IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-020795

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Switching Adapter
Name and address of the applicant Nom et adresse du demandeur	Dee Van Enterprise Co., Ltd. 5, Pao-Kao Road, Hsin-Tien Taipei 231 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Dee Van Enterprise Co., Ltd. 5, Pao-Kao Road, Hsin-Tien Taipei 231 Taiwan
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input : 1) AC 100-240V; 50/60Hz; 0,2A; Class II 2) AC 200-240V; 50/60Hz; 0,2A; Class II Output: Refer to the test report
Trade mark (if any) Marque de fabrique (si elle existe)	DVE
Model/type Ref. Ref. de type	1) DSA-5W-a Fb xy 2) DSA-5W-a Ab xy (a, b, x, y = refer to the test report)
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60950-1:2001 National differences see test report
As shown in the Test Report Ref. No.which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	16011089 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 470-3888
Fax + 81 45 470-5221
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 02.11.2007

Signature: Connie Yang

1. Dee Van Electronics (Shenzhen)
   Co., Ltd.
   The 5th Industrial District
   Gongming, Bao An District
   Shenzhen, Guangdong 518106, P.R. China

2. Dee Van Electronics (Longchuan)
   Co., Ltd.
   Meichun Industrial District
   Longchuan Country
   Heyuan, Guangdong 517300, P.R. China

3. Dee Van Technology (Longchuan)
   Co., Ltd.
   Meichun Industrial District
   Longchuan Country
   Heyuan, Guangdong 517300, P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 02.11.2007

Signature: Connie Yang

TEST REPORT

IEC 60950-1 and/or EN 60950-1

Information technology equipment – Safety –

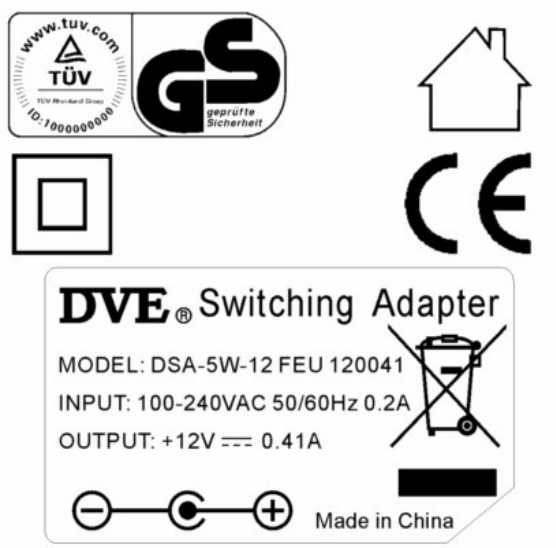
Part 1: General requirements

Report reference No	<16011089 001 >
Tested by (printed name and signature)	Richard Zhu
Approved by (printed name and signature)	Pony Xiong
Date of issue	01 Nov, 2007
Testing Laboratory Name	TÜV Rheinland (Guangdong) Ltd.
Address	Unit C-101, No.11 Caipin Road, GZ Science City, Guangzhou 510663, P.R. China
Testing location	CBTL ☒ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above
Applicant's Name	Dee Van Enterprise Co., Ltd.
Address	5, Pao-Kao Road, Hsin-Tien, Taipei 231, Taiwan
Test specification	
Standard	IEC 60950-1:2001(1st Edition) EN 60950-1:2001+A11 AS/NZS 60950.1-2003
Test procedure	CB scheme
Non-standard test method	N.A.
Test Report Form No.	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03

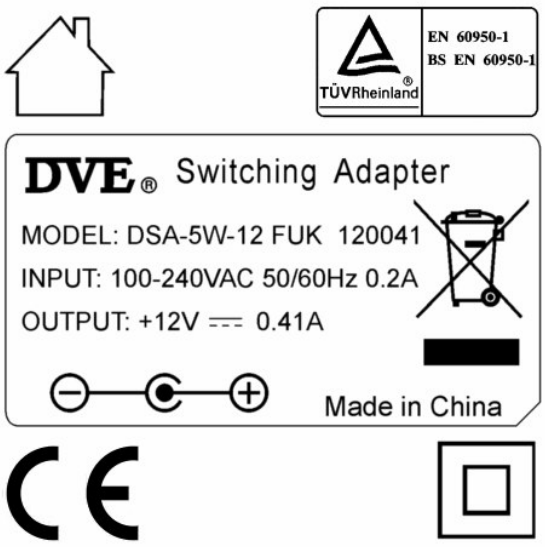
Test item description	Switching Adapter
Trademark	DVE
Manufacturer	Same as applicant
Model and/or type reference	DSA-5W-a Fb xy; DSA-5W-a Ab xy
Serial number	Pre-production samples without serial numbers
Rating(s)	Input: AC 100-240V, 50/60Hz, 0.2A (for DSA-5W-a Fb xy) AC 200-240V, 50/60Hz, 0.2A (for DSA-5W-a Ab xy) Output: see page 5

Copy of marking plate(s):

With Euro-plug:



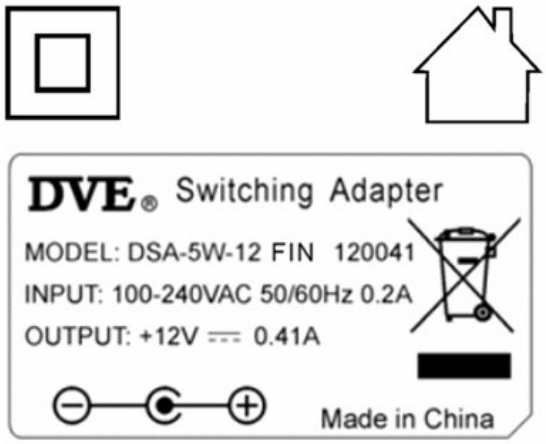
With BS plug:



The GS mark, T-mark, CE mark, indoor use and class II symbol are moulded on enclosure.

With Australian plug:

With Indian plug:



These are representative labels, the others are identical to them except the model number and input voltage rang and output ratings as listed in the model list on page 5.

Summary of testing:

1. The tested samples comply with the requirements of this standard.
2. Compliance with the National requirements of countries which are same as national differences countries as given in CB Bulletin 112A.
3. The models DSA-5W-05 FEU 050100, DSA-5W-12 FEU 082061 and DSA-5W-12 FEU 120042 have been selected for test, and unless otherwise specified, the model DSA-5W-12 FEU 120042 was tested.
4. The models are in compliance with the requirements of subclause 2.5 (limited power source).

Particulars: test item vs. test requirements

Equipment mobility .....:	Direct plug-in equipment
Operating condition .....:	Continuous
Mains supply tolerance (%) .....:	+ 10% / - 10% (as request by client)
Tested for IT power systems .....:	Yes, Norway
IT testing, phase-phase voltage (V) .....:	230 (only for Norway)
Class of equipment .....:	Class II
Mass of equipment (kg).....:	Approx. 0.08kg
Protection against ingress of water .....:	IPX0

Test case verdicts

Test case does not apply to the test object ..:	N/A
Test item does meet the requirement .....:	P(ass)
Test item does not meet the requirement ....:	F(ail)

Testing

Date of receipt of test item .....:	25 Oct, 2007
Date(s) of performance of test .....:	25 Oct, 2007 – 30 Oct, 2007

General remarks

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

The test result presented in this report relate only to the object(s) tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report a point is used as the decimal separator.

Comments:

Summary of compliance with National Differences (for explanation of codes see below):
AT, AU, BE, CH, DE, DK, FI, FR, GB, GR, HU, IL, IN, IT, KE, MY, NL, NO, PL, SE, SG, SI, SK

AT=Austria, AU=Australia, BE=Belgium, CH=Switzerland, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IN=India, IT=Italy, KE=Kenya, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia

All national differences of EU group considered according to EN 60950-1:2001, Annex ZA, Annex ZB and Annex ZC on pages 28–37; National differences of Australia considered according to AS/NZS 60950.1-2003 on pages 53–59; EN 60950-1/A11 have been added to original TRF, see page 28-37.

The dimension of European plug checked according to EN 50075 (see appended table on page 60), the British plug was evaluated according to BS1363 (see appended table on pages 61-62), the Australian plug was evaluated according to AS/NZS 3112 (see appended table on pages 63-72). The Indian plug was evaluated according to BS 4573 (see appended table on pages 73)

Factories:

1) Dee Van Electronics (Shenzhen) Co., Ltd.
   The 5th Industrial District, Gongming, Bao An District, Shenzhen, Guangdong 518106, P.R. China
2) Dee Van Electronics (Longchuan) Co., Ltd.
   Meichun Industrial District, Longchuan Country, Heyuan, Guangdong 517300, P.R. China
3) Dee Van Technology (Longchuan) Co., Ltd.
   Meichun Industrial District, Longchuan Country, Heyuan, Guangdong 517300, P.R. China

General product information:

Brief description of the test sample:

1. The equipment models DSA-5W-a Ab xy, DSA-5W-a Fb xy are Switching Adapter (direct plug-in type) used for DC supply of IT or office equipment.
2. The power supply's top enclosure is secured to bottom enclosure by ultrasonic welding.
3. The test items are pre-production samples without serial numbers.
4. The model reference is DSA-5W-a Ab xy, DSA-5W-a Fb xy, 'a' represents output voltage range, 'b' represents used plug type, 'x' represents the output voltage and 'y' represents the output current, details see model list on page 5;
5. The plug pin holder of European plug and Indian plug were fixed into the enclosure of plug portion by a screw. The pin parts of British plug and Australian plug were moulded into the enclosure of plug portion. It is impossible to remain in the mains socket-outlet after removal of the adapter, details see photo document.
6. The maximum ambient temperature is 40°C.

Difference between models:

1. The models DSA-5W-a Ab xy are identical to models DSA-5W-a Fb xy except for the model name and input voltage range;
2. Transformer: The adaptors with different output voltage have different secondary winding of transformer, details see model list in page 5;
3. R10, R11, R12, R13, R15, R17, C7, C9, D8, Z1, Z2, Z3: The parameters of these components depend on output power and output voltage.

Model list:

DSA-5W-a Ab xy; DSA-5W-a Fb xy:

No	MODEL	INPUT	OUTPUT			T1 sec winding
		V, A	V dc	Max. A	Max. W	
1	DSA-5W-05 Ab xy	200–240VAC, 50/60Hz, 0.2A	5.0 – 8.1	1.00	5	Φ0.35mmx14Ts
2	DSA-5W-12 Ab xy		8.2-12.0	0.61	5	Φ0.20mmx18Ts
3	DSA-5W-05 Fb xy	100–240VAC, 50/60Hz, 0.2A	5.0 – 8.1	1.00	5	Φ0.35mmx14Ts
4	DSA-5W-12 Fb xy		8.2-12.0	0.61	5	Φ0.20mmx18Ts

Note:
'a' can be 05, 12;

'b' can be 'EU', 'UK', 'US', 'CH', 'AU', 'KA', 'JP' or 'IN', EU means European plug used, UK means British plug used, US means American or Japanese plug used, CH means Chinese plug used, AU means Australian plug used, KA means Korean plug used, JP means Japanese plug used, IN means Indian plug used;

'x' is 3 digit number which represents the output voltage in Volt after dividing by 10, from 5.0V to 12.0V in step of 0.1V, for example, 090 represents the output voltage is 9.0 V, 120 represents the output voltage is 12.0V;

'y' is 3 digit number which represents the output current in Ampere after dividing by 100 which is up to 1.0A in step of 0.01A, for example, 041 represents the output current is 0.41A, 100 represents the output current is 1.00A.

By multiplication of output voltage and output current, the type designations are limited through the max. output power.

Only the European plug, British plug, Australian plug and Indian were considered in this report. Other types of plug should be evaluated during national approval.

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		**P**
1.5	Components		**P**
1.5.1	General	Components which were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards.	**P**
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	**P**
1.5.2	Evaluation and testing of components	Components which are certified to IEC and /or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	**P**
1.5.3	Thermal controls	No thermal controls provided.	**N/A**
1.5.4	Transformers	Transformer used are suitable for their intended application and comply with the relevant requirements of the standard and particularly Annex C.	**P**
1.5.5	Interconnecting cables	Interconnection o/p cable to other device is carrying only SELV on an energy level below 240 VA. → Except for the insulation material, there are no further requirements for the o/p interconnection cable.	**P**
1.5.6	Capacitors in primary circuits .....:	No such capacitor used.	**N/A**
1.5.7	Double insulation or reinforced insulation bridged by components	See below.	**P**
1.5.7.1	General		**P**
1.5.7.2	Bridging capacitors	Between primary side and secondary: Y1-capacitor (CY1) according to IEC 60384-14.	**P**
1.5.7.3	Bridging resistors	No such resistor used.	**P**
1.5.7.4	Accessible parts	See clause 2.4	**P**
1.5.8	Components in equipment for IT power systems	No such component	**N/A**

1.6	Power interface		**P**
1.6.1	AC power distribution systems	IT power system for Norway only, TN power system for others	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.6.2	Input current	Highest load according to 1.2.2.1 for this equipment is the operation with the max. specified DC-load. Results see appended table	**P**
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment.	**N/A**
1.6.4	Neutral conductor	Class II equipment without earth connection.	**N/A**

1.7	Marking and instructions		**P**
1.7.1	Power rating	See below.	**P**
	Rated voltage(s) or voltage range(s) (V) .....:	AC100-240V for DSA-5W-a Fb xy; AC200-240V for DSA-5W-a Ab xy	**P**
	Symbol for nature of supply, for d.c. only .....:	Mains from AC source	**N/A**
	Rated frequency or rated frequency range (Hz) ..:	50/60Hz	**P**
	Rated current (mA or A) .....:	0.2A	**P**
	Manufacturer's name or trademark or identification mark .....:	Not shown / trademark of DVE	**P**
	Type/model or type reference.....:	DSA-5W-a Ab xy; DSA-5W-a Fb xy	**P**
	Symbol for Class II equipment only .....:	Double square symbol provided.	**P**
	Other symbols .....:	Additional symbols or marking does not give rise to misunderstanding.	**P**
	Certification marks .....:	Refer to the copy of the label drawings for details.	**P**
1.7.2	Safety instructions	"User's Manual" provided that contains information regarding the maximum ambient temperature.	**P**
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	**N/A**
1.7.4	Supply voltage adjustment .....:	No voltage selector.	**N/A**
	Methods and means of adjustment; reference to installation instructions .....:		**N/A**
1.7.5	Power outlets on the equipment .....:	No power outlets provided.	**N/A**
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Fusing resistor used, marking adjacent to the fusing resistor on PCB as: RF1 4.7ohm 1W	**P**
1.7.7	Wiring terminals	See below.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.7.1	Protective earthing and bonding terminals .....:	Class II equipment without earth connection.	**N/A**
1.7.7.2	Terminal for a.c. mains supply conductors	Direct plug-in equipment.	**N/A**
1.7.7.3	Terminals for d.c. mains supply conductors	No d.c. mains supply.	**N/A**
1.7.8	Controls and indicators	No safety related switches or indicators.	**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 .....:	Only one supply from the mains.	**N/A**
1.7.10	IT power distribution systems	Only for Norway	**P**
1.7.11	Thermostats and other regulating devices	No such device.	**N/A**
1.7.12	Language(s) .....:	Installation instruction in English and German. Versions in other languages have to be provided during the corresponding national approvals.	—
1.7.13	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting of the label edge.	**P**
1.7.14	Removable parts	No removable part.	**N/A**
1.7.15	Replaceable batteries	No battery provided.	**N/A**
	Language(s).....:		—
1.7.16	Operator access with a tool .....:	No operator accessible area that needs to be accessed by the use of a tool.	**N/A**
1.7.17	Equipment for restricted access locations.....:	Not limited for use in restricted access locations.	**N/A**

2	PROTECTION FROM HAZARDS	**P**
2.1	Protection from electric shock and energy hazards	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.1.1	Protection in operator access areas	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage.	**P**
2.1.1.1	Access to energized parts	See above.	**P**
	Test by inspection .....:	See above.	**P**
	Test with test finger .....:	See above.	**P**
	Test with test pin .....:	See above.	**P**
	Test with test probe .....:	No TNV.	**N/A**
2.1.1.2	Battery compartments .....:	No battery compartment.	**N/A**
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	**N/A**
	Working voltage (Vpeak or Vrms); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	**N/A**
2.1.1.5	Energy hazards .....:	Energy does not exceed 240VA between any two points in accessible parts (o/p connector of secondary circuit). Results see appended table 2.1.1.5. No energy hazard in operator access area.	**P**
2.1.1.6	Manual controls	No manual controls.	**N/A**
2.1.1.7	Discharge of capacitors in equipment	No capacitor provided between line and neutral.	**N/A**
	Time-constant (s); measured voltage (V) .....:		—
2.1.2	Protection in service access areas	No operator accessible area that needs to be accessed by the use of a tool.	**N/A**
2.1.3	Protection in restricted access locations	Not limited for use in restricted access locations.	**N/A**

2.2	SELV circuits		**P**
2.2.1	General requirements	The secondary circuits were tested as SELV. See 2.2.1 to 2.2.4.	**P**
2.2.2	Voltages under normal conditions (V) .....:	Between any conductor of the SELV circuits 42.4 V peak or 60 V d.c. are not exceeded. See appended table 2.2.2.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.2.3	Voltages under fault conditions (V).....:	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V d.c. were not exceeded within 0.2 seconds and limits 42.4V peak and 60V d.c. were not exceeded for longer than 0.2 seconds.	**P**
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Double or reinforced for the highest working voltage across a particular insulation is provided.	**P**
2.2.3.2	Separation by earthed screen (method 2)		**N/A**
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		**N/A**
2.2.4	Connection of SELV circuits to other circuits.....:	See 2.2.2 and 2.2.3.	**P**

2.3	TNV circuits		**N/A**
2.3.1	Limits	No TNV.	**N/A**
	Type of TNV circuits .....:		—
2.3.2	Separation from other circuits and from accessible parts		**N/A**
	Insulation employed.....:		—
2.3.3	Separation from hazardous voltages		**N/A**
	Insulation employed.....:		—
2.3.4	Connection of TNV circuits to other circuits		**N/A**
	Insulation employed.....:		—
2.3.5	Test for operating voltages generated externally		**N/A**

