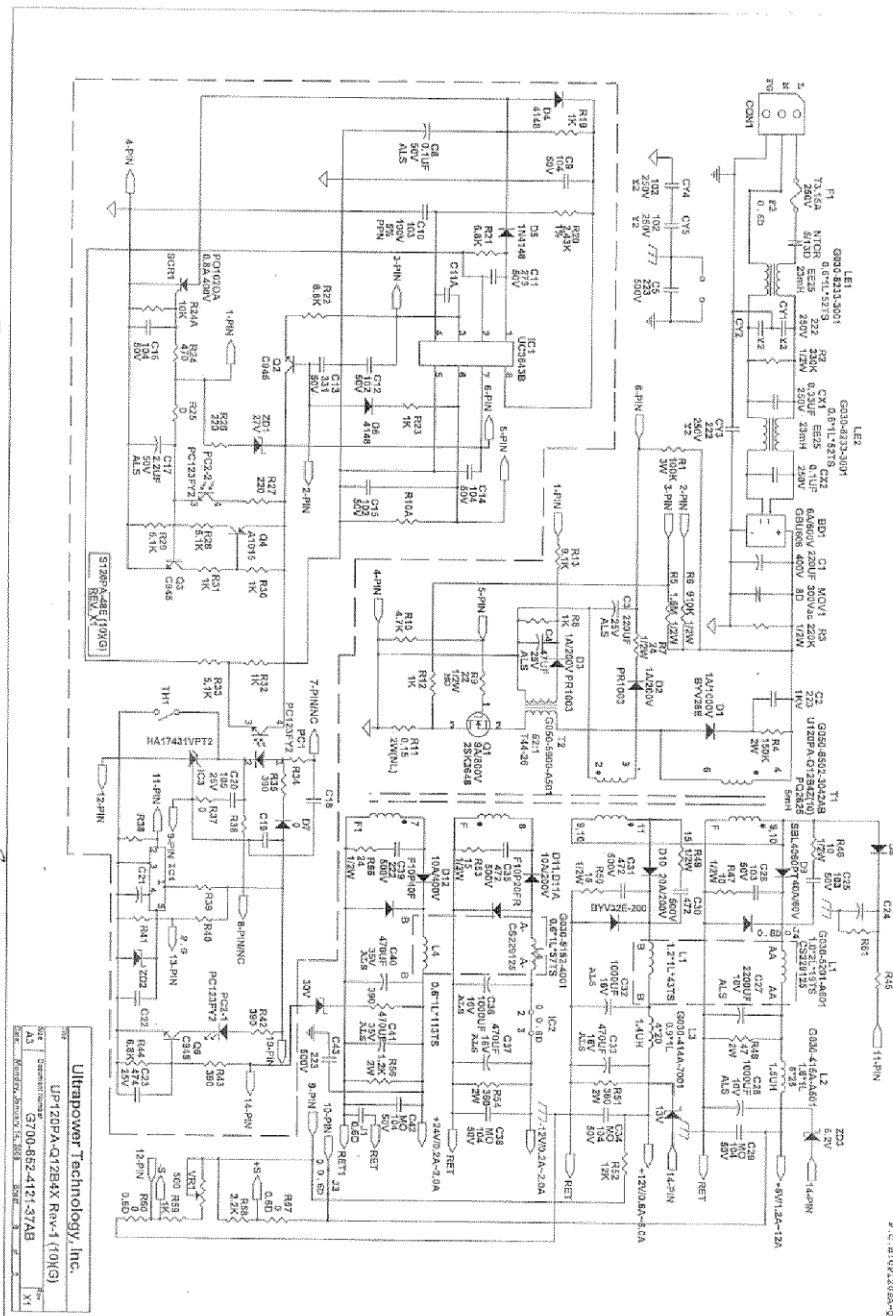
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## Schematics + PWB ID 05-02



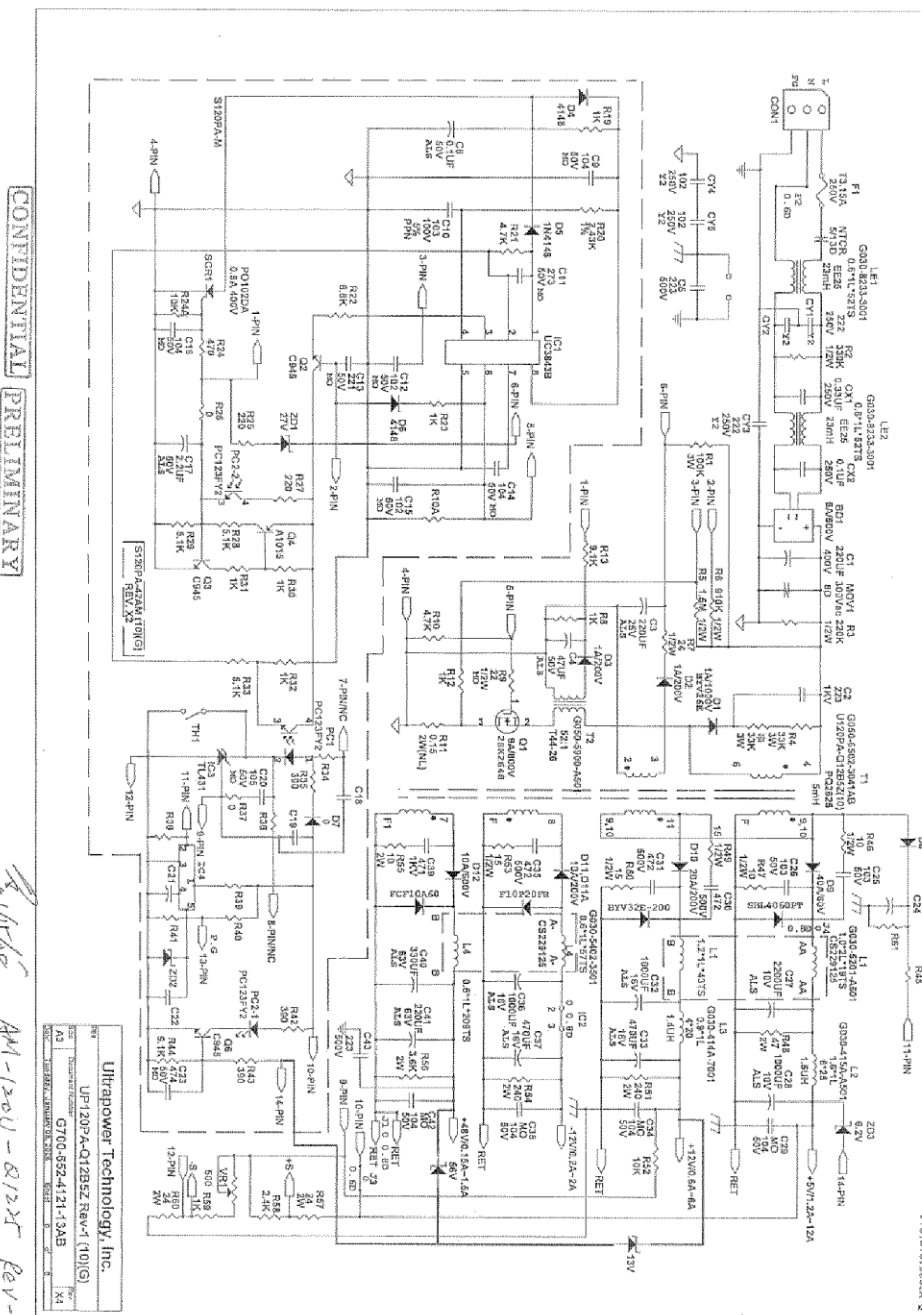
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## Schematics + PWB ID 05-02



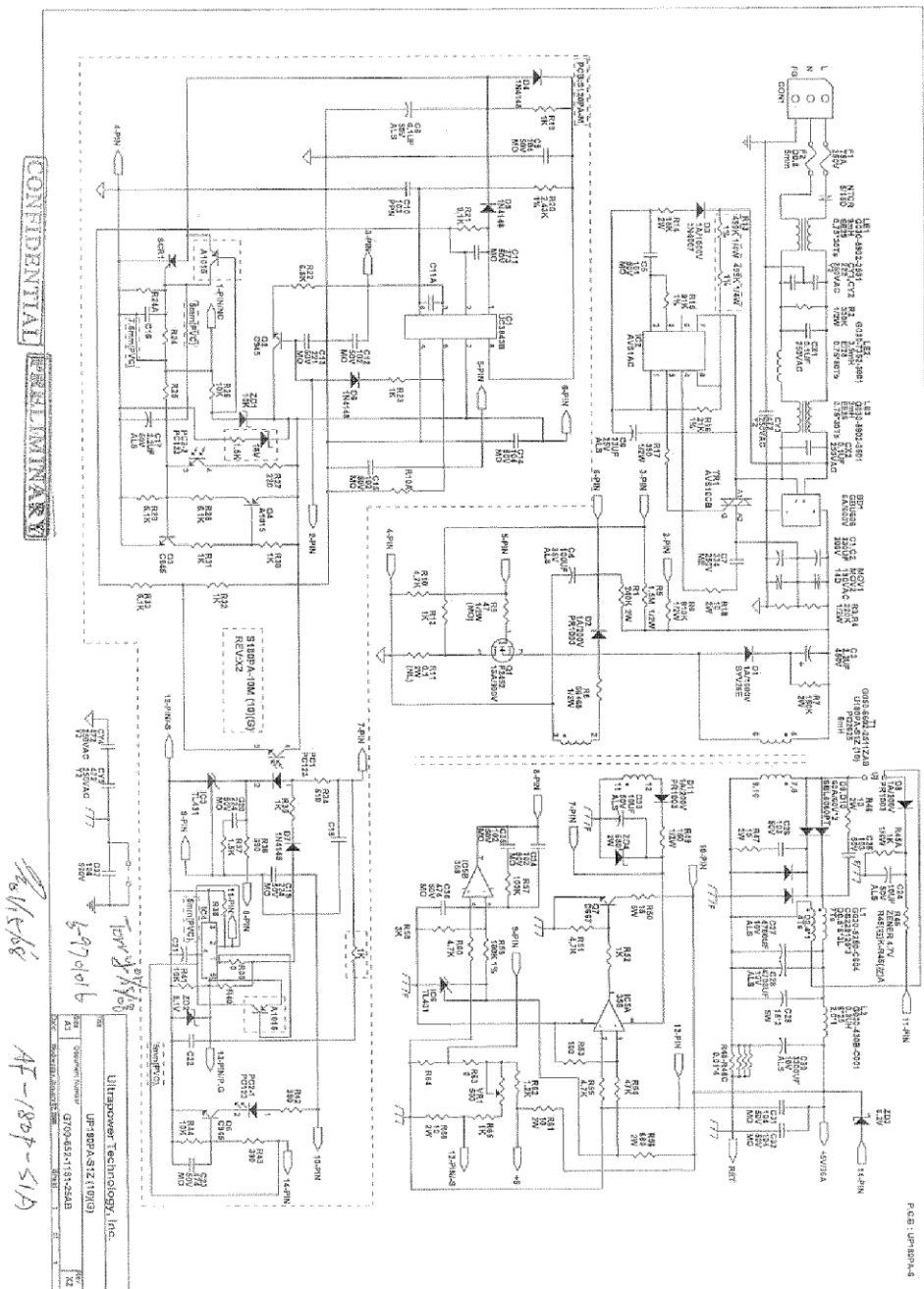
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## Schematics + PWB ID 05-02



