





COVER PAGE FOR TEST REPORT

Test Item Description:	Modular POS Terminal
Model/Type Reference:	ST-B20-XXX-XXXX-XX-X (where X represent 0-9, or A-Z or blank for marketing use only - no impact on safety related issue)
Rating(s):	Input: 100-127 / 200-240 Vac, 50/60 Hz, 5.0/2.4 A Outlet: 100-127 / 200-240 Vac, 50/60 Hz, 2.0/1.0 A
Standards:	IEC 60950-1:2005, Second Edition
Applicant Name and Address:	TOSHIBA TEC SINGAPORE PTE LTD 2 ANG MO KIO ST 62 SINGAPORE 569138 SINGAPORE
Factory Location(s):	TOSHIBA TEC SINGAPORE PTE LTD 2 ANG MO KIO ST 62 SINGAPORE 569138 SINGAPORE P T TEC INDONESIA LOT 108-110 BATAMINDO INDUSTRIAL PARK MUKA KUNING BATAM RIAU 29433 INDONESIA
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 Results5. Enclosures<ol style="list-style-type: none">a. National Differencesb. Photographsc. Diagramsd. Schematics + PWBe. Manualsf. Miscellaneous	
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	<p>Test Report issued under the responsibility of:</p> <p>UL International Demko A/S</p>	
<p align="center">TEST REPORT IEC 60950-1:2005 (2nd Edition) Information technology equipment - Safety - Part 1: General requirements</p>		
<p>Report Reference No : E215701-A35-CB-1 Date of issue : 2009-01-23 Total number of pages : 144</p>		
<p>CB Testing Laboratory : UL International Demko A/S Address : Lyskaer 8, 2730, Herlev, Denmark</p>		
<p>Applicant's name : TOSHIBA TEC SINGAPORE PTE LTD 2 ANG MO KIO ST 62 Address : SINGAPORE 569138 SINGAPORE</p>		
<p>Test specification: Standard : IEC 60950-1:2005, Second Edition Test procedure : CB Scheme Non-standard test method : N/A</p>		
<p>Test Report Form No. : IECEN60950_1C Test Report Form originator : SGS Fimko Ltd Master TRF : 2006-06</p>		
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Test item description	Modular POS Terminal
Trade Mark	Toshiba
Model/Type reference	ST-B20-XXX-XXXX-XX-X (where X represent 0-9, or A-Z or blank for marketing use only - no impact on safety related issue)
Manufacturer	SAME AS APPLICANT
Rating	Input: 100-127 / 200-240 Vac, 50/60 Hz, 5.0/2.4 A Outlet: 100-127 / 200-240 Vac, 50/60 Hz, 2.0/1.0 A

Testing procedure and testing location:	
<input type="checkbox"/> CB Testing Laboratory	
Testing location / address..... :	
<input type="checkbox"/> Associated CB Test Laboratory	
Testing location / address..... :	
Tested by (name + signature) :	
Approved by (+ signature) :	
<input checked="" type="checkbox"/> Testing Procedure: TMP	
Tested by (name + signature) :	Royston Ng
	
Approved by (+ signature) :	Jay Hsu
	
Testing location / address..... :	TOSHIBA TEC SINGAPORE PTE LTD. 2 ANG MO KIO ST 62. SINGAPORE 569138. SINGAPORE
<input type="checkbox"/> Testing Procedure: WMT	
Tested by (name + signature) :	
Witnessed by (+ signature)..... :	
Approved by (+ signature) :	
Testing location / address..... :	
<input type="checkbox"/> Testing Procedure: SMT	
Tested by (name + signature) :	
Approved by (+ signature) :	
Supervised by (+ signature) :	
Testing location / address..... :	
<input type="checkbox"/> Testing Procedure: RMT	
Tested by (name + signature) :	
Approved by (+ signature) :	
Supervised by (+ signature) :	
Testing location / address..... :	

Summary of Testing:

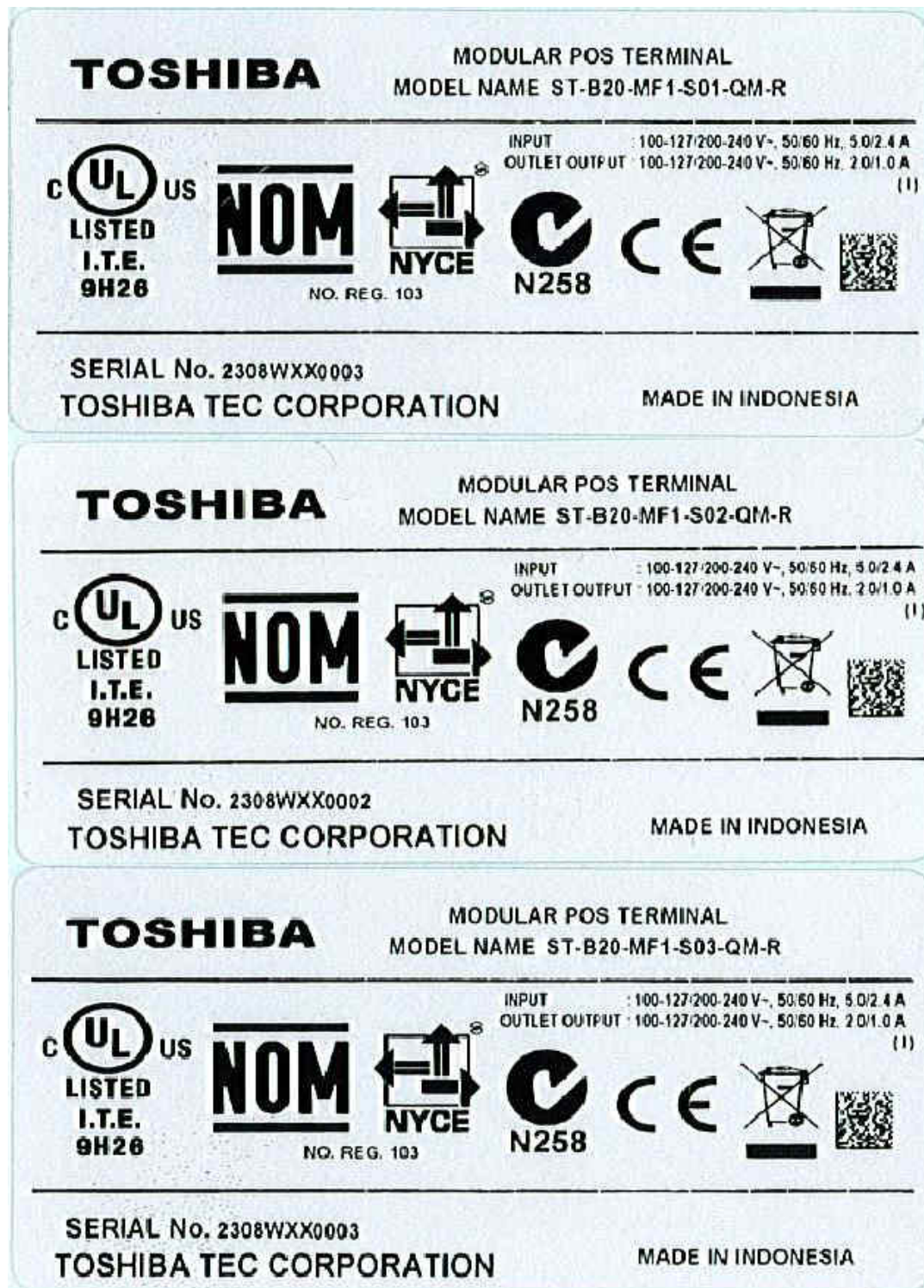
Unless otherwise indicated, all tests were conducted at TOSHIBA TEC SINGAPORE PTE LTD. 2 ANG MO KIO ST 62. SINGAPORE 569138. SINGAPORE.

Tests performed (name of test and test clause)	Testing location / Comments
End Product Reference Page	
General Guidelines	
Power Supply Reference Page	
Maximum Output Voltage, Current, and Volt-Ampere Measurement (1.2.2.1)	
Input: Single-Phase (1.6.2)	
Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	
Limited Power Source Measurements (2.5)	
Protective Bonding II (2.6.3.4, 2.6.1)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Determination of Working Voltage; Hazardous Voltage (Circuit) Measurement (2.10.2, Part 22 6.1)	
Transformer and Wire /Insulation Electric Strength (2.10.5.6, 2.10.5.13)	
Thin Sheet Material (2.10.5.9, 2.10.5.10, 2.10.5.6)	
Stability (4.1)	
Steady Force (4.2.1 - 4.2.4)	
Impact (4.2.5, 4.2.1, Part 22 10.2)	
Lithium Battery Reverse Current Measurement (4.3.8)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Ball Pressure (4.5.5, 4.5)	
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	
Electric Strength (5.2.2)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Abnormal Operation (5.3.1 - 5.3.9)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
Overload of Operator Accessible Connector (5.3.7)	

Summary of Compliance with National Differences:

AT, BE, CA, CH, DE, DK, ES, EU, FI, FR, GB, GR, HU, IT, JP, KR, NL, NO, PL, SE, SI, SK, US

Copy of Marking Plate



Test item particulars :

Equipment mobility	movable
Connection to the mains	pluggable A
Operating condition	continuous
Over voltage category	OVC II
Mains supply tolerance (%)	+10%, -10% (manufacturer declared)
Tested for IT power systems	N/A
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class I (earthed)
Mass of equipment (kg)	8.7
Pollution degree	PD 2
IP protection class	IP X0

Possible test case verdicts:

- test case does not apply to the test object	N / A
- test object does meet the requirement	P(Pass)
- test object does not meet the requirement	F(Fail)

Testing:

Date(s) of receipt of test item	2008-11-24
Date(s) of Performance of tests	2008-11-27 to 2009-01-05

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

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

Throughout this report a point is used as the decimal separator.

Refer to the Cover Page For Test Report for a list of all Factory Locations.

GENERAL PRODUCT INFORMATION:**Report Summary**

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

The product is a Modular Point Of Sale terminal. It consists of hard disk, electronic components mounted on V-1 or better PWB housed with steel and plastic enclosures, provided with three standard USB ports, five +12V PoweredUSB ports, one +24V PoweredUSB port, two Powered RS-232 ports, two standard RS-232 ports, two PS/2 ports, two drawer ports, one LAN port, one parallel port, one VGA port, supplied by non-

recognized build-in power supply.

Model Differences

N/A

Additional Information

N/A

Technical Considerations

The product was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C

The means of connection to the mains supply is: Pluggable A, Detachable power cord

The product is intended for use on the following power systems: TN

The equipment disconnect device is considered to be: Appliance inlet

The product was investigated to the following additional standards: IEC 60950-1:2005 / EN 60950-1:2006 (which includes all European national differences. Including those specified in this test report).

The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): USB, 5 Vdc output of Powered USB and PS/2 ports

The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

The following circuit locations (with circuit/schematic designation) were not investigated as a limited power source (LPS) : +12 Vdc and +24 Vdc output of PoweredUSB ports, +12 Vdc output of COM3 & COM4 ports, +24 Vdc output of Drawer ports (RJ-11). --

RJ-11 ports are for connection to drawers and not intended for connection to TNV circuits. --

Engineering Conditions of Acceptability

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

The investigated Pollution Degree is: 2

IEC 60950-1:2005			
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 critical component table)	Pass
1.5.2	Evaluation and testing of components	Components certified to IEC harmonized standard and checked for correct application. 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. 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.	Pass
1.5.3	Thermal controls	Thermal Controls comply with Annex K, see Annex K - Thermal Controls. TH3 uses for fan speed control.	Pass
1.5.4	Transformers	See table 1.5.1 for details.	Pass
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors bridging insulation	Primary-to-earth capacitors are subclass Y1 or Y2. Line-to-line capacitors are subclass X1 or X2.	Pass
1.5.7	Resistors bridging insulation		Pass
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		Pass
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.7.4	Accessible parts	Clause cancelled	N/A
1.5.8	Components in equipment for IT power systems		N/A

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.9	Surge suppressors		Pass
1.5.9.1	General		Pass
1.5.9.2	Protection of VDRs	Protected by Fuse F1	Pass
1.5.9.3	Bridging of functional insulation by a VDR		Pass
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	VDR does not bridging supplement, double or reinforced insulation	Pass

1.6	Power interface		Pass
1.6.1	AC power distribution systems		Pass
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	Neutral is insulated from earth with basic insulation.	Pass

IEC 60950-1:2005			
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 :		N/A
	Rated frequency or rated frequency range (Hz) :	Refer to the Rating information at the beginning of this Test Report.	Pass
	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 :	See Marking label	Pass
	Model identification or type reference..... :	Refer to the Model information at the beginning of this Test Report.	Pass
	Symbol for Class II equipment only :	Class I equipment.	N/A
	Other markings and symbols :	Additional symbols may be provided when submitted for National Approval.	Pass
1.7.2	Safety instructions and marking	Operating/safety instructions made available to the user.	Pass
1.7.2.1	General		Pass
1.7.2.2	Disconnect devices	Appliance inlet is the disconnect device	N/A
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT Power distribution systems		N/A
1.7.2.5	Operator access with a tool	No operator accessible parts.	N/A
1.7.2.6	Ozone		N/A
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
	Method and means of adjustment; reference to installation instructions..... :		N/A
1.7.5	Power outlets on the equipment :	Outlets are marked with the following maximum load ratings: 100-127 / 200-240 Vac, 50/60 Hz, 2.0/1.0 A	Pass

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	Fuse (F1) provided with voltage, current, and special fusing characteristic marking as applicable.	Pass
1.7.7	Wiring terminals		Pass
1.7.7.1	Protective earthing and bonding terminals	The earth terminal is marked with the standard earth symbol (60417-2-IEC-5019) near the terminal.	Pass
1.7.7.2	Terminal for a.c. mains supply conductors	The equipment with appliance inlet is intended to be used with a detachable type power supply cord.	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	The function of controls affecting safety is obvious regardless of language.	Pass
1.7.8.2	Colours.....	A Blue LED is illuminated when the unit is operating.	Pass
1.7.8.3	Symbols according to IEC 60417	The stand-by switch is marked with the correct symbol (60417-1-IEC-5009).	Pass
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 voltages.	N/A
1.7.10	Thermostats and other regulating devices	No thermostats or similar regulating devices.	N/A
1.7.11	Durability	All markings provided on UL Recognized Component labels suitable for surface they are applied upon and meet the durability test.	Pass
1.7.12	Removable parts	No marking is located on (a) removable part(s).	Pass
1.7.13	Replaceable batteries	The required warning is in both the operation and service manuals.	Pass
	Language(s).....	Only English language reviewed. May be provided in	-

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

		other languages upon request from the manufacturer.	
1.7.14	Equipment for restricted access locations..... :	Equipment not intended for installation in a RESTRICTED ACCESS LOCATION.	N/A

IEC 60950-1:2005			
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 cannot contact with any parts with only basic insulation to ELV or hazardous voltage.	Pass
	Test with test finger (Figure 2A) :	The test finger was unable to contact bare hazardous parts, basic insulation, or ELV circuits.	Pass
	Test with test pin (Figure 2B)..... :	The test pin was unable to contact bare hazardous parts.	Pass
	Test with test probe (Figure 2C) :	No TNV present.	N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring	No internal wiring in an ELV circuits is accessible to the operator.	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm) :		-
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. (see Enclosure Miscellaneous 7-01 Table 2.1.1.5)	Pass
2.1.1.6	Manual controls	All knobs or handles provided with adequate insulation or separated from hazardous voltages by double or reinforced creepage and clearance.	Pass
2.1.1.7	Discharge of capacitors in equipment	The capacitance of the input circuit is > 0.1 uF measurements are required.	Pass
	Measured voltage (V); time-constant (s) :	Vo = 370.8 Vpk %37 Vo = 137.2 Vpk Vtc = 0 Vpk. C3 = 0.47uF	-

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

		C4 = 0.47uF	
2.1.1.8	Energy hazards - d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply .. :		N/A
	b) Internal battery connected to the mains supply. :		N/A
2.1.1.9	Audio amplifiers		N/A
2.1.2	Protection in service access areas	No bare parts operating at HAZARDOUS VOLTAGES in a service access area.	N/A
2.1.3	Protection in restricted access locations	The unit 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).....	Not exceed 42,4 V peak, or 60 V d.c., for longer than 0,2 s. Moreover, a limit of 71 V peak, or 120 V d.c., is not exceeded.	Pass
2.2.4	Connection of SELV circuits to other circuits.....	SELV circuits are only connected to other secondary circuits.	Pass

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

2.3	TNV circuits		N/A
2.3.1	Limits	No TNV present	N/A
	Type of TNV circuits		-
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
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

2.4	Limited current circuits		N/A
2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		-
	Measured current (mA)		-
	Measured voltage (V)		-
	Measured circuit capacitance (nF or uF)		-
2.4.3	Connection of limited current circuits to other circuits		N/A

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

2.5	Limited power sources		Pass
	a) Inherently limited output		N/A
	b) Impedance limited output	See Table 1.5.1 for PTC specifications.	Pass
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :	(see Enclosure Miscellaneous 7-01 Table 2.5)	-
	Current rating of overcurrent protective device (A) :		-

IEC 60950-1:2005			
Clause	Requirement + Test	Result - Remark	Verdict

2.6	Provisions for earthing and bonding		Pass
2.6.1	Protective earthing	Accessible parts are earthed.	Pass
2.6.2	Functional earthing	Secondary output connector evaluated as part of 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	Power supply cord earthing conductor complies with Table 3B.	Pass
	Rated current (A), cross-sectional area (mm ²), AWG	2.5A minimum, 0.75 mm ² , 18 AWG.	-
2.6.3.3	Size of protective bonding conductors		Pass
	Rated current (A), cross-sectional area mm ² , AWG	2.5A minimum, 0.75 mm ² , 18 AWG.	-
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (ohm), voltage drop (V), test current (A), duration (min).....	AC ground pin to metal enclosure: 40 A, Vdrop = 0.86 V, 21.5 mOhm	Pass
2.6.3.5	Colour of insulation	Protective earthing conductor is green with yellow stripe.	Pass
2.6.4	Terminals		Pass
2.6.4.1	General		Pass
2.6.4.2	Protective earthing and bonding terminals	Terminals comply with Table 3E.	Pass
	Rated current (A), type, nominal thread diameter (mm).....	Appliance inlet used and the unit meet the requirement of 2.6.3.2.	-
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		Pass
2.6.5.1	Interconnection of equipment	This unit has its own earthing connection. Any other units connected via the output shall be provided SELV only.	Pass
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switches or fuses in earthing conductors.	Pass
2.6.5.3	Disconnection of protective earth	Disconnection of the protective earth at one assembly does	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

		not break the protective earthing connection to other assemblies.	
2.6.5.4	Parts that can be removed by an operator	Protective earth required makes earlier and breaks later than the supply connectors.	Pass
2.6.5.5	Parts removed during servicing	Connections to protective earthing cannot be removed unless hazardous voltage is removed from the part simultaneously.	Pass
2.6.5.6	Corrosion resistance	No risk of corrosion. Complies with Annex J.	Pass
2.6.5.7	Screws for protective bonding		Pass
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

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	Protection provided as an integral part of the equipment.	N/A
2.7.2	Faults not covered in 5.3.7	Adequate fault protection provided.	Pass
2.7.3	Short-circuit backup protection	The equipment is pluggable Type A.	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		N/A
2.7.6	Warning to service personnel :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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 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
	Relative humidity (%), temperature (°C)..... :	93%, 25 degree C	-
2.9.3	Grade of insulation	No flash over or breakdown of insulation.	Pass
2.9.4	Separation from hazardous voltages		Pass
	Method(s) used..... :	1, 2 or 3	-

IEC 60950-1:2005			
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
2.10.1.1	Frequency	comply	Pass
2.10.1.2	Pollution degrees	2	Pass
2.10.1.3	Reduced values for functional insulation		Pass
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		Pass
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		Pass
2.10.2.1	General		Pass
2.10.2.2	RMS working voltage		Pass
2.10.2.3	Peak 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	Mains transient voltages		Pass
	a) AC mains supply.....	Complied to table 2J. AC mains supply voltage = 300Vrms, Overvoltage category II = 2500 Vpk.	Pass
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c.. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4).	Pass
2.10.3.4	Clearances in secondary circuits	See 5.3.4.	N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply		N/A
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems.....		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply.....		N/A
	For a d.c. mains supply.....		N/A

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	b) Transients from a telecommunication network		N/A
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	Pass
2.10.4.1	General		Pass
2.10.4.2	Material group and comparative tracking index		Pass
	CTI tests..... :	Material group IIIb; $100 \leq CTI < 175$.	-
2.10.4.3	Minimum creepage distances		Pass
2.10.5	Solid insulation	Solid or laminated insulating materials having adequate thickness are provided.	Pass
2.10.5.1	General		Pass
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	Pass
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices	Photocoupler is recognized	Pass
2.10.5.5	Cemented joints		N/A
2.10.5.6	Thin sheet material - General	(see appended table 5.2)	Pass
2.10.5.7	Separable thin sheet material		Pass
	Number of layers (pcs) :	Three or more layers of sheet insulating material are employed.	-
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material - standard test procedure		N/A
	Electric strength test :		-
2.10.5.10	Thin sheet material - alternative test procedure		Pass
	Electric strength test :	(see appended table 5.2)	-
2.10.5.11	Insulation in wound components		Pass
2.10.5.12	Wire in wound components	The employed UL Recognized wiring meets the requirements of 2.10.5.12 and Annex U. See Table 1.5.1.	Pass
	Working voltage :	$V_{pk} = 783.3V$	Pass
	a) Basic insulation not under stress..... :		N/A
	b) Basic, supplementary, reinforced insulation..... :		N/A
	c) Compliance with Annex U..... :	REINFORCED INSULATION: three layers provided	Pass
	Two wires in contact inside wound component:	Physical separation in the form	Pass