2.4	Limited current circuits		**P**
2.4.1	General requirements		**P**
2.4.2	Limit values		**P**
	Frequency (Hz) .....:	(see appended table)	—
	Measured current (mA).....:	(see appended table)	—
	Measured voltage (V) .....:	(see appended table)	—
	Measured capacitance (µF).....:	2200pF	—
2.4.3	Connection of limited current circuits to other circuits	See 2.2.2 and 2.2.3. No direct connection between SELV and any primary circuit.	**N/A**

2.5	Limited power sources		**P**
	Inherently limited output		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Impedance limited output		**N/A**
	Overcurrent protective device limited output		**N/A**
	Regulating network limited output under normal operating and single fault condition		**P**
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		**N/A**
	Output voltage (V), output current (A), apparent power (VA) ..... :	(See appended table)	—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding		**P**
2.6.1	Protective earthing	Class II equipment.	**N/A**
2.6.2	Functional earthing	Secondary functional ground separated to primary by reinforced or double insulation.	**P**
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 (mm2), AWG ..... :		—
2.6.3.3	Size of protective bonding conductors		**N/A**
	Rated current (A), cross-sectional area (mm2), AWG ..... :		—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A) ..... :		**N/A**
2.6.3.5	Colour of insulation ..... :		**N/A**
2.6.4	Terminals		**N/A**
2.6.4.1	General		**N/A**
2.6.4.2	Protective earthing and bonding terminals		**N/A**
	Rated current (A), type and nominal thread diameter (mm) ..... :		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		**N/A**
2.6.5	Integrity of protective earthing		**N/A**
2.6.5.1	Interconnection of equipment		**N/A**
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		**N/A**
2.6.5.3	Disconnection of protective earth		**N/A**
2.6.5.4	Parts that can be removed by an operator		**N/A**
2.6.5.5	Parts removed during servicing		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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	No TNV	**N/A**
2.7	Overcurrent and earth fault protection in primary circuits		**P**
2.7.1	Basic requirements	Equipment relies on 16A rated fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit. Overcurrent protection is provided by the fusing resistor.	**P**
	Instructions when protection relies on building installation	Not applicable for pluggable equipment type A.	**N/A**
2.7.2	Faults not covered in 5.3	The protection device is well dimensioned and mounted.	**P**
2.7.3	Short-circuit backup protection	Pluggable equipment type A. Building installation is considered as providing short-circuit backup protection.	**P**
2.7.4	Number and location of protective devices .....:	Over current protection by one built-in fusing resistor.	**P**
2.7.5	Protection by several devices	Only one fusing resistor provided.	**N/A**
2.7.6	Warning to service personnel.....:	No service work is necessary.	**N/A**
2.8	Safety interlocks		**N/A**
2.8.1	General principles	No safety interlock.	**N/A**
2.8.2	Protection requirements		**N/A**
2.8.3	Inadvertent reactivation		**N/A**
2.8.4	Fail-safe operation		**N/A**
2.8.5	Moving parts		**N/A**
2.8.6	Overriding		**N/A**
2.8.7	Switches and relays		**N/A**
2.8.7.1	Contact gaps (mm) .....:		**N/A**
2.8.7.2	Overload test		**N/A**
2.8.7.3	Endurance test		**N/A**
2.8.7.4	Electric strength test		**N/A**
2.8.8	Mechanical actuators		**N/A**
2.9	Electrical insulation		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic material is not used.	**P**
2.9.2	Humidity conditioning	120hr	**P**
	Humidity (%) .....:	95% R.H.	—
	Temperature (°C) .....:	40℃	—
2.9.3	Grade of insulation	Insulation complies with sub-clauses 2.10, 4.5.1 and 5.2.	**P**

2.10	Clearances, creepage distances and distances through insulation		**P**
2.10.1	General	See 2.10.3, 2.10.4 and 2.10.5.	**P**
2.10.2	Determination of working voltage	The rms and the peak voltage were measured on the direct plug-in adaptor. The unit was connected to a 240Vac power supply and floating secondary circuits was assumed to be earthed at the point by which the highest working voltage is obtained. Results see appended table 2.10.2.	**P**
2.10.3	Clearances	See below and advantage of annex G is not considered.	**P**
2.10.3.1	General	See below, Annex G was not considered.	**P**
2.10.3.2	Clearances in primary circuits	Annex F and minimum clearances considered.	**P**
2.10.3.3	Clearances in secondary circuits		**P**
2.10.3.4	Measurement of transient voltage levels	No transient voltage across the clearance lower than due or normal.	**N/A**
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	**P**
	CTI tests .....:	CTI rating for all materials of min. 100.	—
2.10.5	Solid insulation	See below.	**P**
2.10.5.1	Minimum distance through insulation	(see appended table 2.10.5)	**P**
2.10.5.2	Thin sheet material	Thin sheet material was not used as reinforced insulation.	**N/A**
	Number of layers (pcs) .....:		—
	Electric strength test		—
2.10.5.3	Printed boards	No multi-layer PCBs provided.	**N/A**
	Distance through insulation		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs) .....:		**N/A**
2.10.5.4	Wound components	Approved source of triple insulated wire used as seondary winding of T1.	**P**
	Number of layers (pcs) .....:	3	**P**
	Two wires in contact inside wound component; angle between 45° and 90° .....:	By insulation tape.	**P**
2.10.6	Coated printed boards	No coated printed boards.	**N/A**
2.10.6.1	General		**N/A**
2.10.6.2	Sample preparation and preliminary inspection		**N/A**
2.10.6.3	Thermal cycling		**N/A**
2.10.6.4	Thermal ageing (°C) .....:		**N/A**
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		**N/A**
	Electric strength test		—
2.10.7	Enclosed and sealed parts .....:	No hermetically sealed component.	**N/A**
	Temperature T1=T2 + Tma – Tamb +10K (°C)....:		**N/A**
2.10.8	Spacings filled by insulating compound.....:	No such component.	**N/A**
	Electric strength test		—
2.10.9	Component external terminations	See appended table 2.10.2 and 2.10.3.	**P**
2.10.10	Insulation with varying dimensions	No such transformer used.	**N/A**

3	WIRING, CONNECTIONS AND SUPPLY		**P**
3.1	General		**P**
3.1.1	Current rating and overcurrent protection	Internal wiring is PVC insulated, the wiring gauge is suitable for current intended to be carried. Internal wiring for primary power distribution protected by built-in fuse.	**P**
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges which could damage the insulation and cause hazard.	**P**
3.1.3	Securing of internal wiring	The internal wiring are secured by solder pins or tubing so that loosening of the terminal connections is unlikely.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.1.4	Insulation of conductors	The insulation of the individual conductors are suitable for the application and the working voltage. For the insulation material see 3.1.1. (see appended table 5.2)	**P**
3.1.5	Beads and ceramic insulators	Not used.	**N/A**
3.1.6	Screws for electrical contact pressure	No such screws provided.	**N/A**
3.1.7	Insulating materials in electrical connections	All current carrying connections are metal to metal.	**N/A**
3.1.8	Self-tapping and spaced thread screws	Not used.	**N/A**
3.1.9	Termination of conductors	All conductors are reliable secured.	**P**
	10 N pull test	Force of 10 N applied to the termination points of the conductors.	**P**
3.1.10	Sleeving on wiring	No sleeving used to provide supplementary insulation.	**N/A**

3.2	Connection to an a.c. mains supply or a d.c. mains supply		**P**
3.2.1	Means of connection .....:	A mains plug, that is part of direct plug-in equipment	**P**
3.2.1.1	Connection to an a.c. mains supply	See above	**P**
3.2.1.2	Connection to a d.c. mains supply	AC Source	**N/A**
3.2.2	Multiple supply connections	Only one supply connection.	**N/A**
3.2.3	Permanently connected equipment	Not permanently connected equipment.	**N/A**
	Number of conductors, diameter (mm) of cable and conduits .....:		—
3.2.4	Appliance inlets	Direct plug-in equipment.	**N/A**
3.2.5	Power supply cords	No power cord.	**N/A**
3.2.5.1	AC power supply cords		**N/A**
	Type.....:		—
	Rated current (A), cross-sectional area (mm2), AWG.....:		—
3.2.5.2	DC power supply cords	AC Source.	**N/A**
3.2.6	Cord anchorages and strain relief	No power cord.	**N/A**
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage	Direct plug-in equipment. No sharp edges.	**N/A**
3.2.8	Cord guards	No cord guard provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm).....:		—
3.2.9	Supply wiring space	Not permanent connection or non-detachable power cord type.	**N/A**

3.3	Wiring terminals for connection of external conductors		**N/A**
3.3.1	Wiring terminals	Direct plug-in equipment.	**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 (mm2) .....:		—
3.3.5	Wiring terminal sizes		**N/A**
	Rated current (A), type and nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminals design		**N/A**
3.3.7	Grouping of wiring terminals		**N/A**
3.3.8	Stranded wire		**N/A**

3.4	Disconnection from the mains supply		**P**
3.4.1	General requirement	Disconnect device provided.	**P**
3.4.2	Disconnect devices	Plug of this direct plug-in equipment was used as disconnected device.	**P**
3.4.3	Permanently connected equipment	Not permanently connected equipment.	**N/A**
3.4.4	Parts which remain energized	There is no parts remained with hazardous voltage or energy in the equipment when SPS is separated from AC mains.	**P**
3.4.5	Switches in flexible cords	No flexible cords.	**N/A**
3.4.6	Single-phase equipment and d.c. equipment	The mains plug disconnects both poles simultaneously.	**P**
3.4.7	Three-phase equipment	Single phase equipment.	**N/A**
3.4.8	Switches as disconnect devices	See sub-clause 3.4.2.	**N/A**
3.4.9	Plugs as disconnect devices	See sub-clause 3.4.2.	**N/A**
3.4.10	Interconnected equipment	No interconnections using hazardous voltages.	**N/A**
3.4.11	Multiple power sources	Only one supply connection provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.5	Interconnection of equipment		**P**
3.5.1	General requirements	This power supply is not considered for connection to TNV.	**P**
3.5.2	Types of interconnection circuits .....:	Interconnection circuits of SELV through the connector. No ELV interconnection circuits.	**P**
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection	**N/A**
4	PHYSICAL REQUIREMENTS		**P**
4.1	Stability		**N/A**
	Angle of 10°	Direct plug-in equipment.	**N/A**
	Test: force (N).....:		**N/A**
4.2	Mechanical strength		**P**
4.2.1	General	See below. After tests, unit comply with 2.1.1, 2.6.1, 2.10 and 4.4.1.	**P**
4.2.2	Steady force test, 10 N	10N applied to components other than parts serving as an enclosure.	**P**
4.2.3	Steady force test, 30 N	No internal enclosure.	**N/A**
4.2.4	Steady force test, 250 N	250N applied to outer enclosure. No energy or other hazards.	**P**
4.2.5	Impact test	Direct plug-in equipment.	**N/A**
	Fall test		**N/A**
	Swing test		**N/A**
4.2.6	Drop test	No hazard as result from drop test.	**P**
4.2.7	Stress relief test	After 7 hours at temperature of 75℃ and cooling down to room temperature, no shrinkage and distortion or loosening any enclosure part was noticeable on the adapter. Test was performed for all sources of enclosure material.	**P**
4.2.8	Cathode ray tubes	No CRT provided.	**N/A**
	Picture tube separately certified .....:		**N/A**
4.2.9	High pressure lamps	No High pressure lamps provided.	**N/A**
4.2.10	Wall or ceiling mounted equipment; force (N) .....:	Direct plug-in equipment.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.3	Design and construction		**P**
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 handles or controls provided.	**N/A**
4.3.3	Adjustable controls	No controls provided.	**N/A**
4.3.4	Securing of parts	No connection likely to be exposed to mechanical stress is provided in unit.	**P**
4.3.5	Connection of plugs and sockets	No mismating of connectors, plugs or sockets possible.	**P**
4.3.6	Direct plug-in equipment	The prevention of imposing to undue strain on the socket-outlet was done by construction of the plug of adaptor. For European plug: 0.02Nm; For British plug: 0.02Nm; For Australian plug: 0.02Nm; For Indian plug: 0.05Nm	**P**
	Dimensions (mm) of mains plug for direct plug-in :	(See attached partial test reports)	**P**
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N) .....:	See above.	**P**
4.3.7	Heating elements in earthed equipment	No heating elements provided.	**N/A**
4.3.8	Batteries	No batteries provided.	**N/A**
4.3.9	Oil and grease	No heating elements provided.	**N/A**
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	**N/A**
4.3.11	Containers for liquids or gases	No container for liquid or gas.	**N/A**
4.3.12	Flammable liquids.....:	No such flammable liquid.	**N/A**
	Quantity of liquid (l).....:		**N/A**
	Flash point (°C).....:		**N/A**
4.3.13	Radiation; type of radiation .....:	No optical radiation present.	**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**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:		**N/A**
4.3.13.5	Laser (including LEDs)	No optical radiation present.	**N/A**
	Laser class .....:		—
4.3.13.6	Other types .....:		**N/A**

4.4	Protection against hazardous moving parts		**N/A**
4.4.1	General	No moving parts.	**N/A**
4.4.2	Protection in operator access areas		**N/A**
4.4.3	Protection in restricted access locations		**N/A**
4.4.4	Protection in service access areas		**N/A**

4.5	Thermal requirements		**P**
4.5.1	Maximum temperatures	See appended table 4.5.1.	**P**
	Normal load condition per Annex L.....:	See 1.6.2.	**P**
4.5.2	Resistance to abnormal heat	See appended table 4.5.2.	**P**

4.6	Openings in enclosures		**P**
4.6.1	Top and side openings	No openings	**P**
	Dimensions (mm) .....:		—
4.6.2	Bottoms of fire enclosures	No openings	**P**
	Construction of the bottom .....:		—
4.6.3	Doors or covers in fire enclosures	No such things.	**N/A**
4.6.4	Openings in transportable equipment	No opening.	**N/A**
4.6.5	Adhesives for constructional purposes	No adhesive.	**N/A**
	Conditioning temperature (°C)/time (weeks) .....:		—

4.7	Resistance to fire		**P**
4.7.1	Reducing the risk of ignition and spread of flame	Use of materials with the required flammability classes.	**P**
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	**P**
	Method 2, application of all of simulated fault condition tests		**N/A**
4.7.2	Conditions for a fire enclosure	See below.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.2.1	Parts requiring a fire enclosure	With having the following parts: ▪ Components in primary ▪ Components in secondary ▪ Components having unenclosed arcing parts at hazardous voltage or energy level ▪ Insulated wiring The fire enclosure is required.	**P**
4.7.2.2	Parts not requiring a fire enclosure		**N/A**
4.7.3	Materials		**P**
4.7.3.1	General	Parts mounted on PCB of flammability class V-0 or better.	**P**
4.7.3.2	Materials for fire enclosures	The fire enclosure is V-1 or better material.	**P**
4.7.3.3	Materials for components and other parts outside fire enclosures	No part outside fire enclosure.	**N/A**
4.7.3.4	Materials for components and other parts inside fire enclosures	Internal components except small parts are V-2 or better.	**P**
4.7.3.5	Materials for air filter assemblies	No air filters provided.	**N/A**
4.7.3.6	Materials used in high-voltage components	No high voltage components provided.	**N/A**

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		**P**
5.1	Touch current and protective conductor current		**P**
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	**P**
5.1.2	Equipment under test (EUT)	EUT has only one mains connection.	**P**
5.1.3	Test circuit	Equipment of figure 5A used.	**P**
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	**P**
5.1.5	Test procedure	The touch current was measured from mains to DC output connector and to a 100 mm × 200 mm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	**P**
5.1.6	Test measurements	See below.	**P**
	Test voltage (V) .....:	See appended table 5.1.6.	—
	Measured touch current (mA) .....:	See appended table 5.1.6.	—
	Max. allowed touch current (mA) .....:	See appended table 5.1.6.	—
	Measured protective conductor current (mA) .....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Max. allowed protective conductor current (mA) .:		—
5.1.7	Equipment with touch current exceeding 3.5 mA :	Neither stationary permanently connected equipment nor stationary pluggable equipment type B.	**N/A**
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	No TNV.	**N/A**
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		**N/A**
	Test voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks .....:		**N/A**

5.2	Electric strength		**P**
5.2.1	General	(see appended table 5.2)	**P**
5.2.2	Test procedure	(see appended table 5.2)	**P**

5.3	Abnormal operating and fault conditions		**P**
5.3.1	Protection against overload and abnormal operation	Output overload test, the most unfavorable load test. (see appended table 5.3)	**P**
5.3.2	Motors	No motors.	**N/A**
5.3.3	Transformers	With the shorted o/p of the transformer, no high temperature of the transformer was recorded. Results of the short-circuit tests see appended table 5.3 and Annex C.	**P**
5.3.4	Functional insulation .....:	Method c). Test results see appended table 5.3.	**P**
5.3.5	Electromechanical components	No electromechanical component provided.	**N/A**
5.3.6	Simulation of faults	Results see appended table.	**P**
5.3.7	Unattended equipment	None of the listed components was provided.	**N/A**
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary to SELV was passed.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
6	CONNECTION TO TELECOMMUNICATION NETWORKS		**N/A**
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		**N/A**
6.1.1	Protection from hazardous voltages		**N/A**
6.1.2	Separation of the telecommunication network from earth		**N/A**
6.1.2.1	Requirements	No TNV.	**N/A**
	Test voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions.....:		**N/A**
6.2	Protection of equipment users from overvoltages on telecommunication networks		**N/A**
6.2.1	Separation requirements	No TNV.	**N/A**
6.2.2	Electric strength test procedure		**N/A**
6.2.2.1	Impulse test		**N/A**
6.2.2.2	Steady-state test		**N/A**
6.2.2.3	Compliance criteria		**N/A**
6.3	Protection of the telecommunication wiring system from overheating		**N/A**
	Max. output current (A).....:	No TNV.	—
	Current limiting method .....:		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		**N/A**
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	Not connected to cable distribution system	**N/A**
7.2	Protection of equipment users from overvoltages on the cable distribution system		**N/A**
7.3	Insulation between primary circuits and cable distribution systems		**N/A**
7.3.1	General		**N/A**
7.3.2	Voltage surge test		**N/A**
7.3.3	Impulse test		**N/A**
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		**N/A**
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		**N/A**
A.1.1	Samples.....:		—
	Wall thickness (mm).....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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) .....:		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		**N/A**
A.2.1	Samples, material.....:		—
	Wall thickness (mm).....:		—
A.2.2	Conditioning of samples		**N/A**
A.2.3	Mounting of samples .....:		**N/A**
A.2.4	Test flame (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 60695-2-2, cl. 4 and 8		**N/A**
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.3	Hot flaming oil test (see 4.6.2)		**N/A**
A.3.1	Mounting of samples		**N/A**
A.3.2	Test procedure		**N/A**
A.3.3	Compliance criterion		**N/A**

