

COVER PAGE FOR TEST REPORT

Product Category:	Power Supplies for Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	QQGQ2, QQGQ8
Test Procedure:	Component Recognition
Product:	DC/DC ITE POWER SUPPLY
Model/Type Reference:	GT-91112-4012
Rating(s):	Input:36-72Vdc,1.5A output:12Vdc 3.33A
Standards:	UL 60950-1, 1st Edition, 2007-10-31 (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 Inspection Criteria2. Specific Technical Criteria3. Clause Verdicts4. Critical Components5. Test Results6. National Differences7. Enclosures	

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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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, 2007-10-31 (Information Technology Equipment - Safety - Part 1: General Requirements).	
Standard Clause	Clause Title	Marking or Instruction Details
1.5.5	Inter-connecting cables - Non-LPS or TNV	Non-LPS or TNV output connectors identify the type of circuit, intended cable type or relevant circuit characteristics. (Marking or Instruction)
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.

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
	--	--	--	--	--	--	--
BD1.2	Earthing Continuity Test Exemptions - This test is not required for the following models:			all models in this report			
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
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SPECIFIC TECHNICAL CRITERIA

UL 60950-1, First Edition Information technology equipment - Safety- Part 1: General Requirements	
Report Reference No	E170507-A31-UL-1
Compiled by	Scholl Zhang
Reviewed by	Marshal Zhang
Date of issue	2009-03-18
Standards	UL 60950-1, 1st Edition, 2007-10-31 (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	Component Recognition
Non-standard test method	N/A
Test item description	DC/DC ITE POWER SUPPLY
Trademark	
Model and/or type reference	GT-91112-4012
Rating(s)	Input:36-72Vdc,1.5A output:12Vdc 3.33A

Particulars: test item vs. test requirements

Equipment mobility	for building-in
Operating condition	continuous
Mains supply tolerance (%)	specified by manufacturer(36-72Vdc)
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Special Application - TNV-2
Mass of equipment (kg)	0.417Kg
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 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	Consisted of electric components mounted on PWB which is enclosed by plastic enclosure, DC/DC ITE POWER SUPPLY
CC1.0	Model Differences
CC1.1	N/A
CD1.0	Additional Information
CD1.1	N/A
CE1.0	Technical Considerations
CE1.2	The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C
CE1.4	The product is intended for use on the following power systems: DC mains supply
CE1.8	The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Bridging Capacitor C47 Secondary Pin,
CE1.14	The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
CF1.0	Engineering Conditions of Acceptability
CF1.1	For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. When installed in an end-product, consideration must be given to the following:
CF1.2	The following Production-Line tests are conducted for this product: Electric Strength
CF1.3	The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 92Vrms, 184Vpk
CF1.5	The following secondary output circuits are SELV: Output
CF1.7	The following secondary output circuits are at non-hazardous energy levels: output
CF1.8	The following secondary output circuits are Limited Current Circuits: Bridging Capacitor C47 Secondary Pin
CF1.11	The power supply terminals and/or connectors are: Not investigated for field wiring
CF1.12	The maximum investigated branch circuit rating is: 20 A

CF1.13	The investigated Pollution Degree is: 2
CF1.15	Proper bonding to the end-product main protective earthing termination is: Not required
CF1.18	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): T1 (Class B)
CF1.19	The following end-product enclosures are required: Electrical
CF1.20	The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Transformer coil (107.1degree C), output cord(78.7 degree C), Photo coupler(92.3 degree C)
CF1.22	The following input terminals were evaluated as suitable for direct connection to the DC Mains Supply: input cord
CF1.23	The equipment is suitable for direct connection to: DC mains supply

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	Components certified to IEC harmonized standard and checked for correct application. 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. 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.	Pass
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers	see annex C	Pass
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors in primary circuits		N/A
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 60384-14: 1993, subclass Y1.	Pass
1.5.7.3	Bridging resistors	No bridging resistors.	N/A
1.5.7.4	Accessible parts	Accessible conductive parts separated from other parts by DOUBLE or REINFORCED INSULATION bridged by C47 comply with the requirements for LIMITED CURRENT CIRCUITS.	Pass

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

1.5.8	Components in equipment for IT power systems	Not for use on IT systems.	N/A
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1.6	Power interface		Pass
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	(see appended table 1.6.2) 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	The unit is not a hand-held equipment.	N/A
1.6.4	Neutral conductor		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.7	Marking and instructions		Pass
1.7.1	Power rating	Rating marking readily visible to operator.	Pass
	Rated voltage(s) or voltage range(s) (V) :	Refer to the Rating information at the beginning of this Test Report.	Pass
	Symbol for nature of supply, for d.c. only :	IEC 60417 No. 5031 provided on marking label.	Pass
	Rated frequency or rated frequency range (Hz) :	dc	N/A
	Rated current (mA or A)..... :	Refer to the Rating information at the beginning of this Test Report.	Pass
	Manufacturer's name or trademark or identification mark..... :	GLOBTEK INC or E170507	Pass
	Type/model or type reference..... :	Refer to the Model information at the beginning of this Test Report.	Pass
	Symbol for Class II equipment only :		N/A
	Other symbols..... :		N/A
	Certification marks :	UL, c-UL.	Pass
1.7.2	Safety instructions	Operating/safety instructions made available to the user.	Pass
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment..... :		N/A
1.7.5	Power outlets on the equipment :	No standard power outlets are provided.	N/A
1.7.6	Fuse identification..... :	Fuse marking provided as follows: 250Vac, 5 A.	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		Pass
1.7.8.1	Identification, location and marking :		N/A
1.7.8.2	Colours..... :	Only functional indicators use color.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

