BVCE Compliance Laboratory Limited

Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory

PDU Cabinet plugs

The LVD directive 93/68/EEC as last amended by EEC directive 2006/95/EC

EN 60669-1:1999+A1:2002 EN 60669-2-1:2000

BVCE Compliance Laboratory

BVCE Compliance Laboratory Limited

CE RoHS FC

APPLICATION FOR LOW VOLTAGE DIRECTIVE

On Behalf of

Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory

PDU Cabinet plugs

Model : IEC320-C13 TUL-AUS(10)N TUL-FRA(16)N
TUL-GBR(13)N TUL-GBR(13L)N TUL-GER(16-1)N
TUL-GER(16-2)N TUL-IEC(C13)N TUL-IEC(C19)N
TUL-ITA(16)N TUL-RSA(16)N TUL-RSA(16R)N
TUL-USA(15)N TUL-WN(10)N TUL-WN(16)N

Prepared For: Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory
Shiqiao Industrial Zone, Guanhaiwei Town, Cixi, P.R.China.

Prepared By: Shanghai BVCE Certification Testing Technologies Co.,Ltd.
4D1th Building Dongming Square, Lujiazhui,
Pudong New Area,Shanghai City China.
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Date of Test : Oct 30,2008
Date of Report : Nov 3,2008
Report Number : BV E 08 10 301

LVD Report EN 60669-1:1999+A1:2002 EN 60669-2-1:2000 Part 1 : Safety of household and similar electronic appliances Part 2-1 : Particular requirements	
Testing laboratory.....:	BVCE Compliance Laboratory Limited
Address.....:	8 Rue.Saint Aspais 77000 Melun France
Testing location.....:	Shanghai BVCE Certification Testing Technologies Co.,Ltd 4D1th Building Dongming Square Lujiazhui,Pudong New Area,Shanghai City China
Applicant.....:	Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory
Address.....:	Shiqiao Industrial Zone, Guanhaiwei Town, Cixi, P.R.China.
Standard..... ....:	EN 60669-1:1999+A1:2002 EN 60669-2-1:2000
Test Result.....:	Compliance with EN 60669-1:1999+A1:2002 EN 60669-2-1:2000
Procedure deviation.....:	N.A.
Non-standard test method.....:	N.A.
Type of test object.....:	PDU Cabinet plugs
Trademark.....:	N.A.
Model/type reference.....:	IEC320-C13 TUL-AUS(10)N TUL-FRA(16)N TUL-GBR(13)N TUL-GBR(13L)N TUL-GER(16-1)N TUL-GER(16-2)N TUL-IEC(C13)N TUL-IEC(C19)N TUL-ITA(16)N TUL-RSA(16)N TUL-RSA(16R)N TUL-USA(15)N TUL-WN(10)N TUL-WN(16)N
Rating.....:	--
Manufacturer.....:	Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory
Address.....:	Shiqiao Industrial Zone, Guanhaiwei Town, Cixi, P.R.China.
Test item particularts.....:	
Class of equipment .....:	Class II
Protection against ingress of water:	IPX0

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

Name and address of the testing laboratory: BVCE Compliance Laboratory Limited
8 Rue.Saint Aspais 77000 Melun France

Reported by : Henry Chen Nov. 2. 2008
Signature Date

Henry Chen/Project Engineer
Name and Title

Approved by: Jack Zhang Nov. 3. 2008
Signature Date

Jack Zhang /Manager
Name and Title

General remarks:	

"(see remark#)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

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

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

This report shall not be reproduced except in full without the written approval of the testing laboratory.

Attached with:

A. 4 pages of photo documentation

Remark:

Model	Rated voltage (V)	Frequency (Hz)
IEC320-C13	125-250	50-60
TUL-AUS(10)N	125-250	50-60
TUL-FRA(16)N	125-250	50-60
TUL-GBR(13)N	125-250	50-60
TUL-GBR(13L)N	125-250	50-60
TUL-GER(16-1)N	125-250	50-60
TUL-GER(16-2)N	125-250	50-60
TUL-IEC(C13)N	125-250	50-60
TUL-IEC(C19)N	125-250	50-60
TUL-ITA(16)N	125-250	50-60
TUL-RSA(16)N	125-250	50-60
TUL-RSA(16R)N	125-250	50-60
TUL-USA(15)N	125-250	50-60
TUL-WN(10)N	125-250	50-60
TUL-WN(16)N	125-250	50-60

Artwork of Marking Label

PDU Cabinet plugs

Model No.: IEC320-C13 TUL-AUS(10)N
TUL-FRA(16)N TUL-GBR(13)N
TUL-GBR(13L)N TUL-GER(16-1)N
TUL-GER(16-2)N TUL-IEC(C13)N
TUL-IEC(C19)N TUL-ITA(16)N
TUL-RSA(16)N TUL-RSA(16R)N
TUL-USA(15)N TUL-WN(10)N
TUL-WN(16)N