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		**N/A**
B.1	General requirements	No motor provided.	**N/A**
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Rated values .....:		—
B.2	Test conditions		**N/A**
B.3	Maximum temperatures		**N/A**
B.4	Running overload test		**N/A**
B.5	Locked-rotor overload test		**N/A**
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—
B.6	Running overload test for d.c. motors in secondary circuits		**N/A**
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		**N/A**
B.7.1	Test procedure		**N/A**
B.7.2	Alternative test procedure; test time (h).....:		**N/A**
B.7.3	Electric strength test		**N/A**
B.8	Test for motors with capacitors		**N/A**
B.9	Test for three-phase motors		**N/A**
B.10	Test for series motors		**N/A**
	Operating voltage (V) .....:		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		**P**
	Position .....:	T1	—
	Manufacturer .....:	See appended table 1.5.1	—
	Type .....:	See appended table 1.5.1	—
	Rated values .....:	Class B	—
	Method of protection.....:	By protection circuit design.	—
C.1	Overload test	See appended table 5.3.	**P**
C.2	Insulation	See appended table C.2.	**P**
	Protection from displacement of windings.....:	By insulation tape	**P**

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

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)	**N/A**

F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		**N/A**
G.1	Summary of the procedure for determining minimum clearances		**N/A**
G.2	Determination of mains transient voltage (V) .....:		**N/A**
G.2.1	AC mains supply		**N/A**
G.2.2	DC mains supply		**N/A**
G.3	Determination of telecommunication network transient voltage (V).....:		**N/A**
G.4	Determination of required withstand voltage (V)...:		**N/A**
G.5	Measurement of transient levels (V).....:		**N/A**
G.6	Determination of minimum clearances.....:		**N/A**
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		**N/A**
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		**N/A**
	Metal used .....:	No risk of corrosion.	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		**N/A**
K.1	Making and breaking capacity		**N/A**
K.2	Thermostat reliability; operating voltage (V) .....:		**N/A**
K.3	Thermostat endurance test; operating voltage (V) .....:		**N/A**
K.4	Temperature limiter endurance; operating voltage (V) .....:		**N/A**
K.5	Thermal cut-out reliability		**N/A**
K.6	Stability of operation		**N/A**
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		**P**
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		**P**
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		**N/A**
M.1	Introduction	No telephone signal.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
M.2	Method A		**N/A**
M.3	Method B		**N/A**
M.3.1	Ringing signal		**N/A**
M.3.1.1	Frequency (Hz) .....:		—
M.3.1.2	Voltage (V) .....:		—
M.3.1.3	Cadence; time (s), voltage (V) .....:		—
M.3.1.4	Single fault current (mA).....:		—
M.3.2	Tripping device and monitoring voltage.....:		**N/A**
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		**N/A**
M.3.2.2	Tripping device		**N/A**
M.3.2.3	Monitoring voltage (V).....:		**N/A**

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

P	ANNEX P, NORMATIVE REFERENCES	**P**

Q	ANNEX Q, BIBLIOGRAPHY	**P**

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		**N/A**
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		**N/A**
R.2	Reduced clearances (see 2.10.3)		**N/A**

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

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		**N/A**
			—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
		Approved TIW used.	—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		**P**
V.1	Introduction		**P**
V.2	TN power distribution systems		**P**
V.3	TT power systems		**N/A**
V.4	IT power systems	IT-power system for Norway.	**P**

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		**P**
W.1	Touch current from electronic circuits	See table 5.1.6	**P**
W.1.2	Earthed circuits		**N/A**
W.2	Interconnection of several equipments		**N/A**
W.2.1	Isolation		**N/A**
W.2.2	Common return, isolated from earth		**N/A**
W.2.3	Common return, connected to protective earth		**N/A**

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

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

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
EU Group Differences [C], EU Special National Conditions [S], EU A-Deviations [A] (EN 60950-1:2001, Annex ZB and Annex ZC)			**P**
General	C: Delete all the "country" notes in the reference document according to the following list: 1.1.5 Note 2 1.5.8 Note 2 1.6.1 Note 1.7.2 Note 4 1.7.12 Note 2 2.6 Note 2.2.3 Note 2.2.4 Note 2.3.2 Note 2, 7, 8 2.3.3 Note 1, 2 2.3.4 Note 2,3 2.7.1 Note 2.10.3.1 Note 4 3.2.1.1 Note 3.2.3 Note 1, 2 3.2.5.1 Note 2 4.3.6 Note 1,2 4.7.2.2 Note 4.7.3.1 Note 2 6.1.2.1 Note 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7 Note 4 7.1 Note G2.1 Note 1, 2 Annex H Note 2	Deleted.	**N/A**
1.2.4.1	S (DK): 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.	Class II equipment.	**N/A**
1.5.1	A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No switch.	**N/A**
1.5.8	S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Class II equipment.	**N/A**
1.7.2	S (FI, NO, SE): CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:	Class II equipment.	**N/A**
	FI: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"	Class II equipment.	**N/A**
	NO: "Apparatet må tilkoples jordet stikkontakt"	Class II equipment.	**N/A**
	SE: "Apparaten skall anslutas till jordat uttag"	Class II equipment.	**N/A**
	A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text:	Class II equipment.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	"For tilslutning af de øvrige ledere, se medfølgende instalationsvejledning."		
1.7.5	S (DK): 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.	No socket-outlet.	**N/A**
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.	No socket outlet.	**N/A**
1.7.12	A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph item 2): Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	Not labour equipment.	**N/A**
1.7.15	A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.	No batteries.	**N/A**
	A (DE, Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4): a) A licence is required by those who operate an X-ray emission source. b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if	No radiation.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if 1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6, 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	Not TNV.	**N/A**
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.	Not TNV.	**N/A**
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	Not TNV.	**N/A**
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.	Class II equipment.	**N/A**
2.7.1	C: Replace the subclause as follows: *Basic requirements* To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit	Replaced.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.	Built-in fusible resistor was used as protective device.	**P**
2.7.2	C: Void.		**N/A**
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".	Replaced.	**P**
2.10.3.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault	Considered.	**P**
3.2.1.1	S (CH): 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: SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A 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: SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A	Direct plug-in equipment.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	S (DK): 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 ply-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.	Direct plug-in equipment.	**N/A**
	S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. 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. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.	Direct plug-in equipment.	**N/A**
	S (GB): 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 Socket etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	Direct plug-in equipment.	**N/A**
	S (IE): 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.	Direct plug-in equipment.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.	Deleted.	**N/A**
3.2.5.1	C: Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 0,75[1)] Over 6 up to and including 10 (0,75)[2)] 1,0 Over 10 up to and including 16 (1,0)[3)] 1,5 In the Conditions applicable to Table 3B delete the words "in some countries" in condition [1)]. In Note 1, applicable to Table 3B, delete the second sentence.	Replaced.	**N/A**
3.2.5.1	S (GB): A power supply cord with conductor of 1,25 mm^2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.	Direct plug-in equipment.	**N/A**
3.3.4	C: 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.	Deleted.	**N/A**
3.3.4	S (GB): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: - 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.	Direct plug-in equipment.	**N/A**
4.3.6	S (GB): The torque test is performed using a socket outlet complying with BS 1363 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, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.	See IEC 60950-1 and attached BS 1363 test report.	**P**
	S (IE): 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.	See IEC 60950-1 and attached BS 1363 test report.	**P**
4.3.13.6	C: Add the following note: NOTE 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. Standards taking into account this recommendation are currently under development.	Added.	**N/A**
6.1.2.1	S (FI, NO, SE): Add the following text between the first and second paragraph:	No TNV.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTINGE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		
6.1.2.2	S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.	No TNV.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.1	S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No TNV.	**N/A**
G.2.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.	Annex G not applied for.	**N/A**
Annex H	C: 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.	Replaced.	**N/A**
Annex P	C: Replace the text of this annex by: See annex ZA.	Replaced.	**N/A**
Annex Q	C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Annex ZA	C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments). NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.		**P**

—	IEC 60050-151
—	IEC 60050-195
EN 60065:1998 + corr. June 1999	IEC 60065 (mod):1998
EN 60073:1996	IEC 60073:1996
HD 566 S1:1990	IEC 60085:1984
HD 214 S2:1980	IEC 60112:1979
HD 611.4.1.S1:1992	IEC 60216-4-1:1990
HD 21 [1)] Series	IEC 60227 (mod) Series
HD 22 [2)] Series	IEC 60245 (mod) Series
EN 60309 Series	IEC 60309 Series
EN 60317-43:1997	IEC 60317-43:1997
EN 60320 Series	IEC 60320 (mod) Series
HD 384.3 S2:1995	IEC 60364-3 (mod):1993
HD 384.4.41 S2:1996	IEC 60364-4-41 (mod):1992 [3)]
EN 132400:1994 [4)] + A2:1998 + A3:1998 + A4:2001	IEC 60384-14:1993
EN 60417-1	IEC 60417-1
HD 625.1 S1:1996 + corr. Nov. 1996	IEC 60664-1 (mod):1992
EN 60695-2-2:1994	IEC 60695-2-2:1991
EN 60695-2-11:2001	IEC 60695-2-11:2000
—	IEC 60695-2-20:1995
—	IEC 60695-10-2:1995
—	IEC 60695-11-3:2000
—	IEC 60695-11-4:2000
EN 60695-11-10:1999	IEC 60695-11-10:1999
EN 60695-11-20:1999	IEC 60695-11-20:1999
EN 60730-1:2000	IEC 60730-1:1999 (mod)
EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997	IEC 60825-1:1993
EN 60825-2:2000	IEC 60825-2:2000
—	IEC 60825-9:1999
EN 60851-3:1996	IEC 60851-3:1996
EN 60851-5:1996	IEC 60825-5:1996
EN 60851-6:1996	IEC 60851-6:1996
—	IEC 60885-1:1987
EN 60990:1999	IEC 60990:1999
—	IEC 61058-1:2000
EN 61965:2001	IEC 61965:2000
EN ISO 178:1996	ISO 178:1993
EN ISO 179 Series	ISO 179 Series
EN ISO 180:2000	ISO 180:1993
—	ISO 261:1998
—	ISO 262:1998
EN ISO 527 Series	ISO 527 Series
—	ISO 386:1984
EN ISO 4892 Series	ISO 4892 Series

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	— ISO 7000:1989 EN ISO 8256:1996 ISO 8256:1990 — ISO 9772:1994 EN ISO 9773:1998 ISO 9773:1998 — ITU-T:1988 Recommendation K.17 — ITU-T:2000 Recommendation K.21 1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14		

1.5.1	TABLE: list of critical components				P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Transformer (T1)	Dee Van Enterprise Co., Ltd.	90E5W0005-xxH 90E5W0012-xxH (xx can be 00–99)	Pri. Winding (pin 1-A): Φ0.16mmx2px21Ts (pin A-2): Φ0.16mmx126Ts Auxiliary primary winding (pin 4-3): Φ0.16mmx12Ts Shield winding: Φ0.16mmx2px21Ts Sec. Winding of 90E5W0005-xxH (pin B-C): Φ0.35mmx14Ts Sec. Winding of 90E5W0012-xxH (pin B-C): Φ0.20mmx18Ts Class B	Applicable part of IEC 60950-1 and according to IEC 60085	Tested with appliance
Triple insulated wire for secondary winding	Furukawa Electric Co., Ltd.	TEX-E	Class B	IEC/EN 60950-1	VDE
(Alt.)	Kuo Kuang	SEFU-B	Class B	IEC/EN 60950-1	VDE
(Alt.)	Cosmolink	TIW-M	Class B	IEC/EN 60950-1	VDE
Fusing resistor (RF1)	TZAI YUAN	KNF	4.7ohm; 1W	--	Tested with appliance
(Alt.)	VIS Electronics Ltd.	FRT	4.7ohm; 1W	--	Tested with appliance
(Alt.)	Jiangsu Xinyang Electronics Ltd.	RF10	4.7ohm; 1W	--	Tested with appliance
(Alt.)	Dong Guan Anson Electronics Co., Ltd.	FKN	4.7ohm; 1W	--	Tested with appliance
Diode (D1-D4)	Various	Various	Min. 1A; 800V	--	--
Storage Cap. (C1, C2)	Various	Various	1.0-10μF; Min. 400VDC; 105°C	--	--

Common Choke (L1)	Dee Van Enterprise Co., Ltd.	30D003330-xxH (xx can be 00–99)	Pin 1-2: Φ0.09mmx330Ts; min. 3mH; 130°C	--	--
(Alt.)	Dee Van Enterprise Co., Ltd.	30D003400-xxH (xx can be 00-99)	Pin 1-2: Φ0.12x400.5Ts, min. 3.0mH, 130°C	--	--
Y capacitor (CY1) (Optional)	TDK	CD	Max. 2200pF, AC250V, 25/125/56/B, Y1 type.	IEC/EN 60384-14	VDE
(Alt.)	Murata	KX	Max. 2200pF, AC250V, 25/125/21, Y1 type.	IEC/EN 60384-14	VDE
(Alt.)	Success	SE, SB	Max. 2200pF, AC250V, 30/125/56/C, Y1 type.	IEC/EN 60384-14	VDE
(Alt.)	JYA-NAY	JN	Max. 2200pF, AC250V, 25/125/21/C, Y1 type.	IEC/EN 60384-14	VDE
(Alt.)	Jyh Chung	JD	Max. 2200pF, AC250V, 25/125/21/C, Y1 type.	IEC/EN 60384-14	VDE
(Alt.)	Welson	WD	Max. 2200pF, AC250V, 25/125/21/C, Y1 type.	IEC/EN 60384-14	VDE
(Alt)	Chyun Fuh	CD	Max. 2200pF; AC250V; 25/085/21/C, Y1 type	IEC/EN 60384-14	VDE
(Alt)	Jin Yang	X1Y1	Max. 2200pF; AC250V; 25/085/21/C, Y1 type	IEC/EN 60384-14	VDE
(Alt)	Songtian	CD	Max. 2200pF, AC400V, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE
Euro-plug	Dee Van Enterprise Co., Ltd.	DVE	2.5A; 250VAC	EN 50075	TÜV Rheinland (J 2156136)
BS plug	Dee Van Enterprise Co., Ltd.	DVE-UK	0.3A; 250VAC	BS 1363	Tested with appliance
- Pin sleeve of BS plug	Nan Ya plastic Corp.	6410G5	PA66, V-0, 130°C	--	UL E130155

Australian plug portion	Dee Van Enterprise Co., Ltd.	DVE-AU	AC 250V, 0.3A	AS/NZS 3112	Tested with appliance
- Pin sleeve for AU plug	Dupont	FR50	PA66, V-0, 130°C	--	UL E41938
Indian plug	Dee Van Enterprise Co., Ltd.	DVE-IN	AC 250V, 0.3A	BS 4573	Tested with appliance
- Pin holder for Indian plug	GE Plastic	SE1X	PPE+PS, V-1, 105°C	--	UL E121562
Enclosure	GE Plastic	SE1X	PPE+PS, V-1, 105°C, thickness: min. 2.0mm,	--	UL E121562
Insulation tape	Symbio	35660Y/MY130	130°C	--	UL E50292
Shrinkable tube	Shenzhen Woer	RSFR	125°C, VW-1, 600V	--	UL E203950
(Alt.)	Various	Various	125°C, VW-1, 600V	--	UL
PCB	WuZhou	WZ-2	V-0 or better; min. 130°C	--	UL E170968
(Alt.)	Various	Various	V-0 or better; min. 130°C	--	UL
Primary lead wire	Dong Ju	1007	80°C; min. 24AWG; VW-1.	--	UL E189674
(Alt.)	Various	Various	80°C; min. 24AWG; VW-1	--	UL
Output cord	Xin Ya Electronics	2468	80°C, 22AWG Min. VW-1	--	UL E170689
(Alt.)	Various	Various	80°C, 22AWG Min. VW-1	--	UL
Output cord (if the part in enclosure covered with heat shrinkable tube)	Various	Various	60°C, 22AWG Min. VW-1	--	UL
Note(s): --					

1.6.2	TABLE: electrical data (in normal conditions)					**P**
Fuse #	Irated (mA)	U (V)	P (W)	I (mA)	Ifuse (mA)	Condition/status
Model DSA-5W-05 FEU 050100						
RF1	--	90	7.4	138	138	Rated load at 50 Hz
RF1	--	90	7.4	140	140	Rated load at 60 Hz
RF1	200	100	7.4	127	127	Rated load at 50 Hz
RF1	200	100	7.4	129	129	Rated load at 60 Hz