1.7.8.3	Symbols according to IEC 60417	There are no switches in the equipment.	N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources		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 lithium batteries in the equipment.	N/A
	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

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

2	PROTECTION FROM HAZARDS		Pass
2.1	Protection from electric shock and energy hazards		Pass
2.1.1	Protection in operator access areas		Pass
2.1.1.1	Access to energized parts	No operator access to energized parts.	Pass
	Test by inspection..... :	Operator can not contact with any parts with only basic insulation to ELV circuits and hazardous voltages.	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..... :		N/A
2.1.1.3	Access to ELV wiring	No internal wiring at ELV.	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.	Pass
2.1.1.5	Energy hazards..... :	The output of the power supply is not an energy hazard.	Pass
2.1.1.6	Manual controls	The equipment does not contain any knobs, handles, levers, or the like.	N/A
2.1.1.7	Discharge of capacitors in equipment	The capacitance of the input circuit is > 0.1 uf, measurements are required.	Pass
	Time-constant (s); measured voltage (V)	V0=72V, 37% V0=26.6V, after 1s, voltage dropped to 0V.	-
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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 Vpk or 60 Vdc 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 V peak or 60 V dc for more than 0.2 sec.	Pass
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	SELV circuits permanently separated from hazardous voltage circuits by barriers, routing and fixing.	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 connected to SELV or limited current circuit.	Pass

2.3	TNV circuits		N/A
2.3.1	Limits	Connect to TNV-2 mains supply	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
	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

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Clause	Requirement + Test	Result - Remark	Verdict

2.4	Limited current circuits		Pass
2.4.1	General requirements	test for C47 secondary pin	Pass
2.4.2	Limit values	70 mA peak	Pass
	Frequency (Hz)	12kHz	-
	Measured current (mA)	2.92	-
	Measured voltage (V)	10	-
	Measured capacitance (mF)	0.0022 uF	-
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):		-

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Clause	Requirement + Test	Result - Remark	Verdict

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing		N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG :		-
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG :		-
2.6.3.4	Resistance (Ohm) of earthing conductors and their terminations, test current (A) :		N/A
2.6.3.5	Colour of insulation :		N/A
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		N/A
2.7.2	Faults not covered in 5.3		N/A
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(AC rated fuse) in input "+" pole, AC rated fuse was evaluated to used in the DC primary circuit.	Pass
2.7.5	Protection by several devices	Only one protective device is provided.	N/A
2.7.6	Warning to service personnel		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	no safety interlocks.	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

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Clause	Requirement + Test	Result - Remark	Verdict

2.9	Electrical insulation		Pass
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	Pass
2.9.2	Humidity conditioning	Electric strength test was conducted after the humidity treatment.	Pass
	Humidity (%)	93 percent	-
	Temperature (°C)	25	-
2.9.3	Grade of insulation		Pass

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Clause	Requirement + Test	Result - Remark	Verdict

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	(see appended table 2.10.3 and 2.10.4).	Pass
2.10.3.1	General		Pass
2.10.3.2	Clearances in primary circuit		N/A
2.10.3.3	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4) and functional insulation see 5.3.4	Pass
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	Pass
	CTI tests..... :	Material group IIIb; $100 \leq CTI < 175$.	-
2.10.5	Solid insulation	Solid or laminated insulating materials having adequate thickness are provided.	Pass
2.10.5.1	Minimum distance through insulation	(see appended table 2.10.5)	Pass
2.10.5.2	Thin sheet material	(see appended table 5.2) Two layers used, each of which complies with the required electric strength test	Pass
	Number of layers (pcs) :	Reinforced Insulation - 2 layers	-
	Electric strength test :	(see appended table 5.2)	-
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	The employed UL Recognized wiring meets the requirements of 2.10.5.4 and Annex U.	Pass
	Number of layers (pcs) :	UL recognized triple insulated winding	Pass