Rated Voltage: AC125-250V, 50-60Hz

Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
5.	GENERAL CONDITIONS FOR THE TESTS		P
5.1	Test according to this standard are type tests.	All test belong to type tests	P
5.2	The tests are carried out on a single appliance.		P
5.3	Except special instruction, the tests are carried out in the order of the clauses.		P
5.4	When testing appliances which are also supplied by other energies such as gas, the influence of their consumption has to be taken into account	Only by electricity	N
5.5	The tests are carried out with the appliance or any movable part of it placed in the most unfavorable position which may occur in normal use		P
5.6	Appliances provided with controls or switching devices are tested with these controls or devices adjusted to their most unfavorable setting, if the setting can be altered by the user.		N
	Electronic speed control devices are set for the highest speed		N
5.7	The tests are carried out in a draught free location and in general at an ambient temperature of 35℃±15℃		P
5.8.1	Appliances for A.C. only are tested with A.C.at rated frequency,if marked, and those for A.C./D.C. are tested at the more unfavorable supply	Only AC	P
5.8.2	Appliances having more than one rated voltage are tested on the basis of the most unfavorable voltage		P
5.8.3	For heating appliance and combined appliance marked with a rated power input range		N
5.8.4	For appliances marked with a rated voltage range and rated power input corresponding to the mean of the rated voltage range		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
5.9	Alternative heating elements or accessories are made available by the appliance manufacturer.	No alternative heating elements or accessories	N
5.10	The tests are carried on the appliance as supplied.		P
	Fixed appliances and built-in appliances are installed in accordance with instruction before testing.		N
5.11	Appliances intended to be connected to be fixed wiring by flexible cord are tested with the appropriate flexible cord connected to the appliance.		P
5.12	For combined appliance and heating appliance, the appliance has to operate a power input multiplied by a factor, this applies only to heating elements without appreciable positive temperature coefficient of resistance.		N
5.13	The tests for appliances with PTC heating elements are made at voltage corresponding to the specified power input.		N
5.14	For class OI appliance or class I appliance have accessible metal parts without earthing and are not separated from live parts by an intermediate metal part which is earthed, such parts are checkecd for compliance with the appropriate requirements specified for class II construction	Class II	N
5.15	Appliances have parts operating at safety extra-low voltage,it is checked for compliance with the appropriate requirements specified for class III construction		N
5.16	When testing electronic circuit,the supply is to be free from perturbations from external sources that can influence the results of the tests.		N
5.17	Appliances powered by rechangeable batteries are tested according to an next B		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
5.18	If linear and angular dimensions are specified without a tolerance,ISO 2768-1 is applicable.		N
6.	CLASSIFICATION		P
6.1	Portable appliances shall be class II or class III. Stationary appliances shall be class I,class II or class III	Class II	P
6.2	Appliance shall have the appropriate degree of protection water	IPXO	P
7.	MARKING AND INSTRUCTION		P
7.1	Appliances shall be marked with the:		-
	-Rated voltage or voltage range (V)	250V	P
	-Nature of supply		N
	-Rated frequency or frequency range (Hz)	50-60Hz	P
	-Name,trade mark of identification mark of the manufacturer or responsible vendor	Cixi City Shiqiao Jinchi Plastic & Rubber Electric Appliance Factory	P
	-Model or type reference	IEC320-C13 TUL-AUS(10)N TUL-FRA(16)N TUL-GBR(13)N TUL-GBR(13L)N TUL-GER(16-1)N TUL-GER(16-2)N TUL-IEC(C13)N TUL-IEC(C19)N TUL-ITA(16)N TUL-RSA(16)N TUL-RSA(16R)N TUL-USA(15)N TUL-WN(10)N TUL-WN(16)N	P
	-Symbol for Class II construction	⧈	P
	-IP number	IPXO	N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Enclosure of water values incorporated in external hose-sets for connection of an appliance to water mains shall be marked with		N
7.2	Warning for multi-nature of power supplied stationary appliances		N
7.3	Appliances having a range of rated values and which can be operated without adjustment shall be marked with the lower and upper limits of the range separated by a hyphen	AC250V	P
7.4	Appliance can be adjusted for different rated voltage,the voltage which appliance is adjusted shall be clearly discernible	Voltage can not be adjusted	N
7.5	Marking of rated power input or current for each rated voltage or rated voltage range.		P
	The upper and lower limits of the rated power input or rated current shall be marked on the appliance so that the relation between input and voltage is clear		N
7.6	Correct symbols used		P
	The symbol for nature of supply shall be placed next to the marking for rated voltage.		N
	Symbol for Class II appliances shall be placed so that it will obvious that it is a part of the technical information and is unlikely to be confused with any other marking.	⧈	P
	Units of physical quantity and their symbols shall be those of international standardized system.		P
7.7	A circuit diagram shall be fixed to the appliance for three supply or three above supply		N
7.8	Terminal not for type Z attachment		P
	-marking not terminals for the neutral conductor shall be indicated by the letter N		N
	-marking of protective earthing terminals		N
	-marking not placed on removable parts		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
7.9	Unless it is obviously unnecessary, switches which may cause a hazard shall be marked or placed so as to indicate clearly which part of appliance they control.		N
7.10	For stationary appliances, the different positions of switches shall be indicated by figures,letters or other visual means		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided		P
	If it is necessary to take precaution during user maintenance ,appropriate details shall be given.		P
	For appliances having heated parts in contact with the skin shall include the substance	No heating parts	N
7.13	Instructions and other texts shall be written in official language		P
7.14	Marking shall be easily legible and durable		P
	Rubbing test and after the test marking shall be easily legible.		P
7.15	Marking 7.1 to 7.5 shall be on a main part of the appliance.		P
	Marking clearly discernible from outside if necessary after removal of a cover for protable appliances it shall be possible to remove or open this cover with out the aid of a tool		P
	Stationary appliance :name or trademark and model or type reference visible after installation		N
	Indication for switches and controls in vicinity of components ;not on removable parts if misleading		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
7.16	If compliance with this standard depends upon the operation of a replaceable thermal link or fuse link, marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8.	PROTECTION AGAINST ACCESS TO LIVE PARTS		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions are tested ;detachable parts removed	Test all positions	P
	Lamps are not removed		N
8.1.2	Use of test pin: no contact with parts		P
8.1.3	Use of test stick; no contact woth live parts except class II appliances		N
8.1.4	Accessible part not considered live if:		P
	-the parts is supplied at safety extra-low voltage provided that		N
	-for A.C. ,the peak value of the voltage does not exceed 42,250V		P
	-for D.C.,the voltage does not exceed 42,250V		N
	-or separeted from live parts by protective impedance,		P
	-D.C.current not exceeding 2 mA		N
	-A.C.peak value not exceeding 0,7mA		P
	-for peak value 42,250V up to and including 450V capacitance not exceeding 0,1μF		N
	-for peak value 450V up to and including 15kV capacitance not exceeding 45μC		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
8.1.5	Live parts protected at least by basic insulation befrore installation or assembly		N
	-built-in appliances		N
	-fixed appliances		N
	-separate units		N
8.2	Class II appliances and constructions are adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9.	**STARTING OF MOTOR-OPERATED APPLIANCES**		N
10	POWER INPUT AND CURRENT		-
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input	(see appended table)	N
10.2	Current at normal operating temperature not deviating from rated current:		P
11.	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	Hand-held appliances are held in their normal position of use.		P
	Combined appliances are positioned as specified for motor-operated appliances		N
	Other motor-operated appliance are positioned		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
11.3	Temperature rises determined by thermocouples	Thermocouples	N
11.4	Heating Appliances operated under normal operating at 1,15 times rated power input		N
11.5	Motor-operated appliance are operated under normal operation voltage between 0.94-1. 06 times		N
11.6	Combined appliances operated under normal operation,supply voltage at most unfavorable		N
11.7	Hand-held appliances are operated for 20 min		P
	Other appliances are operated until steady conditions are established.		N
11.8	Temperatures not exceeding values in table 3		P
	The temperatures rise of parts in contact with skin or hair shall not exceed the limits specified for handles that are continuosly held.		P
12	VOID		-
13.	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		P
13.1	Leakage current not excessive and electric		P
13.2	Leakage current measured by means of circuit described in standard		P
	For stationary class I appliances ,except fixed appliances,the leakage current shall not exceed 0,75mA	For class II appliances	N
13.3	Electric strength test of insulation		P
	No breakdown during the test	(see appended table)	P
14.	TRANSIENT OVERVOLTAGE		N
	Appliance shall withstand the transient overvoltage to which they may be subjected		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
15.	MOISTURE RESISTANCE		P