RF1	200	240	7.9	62	62	Rated load at 50 Hz
RF1	200	240	7.9	68	68	Rated load at 60 Hz
RF1	--	264	8.2	60	60	Rated load at 50 Hz
RF1	--	264	8.2	65	65	Rated load at 60 Hz
Model DSA-5W-12 FEU 082061						
RF1	--	90	6.6	118	118	Rated load at 50 Hz
RF1	--	90	6.6	119	119	Rated load at 60 Hz
RF1	200	100	6.4	108	108	Rated load at 50 Hz
RF1	200	100	6.5	110	110	Rated load at 60 Hz
RF1	200	240	7.0	53	53	Rated load at 50 Hz
RF1	200	240	7.1	54	54	Rated load at 60 Hz
RF1	--	264	7.4	52	52	Rated load at 50 Hz
RF1	--	264	7.3	53	53	Rated load at 60 Hz
Model DSA-5W-12 FEU 120041						
RF1	--	90	6.5	122	122	Rated load at 50 Hz
RF1	--	90	6.5	125	125	Rated load at 60 Hz
RF1	200	100	6.5	115	115	Rated load at 50 Hz
RF1	200	100	6.5	117	117	Rated load at 60 Hz
RF1	200	240	7.3	61	61	Rated load at 50 Hz
RF1	200	240	7.3	63	63	Rated load at 60 Hz
RF1	--	264	7.6	57	57	Rated load at 50 Hz
RF1	--	264	7.6	60	60	Rated load at 60 Hz
Note(s):--						

2.1.1.5	TABLE: max. V, A, VA test				**P**
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
Model DSA-5W-05 FEU 050100					
5.0	1.00	5.9	1.40	5.2	
Model DSA-5W-12 FEU 120041					
12.0	0.41	13.4	0.64	6.0	
Note(s): Test voltage: 264 V Test frequency: 60 Hz					

2.1.1.7	TABLE: discharge test			**N/A**
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	Comments

Note(s): --				

2.2.2	TABLE: Hazardous voltage measurement			**P**
Transformer	Location	max. Voltage		Voltage Limitation Component
		V peak	V d.c.	
Model DSA-5W-12 FEU 120041				
T1	Pin B-C	48.3	--	D8
	Output	--	13.6	--
Note(s): Test voltage: 240 V Test frequency: 60 Hz				

2.2.3	TABLE: SEL voltage measurement		**P**
Location	Voltage measured (V)	Comments	
Model DSA-5W-12 FEU 120041			
Output	0	Short-circuit D8, circuit protected immediately.	
Note(s): --			

2.4.2	TABLE: limited current circuit measurement					**P**
Location	Voltage (V)	Current (mA)	Freq. (Hz)	Limit (mA)	Comments	
Model DSA-5W-12 FEU 120041						
CY1	9.6	4.8	58k	40.6	--	
Note(s): 1. Capacitance of CY1: 2200pF						

2.5	TABLE: limited power source measurement		**P**
	Limits	Measured	Verdict
Model DSA-5W-12 FEU 120041			
Uoc = 13.4 V (measured under no load conditions)			
According to Table 2B (normal condition)			
current (in A)	≤8	0.56	**P**
apparent power (in VA)	≤5*Uoc= 67.0	6.0	**P**
According to Table 2B (Z1 short-circuited)			
current (in A)	≤8	0 (unit shut down immediately)	**P**
apparent power (in VA)	≤5*Uoc= 67.0	0 (unit shut down immediately)	**P**

According to Table 2B (C10 short-circuited)			
current (in A)	≤8	0 (unit shut down immediately)	**P**
apparent power (in VA)	≤5*Uoc= 67.0	0 (unit shut down immediately)	**P**
Model DSA-5W-05 FEU 050100			
Uoc = 5.9 V (measured under no load conditions)			
According to Table 2B (normal condition)			
current (in A)	≤8	1.40	**P**
apparent power (in VA)	≤5*Uoc= 29.5	5.2	**P**
According to Table 2B (Z1 short-circuited)			
current (in A)	≤8	0 (unit shut down immediately)	**P**
apparent power (in VA)	≤5*Uoc= 29.5	0 (unit shut down immediately)	**P**
According to Table 2B (C10 short-circuited)			
current (in A)	≤8	0.79 (unit shut down immediately)	**P**
apparent power (in VA)	≤5*Uoc= 29.5	0.53 (unit shut down immediately)	**P**
Note(s): --			

2.6.3.3	TABLE: ground continue test		**N/A**
Location	Resistance measured (mΩ)	Comments	
Note(s): --			

2.10.2	Table: working voltage measurement			**P**
Location	RMS voltage (V)	Peak voltage (V)	Comments	
Model DSA-5W-12 FEU 120041				
T1 pin 1-B	122	364		
T1 pin 2-B	**216**	**508**	**Highest working voltage**	
T1 pin 4-B	123	326		
T1 pin 3-B	129	333		
T1 pin 1-C	125	408		
T1 pin 2-C	202	496		
T1 pin 4-C	125	339		
T1 pin 3-C	129	351		
Note(s): Test voltage: 240 V Test frequency: 60 Hz				

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
Clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required dcr (mm)	dcr (mm)
Unit: primary components (with 10N) → secondary components (with 10N)	508	250	4.4	6.8	5.0	7.8
Unit: core of T1 (with 10N) → secondary components (with 10N)	508	250	4.4	6.6	5.0	6.6
PCB: primary → secondary traces under transformer	508	250	4.4	7.9	5.0	7.9
PCB: primary → secondary traces	508	250	4.4	6.7	5.0	6.7
Unit: primary components → accessible part (outside enclosure)	508	250	4.4	6.5	5.0	6.5
L, N before fusing resistor	420	250	1.5	2.7	2.5	2.7
Two pins of fusing resistor	420	250	1.5	2.7	2.5	2.7
Note(s): 1) Functional insulation shorted, see sub-clause 5.3.4. 2) Reinforced insulation provided between primary and secondary winding.						

2.10.5	TABLE: distance through insulation measurements			P
Distance through insulation di at/of:	U r.m.s. (V)	Test voltage (V)	Required di (mm)	di (mm)
Enclosure material (reinforced insulation)	250	3000	0.4	2.0
Note(s): 1.) Further details are provided in table 1.5.1. 2.) Test voltages are a.c.				

4.5.1	TABLE: temperature rise measurements			P
	test voltage (V) ..... :	a): 90 V, 60 Hz b): 264 V, 50 Hz		—
	t1 (°C) ..... :	40.0		—
	t2 (°C) ..... :	40.0		—
Rise ΔT of part/at:		T (°C)		allowed T_{max} (°C)
Test voltage:		a)	b)	--
Model DSA-5W-05 FEU 050100				
Plug portion		47.5	45.8	--
T1 winding		98.8	97.1	110
T1 core		97.4	94.8	110

Y capacitor CY1	74.9	70.3	85
Linear Filter L1 winding	78.2	83.4	130
PCB under Q1	105.5	107.5	130
PCB under D8	91.3	89.5	130
Electrolytic Capacitor C2	87.0	88.5	105
Primary lead wire	60.0	59.3	80
Output cord	59.4	56.7	80
Enclosure (inside)	64.5	62.3	105
Enclosure (outside)	55.9	53.6	95
Ambient	40.0	40.0	--
Model DSA-5W-12 FEU 082061			
Plug portion	45.7	44.8	--
T1 winding	102.3	88.7	110
T1 core	100.1	86.3	110
Y capacitor CY1	76.6	66.6	85
Linear Filter L1 winding	77.1	71.2	130
PCB under Q1	112.5	89.3	130
PCB under D8	88.9	79.7	130
Electrolytic Capacitor C2	97.1	81.5	105
Primary lead wire	60.1	55.8	80
Output cord	65.5	59.5	80
Enclosure (inside)	64.1	57.9	105
Enclosure (outside)	58.1	53.4	95
Ambient	40.0	40.0	--
Model DSA-5W-12 FEU 120041			
Plug portion	46.8	46.4	--
T1 winding	98.9	95.7	110
T1 core	96.5	92.1	110
Y capacitor CY1	70.7	67.3	85
Linear Filter L1 winding	75.9	75.7	130
PCB under Q1	105.8	91.6	130
PCB under D8	78.0	76.0	130
Electrolytic Capacitor C2	87.9	80.8	105
Primary lead wire	67.2	68.0	80
Output cord	60.9	59.0	80
Enclosure (inside)	59.5	56.9	105
Enclosure (outside)	55.3	53.1	95

Ambient	40.0	40.0	--

Temperature rise ΔT of winding:	R_1 (Ω)	R_2 (Ω)	T (℃)	Allowed T_{max} (℃)	insulation class
--	--	--	--	--	--
--	--	--	--	--	--

Note(s):

The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 and at voltages as described above.

With a rated maximum ambient temperature of 40 ℃, the maximum temperature rises are calculated as follows:

Winding components providing safety isolation:
- Class B for T1 → Tmax = 120℃-10℃ = 110℃ (thermocouple method)

Components with maximum absolute temperature of:
- Electrolytic Capacitor 105 ℃
- Y Capacitor 85 ℃
- PCB 130 ℃
- L1 winding 130 ℃
- Output cord 80 ℃
- Primary lead wire 105 ℃
- enclosure (inside) 105 ℃

Operator touchable surface with maximum temperature rise of:
- 95℃

4.5.2	TABLE: ball pressure test of thermoplastic parts		**P**
	allowed impression diameter (mm) ..... :	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)
Pin sleeving material for BS plug	125	1.0
Plug holder material for Euro-plug	125	1.0
Plug holder material for Indian plug	125	1.0
Pin sleeving material of Australian plug	125	1.0
PCB	125	1.0
Enclosure	125	1.3

Note(s):

1. The bobbin material of T1 and L1 is phenolic, no test is required.

4.6.1, 4.6.2	Table: enclosure openings	**P**

Location	Size (mm)	Comments
Bottom	--	No openings
Sides	--	No openings
Top	--	No openings

Note(s):--

4.7	Table: resistance to fire			**N/A**
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class
Note(s): refer to table 1.5.1 for details.				

5.1.6	TABLE: touch current measurement			**P**
Condition	L→ terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments
Model DSA-5W-12 FEU 120041				
System ON	0.18	0.18	0.25	Test location: o/p connector
System ON	0.01	0.01	0.25	Test location: enclosure wrapped with metal foil
Note(s): Test voltage: 264 V Test frequency: 60 Hz				

5.2	TABLE: electric strength tests and impulse tests		**P**
Test voltage applied between:		Test voltage (V)	Breakdown
Unit:	primary circuit to secondary circuit	4240 V d.c.	No
Unit:	primary circuit to accessible enclosure	3000 V a.c.	No
T1:	primary winding to secondary winding	3000 V a.c.	No
T1:	core to secondary winding	3000 V a.c.	No
Note(s): --			

5.3	TABLE: fault condition tests							**P**
	ambient temperature (°C) ..... :					40℃ if not specified		—
	model/type of power supply ..... :					--		—
	manufacturer of power supply ..... :					Dee Van		—
	rated markings of power supply ..... :					See model list		—
No.	Component no.	Fault	Test voltage (V)	Test time	Fuse no.	Fuse current (A)	Result	
Model DSA-5W-12 FEU 120041								

1	D1	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, no hazards. With fusible resistor type FKN: RF1 opened immediately, no hazards. With fusible resistor type RF10: RF1 opened immediately, no hazards. With fusible resistor type FRT: RF1 opened immediately, D3 damaged, no hazards. Repeated 10 times each on these fusible resistors and got same result.
2	C1	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, L1 damaged, no hazards. With fusible resistor type FKN: RF1 opened immediately, no hazards. With fusible resistor type RF10: RF1 opened immediately, no hazards. With fusible resistor type FRT: RF1 opened immediately, D1, D3 damaged, no hazards Repeated 10 times each on these fusible resistors and got same result.
3	C2	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, L1 damaged, no hazards. With fusible resistor type FKN: RF1 opened immediately, no hazards. With fusible resistor type RF10: RF1 opened immediately, no hazards. With fusible resistor type FRT: RF1 opened immediately, D1, D3 damaged, no hazards Repeated 10 times each on these fusible resistors and got same result.
4	C3	s-c	264	30 min	RF1	0.05	Unit work normally, no hazards.
5	D5	s-c	264	30 min	RF1	0.06	Unit work normally, no hazards.

6	Q1 pin c-e	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, L1 damaged, no hazards. With fusible resistor type FKN: RF1 opened immediately, no hazards. With fusible resistor type RF10: RF1 opened immediately, no hazards. With fusible resistor type FRT: RF1 opened immediately, no hazards. Repeated 10 times each on these fusible resistors and got same result.
7	Q1 pin c-b	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, L1, R9, Q1, Z1, D7 damaged, no hazards. With fusible resistor type FKN: RF1 opened immediately, no hazards. With fusible resistor type RF10: RF1 opened immediately, no hazards. With fusible resistor type FRT: RF1 opened immediately, no hazards Repeated 10 times each on these fusible resistors and got same result.
8	Q1 pin b-e	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
9	Z1	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
10	Z2	s-c	264	30 min	RF1	0.06	Unit worked normally, no hazards.
11	D6	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.

12	D7	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, L1, R9, Q1, Z1 damaged, no hazards. With fusible resistor type FKN: RF1 opened immediately,Q1 damaged, no hazards. With fusible resistor type RF10: RF1 opened immediately, Q1 damaged, no hazards. With fusible resistor type FRT: RF1 opened immediately, Q1 damaged, no hazards. Repeated 10 times each on these fusible resistors and got same result.
13	C8	s-c	264	1 s	RF1	--	With fusible resistor type KNF: RF1 opened immediately, L1, R9, Q1, Q2, Z1, D7, D8 damaged, no hazards. With fusible resistor type FKN: RF1 opened immediately, Q1 damaged, no hazards. With fusible resistor type RF10: RF1 opened immediately, Q1 damaged, no hazards. With fusible resistor type FRT: RF1 opened immediately, Q1 damaged, no hazards. Repeated 10 times each on these fusible resistors and got same result.
14	C10	s-c	264	30 min	RF1	0.23	Unit shut down immediately, no hazards.
15	T1 pin 3-4	s-c	264	5 min	RF1	0.02	Unit shutdown immediately, no hazards.
16	T1 pin B-C	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
17	D9	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
18	C7	s-c	264	5 min	RF1	0.01	Unit shutdown immediately, no hazards.
19	Output	o-l	264	2 h	RF1	0.07	The output overload to 0.64A, T1 coil = 100°C at ambient temperature 23°C, no hazards.
20	Output	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
Model DSA-5W-05 FEU 050100							
21	Output	o-l	264	1.8 h	RF1	0.08	The output overload to 1.40A, T1 coil = 102°C at ambient temperature 23°C, no hazards.

22	Output	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
Model DSA-5W-12 FEU 082061							
23	Output	o-l	264	2 h	RF1	0.06	The output overload to 0.82A, T1 coil = 102°C at ambient temperature 24°C, no hazards.
24	Output	s-c	264	5 min	RF1	0.01	Unit shut down immediately, no hazards.
Note(s): - In fault column, where s-c=short-circuited, o-l= over-loaded, o-c= open-circuited.							

C.2	Safety isolation transformer		**P**
	Construction details:		
Transformer part name: T1			
Manufacturer: see table 1.5.1			
Type: see table 1.5.1			
Recurring peak voltage		508 Vpeak	
Required clearance for reinforced			
insulation (from table 2H and 2J)		4.4 mm	
Effective voltage rms		250 Vrms	
Required creepage distance for reinforced			
insulation (from table 2L)		5.0 mm	
Measured min. creepage distance			
Location		inside (mm)	outside (mm)
prim-sec		TIW used	8.6
core-sec		TIW used	8.6
prim-core		--	--
Measured min. clearances			
prim-sec		TIW used	8.6
core-sec		TIW used	8.6
prim-core		--	--
Construction:			
Concentric windings on EF-16 size bobbin. 2 layer of insulation tape between primary (enamelled copper wire) and secondary windings (triple insulation wire), 2 layers on outer winding. Winding ends additionally fixed with tape, outer winding is secondary.			
Pin numbers			

Prim.	1→2; 4→3
Sec.	B→C
Bobbin	
Material	Hitachi, Phenolic, type CP-J-8800
Thickness	1.0 mm
Electric strength test	
With AC 3000V after humidity treatment	
Result	Pass

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	Australian National Differences according to CB Bulletin No. 112A, December 2006 (AS/NZS 60950.1:2003) (IEC Publication 60950-1:2001)	**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.		
Annex ZZ Variations		
1.2	Between the definitions for "Person, service" and "Range, rated frequency" insert the following: Potential ignition source 1.2.12.201	Inserted. **P**
1.2.12.15	After the definition of 1.2.12.15, add the following: 1.2.12.201 Potential ignition source: 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. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards. NOTE 201: An electronic protection circuit may be used to prevent such a fault from becoming a potential ignition source. NOTE 202: This definition is from AS/NZS 60065:2003.	Added. **P**
1.5.1	Add the following to the end of first paragraph: "or the relevant Australian/New Zealand Standard."	Added. **P**
1.5.2	Add the following to the end of first and third dash items: "or the relevant Australian/New Zealand Standard."	Added and see plug test report. **P**
2.1	Delete the Note.	Deleted **P**
3.2.3	Delete Note 2.	Deleted **N/A**
3.2.5	Modify Table 3B as follows:	Replaced. **N/A**

Rated current of equipment A	Nominal cross-sectional area mm^2	AWG or kcmil (cross-sectional area in mm^2) see note 2
Over 0.2 up to and including 3	0.5[1)]	18 [0.8]
Over 3 up to and including 7.5	0.75	16 [1.3]
Over 7.5 up to and including 10	(0.75)[2)] 1.00	16 [1.3]