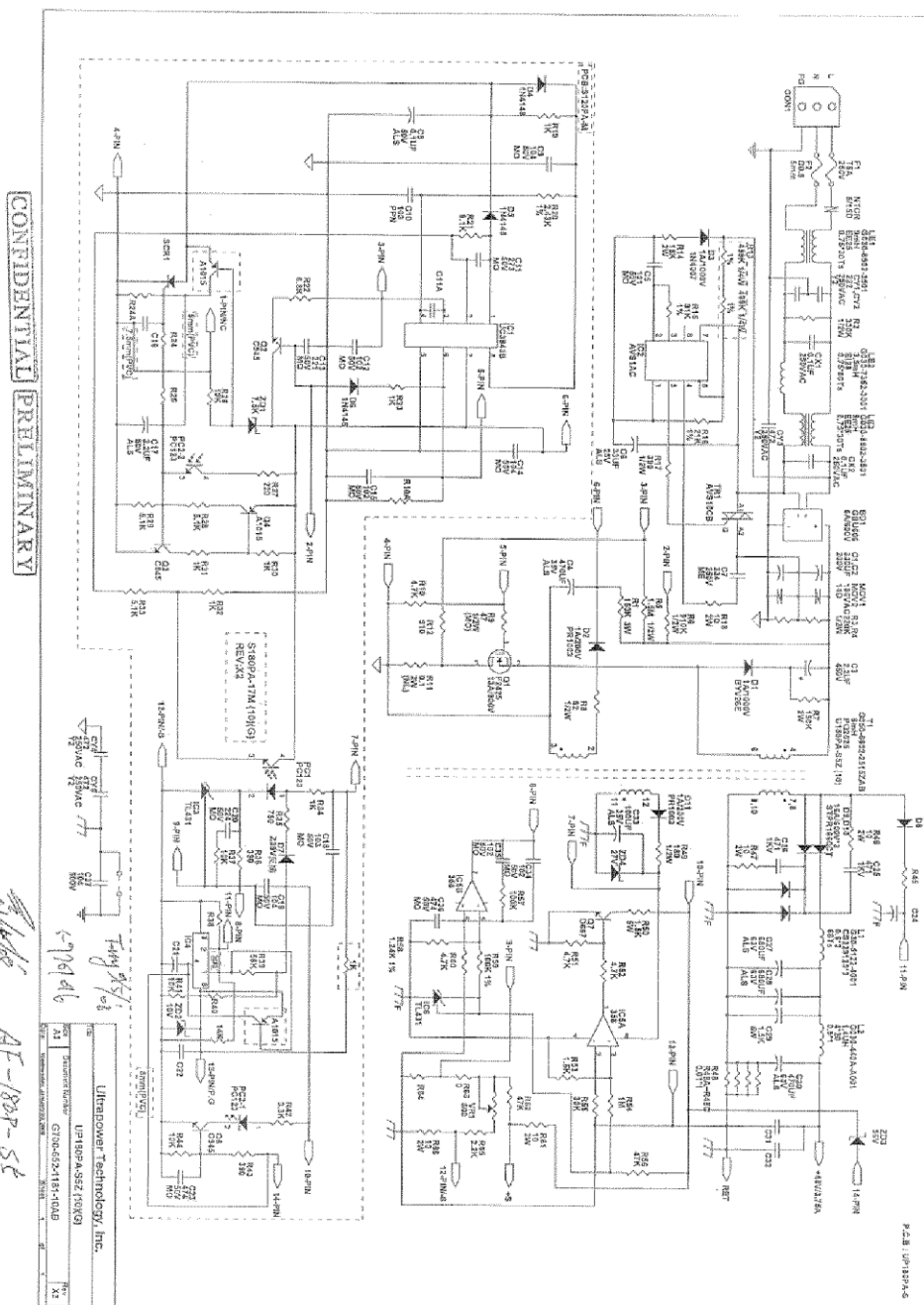
## Enclosures

## Schematics + PWB ID 05-03



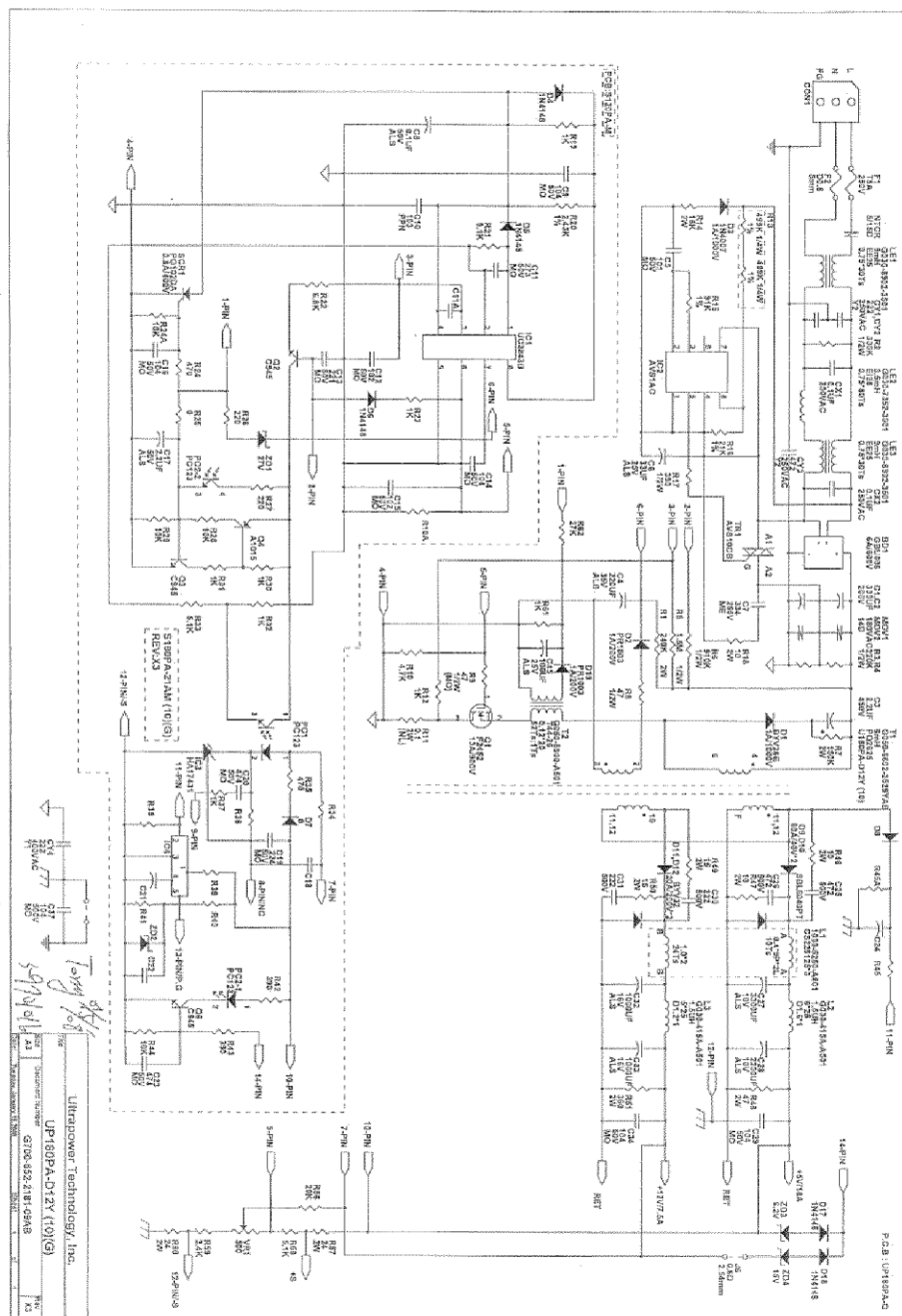
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## Schematics + PWB ID 05-03