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	angle between 45° and 90°	of insulating sleeving provided to relieve mechanical stress at the crossover point.	
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		-
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress.....		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards		Pass
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	Pass
2.10.6.2	Coated printed boards	No special coating used.	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

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3	WIRING, CONNECTIONS AND SUPPLY		Pass
3.1	General		Pass
3.1.1	Current rating and overcurrent protection		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	Uninsulated conductors have been adequately fixed to prevent, in normal use, any reduction of creepage or clearance distances below those prescribed by in 2.9. (see appended table 5.2)	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. Machine screws only.	N/A
3.1.9	Termination of conductors		Pass
	10 N pull test		Pass
3.1.10	Sleeving on wiring	The sleeving used as supplementary insulation on internal wiring is retained by positive means.	Pass

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3.2	Connection to mains supply		Pass
3.2.1	Means of connection	The unit is provided with an appliance inlet.	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 of cable and conduits (mm) :		-
3.2.4	Appliance inlets	The appliance inlet complies with IEC 60320. Appliance inlet 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.	Pass
3.2.5	Power supply cords	See Critical Components List. Power supply cord suitable for application and subject to country's national code and regulations to be provided by the manufacturer.	Pass
3.2.5.1	AC power supply cords		Pass
	Type :	See Critical Components List.	-
	Rated current (A), cross-sectional area (mm ²), AWG :	See Critical Components List.	-
3.2.5.2	DC power supply cords	Unit employs an appliance inlet.	N/A
3.2.6	Cord anchorages and strain relief	The equipment does not use a non-detachable power supply cord	N/A
	Mass of equipment (kg), pull (N) :		-
	Longitudinal displacement (mm)..... :	Unit employs an appliance inlet.	-
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards	The equipment does not use a non-detachable power supply	N/A

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		cord	
	Diameter of minor dimension D (mm); test mass (g) :		-
	Radius of curvature of cord (mm) :	Unit employs an appliance inlet.	-
3.2.9	Supply wiring space	Unit employs an appliance inlet.	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

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3.4	Disconnection from the mains supply		Pass
3.4.1	General requirement		Pass
3.4.2	Disconnect devices	The equipment is provided with an appliance coupler.	Pass
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N/A
3.4.4	Parts which remain energized	Live parts on the supply side of the disconnect device are adequately guarded to reduce the likelihood of accidental contact by service personnel.	Pass
3.4.5	Switches in flexible cords	No isolating switch in the cord set.	N/A
3.4.6	Number of poles - single-phase and d.c. equipment	Disconnect device disconnects all poles simultaneously.	Pass
3.4.7	Number of poles - three-phase equipment	The unit is single-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

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		N/A
3.5.4	Data ports for additional equipment	Standard USB, PS/2 ports comply with LPS. Powered USB, RS232, RJ11 ports require additional equipment to comply with 4.7	Pass

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4	PHYSICAL REQUIREMENTS		Pass
4.1	Stability		N/A
	Angle of 10°	Based on construction, the test was deemed not necessary.	N/A
	Test force (N)		N/A

4.2	Mechanical strength		Pass
4.2.1	General		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	500g steel sphere ball fall, from 1.3m height onto outer plastic/ metal enclosures. The test was done with all enclosure materials. No safety relevant damages.	Pass
	Fall test		Pass
	Swing test		N/A
4.2.6	Drop test; height (mm)	Unit is not hand-held, direct plug-in, or transportable.	N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes	The equipment does not have any CRTs	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 rounded and smooth.	Pass
4.3.2	Handles and manual controls; force (N) :		N/A
4.3.3	Adjustable controls	The equipment does not have a voltage selector.	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 by 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
	Torque..... :		N/A
	Compliance with the relevant mains plug standard:		N/A
4.3.7	Heating elements in earthed equipment	The equipment does not have any heating elements.	N/A
4.3.8	Batteries	Battery is protected against charging current by multiple components within the system clock integrated circuit package. See Critical Components List.	Pass
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		Pass
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging of any battery		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	N/A

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		any flammable liquids.	
	Quantity of liquid (l)..... :		N/A
	Flash point (°C)..... :		N/A
4.3.13	Radiation	The equipment does not generate ionizing radiation or contain flammable liquids or gases.	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)	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. Additional review may be required at the discretion of the accepting NCB.	N/A
	Laser class..... :		-
4.3.13.6	Other types :		N/A

4.4	Protection against hazardous moving parts		Pass
4.4.1	General		N/A
4.4.2	Protection in operator access areas :	Hazardous moving parts (DC fans) of equipment are adequately enclosed and guarded.	Pass
4.4.3	Protection in restricted access locations :		N/A
4.4.4	Protection in service access areas		N/A

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4.5	Thermal requirements		Pass
4.5.1	General		Pass
4.5.2	Temperature tests	(see appended table 4.5) The equipment and its component parts did not attain excessive temperatures during normal operation.	Pass
	Normal load condition per Annex L :	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	-
4.5.3	Temperature limits for materials	The temperature of materials and components did not exceed the values in Table 4B.	Pass
4.5.4	Touch temperature limits	The temperatures of accessible parts in OPERATOR ACCESS AREAS did not exceed the values in Table 4C.	Pass
4.5.5	Resistance to abnormal heat..... :	It has been determined from examination of the physical characteristics of the materials used that the material meets the requirements of the test.	Pass

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4.6	Openings in enclosures		Pass
4.6.1	Top and side openings	No top openings.Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy. (No hazardous parts within 5° projection).	Pass
	Dimensions (mm)..... :	See table 1.5.1 for details.	-
4.6.2	Bottoms of fire enclosures	No openings.	N/A
	Construction of the bottom, dimensions (mm)..... :	No openings.	-
4.6.3	Doors or covers in fire enclosures	The equipment does not have any doors or covers.	N/A
4.6.4	Openings in transportable equipment	Unit not transportable.	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)..... :		-
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes	Adhesives not used for securement of internal barriers or screens.	N/A
	Conditioning temperature (°C), time (weeks) :		-

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4.7	Resistance to fire		Pass
4.7.1	Reducing the risk of ignition and spread of flame	Method 1: Selection and application of components and materials which minimize the possibility of ignition and spread of flame.	Pass
	Method 1, selection and application of components wiring and materials		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.	Pass
4.7.2.2	Parts not requiring a fire enclosure	Fire enclosure covers all parts.	N/A
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. The fire enclosure is metal and plastic.	Pass
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
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. Internal wiring is UL Recognized, marked VW-1 or FT-1 and strapped by individual cable ties (where needed).	Pass
4.7.3.5	Materials for air filter assemblies	The equipment does not have any air filters.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

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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	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Single phase equipment intended only for connection to star TN or TT 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 Annex D	Pass
	Supply voltage (V)	264 Vac	-
	Measured touch current (mA)	Maximum 0.75 mA to accessible conductive parts which having protective earthing connection. Maximum 0.07 mA to unearthed or non-conductive accessible parts.	-
	Max. allowed touch current (mA)	3.5 mA to accessible conductive parts which having protective earthing connection, 0.25 mA to unearthed or non-conductive accessible parts.	-
	Measured protective conductor current (mA)	N/A	-
	Max. allowed protective conductor current (mA) ...	N/A	-
5.1.7	Equipment with touch current exceeding 3,5 mA	Touch current is < 3.5 mA.	N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a		N/A

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	telecommunication network or to a cable distribution system		
	Supply voltage (V) :		-
	Measured touch current (mA) :		-
	Max. allowed touch current (mA) :		-
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports..... :		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

5.2	Electric strength		Pass
5.2.1	General	Based on the electric strength test the use of the insulating materials within the equipment is satisfactory. (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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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	Fan motor evaluated as part of component evaluation.	Pass
5.3.3	Transformers	(see appended Annex C)	Pass
5.3.4	Functional insulation	Functional insulation complies with the requirements (c).	Pass
5.3.5	Electromechanical components	The equipment does not have any electromechanical components in the secondary.	N/A
5.3.6	Audio amplifiers in ITE		N/A
5.3.7	Simulation of faults	Transformer temperatures measured for compliance with Annex C during test.	Pass
5.3.8	Unattended equipment	Equipment is not intended for unattended use.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire, emission of molten metal or deformation was noted during the tests and Electric Strength tests performed after abnormal and fault tests.	Pass
5.3.9.1	During the tests	No fire, emission of molten metal or deformation was noted during the tests.	Pass
5.3.9.2	After 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
	Supply 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	General	No connection to Cable Distribution Systems	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	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 (see IEC 60695-11-3)		N/A
	Flame A, B, C or D.....		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; temperature (°C)		N/A
A.2.3	Mounting of samples.....		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		-
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 60695-11-5, cl. 5 and 9		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

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Clause	Requirement + Test	Result - Remark	Verdict

A.3.3	Compliance criterion		N/A
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B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)		Pass
B.1	General requirements	Fan motor evaluated as part of component evaluation.	Pass
	Position	See table 1.5.1.	-
	Manufacturer.....	See table 1.5.1.	-
	Type	See table 1.5.1.	-
	Rated values.....	See table 1.5.1.	-
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.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V).....		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		Pass
B.7.1	General	Fan motor evaluated as part of component evaluation.	Pass
B.7.2	Test procedure	Fan motor evaluated as part of component evaluation.	Pass
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V).....		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	See table 1.5.1.	-
	Manufacturer.....	See table 1.5.1.	-
	Type	Switching type	-
	Rated values	See table 1.5.1.	-
	Method of protection	Inherently	-
C.1	Overload test	(see appended table 5.3)	Pass
C.2	Insulation	(see appended table 5.2)	Pass
	Protection from displacement of windings	Margin tape provided on each end of each winding for T1. Triple insulated wire used for T2.	Pass

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		Pass
D.1	Measuring instrument	Figure D.1	Pass
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		Pass
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Clause	Requirement + Test	Result - Remark	Verdict

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	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	Earthed d.c. mains supply		N/A
G.2.3	Unearthed d.c. mains supply		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V) :		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (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)		Pass
	Metal(s) used	Compliance with Table J.1	-

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K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		Pass
K.1	Making and breaking capacity	Approved component.	Pass
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 4.5.2)		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

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M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A	No TNV present.	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 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 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, Voltage dependent resistors (VDRs) (see 1.5.9.1)		Pass
	a) Preferred climatic categories	Comply	Pass
	b) Maximum continuous voltage	Comply	Pass
	c) Pulse current	Comply	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 2.10.6.2)		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
 :	Evaluated in component approval.	-

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		Pass
V.1	Introduction		Pass
V.2	TN power distribution systems		Pass

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W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		Pass
X.1	Determination of maximum input current		Pass
X.2	Overload test procedure		Pass

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus..... :		N/A
Y.2	Mounting of test samples..... :		N/A
Y.3	Carbon-arc light-exposure apparatus..... :		N/A
Y.4	Xenon-arc light-exposure apparatus..... :		N/A

Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		Pass
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AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
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1.5.1	TABLE: list of critical components					Pass
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
01. Plastics Enclosure (Front Cover)	Teijin Chemical Ltd Research & Development Div.	TN-7000	V-0, Minimum 2.3 mm thick. Overall is 313 by 110 mm max.	UL94, UL746C	UL, --	
02. Plastics Enclosure (Panel Cover)	Teijin Chemical Ltd Research & Development Div.	TN-7000	V-0, Minimum 1.9 mm thick. Overall is 265 by 102 mm max, provided with numerous slot openings, each slot is 24.1 by 2.5 mm max, area 153 by 40 mm max.	UL94, UL746C	UL, --	
03. Internal Plastic parts	--	--	Min. V-2	UL94, UL746C	UL, --	
04. Metal Enclosure (Unit)	--	--	Metal. Overall is 395 by 315 by 110 mm, 1.0 mm thick, provided with numerous slot openings, each slot is 4.0 by 12.1 mm max, area 93 by 48 mm (back) and 70 by 72 mm (side) max.	--	--, --	
05. Metal Enclosure (Power Supply)	--	--	Minimum 0.8mm thick. Overall is 350 by 102 by 66 mm max, provided with numerous slot openings, each slot is 4.1 by 10.0 mm max, overall area 69 sq. cm max.	--	--, --	
06. Power Supply Cord (optional)	Various	Various	Detachable, Min. 1.5m to Max. 4.5 m (14.76 ft.) long, Type SVT	UL 817, UL 62, UL 498	UL, --	

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			or SPT-2, Min. 18 AWG, One end terminates in NEMA 5-15P grounding type attachment plug, the other end with an appliance coupler.		
06-1. Power Supply Cord (optional)	Various	Various	Detachable. Min. 0.75 mm ² , min 250 V. Other end with cord-connected body, grounding type, suitable for cord size, rating not less than that of attachment plug.	IEC60799	--, --
07. Printed Wiring Boards	Various	Various	Minimum V-1, 105 degree C	UL796	UL, --
08. Label	Various	Various	40 degree C if maximum surface temperature not specified	UL 969	UL, --
09. Hard disk (1 or 2 provided) (optional)	Various	Various	Rated maximum 5V, 700mA	UL60950-1	UL, Tested in unit
10. Fan (System)	Minebea Motor Manufacturing Corporation	2410ML-04W-B66	Rated 12V/0.4A	UL507	UL, VDE
11. RTC Battery (BT5H1)	Various	CR2032	3V, Max. Abnormal charging Current 10 mA	UL 1642	UL, --
12. Wiring, internal (LPS)	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 30 V, 80 °C, 26 AWG	UL 758	UL, --
13. Polyswitch for USB, PS/2, Powered USB +5V (TH1, TH2,	Tyco Electronics Corp.	nanoSMDC110F	6 Vdc, trip current 2.2 A, CA=3	UL1434	UL, --

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TH3, TH4, TH5)					
14. Connectors and Receptacles (secondary ELV/SELV circuits)	Various	Various	Copper alloy pins housed in bodies of plastic rated V-2 min.	UL746C, UL498, UL1977, UL1863, IEC60950-1	UL, --
15. Power Supply Unit	PT. TEC Indonesia	PSU ST-N Main PCB	--	--	--, --
15-1. Earthing/Bonding	Various	Various	Min. 300 V, 60°C, 18 AWG. Insulated with green-yellow color, one end connected to the inlet earthing terminal by solder and sleeved with shrinkable tubing, the other end connected to with double crimp-on copper ring terminal and secured to bottom of enclosure by a dedicated thread stud star washer and a screw.	UL 758	UL, --
15-2. Wiring, internal (Power supply secondary output)	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 600 V, 105 °C, 18 AWG	UL 758	UL, --
16. Wiring, internal (Primary)	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 300 V, 60 °C, 18 AWG	UL 758	UL, --
17. Fan (Power Supply)	Minebea Motor Manufacturing Corporation	2410ML-05W-B50	Rated 24V/0.13A	UL507	UL, VDE
18. Photo	Toshiba Corp,	TLP781F series	Each rated 5000	UL1577,	UL, VDE

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Clause	Requirement + Test	Result - Remark	Verdict

coupler (PC1, PC2, PC3)	Semiconductor Co., Discrete Semiconductor Div.		V ac isolation, max. operating temperature 100°C.	IEC60747-5	
18A. Photo coupler (PC1, PC2, PC3) (Alternate)	Toshiba Corp, Semiconductor Co., Discrete Semiconductor Div.	TLP421F series	Each rated 5000 V ac isolation, max. operating temperature 100°C.	UL1577, IEC60747-5	UL, VDE
18B. Photo coupler (PC1, PC2, PC3) (Alternate)	NEC Electronics Corp Compound Semiconductor Device Div.	PS2561AL1-1 series	Each rated 5000 V ac isolation, max. operating temperature 100°C.	UL1577, IEC60747-5	UL, VDE
18C. Photo coupler (PC1, PC2, PC3) (Alternate)	Sharp Corp. Electronic Components Group	PC123 series	Each rated 5000 V ac isolation, max. operating temperature 110°C.	UL1577, IEC60747-5	UL, VDE
19. Varistor (Z1)	Joyin Co Ltd	JVR10S471K	Rated 470 Vac	UL1449, IEC 61051-2	UL, VDE
19A. Varistor (Z1) (Alternate)	Fuji Electric Device Technology Co Ltd	ENE471D-10A	Rated 470 Vac	UL1449, IEC 61051-2	UL, VDE
19B. Varistor (Z1) (Alternate)	NIPPON CHEMI-CON	TNR10V471K	Rated 470 Vac	UL1449, IEC 61051-2	UL, VDE
19C. Varistor (Z1) (Alternate)	PANASONIC CORPORATION	ERZV10D471	Rated 470 Vac	UL1449, IEC 61051-2	UL, VDE
20. Fuse (F1)	Littelfuse	21506.3MXP	Rated 6.3A / 250V	UL248, IEC60127-2	UL, VDE
20A. Fuse (F1) (Alternate)	Skygate	SG501306.3-R	Rated 6.3A / 250V	UL248, IEC60127-2	UL, VDE
21. Y-Capacitor (C1, C2, C5, C6, C26)	Murata Mfg. Co., Ltd.	KY	Rated minimum 250 V, maximum 2200 pF. Class Y1 or Y2.	UL1414, IEC60384-14	UL, VDE
21A. Y-Capacitor (C1, C2, C5, C6, C26) (Alternate)	Panasonic Corporation of North America	TS	Rated minimum 250 V, maximum 2200 pF. Class Y1 or Y2.	UL1414, IEC60384-14	UL, VDE
21B. Y-Capacitor (C1, C2, C5, C6, C26) (Alternate)	Murata Mfg. Co., Ltd.	KX	Rated minimum 250 V, maximum 2200 pF. Class Y1 or Y2.	UL1414, IEC60384-14	UL, VDE
21C. Y-Capacitor (C1, C2, C5, C6, C26) (Alternate)	Murata Mfg. Co., Ltd.	KH	Rated minimum 250 V, maximum 2200 pF. Class	UL1414, IEC60384-14	UL, VDE

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Clause	Requirement + Test	Result - Remark	Verdict

			Y1 or Y2.		
22. X-Capacitor (C3,C4)	Pilkor Electronics Co Ltd	PCX2 337	Rated minimum 250 V, maximum 0.47 uF. Class X1 or X2.	UL1414, IEC60384-14	UL, VDE
22A.X-Capacitor (C3,C4) (Alternate)	Okaya Electric Industries Co Ltd	LE, RE	Rated minimum 250 V, maximum 0.47 uF. Class X1 or X2.	UL1414, IEC60384-14	UL, VDE, S
22B. X-Capacitor (C3,C4) (Alternate)	Panasonic Corporation of North America	ECQ-UV	Rated minimum 250 V, maximum 0.47 uF. Class X1 or X2.	UL1414, IEC60384-14	UL, VDE
22C. X-Capacitor (C3,C4) (Alternate)	Evovx	PHE840M	Rated minimum 250 V, maximum 0.47 uF. Class X1 or X2.	UL1414, IEC60384-14	UL, VDE
23. Transformer (T1)	Li Shin	TF-STB-MAIN-01 or TF-BRU-MAIN-02	Class A	--	--, --
23-1. Core	--	--	Ferrite, overall measured 42.4 by 35.5 by 11.3 mm.	--	--, --
23-2. Coil	Various	Various	Rated 130 degree C, see Enclosure for winding information	UL1446	UL, --
23-3. Bobbin	Chang Chun Plastics Co., Ltd	T375J	Rated V-0, 150 degree C. Phenolic. Minimum 0.71mm thick	UL746C	UL, --
23-4. Insulation tape	3M Company	1350F-1	Rated 130 degree C, three layers provided	UL510	UL, --
23-4A. Insulation tape (Alternate)	Symbio Inc	35660Y *b	Rated 130 degree C, three layers provided	UL510	UL, --
23-4B. Insulation tape (Alternate)	Jing Jiang Yahua Pressure Sensitive Glue Co. Ltd	No. CT	Rated 130 degree C, three layers provided	UL510	UL, --
23-5. Margin tape	Various	Various	Minimum width 4mm, Material Group II or	UL510	UL, --

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Clause	Requirement + Test	Result - Remark	Verdict

			above		
23-6. Varnish	PD George/ Viking	V1630FS	Rated 180 degree C	UL1446	UL, --
23-6A. Varnish (Alternate)	John C.Dolph Co., Ltd	BC-346A	Rated 200 degree C	UL1446	UL, --
23-7. Sleeving/Tubing	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Minimum 130 degree C, 0.4mm thick	UL224	UL, --
24. Transformer (T2)	Li Shin	TF-BRU-5VAUX- 02	Class B	--	--, --
24-1 Insulation System	Li Shin	LSE-B9	Class B	UL1446	UL, --
24-2. Core	--	--	Ferrite, overall measured 19.4 by 22.2 by 5.6 mm.	--	--, --
24-3. Coil	Various	Various	Rated 130 degree C, see Enclosure for winding information	UL1446	UL, --
24-4. Bobbin	Sumitomo Bakelite Co., Ltd	PM-9820	Rated V-0, 150 degree C. Phenolic. Minimum 0.71mm thick	UL746C	UL, --
24-5. Insulation tape	Symbio Inc	35660Y	Rated 130 degree C, three layers provided	UL510	UL, --
24-5A. Insulation tape (Alternate)	3M Company	1350F-1	Rated 130 degree C, three layers provided	UL510	UL, --
24-5B. Insulation tape (Alternate)	Jing Jiang Yahua Pressure Sensitive Glue Co. Ltd	No. CT	Rated 130 degree C, three layers provided	UL510	UL, --
24-6. Triple Insulated Wire	Furukawa Electric Co. Ltd.	TEX-E	Copper magnet, 130 degree C	UL2353	UL, --
24-7. Varnish	PD George/ Viking	V1630FS	Rated 180 degree C.	UL1446	UL, --
24-7A. Varnish (Alternate)	John C.Dolph Co., Ltd	BC-346A	Rated 200 degree C.	UL1446	UL, --
24-8.	Great Holding	TFS	Rated 200	UL224	UL, --