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	Two wires in contact inside wound component; angle between 45° and 90°	Protection against mechanical stress is achieved by providing physical separation in the form of insulating sleeving or sheet material, or by using double the required number of insulation layers.	Pass
2.10.6	Coated printed boards	No special coating used.	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	Enclosed and sealed parts not provided.	N/A
	Temperature T1=T2 = Tma - Tamb +10K (°C).....		N/A
2.10.8	Spacings filled by insulating compound.....	Approved optical isolators used.	Pass
	Electric strength test	min.3000Vac	-
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3	WIRING, CONNECTIONS AND SUPPLY		Pass
3.1	General		Pass
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		Pass
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		Pass
	10 N pull test		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		N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply	evaluated in end product.	N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits..... :		-
3.2.4	Appliance inlets		N/A
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..... :		-
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief	Cord anchorage made of insulating material. Applied to both input and output strain relief bushing.	Pass
	Mass of equipment (kg), pull (N)..... :	Pull 30 N.	-
	Longitudinal displacement (mm)..... :	no displacement	-
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g)..... :		-
	Radius of curvature of cord (mm)..... :		-
3.2.9	Supply wiring space		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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		N/A
3.4.1	General requirement	evaluated in end product	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.5	Interconnection of equipment		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits :	Interconnection circuits are LIMITED CURRENT CIRCUITS or SELV circuits	Pass
3.5.3	ELV circuits as interconnection circuits		N/A

4	PHYSICAL REQUIREMENTS		Pass
4.1	Stability		N/A
	Angle of 10°		N/A
	Test: force (N) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.2	Mechanical strength		Pass
4.2.1	General	The SUPPLEMENTARY and REINFORCED INSULATION was subjected to the electric strength test. No breakdown was recorded.	Pass
4.2.2	Steady force test, 10 N		Pass
4.2.3	Steady force test, 30 N		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 (89.2oC/7 h). See enclosed test record.	N/A
4.2.8	Cathode ray tubes	The equipment does not have any CRT's	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	The equipment does not have any high pressure lamps.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A

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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)		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		N/A
4.3.5	Connection of plugs and sockets	IEC 60083 or IEC 60320 type connectors not used for SELV circuits.	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	The equipment does not have any batteries.	N/A
4.3.9	Oil and grease	The insulation of the internal wiring is not exposed to oil, grease, etc.	N/A
4.3.10	Dust, powders, liquids and gases	The equipment does not produce dust or employ powders, liquids or gases.	N/A
4.3.11	Containers for liquids or gases	The equipment does not contain liquids.	N/A
4.3.12	Flammable liquids..... :	The equipment does not use any flammable liquids.	N/A
	Quantity of liquid (l)..... :		N/A
	Flash point (°C)..... :		N/A
4.3.13	Radiation; type of radiation		Pass
4.3.13.1	General		Pass
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		-
	Measured high-voltage (kV)..... :		-
	Measured focus voltage (kV)		-

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Clause	Requirement + Test	Result - Remark	Verdict

	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)	This product contains only visible indicator LEDs (Class 1) operating in the range of 400 - 700 nm wavelength. No IEC60825-1 evaluation was deemed necessary.	Pass
	Laser class..... :	(For indicator LEDs, see above statement.)	-
4.3.13.6	Other types..... :		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	no hazardous moving parts	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	(see appended table 4.5)	Pass
	Normal load condition per Annex L..... :	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	Pass
4.5.2	Resistance to abnormal heat		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.6	Openings in enclosures		Pass
4.6.1	Top and side openings	There are no openings in the top of the enclosure.	Pass
	Dimensions (mm)..... :	no opening	-
4.6.2	Bottoms of fire enclosures	No openings.	Pass
	Construction of the bottom..... :	no opening	-
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) :		-

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Clause	Requirement + Test	Result - Remark	Verdict

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		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	The propagation of fire is minimized through the fire enclosure construction.	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	Connectors are made of materials of Class V-2 minimum.	Pass
4.7.3.4	Materials for components and other parts inside fire enclosures	PWBs are rated min. V-1. All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. Internal wiring is insulated with PVC, etc., and strapped by individual cable ties (where needed). Internal wiring is UL Recognized, marked VW-1 or FT-1 and strapped by individual cable ties (where needed). 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

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Clause	Requirement + Test	Result - Remark	Verdict

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		Pass
5.1	Touch current and protective conductor current		N/A
5.1.1	General	DC input	N/A
5.1.2	Equipment under test (EUT)		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Test voltage (V)		-
	Measured touch current (mA)		-
	Max. allowed touch current (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
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	(see appended table 5.2)	Pass
5.2.2	Test procedure	No insulation breakdown detected during the test. (see appended table 5.2)	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

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	(see appended Annex C)	Pass
5.3.4	Functional insulation	Method c	Pass
5.3.5	Electromechanical components	The equipment does not have any electromechanical components in the secondary.	N/A
5.3.6	Simulation of faults	No other components where failure could adversely affect SUPPLEMENTARY or REINFORCED INSULATION. Transformer temperatures measured for compliance with Annex C during test.	Pass
5.3.7	Unattended equipment	Equipment is not intended for unattended use.	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

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

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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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Clause	Requirement + Test	Result - Remark	Verdict

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).....		-

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Clause	Requirement + Test	Result - Remark	Verdict