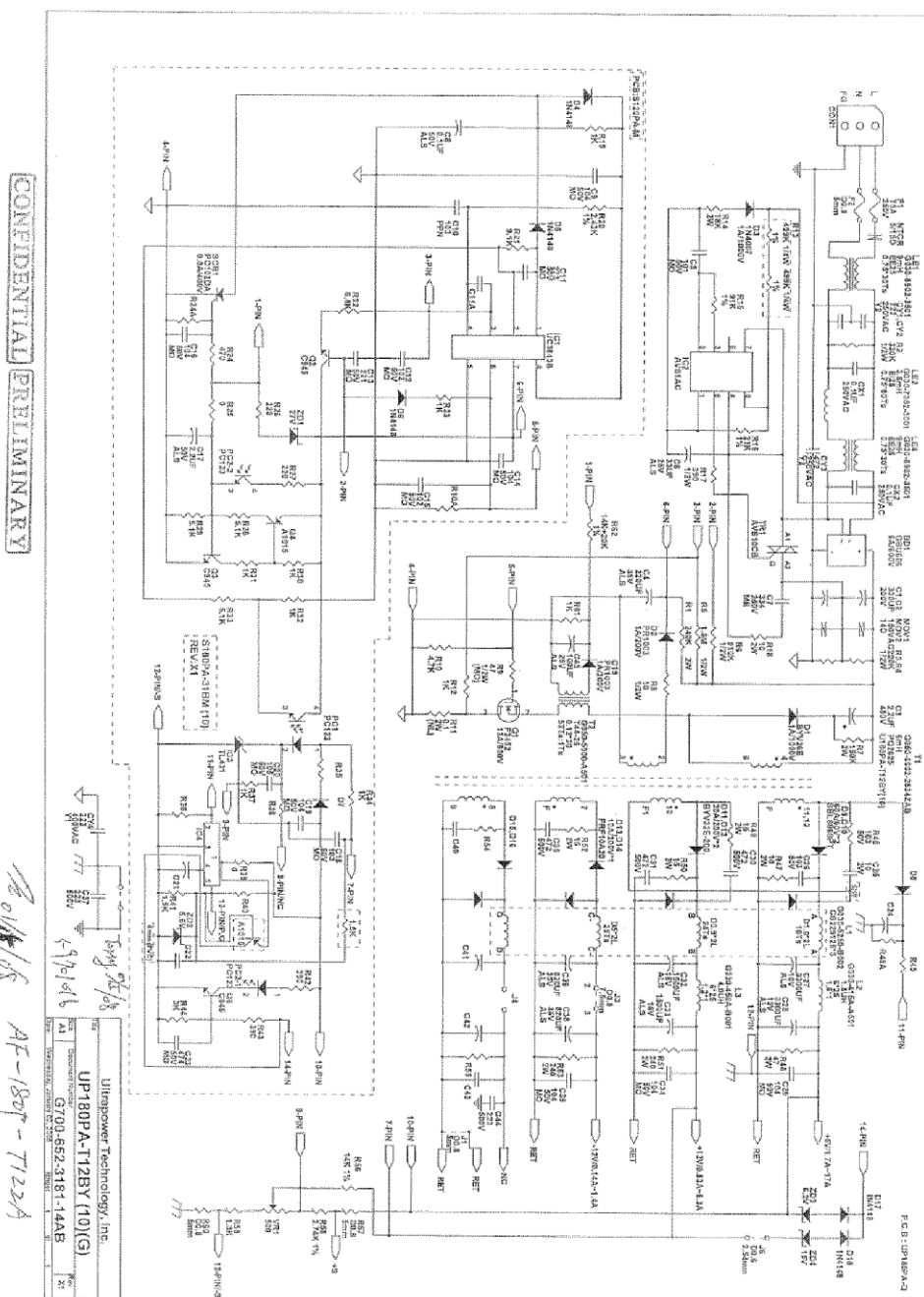
## Enclosures

## Schematics + PWB ID 05-04



## Enclosures

Schematics + PWB ID 05-04

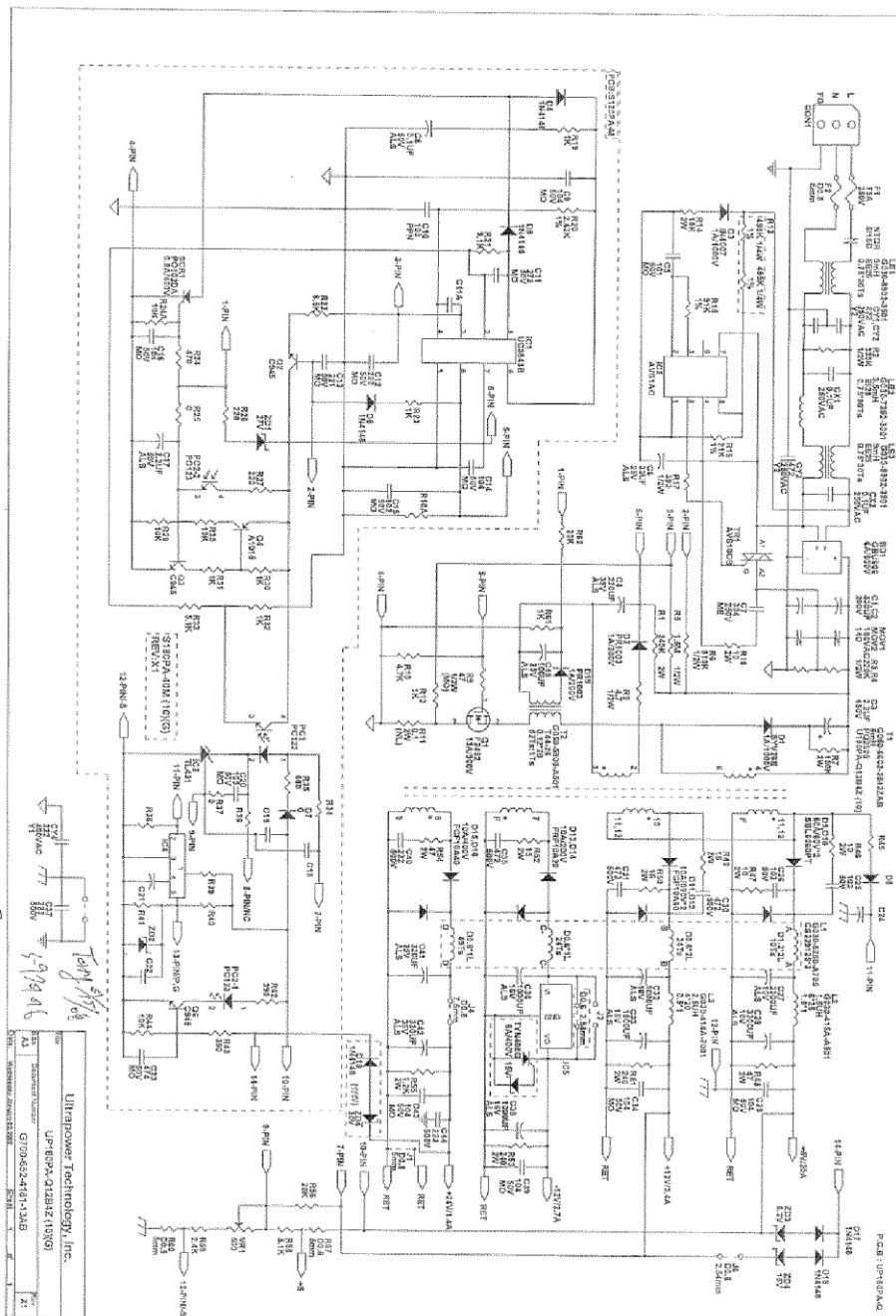




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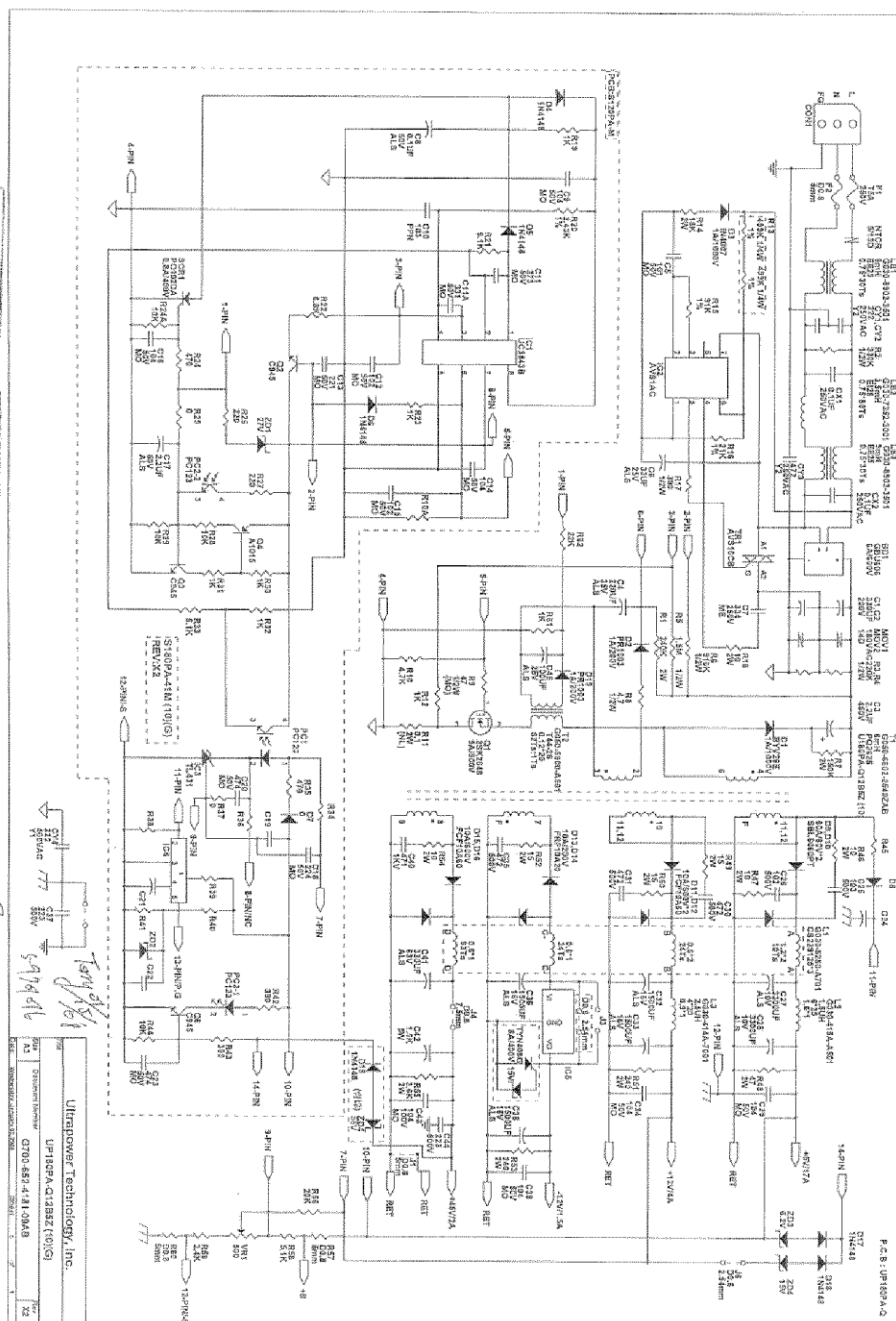
## Schematics + PWB ID 05-04