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Clause	Requirement + Test	Result - Remark	Verdict

Sleeving/Tubing	Industrial Co., Ltd.		degree C.		
25. Line Filter (L1 , L2)	--	--	Minimum 130 degree C	--	--, --
25-1. Core	--	--	Ferrite, overall measured 28.5 by 28.5 by 4.5 mm.	--	--, --
25-2. Coil	Various	Various	Minimum 130 degree C	UL1446	UL, --
25-3. Bobbin	Various	Various	V-0, Minimum 130 degree C, Phenolic.	UL94, UL746C	UL, --
26. Coil (L3)	--	--	Minimum 130 degree C. See enclosure diagram for details.	--	--, --
27. Choke (L4)	--	--	Minimum 130 degree C	--	--, --
27-1. Core	--	--	Ferrite, overall measured 42.4 by 35.5 by 11.3 mm.	--	--, --
27-2. Coil	Various	Various	Minimum 130 degree C	UL1446	UL, --
27-3. Bobbin	Various	Various	V-0, Minimum 130 degree C, Phenolic.	UL94, UL746C	UL, --
28. Inductor Coil (L5)	--	--	Minimum 130 degree C. See enclosure diagram for details.	--	--, --
39. Diode Bridge (DB1)	--	--	Rated minimum 600V / 6A	--	--, --
30. Electrolytic Capacitor (C27)	--	--	Rated minimum 450V, 150uF	--	--, --
31. Relay (RLY1)	Panasonic	JW1aF series	Rated 10A, 250Vac / 30Vdc	UL508	UL, --
31A. Relay (RLY1) (Alternate)	Panasonic	JW1F series	Rated 10A, 250Vac / 30Vdc	UL508	UL, --
31B. Relay (RLY1) (Alternate)	Fujitsu	FTR-H1CA005V	Rated 10A, 250Vac / 30Vdc	UL508	UL, --
32. Fuse (F1 - Sub board 3.3V,	Littelfuse	0454005.MR	Rated 5A, 125V	UL248	UL, --

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Clause	Requirement + Test		Result - Remark		Verdict
Sub board 5.5V)					
32A. Fuse (F1 - Sub board 3.3V, Sub board 5.5V) (Alternate)	Littelfuse	0454004.MR	Rated 4A, 125V	UL248	UL, --
33. Silicone Sheet (between heat-sink and Q2, Q4)	Fuji Polymer Industries Co., Ltd.	Sarcon TR	V-0, Minimum 0.3mm thick	--	UL, --
33A. Silicone Sheet (between heat-sink and Q2, Q4) (Alternate)	SHIN-ETSU CHEMICAL CO LTD	TC-45A	V-0, Minimum 0.3mm thick	--	UL, --
34. Appliance Inlet	Rong Feng Industrial Co., Ltd.	SS-120-1.0	15A / 250VAC (UL), 10A / 250 VAC	UL498, IEC 60320-1	UL, VDE, CCC
34A. Appliance Inlet (Alternate)	Yamate Electric Co., Ltd	AP-300-0-D	15A / 250VAC (UL), 10A / 250VAC	UL498, IEC 60320-1	UL, VDE, CCC
34B. Appliance Inlet (Alternate)	Inalways Corp	0711-1	15A / 250VAC (UL), 10A / 250 VAC	UL498, IEC 60320-1	UL, VDE, CCC
34C. Appliance Inlet (Alternate)	Inalways Corp	0711	15A / 250VAC (UL), 10A / 250 VAC	UL498, IEC 60320-1	UL, VDE, CCC
35. Outlet receptacle	Rong Feng Industrial Co., Ltd.	SS-130-PC-NEW	15A / 250VAC (UL), 10A / 250 VAC	UL498, IEC 60320-1	UL, VDE, CCC
35A. Outlet receptacle	Inalways Corp	0718-1	15A / 250VAC (UL), 10A / 250 VAC	UL498, IEC 60320-1	UL, VDE, CCC
36. Thermistor (F2)	Tyco Electronics Corp.	RUEF400	PTC type. Maximum operating voltage 30V, rated trip current 8A at 20 °C	UL1434	UL, --
37. Thermistor (F4)	Tyco Electronics Corp.	RGEF400	PTC type. Maximum operating voltage 16V, rated trip current 6.8A at 25 °C	UL1434	UL, --
38. Thermistor (F5)	Tyco Electronics Corp.	MINISMDC260F/13.2	PTC type. Maximum operating voltage 13.2V, rated trip	UL1434	UL, --

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Clause	Requirement + Test	Result - Remark	Verdict

			current 5A at 20 °C		
39. Thermistor (TH1)	Various	Various	NTC type. Rated 5 ohm, 6A minimum	--	--, --
40. Thermistor (TH3)	MURATA	PRF21BE471QB1RA	PTC type. Rated 32V. Sensing Temp. 85 +/- 5 degree C	UL1434	UL, --
41. Thermistor (TH6)	MURATA	PTFM04BH222Q2N34B0	PTC type. Rated 16V. Sensing Temp. 60 degree C	UL1434	UL, --
42. Thermistor (TH4, TH5)	MURATA	PTFM04BC222Q2N34B0	Rated 16V, Sensing Temp. 110 degree C	--	--, --
42A. Thermistor (TH4, TH5) (Alternate)	MURATA	PTFM04BD222Q2N34B0	Rated 16V, Sensing Temp. 100 degree C	--	--, --
42B. Thermistor (TH4, TH5) (Alternate)	MURATA	PTFM04BE222Q2N34B0	Rated 16V, Sensing Temp. 100 degree C	--	--, --
42C. Thermistor (TH4, TH5) (Alternate)	THINKING	PTMS2331RP930Y	Rated 30V, Sensing Temp. 105 degree C	UL1434	UL, --
42D. Thermistor (TH4, TH5) (Alternate)	THINKING	PTMS2331RA030Y	Rated 30V, Sensing Temp. 115 degree C	UL1434	UL, --
43. Ceramic Resistor (R39)	--	--	Rated 5W, 0.22 ohm	--	--, --
44. Ceramic Resistor (R26)	--	--	Rated 5W, 0.1-1 ohm	--	--, --
45. Ceramic Resistor (R68)	--	--	Rated 5W, 0.02 ohm	--	--, --
46. Heat shrink tube (provided for R26, ground choke)	Various	Various	Minimum 125°C, 300V, 0.4mm thick, VW-1	UL224	UL, --
47. Insulation Sheet	Mitsubishi Plastic Inc	C-850	V-0. Minimum 0.5mm thick.	UL94, UL746C	UL, --
48. Heatsink (HS1)	--	--	Aluminium. Measured 80 by 50 by 35mm, minimum 3mm thick	--	--, --
49. Heatsink (HS2)	--	--	Aluminium. Measured 80 by	--	--, --

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		50mm, minimum 3mm thick		
¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance				

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: electrical data (in normal conditions)						Pass
U (V)	I (A)	I rated (A)	P (W)	Fuse #	I fuse (A)	condition/status	
90V/50 Hz	5.205	--	283	--	5.205	Maximum Normal Load	
100V/50 Hz	4.824	5	278	F1	4.824	Maximum Normal Load	
127V/50 Hz	4.133	5	267	F1	4.133	Maximum Normal Load	
135V/50 Hz	3.993	--	265	--	3.993	Maximum Normal Load	
140V/50 Hz	3.914	--	264	--	3.914	Maximum Normal Load	
180V/50 Hz	2.481	--	261	--	2.481	Maximum Normal Load	
200V/50 Hz	2.331	2.4	259	F1	2.331	Maximum Normal Load	
240V/50 Hz	2.118	2.4	256	F1	2.118	Maximum Normal Load	
254V/50 Hz	2.122	--	256	--	2.122	Maximum Normal Load	
264V/50 Hz	2.039	--	257	--	2.039	Maximum Normal Load	
90V/60 Hz	5.213	--	285	--	5.213	Maximum Normal Load	
100V/60 Hz	4.833	5	279	F1	4.833	Maximum Normal Load	
127V/60 Hz	4.139	5	268	F1	4.139	Maximum Normal Load	
135V/60 Hz	4.004	--	267	--	4.004	Maximum Normal Load	
140V/60 Hz	3.934	--	267	--	3.934	Maximum Normal Load	
180V/60 Hz	2.477	--	261	--	2.477	Maximum Normal Load	
200V/60 Hz	2.338	2.4	261	F1	2.338	Maximum Normal Load	
240V/60 Hz	2.115	2.4	255	F1	2.115	Maximum Normal Load	
254V/60 Hz	2.131	--	259	--	2.131	Maximum Normal Load	
264V/60 Hz	2.045	--	259	--	2.045	Maximum Normal Load	

supplementary information:

"Maximum normal load" was defined as follows: Continuous operation with manufacturer proprietary software operating two cash drawers, continuous printing through +24V PoweredUSB port, +12V PoweredUSB ports each loaded 1.5A maximum, standard USB ports each loaded 0.5A maximum, one RS-232 connected to VFD,

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Clause	Requirement + Test	Result - Remark	Verdict

PS/2 ports connected to mouse and keyboard, VGA port connected to LCD display, AC outlet loaded 2A maximum.

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					Pass
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Phase L to N PWB trace before fuse	< 420	< 250	2.0	3.6	2.4	3.6
Under Z1	< 420	< 250	2.0	3.7	2.4	3.7
Primary trace to Earthed trace	< 420	< 250	2.0	See below	2.5	See below
Under C6	< 420	< 250	2.0	4.0	2.4	4.0
Primary trace to secondary traces	783.3	394.7	5	See below	8	See below
Under T1	783.3	394.7	5	9	8	9
Under T2	441.7	336.4	4.2	9.8	7	9.8
Under PC1	375	186.9	4	5.7	4.8	8.4
Under PC2	375	178.6	4	5.7	4.8	8.4
Under PC3	375	177.9	4	5.7	4.8	8.4
Under C26	375	177.7	4	5.7	4.8	>8.4
supplementary information:						
1. The CTI rating of PWB is material group IIIb (Cl. 2.10.4). 2. Separation Method between SELV and hazard circuit (Cl. 2.2.3) by double or reinforced insulation 3. Tubing was provided for R26, Ground choke						

2.10.5	TABLE: distance through insulation measurements					Pass
Distance through insulation (DTI) at/of:		U peak (V)	Urms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
--		--	--	--	--	--
supplementary information:						
Refer to Table 1.5.1 (Critical Components) for details.						

4.3.8	TABLE: Batteries		N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available.			
Is it possible to install the battery in a reverse polarity position?			
	Non-rechargeable batteries	Rechargeable batteries	

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Clause	Requirement + Test	Result - Remark	Verdict

	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. specs.			Meas. current	Manuf. specs.	Meas. current	Manuf. specs.	Meas. current
Max. current during normal operation									
Max. current during fault operation									
Test results:									Verdict
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
supplementary information:									

4.5	TABLE: Thermal requirements						Pass
	Supply voltage (V)	See below	--	--	--	--	—
	Ambient Tmin (°C)	--	--	--	--	--	—
	Ambient Tmax (°C)	--	--	--	--	--	—
Maximum measured temperature T of part/at:			T (°C)				allowed Tmax (°C)
Test voltage			90V/50 Hz	264V/60 Hz	--	--	--
PS Unit			--	--	--	--	105
T1 coil			58.7	60.0	--	--	90
T1 core			56.1	56.5	--	--	90
T2 coil			56.9	56.5	--	--	90
T2 core			55.3	55.0	--	--	90

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Clause	Requirement + Test	Result - Remark	Verdict

L1 coil	63.4	53.7	--	--	--	105	
L2 coil	66.8	56.1	--	--	--	105	
L3 coil	74.4	66.8	--	--	--	105	
L4 coil	55.8	56.4	--	--	--	105	
L5 coil	51.5	51.1	--	--	--	105	
PWB near T1	55.7	56.1	--	--	--	105	
PWB near T2	60.5	59.6	--	--	--	105	
PWB between Q2 & D5	59.0	54.6	--	--	--	105	
Relay 1 body	59.6	59.1	--	--	--	105	
PC1 body	49.1	48.9	--	--	--	100	
PC2 body	56.7	56.8	--	--	--	100	
PC3 body	47.4	47.0	--	--	--	100	
DB1 body	72.2	59.9	--	--	--	105	
C4 body	56.6	54.4	--	--	--	85	
C6 body	64.8	56.7	--	--	--	85	
L1 at 5V sub-board	54.5	54.0	--	--	--	105	
L1 at 3.3V sub-board	52.6	52.5	--	--	--	105	
Main unit	--	--	--	--	--	--	
AC Inlet body	54.7	52.1	--	--	--	95	
AC Outlet body	52.3	49.8	--	--	--	95	
PWB at PoweredUSB board	47.6	47.4	--	--	--	105	
PWB near CPU	62.6	61.9	--	--	--	105	
PoweredUSB connector body	46.4	46.4	--	--	--	60	
J2 connector body	53.6	52.7	--	--	--	60	
J3 connector body	53.4	52.7	--	--	--	60	
J5 connector body	48.4	47.8	--	--	--	60	
J6 connector body	53.4	52.5	--	--	--	60	
J9 connector body	46.7	45.3	--	--	--	60	
J10 connector body	53.4	52.5	--	--	--	60	
J2 connector body (I/O base)	53.2	53.5	--	--	--	60	
J5 connector body (I/O base)	53.2	52.7	--	--	--	60	
HDD enclosure	46.5	46.0	--	--	--	--	
Metal enclosure inside near Power Supply	48.3	46.7	--	--	--	60	
Metal enclosure outside near Power Supply	53.7	53.0	--	--	--	70	
Ambient	41.4	40.5	--	--	--	--	
temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	allowed T _{max} (°C)	insulation class
--	--	--	--	--	--	--	--

supplementary information:

The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.1 at voltages as described in 1.4.5.

T_{ma} = 40°C.

Winding components of SPS:

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Clause	Requirement + Test	Result - Remark	Verdict

- Class A Tmax(°C) = 100°C - 10°C = 90°C

Components with:

- Max temp. of 100°C (Optocoupler of SPS)
- Max temp. of 105°C (PWB, inductors)
- Max temp. of 95°C (Accessible plastic parts)
- Max temp. of 85°C (Capacitors)
- Max temp. of 70°C (Accessible metal parts)
- when no class of insulation is given, min. insulation 105°C assumed.

Test Condition 1: 90 Vac, 60 Hz, Duration 2 hrs 10 min

Test Condition 2: 264 Vac, 60 Hz, Duration 2 hrs 5 min

4.5.5	TABLE: Ball pressure test of thermoplastic parts			Pass
	allowed allowed impression diameter (mm)	2mm		—
part		test temperature (°C)	impression diameter (mm)	
Bobbin, Chang Chun Plastics Type T375J, 0.81mm		125	0.5	
Bobbin, Sumitomo Bakelite Type PM-8375, 0.71mm		125	0.5	
supplementary information:				
Bobbin made of Phenolic material > 0.71mm.				

4.7	TABLE: resistance to fire				Pass
part	manufacturer of material	type of material	thickness (mm)	flammability class	Evidence
PWB	--	--	--	V-1 minimum	--
Plastic Enclosure	--	--	2.3	V-1 minimum	--
Metal Enclosure	--	--	1.0	--	--
supplementary information:					
See table 1.5.1.					

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests			Pass
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Primary to Secondary		AC	3000	No
Primary to Earth		AC	2150	No

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Clause	Requirement + Test	Result - Remark	Verdict	
	Primary to Plastic enclosure with foil	AC	3000	No
	Mylar sheet (between PSU PWB and chassis)	AC	2150	No
	For Transformer T1:	--	--	--
	One layer of insulation (Tape: 3M, 1350F-1 Symbio, 35660Y *b Jing Jiang Yahua, No. CT)	AC	3000	No
	Primary winding to SELV winding	AC	3000	No
	Primary winding to core	AC	2150	No
	SELV winding to core	AC	2150	No
	For Transformer T2:	--	--	--
	Two layers of insulation (Tape: Duck Sung, DTS-204 Hyundai, No.800 Jing Jiang Yahua, No.CT)	AC	3000	No
	Primary winding to SELV winding	AC	3000	No
	Primary winding to core	AC	2150	No
	SELV winding to core	AC	2150	No
supplementary information:				
--				

5.3	TABLE: fault condition tests					Pass
	ambient temperature (°C)				Same as datasheet	—
	Power source for EUT: Manufacturer, model/type, output rating				PS-BRU BK-ROHS	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Component Failure Test	--	--	--	--	--	--
DB1 (+) to (-)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1). Unit shutdown.
Q2 G - D	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1, Q2). Unit shutdown.
Q2 G - S	Short	90	< 1sec	F1	0.4 -> 0	NB, NC, NT, IP(IC1). Unit shutdown.
Q2 D - S	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1). Unit shutdown.
Q4 G - D	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1,Q4). Unit shutdown.
Q4 G - S	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC1). Unit shutdown.
Q4 D - S	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1). Unit

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Clause	Requirement + Test	Result - Remark	Verdict

						shutdown.
T1 pin 2-4	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC1). Unit shutdown.
R39	Short	240	2 hrs	F1	0.2 -> 0.74 -> 0	NB, NC, NT. T1 coil: 89°C, T2 coil: 60°C, PC1: 56°C, PC2: 70°C, PC3: 54°C
R39	Open	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC1). Unit shutdown.
R26	Short	240	2 hrs 25 mins	F1	0.2 -> 0.78 -> 0	NB, NC, NT. T1 coil: 94°C, T2 coil: 58°C, PC1: 60°C, PC2: 70°C, PC3: 56°C
R26	Open	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1, Q1, Q2, D3). Unit shutdown.
IC3 (pin 1 to 8)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(PC2). Unit shutdown.
IC3 (pin 3 to 4)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(PC2). Unit shutdown.
IC3 (pin 3)	Open	240	3 hrs 19 mins	F1	0.78	NB, NC, NT, CT. T1 coil: 29.6°C, T2 coil: 50.5°C, PC1: 26.6°C, PC2: 40.8°C, PC3: 26.3°C
T2 (pin 1 to pin2)	Short	240	30mins	F1	0.2 <-> 0	NB, NC, NT, IP(IC3). Intermittent shutdown, No Hazard.
T2 (pin 3 to pin 4)	Short	240	30mins	F1	0.2 <-> 0	NB, NC, NT, IP(IC3). Intermittent shutdown, No Hazard.
T2 (pin 6 to 7)	Short	240	1 hr 51 mins	F1	0.2 -> 0.74 -> 0	NB, NC, NT. T1 coil: 86°C, T2 coil: 60°C, PC1: 58°C, PC2: 74°C, PC3: 54°C
T1 (pin 9 to 10)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(PC1). Unit shutdown.
T1 (pin 11 to 12)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(PC1). Unit shutdown.
T1 (pin 7 to 8)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(D17). Unit shutdown.
C27	Open	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1). Unit shutdown.
C27	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, CD(F1). Unit shutdown.
PC1 (pin 1 to pin 2)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC7). Unit shutdown.
PC1 (pin 3 to pin 4)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC2). Unit shutdown.
PC1 (pin 4)	Open	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC2). Unit shutdown.
PC2 (pin 1 to pin 2)	Short	240	30mins	F1	0.2 <-> 0	NB, NC, NT, IP(IC7). Intermittent shutdown, No

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Clause	Requirement + Test	Result - Remark	Verdict

						Hazard.
PC2 (pin 3 to pin 4)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC3). Unit shutdown.
PC2 (pin 4)	Open	240	30mins	F1	0.2 <-> 0	NB, NC, NT, IP(IC3). Intermittent shutdown, No Hazard.
PC3 (pin 1 to pin 2)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC7). Unit shutdown.
PC3 (pin 4)	Open	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(IC2). Unit shutdown.
D11 (Cathode to Anode)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(D16). Unit shutdown.
D12 (Cathode to Anode)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(PC1). Unit shutdown.
D13 (Cathode to Anode)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(D17). Unit shutdown.
D21 (Cathode to Anode)	Short	240	< 1sec	F1	0.2 -> 0	NB, NC, NT, IP(PC2). Unit shutdown.
Abnormal Operation	--	--	--	--	--	--
Power Supply Fan	Stalled	90	2 hr 23 min	F1	0.2	NB, NC, NT. No hazards. T1 coil: 62°C, T2 coil: 54°C, PC1: 45°C, PC2: 56.6°C, PC3: 43.6°C
System Fan	Stalled	90	3 hr	F1	0.2	NB, NC, NT. No hazards. T1 coil: 56.6°C, T2 coil: 50.7°C, PC1: 42.1°C, PC2: 52.1°C, PC3: 40.4°C
Ventilation openings	Blocked	90	10 hr 28 min	F1	0.2	NB, NC, NT. No hazards. T1 coil: 69.1°C, T2 coil: 64.9°C, PC1: 56.9°C, PC2: 64.9°C, PC3: 54.6°C
Transformer Abnormal Operation Test	--	--	--	--	--	--
T1 +24V output winding (L4 pin 8 to T1 pin 12)	Overload	240	7 hr 36 min	F1	0.56	NB, NC, NT. Unit shutdown. T1 coil: 65°C, T2 coil: 48°C, PC1: 50°C, PC2: 56°C, PC3: 47°C
T1 +12V output	Overload	240	4 hr 8 min	F1	0.56	NB, NC, NT. Unit shutdown. T1 coil: 66°C, T2 coil:

