



Test Report issued under the responsibility of:



## TEST REPORT

IEC 60950-1

### Information technology equipment – Safety – Part 1: General requirements

Report Number..... : T223-0247/19

Date of issue..... : 2019-06-11

Total number of pages ..... 161 pages

Applicant's name ..... : GlobTek, Inc.

Address..... : 186 Veterans Drive Northvale, NJ 07647, USA

#### Test specification:

Standard ..... : IEC 60950-1:2005 (Second Edition) + A1:2009 + A2:2013

Test procedure ..... : CB Scheme

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

Test Report Form No. .... : IEC60950\_1F

Test Report Form(s) Originator .... : SGS Fimko Ltd

Master TRF ..... : Dated 2014-02

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


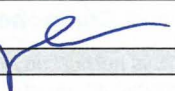
#### General disclaimer:

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

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<b>Test item description .....</b>	Direct Plug-in Power Supply
<b>Trade Mark .....</b>	 <b>GlobTek, Inc.</b>
<b>Manufacturer.....</b>	GlobTek, Inc. 186 Veterans Drive Northvale, NJ 07647, USA
<b>Model/Type reference .....</b>	GT-41052-WWVV-X.X (see page 8 for description of all models) WW is the standard output wattage, with a maximum value of "15" VV is the standard rated output voltage designation, with a maximum value of "24"; which can be 05, 06, 07, 09, 12, 15, 18, 20, 24, 48. -X.X denote the output voltage differentiator, subtracting X.X volts from standard output voltage VV in 0.01V increments, the actual output voltage rang is 5-48Vdc, blank is to indicate the no voltage different.
<b>Ratings .....</b>	Input: 100 – 240 Va.c.; 50 – 60 Hz; 0,6 A Output: see page 8

**Testing procedure and testing location:**

<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	SIQ Ljubljana SIQ Ljubljana is accredited by Slovenian Accreditation with accreditation number LP-009 in the field of testing
<b>Testing location/ address .....</b>		Tržaška c. 2, SI-1000 Ljubljana Slovenia
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature).....</b>		Rok Štampohar 
<b>Approved by (name + signature) .....</b>		Boštjan Glavič 
<input type="checkbox"/>	<b>Testing procedure: TMP/CTF Stage 1:</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature).....</b>		
<b>Approved by (name + signature) .....</b>		
<input type="checkbox"/>	<b>Testing procedure: WMT/CTF Stage 2:</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature).....</b>		
<b>Witnessed by (name + signature) .....</b>		
<b>Approved by (name + signature) .....</b>		
<input type="checkbox"/>	<b>Testing procedure: SMT/CTF Stage 3 or 4:</b>	



Testing location/ address .....		
Tested by (name + signature).....		
Witnessed by (name + signature) .....		
Approved by (name + signature).....		
Supervised by (name + signature).....		

**List of Attachments:**

1. Test Report (70 pages)
2. National Differences – Enclosure No. 1 (46 pages)
3. European Group Differences and National Differences according to EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011 – Enclosure No. 1a (21 pages)
4. Pictures – Enclosure No. 2 (4 pages)
5. Schematics, Layouts, Transformer data - Enclosure No. 3 (20 pages)

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

**1.6.2 Input Test**  
**1.7.11 Durability**  
**2.1.1.5 Energy Hazard Measurements**  
**2.1.1.7 Capacitance Discharge Test**  
**2.2.2 SELV: Hazard Voltage (Circuit) Measurement Test**  
**2.2.3 SELV Reliability testing**  
**2.4 Limited Current Circuit (Bridging components)**  
**2.5 Limited Power Source**  
**2.9.2 Humidity Test**  
**2.10.2 Working Voltage measurement on PCB and Transformer**  
**2.10.3/2.10.4 Clearance and Creepage distance measurement**  
**2.10.5 Distance Through Insulation measurement**  
**2.10.5.6 Thin Sheet Material (barriers)**  
**4.2.2-4.2.4 Steady force test, 10 N, 30 N, 250 N**  
**4.2.6 Drop test**  
**4.2.7 Stress relief test; heat test (°C/7 h)**  
**4.3.6 Torque Test for direct plug in Products.**  
**Dimensions of the plugs**  
**4.5.2 Heating (Temperature) Test**  
**4.5.5 Resistance to abnormal heat (Ball pressure test)**  
**5.1 Touch Current and protective conductor current**  
**5.2 Electric Strength Test**  
**5.3 Abnormal Operating Tests foreseeable misuse:**

**Testing location:**

**Mašera-Spasičeva ulica 10, SI-1000**  
**Ljubljana, Slovenia**

**SELV reliability and failure in the voltage regulation, Functional insulation, Component faults, Overload and short at the outputs**

### Summary of compliance with National Differences

#### List of countries addressed:

Argentina\*\*, Australia, Austria\*\*\*, Bahrain\*\*, Belarus\*\*, Belgium\*\*\*, Brazil\*\*, Bulgaria\*\*\*, Canada, China, Cyprus\*\*\*, Colombia\*\*, Croatia\*\*, Czech Republic\*\*\*, Denmark\*\*\*, Finland\*\*\*, France\*\*\*, Germany\*\*\*, Greece\*\*\*, Hungary\*\*\*, India\*\*, Indonesia\*\*, Iran\*\*, Ireland\*\*\*, Israel, Italy\*\*\*, Japan\*, Kazakhstan\*\*, Kenya\*\*, Korea, Libya\*\*, Malaysia\*\*, Mexico\*\*, Netherlands\*\*\*, New Zealand\*, Norway\*\*\*, Pakistan\*\*, Poland\*\*\*, Portugal\*\*\*, Romania\*\*\*, Russian Federation\*\*, Saudi Arabia\*\*, Serbia\*\*, Singapore\*\*, Slovakia\*\*\*, Slovenia\*\*\*, South Africa\*\*, Spain\*\*\*, Sweden, Switzerland, Thailand\*\*, Turkey\*\*\*, Ukraine\*\*, United Arab Emirates\*\*, United Kingdom, Uruguay\*\*, USA, Vietnam\*\*

\* No national differences to IEC 60950-1:2005 (2<sup>nd</sup> edition) (+ A1 + A2) declared

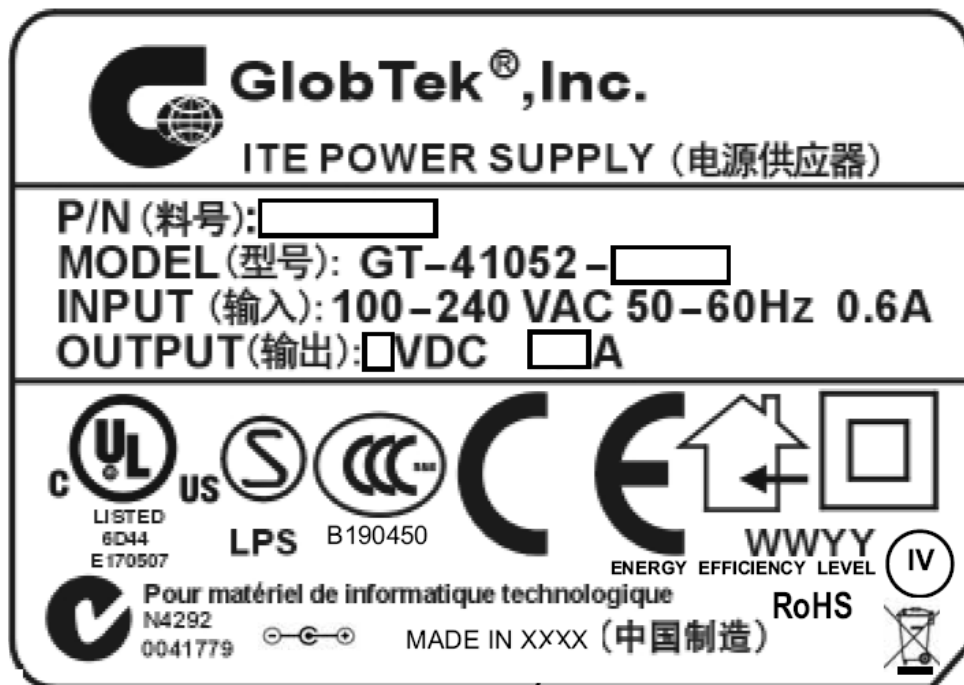
\*\* No national differences to IEC 60950-1:2005 (2<sup>nd</sup> edition) + A1 + A2 or IEC 60950-1:2001 (1<sup>st</sup> edition) declared

\*\*\* EU group differences

☒ **The product fulfils the requirements of EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011 (see Enclosure No. 1a).**

## Copy of marking plate

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



Rev. No. 3.0



<b>Test item particulars .....</b> :	
<b>Equipment mobility .....</b>	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in
<b>Connection to the mains .....</b>	<input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
<b>Operating condition .....</b>	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
<b>Access location .....</b>	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
<b>Over voltage category (OVC) .....</b>	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
<b>Mains supply tolerance (%) or absolute mains supply values .....</b>	+/- 10% or 90 – 264 Va.c.
<b>Tested for IT power systems .....</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>IT testing, phase-phase voltage (V) .....</b>	/
<b>Class of equipment .....</b>	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
<b>Considered current rating of protective device as part of the building installation (A) .....</b>	16 A (13 A for UK, 40 A for US/CAN)
<b>Pollution degree (PD) .....</b>	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
<b>IP protection class .....</b>	IP20
<b>Altitude during operation (m) .....</b>	< 3000 m
<b>Altitude of test laboratory (m) .....</b>	300 m
<b>Mass of equipment (kg) .....</b>	0,16 kg

<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement.....	F (Fail)
<b>Testing .....</b>	
<b>Date of receipt of test item .....</b>	2010-09-30 (Rev No. 1.0); 2019-03-19 (Rev. No 3.0)
<b>Date(s) of performance of tests.....</b>	From 2010-09-30 to 2010-11-16 (Rev. No. 1.0)
<b>General remarks:</b>	
"(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 <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.	

**Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60950-1:**

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....

☒ **Yes**  
☐ **Not applicable**

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

**Name and address of factory (ies) .....** : 1) GlobTek, Inc.  
186 Veterans DR, Northvale, NJ 07647, USA  
  
2) GlobTek (Suzhou) Co., Ltd.  
Building 4, # 76, Jin Ling East Rd., Suzhou Park,  
Suzhou, Jiangsu 215021, P.R.China

**General product information:** Direct Plug-in Power Supply

**Information about the Product:**

Switch mode Power Supply with SELV output. The unit is for direct plug-in.

The unit is provided with several different exchangeable plug types.

Output ratings of the models, included in the test report:

Model	Output Voltage(V)	Max.Output Current(A)	Max.Output Wattage(W)
GT-41052-WW05	5	2,60	13
GT-41052-WW06-X.X	5.01-6	2,60	15
GT-41052-WW07-X.X	6.01-7	2,49	15
GT-41052-WW09-X.X	7.01-9	2,13	15
GT-41052-WW12-X.X	9.01-12	1,66	15
GT-41052-WW15-X.X	12.01-15	1,24	15
GT-41052-WW18-X.X	15.01-18	0,99	15
GT-41052-WW20-X.X	18.01-20	0,83	15
GT-41052-WW24-X.X	20.01-24	0,74	15
GT-41052-WW48-X.X	24.01-48	0,62	15

If not otherwise stated under test, the test was performed on the unit **GT-41052-1548**.



Explanation of the test program:

The component was tested according to the standard IEC 60950-1:2005 (2nd Edition) + A1:2009 + A2:2013 and/or EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011.

Additionally, the component was also evaluated according to the standards CSA C22.2 No. 60950-1:2007 + A1:2011 + A2:2014 and UL60950-1:2007 (2<sup>nd</sup> Edition) + A1:2011 + A2:2014 and fulfils the requirements of these standards.

1. This component has been judged on the basis of the required spacings for **EN50178:1998** over voltage category III. The unit was also tested to IEC60664 over voltage category III.
2. The products were tested on a 20 A (USA) and a 16 A (IEC) branch circuit in series. External circuit breaker did not open during the testing. The unit is approved for TN mains star connections
3. All secondary output circuits are separated from mains by reinforced insulation and rated SELV non-hazardous energy levels.
4. The unit provides the following disconnect device: Plug.
5. The power supply is a direct plug-in equipment.
6. The power supply is rated class II. The unit fulfils the requirements for limited power source according UL1310.
7. The maximum working voltages are **265 Vrms; 484 Vpk**.
8. The transformers T1 provide reinforced insulation. This transformer is built up to fulfil the requirement of insulation class B and provide in addition an UR (OBJY2) insulation system. (see also list of safety critical components).
9. The equipment has been evaluated for use in a Pollution Degree 2 and overvoltage category II environment and a maximum altitude of 3000 m.
10. Dimensions of the injection part of the European plug are in accordance the with the requirement of EN 50075 standard. Dimensions of the injection part of the US plug are in accordance with the requirement of UL 1310 standard. Dimensions of the injection part of the UK plug are in accordance with the requirement of the BS 1363 standard. Dimensions of the injection part of the Australian plug are in accordance with the AS/NZS 3112.  
Only dimensions of the pins were measured and torque test was performed. Compliance with the BS 1363 and AS/NZS 3112 shall be evaluated during national approval.
11. The product was evaluated for a maximum ambient of 40°C. The temperature test was performed 100 mm above bench without forced air cooling.

Information for Production testing to be done by the manufacturer:

Dielectric Testing:

Primary to secondary: 1500 Va.c., 1 sec.

Primary to enclosure: 1500 Va.c., 1 sec.

The transformers with reinforced insulation have to be tested by itself with 3000 Va.c. primary to secondary and marked with a stamp accordingly.

## History Sheet:

Date	Report No.	Change/Modification	Rev. No.
2006-06-13	T223-0157/06	Initial Test Report to 1 <sup>st</sup> edition of the standard IEC60950-1:2001.	—
2010-11-16	T223-0374/10	Report updated to 2 <sup>nd</sup> edition of the standard. No changes of construction.	1.0
2012-07-30	T223-0256/12	List of critical components updated.  Update of the report to include amendment A12:2011 to EN 60950-1:2006 + A1 + A11.  No additional tests considered required.	2.0
2012-09-04	T223-0305/12	Change of Manufacturer.	—
2019-06-11	T223-0247/19	Revision of the report: - test report updated to latest standard edition including amendment A2 - Label was changed (non-safety relevant) - altitude 3000 m used instead 2000 m. - Manufacturer Haopuwei used instead Zhong Tong Electronics Co., Ltd. There are no physical changes on the transformer. - Latest AUSTRALIA/NEW ZEALAND National differences used.  No other additional tests performed.	3.0

**Abbreviations used in the report:**

- normal conditions	<b>N.C.</b>	- single fault conditions	<b>S.F.C</b>
- functional insulation	<b>OP</b>	- basic insulation	<b>BI</b>
- double insulation	<b>DI</b>	- supplementary insulation	<b>SI</b>
- between parts of opposite polarity	<b>BOP</b>	- reinforced insulation	<b>RI</b>


**Indicate used abbreviations (if any)**

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>1</b>	<b>GENERAL</b>		<b>P</b>
<b>1.5</b>	<b>Components</b>		<b>P</b>
1.5.1	General		<b>P</b>
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	<b>P</b>
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	<b>P</b>
1.5.3	Thermal controls		<b>N/A</b>
1.5.4	Transformers	See list of safety critical components table 1.5.1 and the transformer drawings in the Enclosure No. 3.	<b>P</b>
1.5.5	Interconnecting cables		<b>N/A</b>
1.5.6	Capacitors bridging insulation	Double / reinforced insulation is bridged by a single capacitor CY1. Circuit complies with 2.4; capacitor complies with IEC60384-14 2 <sup>nd</sup> ed., class Y1.	<b>P</b>
1.5.7	Resistors bridging insulation	No such resistors are bridging double/reinforced insulation.	<b>N/A</b>
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Varistor is bridging functional insulation L to N after the fuse F1.	<b>P</b>
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		<b>N/A</b>
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		<b>N/A</b>
1.5.8	Components in equipment for IT power systems		<b>N/A</b>
1.5.9	Surge suppressors		<b>P</b>
1.5.9.1	General	Surge suppressors comply with Annex Q.	<b>P</b>
1.5.9.2	Protection of VDRs	Fuse in Line or Neutral is protecting VDR.	<b>P</b>

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

1.5.9.3	Bridging of functional insulation by a VDR	Surge suppressors connected Line to Neutral comply with Annex Q.	P
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	No VDR bridging double or reinforced insulation.	N/A

<b>1.6</b>	<b>Power interface</b>		P
1.6.1	AC power distribution systems	TN, TT.	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A
1.6.4	Neutral conductor	Class II.	N/A

<b>1.7</b>	<b>Marking and instructions</b>		P
1.7.1	Power rating and identification markings	The required marking is readily visible in Operator access area.	P
1.7.1.1	Power rating marking	Rating marking readily visible to operator.	P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V) .....	100 – 240 Va.c.	P
	Symbol for nature of supply, for d.c. only.....:	AC input voltage only.	P
	Rated frequency or rated frequency range (Hz) ...:	50 - 60 Hz	P
	Rated current (mA or A) .....	0,6 A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark .....		P
	Model identification or type reference .....	GT-41052-WWVV-X.X (See page 8)	P
	Symbol for Class II equipment only .....	Class II symbol (IEC 60417-1, symbol No. 5172) is applied to the label.	P
	Other markings and symbols .....	"For indoor use only"	P
1.7.1.3	Use of graphical symbols	No special precautions necessary.	P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.2	Disconnect devices	Disconnect device is plug and is part of the equipment.	N/A
1.7.2.3	Overcurrent protective device	Unit provides appropriate overcurrent protective device inside the equipment.	N/A
1.7.2.4	IT power distribution systems	Class II unit.	N/A
1.7.2.5	Operator access with a tool	All areas containing hazard(s) are inaccessible to the operator.	N/A
1.7.2.6	Ozone	Unit does not produce ozone.	N/A
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N/A
1.7.4	Supply voltage adjustment .....	No voltage selector (Power supply has a wide range input circuit).	N/A
	Methods and means of adjustment; reference to installation instructions .....		N/A
1.7.5	Power outlets on the equipment .....	No standard power outlet.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....	Fuse located in power supply, designated: marked with F1.	P
1.7.7	Wiring terminals	Direct plug-in equipment	N/A
1.7.7.1	Protective earthing and bonding terminals .....		N/A
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	There are no controls affecting safety.	N/A
1.7.8.1	Identification, location and marking .....		N/A
1.7.8.2	Colours .....		N/A
1.7.8.3	Symbols according to IEC 60417 .....		N/A
1.7.8.4	Markings using figures .....		N/A
1.7.9	Isolation of multiple power sources .....		N/A
1.7.10	Thermostats and other regulating devices .....	No thermostats or other regulating devices.	N/A
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No marking is placed on removable parts.	N/A
1.7.13	Replaceable batteries .....	No lithium battery in the equipment.	N/A
	Language(s) .....		—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.14	Equipment for restricted access locations ..... :	Equipment not intended for installation in RAL.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>2</b>	<b>PROTECTION FROM HAZARDS</b>		<b>P</b>
<b>2.1</b>	<b>Protection from electric shock and energy hazards</b>		<b>P</b>
2.1.1	Protection in operator access areas	There is adequate protection against operator contact with bare parts at ELV or hazardous voltage or parts separated from these with basic or functional insulation only (except protective earth), also after operator detachable parts are removed and doors and covers are opened.	<b>P</b>
2.1.1.1	Access to energized parts	The outputs provide non hazardous energy.	<b>P</b>
	Test by inspection .....	Verified.	<b>P</b>
	Test with test finger (Figure 2A) .....	Verified.	<b>P</b>
	Test with test pin (Figure 2B) .....	Verified.	<b>P</b>
	Test with test probe (Figure 2C) .....	No TNV circuit.	<b>N/A</b>
2.1.1.2	Battery compartments	No battery compartment.	<b>N/A</b>
2.1.1.3	Access to ELV wiring	No ELV wiring.	<b>N/A</b>
	Working voltage ( $V_{peak}$ or $V_{rms}$ ); minimum distance through insulation (mm)	(see appended table 2.10.5)	—
2.1.1.4	Access to hazardous voltage circuit wiring	All accessible parts are separated from internal wiring at hazardous voltage by double or reinforced insulation, complying with 2.10.5 and 3.1.4.	<b>P</b>
2.1.1.5	Energy hazards .....	$\leq 240$ VA	<b>P</b>
2.1.1.6	Manual controls	No shafts of knobs etc. at ELV or hazardous voltage.	<b>N/A</b>
2.1.1.7	Discharge of capacitors in equipment	The capacitance of the input circuit is $> 0,1 \mu F$ . The measurements were performed in worst-case condition.	<b>P</b>
	Measured voltage (V); time-constant (s) .....	See appended table.	—
2.1.1.8	Energy hazards – d.c. mains supply	Unit not connected to DC mains.	<b>N/A</b>
	a) Capacitor connected to the d.c. mains supply ..		<b>N/A</b>
	b) Internal battery connected to the d.c. mains supply .....		<b>N/A</b>

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

2.1.1.9	Audio amplifiers .....	No audio amplifier within the unit.	N/A
2.1.2	Protection in service access areas		P
2.1.3	Protection in restricted access locations		N/A

<b>2.2</b>	<b>SELV circuits</b>		P
2.2.1	General requirements	SELV limits (at accessible parts) are not exceeded under normal condition and after a single fault.	P
2.2.2	Voltages under normal conditions (V) .....	Within SELV limits. (See appended table 2.2.2)	P
2.2.3	Voltages under fault conditions (V) .....	See test results in appended table 5.3.	P
2.2.4	Connection of SELV circuits to other circuits .....	SELV circuits are only connected to SELV circuit.	P

<b>2.3</b>	<b>TNV circuits</b>		N/A
2.3.1	Limits	No TNV circuits in the equipment.	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

<b>2.4</b>	<b>Limited current circuits</b>		P
2.4.1	General requirements	Single capacitor CY1 is bridging primary to secondary barrier. Circuit was considered as limited current circuit.	P
2.4.2	Limit values	See enclosed Table 2.4	P



IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Frequency (Hz)..... :	See enclosed Table 2.4	—
	Measured current (mA) ..... :	See enclosed Table 2.4	—
	Measured voltage (V) ..... :	See enclosed Table 2.4	—
	Measured circuit capacitance (nF or $\mu$ F) ..... :	See enclosed Table 2.4	—
2.4.3	Connection of limited current circuits to other circuits	SELV or limited power source.	P

<b>2.5</b>	<b>Limited power sources</b>		<b>P</b>
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition	Output of the unit was considered as limited power source. (see appended table 2.5)	P
	Use of integrated circuit (IC) current limiters	(See Annex CC)	N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA) ..... :		—
	Current rating of overcurrent protective device (A) .:		—

<b>2.6</b>	<b>Provisions for earthing and bonding</b>		<b>N/A</b>
2.6.1	Protective earthing		N/A
2.6.2	Functional earthing		N/A
	Use of symbol for functional earthing ..... :		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area ( $\text{mm}^2$ ), AWG ..... :		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area ( $\text{mm}^2$ ), AWG ..... :		—
	Protective current rating (A), cross-sectional area ( $\text{mm}^2$ ), AWG..... :		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance ( $\Omega$ ), voltage drop (V), test current (A), duration (min) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.3.5	Colour of insulation ..... :		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm) ..... :		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

<b>2.7</b>	<b>Overcurrent and earth fault protection in primary circuits</b>		P
2.7.1	Basic requirements	The unit is rated to be connected to a mains with rating max. 16 A (IEC) or 20 A (USA).	P
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection	Adequate protective device.	P
2.7.4	Number and location of protective devices ..... :	One fuse in either of line conductors.	P
2.7.5	Protection by several devices	Only one protective device. See Sub-clause 2.7.4.	N/A
2.7.6	Warning to service personnel ..... :	Not permanently connected equipment or equipment provided with non-reversible plug.	N/A

<b>2.8</b>	<b>Safety interlocks</b>		N/A
2.8.1	General principles	No safety interlock.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (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

<b>2.9</b>	<b>Electrical insulation</b>		<b>P</b>
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used.	P
2.9.2	Humidity conditioning		P
	Relative humidity (%), temperature (°C) .....	Humidity treatment performed for 48h at 91-95%. 22,5°C.	—
2.9.3	Grade of insulation	Insulation is considered to be functional, basic, supplementary, reinforced or double.	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used .....	Accessible conductive parts, SELV circuits or TNV circuits are separated from parts at hazardous voltage by double or reinforced insulation (Method 1).	—