CONFIDENTIAL PRELIMINARY



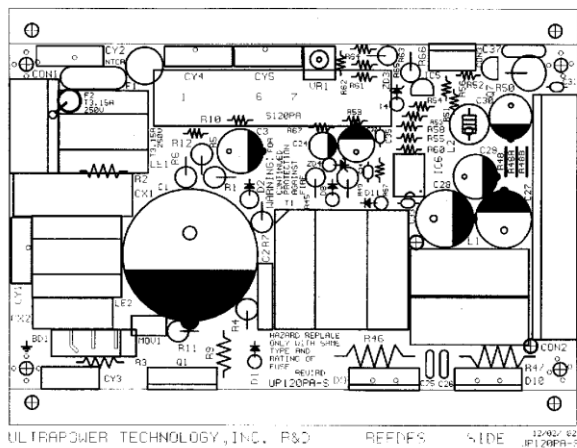
## Enclosures

## Schematics + PWB ID 05-04



## Enclosures

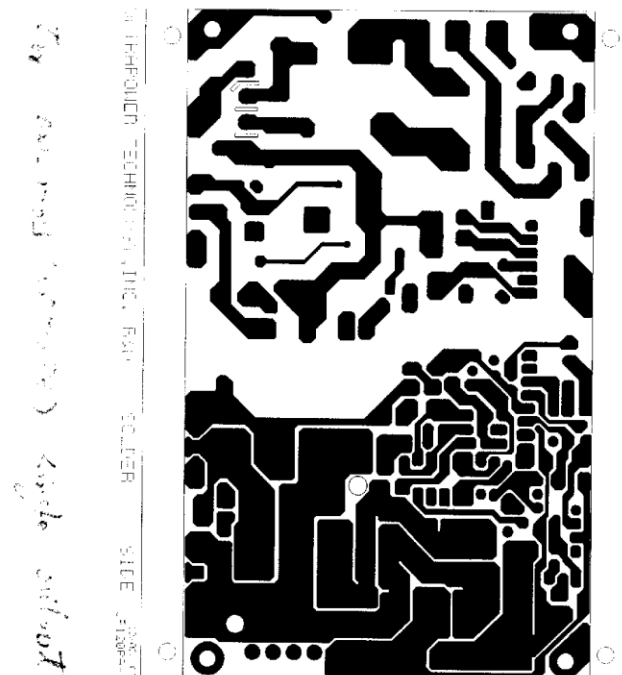
## Schematics + PWB ID 05-05



For AM-120U (UP120PA) single output

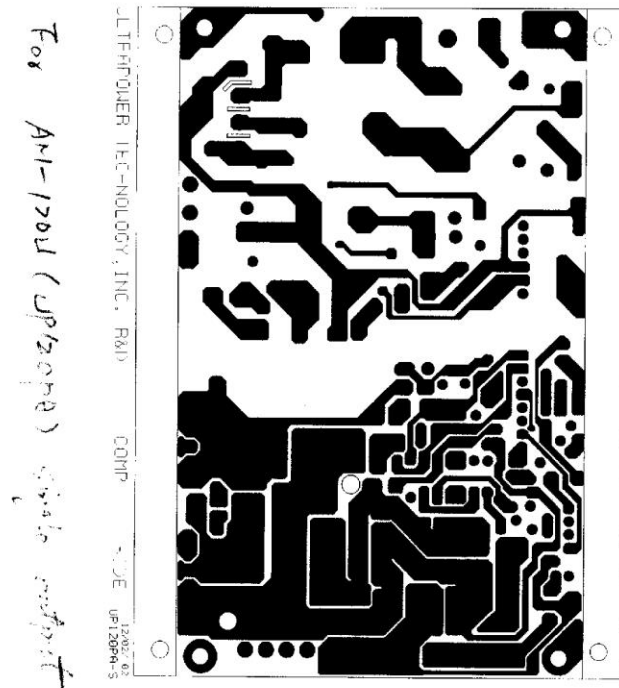
Enclosures

Schematics + PWB ID 05-05



Enclosures

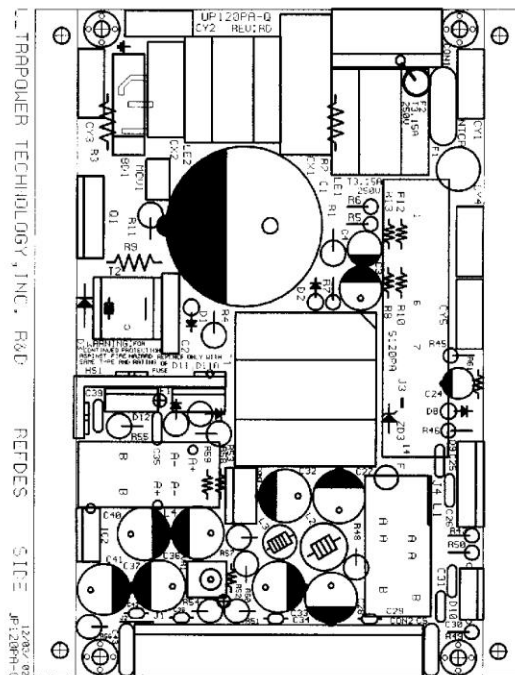
Schematics + PWB ID 05-05



## Enclosures

Schematics + PWB ID 05-05

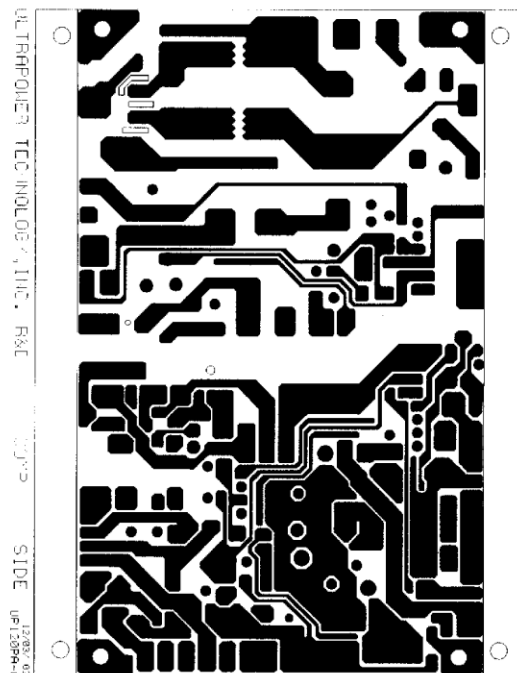
For AM-120J (UP120PA) multiple outputs



Enclosures

Schematics + PWB ID 05-05

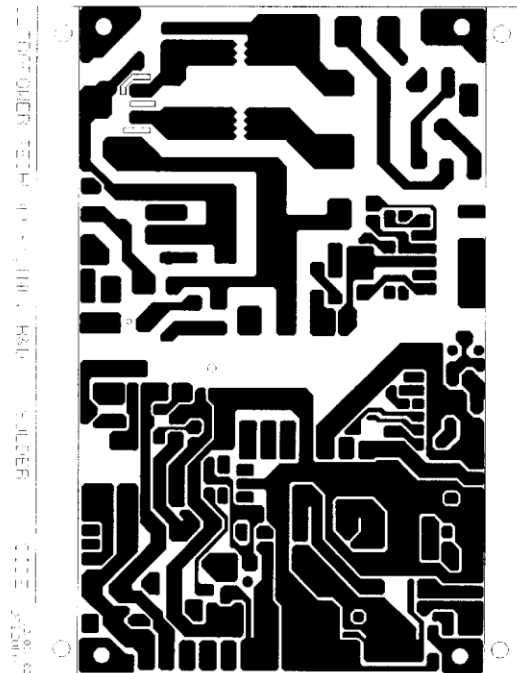
*for Am-120d (LP120PA) multiple outputs*