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	Over 10 up to and including 16	(1.0)[3] 1.5	14 [2]		
	Replace footnote 1) with the following: [1] 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 appliances, and the entry to the plug does not exceed 2 m (0.5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191). Delete Note 1.				
4.3.6	Replace paragraph three with: 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.			Replaced.	**N/A**
4.3.13.5	Add the following to the end of the first paragraph: ", or AS/NZS 2211.1"			Added.	**P**
4.7	Add the following paragraph: For alternative tests refer to clause 4.7.201.			Added.	**P**
4.7.201	Add the following after clause 4.7.3.6: 4.7.201 Resistance to fire - Alternative tests			Added.	**P**
4.7.201.1	General 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 originating from inside the apparatus, or the following: (a) Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NSZ 4695.707 and having openings only for the connecting wires filling the openings completely, and for the ventilation not exceeding 1 mm in width regardless of the length. (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 1750 mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material flammability category FV-1 or better according to AS/NZS			Enclosure, PCB, bobbin, pin sleeving	**P**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	4695.707 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 fire from one part to another. Compliance is checked by tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base materials of printed boards, compliance is checked by the test of 4.7.201.5. 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. These tests are not carried out on internal wiring.		
4.7.201.2	Parts of non-metallic material are subjected to glow wire test of AS/NZS 4695.2.11, which is carried out at 550 °C. 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 materials classified at least FH-3 according to ISO 9772 provided that the sample was not thicker than the relevant part.	Enclosure	**P**
4.7.201.3	Testing of insulating materials Parts of insulating materials supporting potential ignition sources shall be subject to the glow-wire test of AN/NZS 4695.2.11, which is 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. NOTE - Contacts in components such as switch contacts are considered to be connections. 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. The needle-flame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications: **5 Severities** Replace with:	PCB, bobbin, Pin sleeve	**P**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	The duration of application of the test flame shall be 30 s ± 1 s. **8 Test procedure** 8.2 Modification: Replace the first sentence with: 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. 8.4 Modification: The first paragraph does not apply. Addition: If possible, the flame shall be applied at least 10 mm from a corner. 8.5 Replacement: 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 then withstand the test. **10 Evaluation of test results** Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s. The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.		
4.7.201.4	Testing in the event of non-extinguishing material 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 is 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 to be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burring or glowing particles can	Added.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. 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.		
4.7.201.5	Testing of printed boards The base material of printed boards is subjected to needle-flame test to Clause 4.7.201.3. The flame is 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 for a potential ignition source. The test is not carried out if the – - Printed board does not carry any potential ignition source; - 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 FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0 according to AS/NZS 4695.707, or made of metal, having openings only for connecting wires which fill the opening completely, or - 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 printed boards supporting spark gaps which provide protection against overvoltages, is of flammability category FV-0 according to AS/NSZ 4695.707 or the printed boards are contained in a metal enclosure, having openings only for connecting wires fill the openings completely. Compliance is determined using the smallest thickness of the material. 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 min when the circuit	Added.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	supplied is disconnected.		
6.2.2	Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2. Delete the note.	No TNV.	**N/A**
6.2.2.1	Delete Note 2. Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700 µs impulses. The interval between successive impulses is 60 s and the initial voltage, Uc, is: - for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 - The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The 2.5 kV impulse for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.	No TNV.	**N/A**
6.2.2.2	Delete the note. Add the following after the second paragraph: In Australia (this variation does not apply in New Zealand), the a.c. test voltage is: - for 6.2.1a): 3 kV; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 – Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 – The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	No TNV.	**N/A**
Annex P	Add the following Normative References to Annex P: IEC 60065, Audio, Video and similar electronic apparatus - Safety requirements AS/NZS 3112, Approval and test specification - Plugs and socket-outlets AS/NZS 3191, Approval and test specification -	Added.	**P**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	Electric flexible cords AS/NZS 4695.707, Fire hazard testing of electrotechnical products - Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source		

EN 50075 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict

7	**Dimensions**			**P**
	Plug shall comply with Standard Sheet 1			**P**
	Between two pins (pin base)	18.0 – 19.2 mm	18.4 mm	**P**
	Between two pins (pin top)	17.0 – 18.0 mm	17.3 mm	**P**
	Diameter of pin (metallic part)	$4^{\pm 0.06}$ mm	4.0 mm	**P**
	Diameter of pin (pin base)	max. 4.0 mm	3.8 mm	**P**
	Diameter of pin (middle part)	max. 3.8 mm	3.5 mm	**P**
	Pin length	$19^{\pm 0.5}$ mm	19.4 mm	**P**
	Length of pin except metal part	$10^{+ 1.0}$ mm	10.3 mm	**P**
	Shape of pin top		Round shape	**P**
	Length of plug base	$35.3^{\pm 0.7}$ mm	35.5 mm	**P**
	Width of plug base	$13.7^{\pm 0.7}$ mm	13.8 mm	**P**
	Diagonal dimension of plug base within a distance of 18mm	<$26.1^{\pm 0.5}$ mm <$26.1^{\pm 0.5}$ mm	26.4 mm 26.3 mm	**P**

Note: Only the dimensions of Euro-plug have been measured and recorded since it is a certified plug (see table 1.5.1).

BS 1363 (Partial)				
Clause	Requirement – Test		Result – Remark	Verdict
12	**Construction**			**P**
12.1	Disposition of the pins is same as fig. 4			**P**
12.2	Plugs shall comply with fig. 4			**P**
	Disposition of pins			**P**
	Between E and left plane	max. 25.37 mm	24.30 mm	**P**
	Between E and right plane	max. 25.37 mm	24.32 mm	**P**
	Between E and L	11.05~11.18mm	11.08 mm	**P**
	Between E and N	11.05~11.18mm	11.08 mm	**P**
	Between L or N and top plane	max. 34.6mm	27.74 mm	**P**
	Between E and L, N	22.10~22.36mm	22.30 mm	**P**
	Radius of top right corner	min. 15mm	15.50 mm	**P**
	Radius of top left corner	min. 15mm	15.50 mm	**P**
	Shape of earth pin			**P**
	Length	22.23~23.23mm	22.60 mm	**P**
	Width	7.80~8.05mm	8.00 mm	**P**
	Thickness	3.90~4.05mm	4.00 mm	**P**
	Length of chamfer	1.35~1.85mm	1.68 mm	**P**
	Angle of chamfer	58°~62°	59 °	**P**
	Shape of L and N pin			**P**
	Length	17.2~18.2mm	17.80 mm	**P**
	Width	6.22~6.48mm	6.30 mm	**P**
	Thickness	3.90~4.05mm	4.00 mm	**P**
	Length of insulating material	max. 9.5mm	9.36 mm	**P**
	Length of conductive material	max. 9.2mm	8.44 mm	**P**
	Length of chamfer	1.35~1.85mm	1.56 mm	**P**
	Angle of chamfer	58°~62°	59 °	**P**
	Maintenance of these dimensions not rely on the terminal screws			**P**
	The plug portion should enter the gauge fully with a force less than 10N was applied to the centre of the sample at right angle.		Complied, sample was entered into the gauge fully with a force of 10N.	**P**
12.3	No part of a line or neutral pin shall be less than 9,5mm from the periphery of the plug measured along the engagement surface.		Complied, both line and neutral pin are measured larger that 9.5mm	**P**
12.9	Plug pins were constructed of brass		Complied.	**P**

BS 1363 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
12.9.1	Exposed surface of plug pins were smooth and free from burrs or sharp edges and other irregularities, which could cause damage or excessive wear to sockets or shutters.	Complied.	**P**
12.9.4	The adaptor plug pins were tested as specified in the standard.	Complied. After being subjected to a forced of 1100N, the pin portion could fit the relevant gauge.	**P**
12.9.5	The adaptor plug pins were tested as specified in the standard.	Complied. After being subjected to 5000 insertions and withdraws, the shutters of the socket-outlet can operate satisfactorily and the socket contact is safely shielded.	**P**
12.9.6	Each pin of the adaptor was subjected to a torque of 1Nm for 60s as specified in the standard.	Complied. After the test, the pin portion could fit the relevant gauge.	**P**
12.11	The adaptors were tested as specified in the standard. After being placed in an oven at 70℃ for 1 hour, each pin of the samples was subjected for 60 sec. to a pull of 100N in the oven.	Complied. After the above test, no plug pin was detached and the plug pins could fit the relevant gauge.	**P**
12.12	The degree of flexibility of mounting of the plug pins was checked according to 12.12.1	Complied. During the test, no declination was observed to the plug pins (limit: Max. 3°30').	**P**
12.16	Line and neutral plug pin shall be fitted with insulating sleeves. The dimensions of the pin and sleeve shall fall within the specific limit.	Complied. Both line and neutral pins were fitted with insulating sleeves.	**P**
12.17.1	Plug pin sleeve shall be compliance with 12.17.2 to 12.17.4	Complied.	**P**
12.17.2	Electric strength test applied between the metal part of plug pin and the sleeve (1250±30V)	Complied. No breakdown and flashover occur.	**P**
12.17.3	Abrasion test for plug pin sleeve The plug pin sleeves were subjected to 20000 movements of abrasion as specified in the standard.	Complied. After the test, the sleeves showed no damage that impaired further use and could satisfy the electric strength test in 12.17.2	**P**
12.17.4	Resistance to deformation The plug pins with sleeves were placed in a heating cabinet at 200℃ and tested according to the standard for 120min.	Complied. After the tests, the thicknesses of sleeve of plug pins (line and neutral pins) remaining at the impression point were reduced by less than 5%.	**P**

Notes: clause 12.4, 12.5, 12.6, 12.7, 12.8, 12.9.2, 12.9.3, 12.10, 12.13, 12.14, 12.15 were not applicable.

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
J1	Scope		**P**
	This Appendix applies to only the plug portion of equipment with integral pins and shall be read in conjunction with section 2 contained in the body of this standard. Where the term 'plug' is used in section 2 it shall be taken to mean the plug portion of equipment with integral pins.	Plug portion with integrated pins	**P**
J2	Requirements for plug portion		**P**
J2.1	definition		**P**
J2.2	requirments	See below.	**P**
J2.2.1	Plug pins of plug portions		**P**
	Material for pins	Copper alloy containing 62% copper.	**P**
	Assembly of pins		**P**
	Form of pin		**P**
	Insulation of plug pin		**P**
J2.2.2	Ratings and dimensions for low voltage plug portions	Comply with 10A 250V two-pin plug.	**P**
	General		**P**
	Compliance with dimensional requirements of Figure 2.1	See attached dimension table.	**P**
J2.2.3	Internal connections for plug portions	No earthing pin.	**N/A**
J2.2.4	Arrangement of earthing connections for plug portions	No earthing pin.	**N/A**
J2.2.5	Configuration of plug portions		**P**
J2.2.6.1	General		**P**
J2.2.6.2	High voltage test (3112.2.13.3)		**P**
	The plug shall withstand without failure an a. c. voltage of the value indicated in Table 2.3, applied between the parts set our in Items (a) and (c) of Clause 2.13.2 for 1 min in each case.		**P**
	The plug shall further withstand, without failure, a voltage of 3500 V a. c. applied between the parts set out in Items (b) and (d) of Clause 2.13.2 for 1 min in each case.		**P**
	The insulation of insulated pin plugs shall withstand a voltage of 1 250V a. c. for 1 min applied in accordance with Clause 2.13.2(e).		**P**
J2.2.6.3	Mechanical strength of pin tests		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
J2.2.6.3.1	Tumbling barrel test (3112.2.13.7.1)		**P**
	The tumbling barrel test is applied to determine the mechanical strength of the plug pins.		**P**
	Three samples which have not been subjected to any previous test are tested to the requirements of Clause 2.13.7 however, the test is modified for plug portions of equipment with integral pins as follows:		**P**
	A sample of equipment with integral pins is dropped –		**P**
	a) 500 times if the mass of the specimen does not exceed 250 g. The pins being straightened after 100 drops and at the completion of the test to pass through the appropriate gauge of Figure A1, B1 or F1; and	Weight: 75g. 500 times.	**P**
	b) 250 times if the mass of the specimen exceeds 250 g. The pins being straightened after 25 drops and at the completion of the test to pass through the appropriate gauge of Figure A1, B1 or F1		**N/A**
J2.2.6.3.2	Pin bending test		**P**
	The pins of the plug portion of three samples not subjected to any previous tests shall be tested for compliance with the pin bending test of clause 2.13.7.2.		**P**
	All flat-pins of plugs rated up to and including 15 A shall be subjected to a pin bending test.		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	Three sample plugs not subjected to any previous tests shall be tested as follows: Pins of assembled plugs shall be tested by clamping the plug in a rigid holding block and applying a bending force, as shown in Figure 2.8, to the pin under test. The pins shall be straight at the beginning of the test. If there is any doubt about the straightness of the pin, it shall be checked by the appropriate plug gauge shown in Appendices A, B or F. The point of application of the force shall be 14 ±0.5 mm from the face of the plug. The direction of the force shall be along a line parallel to the face of the plug. Active and neutral pins shall be forced towards the centroid of the plug and then back to the starting point. On the first sample plug, any earth pin shall be forced but in one direction only and then back to the starting point.On the second sample plug, any earth pin shall be forced in the opposite direction to that used for testing the first sample plug. On the third sample plug, any earth pin shall be forced in the direction that gave the least favourable result during testing of the first two sample plugs. NOTE: This is intended to simulate damage that may occur when a plug is walked on and bent pins are straightened. The distance moved from the point of application shall be 7.5+/-0.3 mm, and then the pin shall be forced back to the starting point. Any 'spring-back' is ignored NOTE: 'Spring-back' means that the pin is allowed to move back to a position less than the travel distance, when the force is removed. The travel from the starting point, to the end point (7,5 mm), and back to the starting point is one cycle (i.e. one cycle is two separate movements). The speed of deflections shall be a maximum of 50 mm/s, without intentional delay between consecutive movements within each cycle. The interval between successive cycles shall be a minimum of 10 s. The duration of one cycle shall be a maximum of 60 s. The pins shall be tested for 20 complete cycles. After the tests the pins shall be inspected with normal or corrected to normal vision.		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	The pin shall not be broken off. NOTE: Cracking of the pin, less than full thickness, is not deemed to be broken off. If in doubt pins shall be disassembled from the plug and any insulation removed, NOTE: In some cases the break may be below the face of the plug or the insulation may hold the broken pieces together, retaining electrical contact.		**P**
J2.2.6.4	Temperature rise test (3112.2.13.8)	The test current have been specified and tested with the integral adaptor.	**P**
	2.13.8 Temperature rise test		**P**
	Plugs shall be so constructed that they comply with the following temperature rise test: a) Non-rewireable plugs are tested as delivered (specially prepared sample with access to terminals for temperature measurement). b) Rewireable plugs are fitted with polyvinyl chloride flexible cords with conductors having the minimum cross-sectional area specified in the manufacturers instructions.	Non-rewireable plugs	**P**
	The terminal screws or nuts are tightened with a torque equal to two-thirds of that specified in test No.5. NOTE: To ensure normal cooling of the terminals, the conductors connected to plugs should have a length of at least 1 m.	No screws or nuts used.	**N/A**
	The test socket shall consist of a fixed socket outlet of a type complying with this Standard. NOTE: In the case of a dispute, the test should be repeated using a new socket outlet.	Direct plug-in equipment.	**N/A**
	The fixed socket outlet shall be mounted in an appropriate metal-wall box installed in a draught free position, and fitted with PVC insulated conductors at least 2.5 m long, having nominal cross-sectional areas as shown in Table 3.4.	Direct plug-in equipment.	**N/A**
	The cables supplying the socket outlet shall be enclosed for a distance of 1 m in conduit terminated at the wall box.	Direct plug-in equipment.	**N/A**
	The plug is inserted into the socket outlet and an alternating current of 1.1 times rated current is passed for 1 h.		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	The temperature of the flexible cord terminal is determined by means of melting particles, colour changing indicators or thermocouples, so chosen and positioned that they have negligible effect on the temperature being determined.	Direct plug-in equipment.	**N/A**
	The temperature rise of the terminals shall not exceed 45 K.		**P**
J2.2.6.5	Securement of pins (3112.2.13.9)		**P**
	Movement of pins (2.13.9.1)		**P**
	Plugs shall be tested for pin movement by clamping the pin or pins not under test in a rigid holding block positioned 5 ±0.5 mm from the plug face and applying a force of 18±1 N to the pin under test. The design of the block shall be such that the pin under test shall not come into contact with the block during the test.		**P**
	Except for non-rewireable plugs, the test shall be carried out without a cord attached to the plug, and with the terminal screws loosened sufficiently to allow a 1mm2 conductor to be connected.		**N/A**
	The plug and test equipment shall be preconditioned at a temperature of 40±1ºC for 1 h, without the test force applied. Throughout the test, all parts of the plug and test equipment shall be maintained at this temperature.		**P**
	For all plugs, the point of application of the force of the plug along the pins, and the direction of the force shall be- a) in both directions along the line perpendicular to the plane of the pin, and passing through the centre of the pin; and b) in that plane in both directions along a line at right angles to that specified in Item(a).		**P**
	Over a period of 10 s, the force shall be gradually applied to each of the pins in the manner prescribed in Items (a) and (b), maintained at its maximum value for 10 s, and then released. The deflection of the pins shall be measured along the line of force relative to the face of the rigid holding block during the period when the force is applied. The maximum deflection shall not exceed 2.0 mm.		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	Following the test on all pins of a plug conforming to Figure 2.1, any distortion 5 min after the completion of the test on the last pin shall be such that it will not prevent the plug from being inserted in the appropriate standard gauges shown in Appendix A, Appendix B and Appendix F without the application of undue force.		**P**
	For other types of plugs, any distortion after 5 min shall be such as will not prevent the plug being inserted into an appropriate socket-outlet without the application of undue force.		**N/A**
	Fixing of pins (2.13.9.2)		**P**
	A separate sample of a plug shall be heated to a temperature of 50±20ºC for 1 h and maintained at that temperature during the whole of tests, including the 5 min period after removal of the test load.		**P**
	The plug shall be held firmly in such a manner that there will be no undue squeezing or distortion of the body, and the means of holding shall not assist in maintaining the pins in their original position,		**P**
	Each pin, in turn, shall have applied to it a force which, over a period of 10 s, shall be increased steadily to 60±0.6N and held at this value for 10 min.		**P**
	Two tests on each pin shall be conducted, one with the direction of force along the length of the pin towards the body of the plug, and the other with the direction of force along the length o f the pin away from the body.		**P**
	The attachment of pins shall be considered inadequate if any pin is displaced relative to the adjacent material of the body by more than 2.4 mm at any time during these tests, or if any pin fails to return to within 0.8 mm of its nominal length specified in Figure 2.1 within 5 min of the removal of the test force,		**P**
J2.2.6.6	Additional tests for plugs with insulated pins (3112.2.13.13)		**P**
	2.13.13 Additional tests on the insulation material of insulated pin plugs		**P**
	2.13.13.1 General		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	The material of the pin-insulation shall be resistant to the stresses to which it may be subjected at the high temperature likely to occur in conditions approaching the bad connection conditions and at low temperatures in particular conditions of service.		**P**
	Compliance shall be checked by the tests of Clause 2.13.13.2 to 2.13.13.5		**P**
	(a) Pressure test at high temperature (2.13.13.2)		**P**
	A specimen of one insulated pin only shall be subjected to the following test by means of the apparatus shown in Figure 2.2. This apparatus shall have a blade having a round shape with a diameter of 6 mm and a thickness of 0.7 mm.		**P**
	The specimen shall be placed in position as shown in the Figure 2.5 and a force of 2.5 N shall be applied through the blade to specimen.		**P**
	The apparatus, with the specimen in position, shall be maintained for 2 h in a heating cabinet at a temperature of 160±5ºC. The specimen shall then be removed from the apparatus and within 10 s, cooled by immersion in cold water.		**P**
	The thickness of the insulation shall be measured immediately at the point of impression.		**P**
	The thickness within the area of the impression shall be not less than 50% of the thickness measured before the test.	The impression no more than 50%	**P**
	Visual inspection shall be made and no cracks on the insulation material shall be visible with normal, or corrected to normal, vision without additional magnification, and the dimension of the insulating material shall not have changed below the minimum size shown in Figure 2.4.		**P**
	(b) Static damp heat test (2.13.13.3)		**P**
	An insulated pin plug shall be subjected to two damp heat cycles in accordance with IEC 60068-2-30. Db (12+12 h cycle), 95% relative humidity, lower temperature 25±3ºC and upper temperature 40ºC.		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	After this treatment and after recovery to room temperature, the specimen shall be subjected to- a) the insulation resistance test in accordance with CLAUSE 2.13.2(E); b) high voltage test in accordance with Clause 2.13.3 and; c) abrasion test in accordance with Clause 2.13.13.6. NOTE: At the manufacturer's option, the same sample may be used for this test and the low temperature test (see Clause 2.13.13.4) and a single abrasion test may be done.		**P**
	(c) Low temperature test (2.13.13.4)		**P**
	An insulated pin plug shall be maintained at –15±2ºC for at least 24 h and returned to room temperature.		**P**
	The specimen shall be subjected to – a) the insulation resistance test in accordance with Clause 2.13.2(e); b) high voltage test in accordance with Clause 2.13.3 and; c) abrasion test in accordance with Clause 2.13.13.6. NOTE: At the manufacturer's option, the same sample may be used for this test and the static damp heat test (see Clause 2.13.13.3) and a single abrasion test may be done.		**P**
	(d) Impact test at low temperature (2.13.13.5)		**P**
	A specimen of one insulated pin only shall be subjected to an impact test by means of the apparatus shown in Figure 2.6. The mass of the falling weight shall be 100±1 g.		**P**
	The apparatus, on a sponge rubber pad 40 mm thick, together with the specimen, shall be maintained at –15±20ºC for at least 24 h.		**P**
	At the end of this period, the specimen shall be placed in position, as shown in Figure 2.6, and the falling weight shall be allowed to fall from a height of 100mm. Four impacts shall be applied successively to the same specimen, rotating it through 90º between impacts.		**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict
	After the test the specimen shall be allowed to return to room temperature and then examined, No cracks of the insulating material shall be visible with normal, or corrected to normal, vision without additional magnification. NOTE: The cooling period of 14 h includes the time necessary to cool down the apparatus.		**P**
	(e) Abrasion test (2.13.13.6)		**P**
	An insulated pin of an insulated pin plug shall be subjected to the following test by means of an apparatus as shown in Figure 2.7.		**P**
	The test apparatus comprises a horizontally disposed beam, which shall be pivoted about its centre point. A short length of steel wire, 1 mm in diameter and bent into a U-shape, the base of the U being straight, shall be rigidly attached, at both ends, to one end of the beam, so that the straight part projects below the beam and shall be parallel to the axis of the beam pivot.		**P**
	The plug shall be held in a suitable clamp in such a position that the straight part of the steel wire rests on the major axis face of the plug pin, at right angles to it. The pin shall slope downwards at an angle of 10º to the horizontal.		**P**
	The beam shall be loaded so that the wire exerts a force of 4 N on the pin.		**P**
	The plug shall be moved backwards and forwards in horizontal direction in the plane of the axis of the beam, so that the wire rubs along the pin. The length of the pin thus abraded shall be approximately 9 mm, of which approximately 7 mm shall be over the insulation.		**P**
	The number of movement s shall be 20 000 (10 000 in each direction) and the rate of operation shall be 30 movements per min.		**P**
	After the test, the pins shall show no damage which may affect safety or impair the further use of the plug, in particular, the insulating sleeve shall not have punctured or rucked up.		**P**
J2.2.6.7	Equipment with integral pins intended to be supported by the contacts of a socket-outlet	Torque: 0.03 Nm	**P**