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).....		-
	Sample 3 burning time (s).....		-

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

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Clause	Requirement + Test	Result - Remark	Verdict

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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Clause	Requirement + Test	Result - Remark	Verdict

C	Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)		Pass
	Position	(see appended table 1.5.1)	-
	Manufacturer.....	(see appended table 1.5.1)	-
	Type	(see appended table 1.5.1)	-
	Rated values.....	(see appended table 1.5.1)	-
	Method of protection.....	Electronic over current protection.	-
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		N/A
D.1	Measuring instrument		N/A
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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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

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		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
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

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Clause	Requirement + Test	Result - Remark	Verdict

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

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
 :	Approved triple insulation wire used. (See table 1.5.1 for detail)	-

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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
01.Enclosure	SABIC INNOVATIVE PLASTICS CHINA CO LTD	SE1X	V-1, 105 Deg.C. min. 2.7mm thickness. Overall 120 by 56 by 35mm. Two pieces construction ultrasonically welded together.	QMFZ2	UL	
02.Label	Various	Various	Min. 70 Deg.C, apply to plastic surface.	PGDQ2 or PGJ12	UL	
03. Internal wire(Primary)	Various	Various	FEP, PTFE, PVC, TFE, Neoprene, Polyimide or marked VW-1 or FT-1; 120 V min.105 degree C minimum;	AVLV2	UL	
04. Fuse (F1)	WALTER ELECTRONIC CO LTD	ICP	rated T5A, 250Vac	JDYX	UL	
04a. Fuse (F1)-alternate	LITTELFUSE WICKMANN WERKE	372	rated T5A, 250Vac	JDYX2	UL	
05. E-capacitor(C1,C2)	--	--	220uF, min. 105 Deg.C, min.100V	--	--	
06.X-capacitor (CX1)	Various	Various	Max.0.47uF min 250V X1 or X2 type, min.100deg.C	FOWX2	UL, VDE	
07. Y-capacitor (C15,C17)	WALSIN TECHNOLOGY CORP	AC ,AH	Min.250V, 1000PF max, Class Y1 or Y2 type, 125deg.C	FOWX2	UL, VDE	
07a. Y-capacitor (C15,C17) (alternate)	JYA-NAY CO LTD	JN	Min.250V, 1000PF max, Class Y1 type,125 deg.C	FOWX2	UL, VDE	
07b. Y-capacitor (C15,C17) (alternate)	Murata	KH, KX	Min.250V, 1000PF max, Class Y1 or Y2 type,125 degree C	FOWX2	UL, VDE	
07c. Y-capacitor (C15,C17) (alternate)	TDK	CD	Min.250V, 1000PF max, Class Y1,125 deg.C	FOWX2	UL, VDE	
07d. Y-capacitor	Success	SE,SB	Min.250V, 1000PF max, Class	FOWX2	UL, VDE	

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(C15,C17) (alternate)			Y1, 125 deg.C			
07e. Y-capactor (C15,C17) (alternate)	Welson	KL,WD	Min.250V, 1000PF max, Class Y1 or Y2 type, 125 deg.C	FOWX2	UL, VDE	
08. Y-capactor (C47)	WALSIN TECHNOLOGY CORP	AH	Min.250V, 2200PF max, Class Y1, 125deg.C	FOWX2	UL, VDE	
08a. Y-capactor (C47) (alternate)	JYA-NAY CO LTD	JN	Min.250V, 2200PF max, Class Y1,125 deg.C	FOWX2	UL, VDE	
08b. Y-capactor (C47) (alternate)	Murata	KX	Min.250V, 2200PF max, Class Y1, 125 deg.C	FOWX2	UL, VDE	
08c. Y-capactor (C47) (alternate)	TDK	CD	Min.250V, 2200PF max, Class Y1, 125 deg.C	FOWX2	UL, VDE	
08d. Y-capactor (C47) (alternate)	Success	SE,SB	Min.250V, 2200PF max, Class Y1, 125 deg.C	FOWX2	UL, VDE	
08e. Y-capactor (C47) (alternate)	Welson	WD	Min.250V, 2200PF max, Class Y1, 125 deg.C	FOWX2	UL, VDE	
09.Line chock(FL1)	--	--	Min.105 Deg.C	--	--	
09-1. Core	--	--	Ferrite, Overall 16 by 12 by 8mm	--	--	
09-2. Magnet wire	Various	Various	Min.105 Deg.C	OBMW2	UL	
09-3. Tube cover FL1(optional)	Various	Various	VW-1 or FT-1	YDPU2	UL	
10. Transistor(Q4)	--	--	21A,300V	--	--	
11.photo coupler (PH1)	Sharp Corp Electronic Components Group	PC 817 PC817U	Rated isolation 5000 V ac. 100degree C	FPQU2	UL	
11a.photo coupler (PH1) (alternate)	Isocom Ltd.	4N35X	Rated isolation 5000 V ac. 100degree C	FPQU2	UL	
11b.photo coupler (PH1) (alternate)	Lite-On Technology Corp	LTV817	Rated isolation 5000 V ac. 110degree C	FPQU2	UL	
11c.photo coupler (PH1) (alternate)	Fairchild Semiconductor Corp	H11A817	Rated isolation 5000 V ac. 110degree C	FPQU2	UL	
11d.photo coupler (PH1)	Cosmo Electronics	K1010X, 1010X	Rated isolation 5000 V ac.	FPQU2	UL	