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Clause	Requirement + Test				Result - Remark	Verdict

winding (L4 pin 10,11,12 to T1 pin 12)						48.4°C, PC1: 50°C, PC2: 56°C, PC3: 49°C
T1 -12V output winding (L4 pin 5 to T1 pin 12)	Overload	240	5 hr 50 min	F1	0.15	NB, NC, NT. Unit shutdown. T1 coil: 46°C, T2 coil: 42°C, PC1: 43.6°C, PC2: 46°C, PC3: 43°C
T2 5Vaux output winding (D10 cathode to T2 pin 6)	Overload	240	15 hr 55 min	F1	0.17	NB, NC, NT, CT. T1 coil: 36.2°C, T2 coil: 110.3°C, PC1: 38.6°C, PC2: 69.9°C, PC3: 39°C
Overload Of Operator Accessible Connector	--	--	--	--	--	--
VGA	Overload	240	--	--	--	A. Open circuit voltage measured 3.24V, maximum available current measured 0mA
USB 1 (back panel)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5V, maximum available current measured 1930mA
USB 2 (back panel)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5V, maximum available current measured 1910mA
USB (Front panel card)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5V, maximum available current measured 1881mA
PS/2 Keyboard	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5.1V, maximum available current measured 1836mA
PS/2 Mouse	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5.1V, maximum available current measured 1843mA
Com1 pin 1~9	Overload	240	--	--	--	B
Com2 pin 1~9	Overload	240	--	--	--	B

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Clause	Requirement + Test	Result - Remark	Verdict

Com3 pin 1 (powered)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 12.2V, maximum available current measured 8011mA
Com3 pin 9 (powered)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5.1V, maximum available current measured 1801mA
Com4 pin 1 (powered)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 12.2V, maximum available current measured 8205mA
Com4 pin 9 (powered)	Overload	240	1 hour	--	--	NB, NC, NT. Open circuit voltage measured 5.1V, maximum available current measured 1860mA
DRW1 pin 2	Overload	240	--	--	--	A. Open circuit voltage measured 5V, maximum available current measured 0mA
DRW1 pin 4	Overload	240	10 min	--	--	NB, NC, NT. L21 open. Repeat twice. No hazard. Open circuit voltage measured 24.5V, maximum available current measured 5000mA
DRW2 pin 2	Overload	240	--	--	--	A. Open circuit voltage measured 5V, maximum available current measured 0mA
DRW2 pin 4	Overload	240	10 min	--	--	NB, NC, NT. L21 open. Repeat twice. No hazard. Open circuit voltage measured 24.5V, maximum available current measured 5000mA
PoweredU SB +5V	Overload	240	1 hour	--	--	NB, NC, NT
PoweredU SB +12V	Overload	240	1 hour	--	--	NB, NC, NT
PoweredU SB +24V	Overload	240	1 hour	--	--	NB, NC, NT
RJ45 Pin 1~8	Overload	240	--	--	--	B
Parallel Pins 2,3,4,5,6,7, 8,20,22	Overload	240	--	--	--	A. Open circuit voltage measured 3.3V, maximum available current measured 0mA

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Clause	Requirement + Test	Result - Remark	Verdict

Microphone Pin 1~2	Overload	240	--	--	--	B
Earphone Pin 1~2	Overload	240	--	--	--	B
MSR Pin 1~5	Overload	240	--	--	--	B

supplementary information:

NB: No indication of dielectric breakdown after 60 seconds; YB: Dielectric breakdown NC: Cheesecloth remained intact; NT: Tissue paper remained intact; CT: Constant temperature were obtained; IP: Internal protection operated (list component); CD: Components damaged (listed damaged components); A: Circuit measures 10 KS or more series impedance; B: Circuit measures 0 Volts; C: Other. Please explain.

Enclosure

National Differences

Austria
Belgium**
Denmark
Finland
France**
Germany
Greece**
Group
Hungary**
Italy**
Japan*
Korea
Netherlands**
Norway
Poland**
Slovakia**
Slovenia**
Spain
Sweden
Switzerland
USA / Canada
United Kingdom**

* No National Differences Declared

** Only Group Differences

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SubClause	Difference + Test	Result - Remark	Verdict

Denmark - Differences to IEC 60950-1:2005, Second Edition			
1.2.4.1	Certain types of Class I appliances (see sub-clause 3.2.1.1) may be provided with plug not establishing earthing continuity when inserted into Danish socket-outlets.	There are no such power cord used.	N/A
1.7.2.1	Supply cords of Class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text: "Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket (IEC 417, No. 5019) eller (IEC 417, No. 5017)." If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning".	Evaluate when national approval	N/A
1.7.5	Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment, the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		Pass
1.7.5	With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.	Class I equipment.	Pass
3.2.1.1	Supply cord of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. Class I equipment provided with socket-outlets with earth contact or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; proper application to be determined by the country's local Certification Body.	N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	If poly-phase equipment and single-phase equipment having a rated current exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		
5.1.7.1	TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

Finland - Differences to IEC 60950-1:2005, Second Edition			
1.5.7.1	Resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.		N/A
1.5.9.4	The third dashed sentence is applicable only to equipment as defined by this annex, 6.1.2.2		N/A
1.7.2.1	Class I Pluggable Equipment Type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"	Evaluate when national approval	N/A
2.3.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.	No TNV present	N/A
2.10.5.13	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
5.1.7.1	Touch current measurement results exceeding 3,5 mA r.m.s are permitted only for the following equipment: - Stationary pluggable equipment Type A that: (1) is intended to be used in a Restricted Access Location where equipotential bonding has been applied, for example, in a telecommunication centre; and (2) has provision for a permanently connected protective earthing conductor; and (3) is provided with instructions for the installation of that conductor by a service person; - Stationary pluggable equipment Type B - Stationary permanently connected equipment		N/A
6.1.2.1	Add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	<p>component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		
6.1.2.2	<p>The exclusions are applicable for permanently connected equipment and pluggable equipment type B and equipment intended to be used in a restricted access location where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected protective earthing conductor and is provided with instructions for the installation of that conductor by a service person.</p>	No TNV present	N/A
7.2	<p>Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term telecommunication network in 6.1.2 being replaced by the term cable distribution system.</p>		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

Germany - Differences to IEC 60950-1:2005, Second Edition			
1.7.2.1	If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.	Reviewed only English markings/instructions. May be provided in other languages upon request from the manufacturer.	N/A

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SubClause	Difference + Test	Result - Remark	Verdict

Group - Differences to IEC 60950-1:2005, Second Edition			
1.3.Z1	Exposure to excessive sound pressure - The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N/A
1.5.1	Add the following NOTE Z1: The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		N/A
1.7.2.1	Add the following NOTE Z1: In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in primary circuits, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for pluggable equipment type B or		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		
2.7.2	Void		Pass
3.2.3	Delete the NOTE and conduit sizes in parentheses in Table 3A		N/A
3.2.5.1	Replace: "60245 IEC 53" by "H05 RR-F" "60227 IEC 52" by "H03 VV-F or H03 VVH2-F" "60227 IEC 53" by "H05 VV-F or H05 VVH2-F" In table 3B, replace the first four lines by the following: Up to and including 6		

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	$\mu\text{Sv/h}$ (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE - These values appear in Directive 96/29/Euratom. Delete Note 2.		
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Korea - Differences to IEC 60950-1:2005, Second Edition			
1.5.101	Plugs for the connection of the apparatus to the mains supply shall comply with the Korean requirement (KSC 8305)		N/A
8	EMC - The apparatus shall comply with the relevant CISPR standards		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

Norway - Differences to IEC 60950-1:2005, Second Edition			
1.5.7.1	Resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.		N/A
1.5.8	Due to the IT power system used (see annex V, figure V.7), capacitors are required to be rated for the applicable phase-to-phase voltage (230 V).	Unit not evaluated for use in IT system.	N/A
1.5.9.4	The third dashed sentence is applicable only to equipment as defined by this annex, 6.1.2.2		N/A
1.7.2.1	Class I Pluggable Equipment Type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be: "Apparatet må tilkoples jordet stikkontakt"	Evaluate when national approval	N/A
2.2.4	Requirements according to this annex, 1.7.2.1, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.3.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.	No TNV present	N/A
2.3.4	Requirements according to this annex, 1.7.2.1, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.10.5.13	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
5.1.7.1	Touch current measurement results exceeding 3,5 mA r.m.s are permitted only for the following equipment: - Stationary pluggable equipment Type A that: (1) is intended to be used in a Restricted Access Location where equipotential bonding has been applied, for example, in a telecommunication centre; and (2) has provision for a permanently connected protective earthing conductor; and (3) is provided with instructions for the installation of that conductor by a service person; - Stationary pluggable equipment Type B - Stationary permanently connected equipment		N/A
6.1.2.1	Add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component. it shall at least consist		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	<p>of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		
6.1.2.2	<p>The exclusions are applicable for permanently connected equipment and pluggable equipment type B and equipment intended to be used in a restricted access location where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected protective earthing</p>		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	conductor and is provided with instructions for the installation of that conductor by a service person.		
7.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term telecommunication network in 6.1.2 being replaced by the term cable distribution system.		N/A
7.3	There are many buildings where the screen of the coaxial cable is not normally connected to the earth in the building installation		N/A
7.3	Refer to EN 60728-11:2005 for installation conditions		N/A

Spain - Differences to IEC 60950-1:2005, Second Edition			
3.2.1.1	<p>Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; proper application to be determined by the country's local Certification Body.	N/A

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SubClause	Difference + Test	Result - Remark	Verdict

Sweden - Differences to IEC 60950-1:2005, Second Edition			
1.5.1	(Ordinance (1990:944)) Add NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.	There are no any Switches containing mercury.	N/A
1.5.7.1	Resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.		N/A
1.5.9.4	The third dashed sentence is applicable only to equipment as defined by this annex, 6.1.2.2		N/A
1.7.2.1	Class I Pluggable Equipment Type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be: "Apparaten skall anslutas till jordat uttag"	Evaluate when national approval	N/A
2.3.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.	No TNV present	N/A
2.10.5.13	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
5.1.7.1	Touch current measurement results exceeding 3,5 mA r.m.s are permitted only for the following equipment: - Stationary pluggable equipment Type A that: (1) is intended to be used in a Restricted Access Location where equipotential bonding has been applied, for example, in a telecommunication centre; and (2) has provision for a permanently connected protective earthing conductor; and (3) is provided with instructions for the installation of that conductor by a service person; - Stationary pluggable equipment Type B - Stationary permanently connected equipment		N/A
6.1.2.1	"Add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0.4 mm. which shall pass the electric		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	<p>strength test below.</p> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400." 		
6.1.2.2	The exclusions are applicable for permanently connected equipment and pluggable equipment type B and equipment intended to be used in a restricted access location where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected protective earthing conductor and is provided with instructions for the installation of that conductor by a service person.		N/A
7.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term telecommunication network in 6.1.2 being replaced by the term cable		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	distribution system.		
7.3	There are many buildings where the screen of the coaxial cable is not normally connected to the earth in the building installation		N/A

Switzerland - Differences to IEC 60950-1:2005, Second Edition			
1.5.1	Add NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.13	Annex 2.15 of SR 814.81 applies for batteries	Evaluate when national approval	N/A
3.2.1.1	<p>Supply cords of equipment having a rated current not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A</p> <p>SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A</p> <p>SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998, Plug type 25, 3P+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A</p> <p>SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p>	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; proper application to be determined by the country's local Certification Body.	N/A
3.2.4	Requirements according to this annex, 3.2.1.1 apply		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

USA / Canada - Differences to IEC 60950-1:2005, Second 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.	Interconnecting cables comply with the relevant requirements of this standard.	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.		Pass
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

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SubClause	Difference + Test	Result - Remark	Verdict
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system is subject to special circuit classification requirements (e.g., TNV-2)		N/A
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
2.1.1.1	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.	No TNV present.	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
2.3.2.1	In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.		N/A
2.3.2.4	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	specific telecommunication applications when subjected to special construction requirements and routine testing.		
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 a) b) or c) are not applicable, the current rating of the circuit is taken as 20 A		Pass
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.	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; proper application to be determined by the country's local Certification Body.	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

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SubClause	Difference + Test	Result - Remark	Verdict
2.10.5.12	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.12 and Annex U.		Pass
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent and short circuit protection.	All wires/conductors possess adequate cross-sectional areas for their intended application and Internal wiring are adequately insulated.	Pass
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.	Unit employs an appliance inlet.	N/A
3.2.1	Permitted use for flexible cords and plugs.		Pass
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		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.		
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, Part 1.	Not permanently connected equipment.	N/A
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 150 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.		Pass
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		Pass
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		Pass
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.		N/A
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.	Equipment with detachable power supply cord, connected on appliance inlet.	N/A

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SubClause	Difference + Test	Result - Remark	Verdict
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 washer or equivalent retention.		N/A
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.	No CRT.	N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.	The equipment does not have any high pressure lamps.	N/A
4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.		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

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
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).	The equipment does not use any flammable liquids.	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.	The equipment does not generate ionizing radiation or contain flammable liquids or gases.	N/A
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.	No TNV present.	N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.7	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		Pass

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

5.3.7	Tests interrupted by opening of a component repeated two additional times.	Repeat twice with same result.	Pass
5.3.9.1	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.	No TNV present	N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.		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
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.	No TNV present	N/A
NAC	Equipment intended for use with a specific primary		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	or secondary protector marked with suitable instructions.		
NAD	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
NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A
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, as determined using the articulated accessibility probe (figure NAF.1) and the accessibility probe/wedge (figures NAF.2/NAF.3).		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

United Kingdom - Differences to IEC 60950-1:2005, Second Edition			
2.6.3.3	The current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
3.2.1.1	Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a "standard plug" in accordance with Statutory Instrument 1786: 1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE: "Standard plug" is defined in SI 1786: 1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; proper application to be determined by the country's local Certification Body.	N/A
3.2.5.1	A power supply cord with conductor of 1.25 mm ² is allowed for equipment with a rated current over 10A and up to and including 13A.		N/A
3.3.4	The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A up to and including 13 A is 1.25 mm ² to 1.5 mm ² nominal cross-sectional area.		N/A
4.3.6	The torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A

Enclosure**Photographs**

Supplement Id	Description
3-01	Overall view
3-02	Front view
3-03	Left view
3-04	Right view
3-05	Rear view
3-06	Internal view 1
3-07	Internal view 2
3-08	Mainboard Component view
3-09	Mainboard Solder view
3-10	IO Base Component view
3-11	IO Base Solder view
3-12	PSU Overall view
3-13	PSU Top view
3-14	PSU Bottom view
3-15	PSU Internal view
3-16	PSU PWB Component view
3-17	PSU PWB Solder view
3-18	Outer enclosure