15.1	Enclosure provides the degree of moisture protection in accordance with classification of appliance	IPX0 appliance	N
	Withstand electric strength test specified in 16.3	(see appended table)	P
	No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1		P
15.1.1	Appliance subjected to test as specified other than classified IPX0	IPX0	N
15.1.2	Hand-held appliance turned continuously through the most unfavorable positions during the test		P
	Built-in appliance installed according to the manufacturer's instruction		N
	Appliance normally used on a table or floor are placed on a horizontal imperforated support having a diameter of twice the oscillating tube radius minus 15 cm.		N
	Appliance normally fixed to a wall and appliance with a pins for insertion into socket-outlets are mounted as in normal use in a centre of a wooden board have a dimensions which are 15±5cm in excess of those of the orthogonal projection of the appliance on the board.		N
	For IPX3 appliances ,the base of wall-mounted appliances is placed at the same level as the pivot axis of the oscillating tube.		N
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube.		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Appliance with type X attachment,except thouse having specially prepared cord, are fitted with lightness permissible type of flexible cord of the smallest corss-sectional area specified int table 13.		N
	Detachable-parts are removed and subjected, if necessary ,to the relevant treatment with the main part		N
15.2	Appliance subjected to spillage of liquid in normal use shall be constructed so that such spillage dose not affect their electric insulation.		N
15.3	Humidity treatment for 48 with 93±3% RH and ambient temperature between 20 ℃ to 30 ℃.		P
	Appliance shall withstand the test of Clause . 16	(see clause 16)	P
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		P
16.1	No excessive leakage current and adequate insulation and electric strength		P
16.2	Leakage current measurements	(see appended table)	P
	For stationary class I appliances, except fixed appliances,the leakage current shall not exceed 0,75mA		N
16.3	Electric strength tests(values in table 5)	(see appended table)	P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
17.	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUIT		N
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	No transformer	N
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavorable short-circuit or overload likely to occur in normal use applied		N
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15k		N
	Temperature of the winding not exceeding the value specified in table 6		N
18.	ENDURANCE		N
19.	ABNORMAL OPERATION		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation shall be obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
	Appliance incorporating a heating element are subjected to the test 19.2 to 19.6		N
	Appliances incorporating a motor element are subject to the test 19.7 to 19.10		N
	Appliances incorporating a electric circuits are subjected to the test 19.11 to 19.12		P
	The tests are continued until a non-self-resetting thermal cut-out operates or until steady conditions are established.		N
	All tests shall comply with the clause 19.13		P
	Appliances incorporating a liquid container that has to be filled by the user are also subjected to the test of 19.101		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	All tests shall comply with the clause 19.13		P
	Appliances incorporating a liquid container that has to be filled by the user are also subjected to the test of 19.101		N
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage(V): power input of 0.85 times rated power input under normal conditions.		N
19.3	Test of 19.2 repeated; test voltage(V) is determined: power input of 1.24 times rated power input under normal conditions.		N
19.4	Test conditions as in Clause. 11, any control limiting the temperature during tests of Clause. 11 is short-circuited		N
19.5	Test of 19.4 repeated on Class OI and I appliances with tubular sheathed or embedded heating elements.	Class II	N
	The test repeated on Class OI and I appliances with reversed polarity and the other end of the heating element connected to the sheath		N
	The test not carried out on appliance intended to be permanently connect to fixed wiring and on appliances where an all-pole disconnection occurs during test 19.4		N
19.6	Appliances with PTC heating elements tested as specified. Supplied at rated voltage, establishing steady conditions		N
19.7	The appliance is operated under stalled conditions	No damage and hazard.	P
	-Locking the rotor if the locked rotor torque is smaller than the full load torque.		N
	-Locking moving parts of other appliances		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Appliances provided with a timer or programmer are supplied at rated voltage for a period equal to the maximum period allowed by the timer or programmer		N
	Appliances intended to be used under the feet of a sitting person, PDU Cabinet plugs pads, chairs and beds are operated until steady conditions are established .Other appliances are operated for 30s	30s	P
19.8	One phase of appliances incorporating three-phase motors is disconnected, then three-phase motors is disconnected, then three-phase motors operated at rated voltage	Not three-phase motor	N
19.9	A running overload test is carried out on appliances incorporating motors	Not appliances	N
19.10	Series motor operated with the lowest possible load at 1.3 times rated voltage for 1 min.		N
	The test is also carried out with detachable parts in place		N
19.11	Electronic circuits compliance checked by evaluation of the fault conditions for all circuits or parts of circuits	Comply with the conditions specified in clause 19.11.1	P
19.11.1	Before applying the fault conditions a)to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:		P
	-the electronic circuit is a low-power circuit		P
	-the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions the duration of the tests as specified		N
	a) short-circuit of functional insulation if creep age distances or clearances distances are less than the special values		N
	b) open circuit at the terminals of any component		N
	c) short circuit of capacitors		N
	d) short-circuit of any two terminals of an electronic component		N
	e) Failure of traces in the diode mode		N
	f) Failure of an integrated circuit		N
19.11.3	Appliance incorporating a protective electric		N
19.11.4	Appliances incorporating a switch with an off position obtained by electronic disconnection, or a switch can be placed in the stand-by mode, or a protective electronic circuit		N
	The test are carried out with surge arresters disconnected, unless they incorporate spark gap.		N
19.11.4.1	The appliance is subjected to electrostatic discharges test level 4 being applicable		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with test level 3 being applicable		N
19.11.4.3	The appliance is subject to fast transient bursts in accordance with test level 4 is applicable for the power supply lines		N
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges		N
19.11.4.5	The appliance is subjected to injected current in accordance with test level 3 is applicable		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	The test are carried out with surge arresters disconnected,unless they incorporate spark gap.		N
19.11.4.1	The appliance is subjected to electrostatic discharges test level 4 being applicable		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with test level 3 being applicable		N
19.11.4.3	The appliance is subject to fast transient bursts in accordance with test level 4 is applicable for the power supply lines		N
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges		N
19.11.4.5	The appliance is subjected to injected current in accordance with test level 3 is applicable		N
19.11.4.6	The appliance is subjected to voltage dips and interruption in accordance with each level is applicable		N
19.11.4.7	The appliance is subjected to mains signals in accordance with test level 2 is applicable		N
19.12	The safety of the appliance depends upon the operation of a miniature fuse-link		N
	-if current dose not exceed 2.1 times the rated current of fuse-link.Then the test is repeated with fuse short-circuited.		N
	-if current is more than 2.75 times the rated current of fuse-link,the circuits is considered to be adequately protected.		N
	-if current between 2.1 times and 2.75 times the rated current of fuse, fuse-link is short-circuited and test last:		N
	--relevant time or 30 min for quick acting fuse		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	--relevant time or 2 min for time lag fuse		N
19.13	During the tests the appliance does not emit flames,molten metal,poisonous or ignitable gas in hazardous amounts		P
	During the test of 19.101,the temperature rise of the surface of the container shall not exceed 60K		N
19.101	Appliances incorporating a liquid container that has to be filled by the user are supplied at rated voltage and operated without liquid.		N
20.	STABILITY AND MECHANICAL HAZARDS		P
20.1	Appliances intended to be used on a surface such as the floor or a table shall have adequate stability.	Be hand-held appliance	N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		N
	Protective enclosures,guards and similar parts are non-detachable		P
	Self-resetting thermal cut-outs and over current protective devices not causing a hazard, if unexpectedly enclosure		N
	Not possible to touch dangerous moving parts with test finger		P
21.	MECHANICAL STRENGTH		P
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handing		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	No damager after three blows applied to various parts of the enclosure, impact energy 1.0Nm±0.05Nm.	After the test, the appliance is no damae	P
21.2	Accessible parts of solid insulation shall have sufficient strength to prevent penetration by sharp implements.		P
	Appliances intended to be used under the feet of a sitting person are loaded as specified for normal operation but with the mass increased to 90kg.The mass is applied for 30s.		N

