

COVER PAGE FOR TEST REPORT

Product Category:	Power Supplies for Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	QQGQ, QQGQ7
Complementary Product Categories:	Audio/Video Apparatus(AZSQ, AZSQ7)
Test Procedure:	Listing
Product:	Class I, Switching Desk Top Adaptor
Model/Type Reference:	GTA41077PWWWYY-X.X
	WWW is 120 Watt Max, YY can be any rated output voltage between 12 and 48 Vdc and X.X is optional for specifying output voltage deviations in .1 volt increments, X.X is to be subtracted from rated voltage.
Rating(s):	Input: 100-240 Vac, 1.8 A, 50-60 Hz.
Standards:	UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Applicant Name and Address:	GLOBTEK INC 186 VETERANS DR NORTHVALE NJ 07647 UNITED STATES
This Report includes the following parts, in addition to this cover page:	
<ol style="list-style-type: none">1. Specific Technical Criteria2. Clause Verdicts3. Critical Components4. Test Results	

Issue Date: 2008-04-15
Correction 1 2008-05-01

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Report Reference #

E170507-A24-UL-1

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of Underwriters Laboratories Inc. ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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Test Report By:



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Reviewed By:



David Keen
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Underwriters Laboratories Inc.

SPECIFIC INSPECTION CRITERIA

BA1.0	Special Instructions to UL Representative
BA1.1	N/A

BB1.0	Supporting Documentation
BB1.1	<p>The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:</p> <p>A. Authorization - The Authorization page may include additional Factory Identification Code markings.</p> <p>B. Generic Inspection Instructions -</p> <ul style="list-style-type: none"> i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report. ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report. iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

BC1.0	Markings and instructions	
BC1.1	The following markings and instructions are provided as indicated.	
BC1.2	All clause references are from UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements).	
Standard Clause	Clause Title	Marking or Instruction Details
1.7.1	Power rating - Ratings	Ratings (voltage, frequency/dc, current)
	Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
	Power rating - Model	Model Number
1.7.6	Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
	Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

BD1.0	Production-Line Testing Requirements						
BD1.1	Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.						
					Test Potential		
	Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
	N/A						
BD1.2	Earthing Continuity Test Exemptions - This test is not required for the following models:						
BD1.3	Electric Strength Test Exemptions - This test is not required for the following models:						
BD1.4	Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:						

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL					
BE1.1	Model	Component	Material	Test	Sample(s)	Test Specifics
	N/A					

SPECIFIC TECHNICAL CRITERIA

UL 60950-1, First Edition Information technology equipment - Safety- Part 1: General Requirements	
Report Reference No	E170507-A24-UL-1
Compiled by	Gerard Soprych
Reviewed by	David Keen
Date of issue	2008-04-15
Standards	UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Test procedure	Listing
Non-standard test method	N/A
Test item description	Class I, Switching Desk Top Adaptor
Trademark	None
Model and/or type reference	GTA41077PWWWYY-X.X
	WWW is 120 Watt Max, YY can be any rated output voltage between 12 and 48 Vdc and X.X is optional for specifying output voltage deviations in .1 volt increments, X.X is to be subtracted from rated voltage.
Rating(s)	Input: 100-240 Vac, 1.8 A, 50-60 Hz.

Particulars: test item vs. test requirements

Equipment mobility	movable
Operating condition	continuous
Mains supply tolerance (%)	+10%, -10%
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class I (earthed)
Mass of equipment (kg)	< 18
Protection against ingress of water	IP X0

Possible test case verdicts:

- test case does not apply to the test object: N / A
- test object does meet the requirement: Pass
- test object does not meet the requirement: Fail (acceptable only if a corresponding, less stringent

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national requirement is "Pass")

General remarks:

- "(see Enclosure #)" refers to additional information appended to the Test Report
- "(see appended table)" refers to a table appended to the Test Report
- Throughout the Test Report a point is used as the decimal separator

GENERAL PRODUCT INFORMATION:	
CA1.0	Report Summary
CA1.1	N/A
CB1.0	Product Description
CB1.1	Class I, desktop switching power adaptor, provided with appliance inlet for connection to the main and intended for TN power system.
CC1.0	Model Differences
CC1.1	All models are identical except for output ratings, secondary winding of transformer T1 and model/type designation. Model 3A-1C2Dx48 has different PCB layout than other models.
CD1.0	Additional Information
CD1.1	- The tests are based on +10% and -10% tolerance and considered in compliance with +6% and -10% tolerance.
CE1.0	Technical Considerations
CE1.2	The product was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C.
CE1.3	The means of connection to the mains supply is: Detachable power cord, Pluggable A
CE1.4	The product is intended for use on the following power systems: TN
CE1.5	The equipment disconnect device is considered to be: Appliance inlet
CE1.8	The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Output (V+ to V-) for all models.

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1	GENERAL		Pass
1.5	Components		Pass
1.5.1	General		Pass
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	Pass
1.5.2	Evaluation and testing of components	<p>Components certified to IEC harmonized standard and checked for correct application.</p> <p>Components, for which no relevant IEC-Standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.</p> <p>Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component Standard.</p>	Pass
1.5.3	Thermal controls	There are no thermal controls.	N/A
1.5.4	Transformers	See Annex C.	Pass
1.5.5	Interconnecting cables	Output Cord comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors in primary circuits	Primary-to-earth capacitors are subclass Y1 or Y2. Line-to-line capacitors are subclass X1 or X2.	Pass
1.5.7	Double insulation or reinforced insulation bridged by components		Pass
1.5.7.1	General		Pass
1.5.7.2	Bridging capacitors	Double Insulation bridged by a single capacitor complying with IEC 384-14: 1993, subclass Y1.	Pass
1.5.7.3	Bridging resistors		N/A
1.5.7.4	Accessible parts	Accessible conductive parts separated from other parts by	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

		DOUBLE or REINFORCED INSULATION bridged by C10 comply with the requirement.	
1.5.8	Components in equipment for IT power systems	Not for use on IT power systems.	N/A

1.6	Power interface		Pass
1.6.1	AC power distribution systems	AC power distribution systems are classify as TN.	Pass
1.6.2	Input current	The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD.	Pass
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor	Neutral is insulated from SELV as if it were Line.	Pass

1.7	Marking and instructions		Pass
1.7.1	Power rating	Rating marking readily visible to operator. See below for details.	Pass
	Rated voltage(s) or voltage range(s) (V)	100-240 Vac	Pass
	Symbol for nature of supply, for d.c. only	AC Source	N/A
	Rated frequency or rated frequency range (Hz)....	50-60 Hz	Pass
	Rated current (mA or A)	1.8 A	Pass
	Manufacturer's name or trademark or identification mark.....	Globtek	Pass
	Type/model or type reference	GTA41077PWWWYY-X.X See cover page for details.	Pass
	Symbol for Class II equipment only.....		N/A
	Other symbols	Additional symbols may be provided when submitted for National Approval.	Pass
	Certification marks.....	UL, c-UL.	Pass
1.7.2	Safety instructions	Safety instructions in English. Other languages will be	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

		provided when submitted for national approval.	
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N/A
1.7.4	Supply voltage adjustment	Equipment is auto-ranging.	N/A
1.7.5	Power outlets on the equipment.....	No standard power outlet is provided.	N/A
1.7.6	Fuse identification.....	Fuse marking provided as follow : F1: T4A/ 250 Vac	Pass
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals.....		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		N/A
1.7.8.1	Identification, location and marking.....	No indicator for control affecting safety provided.	N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417	There is no switch in the equipment.	N/A
1.7.8.4	Markings using figures.....	Figures are not used for indicating different positions of controls.	N/A
1.7.9	Isolation of multiple power sources	There is only one connection to hazardous voltage.	N/A
1.7.10	IT power distribution systems	Not intended for use on IT power systems.	N/A
1.7.11	Thermostats and other regulating devices	No thermostats or similar regulating devices.	N/A
1.7.12	Language.....	Reviewed only English markings/instructions.	-
1.7.13	Durability	All markings provided on UL Recognized Component labels suitable for surface they are applied upon and meet the durability test.	Pass
1.7.14	Removable parts		N/A
1.7.15	Replaceable batteries	There are no replaceable	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

		batteries in the equipment.	
	Language..... :		-
1.7.16	Operator access with a tool..... :	No operator access areas require the use of a tool.	N/A
1.7.17	Equipment for restricted access locations..... :	Equipment not intended for installation in a RESTRICTED ACCESS LOCATION.	N/A