Photographs ID 3-01



Photographs ID 3-02



Photographs ID 3-03



Photographs ID 3-04



Photographs ID 3-05



Photographs ID 3-06



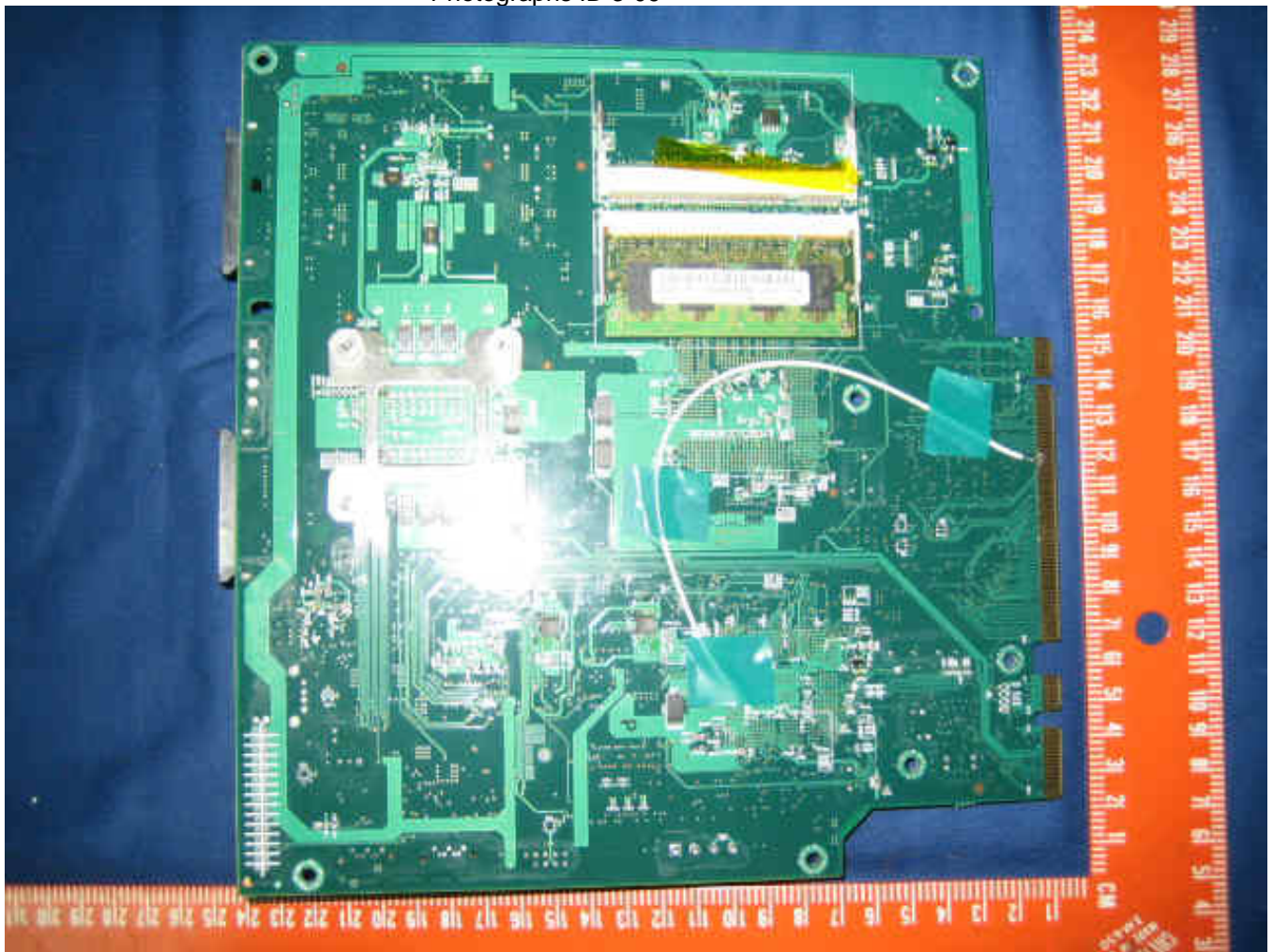
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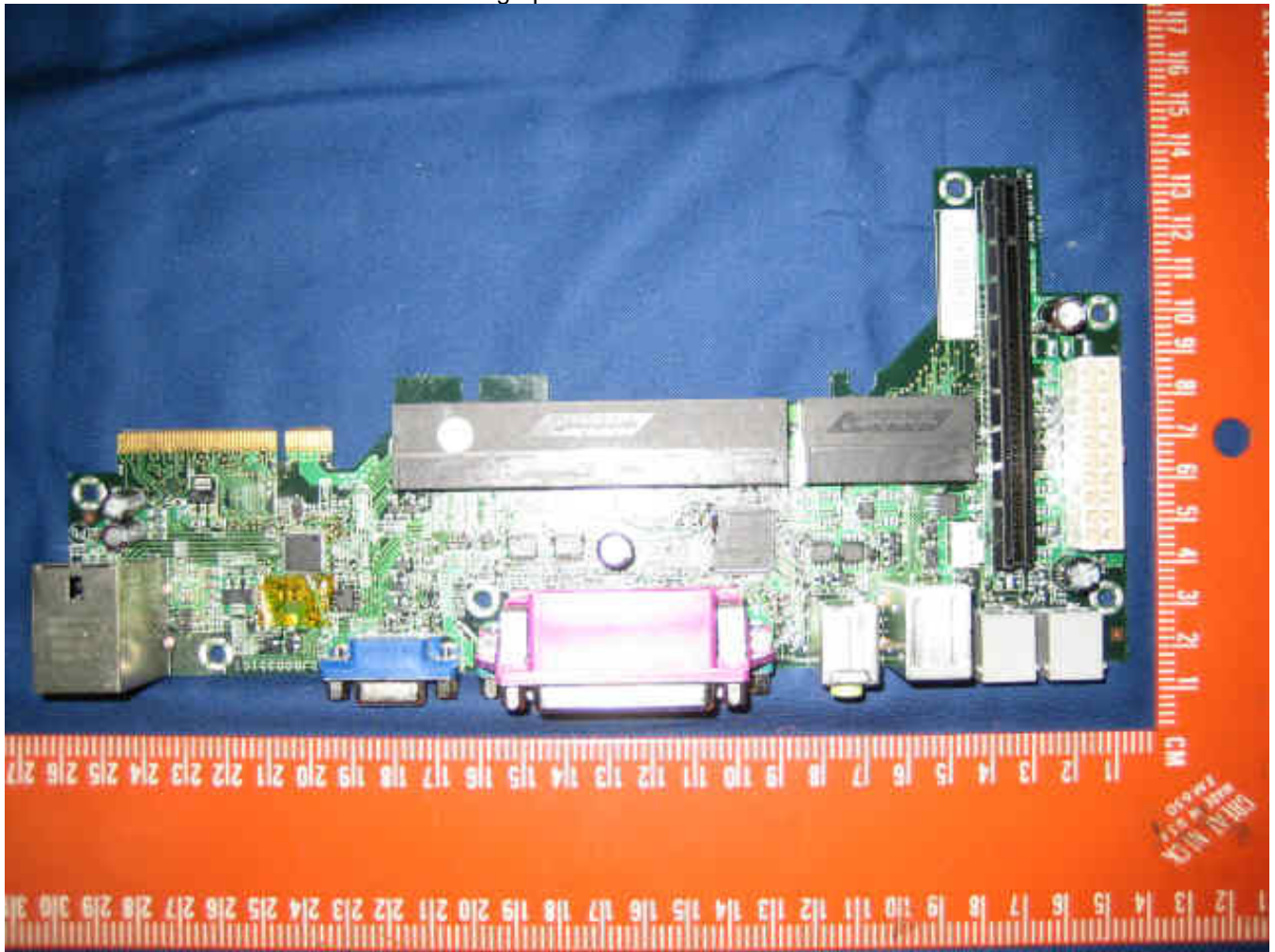
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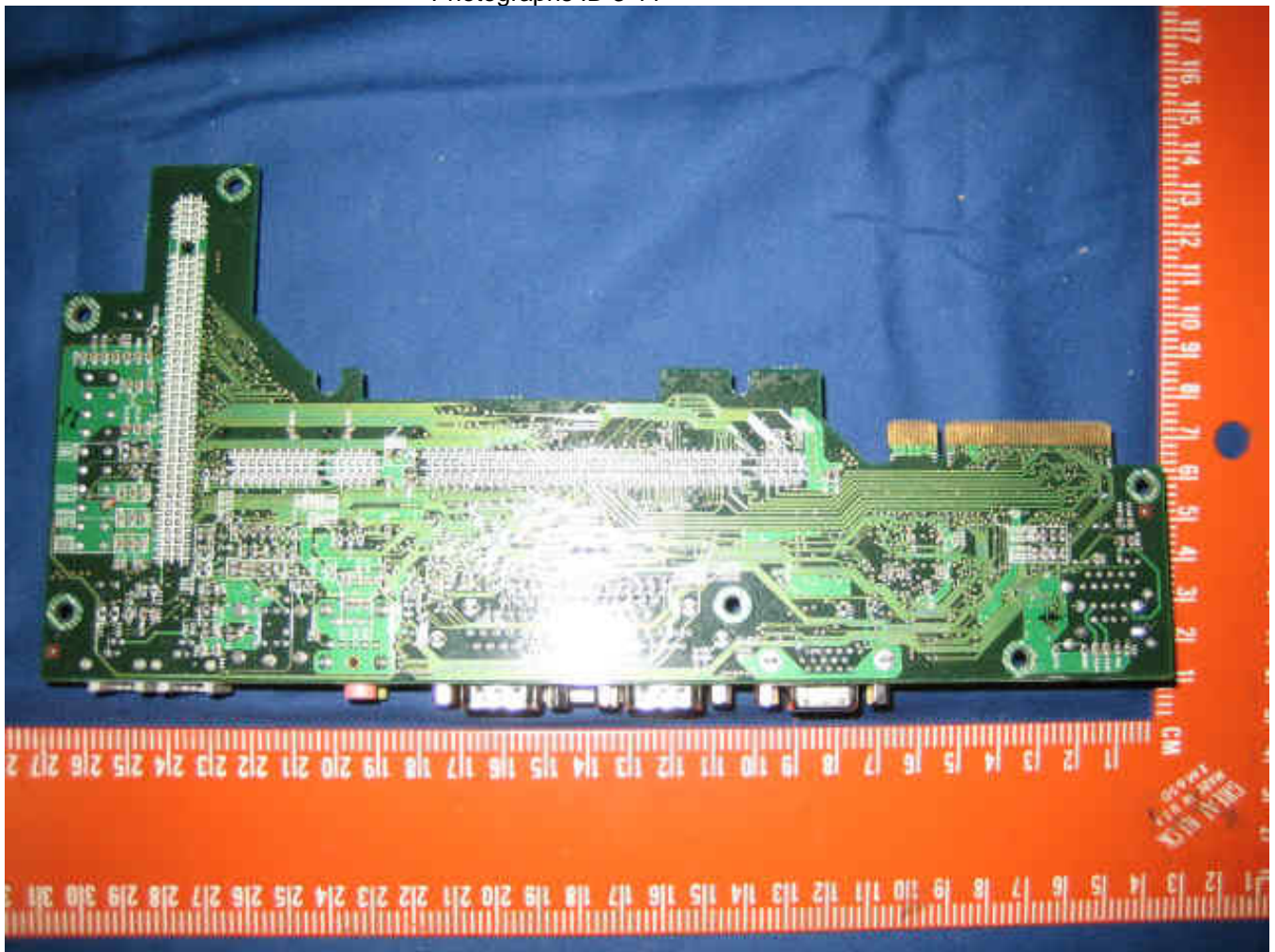
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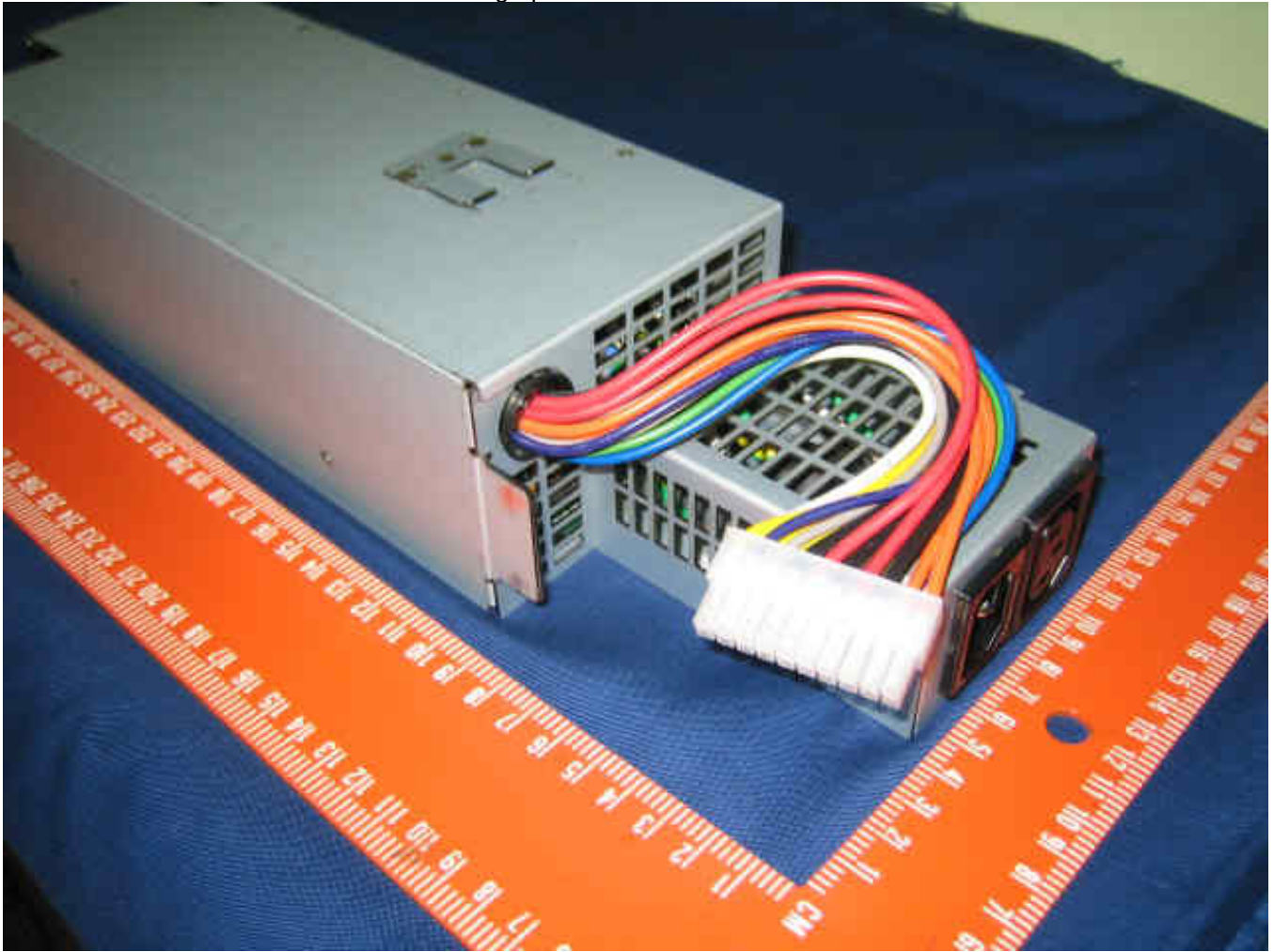
Photographs ID 3-10



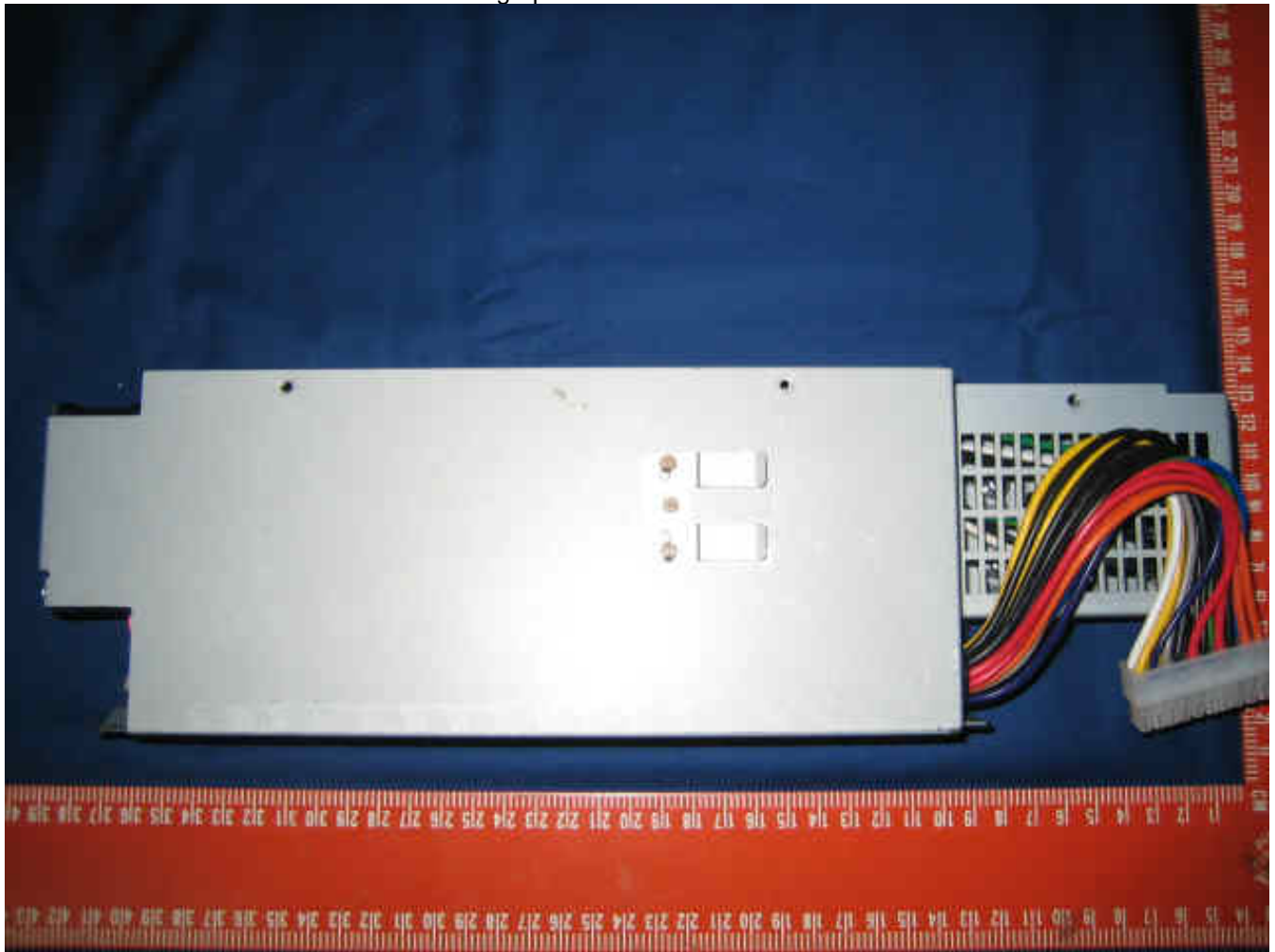
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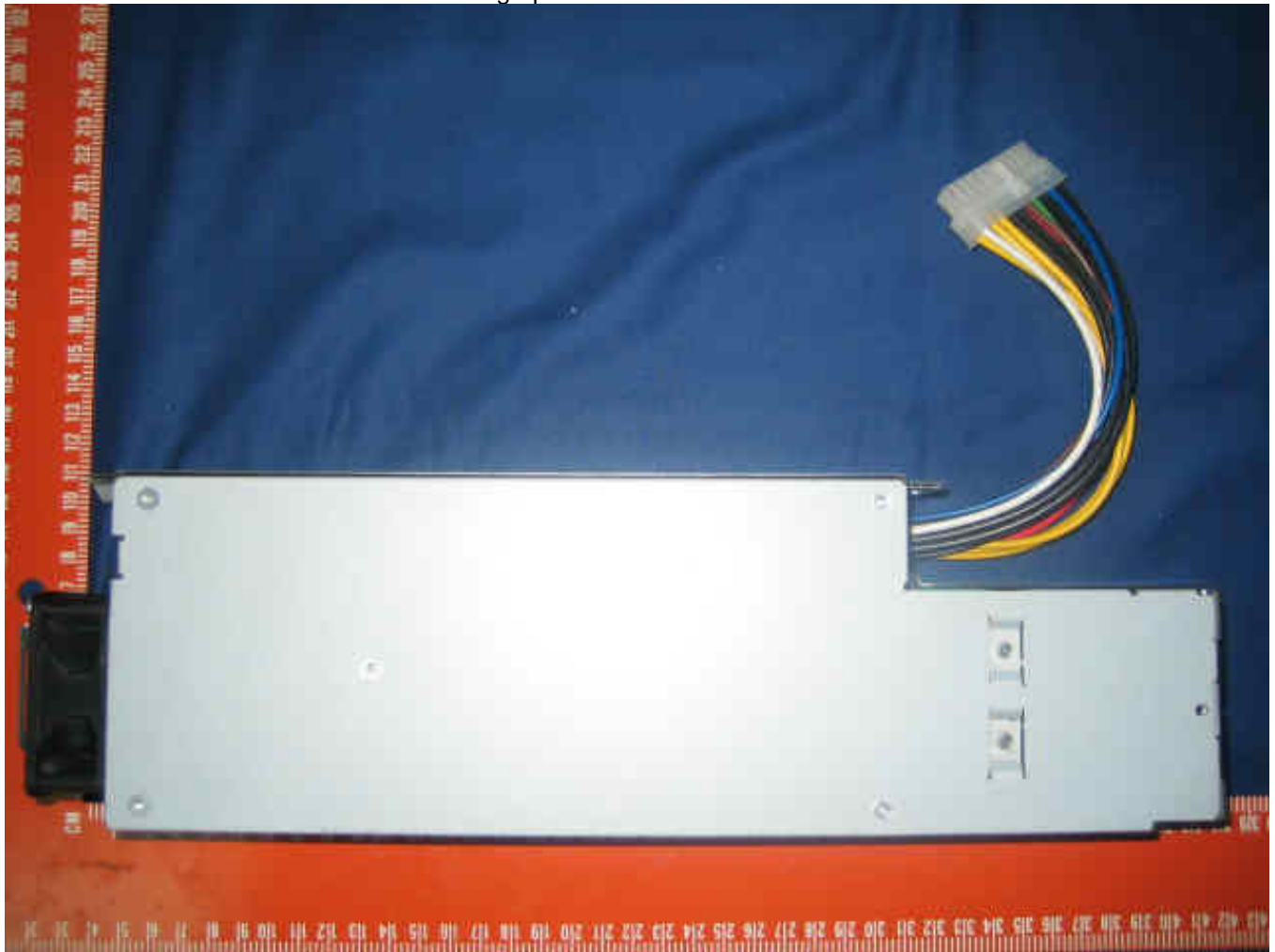
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Photographs ID 3-13



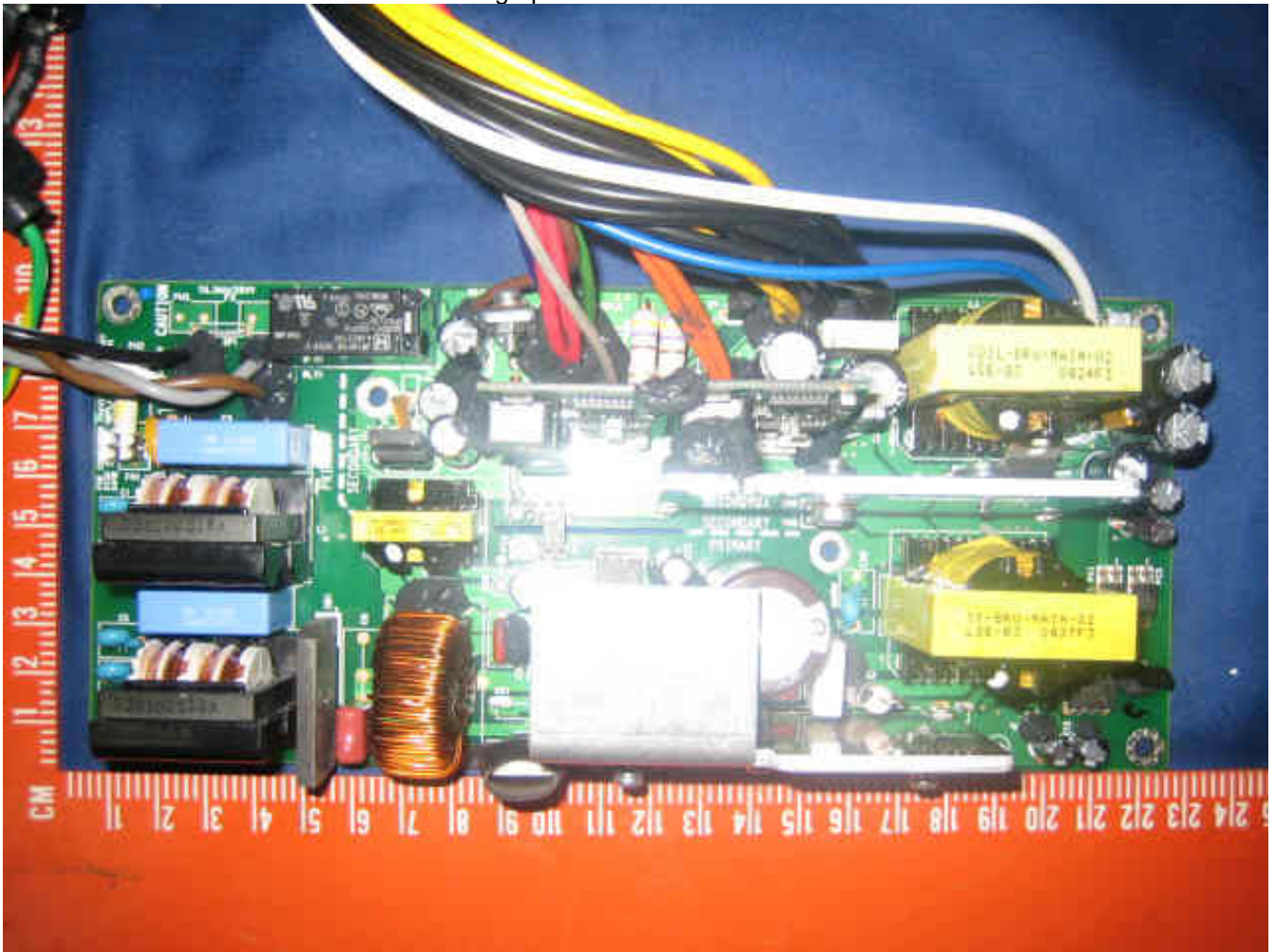
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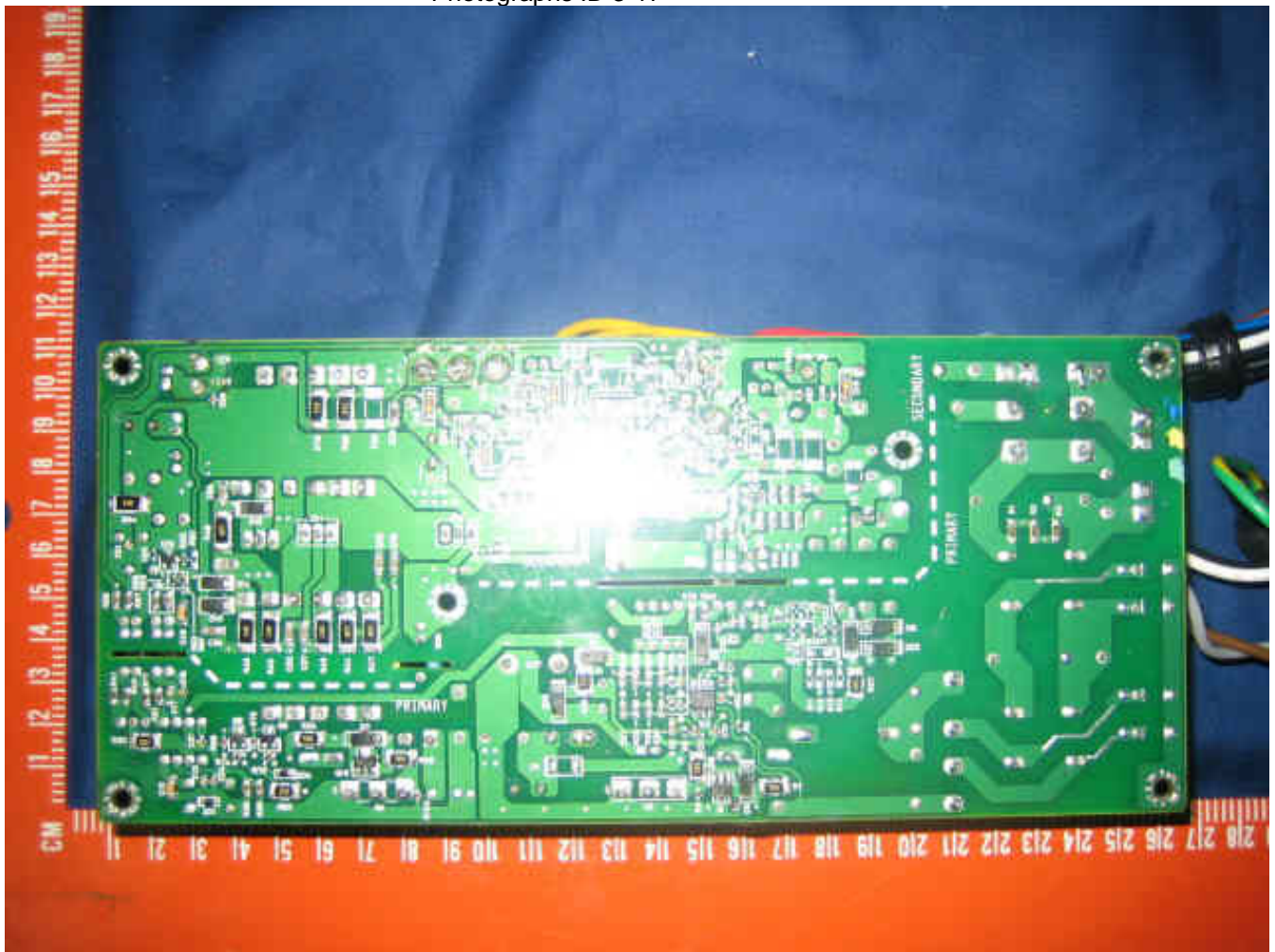
Photographs ID 3-15