22.	CONSTRUCTION		P
22. 1	Appliance is marked with the first numeral of the IP system	IPXO	P
22. 2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being availabe:	Portable appliance	N
	-a supply cord fitted with a plug		N
	-a switch complying with 24.3		N
	-a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N
	-an appliance inlet		P
22.3	Appliance provided with pins for insertion into socket-outlet: no undue strain on socket-outlets		N
	Applied torque for engagement face in the vertical plance not exceeding 0,25 Nm		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Appliances are heating in 1h with 70±2℃, then a pull force 50N is immediately applied for 1 min to each pin along their longitudinal axes.The pin shall not be displaced by more than 1mm.		N
	After fore test, each pin is subjected in turns to a torque 0.4Nm for 1 min in each direction.The pin shall not rotate unless rotation does not impair compliance with this standard.		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets	A supply cord fitted with a plug	N
22.5	No risk of electric shock when touching the pins of the plug because of charged capacitor		P
	Plug test for 10 times and measured voltage between L/N not exceeding 34V in 1 second.		P
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
22.7	Appliances containing liquid shall be constructed so that they withstand the pressure likely to occur during use.		
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and which are likely to be cleaned in normal use		N
22.9	Insulation, internal wiring,windings ,commutators and slip rintgs not exposed to iol, grease or similar substances,unless it has adequately insulation	Not exposed to oil or similar substances	P
22.10	Location of protectioin of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely	No reset button	N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
22.11	Reliable fixing of non-detachable parts and snap-in devices shall be provided to have a degree of protection against electric shock,moisture of contact with moving parts		P
22.12	Handles,knobs etc.fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	Axial force 15 N applied to parts,the shape of which being so that an axial pull is unlikely to be appllied for 1 min		P
	Axial force 30 N applied to part ,the shape of which being so that an axial pull is likely to be applied fro 1 min		N
22.13	Unlikely that handles,when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for hadles which are held for short periods only		N
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance	No sharp edges.	P
	No exposed pointed ends of self tapping screws etc. ,liable to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cord smooth and well rounded	No storage hooks	N
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands,no undue wear of contacts		N
	Reel and unreel tested with 6000 operations at a rate of about 30 times per min		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	If double ,electric strength test of 16.3 is applied ,test voltage of 1000V		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner to protecting against overheating to wall		N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation unless they are constructed to prevent inappropriate replacement	No driving belts	N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		P
22.21	Wood,cotton,silk,ordinary paper and fibrous or hygroscopic material not used as insulation,unless impregnated	Wood, cotton and similar material not used	P
22.22	Appliances shall not contain asbestos	Not contain asbestors	P
22.23	Oils containing polychlorinated bipheny (PCB) not used	No oil used	P
22.24	Bare heating elements shall be supported so that the heating conductor is unlikely to come into contact with accessible metal parts		N
22.25	The appliance other than class III shall be constructed that sagging heating conductors cannot come into contact with accessible metal parts		N
22.26	Appliance with class III construction shall comply with reauirement of double insulation or reinforced insulation		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
22.27	Parts connected by protective impedance separated by double or reinforced insulation	No such parts	N
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separeted from live parts by double or reinforced insulation	No such metal part	N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock is maintained after installation	Not permanently connected	N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being serously damaged, or		P
	Constructed so that they cannot be replanced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Creep age distances and clearances over supplementary and reinforced insulation not reduced below limited values		P
22.32	Supplementary and reinforced insulation designed or protedted against deposition of dirt or dust		P
	Ceramic material not tightly sintered, similar material or beads aline not used as supplementary or reinforced insulation		N
22.33	Conductive liquids which are or may become accessible in normal use are no in dircect contact with live parts. Electrodes shall not be used		N
	For class II constructions,conductive liquids which are or may become accessible in normal use shall not be in direct contact with basic or reinforce insulation		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
22.34	Shafts of operating knobs,handles,levers etc.not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles,levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation falut		P
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts		P
22.37	Capacitors in Class II appliances not connected to accessible metal parts ,unless complying with 22.42		P
22.38	Capacitors not connected between the contacys of thermal cut-out		P
22.39	Lamp holders only used for the connection of lamps		N
22.40	Motor-operated appliances and combined appliances, intended to be moved while in operation,are fitted with a switch to control the motor.		N
22.41	Appliance shall not incoprate components, other than lanps ,containing mercury.	No mercury used	N
22.42	Protective impedance consiting of at least two separate components	No protective impedance used	N
	Values specified in 8.1.4 not exceeded if any one of the components is short –circuited or open circuited.		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
22.43	Appliances adjustable for different voltages,accidental changing of the setting of the voltage unlikely to occur		N
22.44	Appliances are not allowed to have an enclosure which is shaped or decorated so that the appliances is likely to be treated as toy by children	Not likely to be treated as toy by children	P
22.45	Air is used as a reinforced insulation ,clearance anc not be reduced below the values specified in 29.1.3 when external force applied to the enclosure		N
22.48	Software used in protective electronic circuits shall be class B or class C.		N
22.47	Appliance intended to be connected water mains shall withstand the water pressure expected in norm use.		N
22.48	Appliance intended to be connected water mains shall be constructed to prevent back siphonage of non-potable water into water mains.		N
22.101	Appliances shall be constructed so that hair cannot be drawn into the appliance or be entangled in moving parts		P
23	INTERNAL WIRING		P
23.1	Wire always smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
23.2	Beads etc.on live wires cannot change their position, and are not resting on sharp edges or corners	No bead and similar parts used	N
	Beads inside flexible metal conduits contained within an insulating sleeve,unless the conduits can not move in normal use		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N
	Flexible metallic tubes not causing damage to inside of insulation of conductors	No use flexible metallic tubes	N
	Open-coil springs not used to protect wiring		N
	Adequate insulating lining provided inside a coiled spring ,the turns of which touch one another		N
	Flexing wiring test when wiring is supplied at rated voltage and under normal operation. The appliance show no damage in accordance with this standard.		P
	-10000, for conductor flexed during normal use		P
	-100, for conductor flexed during user maintenance		N
	After flexing wiring test,electric strength test,1000V between live parts and metal parts is tested		P
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wire	N
23.5	The insulation of internal wiring withstanding the electrialc stress likely to occur in normal use		P
	Insulation electric stress test for:No breakdown when a voltage of 2000V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
23.6	Sleeving used as supplementary insulation on internal wiring ratained in positiaon by positive means		P
23.7	Only the colour combination green/yellow used for ear thing conductors	Class II	N
23.8	Aluminium wires not used for internal wiring	Aluminium wires not used	P
23.9	No lead-tin soldering of stander conductors where they are subject to contact pressure, unless clamping means so constructed that there ins no risk of bad contact due to cold flow of the solder		N
23.10	The insulation and sheath of internal wiring, incorporated inexternal hose for connection of an appliance to the water mains ,shall be al least equivalent to light PVC sheathed flexible cord		N
24.	COMPONENTS		P
24.1	Components comply with safety requirements in relevant IEC standards,otherwise thye must be tested in accordance with 24.1.1 to 24.1.6	All components comply with safty requirements	P
24.1.1	Capacitors likely to be permanetly subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing is IEC 60384-14. Otherwise they must be tested in accordance with annex F.		P
24.1.2	The relevant standard for safety isolating transformers is IEC 61558-2-6.Otherwise they must be tested in accordance with annex G		N
24.1.3	The relevant standard for witch is IEC 61058-1. Otherwise they must be tested in accordance with annex H		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
24.1.4	The relevant standard for automatic contorls		N
24.1.5	The relevant standard for appliance couplers is IEC 60320-1	No such coupler	N
24.1.6	The relevant stadard for small lampholders is IEC60238		N
24.2	Appliance pads may be fitted with a switch in the flexible cord		P
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N
	No thermal cut-outs which can be reset by soldering		N
24.3	Switch intended ofr all-pole disconnection of stationary appliances is directly connected to the supply terminals. Having a contact separation of at least 3 mm in each pole		N
24.4	Plugs and socket –outlets for heating elements and extra-low voltage circuits,not interchangeable with plugs and socket-outlets.		N
24.5	Capacitor in auxiliary windings of motors shall be marked with rated volatege and rated capacitance shall be sued with these markings		N
24.6	Motors connected to the supply mains and having inadequate basic insulation for the rated volatage of the appliance ,shall not exceed 42V		N
24.7	Hose-sets for the connection fo appliances to the water mains shall comply with IEC 61770.		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		P
25.1	Appliance not intended for permantent connection to fixed wiring,means for connection to the supply:		P
	-supply cord fitted with a plug		P
	-an appliance inlet having at least the same degree fo protection against moisture as required for the appliance		N
	-pins for insertion into socket-outlets		N
25.2	Appliances other than stationray appliances not provided with more than one means of connection to the supply	Portable appliance, one means of connection to supply	N
	Stationary appliance for multiple supply may be provided with more thant one means of connection, if adequately insulation provided form each other		N
	Electric strength test of 1250V for 1 min between each means of connection, no breakdown shall occur		N
25.3	Connection of supply wires for appliance intended tobe permanently connected to fixed wiring possible after the appliance has been fixed to its support	Not permanetlu connected	N
	Applaince provided with a set of terminals for the connections of cables or fixed wiring, coross-sectional ares specified in 26.6		N
	Appliance provided with a set of terminals allowing the connecdtions of a flexible cord		N
	Appliance provided with a set of supply lead accommodated in a suitable compartment		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Appliance provided with a set of terminal and cable entries ,conduit entries, knock-out or glands,allowing connection of appropriate type of cable or conduit		N
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A,dimensions according to table 10		P
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distancers and clearances below values specified in clause 29		P
25.5	Method for assemble supply cord with the appliance:		P
	-type X attachment		N