2	PROTECTION FROM HAZARDS		Pass
2.1	Protection from electric shock and energy hazards		Pass
2.1.1	Protection in operator access areas	Output of power supply meets SELV limits.	Pass
2.1.1.1	Access to energized parts	See below.	Pass
	Test by inspection..... :	Operator can only contact with SELV circuit.	Pass
	Test with test finger..... :	The test finger was unable to contact bare hazardous parts, basic insulation, or ELV circuits.	Pass
	Test with test pin..... :	The test pin was unable to contact bare hazardous parts.	Pass
	Test with test probe..... :	No TNV present.	N/A
2.1.1.2	Battery compartments..... :	No Battery compartments.	N/A
2.1.1.3	Access to ELV wiring	Internal wiring in an ELV circuit is not user accessible.	N/A
	Working voltage (V); minimum distance (mm) through insulation..... :		-
2.1.1.4	Access to hazardous voltage circuit wiring	No internal wiring accessible to the user.	N/A
2.1.1.5	Energy hazards..... :	The output of the power supply is not an energy hazard.	Pass
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment		Pass
	Time-constant (s); measured voltage (V)..... :	Vo = 398 Vpk 37% of Vo = 147 Vpk at 0.817 sec.	-
2.1.2	Protection in service access areas	No bare parts operating at HAZARDOUS VOLTAGES in	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

		a service access area.	
2.1.3	Protection in restricted access locations	The unit is not intended to be used in restricted locations.	N/A

2.2	SELV circuits		Pass
2.2.1	General requirements	SELV levels are maintained after single fault condition.	Pass
2.2.2	Voltages under normal conditions (V)	All accessible voltages are less than 42.4 Vp or 60 V dc and are classified as SELV.	Pass
2.2.3	Voltages under fault conditions (V)	Under fault conditions voltages never exceed 71 Vpk and 120 Vdc and do not exceed 42.4 Vpk or 60 Vdc for more than 0.2 sec.	Pass
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Hazardous voltage wiring which may contact SELV parts provided with double or reinforced insulation.	Pass
2.2.3.2	Separation by earthed screen (method 2)		N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N/A
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other secondary circuits. SELV circuit and all interconnected circuits separated from primary by double insulation. The SELV circuit does not exceed the SELV limits under normal and fault conditions.	Pass

2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits		-
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed.....		-
2.3.3	Separation from hazardous voltages		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Insulation employed..... :		-
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed..... :		-
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		Pass
2.4.1	General requirements		Pass
2.4.2	Limit values	0.7 mA peak	Pass
	Frequency (Hz)..... :	< 1 kHz	-
	Measured current (mA)..... :	0.26 mA	-
	Measured voltage (V)..... :	352 Vpk	-
	Measured capacitance (mF)..... :	4700 pF	-
2.4.3	Connection of limited current circuits to other circuits	The LIMITED CURRENT CIRCUIT connected to other circuits complies with the requirements of Sub-clause 2.4.1.	Pass

2.5	Limited power sources		N/A
	Inherently limited output		N/A
	Impedance limited output		N/A
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition		N/A
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA):..... :		-
	Current rating of overcurrent protective device (A) :		-

2.6	Provisions for earthing and bonding		Pass
2.6.1	Protective earthing	Appliance inlet protective	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

		earthing terminal is considered.	
2.6.2	Functional earthing	Functional Earthing connected to protective bonding.	Pass
2.6.3	Protective earthing and protective bonding conductors		Pass
2.6.3.1	General		Pass
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm2), AWG		-
2.6.3.3	Size of protective bonding conductors		Pass
	Rated current (A), cross-sectional area (mm2), AWG	Minimum 18 AWG size	-
2.6.3.4	Resistance (Ohm) of earthing conductors and their terminations, test current (A)	0.04 ohms at 25 A and 40 A.	Pass
2.6.3.5	Colour of insulation.....	Protective bonding conductors are green with yellow stripe.	Pass
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm)		-
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.7	Overcurrent and earth fault protection in primary circuits		Pass
2.7.1	Basic requirements	Protective devices are integrated in the equipment.	Pass
	Instructions when protection relies on building installation	Pluggable Type A.	Pass
2.7.2	Faults not covered in 5.3	Adequate fault protection provided.	Pass
2.7.3	Short-circuit backup protection	The building installation is considered as providing short-circuit backup protection.	Pass
2.7.4	Number and location of protective devices :	One protective device in the "LIVE" phase.	Pass
2.7.5	Protection by several devices	Only one protective device is provided.	N/A
2.7.6	Warning to service personnel..... :	No protective device is provided in the neutral conductor.	N/A

2.8	Safety interlocks		N/A
2.8.1	General principles		N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm) :		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		Pass
2.9.1	Properties of insulating materials	Natural rubber, materials	Pass

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		containing asbestos and hygroscopic materials are not used as insulation.	
2.9.2	Humidity conditioning	Electric strength test was conducted after the humidity treatment.	Pass
	Humidity (%)	95% RH for 120 hrs.	-
	Temperature (°C).....	40 degree C	-
2.9.3	Grade of insulation	The adequate level of safety insulation is provided and maintained to comply with the requirements of this standard.	Pass

2.10	Clearances, creepage distances and distances through insulation		Pass
2.10.1	General	Pollution degree 2 applicable.	Pass
2.10.2	Determination of working voltage		Pass
2.10.3	Clearances		Pass
2.10.3.1	General		Pass
2.10.3.2	Clearances in primary circuit		Pass
2.10.3.3	Clearances in secondary circuits	See 5.3.4. Functional insulation only.	N/A
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances		Pass
	CTI tests	Material group IIIb: 100< CTI < 175	-
2.10.5	Solid insulation	Solid or laminated insulating materials having adequate thickness are provided.	Pass
2.10.5.1	Minimum distance through insulation		Pass
2.10.5.2	Thin sheet material	One layer used and each layer which comply with the required electric strength test.	Pass
	Number of layers (pcs)	Reinforced Insulation - 3 layers (UL approved triple insulated wire)	-
	Electric strength test	3000 V ac	-

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2.10.5.3	Printed boards	PWB is not used as reinforced or supplementary insulation.	N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material		-
	Number of layers (pcs)		N/A
2.10.5.4	Wound components	Triple insulated wiring is used for supplementary or reinforced insulation.	Pass
	Number of layers (pcs)	Three extruded layers.	Pass
	Two wires in contact inside wound component; angle between 45° and 90°	Physical separation in the form of insulating sleeving provided to relieve mechanical stress at the crossover point.	Pass
2.10.6	Coated printed boards	No coated printed wiring boards.	N/A
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C)		N/A
2.10.6.5	Electric strength test		-
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test		-
2.10.7	Enclosed and sealed parts		N/A
	Temperature T1=T2 = Tma - Tamb +10K (°C).....		N/A
2.10.8	Spacings filled by insulating compound	Optical isolator is approved component. (see appended table 1.5.1)	Pass
	Electric strength test	(see appended table 5.2)	-
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		N/A

3	WIRING, CONNECTIONS AND SUPPLY	Pass
3.1	General	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.1	Current rating and overcurrent protection	All internal wiring used in the distribution of primary power protected against overcurrent and short circuit by suitably rated protective devices.	Pass
3.1.2	Protection against mechanical damage	The wires are routed away from sharp edges and parts which could damage insulation.	Pass
3.1.3	Securing of internal wiring	The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation.	Pass
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltages involved. All internal wirings are UL Recognized and rated minimum 300 V ac.	Pass
3.1.5	Beads and ceramic insulators	The equipment does not have any beads or similar insulators.	N/A
3.1.6	Screws for electrical contact pressure	The equipment does not have any screw-type connections.	N/A
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	N/A
3.1.8	Self-tapping and spaced thread screws	Thread-cutting or space thread screws are not used for electrical connections.	N/A
3.1.9	Termination of conductors	Terminations cannot become displaced so that clearances and creepage distances can be reduced.	Pass
	10 N pull test	10 N pull test performed for all relevant conductors. No hazards caused hereby.	Pass
3.1.10	Sleeving on wiring	Sleeving is not used as supplementary insulation.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.2	Connection to an a.c. mains supply or a d.c. mains supply		Pass
3.2.1	Means of connection	Appliance inlet used.	Pass
3.2.1.1	Connection to an a.c. mains supply		Pass
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections	Single mains supply.	N/A
3.2.3	Permanently connected equipment	The equipment is not permanently connected.	N/A
	Number of conductors, diameter (mm) of cable and conduits		-
3.2.4	Appliance inlets	The connector can be inserted without difficulty and so placed that, after insertion of the connector, the equipment is not supported by the connector for any position of normal use on a flat surface. Parts at HAZARDOUS VOLTAGE are not accessible during insertion or removal of the connector.	Pass
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type.....		-
	Rated current (A), cross-sectional area (mm ²), AWG	18 AWG required.	-
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief	The equipment does not use a non-detachable power supply cord. The output cord complied Strain Relief requirement.	N/A
	Mass of equipment (kg), pull (N)		-
	Longitudinal displacement (mm)		-
3.2.7	Protection against mechanical damage	Cord not exposed to sharp points or edges.	Pass
3.2.8	Cord guards		N/A
	D (mm); test mass (g).....		-