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(alternate)	Corp		100degree C			
11e.photo coupler (PH1) (alternate)	Everlight Electronics Co Ltd.	EL817	Rated isolation 5000 V ac. 100degree C	FPQU2	UL	
11f.photo coupler (PH1) (alternate)	NEC Compound Semiconductor Devices Ltd.	PS2501A-1, PS2501AL-1	5000 V ac isolation, 100degree C	FPQU2	UL	
11g.photo coupler (PH1) (alternate)	Vishay Semiconductor Gmbh	TCET1108, TCET1103, TCET1109	5000 V ac isolation, 110degree C	FPQU2	UL	
11h.photo coupler (PH1) (alternate)	Toshiba Corp., Semiconductor Co, Discrete Semiconductor Div.	TLP721	4000 V ac isolation, 100degree C	FPQU2	UL	
11i.photo coupler (PH1)	Sharp Corp Electronic Components Group	PC 123 PC1231	Rated isolation 5000 V ac. 110degree C	FPQU2	UL	
12. Sensing resistor (R10)	--	--	0.18ohm, 3W	--	--	
13. Transformer(T1)	XEPEX ELECTRONIC CO LTD	--	Class B	--	--	
13-0. Insulation system	XEPEX ELECTRONIC CO LTD	SPB-6	Class B	OBJY2	UL	
13-1.Core	--	--	Ferrite, overall 31.9 by 21.9 by 20.9mm	--	--	
13-2. Bobbin	HITACHI CHEMICAL CO LTD	CP-J-8800	Overall 32.1 by 25.5 by 18.9, Phenolic, 150 Deg.C. Rated V- 0.min.0.16mm thickness.	QMFZ2	UL	
13-2a. Bobbin-alternate	WINTech POLYMER LTD	CN7000	Overall 32.1 by 25.5 by 18.9, PBT,150 Deg.C. Rated V- 0.min.0.66mm thickness.	QMFZ2	UL	
13-3. Magnet wire-- primary	Various	Various	Min.130 Deg.C, MW28 or MW75 type	OBMW2	UL	

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Clause	Requirement + Test	Result - Remark	Verdict

13-4. Triple insulation wire--secondary	FURUKAWA ELECTRIC CO LTD	TEX-E	130 degree.C	OBJT2	UL	
13-4a. Triple insulation wire-secondary(alternate)	TOTOKU ELECTRIC CO LTD	TIW-E	155 degree.C	OBJT2	UL	
13-5. Tube	Nikkan industries Co., Ltd.	S-693-600, S-693F-1, E-651U-1, S-693VF-1	--	--	--	
13-5a. Tube-alternate	SUMITOMO ELECTRIC FINE POLYMER INC	Sumitube F2	VW-1	YDPU2	UL	
13-5b. Tube-alternate	ZEUS INDUSTRIAL PRODUCTS INC	TFE-TW-300	VW-1	YDPU2	UL	
13-5c. Tube-alternate	FURUKAWA ELECTRIC CO LTD	PI-Tube	VW-1	YDTU2	UL	
13-5d. Tube-alternate	Nissei Electric Co., Ltd.	PI-Tube	--	--	--	
13-6. Varnish	HITACHI CHEMICAL CO LTD	WP-2952F-2G	130 degree C	OBOR2	UL	
13-6a. Varnish-alternate	KYOCERA CHEMICAL CORP	TVB2180TK	130 degree C	OBOR2	UL	
13-7. Tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	No.?1350F(#) (#) is replaced with suffix B-1, B-2, W-1, W-2, Y-1 or Y-2	130 degree.C	OANZ2	UL	
13a. Transformer(T1)-alternate	Top Nation Electronic Ltd	--	Class B	--	--	
13a-0. Insulation system	Top Nation Electronic Ltd	M7A90	Class B	OBJY2	UL	
13a-1.Core	--	--	Ferrite, overall 31.9 by 21.9 by 20.9mm	--	--	
13a-2. Bobbin	HITACHI CHEMICAL CO LTD	CP-J-8800	Overall 32.1 by 25.5 by 18.9, Phenolic, 150 Deg.C. Rated V-0. min.0.16mm thickness.	QMFZ2	UL	

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Clause	Requirement + Test	Result - Remark	Verdict