	-type X attachment		P
	-type Z attachment,if allowed in relevant parts		N
	Type X attachment,other than those having a specially prepared cord ,shall not be used for flat twin tinsel cord		N
25.6	Plugs fitted with only one flexible cord		P
25.7	Appliance supply cord not lighter than:		P
	-braided cord		N
	-ordinary tough rubber sheather cord		N
	-ordinary polychloroprene sheathed flexible cord		N
	-flat twin tinsel cord		N
	-light polyvinyl chloride sheathed cord, for appliance not exceeding 3 kg		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	-ordinary polyvinyl chloride sheathed cord, for appliance exceeding 3 kg		N
	If temperature rise of external metal parts exceeding 75k,PVC cord not used		N
	- the special condition for PVC cord is used:appliance so constructed that the supply cord is not likely to touch external metal parts in normal use		N
	-the special condition for PVC cord is used:PVC supply cord appropriate for highter temperatures ,type Y or type Z attachement used		N
	Flat twin tinsel cord is allowded or hand-leld PDU Cabinet plugs appliances as long as they are fitted with a non-rewirable plug		N
25.8	Actual cross-sectional area of supply cords not less than the value according to table 11		P
25.9	Supply cord not in contact with sharp points or edges		P
25.10	Green/yellow core for earthing purposes in Class I appliance		N
25.11	Conductors of supply cords not consolidated by lead-tin solderring where they are subject to contact pressure		P
25.12	Moulding the cord to part fo the enclosure does not damage the insulation of the supply cord		P
25.13	Inlet opening provided with a bushing, or is so constructed ,that there is no risk of damage to the supply cord when introduced		P
25.14	Supply cords that are moved while in operation shall be adequately protected against excessive flexing where it enters the appliance.		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
25.15	Conductors of the supply cord relieved form strain, twisting and abrasion by use of cord anchorages		P
	-replacement of the cord is easily possible		N
	-it is clear how the relief from strain and the prevention of twisting are obtained		N
	-cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N
	-the cord is not clamped by a metal screw which bears directly on the cord		N
	-at least one part of the cord anchorage fixed to the appliance, unless part of a specially prepared cord.		N
	-Screws which have to be operated when replacing the cord do not fix any other components. However, this does not apply if --if removal of screws the appliance becomes inoperative --or they cannot be removed without aid of tool		N
	-if labyrinths can be bypassed the lest of 25.15 is nevertheless with stood.		N
	-for Class O,OI appliances: they are of insulating material or are provided tight an insulating linging, unless a failure of the insulation of the cord does not make accessible metal parts live		N
	-for Class II appliance : they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N
	Screws tighten test on conductor, after test the conductors shall not have moved by more than 1 mm in the terminals.		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
25.17	Adequate cord anchorages for type Y and Z attachment	Type Y	P
25.18	Cord anchorages only accessible with the aid of a tool ,or so constructed than the cord only can be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances, Tying the cord into a knot or tying the cord with string not used	Type Y	P
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		P
25.21	Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage ,no contact with accessible metal part if a conductor becomes loose, etc.		N
25.22	Appliance inlet shall: -live parts not accessible during insertion or removal: -connector can be inserted without difficulty: -the appliance is not supported by the connector: -not be an appliance inlets for cold conditions if temperature rise of external metal parts exceeds 75K ,unless the supply cord is not likely to touch such metal parts:		N
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified	Not such cord	N
25.24	Interconnection cords not detachable without the aid of a tool		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
25.25	The dimensions of pin s of appliances that are inserted into socket-outlets shall be compatible with the dimensions of the relevant socket-outlets.		N
26	TERMINALS RO EXTERNAL CONDUCTORS		N
26.1	Appliances shall be provided with terminals or equally effective device for the connection of external conductors		N
26.2	Terminal for type X attachment and appliances for connection to fixed wiring shall be provided with terminal in which the connections are made by means of screws nuts or similar device unless the connection are soldered.		N
26.3	Terminals for type X attachments and those for connection to fixed wiring shall be constructed so that they clamp the conductor between metal surfaces with sufficient contact pressure but without causing damage to the conductor.		N
26.4	Terminals for type X attachment, except type X attachment having a special prepared cord, and terminals for connection to fixed wiring ,shall not require special preparation of the conductor.		N
26.5	Terminals for type X attachments so locate or shielded that if ware of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts		N
	The stranded conductor test is carried out, and after it shall be no contact between live parts and accessible metal parts.		N
26.6	Terminals for type X attachment and for connection to fixed wiring shall allow the connection of conductors having the nominal cross-sectional areas		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
26.7	Terminals for type X attachments shall be accessible after removal of a cover or part of enclosure.		N
26.8	Terminals for the connection to fixed wiring located close to each other, including the earthing terminal		N
26.9	Terminals of the pillar type shall be consturcted and located so that the end of a conductor introduced into the hole is visible, or can pass beyond the threaded hole ofr a distance equal to half the nominal diameter of screw but at least 2.5mm		N
26.10	Terminals with screw clamping and screwless terminal shall not be sued for connection fo the conductor of flat twin tinsel cords unless the ends of the conductors are fitted with means suitable for sue with screw terminal.		N
	Pull of 5N test to the connection and show no damage		N
26.11	For appliance with type Y attachment or type Z attachement ,soldered and welded ,crimped or similar connection may be used for connection of extermal conductors.		N
	And for Class II construction,the conductor shall be positioned or fixed so that soldering and crimping or welding alone to maintain the conductor in positon.		N
27	PROVISION FOR EARTHING		N
27.1	Accessible metal parts of Class OI and I appliances ,permanently and reliably connected to an earthing terminal	Class II	N
	Earthing terminals and earthing contacts shall not be connected to neutral terminal		N
	Class O,II and III appliance have no provision for earthing		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	SELV circuit shall not be earthed unless they are protective ELV circuit.		N
	The clamping means of earthing terminals shall be adequately secured against accidental loosening.		N
	Terminals used for the connection fo external equip potential bonding conductors allow connection of conductors of 2,5 to 6 mm2		N
27.3	For appliance with supply cords,the arrangement of the terminals ,or the length of the conductor between the cord anchorage and the terminals,shall be such that current carrying conductors become taut before earthing conductor		N
27.4	No risk of corrosion resulting form contact between metal of earthing terminals and other metal		N
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at leat 5 μm		N
	Adequate protection against rusing of parts of coated or uncoated steel,only intended to provide or transmit contact pressure		N
	In case of aluminium alloys precautions taken to avoid risk of corrosion resulting from contact between copper and aluminium or its alloys		N
27.5	The connection between earthing terminal and earthed metal parts shall have a low resistance		N
	If the clearance of basic insulation in a protective ELV circuit is based on rated voltage of the appliance, this rquirement does not applies to connection providing earthing continuity in the protective ELV		N
	The test of earthing of ELV circuit ,the resistance shall not exceed 0.1μΩ。		N
	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand held appliances		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	-at least two tracks are used with independent soldering points and the appliance complies with requiements of 27.5 for each circuit		N
	-the material of the printed circuited board complies with IEC 60249-2-4 or IEC 60249-2-5		N
28.	SCREWS AND CONNECTIONS		P
28.1	Fixings and electrical connections and connections providing earthing continuity shall withstand mechanical stresses	Class II	N
	Screws shall not be metal which is soft or liable to creep, such as zinc or aluminum		P
	Screws used for electrical connections or for connections providing earthing continuity shall screw into metal		N
	Screws shall not be of insulating maternal if their replacement by a metal screw can impair supplementary or reinforced insulation	Metal screws	P
	Torque for testing screws and nuts after the test		P
28.2	Contact pressure not transmitted through insulating material which are liable to shrink or distort		P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A		N
	Space-threaded (sheet metal)screw only used for electrical connections if they clamp these parts together.		N
	Thread –cutting (self-tapping) screws not used for electrical connections ,unless generating a full		N
	Form standard machine screw thread		
	Thread-cutting(self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Thread-cutting and space-threaded screws used provide earthing continuity : it is not necessary to disturb the connection in normal use, and at least two screws are used for each connection.		N
28.4	Screws and nuts marking mechanical connection between different parts of the appliance ,and also making elecrical connection or providing earthing continuity secured against loosening		P
	Rivets for electrical connections subject to torsion secured against loosening.		N
29.	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		P
29.1	The clearance of basic insulation shall withstand sufficient electrical stress		P
29.1.1	Basic insulation shall be sufficient to withstand overvoltage		P
	The clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1.		P
	Lacquered conducts of windings are assumed to be bare conductors but clearance may be reduced to 0.55mm for rated impulse voltage at 1500V		P
29.1.2	Clearance of supplementary insulation shall be not less than table 16.		P
29.1.3	Clearance of reinforce insulation shall e not less than the value of basic insulation		P
29.1.4	For function insulation ,table 16 is applicable		P
29.1.5	For appliance have a higher working voltage than rated voltage		N
29.2	Creepage distance shall not be less than those appropriate for the working voltage.		P
	Taking account pollution degree 2		P
	-Unless precaution has been taken to protect the insulation, in which case pollution degree 1 applies.		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
	Parts ,such as hexagonal nuts that can be tightened to different positions during assembly, and movable parts ,are placed on most unfavorable position.		N
	A force is applied to conductor ,other than heating elements, and try to reduce clearance when marking the measurement for -2N, for bare conductor -30N,for accessible surface.		P
29.2.1	Creepage distance of basic insulation shall not less than those specified in table 17		P
29.2.2	Creepage distance of supplementary insulation shall not less than those specified in table 17		P
29.2.3	Creepage distance of reinforce insulation shall not less than those specified in table 17		P
29.2.4	Creepage distance of function insulation shall not less than those specified in table 18		N
29.3	The supplementary insulation na reinforced		P
29.3.1	Min thickness of the insulation: 1mm for supplementary insulation 2mm for reinforced insulation		P
29.3.2	Earh layer of material shall withstand the electrical strength of 16.3 for supplementary insulation		N
29.3.3	Dry heat test for 48h and the temp rise meet the requirement		P
30.	RESISTANCE TO HEAT, FIRE		P
30.1	Relevant external parts of non-metallic material shall be sufficient resistance to heat		P
	Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat		P
	The requirement does not apply to the insulation or sheath of flexible cords or internal wiring.		P
	Resistance to heating test, and after test appliance show no fault		P