<b>2.10</b>	<b>Clearances, creepage distances and distances through insulation</b>		<b>P</b>
2.10.1	General		P
2.10.1.1	Frequency .....	50-60 Hz	P
2.10.1.2	Pollution degrees .....	Pollution degree 2	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.1.3	Reduced values for functional insulation	Functional insulation Line to Neutral before fuse complies with 2.10.3 & 2.10.4. Other functional insulations comply with 5.3.4 c).	P
2.10.1.4	Intervening unconnected conductive parts	Distance to unconnected conductive parts considered during evaluation of clearances and creepage distances.	P
2.10.1.5	Insulation with varying dimensions	No such transformer used.	N/A
2.10.1.6	Special separation requirements	No TNV circuits.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such circuit.	N/A
2.10.2	Determination of working voltage		P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	Considered.	P
2.10.2.3	Peak working voltage	Considered.	P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply .....	Overvoltage Category II (2500Vpeak)	P
	b) Earthed d.c. mains supplies .....	Unit not intended for connection to DC mains.	N/A
	c) Unearthed d.c. mains supplies .....	Unit not intended for connection to DC mains.	N/A
	d) Battery operation .....	No battery.	N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4)	P
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 .....	Unit not intended for connection to telecommunication network or cable distribution system.	N/A
2.10.3.9	Measurement of transient voltage levels	Measurement not relevant.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For a d.c. mains supply .....		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests .....	Material group IIIb) is assumed to be used.	—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation	No such potted components.	N/A
2.10.5.4	Semiconductor devices	Approved optical insulators are used. See list of critical components.	P
2.10.5.5.	Cemented joints	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.5.6	Thin sheet material – General		P
2.10.5.7	Separable thin sheet material	Outer wrap of the transformer T1 has 2 layers of insulation tape. Transformer T1 secondary winding is TIW wire.	N/A
	Number of layers (pcs) .....		—
2.10.5.8	Non-separable thin sheet material	No such insulation.	N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test		—
2.10.5.11	Insulation in wound components	Transformer T1 provided with tripple insulated wire in secondary winding, complying with 2.10.5.12.	P
2.10.5.12	Wire in wound components	Approved triple insulated wire is used as secondary winding, inside transformer T1. See list of critical components.	P
	Working voltage .....	484 Vpeak	P
	a) Basic insulation not under stress .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Basic, supplementary, reinforced insulation .....	Wire meets reinforced insulation.	P
	c) Compliance with Annex U .....		P
	Two wires in contact inside wound component; angle between 45° and 90° .....	No contact between 45° and 90°.	P
2.10.5.13	Wire with solvent-based enamel in wound components	No TNV circuits.	N/A
	Electric strength test	(see appended table 2.10.5)	—
	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		N/A
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.2	Coated printed boards	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation	(see appended table 2.10.5)	N/A
	Number of insulation layers (pcs) .....		N/A
2.10.7	Component external terminations	(see appended table 2.10.3 and 2.10.4)	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	(see appended table 5.2)	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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Clause	Requirement + Test	Result - Remark	Verdict

<b>3</b>	<b>WIRING, CONNECTIONS AND SUPPLY</b>		<b>P</b>
<b>3.1</b>	<b>General</b>		<b>P</b>
3.1.1	Current rating and overcurrent protection		P
3.1.2	Protection against mechanical damage		P
3.1.3	Securing of internal wiring	Internal wiring is secured against excessive strain, loosening of terminals and damage to the conductor insulation.	P
3.1.4	Insulation of conductors	(see appended table 5.2)	P
3.1.5	Beads and ceramic insulators	No beads or similar ceramic insulators on conductors.	N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

<b>3.2</b>	<b>Connection to a mains supply</b>		<b>P</b>
3.2.1	Means of connection	Unit is for direct plug-in	P
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm) .....		—
3.2.4	Appliance inlets	No appliance inlet is used.	N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type .....		—
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N) .....		—
	Longitudinal displacement (mm) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) ..... :		—
	Radius of curvature of cord (mm) ..... :		—
3.2.9	Supply wiring space	Direct plug-in power supply.	N/A

<b>3.3</b>	<b>Wiring terminals for connection of external conductors</b>		N/A
3.3.1	Wiring terminals	Not permanently connected equipment or equipment with ordinary non-detachable power supply cord.	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 <sup>2</sup> ) ..... :		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm) ..... :		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

<b>3.4</b>	<b>Disconnection from the mains supply</b>		P
3.4.1	General requirement	The unit is direct plug in and disconnect device itself.	P
3.4.2	Disconnect devices	Disconnect device itself.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N/A
3.4.4	Parts which remain energized	No parts remain energized.	N/A
3.4.5	Switches in flexible cords	No isolating switch in the flexible cord.	N/A
3.4.6	Number of poles - single-phase and d.c. equipment	The disconnect device disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment	Single phase equipment.	N/A
3.4.8	Switches as disconnect devices		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
3.4.9	Plugs as disconnect devices	The plug is regarded as disconnect device; the required warning is: Wall outlet shall be easily accessible. The unit is disconnect device.	P
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A
<b>3.5</b>	<b>Interconnection of equipment</b>		<b>P</b>
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits .....	SELV circuit or limited current circuit.	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

<b>4</b>	<b>PHYSICAL REQUIREMENTS</b>		<b>P</b>
<b>4.1</b>	<b>Stability</b>		<b>N/A</b>
	Angle of 10°	The unit has a mass less than 7kg.	N/A
	Test force (N) ..... :	The unit has a mass less than 25kg.	N/A

<b>4.2</b>	<b>Mechanical strength</b>		<b>P</b>
4.2.1	General		P
	Rack-mounted equipment.	(see Annex DD)	N/A
4.2.2	Steady force test, 10 N	No hazard. See appended table 4.2.2.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	No hazard. The test was performed at top bottom and sides with 250N.	P
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm) ..... :	Direct plug-in unit. No hazard after 1 m drop.	P
4.2.7	Stress relief test	Test is carried out at 95°C / 7h. No risk of shrinkage or distortion on enclosures due to release of internal stresses.	P
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified ..... :		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) ..... :		N/A

<b>4.3</b>	<b>Design and construction</b>		<b>P</b>
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N) ..... :	No loosening of any knobs, handles or levers.	N/A
4.3.3	Adjustable controls	No hazardous adjustable controls.	N/A
4.3.4	Securing of parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.5	Connection by plugs and sockets		N/A
4.3.6	Direct plug-in equipment		P
	Torque .....	<0,1 Nm	—
	Compliance with the relevant mains plug standard .....	EN50075 and also plug standards for different countries.	P
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries	No batteries in the equipment.	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases	The equipment does not generate dust, powder, does not contain liquid or gas. The unit is specified for office environment.	N/A
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	N/A
4.3.12	Flammable liquids .....		N/A
	Quantity of liquid (l) .....		N/A
	Flash point (°C) .....		N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) .....		—
	Measured high-voltage (kV) .....		—
	Measured focus voltage (kV) .....		—
	CRT markings .....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification .....		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		N/A
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class .....		—

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4.3.13.5.2	Light emitting diodes (LEDs)		N/A
4.3.13.6	Other types .....		N/A

<b>4.4</b>	<b>Protection against hazardous moving parts</b>		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas .....	No hazardous moving parts.	N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations .....		N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a).....:		N/A
	Is considered to cause pain, not injury. b) .....		N/A
	Considered to cause injury. c) .....		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning .....		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning .....		N/A

<b>4.5</b>	<b>Thermal requirements</b>		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L .....	Rated load, as specified by Manufacturer.	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat .....	(see appended table 4.5.5)	P

<b>4.6</b>	<b>Openings in enclosures</b>		P
4.6.1	Top and side openings	No opening in the enclosure.	P
	Dimensions (mm) .....		—
4.6.2	Bottoms of fire enclosures	No bottom openings.	P
	Construction of the bottom, dimensions (mm) .....		—
4.6.3	Doors or covers in fire enclosures	No doors or covers in fire enclosure.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.6.4	Openings in transportable equipment	Not transportable equipment.	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	No barrier secured by adhesive inside enclosure.	N/A
	Conditioning temperature (°C), time (weeks).....:		—
<b>4.7</b>	<b>Resistance to fire</b>		<b>P</b>
4.7.1	Reducing the risk of ignition and spread of flame		<b>P</b>
	Method 1, selection and application of components wiring and materials	(see appended table 4.7) Used materials minimizes risk of ignition and propagation of fire.	<b>P</b>
	Method 2, application of all of simulated fault condition tests	(see appended table 5.3)	<b>N/A</b>
4.7.2	Conditions for a fire enclosure		<b>P</b>
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all parts.	<b>P</b>
4.7.2.2	Parts not requiring a fire enclosure	The fire enclosure is required to cover all parts.	<b>P</b>
4.7.3	Materials		<b>P</b>
4.7.3.1	General		<b>P</b>
4.7.3.2	Materials for fire enclosures		<b>P</b>
4.7.3.3	Materials for components and other parts outside fire enclosures		<b>P</b>
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.	<b>P</b>
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	<b>N/A</b>
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	<b>N/A</b>

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Clause	Requirement + Test	Result - Remark	Verdict
<b>5</b>	<b>ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS</b>		<b>P</b>
<b>5.1</b>	<b>Touch current and protective conductor current</b>		<b>P</b>
5.1.1	General		P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply		P
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	Equipment is tested using the test circuits as in figure 5A.	P
5.1.4	Application of measuring instrument	Measuring instrument D1 was used.	P
5.1.5	Test procedure	See appended table 5.1 in Enclosure No. 2.	P
5.1.6	Test measurements		P
	Supply voltage (V) .....	See appended table 5.1.	—
	Measured touch current (mA) .....	See appended table 5.1.	—
	Max. allowed touch current (mA) .....	≤ 0,25 mA	—
	Measured protective conductor current (mA) .....	Class II product.	—
	Max. allowed protective conductor current (mA)...	Class II product.	—
5.1.7	Equipment with touch current exceeding 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 telecommunication network or to a cable distribution system		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict

<b>5.2</b>	<b>Electric strength</b>		<b>P</b>
5.2.1	General	(see appended table 5.2)	<b>P</b>
5.2.2	Test procedure		<b>P</b>

<b>5.3</b>	<b>Abnormal operating and fault conditions</b>		<b>P</b>
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	<b>P</b>
5.3.2	Motors	(see appended Annex B)	<b>N/A</b>
5.3.3	Transformers	(see appended Annex C)	<b>P</b>
5.3.4	Functional insulation.....:	Primary circuit L to N before fuse meets 2.10.3, 2.10.4. After fuse applied c). Secondary circuit applied c).	<b>P</b>
5.3.5	Electromechanical components		<b>N/A</b>
5.3.6	Audio amplifiers in ITE .....:		<b>N/A</b>
5.3.7	Simulation of faults		<b>P</b>
5.3.8	Unattended equipment	The unit is intended for continuous operation. There is no thermal sensor or cut-off for operational condition.	<b>N/A</b>
5.3.9	Compliance criteria for abnormal operating and fault conditions		<b>P</b>
5.3.9.1	During the tests	No fire, emission of molten metal or deformation was noted during the tests.	<b>P</b>
5.3.9.2	After the tests	The tested units passed the electric strenght test.	<b>P</b>

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Clause	Requirement + Test	Result - Remark	Verdict

<b>6</b>	<b>CONNECTION TO TELECOMMUNICATION NETWORKS</b>		N/A
<b>6.1</b>	<b>Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment</b>		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	(see appended table 5.2)	N/A
	Supply voltage (V) .....		—
	Current in the test circuit (mA) .....		—
6.1.2.2	Exclusions .....		N/A

<b>6.2</b>	<b>Protection of equipment users from overvoltages on telecommunication networks</b>		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test	(see appended table 5.2)	N/A
6.2.2.2	Steady-state test	(see appended table 5.2)	N/A
6.2.2.3	Compliance criteria		N/A

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



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

<b>7</b>	<b>CONNECTION TO CABLE DISTRIBUTION SYSTEMS</b>		N/A
<b>7.1</b>	<b>General</b>		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	(see appended table 5.2)	N/A
7.4.3	Impulse test	(see appended table 5.2)	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>A</b>	<b>ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
<b>A.1</b>	<b>Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)</b>	1 Approved materials are used. See list of critical components.	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 .....		—
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).....		—
<b>A.2</b>	<b>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)</b>		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).....		—
<b>A.3</b>	<b>Hot flaming oil test (see 4.6.2)</b>		N/A
A.3.1	Mounting of samples		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A
<b>B</b>	<b>ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)</b>		N/A
<b>B.1</b>	<b>General requirements</b>		N/A
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
<b>B.2</b>	<b>Test conditions</b>		N/A
<b>B.3</b>	<b>Maximum temperatures</b>	(see appended table 5.3)	N/A
<b>B.4</b>	<b>Running overload test</b>	(see appended table 5.3)	N/A
<b>B.5</b>	<b>Locked-rotor overload test</b>		N/A
	Test duration (days) .....		—
	Electric strength test: test voltage (V) .....		—
<b>B.6</b>	<b>Running overload test for d.c. motors in secondary circuits</b>		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>B.7</b>	<b>Locked-rotor overload test for d.c. motors in secondary circuits</b>		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) .....		N/A
<b>B.8</b>	<b>Test for motors with capacitors</b>	(see appended table 5.3)	N/A
<b>B.9</b>	<b>Test for three-phase motors</b>	(see appended table 5.3)	N/A
<b>B.10</b>	<b>Test for series motors</b>		N/A
	Operating voltage (V) .....		—
<b>C</b>	<b>ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)</b>		P
	Position .....	T1	—
	Manufacturer .....	See list of components.	—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Type .....		—
	Rated values .....		—
	Method of protection .....		—
<b>C.1</b>	<b>Overload test</b>	(see appended table 5.3)	P
<b>C.2</b>	<b>Insulation</b>	(see appended table 5.2)	P
	Protection from displacement of windings .....	Triple insulated wire is used. No special precaution is required.	P
<b>D</b>	<b>ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)</b>		P
<b>D.1</b>	<b>Measuring instrument</b>		P
<b>D.2</b>	<b>Alternative measuring instrument</b>		N/A
<b>E</b>	<b>ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)</b>		P
<b>F</b>	<b>ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)</b>		P
<b>G</b>	<b>ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES</b>		N/A
<b>G.1</b>	<b>Clearances</b>		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
<b>G.2</b>	<b>Determination of mains transient voltage (V)</b>		N/A
G.2.1	AC mains supply .....		N/A
G.2.2	Earthed d.c. mains supplies .....		N/A
G.2.3	Unearthed d.c. mains supplies .....		N/A
G.2.4	Battery operation .....		N/A
<b>G.3</b>	<b>Determination of telecommunication network transient voltage (V) .....</b>		N/A
<b>G.4</b>	<b>Determination of required withstand voltage (V)</b>		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

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>G.5</b>	<b>Measurement of transient voltages (V)</b>		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
	b) Transients from a telecommunication network		N/A
<b>G.6</b>	<b>Determination of minimum clearances .....</b>		N/A
<b>H</b>	<b>ANNEX H, IONIZING RADIATION (see 4.3.13)</b>		
<b>J</b>	<b>ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)</b>		
	Metal(s) used .....	1) Verified.	—
<b>K</b>	<b>ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)</b>		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) .....		N/A
K.3	Thermostat endurance test; operating voltage (V) .....		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation	(see appended table 5.3)	N/A
<b>L</b>	<b>ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)</b>		N/A
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		N/A
<b>M</b>	<b>ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)</b>		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

M.3.1	Ring 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

<b>N</b>	<b>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)</b>		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

<b>P</b>	<b>ANNEX P, NORMATIVE REFERENCES</b>		—
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<b>Q</b>	<b>ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)</b>		P
	a) Preferred climatic categories .....	Approved varistors are used. Refer to List of critical components	P
	b) Maximum continuous voltage .....	Approved varistors are used. Refer to List of critical components	P
	c) Combination pulse current .....	Approved varistors are used. Refer to List of critical components	P
	Body of the VDR Test according to IEC60695-11-5.....		N/A
	Body of the VDR. Flammability class of material ( min V-1).....	Approved varistors are used. Refer to List of critical components	P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>R</b>	<b>ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES</b>		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
<b>S</b>	<b>ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)</b>		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
<b>T</b>	<b>ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)</b>		N/A
			—
<b>U</b>	<b>ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)</b>		N/A
		TIW wire is separately approved. It was verified but no additional tests performed.	—
<b>V</b>	<b>ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)</b>		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A
<b>W</b>	<b>ANNEX W, SUMMATION OF TOUCH CURRENTS</b>		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
<b>X</b>	<b>ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P
<b>Y</b>	<b>ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)</b>		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
<b>Z</b>	<b>ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)</b>		N/A
<b>AA</b>	<b>ANNEX AA, MANDREL TEST (see 2.10.5.8)</b>		N/A
<b>BB</b>	<b>ANNEX BB, CHANGES IN THE SECOND EDITION</b>		—
<b>CC</b>	<b>ANNEX CC, Evaluation of integrated circuit (IC) current limiters</b>		N/A
CC.1	General		N/A
CC.2	Test program 1.....		N/A
CC.3	Test program 2.....		N/A
CC.4	Test program 3.....		N/A
CC.5	Compliance.....		N/A
<b>DD</b>	<b>ANNEX DD, Requirements for the mounting means of rack-mounted equipment</b>		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....		N/A
DD.3	Mechanical strength test, 250N, including end stops.....		N/A
DD.4	Compliance.....		N/A
<b>EE</b>	<b>ANNEX EE, Household and home/office document/media shredders</b>		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....		N/A
	Information of user instructions, maintenance and/or servicing instructions.....		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A) .....:		N/A
	Test with wedge probe (Figure EE1 and EE2) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Unit from outside					
Enclosure	OD: 74 by 42 by 32mm, min. 2mm thick + Sabic Innovative (GE Plastics), SE-1, Rated 94V-1 at min. 0,75 mm thickness; (QMFZ2), UR E45329			IEC/EN 60950-1	Accepted.
Plug adapter (EU)	+ Sabic Innovative (GE Plastics)	SE1X (GG)(f1)	Material: Rated 94V-1 at min. 1,5 mm thickness; 110°C Measured thickness: 2,0mm 250Vac; 10A	IEC/EN 60950-1 (QMFZ2) EN 50075	Accepted. UR E45329
Plug adapter (UK)	+ Sabic Innovative (GE Plastics)	SE1X (GG)(f1)	Material: Rated 94V-1 at min. 1,5 mm thickness; 110°C Measured thickness: 2,0mm 250Vac; 10A	IEC/EN 60950-1 (QMFZ2) BS1363	Accepted. UR E45329
Alternative material for plug adapter and enclosure	+ Sabic Innovative (GE Plastics)	SE100	Material: Rated 94V-1 at min. 1,5 mm thickness; 95°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E45329
Alternative material for plug adapter and enclosure	Sabic Innovative (GE Plastics)	C2950	Material: Rated 94V-0 at min. 1,5 mm thickness; 85°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E45329
Alternative material for enclosure	+ Sabic Innovative	CX7211(GG)	Material: Rated 94V-1 at min. 1,5 mm thickness; 90°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E45329
Alternative material for enclosure	Sabic Innovative	HF500R(f2)	Material: Rated 94V-0 at min. 1,5 mm thickness; 130°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E45329
Alternative material for enclosure	TEIJIN	LN-1250G LN-1250P	Material: Rated 94V-0 at min. 1,5 mm thickness; 125°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E50075
Alternative material for enclosure	ChiMei	PA-765A	Material: Rated 94V-1 at min. 1,5 mm thickness; 85°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E56070
Alternative material for enclosure	+ Sabic Inovative Plastics B. V.	945 (GG)	Material: Rated 94V-0 at min. 1,5 mm thickness; 125°C	IEC/EN 60950-1 (QMFZ2)	Accepted. UR E45329

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Unit from inside					
PCB	Various	Various	OD: 68 by 35 mm; min. 1,5 mm thick Min. 94V-1, min. 130°C	(ZPMV2)	UR
Fuse F1	+ Conquer	MST	250 Va.c. / 2A T	ANSI/UL 248-1 (JDYX2)  IEC60127	VDE UR E82636
X-Capacitor CX1 (Line to Neutral)	+ Arcotronics	R.46	Min.250 Va.c.; max.0,22 µF; X1 or X2	IEC60384-14 (FOWX2)	IMQ UR E97797
X-Capacitor CX1 (Line to Neutral) Alternative	Cheng Tung Industrial co ltd	CTX	Max.0.22µF, min.250V, X1 or X2	IEC60384-14 (FOWX2)	VDE 40026382 UR E193049
X-Capacitor CX1 (Line to Neutral) Alternative	Dain	MPX	Max.0.15µF, min.275V, X1 or X2	IEC60384-14 (FOWX2)	VDE 40018798 UR E147776
Varistor ZNR	+ Thinking	TVR10471K	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q (VZCA2) (VZCA8)	VDE 40031391 UR E314979
Varistor ZNR Alternative	Thinking	TVR14471	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q (VZCA2) (VZCA8)	VDE 40031391 UR E314979
Varistor ZNR Alternative	Joyin	JVR10N471 K	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q (VZCA2) (VZCA8)	VDE 005937 UR E325508
Varistor ZNR Alternative	Joyin	JVR14N471 K	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q (VZCA2) (VZCA8)	VDE 005937 UR E325508
Varistor ZNR	Joyin	JVR10S471 K	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q (VZCA2) (VZCA8)	VDE 40004658 UR E325508

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Varistor ZNR Alternative	Centra Science Corp	CNR- 10D471K  CNR- 14D471K	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q  (VZCA2) (VZCA8)	VDE 40008220  UR E316325
Varistor ZNR	TDK	SNF10(d)30 0(e)E2(g)K1	300 Vac 385 Vdc; coating min. UL94V-1	IEC/EN 60950-1 Annex Q  (VZCA2) (VZCA8)	VDE 40027582  UR E321126
Inductor NF1 (pri)	(+Top Nation) NF00001D Alternative: Sunycore/BOAM/Globtek Open type construction, OD: 17 by 10 by 17 mm Bobbin: T373J or T375J by Chang Chun, rated 94V-0 at min. 0,45 mm thickness (T375J) or 94V-1 at min. 1,0 mm thickness (T373J), (QMFZ2) UR E304813; RTI=150°C Temperature class B			IEC/EN 60950-1 (QMFZ2)	Accepted. UR E304813
Bulk Capacitor C1	Various	Various	Min.400 Vac; Min.33μF; 105°C	IEC/EN 60950-1	Accepted.