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	Radius of curvature of cord (mm)		-
3.2.9	Supply wiring space	Appliance Inlet provided.	N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		-
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		-
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		Pass
3.4.1	General requirement	The appliance inlet is considered to be the disconnect device.	Pass
3.4.2	Disconnect devices		Pass
3.4.3	Permanently connected equipment	Unit is not intended to be permanently connected.	N/A
3.4.4	Parts which remain energized	No parts remain energized when the disconnect device is removed.	Pass
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment	Disconnect device disconnects all poles simultaneously.	Pass
3.4.7	Three-phase equipment	The unit is single-phase equipment.	N/A
3.4.8	Switches as disconnect devices	No such switch provided.	N/A
3.4.9	Plugs as disconnect devices		N/A

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3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits :	Interconnection circuits are SELV CIRCUITS.	Pass
3.5.3	ELV circuits as interconnection circuits	No ELV interconnections.	N/A

4	PHYSICAL REQUIREMENTS		Pass
4.1	Stability		Pass
	Angle of 10°	The equipment is not floor-standing or does not weigh over 25 kg. Test was waived.	Pass
	Test: force (N)..... :		N/A

4.2	Mechanical strength		Pass
4.2.1	General		Pass
4.2.2	Steady force test, 10 N	10 N were applied to components. No energy or other hazards	Pass
4.2.3	Steady force test, 30 N	The equipment does not have any internal enclosures.	N/A
4.2.4	Steady force test, 250 N	No hazards as a result of the 250 N test.	Pass
4.2.5	Impact test		Pass
	Fall test		Pass
	Swing test		N/A
4.2.6	Drop test		N/A
4.2.7	Stress relief test	No indication of shrinkage or distortion on enclosures due to the stress relief test (87.1 degree C/7 hours).	Pass
4.2.8	Cathode ray tubes	The equipment does not have	N/A

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		any CRT.	
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No lamps provided.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A

4.3	Design and construction		Pass
4.3.1	Edges and corners	All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard.	Pass
4.3.2	Handles and manual controls; force (N)	No knobs/grips/handles or levers provided in the power supplies.	N/A
4.3.3	Adjustable controls	The equipment is auto-ranging.	N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins, cable ties and heat shrunk tubing are used.	Pass
4.3.5	Connection of plugs and sockets	The equipment does not have any interchangeable plugs/sockets.	Pass
4.3.6	Direct plug-in equipment	Not direct plug-in equipment.	N/A
	Dimensions (mm) of mains plug for direct plug-in. :		N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries		N/A
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids..... :		N/A
	Quantity of liquid (l)..... :		N/A
	Flash point (°C)..... :		N/A

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4.3.13	Radiation; type of radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		-
	Measured high-voltage (kV)		-
	Measured focus voltage (kV)		-
	CRT markings.....		-
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Laser (including LEDs)		N/A
	Laser class		-
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		Pass
4.5.1	Maximum temperatures	The equipment and its component parts did not attain excessive temperatures during normal operation.	Pass
	Normal load condition per Annex L	Permitted rises based on manufacturer's specified T _{mra} of 40°C. Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	Pass

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4.5.2	Resistance to abnormal heat		N/A
-------	-----------------------------	--	-----

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings		N/A
	Dimensions (mm) :		-
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom :		-
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks) :		-

4.7	Resistance to fire		Pass
4.7.1	Reducing the risk of ignition and spread of flame		Pass
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	Pass
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	The fire enclosure is required.	Pass
4.7.2.1	Parts requiring a fire enclosure	A fire enclosure covers all parts except as noted in 4.7.2.2.	Pass
4.7.2.2	Parts not requiring a fire enclosure	Plugs and connectors forming part of a power supply cord or interconnecting cable.	Pass
4.7.3	Materials		Pass
4.7.3.1	General	See below.	Pass
4.7.3.2	Materials for fire enclosures	Equipment is moveable with mass less than 18 kg. Fire enclosure material is V-1 minimum.	Pass
4.7.3.3	Materials for components and other parts outside fire enclosures	Output cable and connector are made of materials of Class V-2 minimum, insulated with PVC, TFE, PTFE, FEP,	Pass

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		neoprene or polyimide.	
4.7.3.4	Materials for components and other parts inside fire enclosures	All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. See Table 1.5.1 for material information.	Pass
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		Pass
5.1	Touch current and protective conductor current		Pass
5.1.1	General		Pass
5.1.2	Equipment under test (EUT)	Equipment designed for connection to only one power source.	Pass
5.1.3	Test circuit	Single phase equipment intended only for connection to star TN system.	Pass
5.1.4	Application of measuring instrument	Test made to 10 x 20 cm metal foil in contact with accessible non-conductive part.	Pass
5.1.5	Test procedure		Pass
5.1.6	Test measurements	See below.	Pass
	Test voltage (V)	264V/60Hz	-
	Measured touch current (mA).....	For fuse in, Normal or Reverse: 0.64 mA at Secondary Output/Earth; 0.01 mA at Enclosure with metal foil.	-
	Max. allowed touch current (mA).....	3.5 mA	-
	Measured protective conductor current (mA).....		-
	Max. allowed protective conductor current (mA) ...		-
5.1.7	Equipment with touch current exceeding 3.5 mA..		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N/A

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5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Test voltage (V) :		-
	Measured touch current (mA)..... :		-
	Max. allowed touch current (mA)..... :		-
5.1.8.2	Summation of touch currents from telecommunication networks :		N/A

5.2	Electric strength		Pass
5.2.1	General		Pass
5.2.2	Test procedure	No insulation breakdown detected during the test. (see appended table 5.2)	Pass

5.3	Abnormal operating and fault conditions		Pass
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	Pass
5.3.2	Motors	The equipment does not have any motors.	N/A
5.3.3	Transformers	Transformers are constructed in accordance with the applicable Clause and Annex C.	Pass
5.3.4	Functional insulation..... :	Functional insulation complies with the requirements c.	Pass
5.3.5	Electromechanical components		N/A
5.3.6	Simulation of faults	See appended table 5.3.	Pass
5.3.7	Unattended equipment	The equipment does not have any thermostats, temperature limiters, or thermal cut-outs.	N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire, emission of molten metal or deformation was noted during the tests. Electric Strength tests performed after abnormal and fault tests.	Pass

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6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Test voltage (V)		-
	Current in the test circuit (mA)		-
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		-
	Current limiting method		-

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A

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A	Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples..... :		-
	Wall thickness (mm) :		-
A.1.2	Conditioning of samples; temperature (°C) :		N/A
A.1.3	Mounting of samples :		N/A
A.1.4	Test flame		N/A
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s) :		-
	Sample 2 burning time (s) :		-
	Sample 3 burning time (s) :		-

A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material..... :		-
	Wall thickness (mm) :		-
A.2.2	Conditioning of samples		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame		N/A
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s) :		-
	Sample 2 burning time (s) :		-
	Sample 3 burning time (s) :		-
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4, 8		N/A
	Sample 1 burning time (s) :		-
	Sample 2 burning time (s) :		-

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	Sample 3 burning time (s)		-
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A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		-
	Manufacturer		-
	Type.....		-
	Rated values.....		-
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days).....		-
	Electric strength test: test voltage (V).....		-
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h)		N/A
B.7.3	Electric strength test		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		-

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C	Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)		Pass
	Position	T1	-
	Manufacturer	Globtek	-
	Type.....	GTX1/ENG130-1	-
	Rated values.....	Class B (130°C)	-
	Method of protection.....	Protective by inherent or circuit.	-
C.1	Overload test	(see appended table 5.3)	Pass
C.2	Insulation	(see appended table 5.2)	Pass
	Protection from displacement of windings.....	Triple insulated wire used.	Pass

D	Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS		Pass
D.1	Measuring instrument	Figure D.1 used.	Pass
D.2	Alternative measuring instrument		N/A

E	Annex E, TEMPERATURE RISE OF A WINDING		N/A
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F	Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		Pass
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G	Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	DC mains supply		N/A
G.3	Determination of telecommunication network transient voltage (V) :		N/A
G.4	Determination of required withstand voltage (V) ... :		N/A
G.5	Measurement of transient levels (V).....		N/A
G.6	Determination of minimum clearances		N/A