13a-2a. Bobbin-alternate	WINTech POLYMER LTD	CN7000	Overall 32.1 by 25.5 by 18.9, PBT, 150 Deg.C. Rated V-0. min.0.66mm thickness.	QMFZ2	UL	
13a-2b. Bobbin-alternate	TORAY INDUSTRIES INC	1494	Overall 32.1 by 25.5 by 18.9, PBT, min.0.71mm thickness, 110 Deg.C. Rated V-0.	QMFZ2	UL	
13a-2c. Bobbin-alternate	E I DUPONT DE NEMOURS & CO INC	FR530	Overall 32.1 by 25.5 by 18.9, PBT, min.0.75mm thickness, 110 Deg.C. Rated V-0.	QMFZ2	UL	
13a-3. Magnet wire--primary	Various	Various	Min.130 Deg.C, MW28 or MW75 type	OBMW2	UL	
13a-4. Triple insulation wire--secondary	FURUKAWA ELECTRIC CO LTD	TEX-E	130 degree.C	OBJT2	UL	
13a-4a. Triple insulation wire-secondary(alternate)	TOTOKU ELECTRIC CO LTD	TIW-E	155 degree.C	OBJT2	UL	
13a-5. Tube	Nikken industries Co., Ltd.	S-693-600, S-693F-1, E-651U-1, S-693VF-1	--	--	--	
13a-5a. Tube-alternate	SUMITOMO ELECTRIC FINE POLYMER INC	Sumitube F2	VW-1	YDPU2	UL	
13a-5b. Tube-alternate	ZEUS INDUSTRIAL PRODUCTS INC	TFE-TW-300	VW-1	YDPU2	UL	
13a-5c. Tube-alternate	FURUKAWA ELECTRIC CO LTD	PI-Tube	VW-1	YDTU2	UL	
13a-6. Varnish	HITACHI CHEMICAL CO LTD	WP-2952F-2G	130 degree C	OBOR2	UL	
13a-6a. Varnish-alternate	KYOCERA CHEMICAL CORP	TVB2180TK	130 degree C	OBOR2	UL	
13a-7. Tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	No.1350F(#) (#) is replaced with suffix B-1, B-2, W-1, W-2, Y-1 or Y-2	130 degree.C	OANZ2	UL	

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13a-7a. Tape-alternate	NICHIBAN CO LTD	553H, 553H-UL, 573H, 573H-UL,	130 degree.C	OANZ2	UL	
13a-7b. Tape-alternate	NICHIBAN CO LTD	31C, 31CT, 35, 35B, 160UL, 354, 188UL, 343B, 350A, 354E, 355G, 3161-F	130 degree.C	OANZ2	UL	
13a-7c. Tape-alternate	SYMBIO INC	MY130#	130 degree.C	OANZ2	UL	
14. Output cord	Various	Various	Marked VW-1 or FT-1, 3.05m maximum, min.80 degree C, suitable for external use.	AVLV2	UL	
15. Strain relief	Various	Various	80 degree C min. V-1 or better, dimension comply with enclosure 4-03 and 4-04	QMFZ2	UL	
16. PWB	Various	Various	Min.130 Deg.C, min. V-1	ZPMV2	UL	
17. Mylar sheet	SABIC INNOVATIVE PLASTICS US L L C	FR700	Min 0.4mm thickness, 125 degree C, V-0, overall 162 by 89.4mm	QMFZ2	UL	
17a. Mylar sheet- alternate	FORMEX,DIV OF IL TOOL WORKS INC,FRMRLY FASTEX,DIV OF IL TOOL WORKS INC	FORMEX GK	V-0, min.0.4 mm thickness,115 degree C., overall 162 by 89.4mm	QMFZ2	UL	
18. Heatsink for Q4(HS1)	--	--	L type overall (106.5 and 5.6) by 3.1 by 20.4 mm,	--	--	
18-1. Tape wrapped on HS1	SUZHOU JINGYI SPECIAL ADHESIVE TAPE CO LTD	JY312	130deg.C, min 2 layers, wrapped See enclosure 7-01 from A to B min.50mm.	OANZ2	UL	
18-1a. Tape wrapped on HS1-alternate	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT	130deg.C, min 2 layers, See enclosure 7-01 from A to B min.50mm.	OANZ2	UL	
19. Heatsink for D5 and D6(HS2)	--	--	L type overall (106.5 and 5.6) by 3.1 by 20.4 mm,	--	--	

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19-1. Tape wrapped on HS2	SUZHOU JINGYI SPECIAL ADHESIVE TAPE CO LTD	JY312	130deg.C, min 2 layers, See enclosure 7-02 from C to D min.77.3mm.	OANZ2	UL	
19-1a. Tape wrapped on HS2-alternate	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT	130deg.C, min 2 layers, See enclosure 7-02 from C to D min.77.3mm.	OANZ2	UL	
20. Secondary Wire	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1or FT-1, routed away from primary part .	AVLV2	UL	
21.Internal plastic parts	Various	Various	Min.V-2	QMFZ2	UL	
22. All internal tube	Various	Various	VW-1 or FT-1	YDPU2	UL	
23. Input cord	Various	Various	SPT-2 or SVT, 20AWG, Min.100degree.C, max.3.05m, min.120V	ZJCZ	UL	
23a. Input cord-alternate	Various	Various	Non-detachable, max 3.05 m long, VW-1 or FT-1, suitable for external use, min. 120V, 100 degree.C	AVLV2	UL	
24. Tape wrapped on metal foil(optional)	Various	Various	Min.105 degree C	OANZ2	UL	
25. Plastic fill enclosure opening	Various	Various	Min.V-1	QMFZ2	UL	
26.Varistor(VR1)	Various	Various	470V,10A	XUHT2	UL	
27.Metal foil	--	--	Overall 168 by 81.3mm	--	--	