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Transformer T1 pri/sec (reinforced)	(+Top Nation Electronic Ltd) XF00167 for models GT-41052-1305-X.X, GT-41052-1506-X.X, GT-41052-1507 XF00168 for models GT-41052-1509-X.X, GT-41052-1512-X.X, GT-41052-1515-X.X XF00169 is for models GT-41052-1518-X.X, GT-41052-1520-X.X, GT-41052-1524-X.X XF00299 for model GT-41052-1548-X.X Alternative: Haopuwei/BOAM/GlobTek Open type construction, OD: 25 by 20,5 by 20mm Rating: 240V/48V Core: ferrite, PC40 by TDK (altern.: NC-2H or P4 by NICERA or ACME CORP or equivalent.) Coil: Copper magnet wire wound on bobbin. Secondary wire is triple insulated wire by Totoku, type: TIW-E; (OBJT2) UR E166483 or TEX-E by Furukawa (OBJT2) E20644 or equivalent Bobbin: +Sumitomo Bakelite, type: PM-9820, rated 94V-0 at min. 0,16mm thickness, measured thickness: 0,5mm; (QMFZ2) UR E41429; RTI=150°C or + Chang Chun, type T375J, rated 94V-0 at min. 0,45mm thickness, measured thickness: 0,5mm; (QMFZ2) UR E59481; RTI=150°C or equivalent Insulation: Location / # Layers / Thickness mm / Material Pri/copper shield 1 0,025 polyester Pri/sec 1 0,025 polyester Outerwrap 2 0,025 polyester Insulation is achieved by 1 layer tape between primary and secondary and triple insulated wire on secondary side. Whole transformer is wrapped with two layers of polyester tape. Outlets of all windings are tubed. Temperature class B			IEC/EN 60950-1	Accepted.
Capacitor CY1 (bridging pri/sec)	+TDK	CD	Min.250Vac; max.2200pF, Y1	IEC60384-14, UL1414 (FOWX2)	VDE 124321 UR E37861

**IEC 60950-1**

Clause	Requirement + Test		Result - Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Capacitor CY1 (bridging pri/sec) Alternative	Haohua Electronic Co.	CT7	Max.2200 pF, min.250V, Y1	IEC60384-14, UL1414 (FOWX2)	VDE 40003902 UR E233106
Capacitor CY1 (bridging pri/sec) Alternative	Success Electronics Co., Ltd.	SB, SE	Min.250Vac;Max.2200 pF, Y1	IEC60384-14, UL1414 (FOWX2)	VDE 40016621; VDE 40020002 UR E114280
Capacitor CY1 (bridging pri/sec) Alternative	JYA-NAY CO LTD	JN	Min.250Vac;Max.2200 pF, Y1	IEC60384-14, UL1414 (FOWX2)	VDE400018 31 UR E201384
Optocoupler U2	Sharp	PC817	Isolation voltage 5000 Vrms	IEC/EN 60950-1 VDE0884 (FPQU2)	VDE 40008087 UR E64380
Optocoupler U2 Alternative	Renesas Electronics Corp.	PS2701-1	Isolation voltage 3750 Vrms	IEC/EN 60950-1 VDE0884 (FPQU2)	VDE 40008902 UR E72422
Optocoupler U2 Alternative	Lite-On	LTV-817, LTV-357T	Isolation voltage 5000 Vrms	IEC/EN 60950-1 VDE0884 (FPQU2)	VDE400152 48; VDE 138213 UR E113898
Optocoupler U2 Alternative	Fairchild	H11A817B, FOD8173	Isolation voltage 5000 Vrms	IEC/EN 60950-1 VDE0884 (FPQU2)	VDE 40026857 UR E90700
Optocoupler U2 Alternative	Everlight Electronics Co Ltd	EL817	Isolation voltage 5000 Vrms	IEC/EN 60950-1 VDE0884 (FPQU2)	VDE 132249 UR E214129
Optocoupler U2 Alternative	Cosmo Electroncis Corp	K1010, KP1010	Isolation voltage 5000 Vrms	IEC/EN 60950-1 VDE0884 (FPQU2)	VDE 101347 UR E169586

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
<b>Supplementary information:</b> <ol style="list-style-type: none"> <li>1) <sup>1)</sup> Provided evidence ensures the agreed level of compliance. See OD-CB2039.</li> <li>2) + means, that components from other vendor and other model number, but with the same or better/higher rating and equivalent approvals are accepted.</li> </ol>					

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

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (V)	I (mA)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status	
Model: GT-41052-1548							
90	318	--	--	F1	2,0	Rated output load	
100	283	0,6	--	F1	2,0	Rated output load	
120	238	0,6	--	F1	2,0	Rated output load	
180	157	0,6	--	F1	2,0	Rated output load	
220	136	0,6	--	F1	2,0	Rated output load	
240	127	0,6	--	F1	2,0	Rated output load	
264	123	--	--	F1	2,0	Rated output load	
Model: GT-41052-1524							
90	323	--	--	F1	2,0	Rated output load	
100	294	0,6	--	F1	2,0	Rated output load	
240	164	0,6	--	F1	2,0	Rated output load	
264	149	--	--	F1	2,0	Rated output load	
Model: GT-41052-1509							
90	338	--	--	F1	2,0	Rated output load	
100	297	0,6	--	F1	2,0	Rated output load	
240	169	0,6	--	F1	2,0	Rated output load	
264	158	--	--	F1	2,0	Rated output load	
Model: GT-41052-1305							
90	317	--	--	F1	2,0	Rated output load	
100	285	0,6	--	F1	2,0	Rated output load	
240	166	0,6	--	F1	2,0	Rated output load	
264	154	--	--	F1	2,0	Rated output load	
Comment: The steady-state input current did not exceed the rated current at the rated voltage by more than 10% under the maximum normal load. Input current was measured at 50 and 60 Hz with identical results.							



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

<b>2.1.1.5 c) 1)</b>	<b>TABLE: max. V, A, VA test</b>				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
48	0,31	48,0	0	--	
48	0,31	48,0	0,310	14,88	
48	0,31	48,0	0,450	21,6	
supplementary information:					
Comments: This test is representable for all units.					

2.1.1.5 c) 2)	TABLE: stored energy			N/A
Capacitance C (μF)		Voltage U (V)	Energy E (J)	
supplementary information:				

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

2.1.1.7	TABLE: Discharge of capacitors in the primary circuit	P
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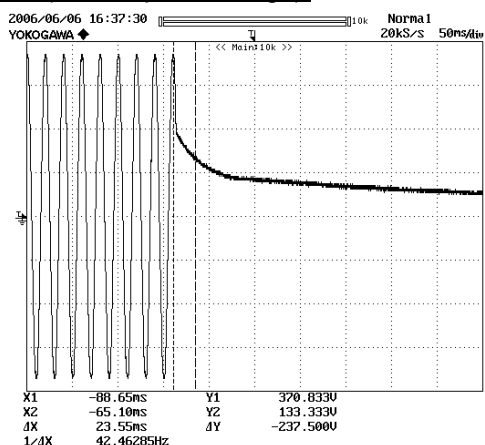
The unit was connected to 264 .Vac, 50 Hz. A storage oscilloscope was connected across the external point of disconnection of the mains supply. With all switches in the unit initially set to the off position, the unit was disconnected from the supply source. The voltage at the time of disconnection,  $V_o$ , and the voltage  $V_{tc}$  at 1 second was recorded.

Model	Location	Time Constant	Measured voltage after 1 sec.	Condition
GT-41052-1548	L to N	23,55 ms	25 Vdc	No load
GT-41052-1548	L to N	49,9 ms	8,33 Vdc	Rated load

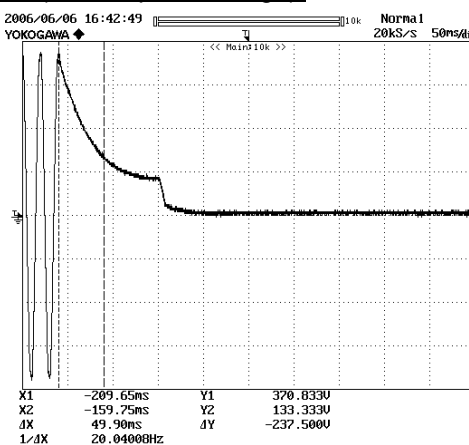
Comments: The voltage across the line capacitor did decay to less than 37 percent of its original value in 1 second.

Scope pictures:

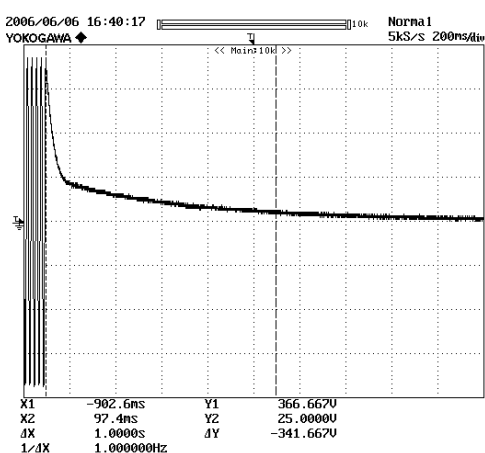
No load (37% of peak voltage):



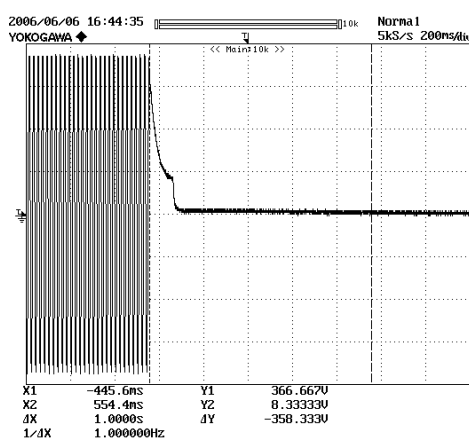
No load (37% of peak voltage):



Voltage after 1:

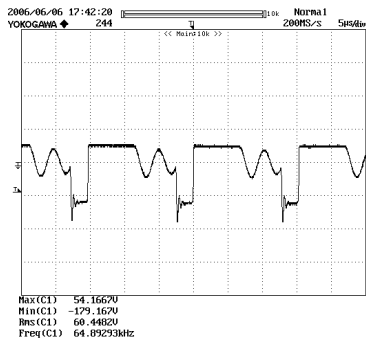
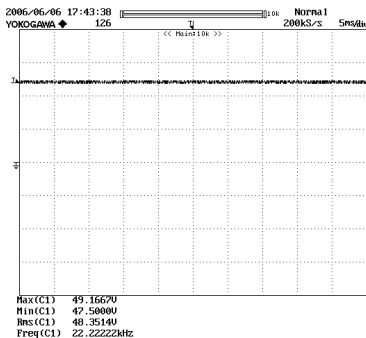


Voltage after 1:



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

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
Model: GT-41052-1548				
Transformer T1, Pin A to Pin B		180 Vpk	61 Vrms	D3
Transformer T1, Pin B to D3		49 Vpk	49 Vrms	SELV (DC)
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)		
Model: GT-41052-1548				
Output Diode D3, Short		Unit switched off immediately. No hazard, no fire.		
Voltage regulation U2 pin 3-4 (pri), Short		Unit switched off immediately. No hazard, no fire.		
Voltage regulation U2 pin 3 (pri), Open		Unit switched off immediately. No hazard, no fire.		
Voltage regulation U2 pin 1-2 (sec), Short		Unit switched off immediately. No hazard, no fire.		
supplementary information:				

<b>SELV reliability Testing</b> (Model: GT-41052-1548)						
Output Diode D3	Short	264Vac	>10min	F1	--	Unit switched off immediately. No hazard, no fire.
Voltage regulation U2 pin 3-4 (pri)	Short	264Vac	>10min	F1	--	Unit switched off immediately. No hazard, no fire.
Voltage regulation U2 pin 3 (pri)	Open	264Vac	>10min	F1	--	Unit switched off immediately. No hazard, no fire.
Voltage regulation U2 pin 1-2 (sec)	Short	264Vac	>10min	F1	--	Unit switched off immediately. No hazard, no fire.
supplementary information:						
Pin A to Pin B:			Pin B to after D3:			
 <p>Max(C1) 54.16670 Rms(C1) 129.1670 Freq(C1) 64.8923kHz</p>			 <p>Max(C1) 49.16670 Rms(C1) 47.50000 Freq(C1) 22.2222kHz</p>			

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Clause	Requirement + Test	Result - Remark	Verdict

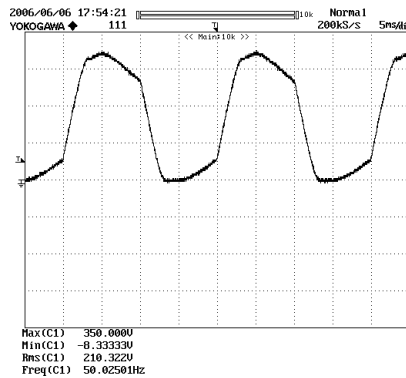
2.4	TABLE: Limited current circuit		P
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The unit was connected to 264 Vac, 60 Hz. A 2000 Ohms non-inductive resistor and a switch were connected between the user accessible part of a limited current circuit and either pole of the limited current circuit or earth. A storage oscilloscope was connected across the points under consideration. The switch was closed and voltages on resistor were measured.

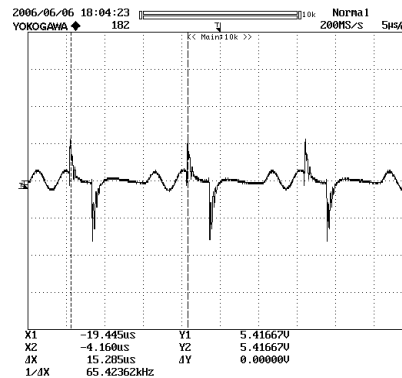
Limit values	46,2 mA
Circuit(s) tested	CY1
Measured working voltage:	350 Vpk; 211 Vrms
Measured frequency	66 kHz
Measured current through 2000Ω	Voltage drop: 8,12 Vpk; Calculated current: 4,06 mA
Measured capacitance	2200 pF

Comments: The dielectric test was performed on the unit (see table dielectric testing) before the above measurements were done. According to an UL PAG the touch current with D1 was measured between the capacitor to PE.

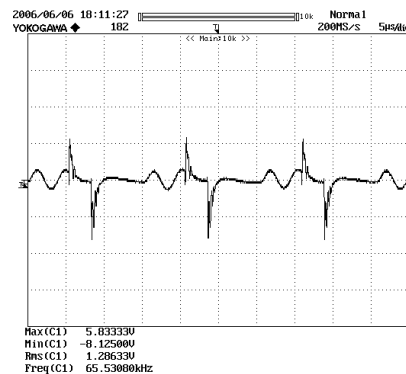
Working voltage CY1:



Measured Frequency:



Measured trough 2000 Ohms:



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

2.5	TABLE: Limited power sources					P
Circuit output tested:						
Note: Measured Uoc (V) with all load circuits disconnected: 48,0 (GT-41052-1548); 24,43 (GT-41052-1524); 9,16 (GT-41052-1509); 5,34 (GT-41052-1305)						
Components	Sample No.	Uoc (V)	I <sub>sc</sub> (A)		VA	
			Meas.	Limit	Meas.	Limit
Normal condition, Max Load	GT-41052-1548	48,0	0,450	3,12	21,6	100
Single fault: R11 opened	GT-41052-1548	48,0	0,150	3,12	8,48	100
Single fault: R13 shorted	GT-41052-1548	48,0	—*	3,12	—*	100
Single fault: R6 shorted	GT-41052-1548	48,0	—*	3,12	—*	100
Normal condition, Max output power	GT-41052-1524	24,43	-	-	23,2 V x 1,0 A = 23,2 VA	100
Normal condition, Max. current	GT-41052-1524	24,43	1,82	8	10,2 V x 1,82 A = 18,56	100
Output shorted, (Short circuit current is 0 A, control shut down power supply)	GT-41052-1524	24,43	0	8	0	100
Single fault: R6 shorted	GT-41052-1524	24,43	0,72	8	17,67	100
Normal condition Max Load	GT-41052-1509	9,16	3,06	8	28,03	100
Single fault: R6 shorted	GT-41052-1509	9,16	2,71	8	24,88	100
Normal condition: Max Load	GT-41052-1305	5,34	6,76	8	36,10	100
Single fault: R6 shorted	GT-41052-1305	5,34	4,52	8	23,37	100
supplementary information:						
Sc=Short circuit, Oc=Open circuit * Unit does not work. Output of the unit fulfills requirements for limited power source.						

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

2.6	TABLE: Resistance of earthing conductors and their terminations				N/A
Using a maximum 12 V dc power source, a current of 40 A was passed between the equipment earthing terminal and the part in the equipment that is required by 2.6.1 to be earthed listed below for a period of 120 s. The voltage drop from the earthing terminal to the accessible metal part required to be earthed was recorded and the resistance was calculated.					
Model	Location		Test Current in A	Measured Voltage in (mV)	Calculated Resistance (mΩ)
Comments:					

2.9.1, 2.9.2, 5.2.2	TABLE: Humidity test	P
<p>A humidity chamber was maintained within 1°C of temperature “t” at a temperature of 22,5°C. The unit and any other separate components were brought to a temperature between t and t + 4°C They were then placed in the chamber and held at a relative humidity of 91-95% for a period of 48 hours. Prior to conditioning, parts of the unit (covers) which could be removed without the use of tools were removed and separately placed in the chamber. During conditioning, cable entrances and/or a conduit openings were left open. During this treatment, the unit was not energized.</p> <p>While still in the humidity chamber, but after all parts have been placed back on the unit, a dielectric potential was applied and maintained for a period of one minute between the points indicated below. During this test, all switching devices (switches, relays, triacs, etc.) in the primary circuit were closed.</p>		
Location	Insulation type	Potential used
Primary to secondary	Reinforced	3000 Vac
Primary to Enclosure *	Reinforced	3000 Vac
<p>Comment:</p> <p>* Before electric strength test the unit was wrapped with aluminium foil.</p> <p>There was no breakdown of insulation. All components were tested.</p>		

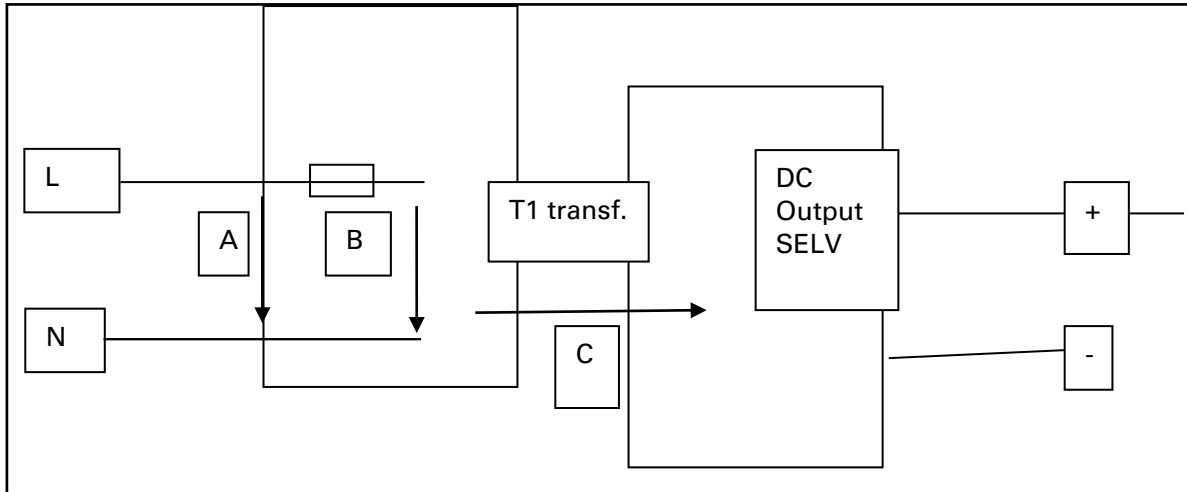
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement GT-41052-1548			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
Transformer T1				
PE to Pin 2	268	475	Max. RMS and PK	
PE to Pin 3	214	341	--	
PE to Pin 4	214	341	--	
PE to Pin 5	219	417	--	
Pin 2 to Pin A	231	484	--	
Pin 2 to Pin B	261	484	--	
PE to Pin C	265	484	--	
supplementary information:				
Input voltage: 240 Vac/50 Hz. Test Condition was: Rated output load.				
The following terminals were connected to earth (PE): Minus of the output, Neutral.				

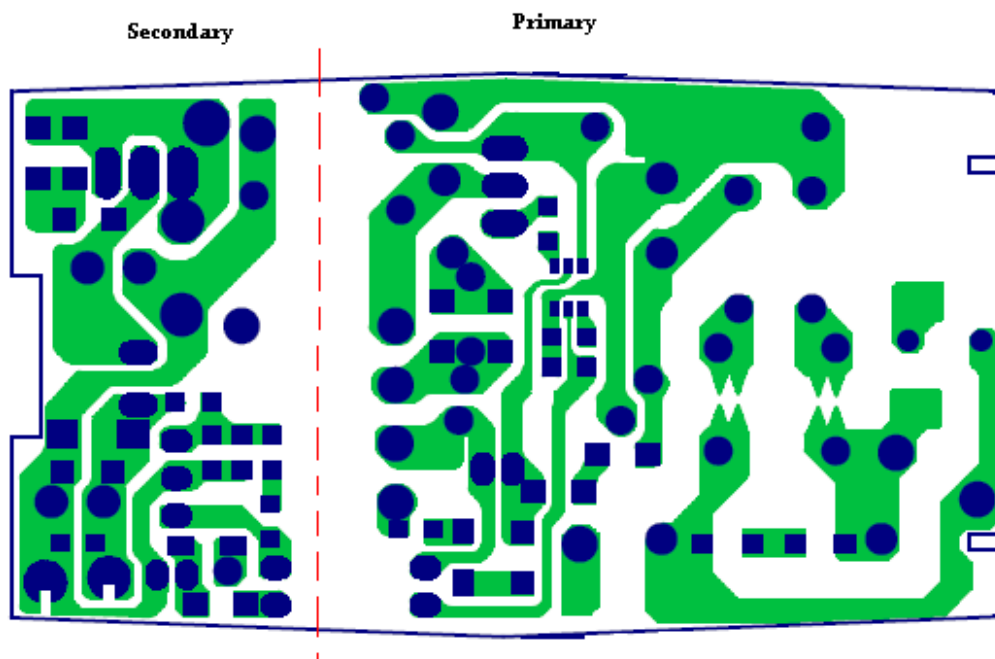
<b>2.10.3 and 2.10.4</b>	<b>TABLE: Clearance and creepage distance measurements</b>						<b>P</b>
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
A- Primary to Primary before fuse (functional)	340	240	1,8 (1,5)	2,8	2,5	2,8	
B - Primary to Primary after fuse (functional)	340	240	Method C was used				
C1 - Primary to Secondary (Reinforced) transformer T1	484	265	4,8 (4,2)	*	5,6	*	
C2 - Primary to Secondary on PCB	484	265	4,8 (4,2)	6,0	5,6	6,2	
C3 - Secondary to core of the transformer T1	484	265	4,8 (4,2)	6,0	5,6	6,2	
C5 - Secondary (Capacitor C5) to core of the transformer **	484	265	4,8 (4,2)	6,2	5,6	6,2	
Plug adaptor to user accessible parts	340	240	4,6 (4,0)	5,4	5,0	5,4	
Supplementary information:							
*1 layer of insulating tape and TIW on secondary, all outlets are tubed.							
** Core of transformer T1 was considered as a part of the primary circuit.							
The maximum altitude during operation is 3000 m (multiplication factor 1,14 was used) – Rev. No. 3.0.							

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

Block diagram



Layout





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

<b>2.10.5</b>	<b>TABLE: Distance through insulation measurements</b>					<b>P</b>
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
T1 Bobbin		484	265	3000	0,4	0,71
Optocoupler		484	265	3000	0,4	0,4
Enclosure		484	265	3000	0,4	1,9
Supplementary information: Approved optocouplers are used. See list of critical components.						

2.10.3, 4.2.2, 4.2.3, 4.2.4	TABLE: Steady force test (internal spacings push test)			P
<p>Components and parts, other than parts serving as an enclosure, are subjected to a steady force of 10 N <math>\pm</math> 1 N.</p> <p>Parts of an enclosure located in Operator Access Area, which are protected by a cover or door, are subjected to a steady force of 30 N <math>\pm</math> 3 N for a period of 5 s, applied by means of a straight unjointed version of the test finger, to the part on or within the equipment.</p> <p>External enclosures are subjected to a steady force of 250 N <math>\pm</math> 10 N for a period of 5 s, applied in turn to the top, bottom and sides of the enclosure fitted to the equipment, by means of a suitable test tool providing contact over a circular plane surface 30 mm in diameter. However, this test is not applied to the bottom of an enclosure of equipment having a mass of more than 18 kg.</p>				
Part	Thickness	Force	Observation	
Components	—	10 N	Passed. NF1, C1, C5 and C9 are glued to avoid bending. D3 and C8 are glued together. L2 is tubed.	
Top/ Bottom of enclosure	2,0 mm	250 N	No deflection of the material	
Left/ Right Side of Enclosure	2,0mm	250 N	No deflection of the material	
Comments: There was no changes of distances.				

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

4.2.5	TABLE: Impact Test		N/A
A sample consisting of the complete enclosure represented the largest area was supported in its normal position. A solid smooth steel ball, approximately 50 mm in diameter and with a mass of 500 g was permitted to fall freely from the rest through a vertical distance of 1,3 m onto the sample.			
A dielectric test from primary to earth and primary to secondary was conducted after the test.			
Part	Thickness	Observation	
Dielectric test after the steel ball test:			
Location	Insulation type		Potential used
Comment:			

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

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						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition										
Max. current during fault condition										
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:										
There is no battery within the unit.										

4.3.8	TABLE: Batteries	N/A
Battery category .....		
Manufacturer .....		
Type / model .....		
Voltage .....		
Capacity .....		
Tested and Certified by (incl. Ref. No.) .....		
Circuit protection diagram:		
Supplementary information:		
There is no battery within the unit.		