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H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
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J	Annex J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal used		-

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)..... :		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

L	Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		Pass
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	Output of unit loaded to its rated value.	Pass

M	Annex M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A

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M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz)..... :		-
M.3.1.2	Voltage (V)..... :		-
M.3.1.3	Cadence; time (s), voltage (V)..... :		-
M.3.1.4	Single fault current (mA)..... :		-
M.3.2	Tripping device and monitoring voltage..... :		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V) :		N/A

N	Annex N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

P	Annex P, NORMATIVE REFERENCES		Pass
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Q	Annex Q, BIBLIOGRAPHY		Pass
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R	Annex R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	Annex S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

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T	Annex T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
 :		-

U	Annex U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		Pass
 :	Triple insulation wire provide as Transformer secondary winding.	-

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1.5.1	TABLE: list of critical components					Pass
Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
Enclosure	GE Plastics China Ltd	SE100X	V-0, 80°C, minimum 2.2 mm thick. Measured overall 172.5 by 72.2 by 38 mm. Two parts construction, secured together by screws. Provided opening overall 5.5 by 8.9 mm for output cord.	QMFZ2	UL	4-01
Enclosure (Alternate)	GE Plastics China Ltd	SE1X	V-0, 105°C, minimum 2.2 mm thick. Measured overall 172.5 by 72.2 by 38 mm. Two parts construction, secured together by screws	QMFZ2	UL	
Appliance Inlet (For x=N)	Various	Various	Rated minimum 2.5 A, 250 Vac. Provided with shrinkable tube on the connection between ground pin and bonding conductor.	AXUT2	UL	3-01
Appliance Inlet (For x=B)	Various	Various	Rated minimum 10 A, 250 Vac.	AXUT2	UL	
Bonding conductor	Various	Various	Green/Yellow wire, minimum 18 AWG size	AVLV2	UL	3-05
Output Cord	Various	Various	Minimum 300 V, minimum 60°C, maximum 3.05 m, type SPT-1, 18 AWG min. 2 conductor min., #1185, 18AWG min. 1 conductor min. and shield, #2464, 18 AWG min. 2 conductor min, SPT-2, marked VW-1 or FT-1, 16-18 AWG. Terminates with a polarized	ZJCZ	UL	4-01

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			connector outside enclosure. See supplement No. 4-02 for cord type and wire size assignment on each model.			
Output Cord Strain Relief	Various	Various	PVC bushing integrally molded on output cord. See supplement No. 4-02 for dimension details on each models.	QMFZ2	UL	4-02
Insulating Tubing/Sleeving	Various	Various	FEP, PTFE, PVC, TFE, neoprene, or marked VW-1; min. 105°C, min. 300 V. See supplement info table 2.10.3 for locations	UZFT2, YDPU2, YDRY2, YDTU2	UL	
Printed Wiring Board	Various	Various	Rated minimum V-1, min. 130°C	ZPMV2	UL	5-03
Fuse (F1)	Various	Various	T4A, 250 Vac.	JDYX, JDYX7	UL	3-06
Fuse (F1) (Alternate)	Conquer Electronics Co Ltd	MST	T4A, 250 Vac.	JDYX2, JDYX8	UL	
Fuse (F1) (Alternate)	Ever Island Electronic Co Ltd	2010	T4A, 250 Vac.	JDYX2, JDYX8	UL	
Fuse (F1) (Alternate)	Save Fusetech Inc	SS-5	T4A, 250 Vac.	JDYX8	UL	
Varistor (NZR) (Optional)	Various	Various	Rated 300 Vac, 385 Vdc.	XUHT2, XUHT8	UL	3-06
Y-Capacitor (CY2, CY3, CY4) (Optional)	Various	Various	CY2=CY4=Rated maximum 100pF, CY3= Rated maximum 4700pF, minimum 250 Vac, Class Y1 or Y2. Rated minimum 100°C.	FOWX2, FOWX8	UL	3-06
Thermistor (TH1)	Various	Various	NTC, rated minimum 5 A, maximum 1 ohms, at 25°C.	--	--	3-06
Line Choke (LF1) (optional)	Various	RC00088	Open type construction. Rated 105°C.	--	--	4-16
Core (LF1)	Various	Various	Ferrite, toroidal, measured overall 16 mm OD by 9 mm ID	--	--	

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			by 8 mm wide.			
Coils (LF1)	Various	Various	Rated minimum 105°C.	OBMW2	UL	
Triple Insulation Wire (LF1)	Furukawa Electric Co., Ltd	TEX-E	Rated minimum 130°C	OBJT2	UL	
Triple Insulation Wire (LF1) (Alternate)	Great Leoflon Industrial Co Ltd	TRW-B	Rated minimum 130°C	OBJT2	UL	
Triple Insulation Wire (LF1) (Alternate)	Cosmolink Co Ltd	TIW-M	Rated minimum 130°C	OBJT2	UL	
Line Choke (LF2) (Optional)	Various	RC00089	Open type construction. Rated 105°C.	--	--	4-19
Core (LF2)	Various	Various	Ferrite, toroidal, measured overall 18 mm OD by 10 mm ID by 10 mm wide.	--	--	
Coils (LF2)	Various	Various	Rated minimum 105°C.	OBMW2	UL	
Triple Insulation Wire (LF2)	Furukawa Electric Co., Ltd	TEX-E	Rated minimum 130°C	OBJT2	UL	
Triple Insulation Wire (LF2) (Alternate)	Great Leoflon Industrial Co Ltd	TRW-B	Rated minimum 130°C	OBJT2	UL	
Triple Insulation Wire (LF2) (Alternate)	Cosmolink Co Ltd	TIW-M	Rated minimum 130°C	OBJT2	UL	
X-Capacitor (CX1) (Optional)	Various	Various	Rated maximum 0.47uF, minimum 250 Vac. Class X1 or X2. Rated minimum 100°C.	FOKY2, FOKY8 or FOWX2, FOWX8	UL	3-08
Bleeder Resistors (R1A, R1B) (SMD type on PCB trace side)	Various	Various	Each rated 1M ohms, 1/4 W.	--	--	3-08
Bridge Rectifier (BD1)	Various	Various	Rated minimum 4 A, minimum 600 V.	--	--	3-08
Choke (L1) (Optional)	Various	RC00085	Open type construction. Rated 105°C.	--	--	4-10
Core (L1)	Various	Various	Ferrite, toroidal, measured overall 17.7 mm OD by 9 mm ID by 8.5 mm wide.	--	--	

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Coil (L1)	Various	Various	Rated minimum 105°C.	OBMW2	UL	
Choke (L2) (Optional)	Various	NF00057	Open type construction. Rated 105°C.	--	--	4-13
Core (L2)	Various	Various	Ferrite, measured overall 26.5 by 19 by 20 mm.	--	--	
Coil (L2)	Various	Various	Rated minimum 105°C.	OBMW2	UL	
Bobbin (L2)	Chang Chun Plastics Co Ltd	T375J, T357, T353	Rated V-0, 150°C, minimum 0.75 mm thick.	QMFZ2	UL	
Bobbin (L2) (Alternate)	Sumitomo Bakelite Co Ltd	PM-9820, PM-9630	Rated V-0, 150°C, minimum 0.16 mm thick.	QMFZ2	UL	
Transistor (Q2)	Various	Various	Rated minimum 11 A, minimum 600 V.	--	--	3-06
Bulk Cap. (C1)	Various	Various	Integral pressure relief, each rated 120µF, minimum 420 V, minimum 105°C.	--	--	3-06
Bridging -Capacitor (CY1) (Optional)	Various	Various	Rated maximum 4700pF, minimum 250 Vac, Class Y1 type.	FOWX2, FOWX8	UL	3-06
Optical Isolator (PH1, PH2)	Everlight Electronics Co Ltd	EL817	Minimum 3000 V ac isolation. Double protection.	FPQU2, FPQU8	UL	3-06
Optical Isolator (PH1, PH2) (Alternate)	Sharp Corp., Electronic Components Group	PC817	Minimum 3000 V ac isolation. Double protection.	FPQU2, FPQU8	UL	
Optical Isolator (PH1, PH2) (Alternate)	Lite-On Technology Corp.	LTV-817	Minimum 3000 V ac isolation. Double protection.	FPQU2, FPQU8	UL	
Transformer (T1)	ENG	XF00311 (For 12V) XF00352 (For 15V) XF00329 (For 18V, 19V) XF00330 (For 24V) XF00364 (For 48V)	Class B (130°C) Insulation System, Type ENG130-1	OBJY2	UL	4-22