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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	
F1	1.5	36Vdc	48.4	1345	1345	Output:11.9Vdc,3.3A	
F1	1.5	72Vdc	46.2	642	642	Output:11.9Vdc,3.3A	
supplementary information:							
maximum normal load: Operated continuously.Rated : 12Vdc, 3.33A							

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)	
Transformer primary pin to secondary pin	184	92	2.0	29.7	2.8	32.9	
Transformer core to secondary pin	184	92	2.0	3.4	2.8	5.4	
Transformer core to secondary component	184	92	2.0	5.6	2.8	5.6	
Bridge capacitor C47 primary to secondary	184	92	2.0	7.7	2.8	7.7	
Opto coupler primary to secondary	184	92	2.0	7.9	2.8	7.9	
Primary to metal foil	184	184	2.0	2.9	2.8	2.9	
supplementary information:							
1. The CTI rating of PWB is material group IIIb (CI). 2.Functional insulation complied with clause 5.3.4, c) as applicable.							

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)	
Enclosure	184	2828	0.4	2.5	
Mylar sheet	184	2828	0.4	0.4	
supplementary information:					
Enclosure:SABIC INNOVATIVE PLASTICS CHINA CO LTD, SE1X Mylar sheet: SABIC INNOVATIVE PLASTICS US L L C, model: FR700 FORMEX,DIV OF IL TOOL WORKS INC,FRMRLY FASTEX,DIV OF IL TOOL WORKS INC, model: FORMEX GK					

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4.5	TABLE: temperature rise measurements						Pass
	test voltage (V).....	36Vdc	36Vdc	72Vdc	72Vdc	--	—
	t1 (°C).....	--	--	--	--	--	—
	t2 (°C).....	25.5	shift to 40	25.7	shift to 40	--	—
maximum temperature T of part/at:		T (°C)					allowed Tmax (°C)
1.Plastic enclosure inside near Transformer		64.7	79.2	55.7	70.0	--	105
2.Plastic enclosure outside near Transformer		54.1	68.6	47.6	61.9	--	95
3.X-capacitor CX1		75.6	90.1	62.5	76.8	--	100
4.Y-capacitor C15		78.4	92.9	62.2	76.5	--	105
5.Line chock FL1 core		83.6	98.1	63.6	77.9	--	105
6. Line chock FL1 coil		83.0	97.5	63.6	77.9	--	105
7.E-capacitor C1		80.5	95.0	67.4	81.7	--	105
8.Transformer coil		92.6	107.1	76.0	90.3	--	110
9.Transformer core		79.7	94.2	68.0	82.3	--	110
10.Primary wire		79.5	94.0	59.8	74.1	--	105
11. Output cord		64.3	78.8	56.4	70.7	--	80
12.photo coupler PH1		77.8	92.3	65.1	79.4	--	100
13.Bridge capacitor C47		80.1	94.6	68.8	83.1	--	105
14. PWB near Q4.		96.3	110.8	79.9	94.2	--	130
15. PWB near T1		89.9	104.4	71.9	86.2	--	130
30. Ambient		25.5	--	25.7	--	--	--
Test duration		2h57 min	--	3h35min	--	--	--
temperature T of winding:			R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed Tmax (°C)	insulation class
--			--	--	--	--	--
supplementary information:							
<p>Note: The temperatures were measured under worst-case normal mode defined in 1.2.2.1 and as described in subclause 1.6.2 and at voltages as described in sub-clause 1.4.5</p> <ul style="list-style-type: none"> - With a specified ambient temperature of 40 degree C. - Tmax of components listed below <p>Winding components:</p> <p>T901 coil, core -110Deg.C (Class B insulation system, thermocouple method)</p> <p>Line chock FL1 coil, core-105Deg.C</p> <p>General components:</p> <p>PWB - 130 Deg.C (PWB rating)</p> <p>Plastic enclosure inside- 95Deg.C(plastic RTI)</p> <p>capacitor-CX1- =100 Deg.C</p> <p>Y-capacitor C15,C47=125 Deg.C</p> <p>E-capacitor C1-105 Deg.C</p>							

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Clause	Requirement + Test	Result - Remark	Verdict