Enclosures

Schematics + PWB ID 05-05

*For Assembly (00000000) multiple outputs*

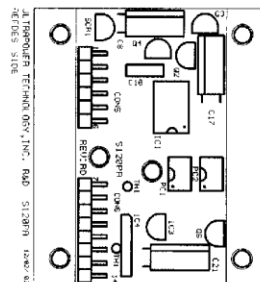




Enclosures

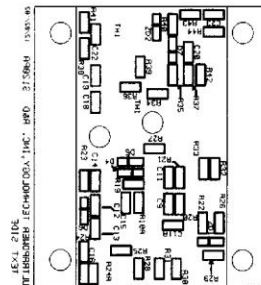
Schematics + PWB ID 05-05

*Control Board for ART-120U (UP120PA)*



## Enclosures

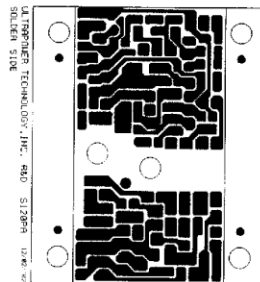
Schematics + PWB ID 05-05

*Control Board for Am-170U (UP120PA)*

Enclosures

Schematics + PWB ID 05-05

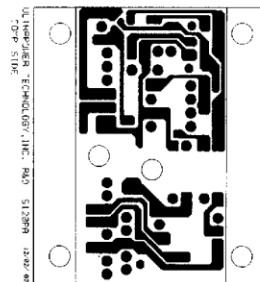
*Control Board for AM-1300 (LP1300P9)*



Enclosures

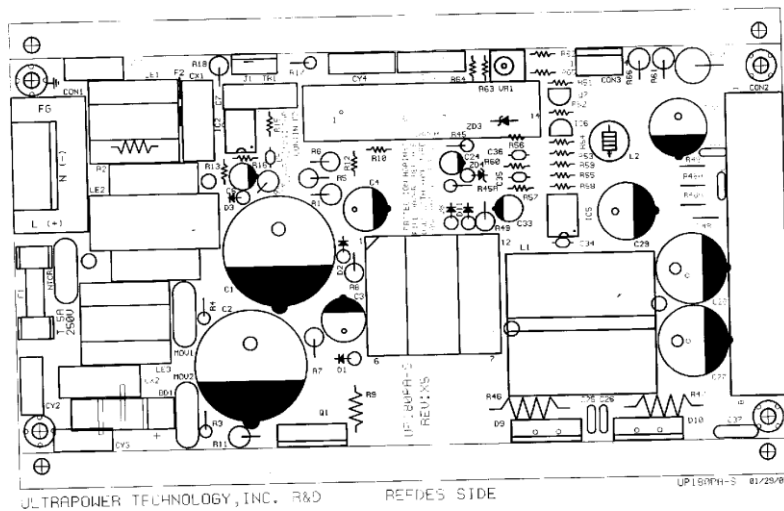
Schematics + PWB ID 05-05

*Control Board for AM-1200 (UP120PA)*



## Enclosures

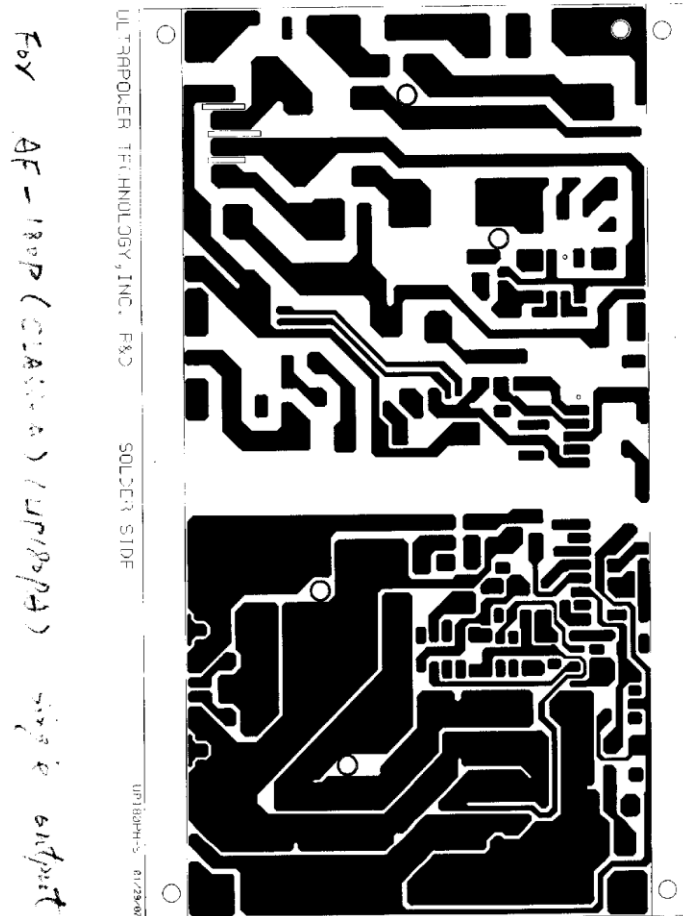
## Schematics + PWB ID 05-06



For AF-180P (CLASS-A) (W180PA) single output

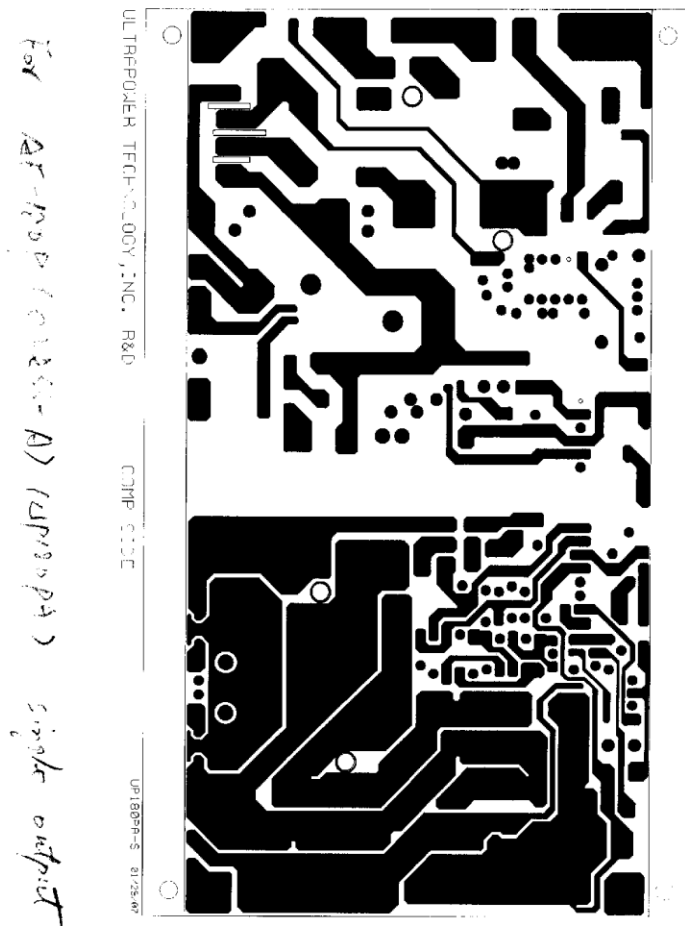
Enclosures

Schematics + PWB ID 05-06



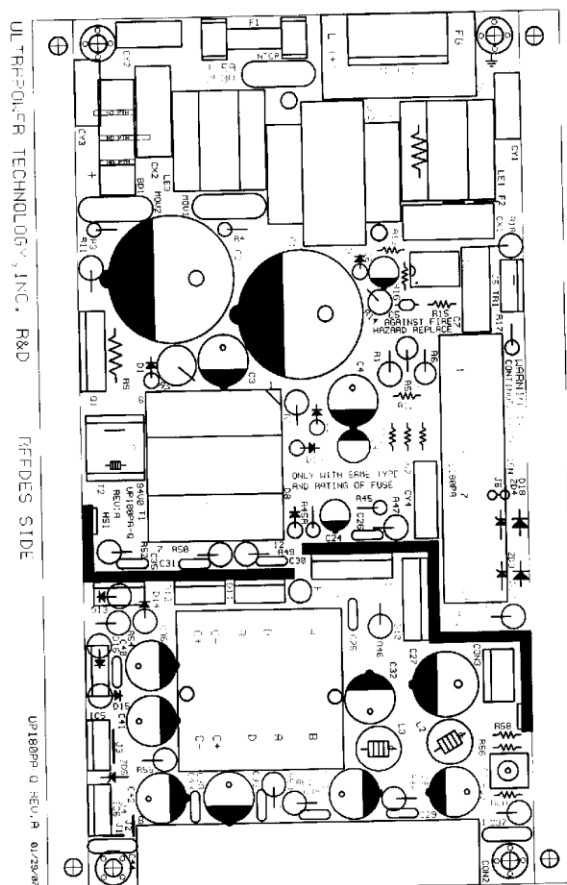
Enclosures

Schematics + PWB ID 05-06



## Enclosures

Schematics + PWB ID 05-06

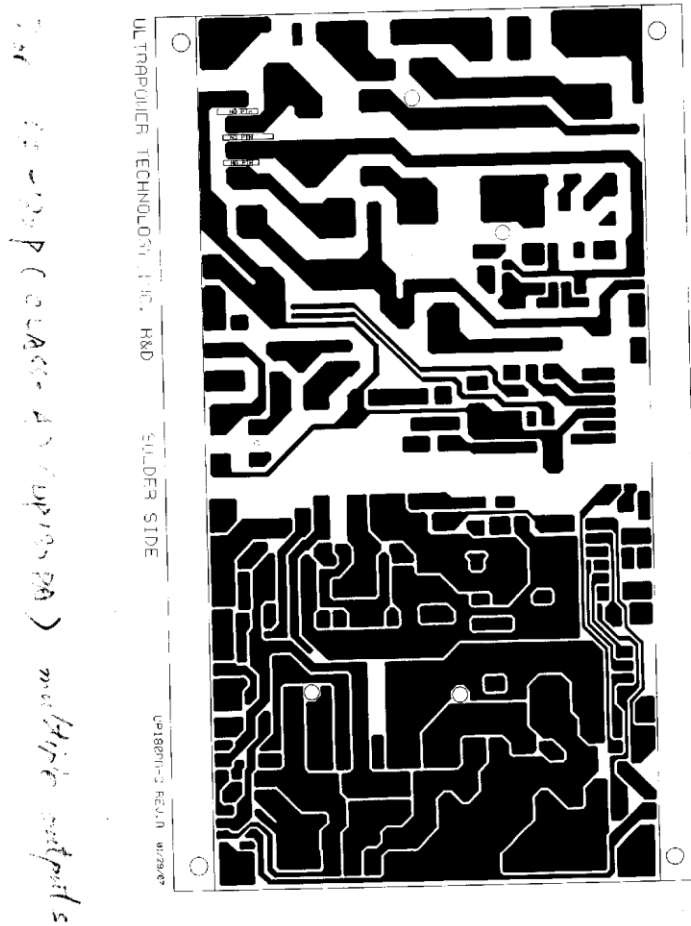


For AT-100P (CLASS-A) (UP180PP) multiple outputs



Enclosures

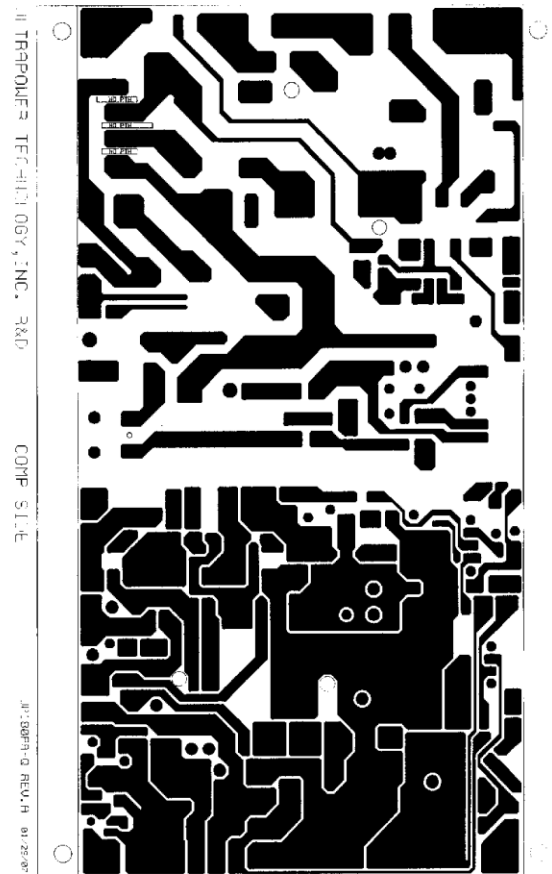
Schematics + PWB ID 05-06



Enclosures

Schematics + PWB ID 05-06

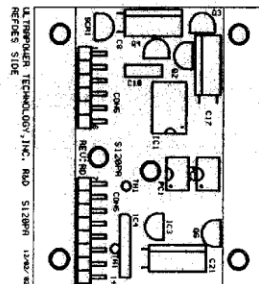
For AT-100P (Class-S) (upgraded) anti-theft shields



## Enclosures

## Schematics + PWB ID 05-06

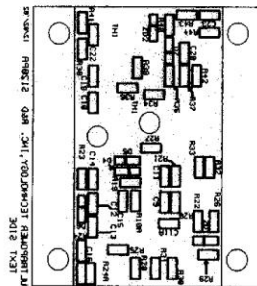
Control Board for AF-180P (CLASS-A) (LP180PA)



## Enclosures

## Schematics + PWB ID 05-06

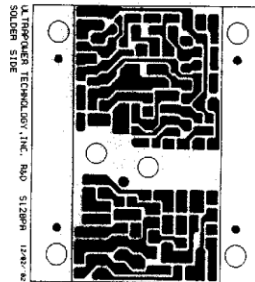
Control Board for AF-180P (CLASS-A) (UP180P)



## Enclosures

## Schematics + PWB ID 05-06

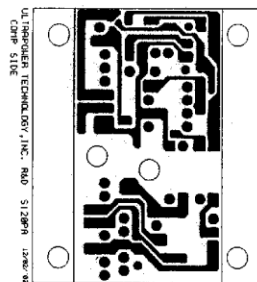
Control Board for AT-180P (CLASS-A) / 4P180P-A)