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Core (T1)	Various	Various	Ferrite, measured overall 31.5 by 20 by 21.5 mm. Provided with Insulating tape around body.	--	--	
Coil (T1)	Various	Various	Rated minimum 130°C.	OBMW2	UL	
Bobbin (T1)	Chang Chun Plastics Co Ltd	T375J	Rated V-0, 150°C, minimum 0.75 mm thick. Provided with insulation tape between bobbin and coils	QMFZ2	UL	
Bobbin (T1) (Alternate)	Sumitomo Bakelite Co Ltd	PM-9820	Rated V-0, 150°C, minimum 0.16 mm thick. Provided with insulation tape between bobbin and coils	QMFZ2	UL	
Triple Wire (T1)	Great Leoflon Industrial Co Ltd	TRW(B)	Rated minimum 130°C	OBJT2	UL	
Insulating Tape (T1)	3M Company Electrical Products DIV	1350F-1	Polyester tape, 0.025 mm thick, rated 130°C. Provide between windings and around core	OANZ2	UL	
Insulating Tape (T1) (Alternate)	3M Company Electrical Products DIV	1350T-1	Polyester tape, 0.025 mm thick, rated 130°C.	OANZ2	UL	
Insulating Tape (T1) (Alternate)	Bondtec Pacific Co Ltd	370S	Polyester tape, 0.025 mm thick, rated 130°C.	OANZ2	UL	
Varnish (T1)	P D George/Viking	V1630FS	Rated minimum 130°C.	OBOR2	UL	
Varnish (T1) (Alternate)	John C Dolph Co	BC-346A	Rated minimum 130°C.	OBOR2	UL	
Tubing (T1)	Great Holding Industrial Co Ltd	TFL, TFS, TFT	Rated minimum 130°C.	YDPU2	UL	
Copper shield (T1)	Various	Various	Provided around transformer body. Insulated with 1 layer of insulation tape and maximum 2.5 mm from the edge of the shield	--	--	
Heat Sink (HS2)	Various	Various	Aluminum, minimum 3 mm	--	--	4-08

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			thick. See Enclosure for detailed dimensions. Provided with min. 1 layer polyester tape on secondary side of heat sink, measured 25 mm from the edge of heat sink by 24 mm high.			
Heat Sink (For BD1)	Various	Various	Aluminum, minimum 3 mm thick. See Enclosure for detailed dimensions.	--	--	4-07
Heat Sink (For Q3, Q4)	Various	Various	Aluminum, minimum 3 mm thick. See Enclosure for detailed dimensions. Provided with min. 1 layer polyester tape on primary side of heat sink, measured 40 from the edge of heat sink by 24 mm high.	--	--	4-09
Heat Sink (On Component top)	Various	Various	Aluminum, minimum 3 mm thick See Enclosure for detailed dimensions. Provided with min. 1 layer polyester tape on top of secondary component, measured an area of 55 mm by 36 mm and 12.5 mm from heat sink side by 39.2 mm long.	--	--	4-06
Mylar sheet (Between PCB and top heat sink)	Various	Various	Minimum V-2, min. 105°C, minimum 0.4 mm thick. See Enclosure for detailed dimensions.	--	--	4-03
Heat Sink (on Top enclosure)	Various	Various	Aluminum, minimum 0.3 mm thick. See Enclosure for detailed dimensions.	--	--	4-04
Bottom Heat Sink (on	Various	Various	Aluminum, minimum 0.3 mm	--	--	4-05

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Bottom Enclosure)			thick. See Enclosure for detailed dimensions.			
Copper Film (optional)	--	--	Copper, Provided on top and bottom enclosure. Measured overall 125 by 49.5 mm	--	--	3-03
Label	Various	Various	Minimum 80°C.	PGDQ2	UL	4-27
LED	Various	Various	Green	--	--	
Adhesive glue	Various	Various	Minimum 105°C, see supplement info table 2.10.3 for locations	QMFZ2	UL	

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1.6.2	TABLE: electrical data (in normal conditions)						Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status	
GTA410 77P100 12-X.X	--	--	--	--	--	--	
F1	--	90	118	1316	1316	12V 8.33A / 50Hz	
F1	1.8	100	117	1175	1175	12V 8.33A / 50Hz	
F1	1.8	240	116	510	510	12V 8.33A / 50Hz	
F1	--	254	115	488	488	12V 8.33A / 50Hz	
F1	--	264	115	520	520	12V 8.33A / 50Hz	
F1	--	90	118	1317	1317	12V 8.33A / 60Hz	
F1	1.8	100	117	1174	1174	12V 8.33A / 60Hz	
F1	1.8	240	116	519	519	12V 8.33A / 60Hz	
F1	--	254	115	498	498	12V 8.33A / 60Hz	
F1	--	264	115	532	532	12V 8.33A / 60Hz	
GTA410 77P120 15-X.X	--	--	--	--	--	--	
F1	--	90	135	1505	1505	15V 8A / 50Hz	
F1	1.8	100	133	1338	1338	15V 8A / 50Hz	
F1	1.8	240	130	568	568	15V 8A / 50Hz	
F1	--	254	130	542	542	15V 8A / 50Hz	
F1	--	264	130	580	580	15V 8A / 50Hz	
F1	--	90	135	1501	1501	15V 8A / 60Hz	
F1	1.8	100	135	1339	1339	15V 8A / 60Hz	
F1	1.8	240	130	576	576	15V 8A / 60Hz	
F1	--	254	130	551	551	15V 8A / 60Hz	
F1	--	264	130	586	586	15V 8A / 60Hz	
GTA410 77P120 24-X.X	--	--	--	--	--	--	
F1	--	90	137	1525	1525	24V 5A / 50Hz	
F1	1.8	100	136	1361	1361	24V 5A / 50Hz	
F1	1.8	240	134	635	635	24V 5A / 50Hz	
F1	--	254	133	608	608	24V 5A / 50Hz	
F1	--	264	134	708	708	24V 5A / 50Hz	
F1	--	90	137	1524	1524	24V 5A / 60Hz	
F1	1.8	100	136	1361	1361	24V 5A / 60Hz	
F1	1.8	240	134	627	627	24V 5A / 60Hz	
F1	--	254	133	612	612	24V 5A / 60Hz	
F1	--	264	134	705	705	24V 5A / 60Hz	
GTA410 77P120 48-X.X	--	--	--	--	--	--	
F1	--	90	136	1516	1516	48V 2.5A / 50Hz	
F1	1.8	100	135	1350	1350	48V 2.5A / 50Hz	

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F1	1.8	240	133	579	579	48V 2.5A / 50Hz
F1	--	254	133	552	552	48V 2.5A / 50Hz
F1	--	264	133	577	577	48V 2.5A / 50Hz
F1	--	90	136	1514	1514	48V 2.5A / 60Hz
F1	1.8	100	135	1351	1351	48V 2.5A / 60Hz
F1	1.8	240	133	587	587	48V 2.5A / 60Hz
F1	--	254	133	561	561	48V 2.5A / 60Hz
F1	--	264	133	588	588	48V 2.5A / 60Hz
supplementary information:						
--						

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements						Pass
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
Line to Neutral before Fuse (PWB Trace)	<420	<250	1.5	2.52	2.5	2.52	
Fuse leads (PCB Trace)	<420	<250	1.5	3.58	2.5	3.58	
Primary to Earth (PWB Trace)	<420	<250	2.0	3.22	2.5	3.22	
Primary (D2) to Secondary (PH2), Component (10N Push)	<420	<250	4.0	15.9	5.0	15.9	
Primary (D13) to Secondary (HS on Q3, Q4), Component (10N Push)	<420	<250	4.0	12.6	5.0	12.6	
Primary to Secondary (PWB trace) under CY1	<420	<250	4.0	7.28	5.0	7.28	
Primary to Secondary (PWB trace) under CY3	<420	<250	4.0	6.21	5.0	6.21	
Primary to Secondary, Transformer T1 (PWB Trace)	576	357	4.6	10.42	7.8	10.42	
Primary to Secondary, between J9 and C19 (PWB Trace)	<420	<250	4.0	5.82	5.0	5.82	
Primary to Secondary, under PH1, PH2 (PWB Trace)	<420	<250	4.0	6.65	5.0	6.65	
Secondary to Core, Transformer T1	576	357	4.6	14.27	7.8	14.27	
Primary to Secondary, Transformer T1	576	357	4.6	8.47	7.8	8.47	
supplementary information:							
1. Transformer T1 used UL approved Triple insulated wire on one of the secondary windings 2. Transformer T1 all exit leads are provided with sleeving tube 3. Transformer T1 is provided with 1 turn of copper shield, covered with 1 layer of insulation tape, 2.5 mm from both edges of copper shield. 4. Transformer T1 bottom core is covered with 1 layer of insulation tape. 5. Heat Sink for Q3 and Q4 is provided with 1 layer insulation							

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tape near primary components side. 6. Heat Sink for Q1, Q2 is provided with 1 layer of insulation tape near secondary components side. 7. Heat Sink on top of the components is provided with insulation tape near secondary component side. 8. Coil windings of L1 is covered with insulation tape 9. Protective bonding wire connection to the appliance inlet is sleeved with shrinkable tubing 10. Glued components: CY2, F1, NZR, TH1, LF1, LF2, CX1, C2A, C2B, L1, R1, C13, D2, C2, R2, CY1, CY3, C7, C8. 11. One mylar sheet is provided around the PCB, between the unit and the metal shield.