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Clause	Requirement + Test	Result - Remark	Verdict

MARKINGS AND INSTRUCTIONS (1.7.13 )	
Location of replaceable battery	
Language(s) .....:	
Close to the battery .....:	
In the servicing instructions .....:	
In the operating instructions .....:	

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

4.5	TABLE: maximum temperatures						P
	test voltage (V) .....	90	264				—
	Frequency (Hz) .....	50	50				—
	t <sub>amb1</sub> (°C) .....	22,2	22,1				—
	t <sub>amb2</sub> (°C) .....	40	40				—
maximum temperature T of part/at::		T (°C)					allowed T <sub>max</sub> (°C)
Model: GT-41052-1548							
Capacitor CX1 body		78,4	72,3				105
Inductor NF1 coil		108,8	77,9				130
Bulk Capacitor C1		84,6	73,2				105
PCB near R6		95,6	82,8				130
T1 winding		93,4	104,5				110
Inductor L2		76,4	87,0				105
Bulk Capacitor C9		64,0	70,3				105
Bulk Capacitor C8		76,9	87,4				105
Enclosure outside		61,6	59,8				90
Comment:							
The above temperatures are measured at t <sub>amb1</sub> . The values measured are subtracted with t <sub>amb1</sub> and t <sub>amb2</sub> (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient.							
The printed circuit board is rated 130°C.							

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

<b>4.5</b>	<b>TABLE: maximum temperatures</b>						<b>P</b>
	test voltage (V) .....	90	264				—
	Frequency (Hz) .....	50	50				—
	$t_{amb1}$ (°C) .....	23,4	23,4				—
	$t_{amb2}$ (°C) .....	40	40				—

maximum temperature T of part/at::	T (°C)					allowed $T_{max}$ (°C)
------------------------------------	--------	--	--	--	--	---------------------------

Model: GT-41052-1524						
Capacitor CX1 body	80,7	72,5				105
Inductor NF1 coil	109,4	86,7				130
BD1 body	108,8	93,7				130
Bulk capacitor C1	86,2	83,3				105
T1 winding	95,6	105,1				110
T1 core	90,7	100,5				110
PCB near heatsink	97,4	117,8				130
Enclosure Inside near T1	74,0	79,7				90
Enclosure Outside near T1	61,9	64,1				90

<p>Comment:</p> <p>The above temperatures are measured at <math>t_{amb1}</math>. The values measured are subtracted with <math>t_{amb1}</math> and <math>t_{amb2}</math> (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient.</p> <p>The printed circuit board is rated 130°C.</p>						
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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: maximum temperatures						P
	test voltage (V) .....	90	264				—
	Frequency (Hz) .....	50	50				—
	t <sub>amb1</sub> (°C) .....	23,6	23,7				—
	t <sub>amb2</sub> (°C) .....	40	40				—
maximum temperature T of part/at::		T (°C)					allowed T <sub>max</sub> (°C)
Model: GT-41052-1509							
Capacitor CX1 body		83,9	74,9				105
Inductor NF1 coil		119,9	86,8				130
BD1 body		112,6	89,9				130
Bulk capacitor C1		94,1	84,5				105
T1 winding		105,9	*110,1				110
T1 core		98,6	102,8				110
PCB near heatsink		109,4	117,4				130
Enclosure Inside near T1		79,8	82,7				90
Enclosure Outside near T1		67,0	68,6				90
Comment: * heating test was repeated also at ambient 40°C. See next table.							
The above temperatures are measured at t <sub>amb1</sub> . The values measured are subtracted with t <sub>amb1</sub> and t <sub>amb2</sub> (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient.							
The printed circuit board is rated 130°C.							

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

4.5	TABLE: maximum temperatures						P
	test voltage (V) .....	264					—
	Frequency (Hz) .....	50					—
	t <sub>amb1</sub> (°C) .....	39,5					—
	t <sub>amb2</sub> (°C) .....	40					—
maximum temperature T of part/at::		T (°C)					allowed T <sub>max</sub> (°C)
Model: GT-41052-1509							
T1 winding		108,6					110
T1 core		100,6					110
Comment: The heating test for model GT-41052-1509 was repeated once again because of T1 winding temperature which exceeded 110°C, when heating done at ambient 23,7°C. Temperature of T1 winding was within required value when ambient was 40°C.							
The above temperatures are measured at t <sub>amb1</sub> . The values measured are subtracted with t <sub>amb1</sub> and t <sub>amb2</sub> (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient.							
The printed circuit board is rated 130°C.							



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

4.5	TABLE: maximum temperatures						P
	test voltage (V) .....	90	264				—
	Frequency (Hz) .....	50	50				—
	t <sub>amb1</sub> (°C) .....	22,8	23,1				—
	t <sub>amb2</sub> (°C) .....	40	40				—
maximum temperature T of part/at::		T (°C)					allowed T <sub>max</sub> (°C)
Model: GT-41052-1305							
Capacitor CX1 body		93,3	87,3				105
Inductor NF1 coil		104,4	89,9				130
BD1 body		102,0	89,0				130
Bulk capacitor C1		93,8	86,9				105
T1 winding		98,3	105,9				110
T1 core		96,0	104,8				110
PCB near heatsink		100,0	108,1				130
Enclosure Inside near T1		74,4	81,3				90
Enclosure Outside near T1		62,0	69,0				90
Comment:							
The above temperatures are measured at t <sub>amb1</sub> . The values measured are subtracted with t <sub>amb1</sub> and t <sub>amb2</sub> (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient.							
The printed circuit board is rated 130°C.							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>4.5.5</b>	<b>TABLE: Ball pressure test of thermoplastic parts</b>		N/A
	Allowed impression diameter (mm) ..... :	≤ 2 mm	—
Part	Test temperature (°C)	Impression diameter (mm)	
Supplementary information: Approved materials are used. Refer to list of safety critical components.			

<b>4.7</b>	<b>TABLE: Resistance to fire</b>					P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
Supplementary information: Approved materials are used. Refer to list of safety critical components.						

5.1	TABLE: touch current measurement			P
Measured between:		Measured (mA)	Limit (mA)	Comments/conditions
N (L) to Enclosure		0,0011	0,25	Rated output load.
L (N) to Enclosure		0,016	0,25	Rated output load.
N (L) to - output		0,0008	0,25	Rated output load.
N (L) to + output		0,0007	0,25	Rated output load.
L (N) to - output		0,144	0,25	Rated output load.
L (N) to + output		0,145	0,25	Rated output load.
supplementary information:				
Comment:				
The tests were performed at 264 Va.c. and 60 Hz with D1 measurement circuit.				
For measurement to enclosure aluminium foil was wrapped around enclosure.				

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Clause	Requirement + Test	Result - Remark	Verdict

<b>5.2</b>	<b>TABLE: Electric strength tests, impulse tests and voltage surge tests</b>			<b>P</b>
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdo wn Yes / No
Primary to enclosure* (Reinforced)		AC	3000	No
Primary to Secondary (Reinforced)		AC	3000	No
Transformer T1 primary to secondary		AC	3000	No
Transformer T1 secondary to core		AC	3000	No
Transformer T1: 1 layer of outerwrapping Polyester tape (2 layers provided)		AC	3000	No
Supplementary information: * enclosure was covered with metal foil Transformer T1: Separation is achieved by use of triple insulated wire on secondary.				

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Clause	Requirement + Test	Result - Remark	Verdict
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<b>5.3</b>	<b>TABLE: Fault condition tests</b>		<b>P</b>
	Ambient temperature (°C) .....	23±3	—
	Power source for EUT: Manufacturer, model/type, output rating .....	Elettrotest; TPS/M; 0-300V; 9kVA Short-circuit tests: mains network	—

Com- ponent No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
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**Method C – functional insulation (clause 5.3.4) (Model: GT-41052-1548)**

Input CX1 Capacitor after fuse	Short	90 Vac, 60 Hz	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.
Input CX1 Capacitor after fuse	Short	264 Vac, 50 Hz	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.
NF1	Short	90 Vac, 60 Hz	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.
NF1	Short	264 Vac, 50 Hz	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.

**Additional Component faults (Model: GT-41052-1548)**

Switching transistor Q1 D-G	Short	264Vac	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.
Switching transistor D-S	Short	264Vac	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.
T1 Pin 2 to Pin 3 (Pri)	Short	264Vac	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.
T1 Pin 5 to Pin 4 (Pri)	Short	264Vac	< 1 sec	F1	--	F1 opened immediately. No hazard, no fire.

**Annex C Transformer overload / short (clause 5.3.3)**

Model: GT-41052-1548

T1 Pin A to Pin B	Overload	264Vac	1 h	F1	0,176	Overload to 450mA. Temperature of transformer was 93,5°C at 22,1°C ambient. No hazard, no fire.
T1 Pin A to Pin B	Short	264Vac	10 min	F1	< 0,1	Unit switched off immediately. No hazard, no fire.
T1 Pin B to Pin C	Short	264Vac	10 min	F1	--	Unit switched off immediately. No hazard, no fire.

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Clause	Requirement + Test				Result - Remark	
Com- ponent No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Output	Short	264Vac	10 min	F1	--	F1 opened immediately. No hazard, no fire.
Model: GT-41052-1524						
T1 Pin A to Pin B	Short	264Vac	10 min	F1	< 0,1	Unit switched off immediately. No hazard, no fire.
T1 Pin A to Pin B	Overload	264Vac	2 h	F1	0,25	Overload to 1,3 A. Temperature of transformer was 119°C at 25,1°C ambient. No hazard, no fire.
Model: GT-41052-1509						
T1 Pin A to Pin B	Short	264Vac	10 min	F1	< 0,1	Unit switched off immediately. No hazard, no fire.
T1 Pin A to Pin B	Overload	264Vac	2 h	F1	0,21	Overload to 2,3 A. Temperature of transformer was 134°C at 25,1°C ambient. No hazard, no fire.
Model: GT-41052-1305						
T1 Pin A to Pin B	Short	264Vac	10 min	F1	< 0,1	Unit switched off immediately. No hazard, no fire.
T1 Pin A to Pin B	Overload	264Vac	2 h	F1	0,24	Overload to 5,1 A. Temperature of transformer was 128°C at 25,1°C ambient. No hazard, no fire.
Supplementary information: Test performed with all types of fuses as specified in list of critical components (table 1.5.1). When components were failing, the test was repeated two times (three times in total). There was no fire nor melted metal. Electric strength tests performed after abnormal testing and there was no breakdown of insulation. The fault test was running until thermal stabilization was reached.						

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Clause	Requirement + Test	Result - Remark	Verdict

C.2	TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
T1	Primary to secondary windings	484 V <sub>pk</sub>	265 V <sub>rms</sub>	3000 V <sub>ac</sub>	4,2	5,6	2 layers	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T1	Primary to secondary winding (secondary winding is TIW wire)			3000 V <sub>ac</sub>	*	*	3 layers	
supplementary information:								
* Secondary winding is approved TIW wire. Secondary leadouts are in tubing. Distance between primary and secondary windings exists only on PCB.								

C.2	TABLE: transformers	P
See enclosure No. 3 for transformer specifications.		
Transformer		
<p>Diagram illustrating the cross-section of a transformer assembly. The assembly consists of a base (3) with a support (1) and a top layer (2). The main body contains layers labeled NP1, NS1, NS2, NP2, E1, and E2 from bottom to top. A PIN is shown on the right side. Callouts 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 point to various components and interfaces.</p>		
<ul style="list-style-type: none"><li>- NP1, NP2 primary winding,</li><li>- NS1, NS2 secondary winding, (TIW approved wire).</li><li>- 6 one layer of insulation.</li></ul>		

## **Enclosure No. 1**

**National differences to IEC60950-1:2005/Am 1/Am 2**

**(46 pages including this cover page)**

IEC60950_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>ATTACHMENT TO TEST REPORT IEC 60950-1</b> <b>(AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES</b> (Information technology equipment-safety)			
Differences according to ..... : AS/NZS 60950.1:2015			
Attachment Form No..... : AU_NZ_ND_IEC60950_1F			
Attachment Originator ..... : JAS-ANZ			
Master Attachment..... : 2017-06			
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	<b>National Differences</b>		P
<b>Appendix ZZ</b>	Variations to IEC 60950-1, Ed 2.2 (2013) for Australia and New Zealand		P
<b>1.2</b>	<b>DEFINITIONS</b>		P
	After definition 'PERSON, SERVICE', insert the following new definition: POTENTIAL IGNITION SOURCE.....1.2.12.201		P
<b>1.5</b>	<b>COMPONENTS</b>		N/A
1.5.1	1 ..... First paragraph, insert the following text after the words 'IEC component standard: or the relevant Australian/New Zealand Standard 2 ..... In the Note, insert the following text after the word standard: or the relevant Australian/New Zealand Standard 3 ..... Second paragraph, delete the words 'without further evaluation'		N/A
1.5.2	1 ..... First paragraph, insert the following text after the word 'standard' or an Australian/New Zealand Standard 2 ..... First paragraph, second dash item, second line, insert the following text after the word 'standard' or an Australian/New Zealand Standard 3 ..... First paragraph, second dash item, last line, insert the following text after the word 'standard': or an Australian/New Zealand Standard		N/A
<b>1.7</b>	<b>MARKINGS AND INSTRUCTIONS</b>		N/A



1.7.1.3	<i>Delete</i> existing text and <i>replace</i> with the following: Graphical symbols placed on the equipment as a requirement of this standard, shall be in accordance with IEC 60417 or ISO 3864-2 or ISO 7000, if available. In the absence of suitable symbols, the manufacturer may design specific graphical symbols. Symbols as required by this standard placed on the equipment shall be explained in the user manual		N/A												
2.9	<b>ELECTRICAL INSULATION</b>		N/A												
2.9.2	Variation Second paragraph, <i>delete</i> the word ‘designated’		N/A												
3.2.5	<b>POWER SUPPLY CORDS</b>		N/A												
Table 3B	Variation 1..... <i>Delete</i> te the first four rows and replace with the following: <table><tr><td>Over 0.2 up to and including 3</td><td>0.5<sup>a</sup></td><td>18 [0.8]</td></tr><tr><td>Over 3 up to and including 7.5</td><td>0.75</td><td>16 [1.3]</td></tr><tr><td>Over 7.5 up to including 10</td><td>(0.75)<sup>b</sup> 1.00</td><td>16 [1.3]</td></tr><tr><td>Over 10 up to including 16</td><td>(1.0)<sup>c</sup> 1.5</td><td>14 [2]</td></tr></table>	Over 0.2 up to and including 3	0.5 <sup>a</sup>	18 [0.8]	Over 3 up to and including 7.5	0.75	16 [1.3]	Over 7.5 up to including 10	(0.75) <sup>b</sup> 1.00	16 [1.3]	Over 10 up to including 16	(1.0) <sup>c</sup> 1.5	14 [2]		N/A
Over 0.2 up to and including 3	0.5 <sup>a</sup>	18 [0.8]													
Over 3 up to and including 7.5	0.75	16 [1.3]													
Over 7.5 up to including 10	(0.75) <sup>b</sup> 1.00	16 [1.3]													
Over 10 up to including 16	(1.0) <sup>c</sup> 1.5	14 [2]													
	2..... <i>Delete</i> te NOTE 1 and renumber existing NOTE 2 as ‘NOTE’		N/A												
	3..... <i>Delete</i> te Footnote <sup>a</sup> and replace with the following: <sup>a</sup> This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the to the plug does not exceed 2 m (0,5 mm2 three-core supply flexible cords are not permitted; see AS/NZS 3191)		N/A												
4.3	<b>DESIGN AND CONSTRUCTION</b>		N/A												
4.3.6	Variation <i>Delete</i> the third paragraph and <i>replace</i> with the following:		N/A												
	<i>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets</i>		N/A												
4.3.8	Addition Eighth paragraph, <i>insert</i> the following new note after the first dash item:		N/A												

	NOTE 6.201 In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		
4.3.13.5.1	Variation <i>Delete</i> the first paragraph and <i>replace</i> with the following: Except as permitted below, equipment shall be classified and labelled according to IEC 60825-1 or AS/NZS 60825.1, IEC 60825-2 or AS/NZS 60825.2 and IEC 60825-12, as applicable		N/A
	Third paragraph, first sentence, after 'IEC 60825-1', <i>insert</i> the following text: or AS/NZS 60825.1		N/A
	Fourth paragraph, after 'IEC 60825-1', <i>insert</i> the following text: or AS/NZS 60825.1		N/A
<b>4.7</b>	<b>RESISTANCE TO FIRE</b>		N/A
4.7	Addition At the end of Clause 4.7, <i>insert</i> the following text: For alternate tests refer to Clause 4.7.201		N/A
<b>6</b>	<b>CONNECTION TO TELECOMMUNICATIONS NETWORKS</b>		N/A
6.2.2	Variation For Australia only, <i>delete</i> the first paragraph and Note, and <i>replace</i> with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2		N/A
6.2.2.1	Variation For Australia only, <i>delete</i> the first paragraph including the Notes, and <i>replace</i> with the following: In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator Reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, $U_c$ , is: (i)..... for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and (ii)..... For 6.2.1 b) and 6.2.1 c): 1.5kV		N/A
	NOTE 201 The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines		N/A
	NOTE 202 The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages		N/A

6.2.2.2	Variation For Australia only, delete the second paragraph including the Note, and replace with the following: In Australia only, the a.c. test voltage is (i) ..... for 6.2.1 a): 3kV; and (ii) ..... for 6.2.1b) and 6.2.1c): 1.5kV		N/A
	NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.		N/A
	NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A
<b>7</b>	<b>CONNECTION TO CABLE DISTRIBUTION NETWORK</b>		N/A
7.3	Addition <i>Add</i> the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes		N/A
Annex P	Addition <i>Add</i> the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification — Plugs and socket-outlets		N/A

	<b><i>Special national conditions (if any)</i></b>		N/A
<b>1.2.12</b>	<b>FLAMMABILITY</b>		N/A
1.2.12.15	Addition After Clause 1.2.12.15, <i>insert</i> the following new clause:		N/A
<b>1.2.12.201</b>	<b>POTENTIAL IGNITION SOURCE</b> Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA		N/A
	Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS		N/A
	NOTE 1 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE		N/A
	NOTE 2 This definition is from AS/NZS 60065:2012, Clause 2.8.11.		N/A
<b>4</b>	<b>PHYSICAL REQUIREMENTS</b>		N/A

4.1	Addition After Clause 4.1, <i>insert</i> new Clause 4.1.201 as follows:		N/A
4.1.201	<b>Display devices used for television purposes</b> Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065		N/A
4.3	<b>DESIGN AND CONSTRUCTION</b>		N/A
4.3.8	Addition After Clause 4.3.8, <i>add</i> the following new clause as follows		N/A
4.3.8.201	<b>Products containing coin/button cell batteries and batteries designated R1</b> The requirements of AS/NZS 60065:2012 Amendment 1:2015, Clause 14.10.201 apply for this Clause.		N/A
4.7	<b>RESISTANCE TO FIRE</b>		N/A
4.7.3.6	Addition After Clause 4.7.3.6, <i>add</i> new clauses as follows:		N/A
4.7.201	<b>Resistance to fire – Alternative tests</b>		N/A
4.7.201.1	<b>General</b> Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the apparatus, or the following: a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.		N/A
	b) The following parts which would contribute negligible fuel to a fire: – small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; – small electrical components, such as capacitors with a volume not exceeding 1,750 mm <sup>3</sup> , integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10		N/A
	NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another		N/A
	<i>Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5</i>		N/A

	<i>For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5</i>		
	<p>The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring</p>		N/A
<b>4.7.201.2</b>	<p><b>Testing of non-metallic materials</b></p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C</p> <p>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.</p>		N/A
<b>4.7.201.3</b>	<p><b>Testing of insulating materials</b></p> <p>Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE Contacts in components such as switch contacts are considered to be connections.</p> <p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.</p> <p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p>		N/A

	<b>Clause of AS/NZS 60695.11.5</b>	<b>Change</b>		N/A
	<b>9 Test procedure</b>			
	<b>9.2 Application of Needle-flame</b>	<i>Delete</i> the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner. The duration of application of the test flame shall be 30 s ± 1 s		
	<b>9.3 Number of test specimens</b>	<i>Delete</i> existing text and <i>replace</i> with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		
	<b>11 Evaluation of test results</b>	<i>Delete</i> existing text and <i>replace</i> with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15s		
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part			N/A

4.7.201.4	<p><b>Testing in the event of non-extinguishing material</b></p> <p>If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3 by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p>		N/A
	<p>NOTE 1 If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p>		N/A
	<p>NOTE 2 If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing</p>		N/A
	<p>NOTE 3 Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p>		N/A
4.7.201.5	<p><b>Testing of printed boards</b></p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE.</p>		N/A

	<p>The test is not carried out if the</p> <ul style="list-style-type: none"> <li>– Printed board does not carry any POTENTIAL IGNITION SOURCE;</li> <li>– Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or</li> <li>– Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely</li> </ul> <p><i>Compliance shall be determined using the smallest thickness of the material.</i></p>		N/A
	<p>NOTE Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 m when the circuit supplied is disconnected.</p>		N/A



IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
<b>KOREA - Differences to IEC 60950-1, Second Edition (2005) + A1:2009 (2012-05-31)</b>			
1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	Built-in product.	N/A
8: EMC	The apparatus shall comply with the relevant CISPR standards	End product consideration.	N/A

<b>ATTACHMENT TO TEST REPORT IEC 60950-1 with A1: 2009 and A2:2013</b>	
<b>U.S.A. NATIONAL DIFFERENCES</b>	
Information technology equipment – Safety – Part 1: General requirements	
<b>Differences according to</b> .....	UL 60950-1-07(Second Edition) + A1: 2011 + A2: 2014
<b>Attachment Form No.</b> .....	US_ND_IEC60950_1F
<b>Attachment Originator</b> .....	UL
<b>Master Attachment</b> .....	Date 2014-07
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U.S.A. National Differences to IEC 60950-1+ A1+ A2			
Clause	Requirement + Test	Result - Remark	Verdict
<b>Special national conditions</b>			
1.1.1	All equipment is designed as to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and if applicable, the National Electrical Safety Code, IEEE C2		P
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75		P
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A		P
1.5.5	For lengths exceeding 3,05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the /NEC		N/A
	For lengths 3,05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings		N/A

U.S.A. National Differences to IEC 60950-1+ A1+ A2			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings		N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and		N/A
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions"		N/A
	Likewise, a voltage rating is not to be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions"		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with NEC or CEC Part 1 or NEC are marked with the voltage rating and "Class 2" or equivalent		N/A
	- Marking is located adjacent to the terminals		N/A
	- Marking is visible during wiring		N/A
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable		N/A
2.6	Equipment with isolated ground (earthing) receptacles is in compliance with NEC 250.146(D) and CEC 10-112 and 10-906(8)		N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC		N/A
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment		P
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment comply with special earthing, wiring, marking and installation instruction requirements		N/A

U.S.A. National Differences to IEC 60950-1+ A1+ A2			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs		N/A
3.2.5	Power supply cords are no longer than 4.5 m in length		N/A
	Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement		N/A
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC		N/A
3.2.9	Permanently connected equipment has a suitable wiring compartment and wire bending space		N/A
3.3	Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0		N/A
3.3.3	Wire binding screws are not attached with conductors larger than 10 AWG (5,3 mm <sup>2</sup> )		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are		N/A
	- rated 125 per cent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7)		N/A
3.3.5	Revise first column of Table 3E to "Smaller of the rated current of the equipment or the protective current rating of the circuit under consideration"		N/A
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,		N/A
	- or if the motor has a nominal voltage rating greater than 120 V		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30		N/A

U.S.A. National Differences to IEC 60950-1+ A1+ A2			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.5.1	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0,76 m <sup>3</sup> (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0,9m <sup>2</sup> (10 sq ft) or a single dimension greater than 1,8 m (6 ft) have a flame spread rating of 50 or less		N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less		N/A
4.7.3.1	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043		N/A
Annex H	Equipment that produces ionizing radiation complies with U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370)		N/A
Other National Differences			
1.5.1	<p>Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements.</p> <p>These components include:</p> <p>attachment plugs, battery backup systems, battery packs, cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cut-offs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables</p>	The components fulfil the requirements of the standard and in addition P1 and P2 of UL60950 and CSA 22.2-60950 was applied.	P

U.S.A. National Differences to IEC 60950-1+ A1+ A2			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply		N/A
	This maximum operating voltage includes consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42,4 V <sub>peak</sub> or 60 V <sub>d.c.</sub> , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions		N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts		N/A
2.6.2	Equipment with functional earthing marked with the functional earthing symbol (IEC 60417-6092)		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT		N/A
4.3.2	Equipment with handles complies with special loading tests		N/A
4.3.8	Battery packs for both portable and stationary applications comply with special component requirements		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals comply with a special touch current measurement tests		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded		N/A
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test is repeated twice (three tests total) using new components as necessary		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC		N/A