Photographs ID 3-16



Photographs ID 3-17



Photographs ID 3-18



Enclosure**Diagrams**

Supplement Id	Description
4-01	Transformer T1
4-02	Transformer T2
4-03	L1, L2 choke
4-04	L3 choke
4-05	L4 choke
4-06	L5
4-07	Insulation sheet drawing

Diagrams ID 4-01

L. S. E. SPECIFICATION APPROVAL

CUSTOMER	TEC	P/N	TSQC0124901	REV.
		S/N	PNA8042EL	1

1. CUNSTRUCTIONS & DIMENSION:(UNIT:mm)

WHITE MASKING FOR
PIN1 INDICATION

TF-STB-MAIN-01
YYWW

DATE CODE
(YEAR/WEEK)

FACTORY IDENTIFICATION
F2→ MADE IN SU ZHOU CHINA
F3→ MADE IN HUI ZHOU CHIAN

YELLOW MYLAR TAPE

(BOTTOM VIEW)

NOTES:

- CORE NO GAP.
- PIN 6 CUT OFF.
- PIN9 ADD TEFLON TUBE.
- FIX CORES BY GREEN MYLAR TAPE 3Ts.

APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	S. M. P. S. Power Transformer	DRAW NO.
				DATE	7-Jan-2009	
				PAGE	1/4	0

Diagrams ID 4-01

L. S. E. SPECIFICATION APPROVAL

CUSTOMER	TEC	P/N	TSQC0124901	REV.
		S/N	PNA8042EL	1

2. SCHEMATIC & WINDING SEQUENCE :

PRI.

SEC.

"•" : POLARITY
 "□" TELFON TUBE L:10mm
 MORE (200°C 600V OR MORE)

MYLAR TAPE
 (t:25 um)

	7.0mm MIN		3.5mm MIN	
	Ns-12	8 → 7	0.55mmx1P(UEW) (SPREAD)	7Ts
	Ns25	9 → 10	0.55mmx2P(UEW) (SPREAD)	6Ts
	Np1b	3 → 4	0.32mmx2P(UEW) (CLOSED)	20Ts
	Ns12b	11 → 12	0.55mmx2P(UEW) (SPREAD)	7Ts
	Ns12a	11 → 12	0.55mmx2P(UEW) (SPREAD)	7Ts
	Np1a	2 → 3	0.32mmx2P(UEW) (CLOSED)	20Ts
WRAP 1 TRUN OF INSULATION TAPE(t:25um) BEFORE WINDING				

PIN SIDE
TOP SIDE

NOTE: INSULATION TAPE THICKNESS IS SPECIFIED FOR BASE MATERIAL, NOT FOR TOTAL THICKNESS.

APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	S. M. P. S. Power Transformer	DRAW
				DATE	7-Jan-2009	NO.
				PAGE	2/4	0

Diagrams ID 4-01





L.S.E SPECIFICATION APPROVAL

CUSTOMER		TEC		P/N.	TSQC0124901	REV.
				S/N.	PNA8042EL	1

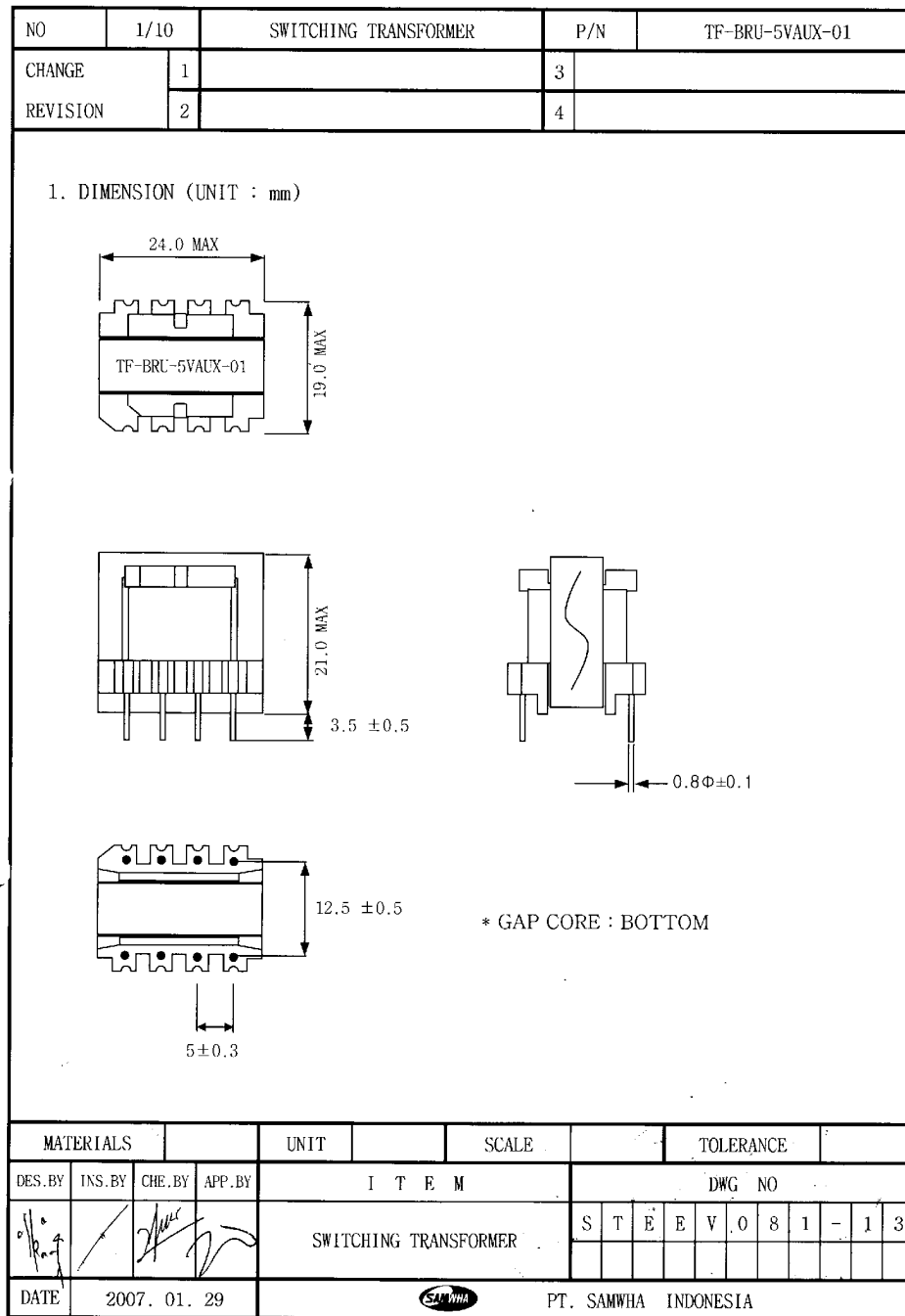
4. MATERIAL LIST:

NO.	ITEM	MATERIAL	TMP.	SUPPLIER OF THE MATERIAL	UL NO.
1.	CORE	FERRITE CORE ER35 HE4 TP4 DMR40 KP4		DONGYANGGUANG TIAN TONG ELECTRIC DMEGC CO., LTD. KYCC	
2.	BOBBIN	T375J 94V-0 (BLACK) (PHENOLIC)	150°C	CHANG CHUN PLASTICS CO.,LTD.	E59481
3.	WIRE	POLYURETHANE ENAMELD COPPER WIRE	UEW-4 130°C THS4- U130 130°C UEW 130°C	JUNG SHING WIRE CO.,LTD. TAYA ELECTRIC WIRE FACTORY. TAI-I ELECTRIC WIRE & CABLE CO., LTD.	E174837 E197768 E85640
4.	PIN	TINNED COPPER WIRE	N/A	WELL FORE SPECIAL WIRE CORPORATION	(NONE)
5.	TAPE	35660Y*d	130°C	SYMBIO INC.	E50292
		No. CT(c)	130°C	JING JIANG YAHUA PRESSURE SENSITIVE GLUE CO.,LTD	E165111
		No. 1350F-1(b)	130°C	3M COMPANY.	E17385
6.	MARGIN TAPE	No. 35661S	130°C	SYMBIO INC.	E50292
		No. WF	130°C	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO.,LTD.	E165111
		No. 44(a)	130°C	3M COMPANY.	E17385
7.	TUBE	TEFLON TUBE TFS	200°C	GREAT HOLDING INDUSTRIAL CO., LTD.	E156256
8.	VARNISH	V1630FS	180°C	P D GEORGE/VIKING.	E73071
		BC-346A	200°C	JOHN C.DOLPH CO.,LTD.	E317427
9.	Lead-Free Solder	Sn98 Ag1.5 Cu0.5 GKWQ1	N/A	GUANGZHOU RESEARCH INSTITUT OF NONFERROUS METALS	(NONE)

* ALL MATERIAL RoHS COMPLIANCES.

APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	S.M.P.S. Power Transformer	DRAW
				DATE	7-Jan-2009	NO.
				PAGE	4/4	0

Diagrams ID 4-02



Diagrams ID 4-02

NO	2/10	SWITCHING TRANSFORMER	P/N	TF-BRU-5VAUX-01
CHANGE	1		3	
REVISION	2		4	

2. CONNECTION

* DOT MARK (●): START OF WINDING

3. WINDING SPECIFICATION

NO	BARRIER TAPE TOP/BOTTOM	INSULATION TAPE	TERMINAL		WIRE	TURNS	WINDING METHOD	INSULATION TAPE	
			S	F				P.E TAPE	Ts
*NP1	- / -	0.025/9mm, 1 turn	1	2	1UEW 0.20 Φ	120	4L SOLENOID	0.025/9mm (YELLOW)	3
NS1	- / -		6	7	TEX-E 0.55 Φ	5	1L SOLENOID	0.025/9mm (YELLOW)	3
*NP2	2 / -	0.025/9mm, 1 turn	4	3	1UEW 0.20 Φ	22	1L SPACE RANDOM	0.025/9mm (YELLOW)	3

CORE ROUND, P.E TAPE 0.025t/5mm, 3 turns (YELLOW)

* NP1 & NP2

SECONDARY SIDE ONLY USING INSULATION TAPE

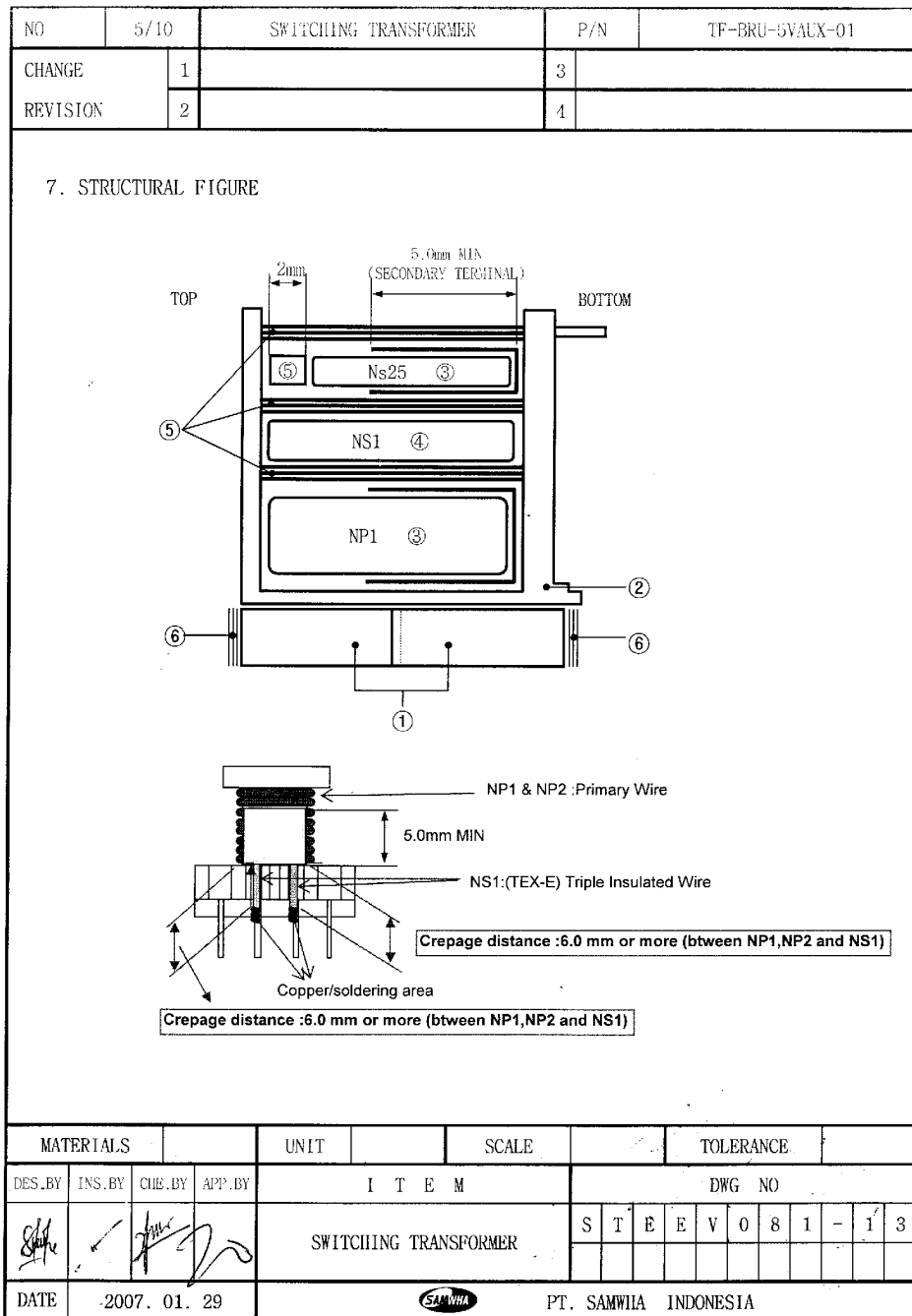
INSULATION TAPE FOLDING

SECONDARY TERMINAL

5.0mm MIN

MATERIALS				UNIT	SCALE	TOLERANCE	
DES.BY	INS.BY	CHE.BY	APP.BY	I T E M		DWG NO	
				SWITCHING TRANSFORMER		S T E E V 0 8 1 - 1 3	
DATE	2007. 01. 29			PT. SAMWHA INDONESIA			

Diagrams ID 4-02








Diagrams ID 4-02

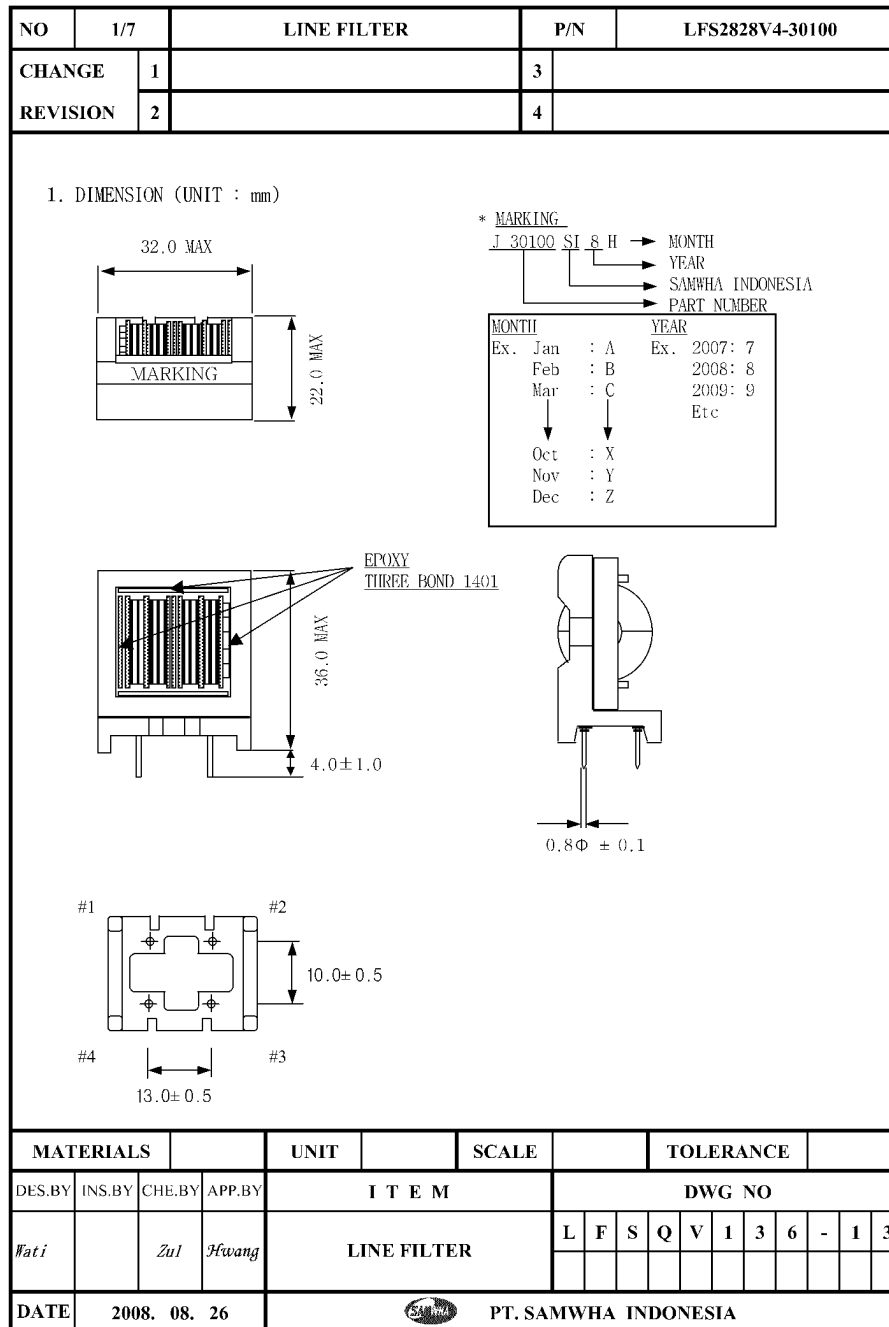
NO	6/10	SWITCHING TRANSFORMER		P/N	TF-BRU-5VAUX-01	
CHANGE	1			3		
REVISION	2			4		

8. MATERIAL LIST

NO	COMPONENT NAME	GENERIC NAME	TYPE NO.	FLAME CLASS	MANUFACTURE	UL FILE NO.
1	CORE	PL-7 EE 2218S			SAMWHA ELECTRONICS	
2	BOBBIN	PHENOL EE 2218V, 8P	PF-2736 PM-9820 PM-8375	94V-0	BAKELITE AG SUMITOMO BAKELITE	E61040 E41429
3	WIRE	1UEW 0.20Φ			DONG YANG ELECT. PT. EWINDO	E102761 E228267
4		TEX-E 0.55Φ			FURUKAWA ELECTRIC	E157568
5	BARRIER TAPE	POLYESTER T: 0.25, W: 2.0	H-5673		TAE HWA INDUSTRIAL	E92677
6	INSULATION TAPE	P.E. TAPE YELLOW T: 0.025, W: 9	DTS-204 #800		DUCK SUNG TAPE HIYUN DAI CHEMICAL	E105147 E162848
7	CORE ROUND TAPE	P.E. TAPE YELLOW T: 0.025, W: 5	No. CT		JINGJIANG YANCA GLUE	E165111
8	VARNISH	WP-2952F-2G DVB-2148L			HITACHI CHEMICAL DPI CO.,LTD	E72979 E93947