2.10.5	TABLE: distance through insulation measurements				Pass
distance through insulation di at/of:		Up (V)	test voltage (V)	required di (mm)	di (mm)
Mylar Sheet		240	3000 Vdc	0.2	0.45
supplementary information:					
UL approved optical isolator is used.					

4.5	TABLE: temperature rise measurements						Pass
	test voltage (V).....	--	--	--	--	--	—
	t1 (°C).....	--	--	--	--	--	—
	t2 (°C).....	--	--	--	--	--	—
maximum temperature T of part/at:		T (°C)					allowed Tmax (°C)
GTA41077P10012-X.X		90V / 60Hz (Bottom 1)	90V / 60Hz (Bottom 2)	90V / 60Hz (Top 1)	90V / 60Hz (Top 2)	--	--
Inlet wire		56.2	55.8	55.8	55.5	--	65
LF1 coil		84.1	83.7	83.3	83.0	--	105
CX1 body		84.5	84.1	83.6	83.3	--	100
LF2 Coil		86.9	86.5	86.0	85.7	--	105
L2 coil		88.6	88.2	87.7	87.4	--	105
PCB under BD1		85.9	85.5	85.5	85.2	--	130
HS body of Q1		86.2	85.8	85.5	85.2	--	130
L1 Coil		87.8	87.4	86.9	86.6	--	105
C1 body		90.2	89.8	89.2	88.9	--	105
CY1 body		88.7	88.3	87.3	87.0	--	100
PH2 body		89.4	89.0	88.0	87.7	--	100
T1 Primary side Coil		96.2	95.8	95.0	94.7	--	110
T1 Secondary Side Coil		96.6	96.2	95.4	95.1	--	110
T1 Core		90.1	89.7	89.0	88.7	--	110
HS body of Q3		84.9	84.5	83.1	82.8	--	130
Output wire		58.9	58.5	59.3	59.0	--	80

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Inside enclosure	66.7	66.3	67.9	67.6	--	80
Surface of enclosure	56.8	56.4	55.8	55.5	--	80
Ambient Air	40.4	40	40.3	40	--	--
Test Duration	3hr	--	1.8hr	--	--	--
GTA41077P10012-X.X	264V / 60Hz (Bottom 1)	264V / 60Hz (Bottom 2)	264V / 60Hz (Top 1)	264V / 60Hz (Top 2)	--	--
Inlet wire	49.6	49.5	50.4	50.2	--	65
LF1 coil	68.9	68.8	69.5	69.3	--	105
CX1 body	69.0	68.9	69.5	69.3	--	100
LF2 Coil	67.9	67.8	68.3	68.1	--	105
L2 coil	76.5	76.4	77.2	77.0	--	105
PCB under BD1	70.3	70.2	70.9	70.7	--	130
HS body of Q1	72.9	72.8	73.3	73.1	--	130
L1 Coil	73.1	73.0	73.4	73.2	--	105
C1 body	75.4	75.3	75.9	75.7	--	105
CY1 body	83.4	83.3	83.5	83.3	--	100
PH2 body	74.0	73.9	74.6	74.4	--	100
T1 Primary side Coil	86.8	86.7	87.5	87.3	--	110
T1 Secondary Side Coil	86.9	86.8	87.4	87.2	--	110
T1 Core	75.5	75.4	75.8	75.6	--	110
HS body of Q3	79.1	79.0	79.9	79.7	--	130
Output wire	57.8	57.7	60.0	59.8	--	80
Inside enclosure	60.0	59.9	60.2	60.0	--	80
Surface of enclosure	48.8	48.7	50.8	50.6	--	80
Ambient Air	40.1	40	40.2	40	--	--
Test Duration	1.6hr	--	1.5hr	--	--	--
GTA41077P12015-X.X	90V / 50Hz (Bottom 1)	90V / 50Hz (Bottom 2)	90V / 50Hz (Top 1)	90V / 50Hz (Top 2)	--	--
Inlet wire	57.9	57.4	55.1	54.9	--	65
LF1 coil	91.8	91.3	93.2	93.0	--	105
CX1 body	93.7	93.2	95.2	95.0	--	100
LF2 Coil	95.8	95.3	97.9	97.7	--	105
L2 coil	99.2	98.7	100.6	100.4	--	105
PCB under BD1	81.4	80.9	81.9	81.7	--	130
HS body of Q1	95.0	94.5	97.1	96.9	--	130
L1 Coil	99.0	98.5	101.5	101.3	--	105
C1 body	98.1	97.6	99.9	99.7	--	105
CY1 body	94.2	93.7	95.0	94.8	--	100
PH2 body	95.0	94.5	96.9	96.7	--	100
T1 Primary side Coil	103.3	102.8	105.8	105.6	--	110
T1 Secondary Side Coil	95.3	94.8	96.7	96.5	--	110
T1 Core	95.3	94.8	97.4	97.2	--	110

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HS body of Q3	91.7	91.2	93.0	92.8	--	130
Output wire	68.3	67.8	66.3	66.1	--	80
Inside enclosure	69.7	69.2	70.8	70.6	--	80
Surface of enclosure	56.5	56.0	52.8	52.6	--	80
Ambient Air	40.5	40	40.2	40	--	--
Test Duration	1.6hr	--	1.3hr	--	--	--
GTA41077P12015-X.X	264V / 60Hz (Bottom 1)	264V / 60Hz (Bottom 2)	264V / 60Hz (Top 1)	264V / 60Hz (Top 2)	--	--
Inlet wire	53.5	53.4	54.0	53.7	--	65
LF1 coil	79.9	79.8	79.4	79.1	--	105
CX1 body	81.5	81.4	80.9	80.6	--	100
LF2 Coil	81.6	81.5	81.1	80.8	--	105
L2 coil	87.6	87.5	87.2	86.9	--	105
PCB under BD1	72.7	72.6	73.7	73.4	--	130
HS body of Q1	87.0	86.9	86.0	85.7	--	130
L1 Coil	86.5	86.4	85.6	85.3	--	105
C1 body	90.7	90.6	90.0	89.7	--	105
CY1 body	91.7	91.6	90.6	90.3	--	100
PH2 body	89.8	89.7	88.9	88.6	--	100
T1 Primary side Coil	98.2	98.1	97.7	97.4	--	110
T1 Secondary Side Coil	91.0	90.9	90.3	90.0	--	110
T1 Core	89.7	89.6	88.7	88.4	--	110
HS body of Q3	87.7	87.6	87.2	86.9	--	130
Output wire	65.3	65.2	62.7	62.4	--	80
Inside enclosure	65.9	65.8	68.2	67.9	--	80
Surface of enclosure	53.8	53.7	55.5	55.2	--	80
Test Duration	1.3hr	--	2.3hr	--	--	--
GTA41077P12024-X.X	90V / 50Hz bottom 1	90V / 50Hz bottom 2	90V / 50Hz top 1	90V / 50Hz top 2	--	--
Inlet pine	60.9	60.7	63.5	63.3	--	65
LF1 coil	89.3	89.1	91.5	91.3	--	105
CX1 body	88.2	88	90.3	90.1	--	100
LF2 coil	93.4	93.2	96.2	96	--	105
L2 coil	98.8	98.6	101.3	101.1	--	105
PCB under BD1	82.4	82.2	83.7	83.5	--	130
HS body of Q1	98.4	98.2	102	101.8	--	130
L1 coil	97.5	97.3	100.9	100.7	--	105
C1 body	94.7	94.5	91.2	91	--	105
CY1 body	93.5	93.3	91.3	91.1	--	100
PH2 body	91.8	91.6	94.9	94.7	--	100
T1 Primary Side Coil	102.3	102.1	105.4	105.2	--	110
T1 Secondary Side Coil	92.9	92.7	95.7	95.5	--	110