EN 60669-1&EN 60669-2-1			
Clause	Requirement-Test	Result-Remark	Verdict
30.2	Parts of non-metallic material shall be resistance to ignition and spread of fire		P
30.2.1	Glow-wire test at 650 ℃		P
30.2.2	Glow-wire test at 750 ℃ for current exceed 0. 5A		N
	Glow-wire test at 650 ℃ for other		N
30.2.3	Appliance be operated while unattended are tested	Not applicable	N
30.2.3.1	Current exceed o.2 A, and insulation with 3mm distance shall have a glow-wire test at 850℃		N
30.2.3.2	Insulation supporting and insulation with 3 mm distance shall have glow –test		N
	775℃ for current exceed 0. 2A		N
	675℃ for other		N
	If a flame persist long than 2s ,then needle-flame test is carried out.		N
30.2.4	Requirements of PCB for needle-flame is tested		N
31.	RESISTANCE TO RUSTING		P
	Relevant ferrous parts adequatelly protected		P
32.	RADIATION , TOXICITYI AND SIMILAR HAZARDS		P
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P

TABLE 10.1	INPUT DEVIATION MEASUREMENTS			P
Input deviation DP of/at:	Prated (W)	P (W)	Required dP (W)	I(input) (A)
400V,50Hz	2500	15.3	+20%	0.078
400V,60Hz	2500	10.3	+15%	0.071
400V,50Hz	2500	8.3	+12%	0.070
400V,60Hz	2500	8.5	+13%	0.074