AS/NZS 3112 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict

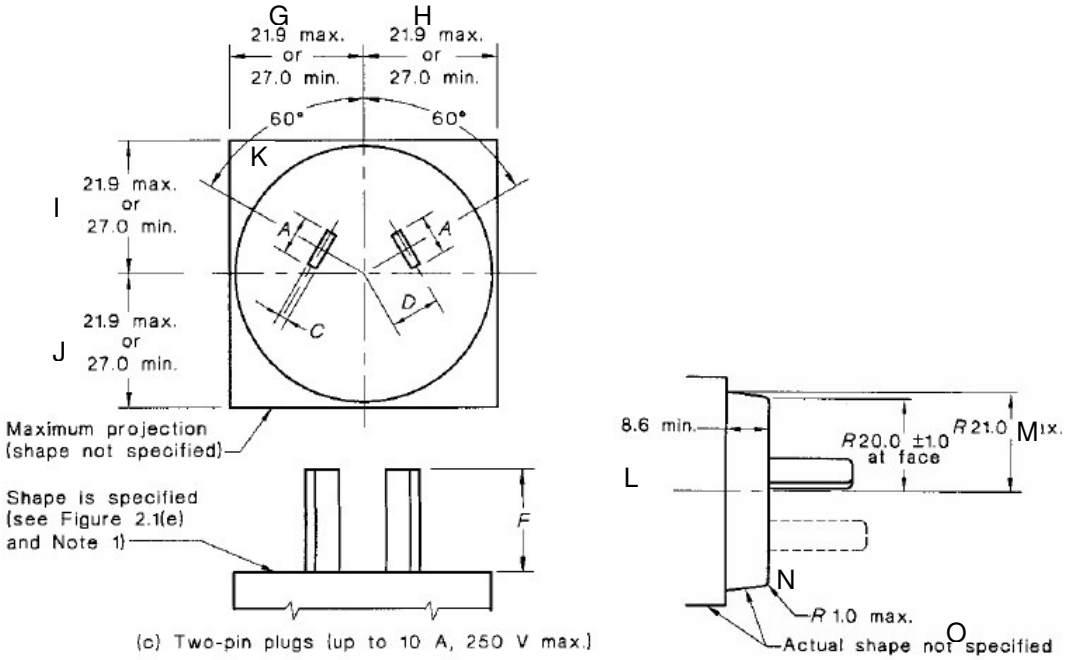
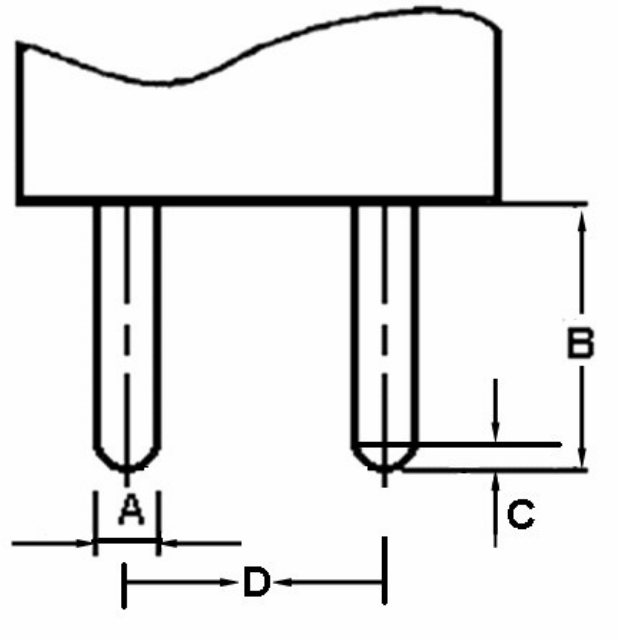


FIGURE 2.4 DIMENSIONS OF INSULATION ON INSULATED LIVE PINS

Symbol	Requirement (mm)	Measured (mm)		Symbol	Requirement (mm)	Measured (mm)
A	6.2 – 6.5	6.3		K	60 °	60°
C	1.58 – 1.78	1.60		L	> 8.6	10.5
D	7.92	7.96		M	R 19.0 – 21.0	20.7
F	16.66 – 17.46	17.20		N	< R 1.0	0.9
G	< 21.9 or > 27.0	20.7		P	8.2 – 9.2	8.3
H	< 21.9 or > 27.0	20.7		S	0.90±0.10	0.98
I	< 21.9 or > 27.0	20.7		V	6.0	6.0
J	< 21.9 or > 27.0	20.7		R	0.35±0.05	0.32

BS 4573 (Partial)			
Clause	Requirement – Test	Result – Remark	Verdict

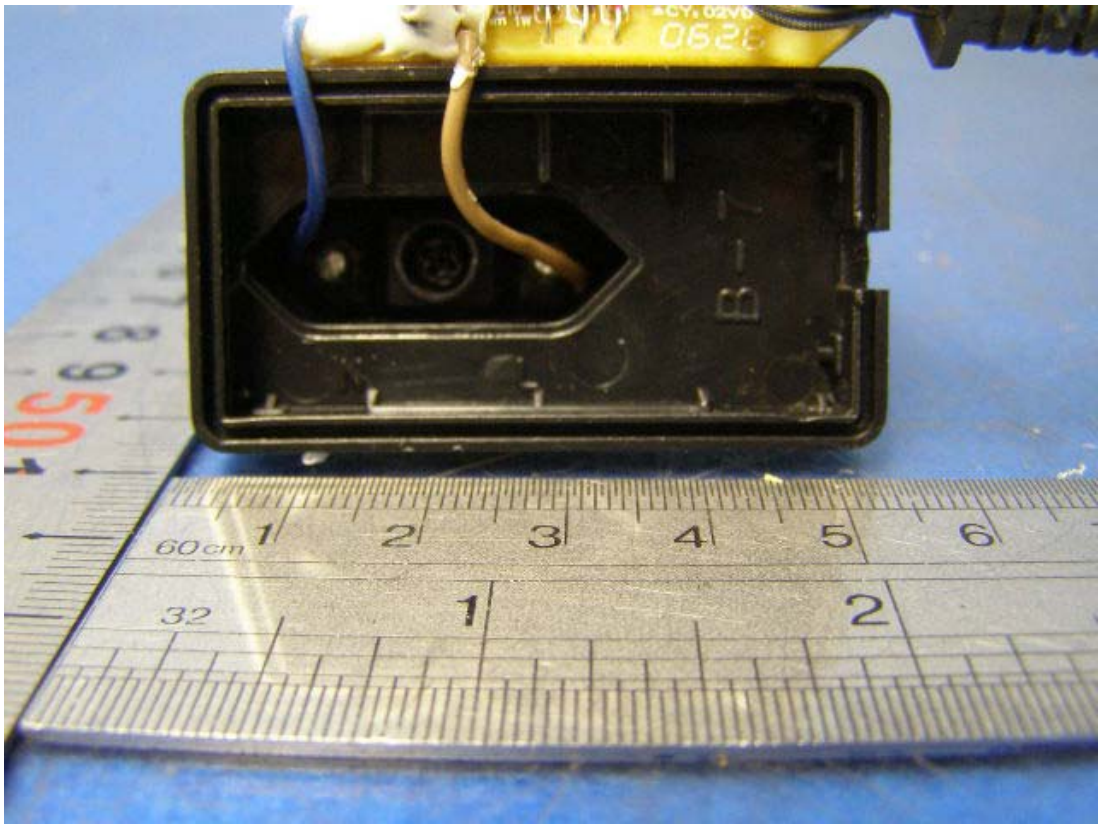


Plug dimensions (BS 4573: 1970)					
Location	Requirement		Measured		Verdict
A: Diameter of plug pins	5.08±0.03	mm	5.07	mm	**P**
B: Length of projection of plug pins	15.87+1.0	mm	15.9	mm	**P**
C: Length of radiuses portion at the end of plug pins	1.57+0.25	mm	1.65	mm	**P**
D: Nominal distance the centers of plug pins	16.66±0.03	mm	16.67	mm	**P**

Note: Each of the above values is the average value of three samples.