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T1 Core	89.4	89.2	92.1	91.9	--	110
HS body of Q3	91.6	91.4	94.3	94.1	--	130
Output wire	69.2	69	69.3	69.1	--	80
Inside enclosure	77.1	76.9	76.8	76.6	--	80
Surface of enclosure	52.2	52	53.9	53.7	--	80
Ambient Air	40.2	40	40.2	40	--	--
Test Duration	1.8 hrs	--	1.1 hrs	--	--	--
--	264V / 50Hz botto m 1	264V / 50Hz bottom 2	264V / 50Hz top 1	264V / 50Hz top 2	--	--
Inlet pine	60.2	59.6	57	56.6	--	65
LF1 coil	76.9	76.3	77.5	77.1	--	105
CX1 body	76.7	76.1	77.2	76.8	--	100
LF2 coil	77.4	76.8	78.2	77.8	--	105
L2 coil	86.5	85.9	86	85.6	--	105
PCB under BD1	70.8	70.2	73.6	73.2	--	130
HS body of Q1	84.6	84	85.2	84.8	--	130
L1 coil	83.1	82.5	83.9	83.5	--	105
C1 body	85.8	85.2	86.1	85.7	--	105
CY1 body	83.1	82.5	84.2	83.8	--	100
PH2 body	83.8	83.2	85	84.6	--	100
T1 Primary Side Coil	95.9	95.3	96.4	96	--	110
T1 Secondary Side Coil	85.3	84.7	86.3	85.9	--	110
T1 Core	82.2	81.6	83	82.6	--	110
HS body of Q3	87	86.4	87.4	87	--	130
Output wire	64	63.4	66.4	66	--	80
Inside enclosure	69.5	68.9	71.3	70.9	--	80
Surface of enclosure	50.2	49.6	56.1	55.7	--	80
Ambient Air	40.6	40	40.4	40	--	--
Test Duration	2 hrs	--	1.8 hrs	--	--	--
GTA41077P12048-X.X	90V / 50Hz botto m 1	90V / 50Hz bottom 2	90V / 50Hz top 1	90V / 50Hz top 2	--	--
Inlet pine	56	55.7	56.5	56.4	--	65
LF1 coil	82.8	82.5	82.5	82.4	--	105
CX1 body	81.5	81.2	81.5	81.4	--	100
LF2 coil	84.3	84	84	83.9	--	105
L2 coil	84.1	83.8	84.2	84.1	--	105
PCB under BD1	83.9	83.6	84	83.9	--	130
HS body of Q1	82	81.7	82	81.9	--	130
L1 coil	84.9	84.6	84.8	84.7	--	105
C1 body	82	81.7	81.9	81.8	--	105
CY1 body	82.9	82.6	82	81.9	--	100

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PH2 body	75.5	75.2	74.8	74.7	--	100
T1 Primary Side Coil	89.5	89.2	89.4	89.3	--	110
T1 Secondary Side Coil	88.3	88	88.1	88	--	110
T1 Core	78.3	78	77.9	77.8	--	110
HS body of Q3	78.4	78.1	78	77.9	--	130
Output wire	55.3	55	52	51.9	--	80
Inside enclosure	59.9	59.6	63.2	63.1	--	80
Surface of enclosure	46.5	46.2	47.3	47.2	--	80
Ambient Air	40.3	40	40.1	40	--	--
Test Duration	2.5 hrs	--	1.6 hrs	--	--	--
--	264V / 50Hz bottom 1	264V / 50Hz bottom 2	264V / 50Hz top 1	264V / 50Hz top 2	--	--
Inlet pine	51.1	50.7	50.3	50.2	--	65
LF1 coil	68.6	68.2	68.3	68.2	--	105
CX1 body	68.8	68.4	68.5	68.4	--	100
LF2 coil	67.5	67.1	67.3	67.2	--	105
L2 coil	72.9	72.5	72.7	72.6	--	105
PCB under BD1	70	69.6	69.7	69.6	--	130
HS body of Q1	71.9	71.5	71.8	71.7	--	130
L1 coil	73	72.6	73	72.9	--	105
C1 body	74.4	74	74.4	74.3	--	105
CY1 body	81.9	81.5	81.3	81.2	--	100
PH2 body	71.1	70.7	70.7	70.6	--	100
T1 Primary Side Coil	85	84.6	84.8	84.7	--	110
T1 Secondary Side Coil	84.3	83.9	84.3	84.2	--	110
T1 Core	73.3	72.9	73.5	73.4	--	110
HS body of Q3	76.9	76.5	76.8	76.7	--	130
Output wire	54.6	54.2	50.9	50.8	--	80
Inside enclosure	56.5	56.1	59.2	59.1	--	80
Surface of enclosure	46	45.6	46.6	46.5	--	80
Ambient Air	40.4	40	40.1	40	--	--
Test Duration	1.5 hrs	--	2 hrs	--	--	--
--	90V/60Hz top 1	90V/60Hz top 1	90V/60Hz top 2	90V/60Hz top 2	--	--
PCB under TH1	64.9	77.8	66.3	79.2	--	130
Ambient	27.1	40	27.1	40	--	--
Test Duration	1.2 hrs	--	1.2 hrs	--	--	--
--	90V/50Hz top 1	90V/50Hz top 1	90V/50Hz top 2	90V/50Hz top 2	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

PCB under TH1	73.7	86.6	68.8	81.7	--	130
Ambient	27.1	40	27.1	40	--	--
Test Duration	1.2 hrs	--	1.2 hrs	--	--	--
temperature T of winding:	R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed Tmax (°C)	insulation class	
--	--	--	--	--	--	--
supplementary information:						
See Test Record for maximum load condition.						

4.5.2	TABLE: ball pressure test of thermoplastics			N/A
	allowed impression diameter (mm) :			—
part		test temperature (°C)	impression diameter (mm)	
supplementary information:				

4.7	TABLE: resistance to fire				Pass
part	manufacturer of material	type of material	thickness(mm)	flammability class	
--	--	--	--	--	--
supplementary information:					
See Critical Component List					

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests			Pass
test voltage applied between:		test voltage (V) a.c./d.c.	breakdown Yes / No	
One layer of insulation (thickness = 0.025mm)		3000 V ac	No	
Primary winding to SELV winding		3000 V ac	No	
SELV winding to Core		3000 V ac	No	
Primary to SELV		4242 V dc	No	
Primary to Earth		3000 V dc	No	
Primary to Enclosure with foil		4242 V dc	No	
supplementary information:				
1. Insulation tape tested: 1350F-1, 1350T-1 from 3M Co, and 370S from Bondtec Pacific Co Ltd.				
2. Transformer insulation tests were done with all possible material combination as per insulation systems				

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Clause	Requirement + Test	Result - Remark	Verdict

used.

5.3	TABLE: fault condition tests						Pass
	ambient temperature (°C) : --						—
	model/type of power supply : --						—
	manufacturer of power supply : --						—
	rated markings of power supply..... : --						—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result	
GTA41077 P10012-X.X	--	--	--	--	--	--	
T1 pin A to B	Short	264	1 Sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.	
T1 pin 7 to 8	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC	
T1 pin A to pin B after Q4, before R11	Overload	264	5 hrs	F1	0.7	CT at 1.2A increased to 1.5A, unit shutdown, NT, NB, NC, T1=117°C, Ambient Air=28°C	
+12V	Overload	264	3.5 hrs	F1	0.6	CT at 8.7A output increased to 9A, unit shutdown, NT, NB, NC, T1=108°C, Ambient Air=28°C	
+12V to Earth	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC	
GTA41077 P12015-X.X	--	--	--	--	--	--	
T1 pin A to B	Short	264	1 Sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.	
T1 pin 7 to 8	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC	
T1 pin A to pin B after Q4, before R11	Overload	264	3.5 hrs	F1	0.6	CT at 0.3A increased to 0.4A, unit shutdown, NT, NB, NC, T1=98°C, Ambient Air=25°C	
+15V	Overload	264	1.8 hrs	F1	0.6	CT at 8.3A output increased to 8.4A, unit shutdown, NT, NB, NC, T1=98°C, Ambient Air=26°C	
+15V to Earth	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC	