MATERIALS		UNIT		SCALE		TOLERANCE	
DES.BY	INS.BY	CHE.BY	APP.BY	I T E M		DWG NO	
				SWITCHING TRANSFORMER		S T E E V 0 8 1 - 1 3	
DATE	2007. 01. 29			 PT. SAMWHA INDONESIA			

Diagrams ID 4-03



Diagrams ID 4-03

NO	2/7	LINE FILTER		P/N	LFS2828V4-30100	
CHANGE	1			3		
REVISION	2			4		

2. SCHEMATIC DIAGRAM
Termination diagram ("●" marks: start of winding)

3. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS (REF)	WINDING METHOD	REMARK
	S	F				
L1	1	4	2UEW 0.65 Φ	50	SOLENOID	
L2	2	3	2UEW 0.65 Φ	50	SOLENOID	

4. ELECTRICAL PERFORMANCE

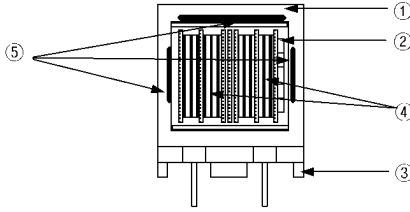
NO	ITEM	TERMINAL	SPECIFICATION	REMARKS
1	INDUCTANCE	L1 (1 - 4)	10.0 mH MIN	LCR METER HP-4284A or Eqv at f = 1kHz, 1.0Volt
		L2 (2 - 3)		
			L1 - L2	500 uH MAX
2	DC RESISTANCE	L1 (1 - 4)	0.15Ω MAX	HIOKI 3540 mΩ HI-TESTER or Eqv
		L2 (2 - 3)		
3	INSULATION RESISTANCE	COIL- COIL	100MΩ MINIMUM at DC 500V	MEGA OHM METER TOS-8850 or Eqv
		COIL- CORE		
4	WITHSTANDING VOLTAGE	COIL- COIL	AC 2.0 kV FOR 1 MIN or AC 2.4 kV FOR 2 SEC	PUNCter TESTER TOS-8850 or Eqv (1mA)
		COIL- CORE		
5	RATED CURRENT	3.0A		
6	TEMPERATURE RISE	45°C MAX at RATED CURRENT		
7	INSULATION CLASS	CLASS "F" 120°C		

MATERIALS				UNIT		SCALE		TOLERANCE	
DES.BY	INS.BY	CHE.BY	APP.BY	I T E M			DWG NO		
Wati		Zul	Hwang	LINE FILTER			L	F	S
							Q	V	1
							3	6	-
							1	3	
DATE	2008. 08. 26			PT. SAMWHA INDONESIA					

Diagrams ID 4-03


NO	4/7	LINE FILTER	P/N	LFS2828V4-30100
CHANGE	1		3	
REVISION	2		4	

7. SECTION DIAGRAM



8. MATERIAL LIST

NO	COMPONENT NAME	GENERIC NAME	TYPE NO	FLAME CLASS	MANUFACTURE	UL FILE NO
1	CORE	SM-100 SQ 2828SG HL-10 ET28-1			SAMWHA ELECTRONICS RUYUAN DONGYANGGUANG	
2	GEAR BOBBIN	PBT SQE2828V, 4 SECTIONS	KP212G30 - V0	94V-0	KOLON INDUSTRIES	E88499(S)
3	BASE	PBT SQE 2828V, 4P	PF.2736	94V-0	HEXION SPECIALTY CHEMICAL GMBH	E61040(M)
4	WIRE	2UEW 0.65 Φ			DONG YANG ELECT. PT. EWINDO	E102761(S) E228267
5	ADHESIVE	THREE BOND 1401 CLEAR			THREE BOND	

MATERIALS				UNIT	SCALE	TOLERANCE										
DES.BY	INS.BY	CHE.BY	APP.BY	I T E M		DWG NO										
Wati		Zul	Hwang	LINE FILTER		L	F	S	Q	V	1	3	6	-	1	3
DATE				2008. 08. 26		 PT. SAMWHA INDONESIA										

Diagrams ID 4-04

(3 / 4)

< 表 - 1 : 電気的特性及びコイル寸法 /

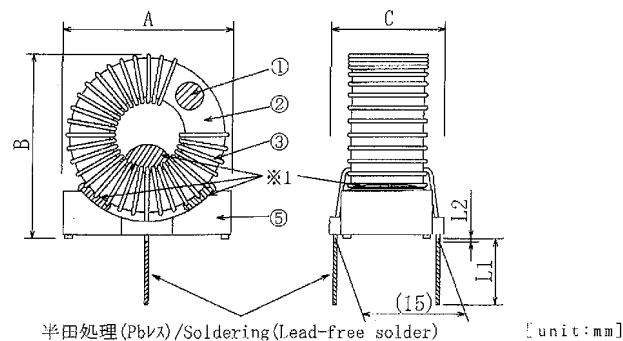
Table 1: Specifications & Finished Dimensions >

品名/Name		HKBS-106-080-1120WR					コードNo.		720154	
線 径 Wire (mm)	定格電流 Rated Current (A)	直 流 抵 抗 DC Resistance (mΩ)	仕 上 が り 寸 法 (mm) Finished Dimensions					インダクタンス(μH) Inductance		
			A	B	C	L1	L2	Idc(0A)	Idc(3A)	
φ 0.80	2	max. 200	max. 33	max. 34	max. 19	± 5 17	max. 0	min. 1,100	(770)	

[測定条件/Test Conditions: 10kHz, 1mA]

() は参考値/Reference

< 図 - 1 : 形状 / Drawing 1: Dimensions >



※1 接着剤にてコイルと台座を固定する。(④)
A coil and a rest are fixed with adhesive. (④)

※1 接着剤にてリードを固定する。(④)
Leads are fixed with adhesive. (④)

(図の接着位置は代表例)
(Bonding positions of drawing is representative examples.)


※ ワニスにてコイルを含浸する(⑥)
A coil is Varnished. (⑥)

東邦亜鉛株式会社/TOHO ZINC CO.,LTD.

Diagrams ID 4-04

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< 表 - 2 : 使用部材 / Table 2 : Composite Materials >

⑤	ワニス Varnish	フェノール Phenol	#880 明電ケミカル㈱ MEIDEN CHEMICAL CO., LTD. W-2828 (LF) 日立化成工業㈱ HITACHI CHEMICAL CO., LTD.	— —	— —
⑤	台座 Rest	PBT	CN7030 ウィンテックポリマー㈱ CN7030 WinTech Polymer Ltd.	94V-0	E213445
④	接着剤 Adhesive	エポキシ Epoxy	セメダイン EP-138 セメダイン㈱ CEMEDINE EP-138 CEMEDINE CO., LTD.	—	—
③	電線 Wire	PEW銅線 PEW 	PEW~ 日立電線㈱ HITACHI CABLE CO., LTD. PEW 古河電気工業㈱ FURUKAWA ELECTRIC CO., LTD. PEW2U 住友電工ウインテック㈱ SUMITOMO ELECTRIC WINTEC, INC. PEW LS CABLE LTD. PEW/U PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO., LTD. PEW TAI-I ELECTRIC WIRE & CABLE CO., LTD.	— — — — — — —	E68042 E77766 E82222 E84441 E201757 E85640
②	コア塗料 Core coating	エポキシ Epoxy	エポニックス#10 大日本塗料㈱ EPONICS#10 DAINIPPON TORYO CO., LTD.	—	—
①	コア Core	合金鉄粉 Iron Alloy Powder	自社製 TOHO ZINC CO., LTD.	—	—
No.	部材名 Material Name	材質 Material	備 考 Note	難燃グレード UL Flame Class	ファイルNo. File No.

東邦亜鉛株式会社 / TOHO ZINC CO., LTD.

Diagrams ID 4-05

L. S. E. SPECIFICATION APPROVAL

CUSTOMER	TEC	P/N	TSQC0088401	REV.
		S/N	PNA7007EL	1

1. CONSTRUCTIONS & DIMENSION: (UNIT: mm)

NOTES:

1. GAP CORE ON TOP SIDE.
2. PIN 7 CUT OFF.
3. FIX CORES BY MYLAR TAPE 2Ts.

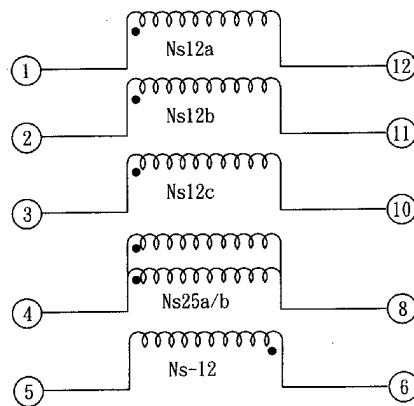
APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	S. M. P. S. Power Transformer	DRAW NO.
力信 15.8.2007	15.8.2007	15.8.2007	力信 15.8.2007	DATE	10-Aug-2007	
				PAGE	1/4	1

Diagrams ID 4-05

L. S. E. SPECIFICATION APPROVAL

CUSTOMER	TEC	P/N	TSQC0088401	REV.
		S/N	PNA7007EL	1

2. SCHEMATIC & WINDING SEQUENCE :



". ." : POLARITY


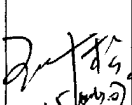
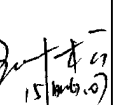

MYLAR TAPE
(t:25 um)

					3 Ts
Ns-12	5→ 6	0.60mmx1P (UEW)	(SPREAD)	13Ts	1 T
Ns25b	4→ 8	0.55mmx3P (UEW)	(SPARED)	12Ts	1 T
Ns25a	4→ 8	0.55mmx3P (UEW)	(SPARED)	12Ts	1 T
Ns12c	3→ 10	0.55mmx3P (UEW)	(SPARED)	12Ts	1 T
Ns12b	2→ 11	0.55mmx3P (UEW)	(SPARED)	12Ts	1 T
Ns12a	1→ 12	0.55mmx3P (UEW)	(SPARED)	12Ts	1 T

PIN SIDE

TOP SIDE

NOTE: INSULATION TAPE THICKNESS IS SPECIFIED FOR BASE MATERIAL, NOT FOR TOTAL THICKNESS.

APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	S. M. P. S. Power Transformer	DRAW NO.
				DATE	10-Aug-2007	1
				PAGE	2/4	

Diagrams ID 4-05


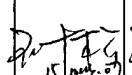


L.S.E SPECIFICATION APPROVAL

CUSTOMER		TEC		P/N.	TSQC0088401	REV.
				S/N.	PNA7007EL	1

4. MATERIAL LIST:

NO.	ITEM	MATERIAL	TMP.	SUPPLIER OF THE MATERIAL	UL NO.
1.	CORE	FERRITE CORE ER35 HE4 TP4 DMR40 PC40		DONGYANGGUANG TIAN TONG ELECTRIC DMEGC CO., LTD. TDK	
2.	BOBBIN	T375J 94V-0 (BLACK) (PHENOLIC)	150°C	CHANG CHUN PLASTICS CO.,LTD.	E59481
3.	WIRE	POLYURETHANE ENAMELD COPPER WIRE	UEW-4 130°C THS4- 130°C U130 UEW 130°C	JUNG SHING WIRE CO.,LTD. TAYA ELECTRIC WIRE FACTORY. TAI-I ELECTRIC WIRE & CABLE CO., LTD	E174837 E197768 E85640
4.	PIN	TINNED COPPER WIRE	N/A	WELL FORE SPECIAL WIRE CORPORATION	(NONE)
5.	TAPE	35660Y*b No. CT(c) No. 1350F-1(b)	130°C 130°C 130°C	SMBIO INC. JING JIANG YAHUA PRESSURE SENSITIVE GLUE CO.,LTD 3M COMPANY.	E50292 E165111 E17385
6.	VARNISH	V1630FS BC-346A	180°C 200°C	P D GEORGE/VIKING. JOHN C.DOLPH CO.,LTD.	E60614 E51047
7.	Lead-Free Solder	Sn98 Ag1.5 Cu0.5 GKWQ1	N/A	GUANGZHOU RESEARCH INSTITUT OF NONFERROUS METALS	(NONE)
8.	INK	JP-K23	N/A	HITACHI CO.,LTD	(NONE)

* ALL MATERIAL RoHS COMPLIANCES.

APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	S.M.P.S. Power Transformer	DRAW
				DATE	10-Aug-2007	NO.
				PAGE	4/4	1

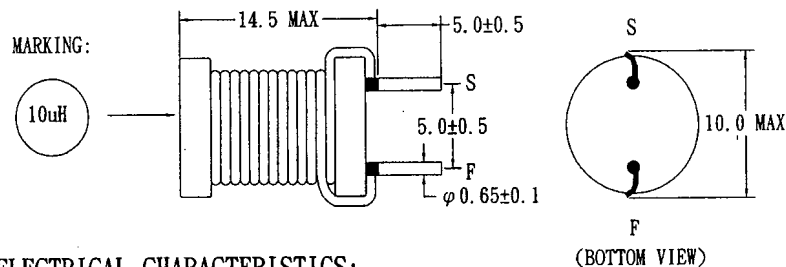
Diagrams ID 4-06

L. S. E. SPECIFICATION APPROVAL

SABH-061

CUSTOMER	TEC	P/N.	REV.
		S/N. LSHTC03C-001LF	0

1. CONSTRUCTIONS & DIMENSIONS:(UNIT:mm)



2. ELECTRICAL CHARACTERISTICS:

ITEM PIN	INDUCTANCE (HP-4284A) (AT 1kHz, 0.1V)	INDUCTANCE (HP-4284A+HP-42841A) (AT 1kHz, 0.1V)3.3A	DC RESISTANCE (CH-502A) AT 25°C	WIRE (UEW)	TURNS
S-F	10uH±10%	L(0A)×90% MIN	20.0mΩ MAX.	0.65mm	17.5Ts (REF)

2-1. HI-POT : COIL-CORE: 0.5kV AC FOR 1 MINUTE AT 1mA.

2-2. INSULATION RESISTANCE:

THE INSULATION RESISTANCE BETWEEN COIL TO CORE IS OVER 100M OHM AT DC 500V.

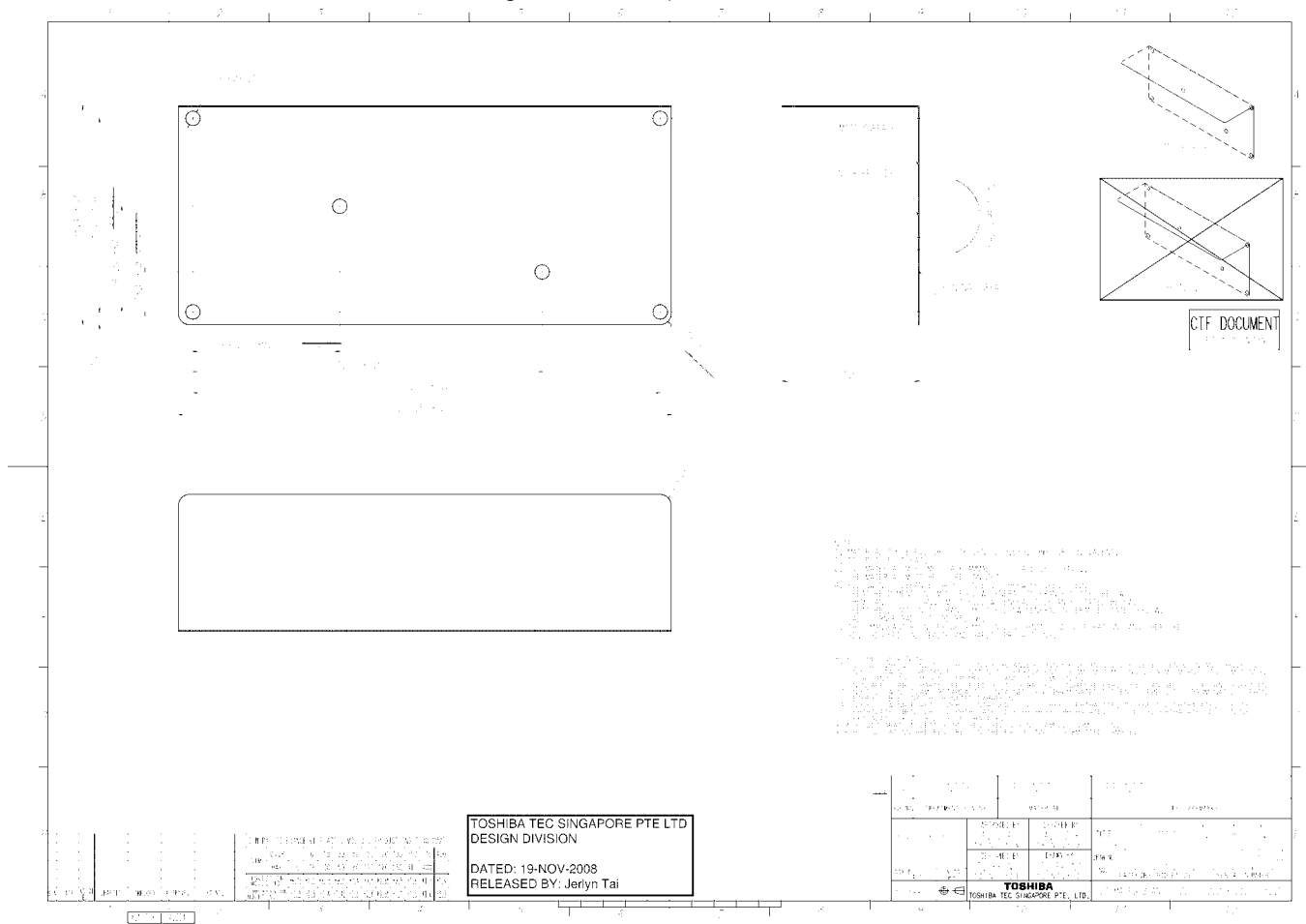
3. MATERIAL LIST:

NO	ITEM	MATERIAL	TMP.	SUPPLIER OF THE MATERIAL	UL NO.
1.	CORE	FERRITE CORE DR2W8×11 P3B C5A MGB1		HONG YIH ELECTRIC CO., LTD. FENG YIN TAK	
2.	WIRE	POLYURETHANE ENAMELED COPPER WIRE	UEW 130°C TBS4-U130 130°C UEW 130°C	HUI HONG ELECTRIC CO.,LTD TA YA ELECTRIC WIRE&CABLE CO.,LTD. TAI-I ELECTRIC WIRE&CABLE CO.,LTD.	E169536 E84201 E85640
3.	PIN	TINNED COPPER WIRE		WELL FORE SPECIAL WIRE CORPORATION	(NONE)
4.	VARNISH	V1380FC	180°C	UNDERWOOD INDUSTRIES OF NEW YORE INC, DBA VIKING PRODUCTS	E73071
5.	Lead-Free Solder	Sn98 Ag1.5 Cu0.5 GKWQ1		GUANGZHOU RESEARCH INSTITUT OF NONFERROUS METALS	(NONE)
6.	INK	JP-K23		HITACHI CO.,LTD	(NONE)
7.	LABEL	TJ-PET	80°C	TRANS JEAN ENTERPRISE CO.,LTD.	WH19646

*ALL MATERIAL RoHS COMPLIANCES.