## Enclosures

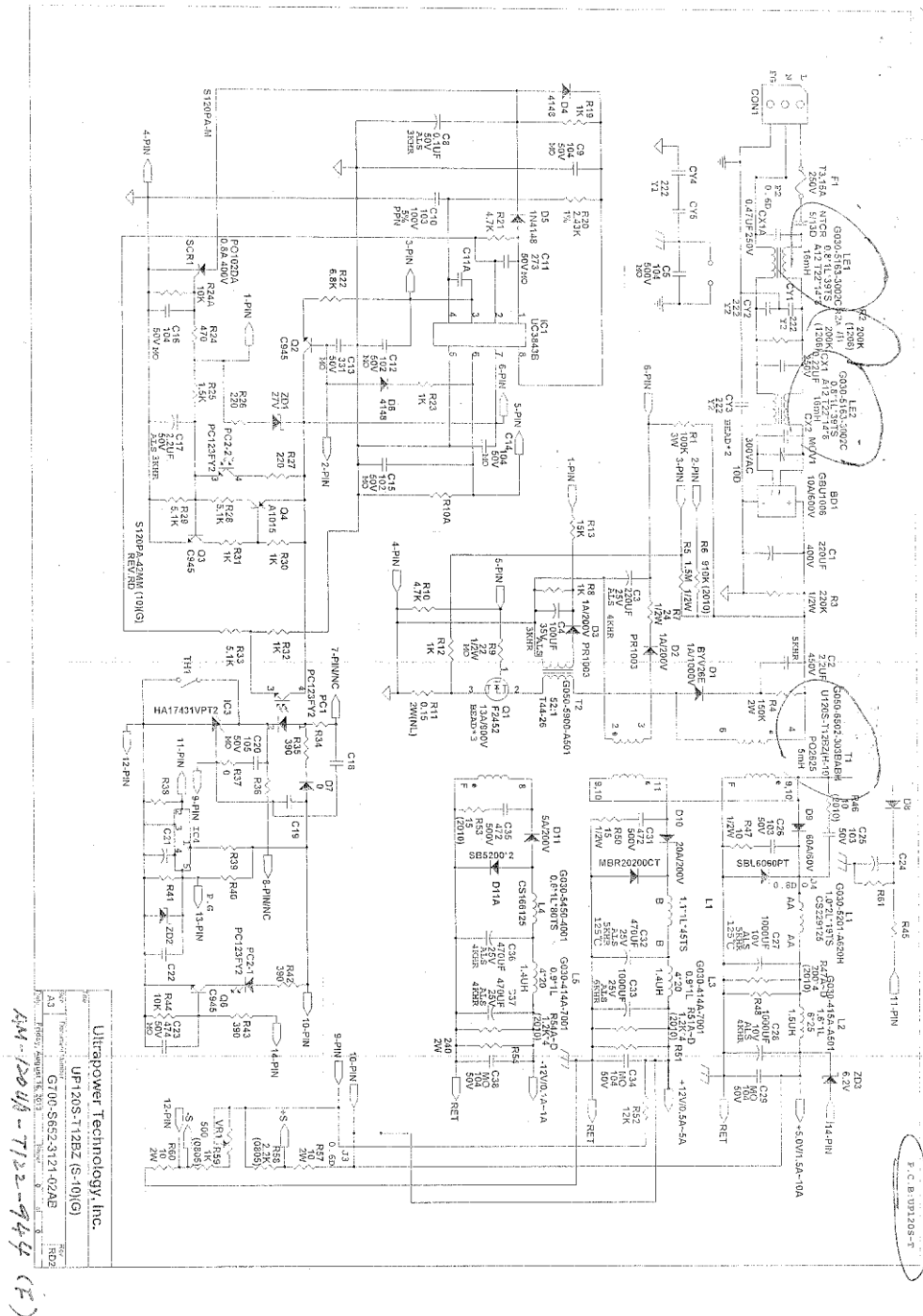
## Schematics + PWB ID 05-06

Control Board for AF-180P (Class-A) 14780PA



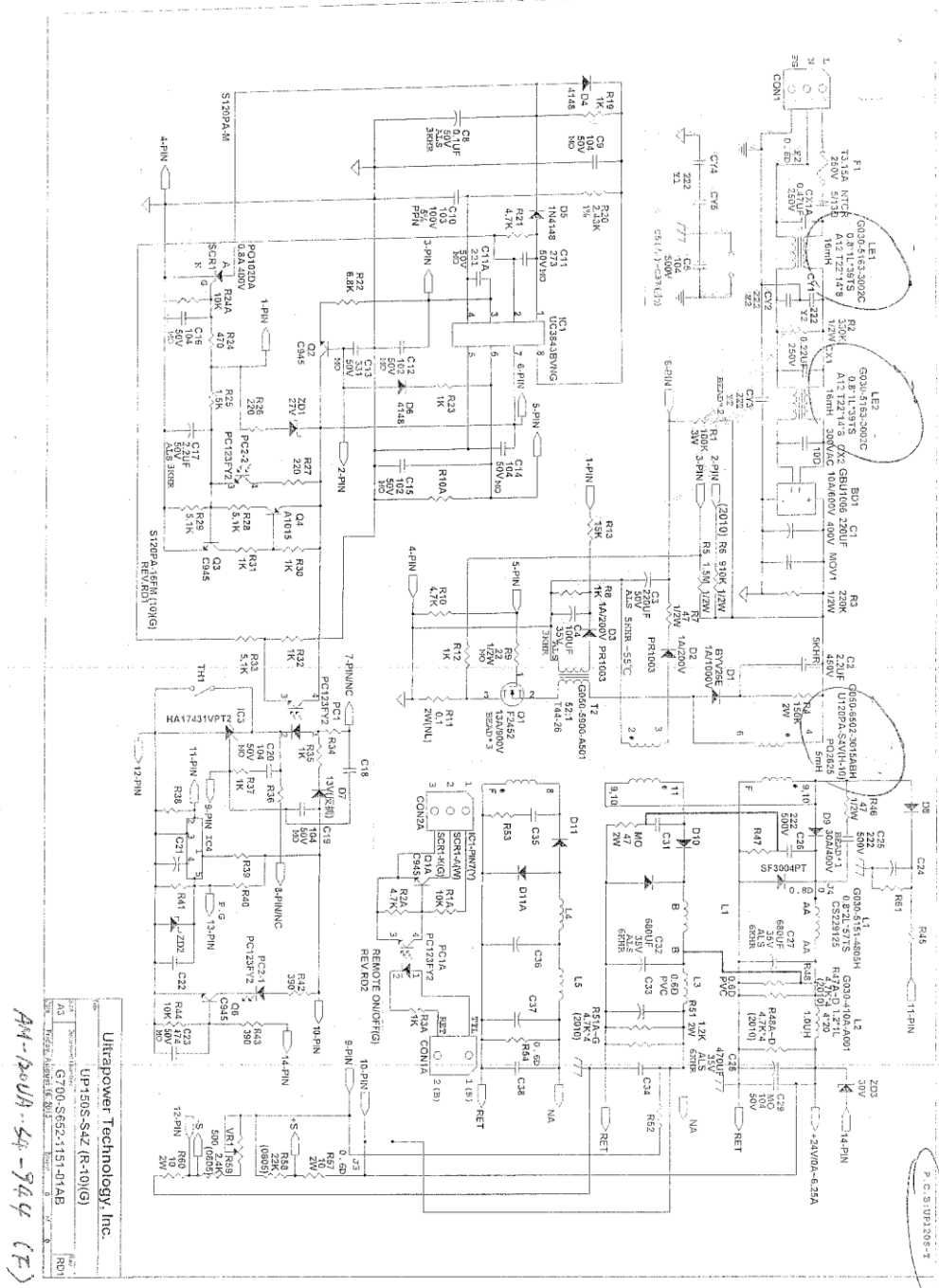
## Enclosures

## Schematics + PWB ID 05-07



## Enclosures

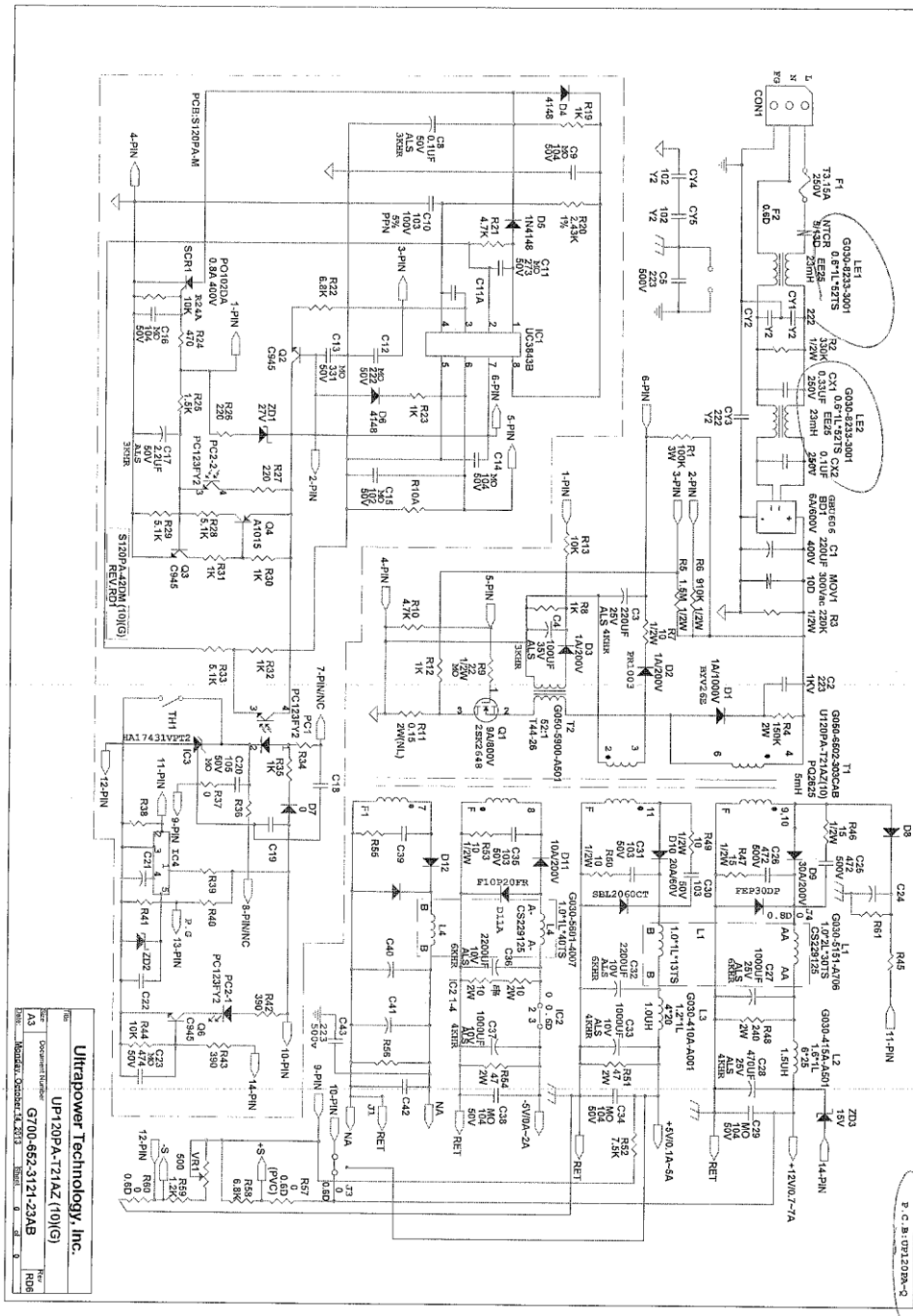
## Schematics + PWB ID 05-07





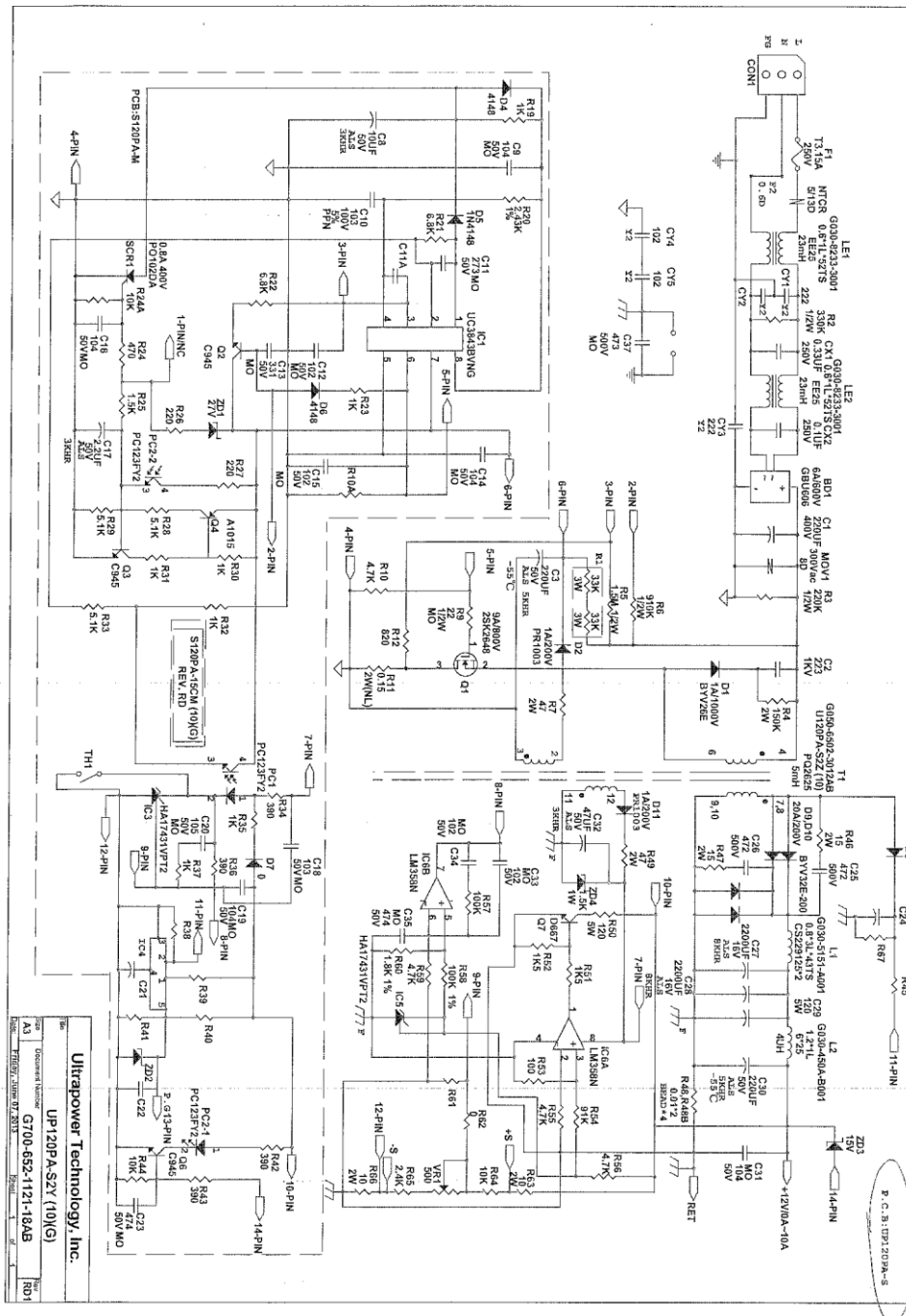
## Enclosures

## Schematics + PWB ID 05-07



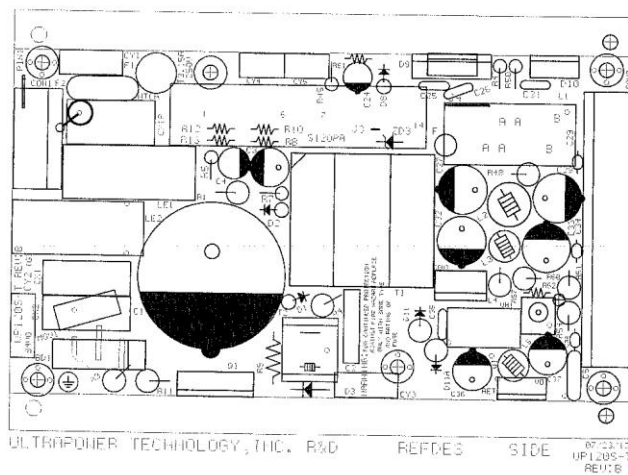
## Enclosures

## Schematics + PWB ID 05-07



## Enclosures

## Schematics + PWB ID 05-07

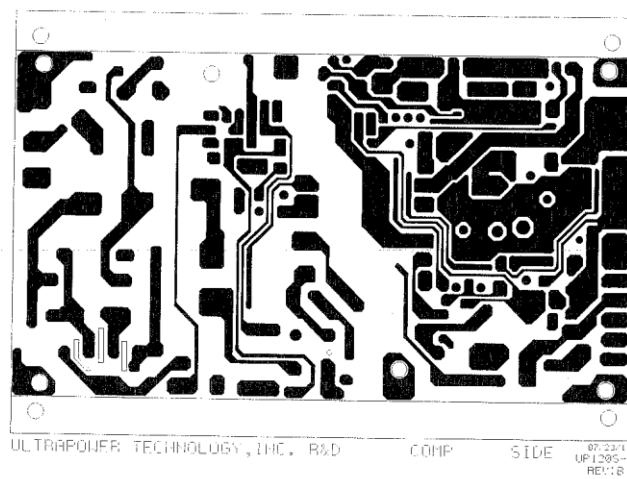


PCB: UP120S-T (Device Name Side)

(For AM-120UA-S4-944 (F) & AM-120UA-T122-944 (F))