### U.S.A. National Differences to IEC 60950-1+ A1+ A2

Clause	Requirement + Test	Result - Remark	Verdict
Annex EE	Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger		N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements		N/A

### CANADA NATIONAL DIFFERENCES to IEC 60950-1, Second Edition (2005) + A1:2009 + A2:2013 (2014-09-13) National standard: CAN/CSA-C22.2 NO. 60950-1A-07

### IEC 60950-1, CANADA NATIONAL DIFFERENCES

Clause	Requirement + Test	Result - Remark	Verdict
<b>Special national conditions</b>			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.		P
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		P
1.1.2	Baby monitors are required to comply with ASTM F2951, Consumer Safety Specification for Baby Monitors		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		P
1.5.5	For lengths exceeding 3,05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC.		N/A
	For lengths 3,05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.	Single phase unit.	N/A

IEC 60950-1, CANADA NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent.		N/A
	Marking shall be located adjacent to the terminals and shall be visible during wiring.		N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A
2.6	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.		N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.		N/A
	Minimum cord length is required to be 1,5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement.		N/A



IEC 60950-1, CANADA NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5,3 mm <sup>2</sup> ).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes,		N/A
	- rated 125 percent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7).		N/A
3.3.5	First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A,		N/A
	or if the motor has a nominal voltage rating greater than 120 V,		N/A
	or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13.5.1	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0,76 m <sup>3</sup> (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A



<b>IEC 60950-1, CANADA NATIONAL DIFFERENCES</b>			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0,9 m <sup>2</sup> (10 sq ft) or a single dimension greater than 1,8 m (6 ft) are required to have a flame spread rating of 50 or less.		N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.		N/A
<b>Other National Differences</b>			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include:  attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	The components fulfil the requirements of the standard and in addition P1 and P2 of UL60950 and CSA 22.2-60950 was applied.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.		N/A
	This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V <sub>peak</sub> or 60 V <sub>d.c.</sub> , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A


<b>IEC 60950-1, CANADA NATIONAL DIFFERENCES</b>			
Clause	Requirement + Test	Result - Remark	Verdict
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092)		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.		N/A
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
Annex EE	Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex 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
GENERAL	All warnings should be in French language.		N/A

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
<b>ISRAEL-Differences to IEC 60950-1:2005 (2011-03-02)</b>			
<b>ISRAEL STANDARD SI 60950 PART 1</b> <b>INFORMATION TECHNOLOGY EQUIPMENT - SAFETY: GENERAL REQUIREMENTS</b>  <b>TRANSLATION OF ISRAEL NATIONAL DEVIATIONS ONLY</b>			
1.	<b>Scope (with national deviations)</b>		—
1.1.1	<b>Equipment covered by this Standard</b>  This Standard is applicable to mains-powered or battery-powered information technology equipment, including electrical business equipment and associated equipment, with a rated voltage not exceeding 600 V.  This Standard is also applicable to the information technology equipment mentioned below: <ul style="list-style-type: none"> <li>- equipment designed for use as telecommunication terminal equipment and telecommunication network infrastructure equipment, independent of the source of power;</li> <li>- equipment designed and intended to be connected directly to, or used as infrastructure equipment in, a cable distribution system, independent of the source of power;</li> <li>- equipment designed to use the general a.c. mains supply as a communication transmission medium (see clause 6, Note 4 and subclause 7.1, Note 4).</li> </ul> This Standard is also applicable to components and subassemblies intended for incorporation in information technology equipment. It is not expected that such components and subassemblies comply with every aspect of the Standard, provided that the complete information technology equipment, incorporating such components and subassemblies, does comply.  <b>Note 1:</b> Examples of aspects with which uninstalled components and subassemblies may not comply include the marking of the power rating and access to hazardous parts.  <b>Note 2:</b> This Standard may be applied to the electronic parts of equipment even if that equipment does not wholly fall within its Scope, such as large-scale air conditioning systems, fire detection systems and fire extinguishing systems. Different requirements may be necessary for some applications.  This Standard specifies requirements intended to reduce risks of fire ignition, electric shock or bodily injury for the operator and layman who may come into contact with the equipment and, where specifically stated, for a service person.  This Standard is intended to reduce such risks with respect to installed equipment, whether it consists of a system or interconnected units or independent units, subject to installing, operating and maintaining the equipment in the manner prescribed by the manufacturer. Examples of equipment that is in the scope of this Standard are the following:		—

IEC 60950-1/Am1				
Clause	Difference – Test		Result – Remark	Verdict
	<b>Generic product type</b>	<b>Specific examples of generic type</b>		—
	Banking equipment	Monetary processing machines (counting, dispensing, etc.) for bills and coins, including automated teller machines (ATM)		
	Data and text processing machines and associated equipment	Data preparation equipment, data processing equipment, data storage equipment, personal computers, plotters, printers, scanners, text processing equipment and visual display units		
	Data network equipment	Bridges, data circuit terminating equipment, data terminal equipment and routers		
	Electrical and electronic retail equipment	Cash registers, point of sale terminals including associated electronic scales		
	Electrical and electronic office machines	Calculators, copying machines <sup>(A)</sup> , dictation equipment, document shredding machines, duplicators, erasers, micrographic office equipment, motor-operated files, paper trimmers (punchers, cutting machines, separators), paper jogging machines, pencil sharpeners, staplers and typewriters		
	Other information technology equipment	Photoprinting equipment, public information terminals and multimedia equipment		
	Postage equipment	Mail processing machines and postage machines		
	Telecommunication network infrastructure equipment	Billing equipment, multiplexers, network powering equipment, network terminating equipment, radio base stations, repeaters, transmission equipment and telecommunication switching equipment		
	Telecommunication terminal equipment	Facsimile equipment, key telephone systems, modems, PABXs <sup>(B)</sup> , pagers, telephone answering machines and telephone sets (wired and wireless)		
<p>(A) Commonly known as "copiers".</p> <p>(B) PABX - Private Automatic Branch Exchange.</p> <p><b>Note 3:</b></p> <p>The requirements of Israel Standard SI 60065<sup>(C)</sup> may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment.</p> <p>The list of equipment (brought in the above table) is not intended to be comprehensive and exhaustive, and equipment that is not listed is not necessarily excluded from the Scope, Equipment complying with the relevant requirements in this Standard is considered suitable for use with process control equipment, automatic test equipment and similar systems requiring information processing facilities. However, this Standard does not include requirements for performance or functional characteristics of equipment.</p> <p>(C) In preparation</p>				

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Clause	Difference – Test	Result – Remark	Verdict
1.1.2	<p><b>Additional requirements</b></p> <p>Requirements additional to those specified in this Standard may be necessary for:</p> <ul style="list-style-type: none"> <li>- equipment intended for operation in special environments (for example, extremes of temperature; very high concentration of dust, moisture or vibration; flammable gases; and corrosive or explosive atmospheres);</li> <li>- electromedical applications with physical connections to the patient;</li> <li>- equipment intended to be used in vehicles, on board ships or aircraft, in tropical countries, or at altitudes greater than 2,000 m.</li> <li>- equipment intended for use where ingress of water may be possible. For guidance on such requirements and on relevant testing, see Annex T.</li> </ul> <p><b>Note:</b> Attention is drawn to the fact that government authorities of some countries impose additional requirements.</p>		N/A
1.1.3	<p><b>Exclusions</b></p> <p>This Standard does not apply to:</p> <ul style="list-style-type: none"> <li>- power supply systems which are not an integral part of the equipment, such as motor-generator sets, battery backup systems and transformers;</li> <li>- building installation wiring;</li> <li>- devices requiring no electric power.</li> </ul>		—
National deviations to the clauses of the International Standard			
1.6	<p><b>Power interface</b></p> <p>The clause is applicable with the following addition:</p>		N/A
1.6.1	<p><b>AC Power distribution systems</b></p> <p>A note shall be added to the clause as follows:</p> <p><b>Note:</b> In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions.</p>		N/A
1.7	<p><b>Marking and instructions</b></p> <p>The clause is applicable with the following additions:</p> <ul style="list-style-type: none"> <li>- Subclause 1.7.201 shall be added at the beginning of the clause as follows:</li> </ul>		N/A
1.7.201	<p><b>Marking in the Hebrew language</b></p> <p>The marking in the Hebrew language shall be in</p>	Must be verified during national approval.	N/A

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Clause	Difference – Test	Result – Remark	Verdict
	<p>accordance with the Consumer Protection Order (Marking of goods), 1983.</p> <p>In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language.</p> <p>The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed.</p> <ol style="list-style-type: none"> <li>1. Name of the apparatus and its commercial designation;</li> <li>2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address;</li> <li>3. Manufacturer's registered trademark, if any;</li> <li>4. Name of the model and serial number, if any;</li> <li>5. Country of manufacture.</li> </ol>		
1.7.2	<b>Safety instructions and marking</b>		N/A
1.7.2.1	<p><b>General</b></p> <p>The following shall be added to the clause:</p> <p>All the instructions and warnings related to safety shall also be written in the Hebrew language.</p> <p>- At the end of clause 1, clause 1.201 shall be added as follows:</p>		N/A
1.201	<p><b>Power Consumption in standby mode</b></p> <p>The equipment shall comply with the requirements of the Energy Sources Regulations (Maximum electrical power in standby mode for domestic and office electrical appliances), 2011, with a permitted deviation of up to 10%</p>	Must be verified during national approval.	N/A
2.	<p><b>Protection from hazards</b></p> <p>The clause is applicable with the following additions:</p>		P
2.9.4	<p><b>Separation from hazardous voltages</b></p> <p>The following shall be added at the beginning of the clause:</p> <p>In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991, seven means of protection against electrocution are permitted, as follows:</p> <ol style="list-style-type: none"> <li>1. TN-S - Network system earthing; TN-C-S -</li> </ol>		P

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
	<p>Network system earthing;</p> <p>2. TT - Network system earthing;</p> <p>3. IT - Network Insulation Terre;</p> <p>4. Isolated transformer;</p> <p>5. Safety extra low voltage (SELV or ELV);</p> <p>6. Residual current circuit breaker (30 ma = I<sub>Δ</sub>);</p> <p>7. Reinforced insulation; Double insulation (class II) .</p> <p>Clause 2.201 shall be added at the end of the clause, as follows:</p>		
2.201	<p><b>Prevention of electromagnetic interference</b></p> <p>- Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard series, SI 961, shall be checked.</p> <p>The apparatus shall meet the requirements in the appropriate part of the Standard series, SI 961.</p> <p>- If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard.</p>		N/A
3.	<p><b>Wiring, connections and supply</b></p> <p>The clause is applicable with the following additions:</p>		N/A
3.2	<b>Connection to a mains supply</b>		N/A
3.2.1	<b>Means of connection</b>		N/A
3.2.1.1	<p><b>Connection to an a.c. mains supply</b></p> <p>After the note, the following note shall be added:</p> <p><b>Note:</b> In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1.</p>		N/A
3.2.1.2	<p><b>Connection to a d.c. mains supply</b></p> <p>At the end of the first paragraph, the following note shall be added:</p> <p><b>Note:</b> At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.</p>		—



IEC 60950-1/Am1			
Clause	Difference – Test		Result – Remark
Annex P	<b>ANNEX P</b> <b>(normative) Normative references</b> The annex is applicable with the following national deviations: - The following Israel Standards have been inserted in place of some of the International Standards specified in this annex of the Standard, as follows:		N/A
	<b>The referenced International Standard</b>	<b>The substituted Israel Standard</b>	
	IEC 60065: 2001	SI 250 <sup>(A)</sup> - Safety requirements for mains operated electronic and related apparatus for household and similar general use	
	IEC 60083	SI 32 Part 1.1 <sup>(a)</sup> – Plugs and socket-outlets for household and similar purposes: Plugs and socket-outlets for single phase up to 16A – General requirements national modifications and	
	IEC 60227 (all parts)	SI 473, all parts - Cables, cords and insulated conductors for nominal voltage up to 1000 volt	
	IEC 60245 (all parts)	SI 60245 Part 1 – Rubber insulated cables – Rated voltages up to and including 450/750 V	
	IEC 60309 (all parts)	SI 1109, all parts - Plugs, socket-outlets and couplers for industrial purposes	
	IEC 60317 (all parts)	SI 1067 Part 1 – Enamelled round copper wires with high mechanical properties	
		SI 1067 Part 2 - Self-fluxing enamelled <sup>(B)</sup> round copper wires	
		SI 1067 Part 3 – Enamelled round copper wires with a temperature index of 180°C	
	IEC 60320 (all parts)	SI 60320 Part 1 - Appliance couplers for household and similar general purposes: General requirements	



IEC 60950-1/Am1				
Clause	Difference – Test		Result – Remark	Verdict
			60320-1 (2001)	
		SI 60320 Part 2.1 - Appliance couplers for household and similar general purposes: Sewing machine couplers	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.1 (2000)	
		SI 60320 Part 2.2 - Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.2 (1998)	
		SI 60320 Part 2.3 -Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment Appliance coupler for household and similar general purposes: Appliance coupler with a degree of protection higher than IPX0	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.3 (1998)	
	IEC 60364-1:2001	Electricity Law, 1954, with its Regulations and updates	-	
	IEC 60730-1: 1999 Amendment 1 (2003)	SI 60730 Part 1 - Automatic electrical controls for household and similar use: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60730-1 Edition 3.2:2007-03.	
	IEC 60825-1	SI 60825 Part 1 - Safety of laser products: Equipment classification, requirements and user's guide	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60825-1 2 <sup>nd</sup> Edition:2007-03	
	IEC 60947-1; 2004	SI 60947 Part 1 -Low-voltage switchgear and controlgear: General rules	The Israel Standard, excluding national modifications and additions noted, is identical to Standard of the International Electrotechnical Commission, IEC 60947-1Edition 5.0:2007-06.	
	IEC 61058-1: 2000	SI 61058 Part 1 - Switches for appliances: General requirements	The Israel Standard, excluding national modifications and additions noted, is identical to the Standard of the International Electrotechnical Commission, IEC 61058-1 Edition 3.1:2001:	
	ISO 3864 (all parts)	SI 3864 Part 1 -Graphical symbols	The Israel Standard, excluding national modifications and additions noted, is identical to the Standard of the International Electrotechnical Commission IEC 3864-1 (First Edition:2002-05-15	
<b>Notes:</b>				

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
	<p>(a) The standard is being revised</p> <p>(b) In the International Standard series, there are parts not yet adopted as Israeli Standards. This table notes the relevant Israeli Standards, and in the Comments column, the corresponding parts of the International Standard series.</p> <p>(c) Not relevant to the translation.</p>		N/A
<p>The following shall be added to the annex:</p> <p>Israeli Standards</p> <p>SI 961 (all parts) – Electromagnetic compatibility</p> <p>Israeli Laws, Regulations and documents</p> <p>Electricity Law, 1954, with its Regulations and updates</p> <p>Consumer Protection Order (Marking of goods), 1983, Kovetz HaTakanot 4465 dated 1983-02-24</p> <p>Energy Sources Regulations (Maximum electrical power in standby mode for domestic and office electrical appliances), 2011</p>			N/A

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
<b>CHINA-Differences to IEC 60950-1:2005 (ed. 2) (2013-09-26)</b> <b>(GB4943.1-2011 Information technology equipment – Safety – Part 1: General requirements)</b>			
1.1.2	Revise the third dashed paragraph as: —equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;	Considered	P
1.4.5	At the end of the third dashed paragraph ,added following paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. Delete the contents which behind the first dash.	Tolerances +10%, -10% considered.	P
1.4.12.1	Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater.  And note 1: for equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater.  Add note 2: for equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are considered.	Manufacturer specifies ambient temperature >35°C	P
1.5.2	Add a note behind the first dash : A component used shall comply with related requirements corresponding altitude of 5000m.	Unit specified for altitude up to 3000m.	N/A
1.7	Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.	Chinese label will be verified during national approval.	N/A
1.7.1	Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V(three-phases)when manufactured.  And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.	The rated voltage range and frequency range is covering China mains voltage 220V/50Hz.	P

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
1.7.2.1	<p>Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions:</p> <p>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>If only symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p>	<p>Unit intended for altitude up to 3000m and not specified for tropical conditions.</p> <p>Appropriate labels must be attached to the units shipped to China.</p>	N/A
2.7.1	<p>Amended as:</p> <p>Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3.</p> <p>Delete note of Clause 2.7.1.</p>	<p>Unit provides appropriate internal protection.</p>	P

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
2.9	Humidity conditioning This section applies for equipment to be operated at tropical climatic conditions, humidity conditioning dealt with tropical climatic conditions. For equipment not to be operated at tropical climatic conditions, its humidity conditioning complies with rules of CTL 624/07.	Unit not intended for tropical conditions.	N/A
2.9.	First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature $40\pm 2^{\circ}\text{C}$ and a relative humidity of $(93\pm 3)\%$ . During this conditioning the component or subassembly is not energized. For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of $(93\pm 3)\%$ . The temperature of the air, at all places where samples can be located, is maintained within $2^{\circ}\text{C}$ of any convenient value $t$ between $20^{\circ}\text{C}$ and $30^{\circ}\text{C}$ such that condensation does not occur. Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered. Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.		
2.10.3.1	Change the third paragraph of Clause 2.10.3.1 to be:  These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.	Unit verified for altitude <5000m.	N/A

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
2.10.3.4	<p>Add a new section above Table 2K and in Clause 2.10.3.4: minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1.</p> <p>Add "(apply for up to 2000m)" in header of Table 2K, 2L and 2M.</p>	Unit not intended to be used at an altitude of 5000m or more.	N/A
3.2.1.1	<p>Add a paragraph before the last paragraph:</p> <p>Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.</p>	No such plug provided.	N/A
4.2.8	<p>Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011.</p> <p>Delete note of Clause 4.2.8.</p>	No CRT used.	N/A
Annex E	<p>Last section of Annex E amended as:</p> <p>For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35°C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.</p>	No linear transformer used.	N/A
Annex G.6	<p>Change the second section of Clause G.6 to be:</p> <p>For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.</p> <p>A component that has been demonstrated to comply with National Industry standards or the relevant national standard shall be subjected to the applicable tests of this standard as part of the equipment.</p>	Unit specified for altitude up to 3000m.	N/A

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
Annex BB (informative)	Amended as :  The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.	Considered.	P
Annex DD (normative)	Added annex DD: Instructions of the new safety warning labels.	Must be verified during national approval.	N/A
Other amendments	In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U.	Considered.	P
Quoting standards and reference documents	<p>The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:</p> <p>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.</p> <p>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> <li>- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;</li> <li>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted;</li> <li>- If the date of the national standard or industry standard is not given, the latest edition of the standard applies;</li> <li>- The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard.</li> </ul> <p>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> <li>- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;</li> </ul>	Considered.	P

IEC 60950-1/Am1			
Clause	Difference – Test	Result – Remark	Verdict
	<p>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted.</p> <p>Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005.</p>		


<b>Country</b>	Japan
<b>IECEE Member NCB</b>	IECEE-JP
<b>IEC Standard</b>	IEC 60950-1:2005 + Amd. 1:2009 + Amd. 2:2013
<b>Corresponding National Standard</b>	J60950-1 (H29)
<b>Regulatory Requirements</b>	Electrical Appliances and Materials Safety Act Article 8, 9 and Appendix 12

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
1.2.4.1	<p>Add the following new notes.</p> <p>Note: Even if the equipment is designed as Class I, the equipment is regarded as CLASS 0I EQUIPMENT (see 1.2.4.3A) when 2-pin adaptor with earthing lead wire or cord set having 2-pin plug with earthing lead wire is provided or recommended.</p>		N/A




IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
1.2.4.3A	<p>Add the following new clause.</p> <p><b>1.2.4.3A CLASS 0I EQUIPMENT</b></p> <p>Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by:</p> <ul style="list-style-type: none"> <li>- using BASIC INSULATION, and</li> <li>- providing either of the following a) or b) in order to connect those conductive parts that might assume a HAZARDOUS VOLTAGES in the event of BASIC INSULATION fault to the PROTECTIVE EARTHING CONDUCTOR in the building wiring.</li> </ul> <p>a) Provision of 2-pin plug with earthing lead including the condition of that 2-pin adaptor with earthing lead wire is provided or recommended.</p> <p>b) Provision of an independent earthing terminal, when 2-core mains cord (without earthing conductor) is used.</p> <p>Note – CLASS 0I EQUIPMENT may have a part constructed with Double Insulation or Reinforced Insulation.</p>	Equipment is rated class I or class II	N/A
1.3.2	<p>Add the following notes after the first paragraph:</p> <p>Note 1 Transportable or similar equipment that are relocated frequently for intended usage should not be designed as Class I or CLASS 0I EQUIPMENT unless it is intended to be installed by service personnel.</p> <p>Note 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthing connection is unlikely should not be designed as Class I or CLASS 0I EQUIPMENT unless it is intended to be installed by service personnel.</p>	Not transportable equipment.	N/A

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
1.5.1	<p>Replace the first paragraph with the follows:</p> <p>Where safety is involved, components shall comply either with the requirements of this standard, with the safety aspects of the relevant JIS component standard, or IEC component standards, or components shall have equivalent to or better properties than these.</p> <p>Replace Note 1 with the following:</p> <p>Note 1 Components complying with the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.</p> <p>Note 2 JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope.</p> <p>Add the following after the last paragraph:</p> <p>For an appliance connector that is able to fit with appliance inlet compatible with the standard sheet of IEC 60320-1 or JIS C 8283-1, the size of the connector shall comply with relevant standard sheet of IEC 60320-1 or JIS C 8283-1. A power supply cord set complying with JIS C 8286 is regarded to comply with this requirement.</p> <p>Note 3 A power supply cord set provided with appliance connector that is able to fit with appliance inlet compatible with the standard sheet of IEC 60320-1 or JIS C 8283-1 should comply with JIS C 8286.</p>	IEC/UL approved materials are used.	P
1.5.2	<p>Add the following Note 2 after the 4th dashed paragraph:</p> <p>Note 2 See 1.7.5A when Type C.14 appliance coupler rated 10 A per JIS C 8283-1 is used with an equipment rated not more than 125 V and rated more than 10 A.</p>		N/A
1.5.5	<p>Add the following Note after the last paragraph:</p> <p>NOTE An interconnection cord sets provided with interconnecting coupler for mains supply complying with JIS C 8283-2-2 should comply with JIS C 8286.</p>	No power supply cord set provided.	N/A
1.5.9.1	<p>Add the following in the last of NOTE 1.</p> <p>Gas discharge tube connected in series with VDR may be used.</p>	Considered.	—

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
1.7	Replace EE.2 and EE.4 with the following:  JA.1 Shredder warning JA.3 Shredder power disconnection	No such equipment.	N/A
1.7.1.2	Replace first and second dashed paragraphs with the followings:  - manufacturer's or responsible company's name or trade-mark or identification mark;  - manufacturer's or responsible company's model identification or type reference;	Manufacturer's TM and manufacturer's type reference provided.	P
1.7.2.1	Add the following after the second paragraph.  Instruction or equipment marking regarding safety shall be written in Japanese unless otherwise permitted in this standard.	Has to be checked during national approval.	N/A
1.7.2.5	Replace the last sentence with the following:  An acceptable marking for an electric shock hazard is  (6.2.4 of JIS S 0101).	No such warning symbol provided.	N/A
1.7.5	Replace the second paragraph with the following.  Socket-outlets conforming to JISC8282-1 are examples of standard power supply outlets.	No socket outlet provided.	N/A

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
1.7.5A	<p>Add the following new clause after 1.7.5.</p> <p>1.7.5A Power supply cord set</p> <p>If appliance coupler according to IEC60320-1, C.14(rated current: 10A) is used in equipment whose rated voltage is less than 125V and rated current is over 10A, the following instruction or equivalent shall be described in the operating instruction.</p> <p>“ Use only designated cord set attached in this equipment”</p> <p>Example in Japanese:</p> <p>“この機器に同こん(細)した指定の電源コードセットだけを使用して下さい。”</p> <p>If appliance coupler is used for connection to the mains and if the cord set is not provided within the package for the equipment, suitable information regarding to the cord set shall be described in the operating instruction</p> <p>Note Since the combination of appliance inlet with earthing pin and two-core cord set (without earthing conductor) is special, the cord set should be attached in the equipment and the operating instruction should provide the information that the cord set is exclusively used with the equipment and not allowed to use with other equipment.</p>		N/A