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Clause	Requirement + Test			Result - Remark		Verdict
GTA41077 P12024- X.X	--	--	--	--	--	--
T1 pin A to B	Short	264	1 Sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.
T1 pin 7 to 8	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC
T1 pin A to pin B after Q4, before R11	Overload	264	3.8 hrs	F1	0.7	CT at 0.2A increased to 0.3A, unit shutdown, NT, NB, NC, T1=109°C, Ambient Air=24°C
+24V	Overload	264	2.5 hrs	F1	0.7	CT at 5.1A output increased to 5.2A, unit shutdown, NT, NB, NC, T1=110°C, Ambient Air=24°C
+24V to Earth	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC
GTA41077 P12048- X.X	--	--	--	--	--	--
T1 pin A to B	Short	264	1 Sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.
T1 pin 7 to 8	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC
T1 pin 5 to 6	Short	264	1 Sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.
PH1 secondary	Short	264	10min	F1	0.5	Unit normal operation, NT, NB, NC
PH1 primary	Short	264	10min	F1	0.04	Unit shutdown, NT, NB, NC
PH2 secondary	Short	264	10min	F1	0.04	Unit shutdown, NT, NB, NC
PH2 primary	Short	264	10min	F1	0.04	Unit shutdown, NT, NB, NC
BD1 AC to +	Short	264	1 sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.
C2A	Short	264	1 sec	F1	198 - 0	IP(F1), RF, NT, NB, NC.
Q2 G to D	Short	264	1 sec	F1	180 - 0	IP(F1), CD (Q2) RF, NT, NB, NC.
Q2 G to S	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC
Q2 D to S	Short	264	1 sec	F1	180 - 0	IP(F1), CD (Q2) damaged, repeat all fuse result were same, NT, NB, NC.
PH1 pin1	Open	264	10min	F1	0.5	Unit normal operation, NT, NB, NC
PH2 pin1	Open	264	10min	F1	0.5	Unit normal operation, NT, NB, NC
T1 pin A to	Overload	264	3.3 hrs	F1	0.7	CT at 0.2A increased to

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Clause	Requirement + Test			Result - Remark		Verdict
pin B after Q4, before R11						0.3A, unit shutdown, NT, NB, NC, T1=100°C, Ambient Air=24°C
+48V	Overload	264	2.6 hrs	F1	0.7	CT at 2.7A output increased to 2.8A, unit shutdown, NT, NB, NC, T1=100°C, Ambient Air=26°C
+48V to Earth	Short	264	10min	F1	0.1	Unit shutdown, NT, NB, NC
R1	Open	264	3 min	F1	172 - 0	Unit shutdown, IP (F1), CD (Q1), NT, NB, NC, RF
D5	Short	264	10 min	F1	0.5	Normal operation, NT, NB, NC
R6	Open	264	3 min	F1	172 - 0	Unit shutdown, IP (F1), CD (Q1), NT, NB, NC
R3	Short	264	10 min	F1	0.5	Normal Operation, NT, NB, NC
Z2	Open	264	10 min	F1	0.5	Normal Operation, NT, NB, NC
R2	Open	264	10 min	F1	0.5	Normal Operation, NT, NB, NC
IC2	Open	264	10 min	F1	0.5	Normal Operation, NT, NB, NC
D4	Short	264	10 min	F1	0.5	Normal Operation, NT, NB, NC
R4	Open	264	3 min	F1	172 - 0	Unit shutdown, IP (F1), CD (Q2, IC3), NT, NB, NC, RF
R8	Short	264	10 min	F1	0.5	Normal Operation, NT, NB, NC
R7	Short	264	10 min	F1	0.04	Unit shutdown, NT, NB, NC
R21	Open	264	10 min	F1	0.04	Unit shutdown, NT, NB, NC
Q1 (G-D)	Short	264	1 sec	F1	175 - 0	Unit shutdown, IP (F1), CD (Q1), NT, NB, NC, RF
Q1 (G-S)	Short	264	1 sec	F1	0.04	Unit shutdown, NT, NB, NC
Q1 (D-S)	Short	264	1 sec	F1	170 - 0	Unit shutdown, IP (F1), CD (Q1), NT, NB, NC
supplementary information:						
IP=Internal Protection operation, CD=Component Damaged, CT=Constant Temperature attained, NC=Cheesecloth remained intact, NB=No dielectric Breakdown, NT=Tissue paper remained intact, RF=repeat all fuse result were same.						

Enclosure
National Differences

USA / Canada

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

USA / Canada - Differences to IEC 60950-1:2001, First Edition			
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2.		Pass
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.		Pass
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.		N/A
1.1.2	Special requirements apply to equipment intended for use outdoors.		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		Pass
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1.		Pass
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2.		Pass
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.		Pass
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.		N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC.		N/A
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable.		N/A
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.		N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233.		N/A
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system is subject to special		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	circuit classification requirements (e.g., TNV-2)		
1.6.1.2	Earthing of d.c. powered equipment provided.		N/A
1.7	Lamp replacement information indicated on lampholder in operator access area.		N/A
1.7.1	Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor.		N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions.		N/A
1.7.6	Special fuse replacement marking for operator accessible fuses.		N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor.		N/A
1.7.7	Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used.		N/A
1.7.7	Marking located adjacent to terminals and visible during wiring.		N/A
2.1.1	Screw shell of Edison-base lampholder tied to the neutral conductor.		N/A
2.1.1.1	Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover.		N/A
2.3.1.b	Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4.		N/A
2.3.1.b	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions.		N/A
2.3.1.b	Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4.		N/A
2.3.2	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications when subjected to special construction requirements and routine testing.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.		N/A
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable.		N/A
2.6	Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth.		N/A
2.6.3.3	For Pluggable Equipment Type A, if neither a) or b) are applicable, the current rating of the circuit is taken as 20 A.		N/A
2.6.3.4	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit.		N/A
2.6.3.4	Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4.		N/A
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada.		N/A
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment.		N/A
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1.		N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring.		N/A
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards.		N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.		N/A
2.10.5.4	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.4 and Annex U.		Pass
3.1.1	Permissible combinations of internal wiring/external		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	cable sizes for overcurrent and short circuit protection.		
3.1.1	All interconnecting cables protected against overcurrent and short circuit.		Pass
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.		Pass
3.2.1	Permitted use for flexible cords and plugs.		N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.		N/A
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.		N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord).		N/A
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing		N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.		N/A
3.2.1.2	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment.		N/A
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment.		N/A
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.		N/A
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC,		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	Part 1.		
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm ²) and not less than 152 mm in length for connection of field installed wiring.		N/A
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.		N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.		N/A
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.		N/A
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.	For output cord.	Pass
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.		N/A
3.2.9	Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse.		N/A
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also comply with 3.3.		N/A
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated.		N/A
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means.		N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm ²) or smaller conductor if provided with upturned lugs, cupped		N/A

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	washer or equivalent retention.		
3.3.4	Terminals accept wire sizes (gauge) used in the U.S. and Canada.		N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used.		N/A
3.3.6	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor.		N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.		N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.		N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".		N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means.		N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.		N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.		N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit.		N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6).		N/A
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.		N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
4.3.13.5	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370).		N/A
4.7	Automated information storage equipment intended to contain more than 0.76 m ³ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.		N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations.		N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m ² or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.		N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.		Pass
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.		N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		Pass
5.3.6	Tests interrupted by opening of a component repeated two additional times.		Pass
5.3.8.1	Test interrupted by opening of wire or trace subject to certain conditions.		N/A
6	Specialized instructions provided for telephones that may be connected to a telecommunications network.		N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.		N/A
6.2.1	Special requirements for enameled wiring used as electrical separation provided between parts		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	connected to telecommunication network and telecommunication circuitry intentionally isolated from network.		
6.2.1	Digital line termination equipment (e.g., NCTE) subject to separation requirements.		N/A
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.		N/A
6.3	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable.		N/A
6.4	Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C).		N/A
6.4	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions.		N/A
6.5	Acoustic pressure from an ear piece less than 136 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets, and 121 dBA for insert earphones, for long duration disturbances.		N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.		N/A
H	Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370.		N/A
M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.		N/A
M.4	Special requirements for message waiting and similar telecommunications signals.		N/A
NAC	Equipment intended for use with a generic secondary protector marked with suitable instructions.		N/A
NAC	Equipment intended for use with a specific primary or secondary protector marked with suitable instructions.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

NAF	Household/Home Office Document Shredders		N/A
NAF.1.7	Markings and instructions alert the user to key safety considerations related to use of shredders, including not intended to be used by children, avoid touching document feed opening, avoid clothes and hair entanglement, and avoid aerosol products.		N/A
NAF.2.8.3	Safety interlock cannot be inadvertently activated by the articulated accessibility probe (figure NAF.1).		N/A
NAF.3.4	Provided with an isolating switch complying with 3.4.2, including 3 mm contact gap, with appropriate markings associated with the switch.		N/A
NAF.4.4	Hazardous moving parts are not accessible to the user, as determined using the articulated accessibility probe (figure NAF.1) and the accessibility probe/wedge (figures NAF.2/NAF.3).		N/A