Enclosures

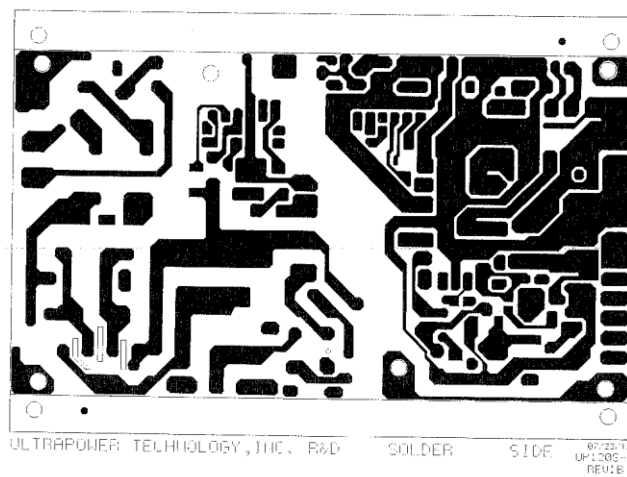
Schematics + PWB ID 05-07



PCB: UP1205-T (Up Trace Side)

Enclosures

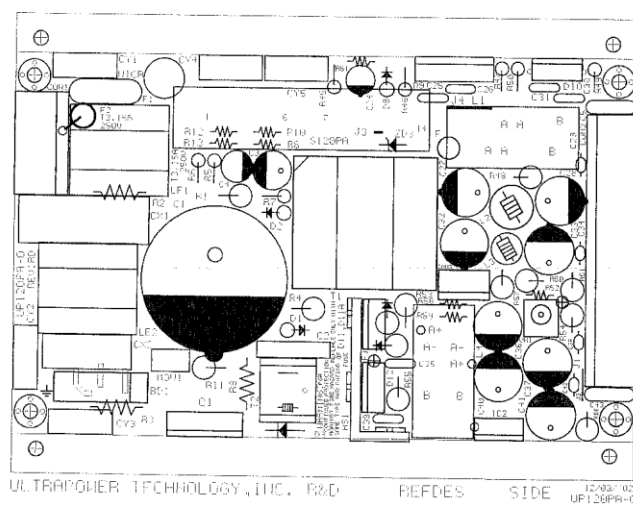
Schematics + PWB ID 05-07



PCB: UP1205-T (Bottom Trace Side)

## Enclosures

## Schematics + PWB ID 05-07

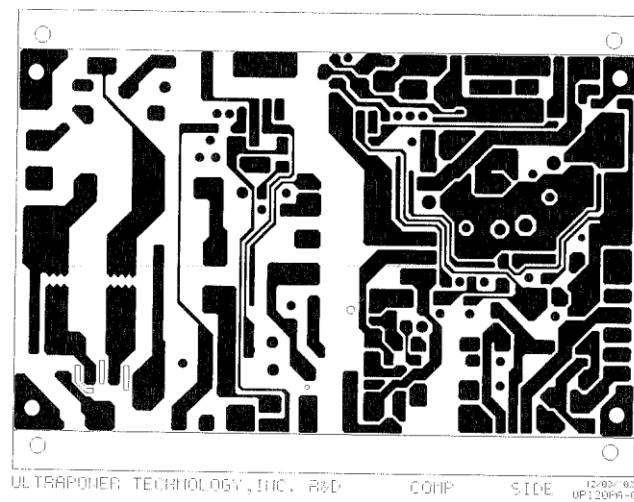


PCB: UP120PA-Q2 (Device Name Side)

(For AM-120U - T211-145)

Enclosures

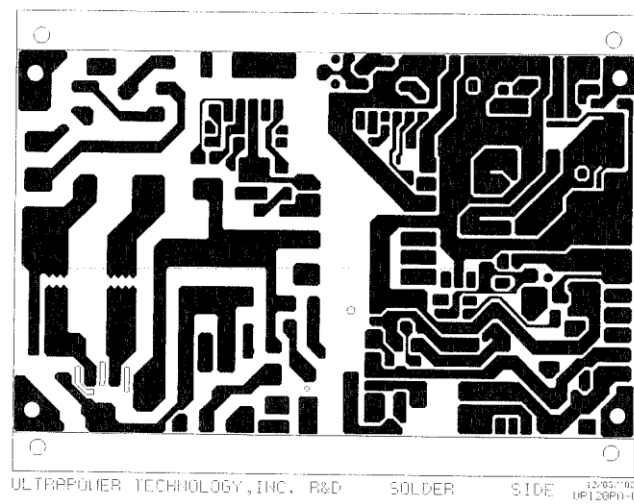
Schematics + PWB ID 05-07



pcb > UP120PA-Q (UP Trace Side)

Enclosures

Schematics + PWB ID 05-07

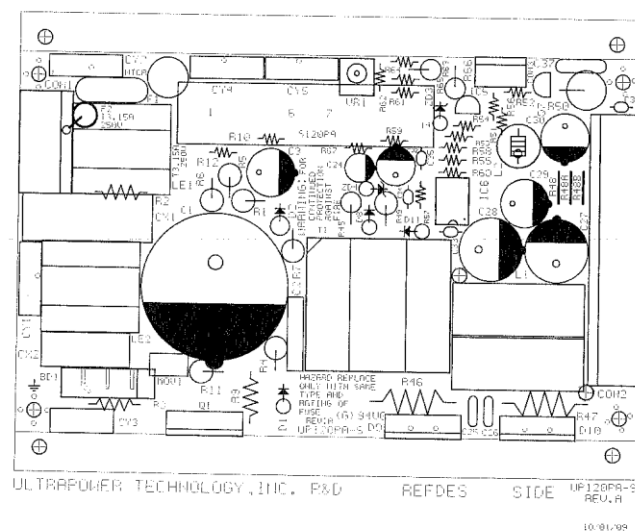


PCB: 4P120PA-0 (Bottom Trace Side)



## Enclosures

## Schematics + PWB ID 05-07

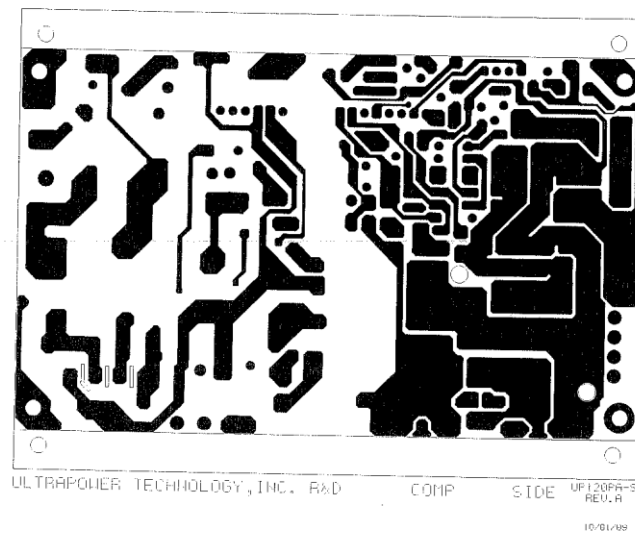


PCB: UP120PA-S (Device Name Side)

(For AM-120U-S2-916)

Enclosures

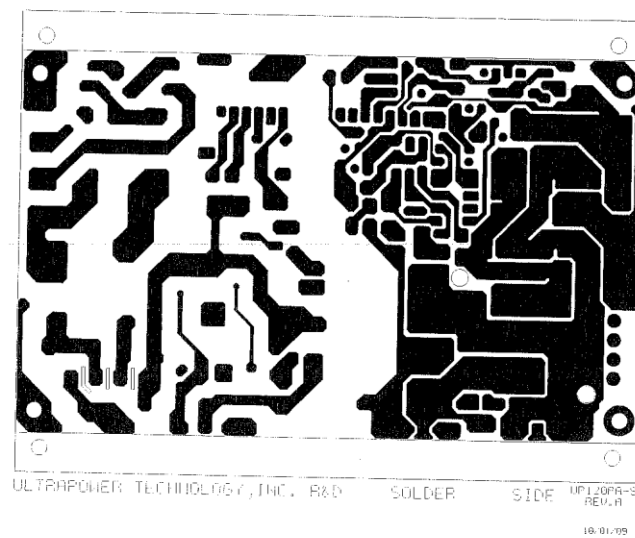
Schematics + PWB ID 05-07



PCB: UP120PA-S (Up Trace Side)

Enclosures

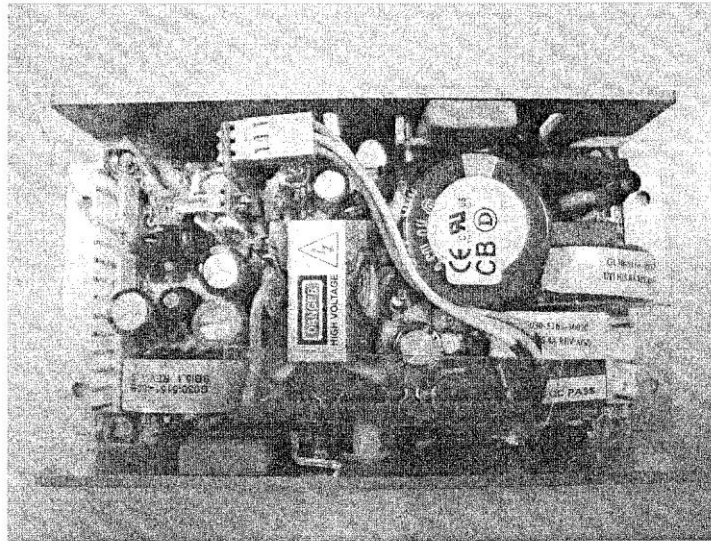
Schematics + PWB ID 05-07



PCB: UP120PA-S (Bottom Trace Side)

Enclosures

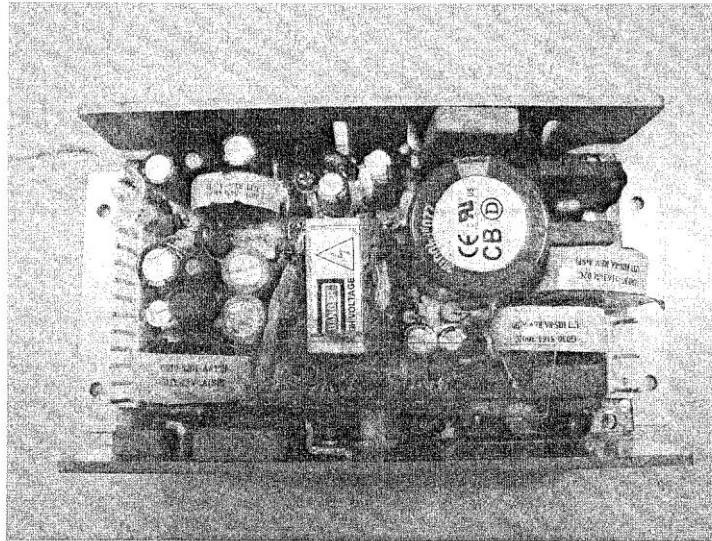
Schematics + PWB ID 05-07



MODEL:AM-120UA-S4-944 (F)

Enclosures

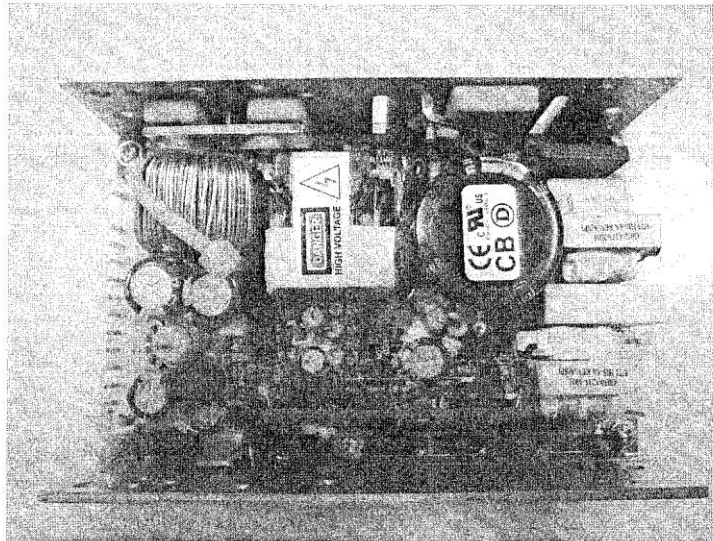
Schematics + PWB ID 05-07



MODEL:AM-120UA-T122-944 (F)