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
1.7.14A	<p>Add the following new clause after 1.7.14.</p> <p>1.7.14A Marking for CLASS 0I EQUIPMENT</p> <p>For CLASS 0I EQUIPMENT, the following or equivalent instructions shall be marked.</p> <p>- the following instruction shall be marked on the mains plug or on the visible place of the main body</p> <p>“Provide an earthing connection”</p> <p>Example in Japanese:</p> <p>“必ず接地接続を行ってください。”</p> <p>- the following instruction shall be marked on the visible place of the main body or written in the operating instructions:</p> <p>“Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.”</p> <p>Example in Japanese:</p> <p>接地接続は必ず、電源プラグを電源につなぐ前に行ってください。 また、接地接続を外す場合は、必ず電源プラグを電源から切り離してから行ってください。</p>	Not class 0I Equipment.	N/A
1.7.14B	<p>Add the following new clause after 1.7.14A</p> <p>1.7.14B Protective earthing conductor used for CLASS 0I EQUIPMENT</p> <p>For CLASS 0I EQUIPMENT provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment, the suitable information for the protective earthing connection shall be provided in the operating instruction. (See 2.6.3.2)</p>	Not class 0I Equipment.	N/A

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
2.1.1.1	<p>Replace item b) of 2.1.1.1 with the following.</p> <p>b) A test with the test finger, Figure 2A, which shall not contact parts described above when applied to openings in the ENCLOSURES after removal of parts that can be detached by an OPERATOR, including fuseholders, and with OPERATOR access doors and covers open. It is permitted to leave lamps in place for this test. Connectors that can be separated by an OPERATOR, other than those complying with JIS C 8303 or JIS C 8285 or IEC 60309 series or JIS C 8283 series or IEC 60320 series, shall also be tested during disconnection. But even if the connector does not comply with these standards, the one having equivalent to or better performance need not be tested during disconnection.</p> <p>Note 4 Connectors complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.</p>	Considered.	—
2.5	Replace “IEC 60730-1” with “JIS C 9730-1” (in item b)).	No such limiting device incorporated.	N/A
2.6.2	<p>Delete the following line.</p> <p>• the symbol , IEC 60417-5018 (2011-07);</p>		N/A
2.6.3.2	<p>Add the following after the first paragraph.</p> <p>However where the single core conductor is used for protective earthing lead or earthing cord for CLASS 0I EQUIPMENT, either of the following condition shall be met.</p> <p>- Use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having equivalent to or more strength and thickness.</p> <p>- Single core cord or single core cable with 1.25 mm<sup>2</sup> or more cross-sectional area</p>	Not class 0I Equipment.	N/A
2.6.3.5	<p>Add the following after the first paragraph.</p> <p>However this requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector.</p>	Internal conductor for earthing colored green-yellow.	P

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
2.6.4.2	<p>Replace the first paragraph with the following.</p> <p>Equipment required to have protective earthing shall have a main protective earthing terminal.</p> <p>For equipment with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal. However, for CLASS 0I EQUIPMENT provided with the separate main protective earthing terminal other than appliance inlet, the separate main protective earthing terminal may be treated as mains protective earthing terminal.</p>	Not CLASS 0I equipment.	N/A
2.6.5.4	<p>Replace the first sentence with the following.</p> <p>Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following:</p> <p>Add the following after last paragraph:</p> <p>Note For CLASS 0I EQUIPMENT, 1.7.14A is applied instead of this requirement.</p>	No operator removable parts with protective earth connection except supply cord which is not part of investigation.	N/A
2.6.5.8A	<p>Add the following new clause after 2.6.5.8</p> <p>2.6.5.8A Earthing of CLASS 0I EQUIPMENT</p> <p>Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V.</p> <p>For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip.</p> <p>CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external location where easily visible.</p>	Not CLASS 0I equipment.	N/A
2.7.6	<p>Replace “ISO 3864, No. 5036” with “6.2.4 of JIS S 0101”.</p>		N/A

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
2.10.3.1	<p>Replace the 8th paragraph with the following</p> <p>The above minimum CLEARANCE for connectors do not apply to connectors that comply with JIS C 8285, IEC60309 series of standards, JIS C 8283 series of standards, IEC60320 series of standards, JIS C 8303, or even if it does not comply with the above standards but the one having equivalent to or better performance and dimension which comply with JIS C 8283 series of standards, JIS C 8303 or IEC 60309-2.</p> <p>Note Connectors complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.</p>		N/A
2.10.3.2 Table 2J	In Japan, the value of the main power supply transient voltage for the nominal ac main power supply voltage of 100 V is determined by applying the row of AC main power supply voltage 150 V.	2500 V mains transient voltage considered.	P
2.10.4.3	<p>Replace the 6th paragraph with the following</p> <p>The above minimum CREEPAGE DISTANCE for connectors do not apply to connectors that comply with JIS C 8285, IEC60309 series of standards, JIS C 8283 series of standards, IEC60320 series of standards, JIS C 8303, or even if it does not comply with the above standards but the one having equivalent to or better performance and dimension which comply with JIS C 8283 series of standards, JIS C 8303 or IEC 60309-2.</p> <p>Note Connectors complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.</p>		N/A
2.10.9	Replace “1.4.5” in the third paragraph with “1.4.12”.	Considered	—
3.2.3	<p>Add the following after the third paragraph.</p> <p>Table 3A applies when cables complying JIS C 3662 series of standards or JIS C 3663 series of standards are used. In case of other cables, cable entries shall be so designed that the cable could be fitted in a conduit.</p>		N/A



IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
3.2.4	<p>Add the following as 4th dashed paragraph.</p> <p>- be so constructed that mechanical stress shall not transmit to the soldering part of inlet terminal during insertion or removal of the connector except that the body of the inlet is secured and is secured not only soldering.</p>		
3.2.5.1	<p>Add the following after Note 3:</p> <p>Note 4 In Japan, mains cords having equivalent to or better electro-mechanical and fire safety performance as above and complying with Appendix 1 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance can be used.</p> <p>Replace the paragraph after Note 3 with the following.</p> <p>For equipment required to have protective earthing, a PROTECTIVE EARTHING CONDUCTOR shall be included in the MAINS SUPPLY cord except for CLASS 0I EQUIPMENT having separate protective earthing conductor from mains cord.</p> <p>Add the following after the second paragraph after Note 3:</p> <p>Note 5 For the cross-sectional area of mains cord described in Note 4, relevant Japanese wiring regulation can be applied.</p>	Power supply cord is not provided.	N/A
3.2.5A	<p>Add the following new clause after 3.2.5</p> <p>3.2.5A AC mains plug Mains plug for PLUGGABLE EQUIPMENT TYPE A shall comply with JIS C 8282-1 or equivalent to or better performance. Power supply cord set complying with JIS C 8286 is regarded to meet the requirements. Mains plug with fuse link for PLUGGABLE EQUIPMENT TYPE A shall comply with JIS C 8282-2-1 or equivalent to or better performance. Note Mains plug complying with Appendix 4 of the interpretation of Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance is regarded to have equivalent to or better performance.</p>	Separately approved mains plug provided.	P
3.3.4 Table 3D	<p>Add the following note to Table 3D:</p> <p>Note For cables other than those complying with JIS C 3662 series of standards or JIS C 3663 series of standards, the terminals shall be suitable for the size of the intended cables.</p>		N/A

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
3.3.7	<p>Add the following after the first sentence:</p> <p>This requirement is not applicable to the external earthing terminal of CLASS 0I EQUIPMENT.</p>	Separately approved materials used.	P
4.2.8	<p>Add the following after the first paragraph:</p> <p>Note Intrinsically protected picture tube is required to comply with JIS C 6965 in clause 18 of JIS C 6065. No intrinsically protected picture tube which is out of scope of JIS C 6965 is required to test according to sub-clause 18.2 of JIS C 6065.</p>	Single phase equipment.	N/A
4.3.4	<p>Add the following after the first sentence:</p> <p>This requirement also applies to those connections in CLASS 0I EQUIPMENT, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10.</p>	Considered.	P
4.3.5	<p>Replace the first dashed paragraph with the following.</p> <p>Within a manufacturer's unit or system, plugs and sockets likely to be used by the OPERATOR or by a SERVICE PERSON shall not be employed in a manner likely to create a hazard due to misconnection. In particular, connectors complying with IEC 60320/JIS C 8283 series of standards or JIS C 8303 or JIS C 8358 shall not be used for SELV CIRCUITS or TNV CIRCUITS. Keying, location or, in the case of connectors accessible only to a SERVICE PERSON, clear markings are permitted to meet the requirement.</p>		N/A
4.3.6	<p>Replace the 1st paragraph with the following</p> <p>DIRECT PLUG-IN EQUIPMENT shall not impose undue stress on the socket-outlet. The mains plug part shall comply with the standard for the relevant mains plug. (see 3.2.5A)</p>	Approved plug used.	P
4.4.2	<p>Replace the paragraph with the following:</p> <p>HOUSEHOLD AND HOME/OFFICE DOCUMENT/MEDIA SHREDDERS shall also comply with Annex JA.</p>	No such equipment.	N/A

IEC 60950-1 – Japan National differences																																										
Clause	Difference – Test	Result – Remark	Verdict																																							
4.5.3	<p>Add the following note to footnote b) of Table 4B:</p> <p>NOTE In case no data for the material is available, Appendix 4, 1. (1). b. 3 of the Interpretation on the Ministerial Ordinance stipulating Technical Specifications for Electrical Appliances is regarded as maximum temperature limit of the material.</p>	Separately approved materials used.	P																																							
5.1.3	<p>Add a note after the first paragraph as follows:</p> <p>Note – Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, test is conducted using the test circuit from IEC 60990, figure 13.</p>	Single phase equipment.	N/A																																							
5.1.6	<p>Replace Table 5A. as follows</p> <table border="1"> <thead> <tr> <th>Type of equipment</th><th>Terminal A of measuring instrument connected to:</th><th>Maximum TOUCH CURRENT mA r.m.s. <sup>a</sup></th><th>Maximum PROTECTIVE CONDUCTOR CURRENT</th></tr> </thead> <tbody> <tr> <td>ALL equipment</td><td>Accessible parts and circuits not connected to protective earth <sup>b</sup></td><td>0,25</td><td>-</td></tr> <tr> <td rowspan="2">HAND-HELD</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>0,75</td><td>-</td></tr> <tr> <td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>0,5</td><td>-</td></tr> <tr> <td rowspan="2">MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT)</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>3,5</td><td>-</td></tr> <tr> <td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>1,0</td><td>-</td></tr> <tr> <td rowspan="2">STATIONARY, PLUGGABLE TYPE A</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>3,5</td><td>-</td></tr> <tr> <td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>1,0</td><td>-</td></tr> <tr> <td rowspan="3">ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7</td><td>Main protective earthing terminal of CLASS I EQUIPMENT</td><td>3,5</td><td>-</td></tr> <tr> <td>-</td><td>-</td><td>5 % of input current</td></tr> <tr> <td>Main protective earthing terminal of CLASS 0 I EQUIPMENT</td><td>1,0</td><td>-</td></tr> </tbody> </table> <p><sup>a</sup> If peak values of TOUCH CURRENT are measured, the maximum values are obtained by multiplying the r.m.s.values in the table by 1,414.</p> <p><sup>b</sup> Some unearthed accessible parts are covered in 1.5.6 and 1.5.7 and the requirements of 2.4 apply. These may be different from those in 5.1.6.</p>	Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. <sup>a</sup>	Maximum PROTECTIVE CONDUCTOR CURRENT	ALL equipment	Accessible parts and circuits not connected to protective earth <sup>b</sup>	0,25	-	HAND-HELD	Main protective earthing terminal of CLASS I EQUIPMENT	0,75	-	Main protective earthing terminal of CLASS 0 I EQUIPMENT	0,5	-	MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT)	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1,0	-	STATIONARY, PLUGGABLE TYPE A	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1,0	-	ALL other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7	Main protective earthing terminal of CLASS I EQUIPMENT	3,5	-	-	-	5 % of input current	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1,0	-	Considered.	P
Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. <sup>a</sup>	Maximum PROTECTIVE CONDUCTOR CURRENT																																							
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	-	-	5 % of input current																																							
	Main protective earthing terminal of CLASS 0 I EQUIPMENT	1,0	-																																							
Annex G	<p>Replace the paragraph before Table G.2 with the following</p> <p>The above minimum CLEARANCE for connectors do not apply to connectors that comply with JIS C 8285, IEC60309 series of standards, JIS C 8283 series of standards, IEC60320 series of standards, JIS C 8303, and 1.5.1 of this standard in which dimension is comply with JIS C 8283 series, JIS C 8303 or IEC 60309-2.</p>		N/A																																							
Annex V V.1	Replace “3.1.2” in the first line of V.1 with “312” in the first line.	Considered.	—																																							

IEC 60950-1 – Japan National differences			
Clause	Difference – Test	Result – Remark	Verdict
Annex W W.1	<p>Replace the third sentence in the first paragraph with the following:</p> <p>Floating circuits can exist in CLASS I EQUIPMENT, CLASS 0I EQUIPMENT and earthed circuits can exist in CLASS II EQUIPMENT.</p>	Touch current was not exceeded.	N/A
Annex BB	This annex is not applicable.		—
Annex CC CC.2	<p>Replace the third dashed paragraph with the following:</p> <p>- 10 000 cycles of turning enable on and off with the input connected to a capacitor rated 425 uF ± 10 uF and shorting the output;</p>	No such limiting device provided.	N/A
CC.3	<p>Add note at end of CC.3:</p> <p>Note: The fast blow fuse should be the one complying with JIS C 6575-2.</p>		N/A

## **Enclosure No. 1a**

**European Group Differences and National Differences  
according to EN 60950-1:2006 +A1:2010 +A2:2013 +  
A11:2009 + A12:2011**

**(21 pages including this cover page)**

## ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

**Differences according to** ..... : EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013

**Attachment Form No.** ..... : EU\_GD\_IEC60950\_1F

**Attachment Originator** ..... : SGS Fimko Ltd

**Master Attachment** ..... : Date 2014-02

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### EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)						
Clause	Requirement + Test			Result - Remark		Verdict
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it's amendmets are prefixed "Z"					P
Contents	Add the following annexes:					P
	Annex ZA (normative)	Normative references to international publications with their corresponding European publications				
(A2:2013)	Annex ZB (normative)	Special national conditions				
	Annex ZD (informative)	IEC and CENELEC code designations for flexible cords				
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list:					P
	1.4.8 Note 2	1.5.1	Note 2 & 3	1.5.7.1	Note	
	1.5.8 Note 2	1.5.9.4	Note	1.7.2.1	Note 4, 5 & 6	
	2.2.3 Note	2.2.4	Note	2.3.2	Note	
	2.3.2.1 Note 2	2.3.4	Note 2	2.6.3.3	Note 2 & 3	
	2.7.1 Note	2.10.3.2	Note 2	2.10.5.13	Note 3	
	3.2.1.1 Note	3.2.4	Note 3.	2.5.1	Note 2	
	4.3.6 Note 1 & 2	4.7	Note 4	4.7.2.2	Note	
	4.7.3.1Note 2	5.1.7.1	Note 3 & 4	5.3.7	Note 1	
	6 Note 2 & 5	6.1.2.1	Note 2	6.1.2.2	Note	
	6.2.2 Note	6.2.2.1	Note 2	6.2.2.2	Note	
	7.1 Note 3	7.2	Note	7.3	Note 1 & 2	
	G.2.1 Note 2	Annex H	Note 2			
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list:					P
(A1:2010)	1.5.7.1	Note	6.1.2.1	Note 2		
	6.2.2.1	Note 2	EE.3	Note		


IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	<b>Replace</b> the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.3.Z1	Add the following subclause: 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.	No headphones or earphones provided.	N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1 (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *		N/A
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A
	<b>Zx Protection against excessive sound pressure from personal music players</b>		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.1 General</b></p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment□ for personal use, that:</p> <ul style="list-style-type: none"> <li>– is designed to allow the user to listen to recorded or broadcast sound or video; and</li> <li>– primarily uses headphones or earphones that can be worn in or on or around the ears; and</li> <li>– allows the user to walk around while in use.</li> </ul> <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> <li>– while the personal music player is connected to an external amplifier; or</li> <li>– while the headphones or earphones are not used.</li> </ul> <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> <li>– hearing aid equipment and professional equipment;</li> </ul> <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>	<p>Switch mode power supply. No provisions for playing music provided.</p>	N/A
	<ul style="list-style-type: none"> <li>– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</li> </ul> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A



IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.2 Equipment requirements</b></p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> <li>– equipment provided as a package (personal music player with its listening device), where <ul style="list-style-type: none"> <li>the acoustic output <math>L_{Aeq,T}</math> is <math>\leq 85</math> dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and</li> </ul> </li> <li>– a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is <math>\leq 27</math> mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</li> </ul> <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level <math>L_{Aeq,T}</math> is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none"> <li>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</li> <li>b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and</li> </ul>		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be <math>\leq 100</math> dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be <math>\leq 150</math> mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</p> <p>For music where the average sound pressure (long term <math>L_{Aeq,T}</math>) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term <math>L_{Aeq,T}</math>) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.3 Warning</b></p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> <li>– the symbol of Figure 1 with a minimum height of 5 mm; and</li> <li>– the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.”</li> </ul> <div data-bbox="571 710 831 972" data-label="Image">  </div> <p><b>Figure 1 – Warning label (IEC 60417-6044)</b></p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>		N/A
	<b>Zx.4 Requirements for listening devices (headphones and earphones)</b>		N/A
	<p><b>Zx.4.1 Wired listening devices with analogue input</b></p> <p>With 94 dBA sound pressure output <math>L_{Aeq,T}</math>, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be <math>\geq 75</math> mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.4.2 Wired listening devices with digital input</b></p> <p>With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		N/A
	<p><b>Zx.4.3 Wireless listening devices</b></p> <p>In wireless mode:</p> <ul style="list-style-type: none"> <li>– with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and</li> <li>– respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and</li> <li>– with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> dBA.</li> </ul> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p><b>Zx.5 Measurement methods</b></p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)									
Clause	Requirement + Test	Result - Remark	Verdict						
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>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):</p> <p>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;</p> <p>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;</p>	Unit provides appropriate internal protection.	P						
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or 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.</p> <p>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.</p>	Protection does not rely on building installation. Unit provides appropriate internal protection.	N/A						
2.7.2	This subclause has been declared 'void'.		N/A						
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A						
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td>Up to and including 6  </td><td>0,75 <sup>a)</sup>  </td></tr><tr><td>Over 6 up to and including 10   (0,75) <sup>b)</sup></td><td>1,0  </td></tr><tr><td>Over 10 up to and including 16   (1,0) <sup>c)</sup></td><td>1,5  </td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition <sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 <sup>a)</sup>	Over 6 up to and including 10   (0,75) <sup>b)</sup>	1,0	Over 10 up to and including 16   (1,0) <sup>c)</sup>	1,5	No power supply cord provided.	N/A
Up to and including 6	0,75 <sup>a)</sup>								
Over 6 up to and including 10   (0,75) <sup>b)</sup>	1,0								
Over 10 up to and including 16   (1,0) <sup>c)</sup>	1,5								
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD	Considered.	P						

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16   1,5 to 2,5   1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A	No terminals provided.	N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).	EUT does not produce radiation.	N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/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.	EUT does not produce radiation.	N/A
Bibliography	Additional EN standards.		—

<b>ZA</b>	<b>NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>	—
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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In <b>Denmark</b> , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14 (A11:2009)	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.7.2.1 and 7.3 of this annex.	Equipment not intended for connection to cable distribution systems	N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.1 (A11:2009)	In <b>Finland, Norway</b> and <b>Sweden</b> , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	No resistors bridging basic insulation.	N/A
1.5.8	In <b>Norway</b> , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Unit not tested for connection to IT power system.	N/A
1.5.9.4	In <b>Finland, Norway</b> and <b>Sweden</b> , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A





<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkople</p> <p>utstyr – og er tilkople et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan</p> <p>utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för</p> <p>brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät</p> <p>galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		N/A
1.7.2.1 (A2:2013)	<p>In <b>Denmark</b>, 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.</p> <p>The marking text in <b>Denmark</b> shall be as follows: In <b>Denmark</b>: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”</p>		N/A
1.7.5  1.7.5 (A11:2009)	<p>In <b>Denmark</b>, 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.</p> <p>For <b>CLASS II EQUIPMENT</b> the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No socket outlet provided.	N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	<p>In <b>Denmark</b>, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011.</p> <p>For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a.</p> <p>Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b.</p> <p>Justification the Heavy Current Regulations, 6c</p>	No socket outlet provided.	N/A
2.2.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuit.	N/A
2.6.3.3	In the <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.	Considered.	P
2.7.1	In the <b>United Kingdom</b> , 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.	nit provides appropriate internal protection.	P
2.10.5.13	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuit.	N/A
3.2.1.1	<p>In <b>Switzerland</b>, 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>	No power supply cord provided.	N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	<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 , 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE .250 V, 16 A</p>		
3.2.1.1	<p>In <b>Denmark</b>, supply cords 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.</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 sheet DK 2-1a or DK 2-5a.</p> <p>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.</p>	No power supply cord provided.	N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1 (A2:2013)	<p>In <b>Denmark</b>, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1.</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 sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Justification the Heavy Current Regulations, 6c</p>	No power supply cord provided.	N/A
3.2.1.1	<p>In <b>Spain</b>, 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.</p> <p>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>	No power supply cord provided.	N/A
3.2.1.1	<p>In the <b>United Kingdom</b>, 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 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	No power supply cord provided.	N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In <b>Ireland</b> , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.	No power supply cord provided.	N/A
3.2.4	In <b>Switzerland</b> , for requirements see 3.2.1.1 of this annex.	No power supply cord provided.	N/A
3.2.5.1	In the <b>United Kingdom</b> , a power supply cord with conductor of 1,25 mm <sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.	No power supply cord provided.	N/A
3.3.4	In the <b>United Kingdom</b> , 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 <sup>2</sup> to 1,5 mm <sup>2</sup> nominal cross-sectional area.		N/A
4.3.6	In the <b>United Kingdom</b> , 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.		P
4.3.6	In <b>Ireland</b> , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In <b>Finland, Norway</b> and <b>Sweden</b> TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul>		N/A
6.1.2.1 (A1:2010)	<p>In <b>Finland, Norway</b> and <b>Sweden</b>, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>- passes the tests and inspection criteria of 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul>	Equipment not intended for connection to telecommunication networks.	N/A

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 60384-14:</li> <li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</li> </ul>		N/A
6.1.2.2	<p>In <b>Finland, Norway and Sweden</b>, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, 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>		N/A
7.2	<p>In <b>Finland, Norway and Sweden</b>, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>	Equipment not intended for connection to cable distribution systems	N/A
7.3 (A11:2009)	<p>In <b>Norway and Sweden</b>, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>		N/A

<b>Annex ZD</b> <b>(informative)</b>		
<b>IEC and CENELEC code designations for flexible cords</b>		
Type of flexible cord	Code designations	
	IEC	CENELEC
<b>PVC insulated cords</b>		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60277 IEC 53	H05VV-F H05VVH2-F
<b>Rubber insulated cords</b>		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
<b>Cords having high flexibility</b>		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H



Clause	Requirement	Verdict
<b>Denmark national differences (2013-07-04)</b> <b>National standard: DS/EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013</b>		
1.2.4.1	In <b>Denmark</b> , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A
1.7.5	In Denmark, 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.  For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.	N/A
3.2.1.1	In <b>Denmark</b> , supply cords 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 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 sheet DK 2-1a or DK 2-5a.  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.	N/A

Clause	Requirement	Verdict
<b>Sweden national differences (2013-06-25)</b> <b>National standard: SS-EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011</b>		
Various	Please see the EN version of the standard where the Swedish National and Special National Deviations are stated.	P