APPROVED	ENGINEER	CHECKED	PREPARE	ITEM	CHOKE COIL	DRAW NO.
				DATE	11. JAN, 2005	
				PAGE	1/1	2

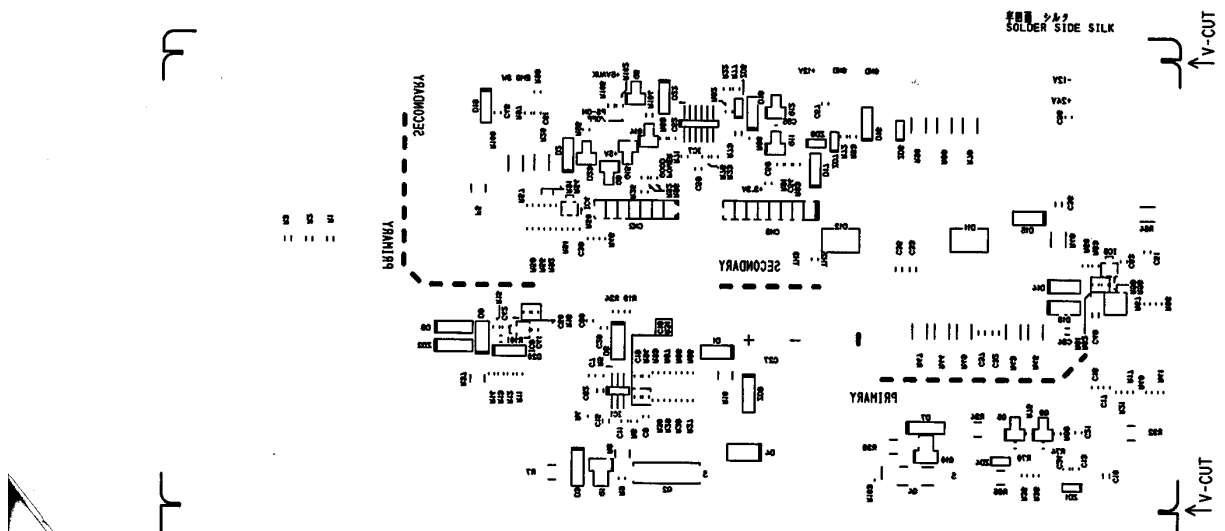
Diagrams ID 4-07



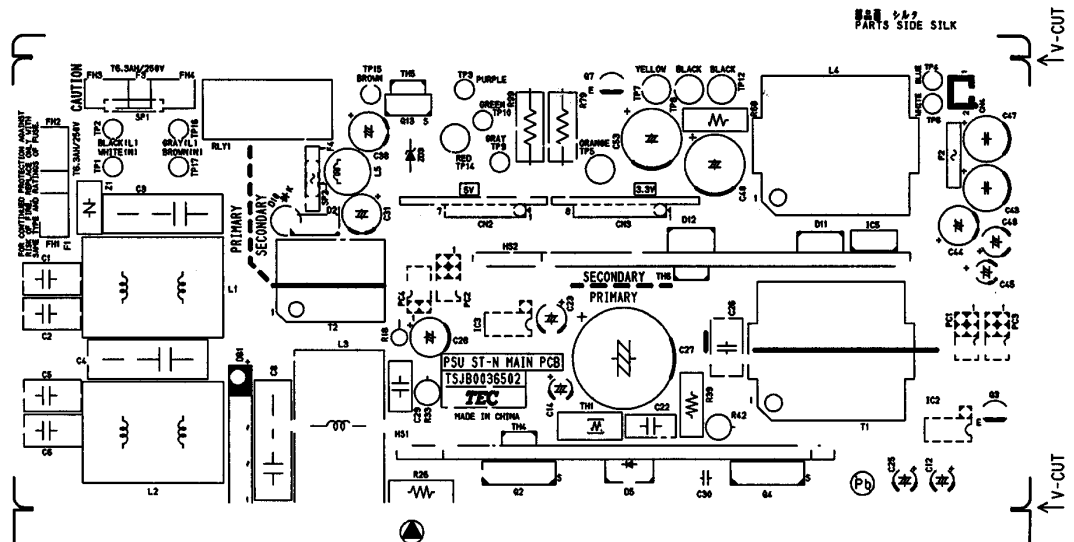
Enclosure**Schematics + PWB**

Supplement Id	Description
5-01	PSU PWB layout

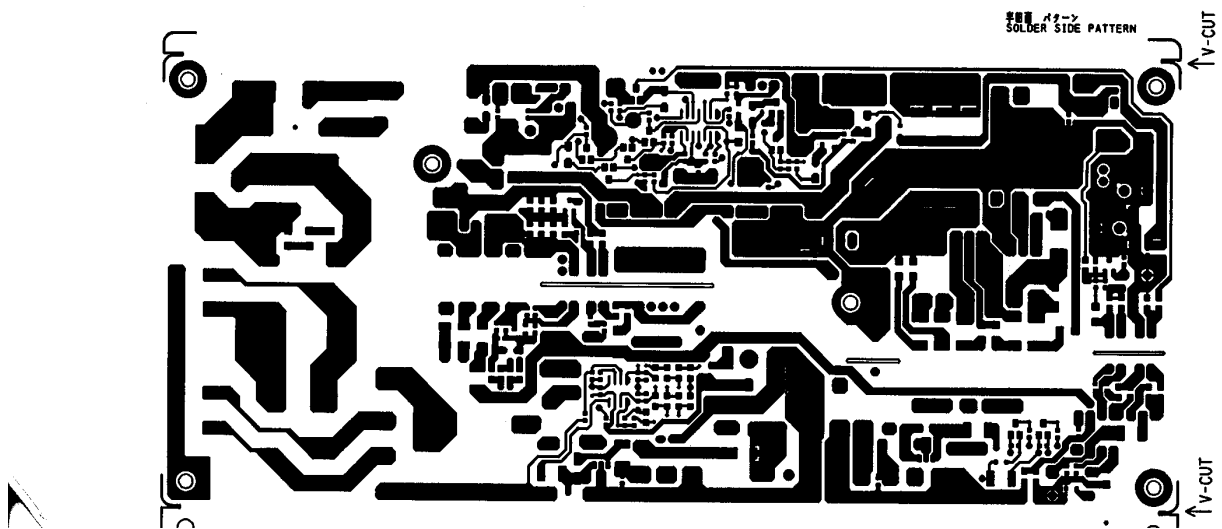
Schematics ID 5-01



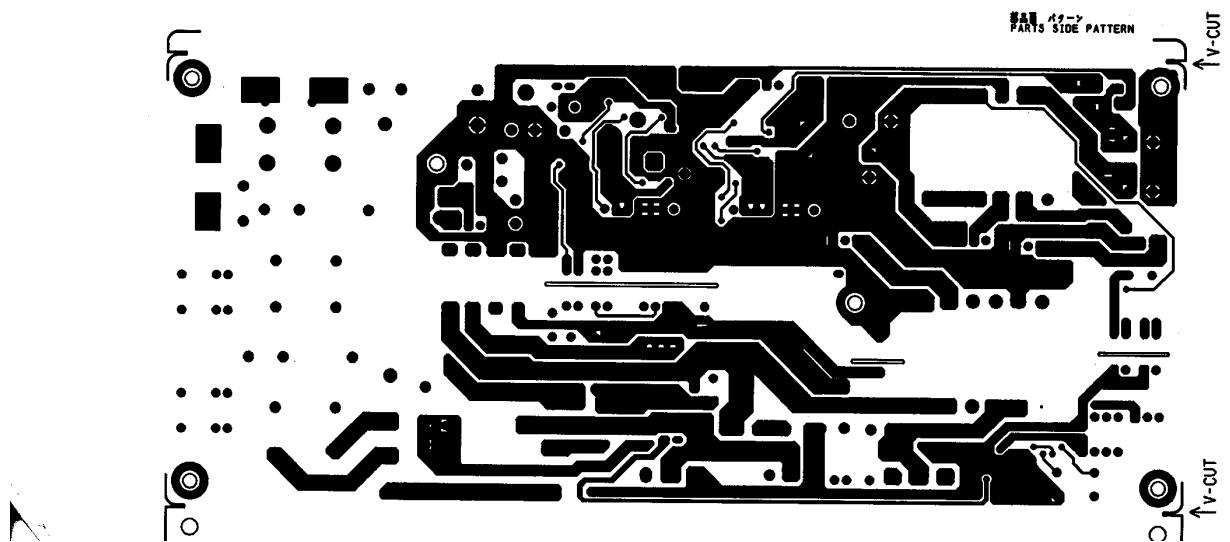
Schematics ID 5-01



Schematics ID 5-01



Schematics ID 5-01



Enclosure**Manuals**

Supplement Id	Description
6-01	Safety instruction
6-02	Owner's manual for connection

Manuals ID 6-01

**CAUTION**

This indicates that there is the risk of personal **injury** or **damage** to objects if the machines are improperly handled contrary to this indication.

Precautions

The following precautions will help to ensure that this machine will continue to function correctly.

- Try to avoid locations that have the following adverse conditions:
 - * Temperatures out of the specification
 - * Direct sunlight
 - * High humidity
 - * Shared power source
 - * Excessive vibration
 - * Dust/Gas
- Do not subject the machine to sudden shocks.
- Do not press the keys too hard. Keys will operate correctly if they are touched lightly.
- Clean the cover and keyboard, etc. by wiping with a dry cloth or a cloth soaked with detergent and wrung out thoroughly. Never use thinner or other volatile solvent for cleaning.
- At the end of the day, turn the power OFF, then clean and inspect the exterior of the machine.
- Try to avoid using this equipment on the same power supply as high voltage equipment or equipment likely to cause mains interference.
- USE ONLY TOSHIBA TEC SPECIFIED consumables.
- DO NOT STORE the consumables where they might be exposed to direct sunlight, high temperatures, high humidity, dust, or gas.
- When moving the machine, take hold of the drawer and lift the machine.
- Do not place heavy objects on top of the machines, as these items may become unbalanced and fall causing **injury**.
- Do not block the ventilation slits of the machines, as this will cause heat to build up inside the machines and may cause **fire**.
- Do not lean against the machine. It may fall on you and could cause **injury**.
- Place the machine on a stable and level surface.
- Disconnect power of the main unit before removing the enclosure.
- Replace and secure the enclosure before re-energizing the main unit.
- For pluggable equipment, the socket-outlet shall be installed near the main unit and shall be easily accessible.

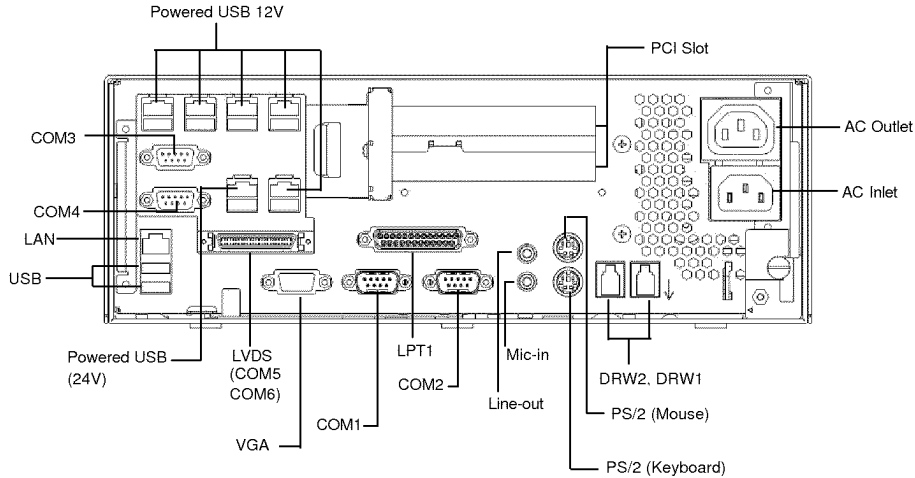
Manuals ID 6-02

3. CONNECTORS

EO1-12029

3. CONNECTORS

3. CONNECTORS



Connector	Description
AC Inlet	A connector for the AC inlet
AC Outlet	A connector to supply AC power to the CRT. AC power is output in synchronization with the ON/OFF status of the POS terminal.
PS/2 (Mouse, Keyboard)	Mini-DIN 6-pin female type connector Connector for the PS/2 type mouse, Connector for the PS/2 type keyboard
Powered USB 24V (Red) Powered USB 12V (Green) General 5V USB	Connector for the USB (Universal Serial Bus) interface USB V2.0/1.1 and UHCI (conforming to Universal Hub Controller Interface V2.0/1.1) NOTE: The powered USB sockets, which are 5 ports of 12V USB and 1 port of 24V USB. The lower part of these sockets can be used as general 5V USB connectors. The Powered USB ports are meant for connection to peripherals listed in the Options page or equivalent.
LAN	Modular type connector for the 10/100/1000 Base T Ethernet LAN interface.
DRW1, DRW2	A 24V type drawer is connectable.
VGA	A 15-pin VGA connector – Analog
COM1, 2	D-sub 9-pin male type connector (without power supply) A slot scanner, modem, serial Interface type scale, EFT, etc. are connectable.
COM3, 4	D-sub 9-pin female type connector (with +5V, +12V output) A line display unit or RS-232C type hand scanner is connectable. NOTES: <i>COM4 cannot be used when the touch panel TFT is connected to the POS terminal.</i>
LVDS (Option)	Expandable LCD interface – Digital
COM5, 6	COM5 for MSR in LVDS connector COM6 for Touch panel in LVDS connector
LPT1	D-sub 25-pin female connector Printer, etc. having a Centronics interface or equivalent are connectable.
Line-out	Used for connecting an external speaker via the stereo mini jack terminal
Mic-in	Used for connecting a monophonic microphone via the mono mini jack terminal
PCI slot	Available only when the optional kit is installed.

Manuals ID 6-02

9. SPECIFICATIONS

EO1-12029

8.1 Basic Specifications

8.2 Options

Option name	Type	Description				
Drawer unit	DRWST-XX DRWST-51A-4MV-QM-R DRWST-51A-8MV-QM-R	24V-drive standard drawer Size and Weight: 460(W) x 400(D) x 115(H) mm, 10Kg Money Case Type: MC4,8				
	DRWST-56-EMV-QM-R	24V-drive flip top drawer Size and Weight: 460(W) x 170(D) x 100(H) mm, 6Kg Money Case Type: EURO case				
	Drawer type	Type	Bill holder	Coin tray	Mini coin case	CDC
		4MV-QM-R	5	5	No	Yes
		8MV-QM -R	4	6	1	Yes
		EMV-QM-R	5	8	No	Yes
Line display unit	LIUST-A10-RAK-QM-R LIUST-51-1AF-QM-R	20 characters x 2 lines dot display				
Printer Unit	TRST-A10/A15 series	Single thermal printer : TRST-A10 Single thermal dual side printing printer : TRST-A15				
	TRST-56-P-1W-QM-R	Parallel interface single thermal printer for 80 mm wide paper Cabinet color: FW-2				
	TRST-56-S-1W-QM-R	Serial interface single thermal printer for 80 mm wide paper Cabinet color: FW-2				
	TRJST-52-3S-QM-R	Serial interface 2-station thermal printer for 58-mm wide paper				
	TRJST-52-3P-QM	Parallel interface 2-station thermal printer for 58-mm wide paper				
POS keyboard unit	PKBST-50-3-QM-R	81 keys POS keyboard with PS/2 interface				
Scanner	HS-530-RS-24B-09-QM	Touch scanner (RS-232C interface type)				
TFT monitor	TFTST-B20 series	12TFT, 12V P-USB/ AC100/200V input				
	TFTST-56T-3V-QM-R	12.1-inch TFT monitor equipped with the touch panel (With VGA board)				
Operation Unit	LKBST-65-TT11-QM-R	12.1-inch TFT monitor equipped with the 40 keys keyboard (The magnetic card reader is provided as an option.)				
Mounting kit	KIT-COMP-PCI-QM-R	RS-232C I/F 2ch. WITH 5V/12V Power				

Enclosure**Miscellaneous**

Supplement Id	Description
7-01	Additional test table
7-02	Powered USB label location

Misc ID 7-01

Table 2.1.1.5	Energy Hazard Measurements				Pass
Accessible Parts	Test Points From / To	Maximum VA	Maximum V (Volts)	Maximum A (Amps)	
Output connector (power supply)	+24V to GND	166.02	22.10	7.51	
	+12V to GND	144.47	11.02	13.11	
	-12V to GND	8.95	5.43	1.65	
	+5V (Main) to GND	41.58	4.40	9.45	
	+5V (Aux) to GND	12.147	3.73	3.26	
	+3.3V to GND	24.23	2.65	9.15	
	PoweredUSB	163.50	20.42	8.01	
Note(s):					

Table 2.1.1.7	Capacitance Discharge Test					Pass
Measurement Locations	Fuse In/Out	Switch Position	V _o (V pk)	37% V _o (V pk)	V _{tc} (V pk)	
Line to Neutral	In	--	370.8	137.2	0.0	
Note(s):						

Table 2.2	SELV Reliability Test						Pass
No. Accessible Part From - To	Component No. (Voltage Limiting)	Fault	Test Voltage	Test time (Duration)	Fuse No.	Fuse Current (A)	Result Specify Maximum Vpk or V dc
-12V to GND	IC5	Short (pin 2 to 3)	240	--	--	--	--
+12V to GND	IC6	Short (pin 2 to 3)	240	--	F1	0.748	17.08
+24V to GND	IC6	Short (pin 2 to 3)	240	--	F1	0.700	33.30
+5Vaux	IC4	Short (pin 2 to 3)	240	--	F1	--	--

Note(s):

Table 2.5		Limited Power Source Measurements				Pass
Output Tested	Measured		Single Fault Condition	Maximum		
	From	To		U _{oc}	I _{sc}	VA 60 s
USB 1 (back panel)	+5V	GND	Normal	5.005	1.975	5.55
USB 2 (back panel)	+5V	GND	Normal	5.018	1.911	5.45
USB (Front panel card)	+5V	GND	Normal	5.000	2.078	5.59
PS/2 Keyboard	+5V	GND	Normal	5.020	1.884	7.24
PS/2 Mouse	+5V	GND	Normal	5.020	1.884	7.24
COM 3 (back panel)	+12V	GND	Normal	12.02	12.20	111.0
COM 3 (back panel)	+5V	GND	Normal	5.100	1.885	6.72
COM 4 (back panel)	+12V	GND	Normal	12.02	12.20	111.0
COM 4 (back panel)	+5V	GND	Normal	5.100	1.885	6.72
PoweredUSB 3 (Back panel)	+5V	GND	Normal	5.100	1.975	6.15
PoweredUSB 3 (Back panel)	+24V	GND	Normal	24.72	6.821	143.0
PoweredUSB 1 (Back panel)	+5V	GND	Normal	5.100	1.975	6.15
PoweredUSB 1 (Back panel)	+12V	GND	Normal	12.02	12.20	111.0
PoweredUSB 2 (Back panel)	+5V	GND	Normal	5.100	1.975	6.15
PoweredUSB 2 (Back panel)	+12V	GND	Normal	12.02	12.20	111.0
PoweredUSB 4 (Back panel)	+5V	GND	Normal	5.100	1.975	6.15
PoweredUSB 4 (Back panel)	+12V	GND	Normal	12.02	12.20	111.0
PoweredUSB 5 (Back panel)	+5V	GND	Normal	5.100	1.975	6.15
PoweredUSB 5 (Back panel)	+12V	GND	Normal	12.02	12.20	111.0
PoweredUSB 6 (Back panel)	+5V	GND	Normal	5.100	1.975	6.15
PoweredUSB 6 (Back panel)	+12V	GND	Normal	12.02	12.20	111.0
DrawerPort (Back panel)	+24V	GND	Normal	24.65	5.50	109.62

DrawerPort (Back panel)	+24V	GND	Normal	24.65	5.50	109.62
Note(s):						

Table 2.6.3.4	Earthing Test				Pass
Accessible Conductive Part		Current (Amps)	Voltage Drop (Volts)	Resistance (Ohm)	
Appliance inlet Earth pin to furthest point of metal chassis from inlet		40 (2min)	0.86	0.0215	
Note(s):					

Table 2.10.2	Working Voltage Measurement Test			Pass
Clearance and creepage distance dcr at/of:		Up (V)	U r.m.s. (V)	
T1 Pin 2 - Pin 7		516.6	311.3	
T1 Pin 2 - Pin 8		425.0	309.0	
T1 Pin 2 - Pin 9		433.0	299.0	
T1 Pin 2 - Pin 10		408.3	298.3	
T1 Pin 2 - Pin 11		458.3	310.6	
T1 Pin 2 - Pin 12		416.7	307.4	
T1 Pin 3 - Pin 7		783.3	321.5	
T1 Pin 3 - Pin 8		716.0	326.7	
T1 Pin 3 - Pin 9		758.3	325.1	
T1 Pin 3 - Pin 10		708.3	315.4	
T1 Pin 3 - Pin 11		775.5	334.9	
T1 Pin 3 - Pin 12		708.3	324.6	
T1 Pin 4 - Pin 7		666.7	354.7	
T1 Pin 4 - Pin 8		708.3	373.3	
T1 Pin 4 - Pin 9		733.3	383.7	
T1 Pin 4 - Pin 10		691.7	364.4	
T1 Pin 4 - Pin 11		750.0	394.7	
T1 Pin 4 - Pin 12		708.3	372.8	
T2 Pin 1 - Pin 6		416.7	307.5	
T2 Pin 1 - Pin 7		433.3	307.7	
T2 Pin 2 - Pin 6		366.7	336.4	
T2 Pin 2 - Pin 7		350.0	334.7	
T2 Pin 3 - Pin 6		441.7	177.9	
T2 Pin 3 - Pin 7		425.0	177.2	
T2 Pin 4 - Pin 6		375.0	176.9	
T2 Pin 4 - Pin 7		383.3	176.6	
PC1 Pin 1 - Pin 3		375.0	186.9	
PC1 Pin 1 - Pin 4		375.0	185.0	

PC1 Pin 2 - Pin 3	375.0	184.4
PC1 Pin 2 - Pin 4	375.0	184.5
PC2 Pin 1 - Pin 3	375.0	178.6
PC2 Pin 1 - Pin 4	358.3	170.0
PC2 Pin 2 - Pin 3	375.0	178.3
PC2 Pin 2 - Pin 4	358.3	169.5
PC3 Pin 1 - Pin 3	375.0	177.4
PC3 Pin 1 - Pin 4	375.0	177.7
PC3 Pin 2 - Pin 3	375.0	177.9
PC3 Pin 2 - Pin 4	375.0	176.8
C26 Pin 1 - Pin 2	375.0	177.7
Live to Neutral	373.0	240.0
Note(s):		

Table 5.1.6		Touch Current Test				Pass
Terminal A (Switch "s") of Measuring Instrument Connected to:	Switch "e" Position	Test voltage	Touch Current (mA r.m.s.)			
			Polarity P1/Primary Switch Condition			
			Normal/On	Normal/Off	Reverse/On	Reverse/Off
Metal enclosure of furthest point	Open	264 Vac	0.74	--	0.71	--
Output connector (accessible grounded metal)	Open	264 Vac	0.72	--	0.75	--
Output connector (accessible pins)	Closed	264 Vac	0.06	--	0.07	--
Plastic enclosure with foil	Closed	264 Vac	0	--	0	--
Note(s):						

Misc ID 7-02