Enclosures

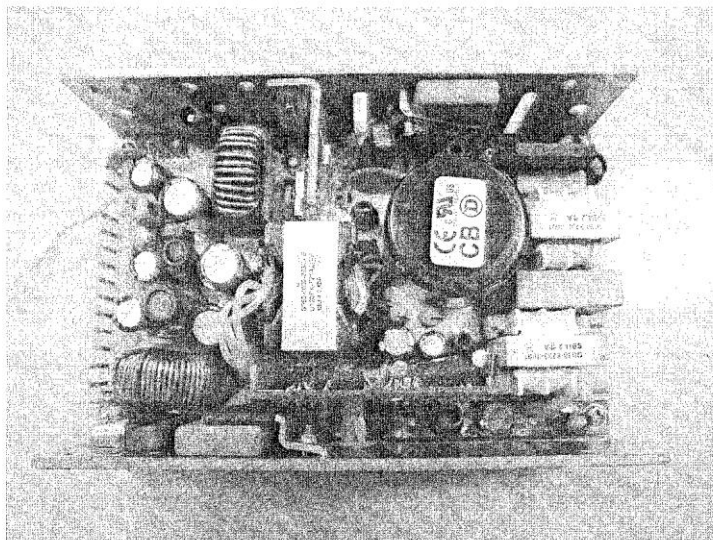
Schematics + PWB ID 05-07



MODEL:AM-120U-S2-916

Enclosures

Schematics + PWB ID 05-07



MODEL:AM-120U-T211-145

## Enclosures

Miscellaneous ID 07-01

**UNIPOWER CORP**

UL LLC  
12 Laboratory Drive  
Research Triangle Park, NC 27709

Subject: Letter of Assurance - National Differences

This document confirms that <Unipower Corp>, will provide the following items needed to the accepting National Certification Bodies (NCBs) along with the CB test report.

**Markings and Safety Instructions** – Safety instructions and markings in the language suitable for the countries listed in the attached reports will be provided at the same time the CB test report is submitted to the NCB.

**EMC Test Report** – Where detailed in the National Differences, an EMC test report or Declaration of Conformity will accompany this product when sent to countries that require EMC test results as part of their certification process.

**Power Supply Cords and Plugs** – All power cords and plug assemblies provided with the unit will be certified and suitable for use in the countries listed in the attached CB test report.

**Multiple Factories** - This confirms that samples submitted for certification are representative of the products from each factory. The factories are as noted in this CB Test Report.

**Batteries** – Upon shipment of products to Switzerland, the requirements of the most up-to-date Swiss Ordinance Annex 2.15, Batteries of SR 814.81 will be met including provision of the necessary markings, documents, and annual reports relative to the disposal of the batteries to the Swiss Authorities.

**ROHS Directive** – We have been advised that we will need to provide evidence that our product complies with ROHS Directive 2011/65/EU. The accepting NCB may obtain this information from <Unipower Corp> by part number upon request.

*Robert Moss 5/23/16*

<Robert Moss>  
<Engineering Technician>  
<Unipower Corp>



## Enclosures

## Miscellaneous ID 07-02

**Unipower LLC**

## Dummy Load List

Joe&amp;Frank 11/24/'21

Model Name: AF-180P-Q1224-501A, AF-180P-S2-938A,  
AM-120U-Q1224, AM-120U-S1-938, AM-120U-Q1332-190, AM-120U-Q1334-226

Vendor	Model/Series	Remark
Green Cubes Technology		

## Enclosures

## Miscellaneous ID 07-02

Dummy Load List			
Model	Part	Value	Wattage
AF-180P-S2-938A	C29	120 $\Omega$	5W
	Through Holes of C29	120 $\Omega$	5W
AF-180P-Q1224-501A	R48	47 $\Omega$	2W
	R51	240 $\Omega$	2W
	R53	240 $\Omega$	2W
	R55	1.2K $\Omega$	2W

## Enclosures

## Miscellaneous ID 07-02

Dummy Load List			
Model	Part	Value	Wattage
AM-120U-Q1334-226	R48	47Ω	2W
	C33	240Ω	5W
	R51	360Ω	2W
	C37	150Ω	5W
	R54	360Ω	2W
	C38	360Ω	2W
	C41	360Ω	5W
	R56	1.5KΩ	2W
AM-120U-Q1332-190	R1A~R1B	200Ω*2	1/2W 2010 SMD
	R2A~R2H	2.2KΩ*8	1/2W 2010 SMD
	R3A~R3D	2.2KΩ*4	1/2W 2010 SMD
	R4A~R4F	2.2KΩ*6	1/2W 2010 SMD
AM-120U-S1-938	C29	24Ω	5W
AM-120U-Q1224	R48	47Ω	2W
	R51	360Ω	2W
	R54	360Ω	2W
	R56	1.2KΩ	2W

## Enclosures

Licenses ID 08-01

# Rynite® FR530 BK507

## THERMOPLASTIC POLYESTER RESIN

### DuPont Transportation & Industrial

**PROSPECTOR®**  
www.ulprospector.com

## Technical Data

## Product Description

30% Glass Reinforced, Flame Retardant, Polyethylene Terephthalate

## General

Material Status • Commercial: Active

UL Yellow Card <sup>1</sup> • E41938-257735Search for UL Yellow Card • DuPont Transportation & Industrial  
• Rynite®Availability • Africa & Middle East • Europe • North America  
• Asia Pacific • Latin America

Filler / Reinforcement • Glass Fiber, 30% Filler by Weight

Additive • Flame Retardant

Features • Flame Retardant

RoHS Compliance • Contact Manufacturer

Part Marking Code (ISO 11469) • &gt;PET-GF30FR(17)&lt;

Resin ID (ISO 1043) • PET-GF30FR(17)

Physical	Nominal Value Unit	Test Method
Density	1.68 g/cm <sup>3</sup>	ISO 1183
Molding Shrinkage		ISO 294-4
Across Flow	0.80 %	
Flow	0.20 %	
Mechanical	Nominal Value Unit	Test Method
Tensile Modulus	11300 MPa	ISO 527-1
Tensile Stress (Break)	130 MPa	ISO 527-2
Tensile Strain (Break)	1.9 %	ISO 527-2
Flexural Modulus	10500 MPa	ISO 178
Flexural Stress	200 MPa	ISO 178
Poisson's Ratio	0.33	
Impact	Nominal Value Unit	Test Method
Charpy Notched Impact Strength		ISO 179/1eA
-40°C	8.0 kJ/m <sup>2</sup>	
23°C	9.0 kJ/m <sup>2</sup>	
Charpy Unnotched Impact Strength		ISO 179/1eU
-40°C	30 kJ/m <sup>2</sup>	
23°C	40 kJ/m <sup>2</sup>	
Thermal	Nominal Value Unit	Test Method
Deflection Temperature Under Load		
0.45 MPa, Unannealed	243 °C	ISO 75-2/B
1.8 MPa, Unannealed	220 °C	ISO 75-2/A
Ball Pressure Test (230°C)	Pass	IEC 60695-10-2
Melting Temperature <sup>3</sup>	252 °C	ISO 11357-3
CLTE		ISO 11359-2
Flow	2.2E-5 cm/cm/°C	
Flow : -40 to 23°C	1.9E-5 cm/cm/°C	
Flow : 55 to 160°C	1.7E-5 cm/cm/°C	
Transverse	9.6E-5 cm/cm/°C	
Transverse : -40 to 23°C	6.8E-5 cm/cm/°C	
Transverse : 55 to 160°C	1.3E-4 cm/cm/°C	

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Form No. TDS-94874-en  
Document Created: Monday, November 29, 2021  
Added to Prospector: August 2006  
Last Updated: 8/10/2021

## Enclosures

Licenses ID 08-01

**Rynite® FR530 BK507**  
THERMOPLASTIC POLYESTER RESIN  
**DuPont Transportation & Industrial**

**PROSPECTOR®**  
www.ulprospector.com

Thermal	Nominal Value Unit	Test Method
RTI Elec		UL 746B
0.40 mm	155 °C	
0.75 mm	155 °C	
1.5 mm	155 °C	
3.0 mm	155 °C	
RTI Imp		UL 746B
0.40 mm	155 °C	
0.75 mm	155 °C	
1.5 mm	155 °C	
3.0 mm	155 °C	
RTI Str		UL 746B
0.40 mm	155 °C	
0.75 mm	155 °C	
1.5 mm	155 °C	
3.0 mm	155 °C	
Electrical	Nominal Value Unit	Test Method
Surface Resistivity	1.0E+14 ohms	IEC 62631-3-2
Volume Resistivity	> 1.0E+13 ohms-m	IEC 62631-3-1
Relative Permittivity		IEC 62631-2-1
1 MHz	3.70	
100 Hz	4.10	
Dissipation Factor		IEC 62631-2-1
1 MHz	0.013	
100 Hz	0.031	
Comparative Tracking Index (CTI)	PLC 2	UL 746A
Comparative Tracking Index	200 V	IEC 60112
Flammability	Nominal Value Unit	Test Method
Flame Rating		UL 94
0.35 mm	V-0	IEC 60695-11-10, -20
1.5 mm	V-0	
	5VA	
Glow Wire Ignition Temperature		IEC 60695-2-13
0.75 mm	800 °C	
1.5 mm	800 °C	
2.0 mm	850 °C	
3.0 mm	925 °C	
Oxygen Index	33 %	ISO 4589-2
FMVSS Flammability	DNI	FMVSS 302
Fill Analysis	Nominal Value Unit	
Ejection Temperature	170 °C	
Additional Information	Nominal Value Unit	Test Method
Railway Classification	R23	EN 45545-2
	HL1	
Injection	Nominal Value Unit	
Drying Temperature	120 °C	
Drying Time - Desiccant Dryer	4.0 to 6.0 hr	
Suggested Max Moisture	< 0.020 %	
Processing (Melt) Temp	270 to 290 °C	
Melt Temperature, Optimum	280 °C	
Mold Temperature	100 to 120 °C	
Mold Temperature, Optimum	110 °C	
Holding Pressure	> 80.0 MPa	

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## Enclosures

Licenses ID 08-01

**Rynite® FR530 BK507**  
THERMOPLASTIC POLYESTER RESIN  
**DuPont Transportation & Industrial**

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Injection	Nominal Value Unit
Back Pressure	As low as possible
Drying Recommended	yes
Hold Pressure Time	4.00 s/mm
Maximum Screw Tangential Speed	12 m/min

**Notes**

<sup>1</sup> A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

<sup>2</sup> Typical properties; these are not to be construed as specifications.

<sup>3</sup> 10°C/min



## Enclosures

Licenses ID 08-01

**Rynite® FR530 BK507**  
THERMOPLASTIC POLYESTER RESIN  
**DuPont Transportation & Industrial**

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## Where to Buy

## Supplier

**DuPont Transportation & Industrial**  
Wilmington, Wilmington USA  
Telephone: 302-999-4592  
Web: <http://plastics.dupont.com/>

## Distributor

## Avient Distribution

*Avient Distribution is a global distribution company. Contact Avient Distribution for availability of individual products by country.*  
Telephone: +1-888-502-0951 (USA); +86-21-6028-4805 (China)  
Web: <https://now.avient.com/>  
Availability: Global

## CCC Plastics

Telephone: 800-461-1638  
Web: <https://www.ccc-group.com/>  
Availability: Canada

## Distrupol Ltd

*Distrupol Ltd is a Pan European distribution company. Contact Distrupol Ltd for availability of individual products by country.*  
Telephone: 08452003040  
Web: <http://www.distrupol.com/>  
Availability: Denmark, Finland, Ireland, Norway, Sweden, United Kingdom