## **Enclosure No. 2**

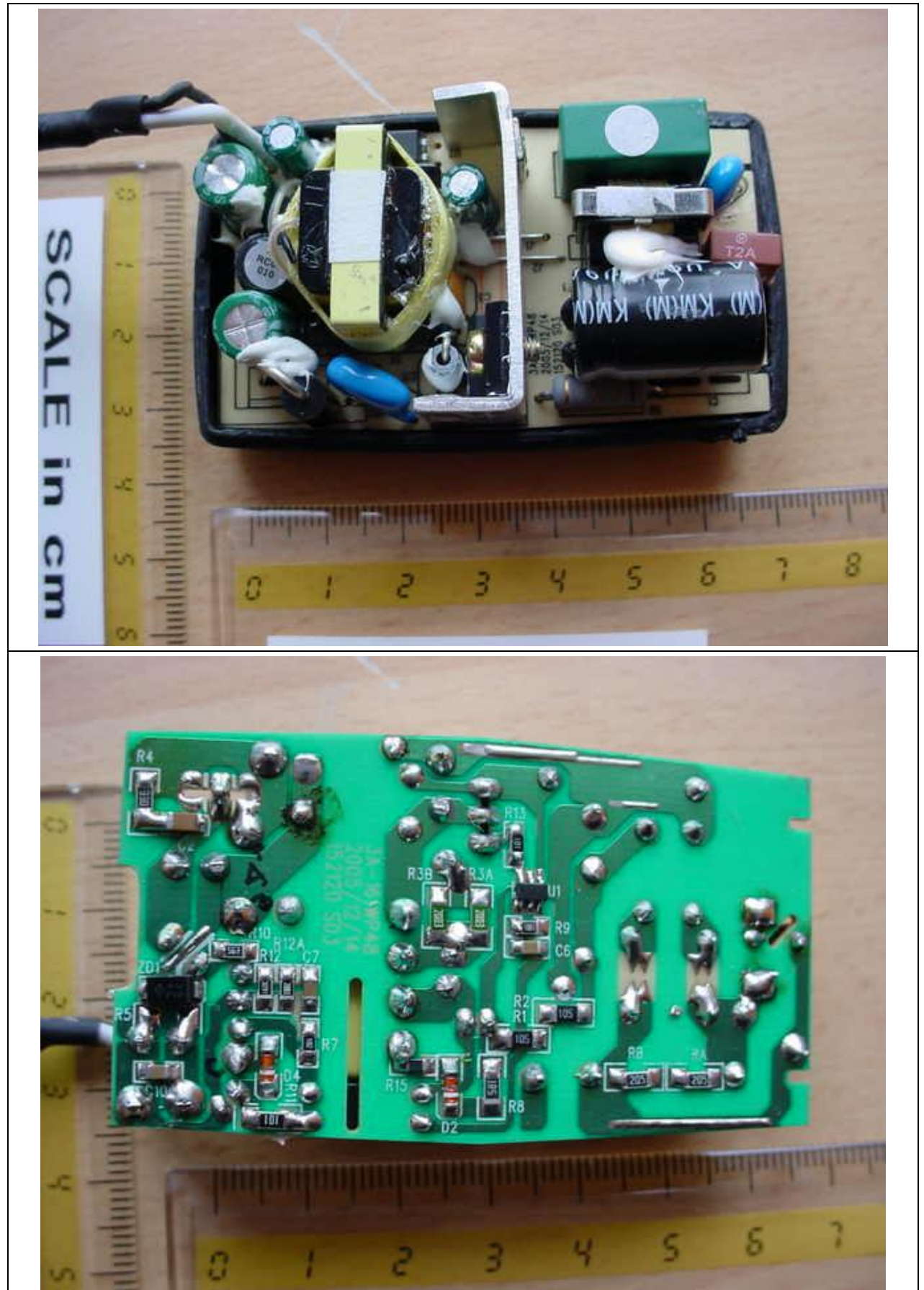
### **Pictures of the unit**

**(4 pages including this cover page)**









**Enclosure No. 3**  
**Schematics, layouts and transformer**  
**drawings**  
**(20 pages including this cover page)**

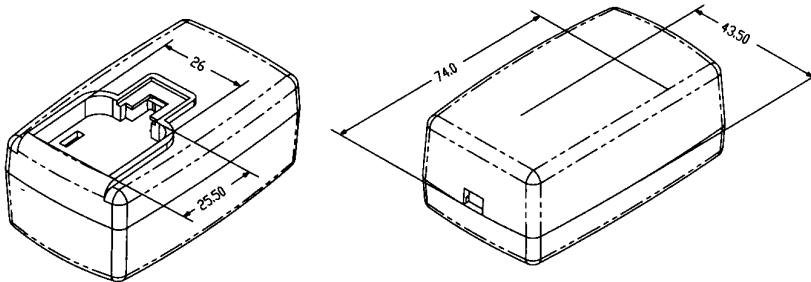
PROPRIETARY INFORMATION:		REVISION				
PROPRIETARY OF GLOBTEK, INC. ANY REPRODUCTION, DISCLOSURE OR USE OF THIS DRAWING IN WHOLE OR IN PART, IS HEREBY PROHIBITED EXCEPT AS SPECIFIED IN WRITING BY GLOBTEK, INC.		REV	DESCRIPTION	DATE	APPROVED	
		A	INITIAL RELEASE, RFS.7453, EM	11/11/05	DMR	
<b>1. NOTES:</b> DIMENSIONS ARE IN MM UNLESS SPECIFIED OTHERWISE.						
<b>2. ELECTRICAL SPECIFICATIONS:</b>						
INPUT VOLTAGE:		100-240 VAC				
INPUT CURRENT:		< 0.6 A RMS MAX				
INPUT FREQUENCY:		47 - 63 HZ				
OUTPUT VOLTAGE:		48 VDC, NO LOAD TO FULL LOAD, NO MINIMUM LOAD REQUIRED				
OUTPUT CURRENT:		0.31 A				
OUTPUT POWER (RATED):		15 WATTS MAX				
SWITCHING FREQUENCY						
OUTPUT RIPPLE (PEAK TO PEAK):		150 mV				
OUTPUT REGULATION (LINE/LOAD):		± 5 % FOR MAIN OUTPUT, MEASURED AT O/P CONNECTOR				
LINE REGULATION:		± 1 % MAX AT FULL LOAD				
TURN ON/ TURN OFF OVERSHOOT:		4% MAX 500uS MAX RECOVERY TIME FOR 25% STEP LOAD				
TURN-ON DELAY:		3000 mSEC MAX				
HOLD-UP TIME:		16 mSEC MIN AT NOMINAL INPUT AND FULL LOAD				
INRUSH CURRENT:		30 A MAX AT COLD START 120 VAC, 60A MAX COLD START 230VAC				
SWITCHING FREQUENCY:		66.5 KHz TYPICAL				
OVER-VOLTAGE PROTECTION:		VOLTAGE LIMITED LESS 130% OF NOMINAL VOLTAGE				
OVER-CURRENT / SHORT CIRCUIT:		HICCUP WITH AUTO RECOVERY TO 1.1 - 1.3 I <sub>o</sub>				
OTHER PROTECTION:		INPUT FUSING				
SAFETY APPROVALS (PENDING):		UL60950, CUL TO 22.2# 950, SEMKO TO EN60950, CCC TO GB4943-2001, GB9254-1998, GB17625.1-2003, CE CLASS II, AS/NZ 60950, PSE TO J60950, CB REPORT				
DIELECTRIC WITHSTAND VOLTAGE:		3000VAC PRIMARY-SECONDARY				
LEAKAGE CURRENT:		≤ 0.25 mA				
LINE SURGE:		EN 61000-4-5 LEVEL 4				
EMI:		COMPLIES WITH EN55022 CLASS B AND FCC PART 15 CLASS B WHEN TESTED WITH A RESISTIVE LOAD, BOTH CONDUCTED AND RADIATED				
CE MARK:		TESTED TO COMPLY WITH EN61000-3-2 EN61000-3-3 AND EN50082-1, INCLUDING EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, LEVEL 4. UNIT IS ELIGIBLE FOR CE MARK.				
C-TICK (PENDING):		TESTED TO COMPLY W/RADIO TELECOMMUNICATION ACT OF 1992.				
EFFICIENCY:		COMPLIES WITH ENERGY STAR TIER 2 (NORTH AMERICA), CECP TIER 2 (CHINA), MEPS TIER 2 (AUSTRALIA), CODE OF CONDUCT (EUORPE)				
MTBF:		GREATER THAN 50,000 HOURS AT 25°C AMBIENT TEMPERATURE,				
OPERATING TEMPERATURE:		0°C TO 40° C				
STORAGE TEMPERATURE:		-40°C TO 80° C				
HUMIDITY:		0% TO 90% RELATIVE HUMIDITY				
Foot Note: Globtek Inc. will not be liable for the safety and performance of these power supplies if unauthorized access and repair occurs. End user should consult applicable UL, CSA or EN standards for proper installation instructions.		DASH NO.	PART NO.	REV.	DESCRIPTION	NOTES
<b>TABULATION BLOCK</b>						
Limitation of Use: Globtek product are not authorized for use as mission critical components in life support, hazardous environment, nuclear or aircraft applications without prior written approval from the CEO of Globtek Inc.		INIT BY: EM		DATE: 11/11/05	<b>GlobTek, Inc.</b> 186 Veterans Dr. Northvale, NJ 07647 www.globtek.com Tel. 201-784-1000 Fax 201.784.0111	
Contents of this document are subject to change without prior notice		DRAWN: NF		DATE: 11/11/05	DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15WATTS, UNIVERSAL INPUT, 48V@ 0.31A MODEL NO: GT-41052-1548 REV: A	
		APRVD :DMR		DATE: 11/11/05	PART NO: <b>WR9QX310LRP-N-KIT</b> SCALE: NONE SHEET 1 OF 4	

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**3. ENCLOSURE**

UPPER HOUSING: HIGH IMPACT PLASTIC, 94V0 POLYCARBONATE, NON-VENTED, COLOR BLACK  
 LOWER HOUSING: HIGH IMPACT PLASTIC 94V0 POLYCARBONATE, NON- VENTED, COLOR BLACK  
 SIZE: 74 x 43.5 x 34 mm


**4. INPUT PLUG:**

N.A. CONFIGURATION:

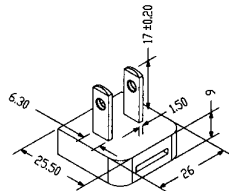
1. CLASS II MODEL NEMA 1-15P PLUG WITH 2 PRONGS
2. AUSTRALIAN CONFIGURATION: SAA 2 BLADES CLASS II
3. UK CONFIGURATION: UK 2 BLADES CLASS II
4. EUROPEAN CONFIGURATION: EUROPLUG 2 PINS, CLASS II

1

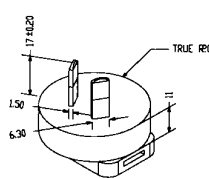
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3

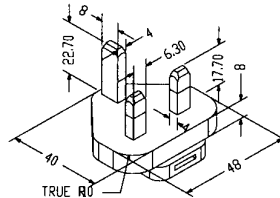
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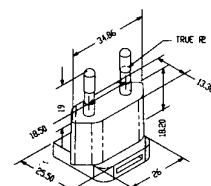
P/N: Q-NA



P/N: Q-SAA



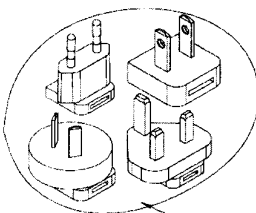
P/N: Q-UK



P/N: Q-EU

KIT INCLUDING:

Q-NA, Q-SAA, Q-UK, Q-EU,  
 1 PIECE EACH: Q-KIT



POLYBAG: 0.045\*110\*200


**GlobTek, Inc.**

186 Veterans Dr. Northvale, NJ 07647  
 Tel. 201-784-1000 Fax 201-784-0111

www.globtek.com

DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15WATTS,  
 UNIVERSAL INPUT, 48V@ 0.31A

MODEL NO: GT-41052-1548

REV.  
 A

PART NO: WR9QX310LRP-N-KIT

SHEET 2 OF 4



**PROPRIETARY INFORMATION:**

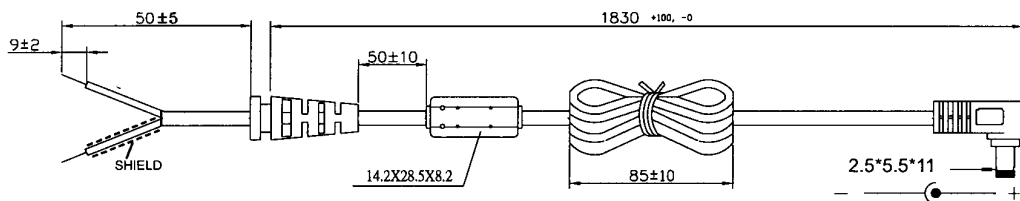
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**5. OUTPUT CORD:**

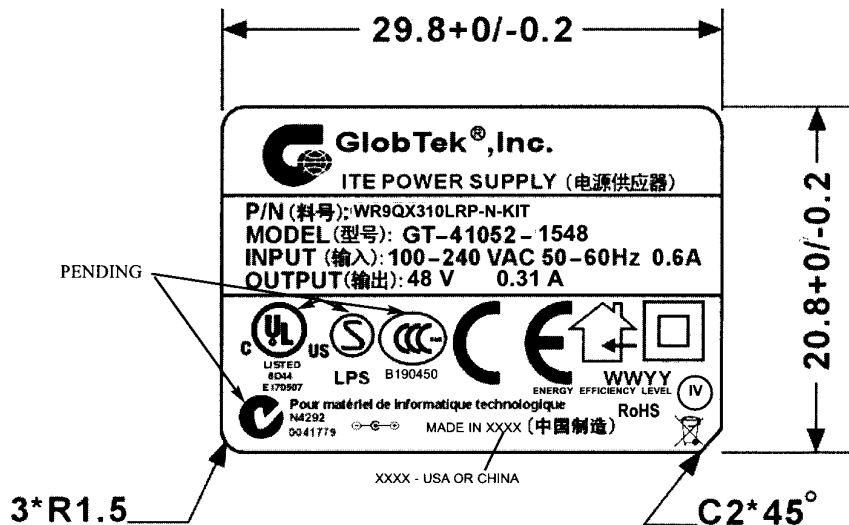
1 CONDUCTOR + SHIELD, 18 AWG STRANDED WIRE, ROUND # 1185, COLOR BLACK, LENGTH (L) OF CORD: 1830 +100, -0 mm.  
CORD IS MEASURED FROM THE HOUSING TO THE END OF OVERMOLD OF THE CONNECTOR.  
CABLE IS TO BE MARKED WITH WIRE GAUGE, AND ALL APPLICABLE RATING AND SAFETY APPROVALS.  
CABLE HAS MOLDED INLINE FERRITE.

**6. OUTPUT CONNECTOR:**

STANDARD, RIGHT ANGLE FEMALE BARREL 5.5 x 2.5 x 11 mm WITH CENTER POSITIVE:


**7. LABEL:**

MATERIAL: .007 (0.18) THICK FLAT THERMAL TRANSFER, IMPRINTABLE, BLACK POLYESTER SHEET WITH WHITE OR SILVER NOMENCLATURE.  
MANUFACTURER: STEVEN LABEL, MATERIAL I.D. NO.3302-33, UL FILE NO. MH12821(N), UL MATERIAL DESIGNATION FILE NO. GHW332RL.  
OPTIONAL LABEL MATERIAL CAN BE SUBSTITUTED PROVIDING MATERIAL IS UL LISTED AND COMPLIES WITH APPLICABLE SAFETY

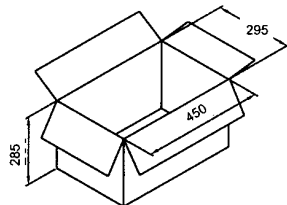
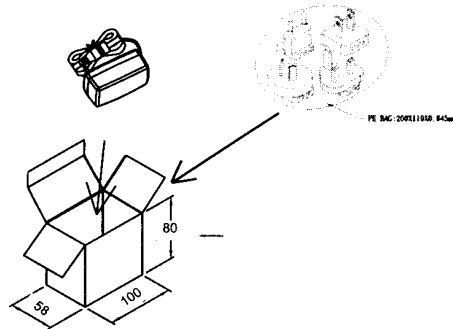


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DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15WATTS, UNIVERSAL INPUT, 48V@ 0.31A		
MODEL NO:	GT-41052-1548	REV A
PART NO:	WR9QX310LRP-N-KIT	SHEET 3 OF 4

**PROPRIETARY INFORMATION:**

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CARTON SIZE: 450 x 295 x 285 mm  
Q'TY: 80 PCS (20\*4)  
GIFT BOX: 100 x 58 x 80 (CRITICAL)



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Tel. 201-784-1000 Fax 201-784-0111

DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15WATTS,  
UNIVERSAL INPUT, 48V@ 0.31A

MODEL NO: GT-41052-1548


REV.  
A

PART NO: WR9QX310LRP-N-KIT

SHEET 4 OF 4

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OUTPUT CURRENT :	NO LOAD TO FULL LOAD,NO MINIMUM LOAD REQUIRED
OUTPUT POWER (RATED):	15 WATTS MAX
SWITCHING FREQUENCY	
OUTPUT RIPPLE (PEAK TO PEAK):	100 mV
OUTPUT REGULATION (LINE/LOAD):	± 5 % FOR MAIN OUTPUT, MEASURED AT O/P CONNECTOR
LINE REGULATION:	± 1 % MAX AT FULL LOAD
TURN ON/ TURN OFF OVERSHOOT:	4% MAX 500uS MAX RECOVERY TIME FOR 25% STEP LOAD
TURN-ON DELAY:	3000 mSEC MAX
HOLD-UP TIME:	16 mSEC MIN AT NOMINAL INPUT AND FULL LOAD
INRUSH CURRENT:	30 A MAX AT COLD START 120 VAC, 60A MAX COLD START 230VAC
SWITCHING FREQUENCY:	66.5 KHz TYPICAL
OVER-VOLTAGE PROTECTION:	VOLTAGE LIMITED LESS 130% OF NOMINAL VOLTAGE
OVER-CURRENT / SHORT CIRCUIT:	HICCUP WITH AUTO RECOVERY TO 1.1 - 1.3 I <sub>o</sub>
OTHER PROTECTION:	INPUT FUSING
SAFETY APPROVALS:	UL60950, CUL TO 22.2# 950, SEMKO TO EN60950, CCC TO GB4943-2001, GB9254-1998, GB17625.1-2003, CE CLASS II, PSE TO J60950, CB REPORT
DIELECTRIC WITHSTAND VOLTAGE:	3000VAC PRIMARY-SECONDARY
LEAKAGE CURRENT:	≤ 0.25 mA
LINE SURGE:	EN 61000-4-5 LEVEL 4
EMI:	COMPLIES WITH EN55022 CLASS B AND FCC PART 15 CLASS B WHEN TESTED WITH A RESISTIVE LOAD, BOTH CONDUCTED AND RADIATED
CE MARK:	TESTED TO COMPLY WITH EN61000-3-2 EN61000-3-3AND EN50082-1, INCLUDING EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, LEVEL 4. UNIT IS ELIGIBLE FOR CE MARK. GREATER THAN 50,000 HOURS AT 25°C AMBIENT TEMPERATURE,
MTBF:	0°C TO 40° C
OPERATING TEMPERATURE:	-40°C TO 80° C
STORAGE TEMPERATURE:	
HUMIDITY:	0% TO 90% RELATIVE HUMIDITY

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<a href="http://www.globtek.com">www.globtek.com</a>		Tel. 201-784-1000 Fax 201.784.0111
DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15 WATTS, N.A., EURO. UK, SAA UNIVERSAL INPUT, ITe, CLASS II		
MODEL NO:	GT-41052-WWVV-X X	REV. F
PART NO:	N/A	SHEET 2 OF 6

**PROPRIETARY INFORMATION:**

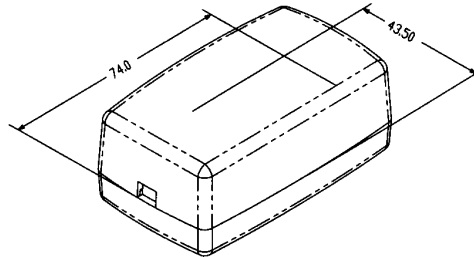
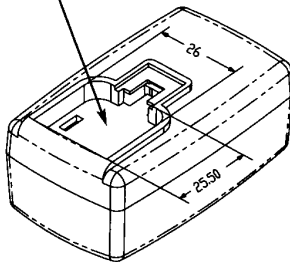
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**3. ENCLOSURE**

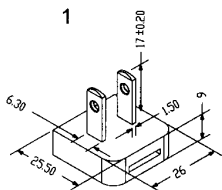
UPPER HOUSING: HIGH IMPACT PLASTIC, 94V0 POLYCARBONATE, NON-VENTED, COLOR BLACK  
LOWER HOUSING: HIGH IMPACT PLASTIC 94V0 POLYCARBONATE, NON- VENTED, COLOR BLACK  
SIZE: 74 x 43.5 x 34 mm



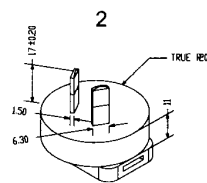
STANDARD OPTION SHIPS  
WITHOUT AC PINS INSTALLED


**2. INPUT CONNECTOR:**

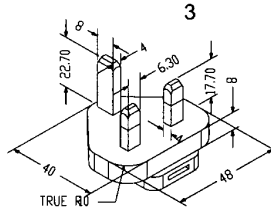
1. CLASS II MODEL NEMA 1-15P AC POWER RECEPTACLE WITH 2 PRONGS
2. AUSTRALIAN CONFIGURATION: SAA 2 PINS CLASS II
3. UK CONFIGURATION: UK 2 PINS CLASS II
4. EUROPEAN CONFIGURATION: EUROPLUG 2 PINS, CLASS II
5. KOREAN CONFIGURATION
6. ARGENTINA CONFIGURATION



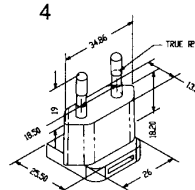
P/N: Q-NA  
NORTH AMERICA  
JAPAN  
CHINA



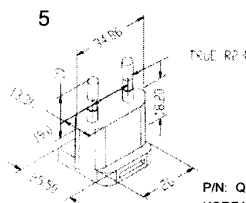
P/N: Q-SAA  
AUSTRALIA  
CHINA



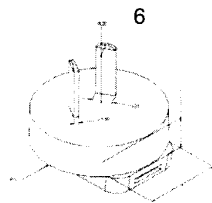
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HONG KONG  
SINGAPORE



P/N: Q-EU  
EUROPE  
SOUTH AMERICA



P/N: Q-KR  
KOREA

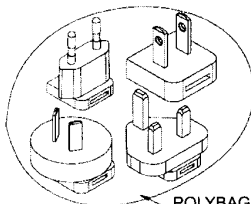


P/N: Q-AR  
ARGENTINA

STANDARD OPTION,  
PINS TO BE ORDERED SEPARATELY



KIT INCLUDING:  
Q-NA, Q-SAA, Q-UK, Q-EU,  
1 PIECE EACH: Q-KIT



POLYBAG: 0.045\*110\*200

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186 Veterans Dr. Northvale, NJ 07647  
Tel. 201-784-1000 Fax 201-784-0111

DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15 WATTS,  
N.A., EURO. UK, SAA UNIVERSAL INPUT, ITC, CLASS II

MODEL NO: GT-41052-WWVV-X.X

REV.  
F

PART NO: N/A

SHEET 3 OF 6

**PROPRIETARY INFORMATION:**

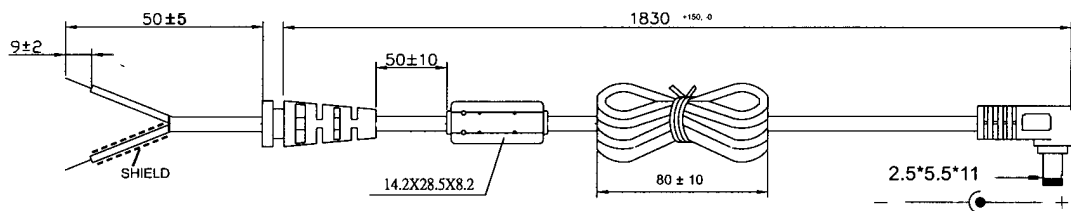
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**5. OUTPUT CORD AND CONNECTOR:****5.1. OUTPUT CORD ( 6V AND ABOVE):**

1 CONDUCTOR + SHIELD, 18 AWG STRANDED WIRE, ROUND # 1185, COLOR BLACK, LENGTH (L) OF CORD: 1830 +150, -0 mm.  
CORD IS MEASURED FROM THE HOUSING TO THE END OF OVERMOLD OF THE CONNECTOR.  
CABLE IS TO BE MARKED WITH WIRE GAUGE, AND ALL APPLICABLE RATING AND SAFETY APPROVALS.  
CABLE HAS MOLDED INLINE FERRITE.