Picture 1

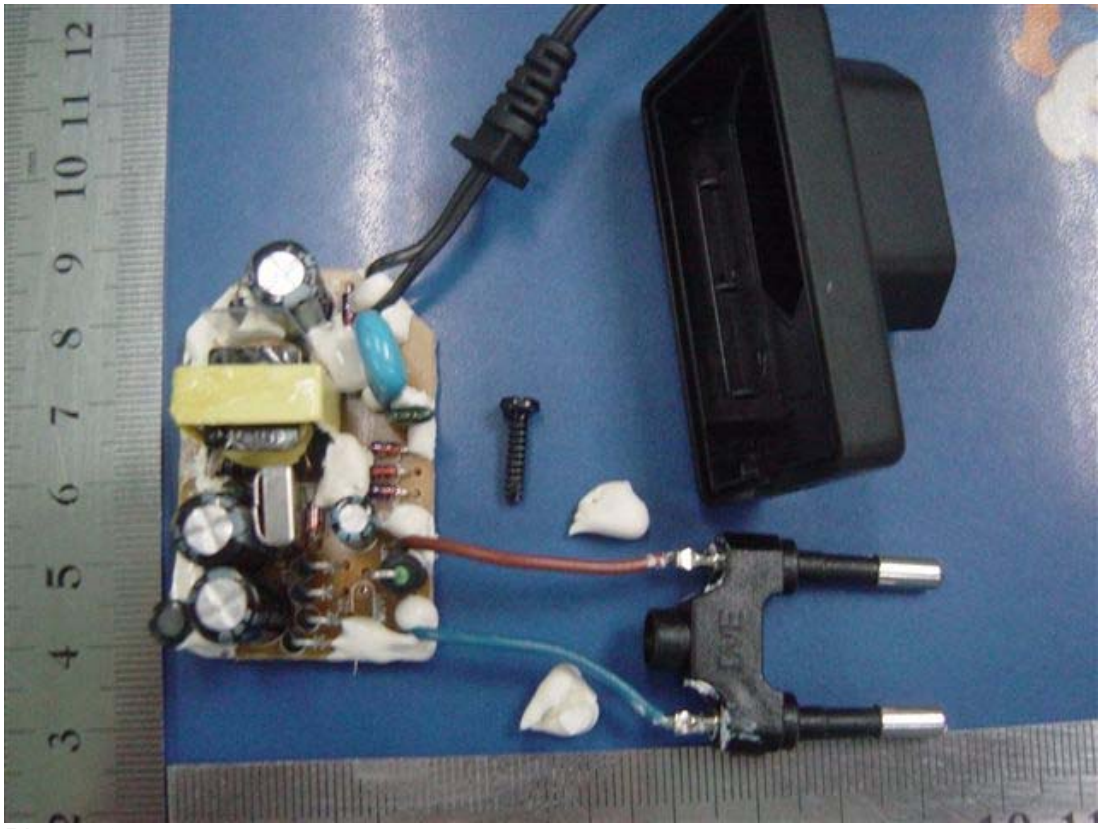
Picture 2



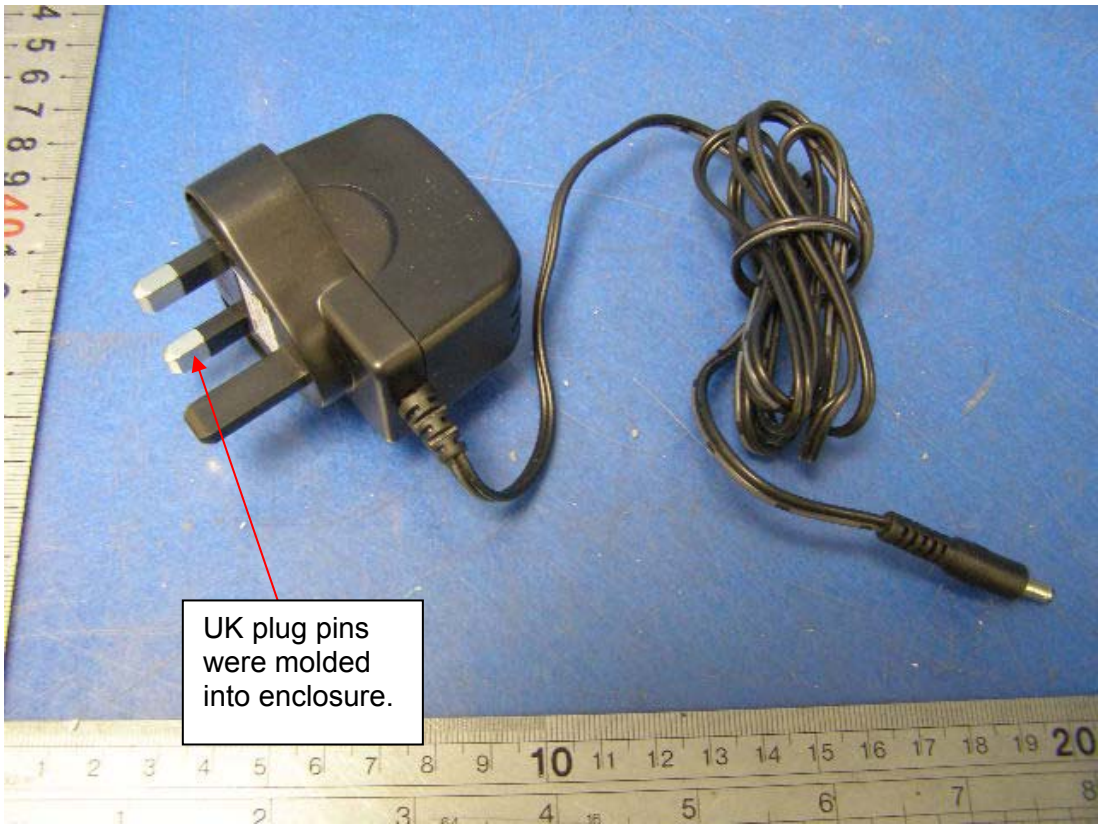
Picture 3

Picture 4

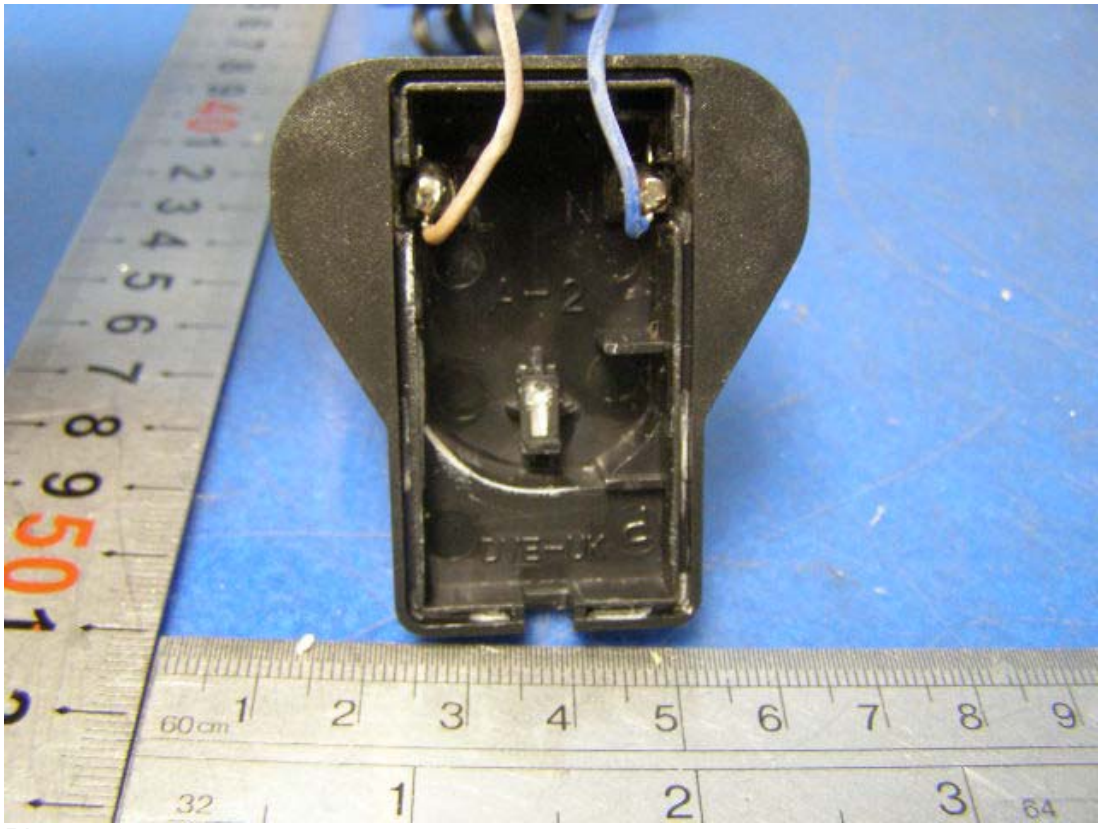
Picture 5



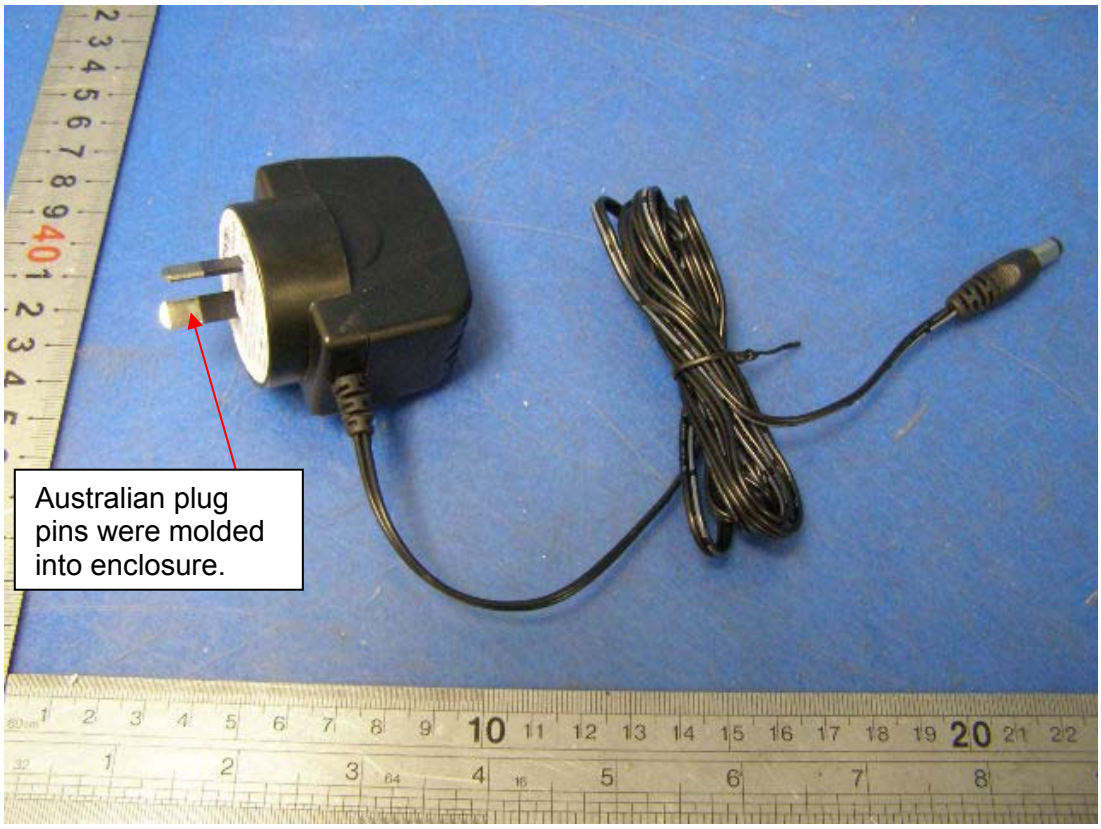
Picture 6



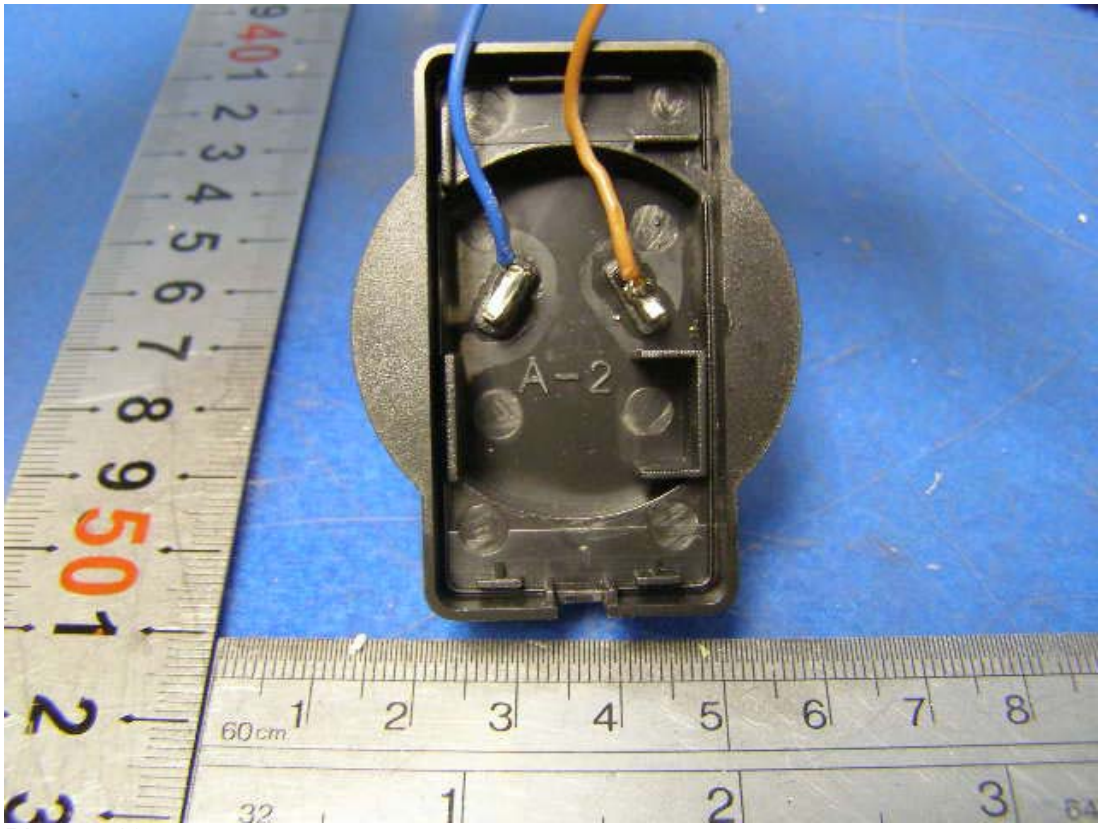
Picture 7



Picture 8



Picture 9

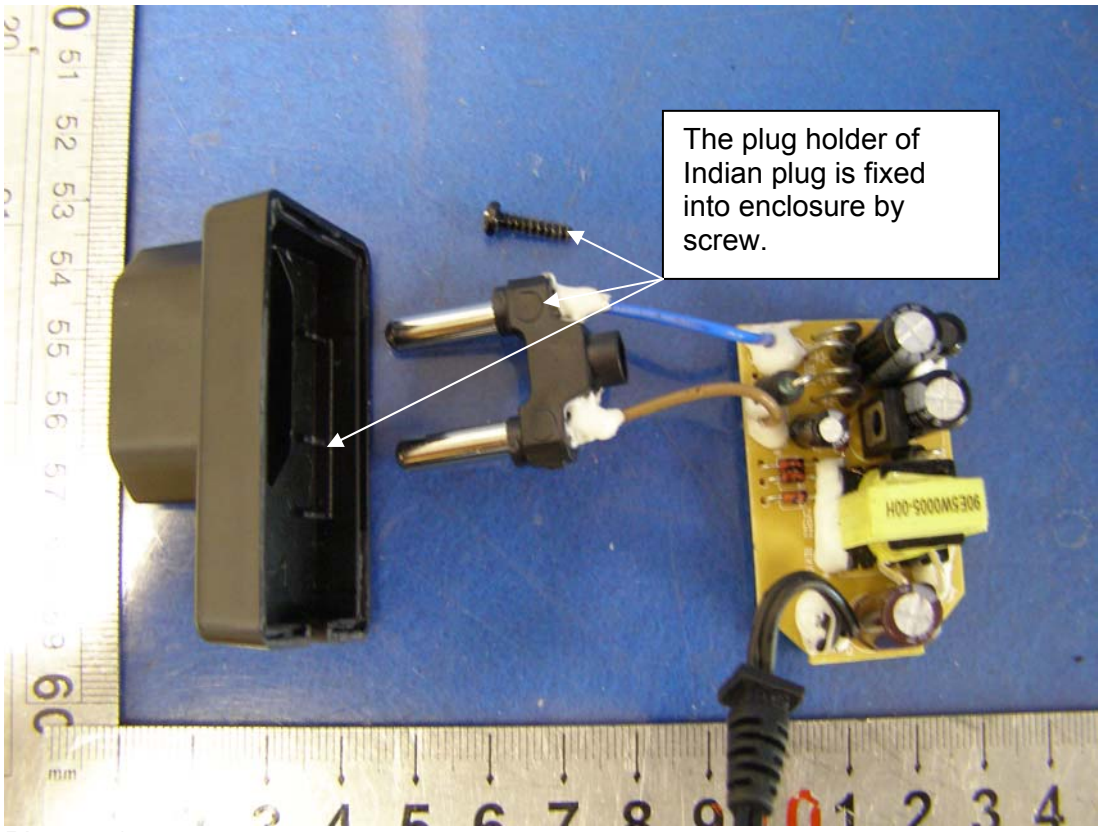


Picture 10

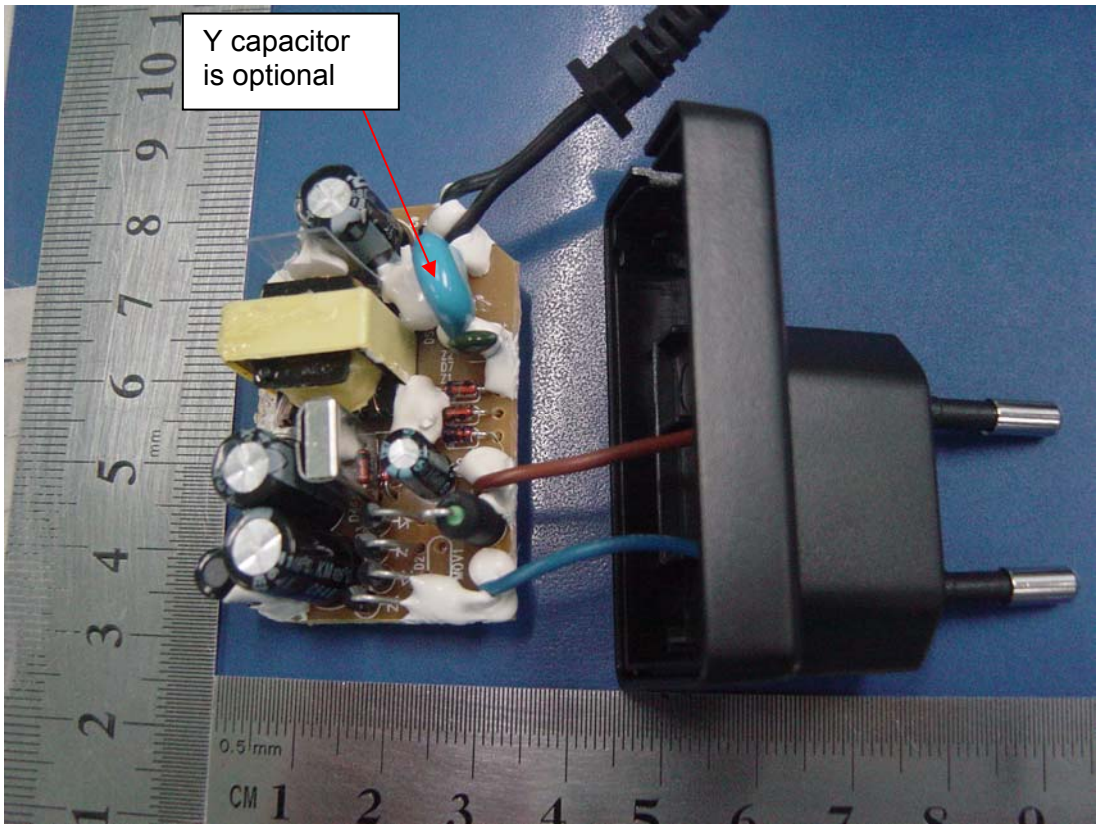
Picture 11

Picture 12