TABLE 11.8	TEMPERATURE RISE MEASUREMENTS		P
	Ambient (℃)·····	27.8	---
	RH (%)·····	40	---
	Test voltage (V)	243.8	---

Temperature rise Dt of part/at:	DT (K)	Require dt (K)
Power cord	0.8	50
Capacitor	14.8	50
Switch	3.5	30
PCB near Diode	16.3	120
Surface of motor	20.1	60
Enclosure near PCB	7.0	50
Surface of appliance part	5.0	50
Ambient	27.8	-

TABLE 13	LEAKAGE CURRENT AND ELECTRIC STRENGTH MEASUREMENTS AT OPERATING TEMPEARTURE		P
	Heating appliances: 1.15 times rated input (W)	N/A	-
	Motor-operated and combined appliances: at 1.06 times rated voltage (V)	403.8V,50Hz	--
Leakage current between :	Current (Ma)		Required Current (Ma)
L/N and enclosure	0.001/0.003		0.25.0.25
Leakage voltage applied	Test voltage (V)		Breakdown Yes/No
L/N and enclosure	3000		No

TABLE 16	LEAKAGE CURRENT AND ELECTRIC STRENGTH MEASUREMENTS AT OPERATING TEMPERATURE		P
	Single-phase appliance: 1.06 Times rated voltage (V) :	403.8V,50Hz	-
Leakage current between :	Current (Ma)		Required Current (Ma)
L/N and enclosure	0.001/0.003		0.25.0.25
Leakage voltage applied	Test voltage (V)		Breakdown Yes/No
L/N and enclosure	3000		No

TABLE 29.1		CLEARANCE			P
Overvoltage category		II			
		Type of insulation			
Rated impulse Voltage (V)	Min CL (mm)	BASIC	FUNCTION	SUPPLYMENTARY	REINFORDCED
2500	1.5	X	X	X	
4000	3.0				X