Primary wire-105 Deg.C
output cord-80 Deg.C
photo coupler-100 Deg.C

User accessible parts:
Plastic enclosure, which may be touched - 95 Deg.C

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 table 1.5.1					

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	
DC Input to DC Output		2828Vdc	No	
DC Input to plastic enclosure		1414Vdc	No	
One layer insulation tape		2828Vdc	No	
Mylar sheet		2828Vdc	No	
Enclosure		2828Vdc	No	
supplementary information:				
--All electric strength tests duration at least 60 seconds. --test voltage for electric strength are based on the working voltage measured on T1:Vrms=92V,Vpk=184V --Electric strength test is conducted while the equipment is still in a well-heated condition immediately following the test in 4.5.1. --Enclosure:SABIC INNOVATIVE PLASTICS CHINA CO LTD, SE1X --Mylar sheet: SABIC INNOVATIVE PLASTICS US L L C, model: FR700 --TAPE: SUZHOU JINGYI SPECIAL ADHESIVE TAPE CO LTD, model: JY312				

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JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD, model: CT

5.3	TABLE: fault condition tests					Pass
	ambient temperature (°C) : 21/24					—
	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
C1	SC	72Vdc	1s	F1	0	CD(F1),NC,NT,NB,Sample: 003+1@
Q4	G-D SC	72Vdc	1s	F1	0	CD(F1),NC,NT,NB,Sample: 003+1@
Q4	G-S SC	72Vdc	1s	F1	0	The unit shut down instantly, IP(IC1),NC,NT,NB, sample:012
Q4	D-S SC	72Vdc	1s	F1	0	CD(F1),NC,NT,NB,sample: 004+1@
R10	SC	72Vdc	3h08min	F1	0.64	CT, max temperature of transformer winding is 81.4 degree C, transformer core is 73.7degree C,NC,NT,NB,sample:013
R10	SC	36Vdc	2h36min	F1	1.33	CT, max temperature of primary winding is 97.7 degree C, secondary winding is 99.3 degree C, core is 88.2 degree C, 25.5degree C,NC,NT,NB,sample:005
IC1	Pin7 and pin5 SC	72Vdc	1s	F1	0	The unit shut down instantly, IP(IC1),NC,NT,NB, sample:012
IC1	Pin7 and pin3 SC	72Vdc	1s	F1	0	The unit shut down instantly, IP(IC1),NC,NT,NB, sample:012
IC1	Pin7 and pin1 SC	72Vdc	1s	F1	0	The unit shut down instantly, IP(IC1),NC,NT,NB, sample:012

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Clause	Requirement + Test			Result - Remark		Verdict
T1	Secondary SC	72Vdc	1s	F1	0	The unit shut down instantly, IP(IC1),NC,NT,NB, sample:012
PH1	Secondary SC	72Vdc	3h37min	F1	0.744	CT, max temperature of primary winding is 93.1 degree C, secondary winding is 95.3degree C, core is 87.6degree C, NC,NT,NB,sample:013
PH1	Secondary SC	36Vdc	1h35min	F1	1.52→0	max temperature of primary winding is 132.4degree C, secondary winding is 127.2degree C, core is 117.2degree C at ambient 24.8degree C,NC,NT,NB,sample:013
PH1	Primary SC	72Vdc	1s	F1	0	The unit shut down instantly, IP(IC1),NC,NT,NB, sample:012
DC input	Polarity mismatch	72	1s	F1	0	Unit shut down, IP(IC1),NC,NT,NB
T1	Secondary after D6 overload	72Vdc	6h43min	F1	0.71	max temperature of primary winding is 100.8degree C, secondary winding is 98.9degree C, core is 86.9degree C, NC,NT,NB
T1	Secondary after D6 overload	36Vdc	4h05min	F1	1.35A	max temperature of primary winding is 140degree C, secondary winding is 127.4 degree C, core is 117.4 degreeC, NC,NT,NB
Output	SC	72Vdc	1s	F1	0	Unit shut down Instantly, IP(IC1),NC,NT,NB,sample:012
Output	Overload	72Vdc	8h31min	F1	0.72	Max temperature of Primary winding is 97.1degree C,secondary winding is 100.8degree C,core is 90.6degree C, NC,NT,NB,sample:005
Output	Overload	36Vdc	3h40min	F1	1.43	Max temperature of Primary winding is 143.8degree C,secondary winding is 132.0 degree C,core is 122.0 degree C,at ambient 25.5degree

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Clause	Requirement + Test	Result - Remark	Verdict

						C,NC,NT,NB,sample:011
supplementary information:						
Results Key: IP = Internal protection operated (component indicated) CT = Constant temperatures were obtained TW = Transformer winding opened CD = Components damaged (damaged components indicated) NB = No indication of dielectric breakdown YB = Dielectric breakdown (time and location indicated) NC = Cheesecloth remained intact YC = Cheesecloth charred or flamed NT = Tissue paper remained intact YT = Tissue paper charred or flamed						

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.		N/A
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.		Pass
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		Pass

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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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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		Pass

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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.		N/A
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.		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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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.		N/A
5.3.6	Tests interrupted by opening of a component repeated two additional times.		N/A
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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	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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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