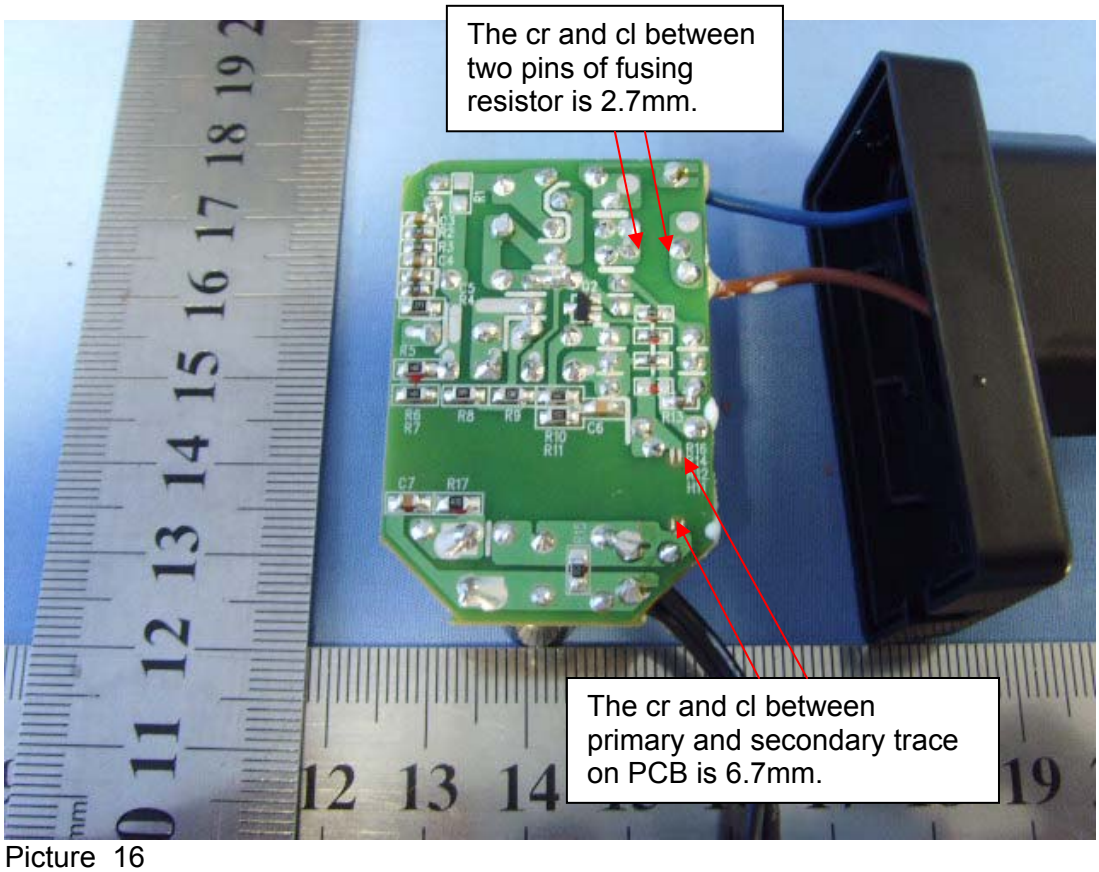
Picture 13



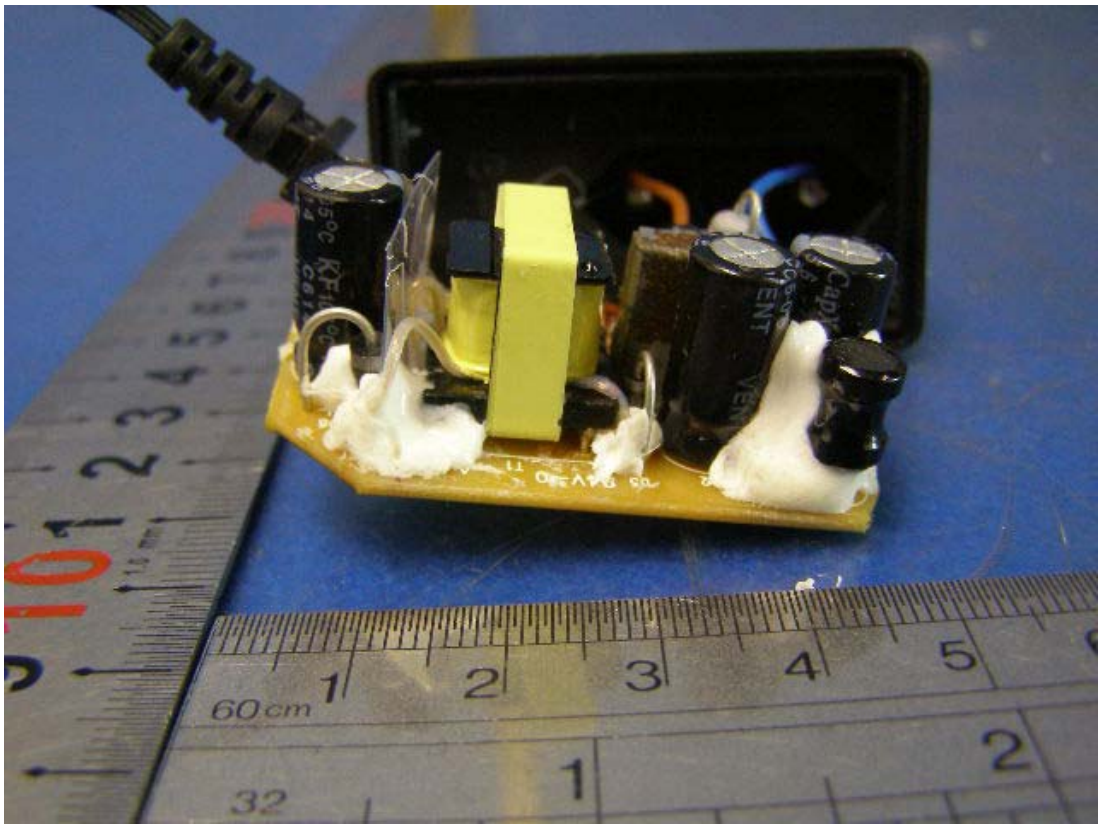
Picture 14



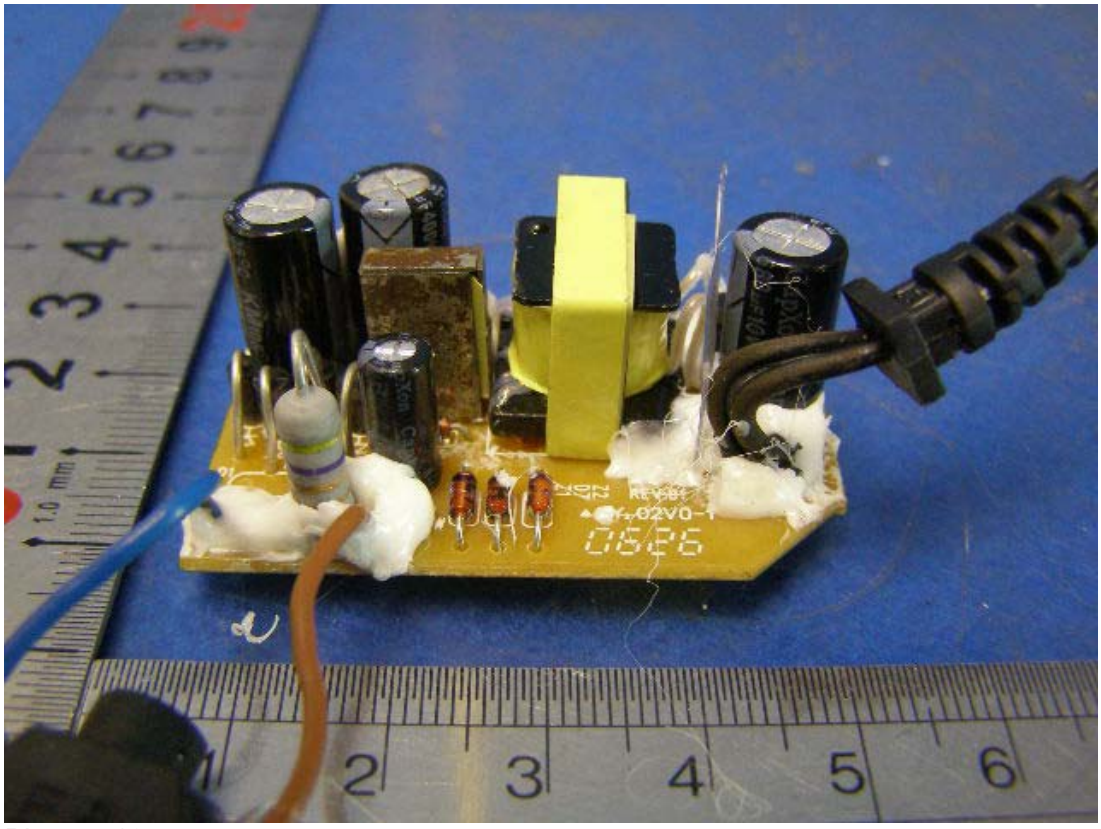
Picture 15



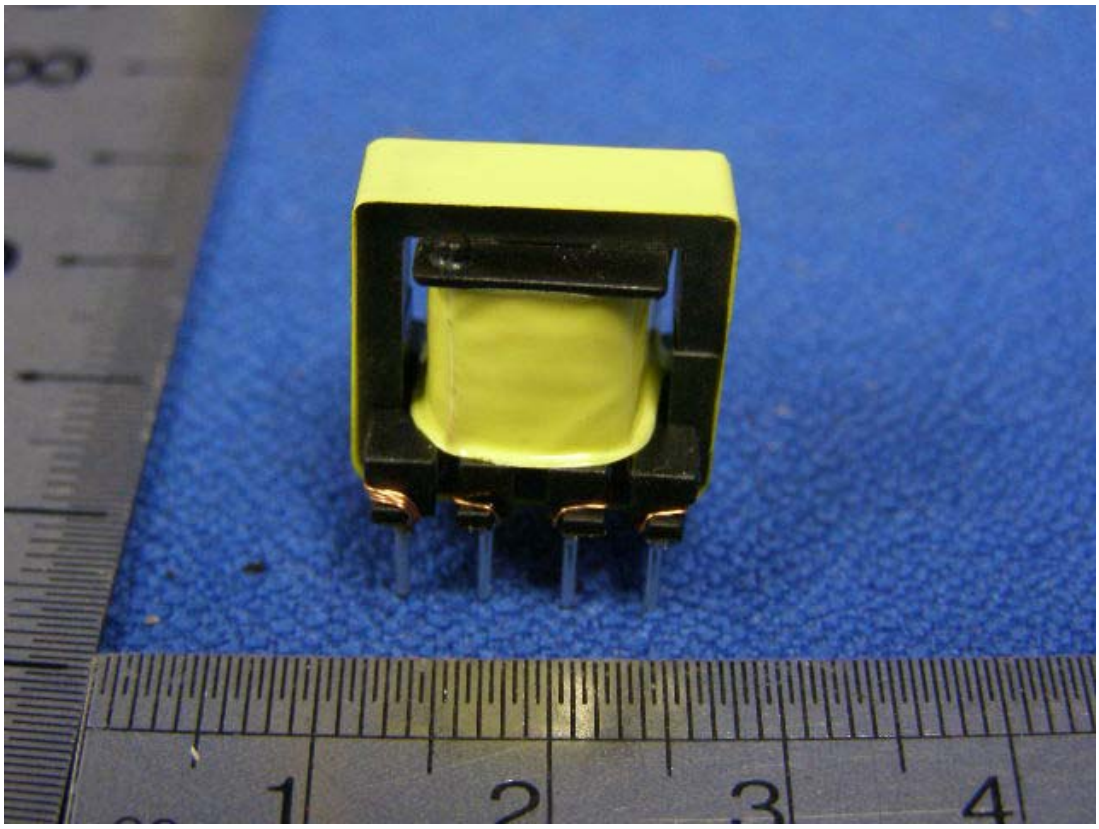
Picture 16



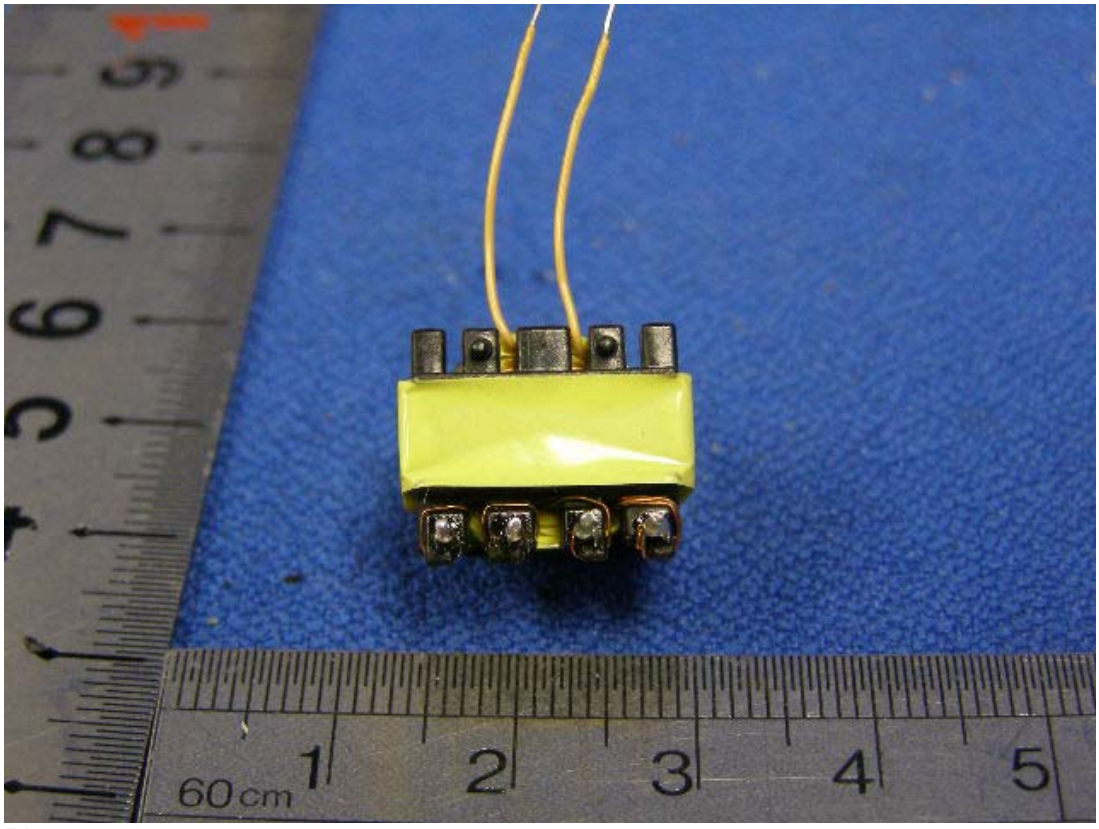
Picture 17



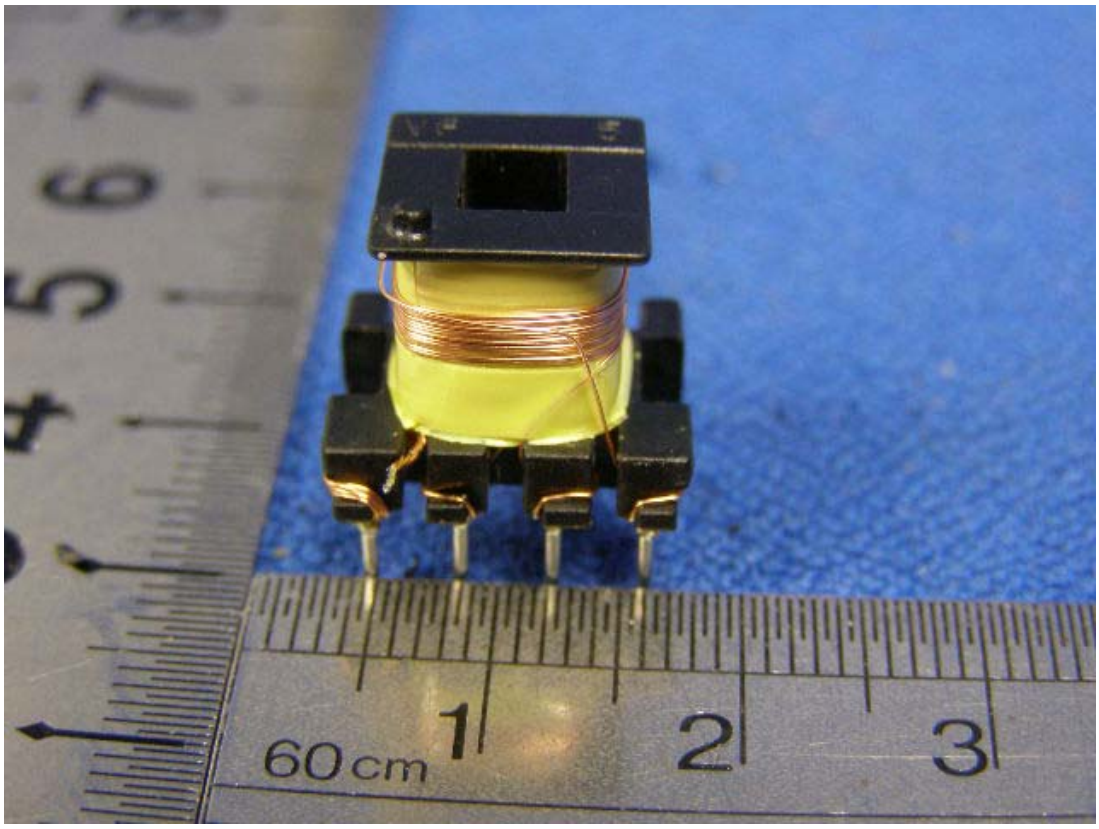
Picture 18



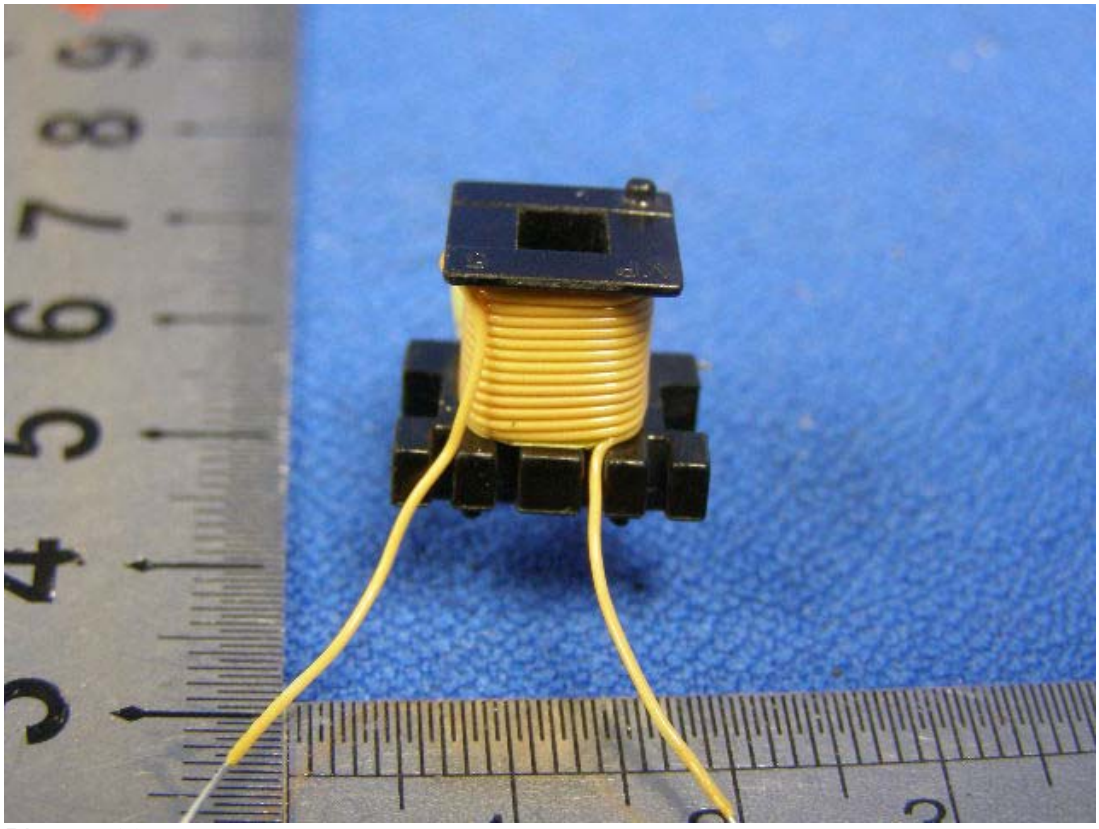
Picture 19



Picture 20



Picture 21



Picture 22