TABLE 29.2	CREEPAGE DISTANCE			P
Working voltage: (V)	Creepage distance (mm) :			Pollution drgree II
	BASIC	FUNCTION	SUPPLEMENTARY	REINFORCED
>125 and =250	2.5	2.0	2.5	5.0

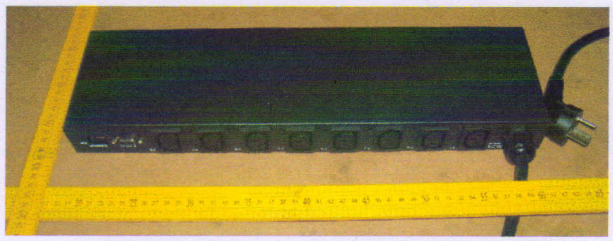
Appendix 1

Temperature curve of 'PDU Cabinet plugs'

Model: IEC320-C13 TUL-AUS(10)N TUL-FRA(16)N TUL-GBR(13)N TUL-GBR(13L)N TUL-GER(16-1)N TUL-GER(16-2)N TUL-IEC(C13)N TUL-IEC(C19)N TUL-ITA(16)N TUL-RSA(16)N TUL-RSA(16R)N TUL-USA(15)N TUL-WN(10)N TUL-WN(16)N

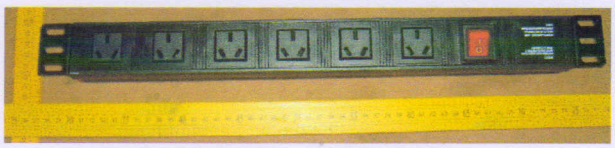
----- 1 page attached -----

Figure 1



IEC320-C13 BV E 08 10 301

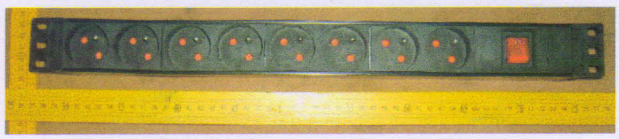
Figure 2



TUL-AUS(10)N BV E 08 10 301

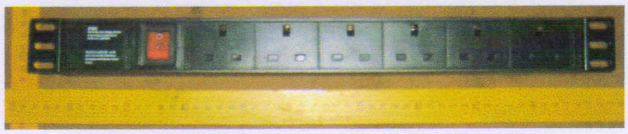
----- 2 page attached -----

Figure 3



TUL-FRA(16)N BV E 08 10 301

Figure 4



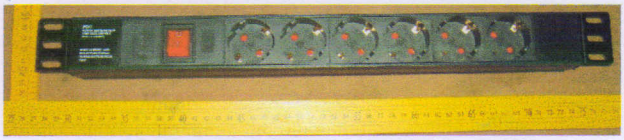
TUL-GBR(13)N BV E 08 10 301

---- 3 page attached -----

Figure 5

TUL-GBR(13L)N BV E 08 10 301

Figure 6



TUL-GER(16-1)N BV E 08 10 301

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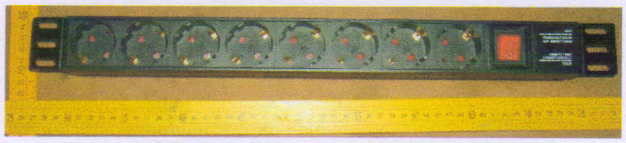
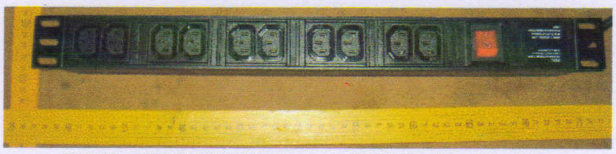
Figure 7



TUL-GER(16-2)N BV E 08 10 301

Figure 8



TUL-IEC(C13)N BV E 08 10 301

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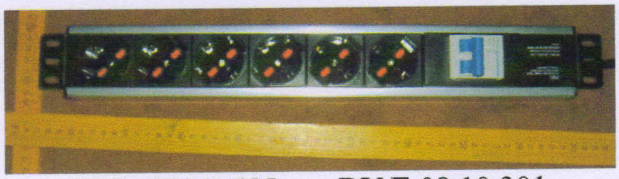
Figure 9

TUL-IEC(C19)N BV E 08 10 301

Figure 10



TUL-ITA(16)N BV E 08 10 301

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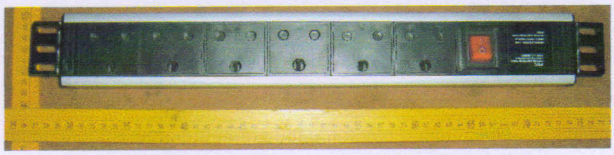
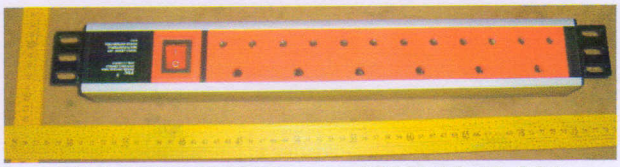
Figure 11



TUL-RSA(16)N BV E 08 10 301

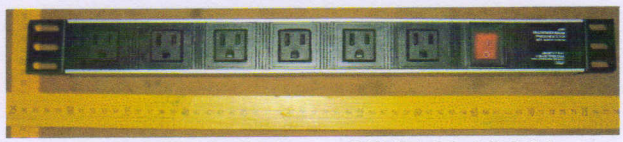
Figure 12



TUL-RSA(16R)N BV E 08 10 301

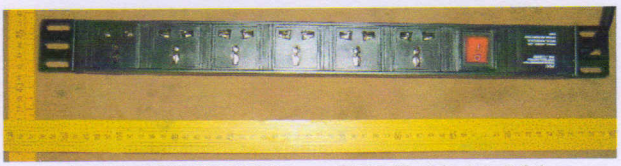
---- 7 page attached ------

Figure 13



TUL-USA(15)N BV E 08 10 301

Figure 14



TUL-WN(10)N BV E 08 10 301

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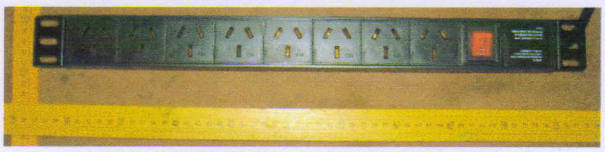
Figure 15



TUL-WN(16)N BV E 08 10 301