**OUTPUT CONNECTOR:**

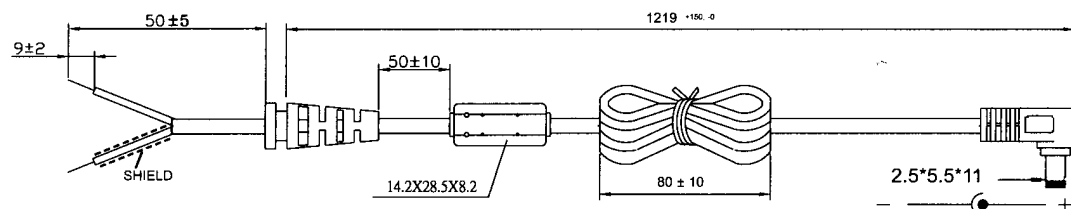
STANDARD, RIGHT ANGLE FEMALE BARREL 5.5 x 2.5 x 11 mm WITH CENTER POSITIVE:

**5.2. OUTPUT CORD ( 5.0V~5.9V):**

1 CONDUCTOR + SHIELD, 18 AWG STRANDED WIRE, ROUND # 1185, COLOR BLACK, LENGTH (L) OF CORD: 1219 +150, -0 mm.  
CORD IS MEASURED FROM THE HOUSING TO THE END OF OVERMOLD OF THE CONNECTOR.  
CABLE IS TO BE MARKED WITH WIRE GAUGE, AND ALL APPLICABLE RATING AND SAFETY APPROVALS.  
CABLE HAS MOLDED INLINE FERRITE.

**OUTPUT CONNECTOR:**

STANDARD, RIGHT ANGLE FEMALE BARREL 5.5 x 2.5 x 11 mm WITH CENTER POSITIVE:



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186 Veterans Dr. Northvale, NJ 07647  
Tel. 201-784-1000 Fax 201-784-0111

DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15 WATTS,  
N.A., EURO, UK, SAA UNIVERSAL INPUT, ITC, CLASS II

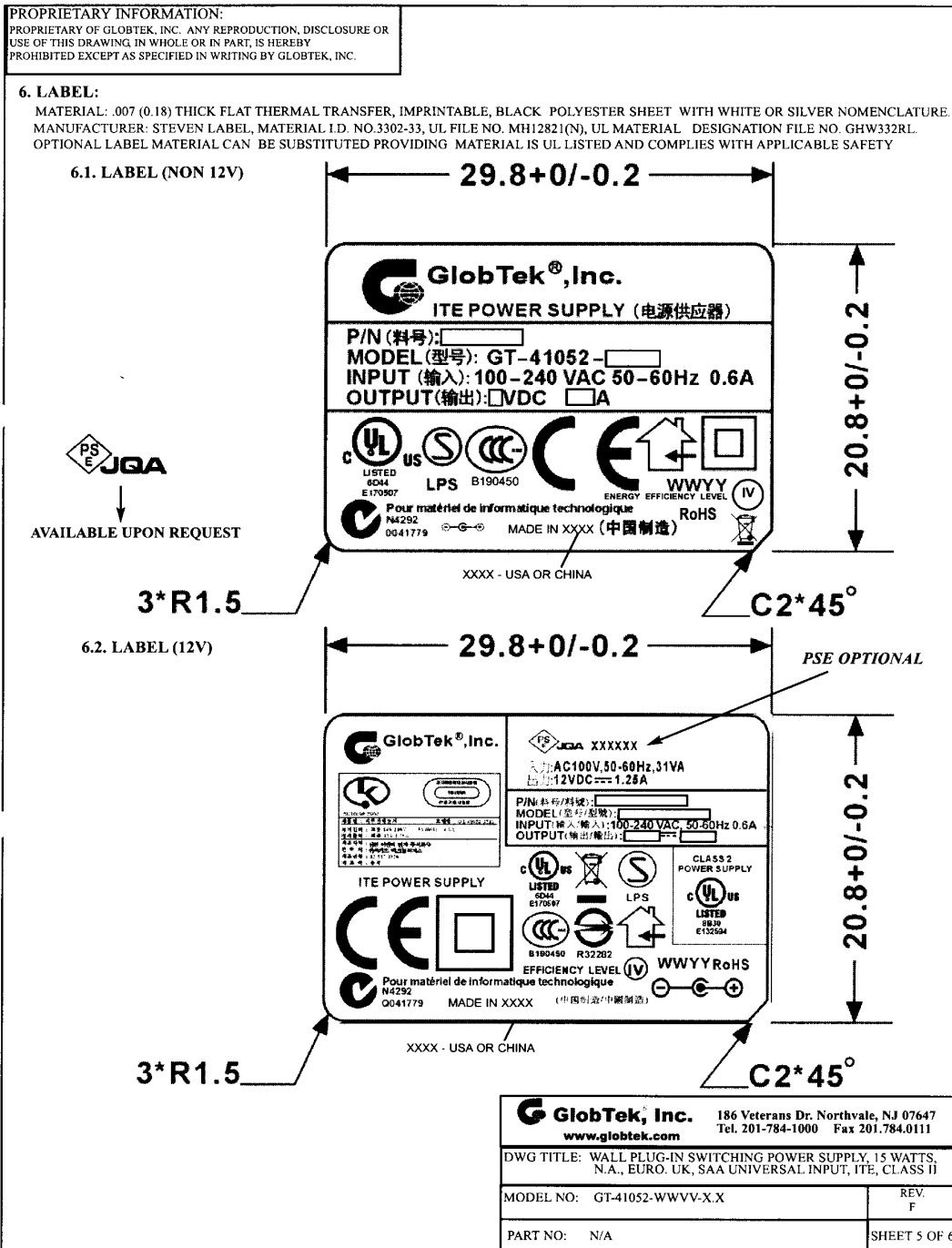
MODEL NO: GT-41052-WWVV-X.X

REV.

F

PART NO: N/A

SHEET 4 OF 6

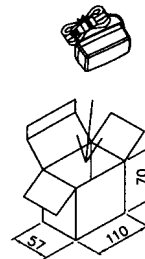
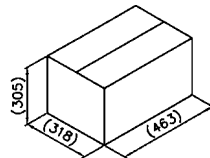
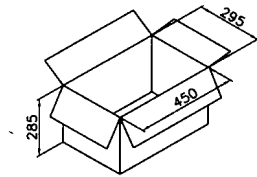


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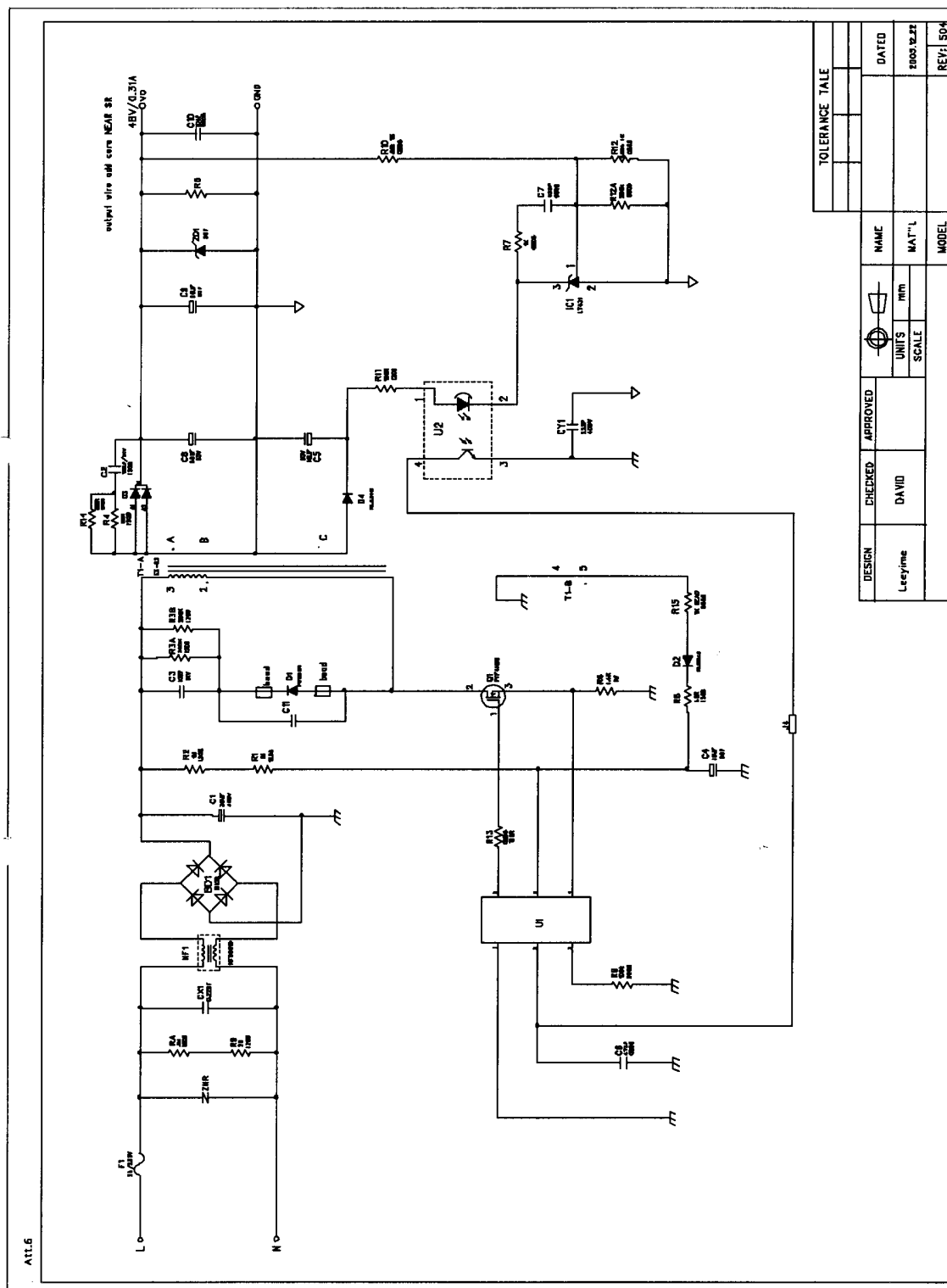
**7. PACKING:**

CARTON SIZE: 450 x 295 x 285 mm  
Q'TY: 80 PCS (20\*4)

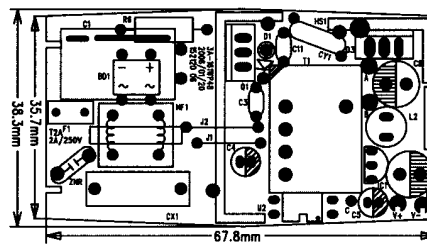


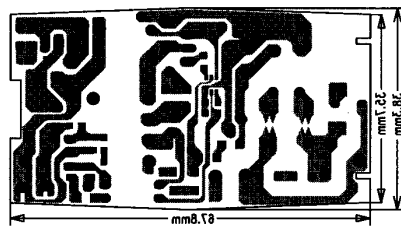
WHITE BOX: 06#

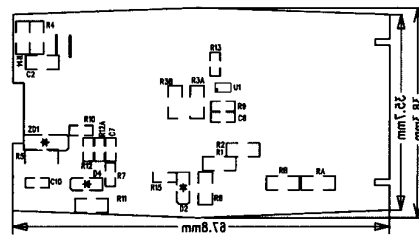
<b>GlobTek, Inc.</b> <a href="http://www.globtek.com">www.globtek.com</a>		186 Veterans Dr. Northvale, NJ 07647 Tel. 201-784-1000 Fax 201.784.0111
DWG TITLE: WALL PLUG-IN SWITCHING POWER SUPPLY, 15 WATTS, N.A., EURO. UK, SAA UNIVERSAL INPUT, ITC, CLASS II		
MODEL NO:	GT-41052-WVVV-X.X	REV. F
PART NO:	N/A	SHEET 6 OF 6













<b>PRODUCT SPECIFICATION</b>		1/5
TDK PT/NO: SRW22ES-T14V216		SPEC. NO. D-401271
CUSTOMER PT/NO: XF00299		CUSTOMER: MESSRS. ENG

**(1) CONFIGURATION & DIMENSIONS**

LOT NO. 6

5 MANUFACTURING SITE:  
MYLAR TAPE 2Ts  
COPPER 0.025X8mm LEAD WIRE  
WITH TUBE TO PIN 4

25x18mm 2Ts

2mmMax

6±1mm

27±2mm

6±1mm

5±2mm

0.8mm Max

A : 25.0 MAX. mm

B : 4.0±0.3 mm

C : 3.5±0.5 mm

D : 20.5 MAX. mm

E : 20.0 MAX. mm

F : 10.3±0.5 mm

**(2) SCHEMATIC**

● WINDING START    □ : TUBE

**[ REMARKS ]**

1. MANUFACTURING SITE:  
X: XIAMEN TDK JIMEI-FACTORY  
V: XIAMEN TDK LIANHUA FACTORY

2. LOT NO:      
a b

a: YEAR: A.D. END NUMBER IN DOUBLE.

b: WEEK: MANUFACTURING WEEK.

3. FIXING TAPE: 25u X 5.0mm 2 Ts MIN.

4. IMPREGNATION: EPOXY RESIN.

5. ALL PIN , ADD TUBE

6. PIN 1, 6, 7, 8, 10 CUT OFF

MADE BY	CHECKED BY	APPROVED BY

**TDK TDK TAIWAN CORP.**

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PRODUCT SPECIFICATION			CUSTOMER:MESSRS.		
			ENG		
TDK PT/NO:		SPEC. NO.	CUSTOMER PT/NO:		
SRW22ES-T14V216		D-401271	XF00299		

(3) WINDING SPECIFICATION

NO.	COIL	TERMINAL	WIRE	TURNS	WINDING METHOD
1	NP1	2----3	2-UEW $\phi$ 0.28	84	CLOSE/SPACE
2	E1	----4	0.025tX8mm	1	-----
3	NS1	A----B	TEX-E $\phi$ 0.3	34	CLOSE
4	NS2	C----B	TEX-E $\phi$ 0.2	10	CLOSE
5	NP2	5----4	2-UEW $\phi$ 0.15	15	CENTER CLOSE
6	E2	----4	0.025tX8mm	1	-----

(4) ELECTRICAL CHARACTERISTICS

NO.	PARAMETER	TERMINAL	SPECIFICATION	TEST INSTRUMENTS
1	INDUCTANCE	2----3	1.3mH $\pm$ 10 %	HP 4284A DIGITAL LCR METER or EQUIVALENT
2	LEAKAGE INDUCTANCE	2----3 (SEC. SHORT)	150 $\mu$ H MAX.	@1 kHz 0.3 Vrms
3	DC RESISTANCE	2----3	794 m $\Omega$ $\pm$ 15 %	NATIONAL VP-2941A
		5----4	755 m $\Omega$ $\pm$ 15 %	DIGITAL MILLIOHM METER
		A----B	374 m $\Omega$ $\pm$ 20 %	or EQUIVALENT
		C----B	290 m $\Omega$ $\pm$ 20 %	
4	INSULATION RESISTANCE	P----S	DC 500V 100 M $\Omega$ MIN.	MEGOHM METER
		P----CORE		TOA SM-5E or SM-23GM
		S----CORE		or EQUIVALENT
5	DIELECTRIC WITHSTANDING VOLTAGE	P----S	AC 3.6 kVrms, 5mA, 2s	KIKUSUI TOS-8650 or EQUIVALENT
		P----CORE	AC 1.8 kVrms, 5mA, 2s	(f=60/50 Hz)
		S----CORE	AC 1.8 kVrms, 5mA, 2s	
6	TURNS RATIO INPUT: 2----3	5----4	(0.14 Vrms $\pm$ 5.5 %)	IKEDEN RATIO TESTER MODEL
		A----B	(0.405 Vrms $\pm$ 2.5 %)	3050HT @20kHz @1Vrms.
		C----B	(0.119 Vrms $\pm$ 8.0 %)	or EQUIVALENT
				( Only for reference , so value
				will be revised later )

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PRODUCT SPECIFICATION		CUSTOMER: MESSRS.	
		ENG	
TDK PT/NO: SRW22ES-T14V216	SPEC. NO. D-401271	CUSTOMER PT/NO: XF00299	

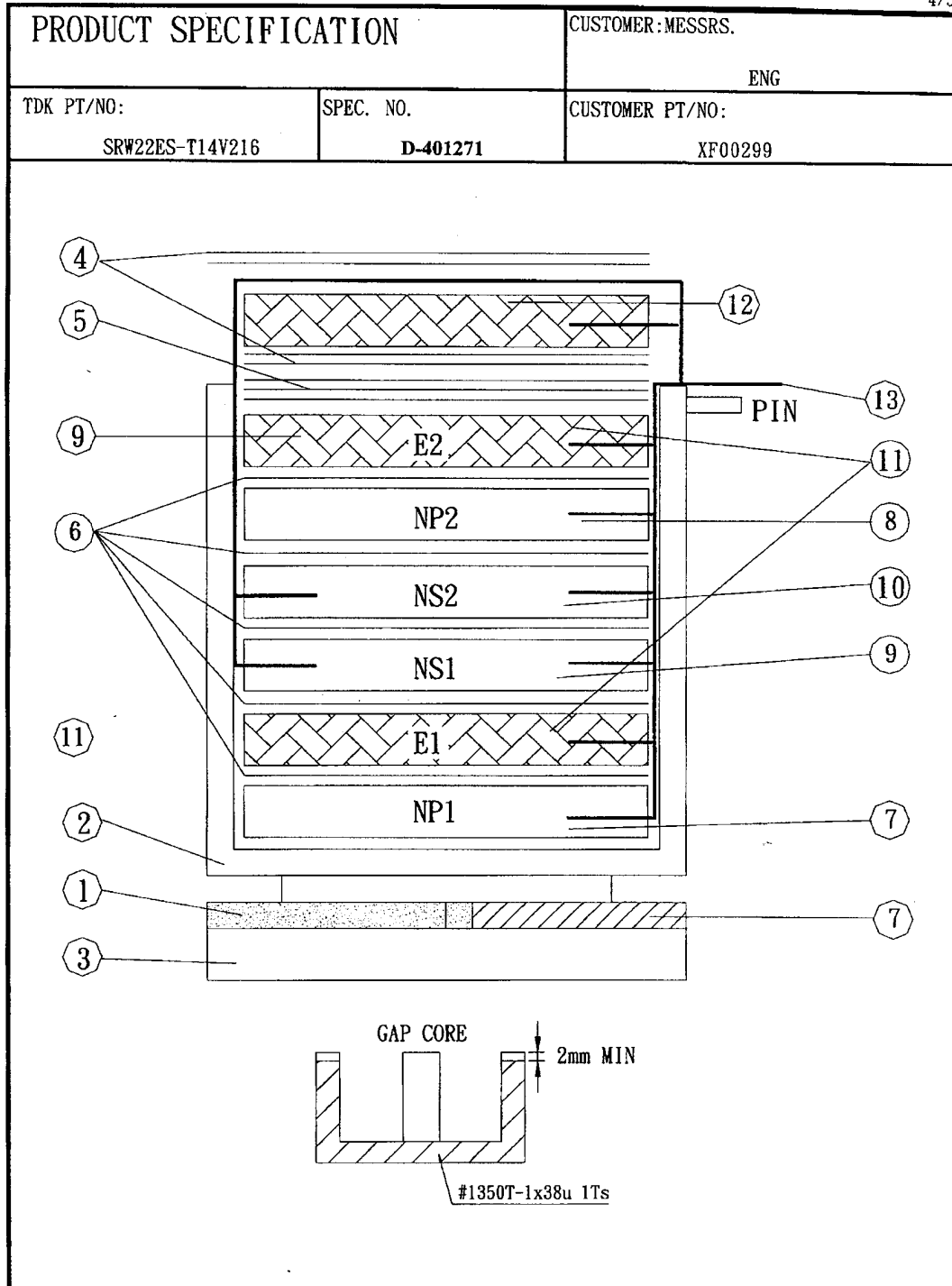
(5) RELIABILITY TEST

NO.	PARAMETER	TEST CONDITION
5.1	VIBRATION	Frequency: 10~55Hz, Amplitude: 1.5mm, Scanning: 10~55~10Hz, 1 minute Directions, Durations: X, Y, Z-Durations each 1 hours.
5.2	SOLDERABILITY	230±5°C 3.0 s or less (Pb-solder) 95% min, observed around the terminal pin 245±2°C 3.0 s or less (Lead-free solder) 95% min, observed around the terminal pin
5.3	RESISTANCE TO SOLDERING HEAT	350±10°C 3.0 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$ s and 260±5°C 10±1s (Pb-solder) $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$
5.4	HUMIDITY	40±2°C 90~95%RH 96 hours
5.5	STORAGE LOW TEMPERATURE	-25±3°C 96 hours
5.6	STORAGE HIGH TEMPERATURE	105±2°C 96 hours 110±2°C 96 hours
5.7	HEAT CYCLE	-25±3°C ~ 20±15°C ~ +85±2°C ~ 20±15°C 30min. 2~3min. 30min. 2~3min. : 10 Cycles

During and after 5.1~5.7, no failure should be observed on appearances and electrical characteristics, but it shall be subjected to standard atmospheric conditions for 1 to 2 hours, then the specimens are subjected to measurement.

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## PARTS MATERIAL IDENTIFICATION

TDK TAIWAN CORP.  
Class 130(B) electrical system, designated :B  
UL FILE NO : E174765

PARTS NAME: TRANSFORMER


CUST. PT/NO. XF00299

TDK PT/NO : SRW22ES-T14V216

SPEC. NO : D-401271

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NO.	ITEM	MATERIAL	BASE THICKNESS OF ONE LAYER	LAYERS	MINIMUM THICKNESS OF TOTAL LAYERS	UL FILE NO.	MANUFACTURER
1	CORE	FERRITE PC40 FERRITE NC-2H FERRITE P4					TDK CORPORATION.
2	BOBBIN	PHENOLIC RESIN PM9820					NIGERA CO., LTD.
3	FIXING TAPE-FOR CORE	POLYESTER TAPE NO. 35660Y*6 or NO. CT280 or NO. 1318-1(a), 1350F-1(b)	0.025 mm	2	0.05 mm	E41429 E50292 E165111 E17385	ACME CORPORATION. SUMITOMO BAKELITE CO., LTD. SYMBIO INC JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD 3M COMPANY.
4	INSULATION TAPE	SAME AS NO 3.	0.025 mm	2	0.05 mm	SAME AS NO 3.	
5	INSULATION TAPE	SAME AS NO 3.	0.025 mm	3	0.075 mm	SAME AS NO 3.	
6	INSULATION TAPE	NO. 1350T-1	0.038 mm	1	0.038 mm	E17385	3M COMPANY.
7	WIRE (NP1)	POLYURETHANE ENAMELLED COPPER WIRE 2-UEW $\phi$ 0.28				E196072 E189722	PROSPERITY ELECTRIC WIRE & CABLE CO. SALOM ELECTRIC (XIAMEN) CO., LTD.
8	WIRE (NP2)	POLYURETHANE ENAMELLED COPPER WIRE 2-UEW $\phi$ 0.15				E218438 E229341	XIAMEN ZHI CHENG ELECTRON CO LTD HANGZHOU WEIFENG ELECTRONIC CO LTD
9	WIRE (NS1)	POLYURETHANE ENAMELLED COPPER WIRE TEX-E $\phi$ 0.3 or TIW-2 $\phi$ 0.3				E206440 E166483	FURUKAWA ELECTRIC CO., LTD. TOTOKU ELECTRIC CO. LTD.
10	WIRE (NS2)	POLYURETHANE ENAMELLED COPPER WIRE TEX-E $\phi$ 0.2 or TIW-2 $\phi$ 0.2				E206440 E166483	FURUKAWA ELECTRIC CO., LTD. TOTOKU ELECTRIC CO. LTD.
11	COPPER SHEET(E1, E2)	COPPER t0.025x8mm					GOLD CASTLE DEVELOPMENTS LTD.(DER SHANG CO.)
12	OUT COPPER SHEET						XIAMEN RUIFENG CO., LTD.
13	INSULATION TUBE	POLYTETRAFLUORETHYLENE(PTFE) TFL TFT				E156256 E175982	STOLBERGER MEPELWERKE GMBH & CO., LTD. GREAT HOLDING INDUSTRIAL CO., LTD FLUO TECH INDUSTRIES CO LTD
14	VARNISH	EPOXY VARNISH 468-2 468-2-7++ 468-2FC				E81777	RIPLEY RESIN ENGINEERING CO INC.

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