



Test Report issued under the responsibility of:



TEST REPORT
IEC 60065
Audio, Video and Similar Electronic Apparatus: Safety Requirements

Report Reference No. .... 100094189CLE-001
Date of issue ..... 2011-10-28; Modification1: 2012-01-16
Total number of pages ..... Modification 1: 5
Prepared By: Carlos Cajica-Sierra
Reviewed By: Modification 1: Rick Johnson

Testing Laboratory ..... Intertek Testing Services NA, Inc.
Address ..... 2307 East Aurora Road, Unit B7
Twinsburg, OH 44087, USA

Applicant's name ..... Dr. Z Amplification
Address ..... 17011 Broadway Ave.
Maple Hts. OH 44137

Test specification:
Standard..... IEC 60065 : 2001 (7th Edition ) + Amendment 1
Test procedure ..... ETL Testing Lab
Non-standard test method..... NA

Test Report Form No. .... IEC60065F
Test Report Form(s) Originator..... ASTA BEAB
Master TRF ..... Dated 2006-09

Copyright © 2006 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.
This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description..... Guitar Amplifiers
Trade Mark..... Z
Manufacturer ..... Dr Z Amplification

Model/Type reference ..... ZA-18, ZA-8, ZA-7, ZA-15, ZA-30, ZA-31, ZA-20, ZA-5, ZA-22, ZA-10,  
ZA-27, ZA-26, ZA-28

Ratings ..... 230VAC, 50Hz, 205W max.

Refer to table below for specific model differences and ratings.

Model #	Name	Power Output	Max Output	Volts	Amps	Hertz	Watts
ZA-18	Junior NR	18W	25W	230V	.465A	50Hz	107W
ZA-8	Junior	18W	24W	230V	.51A	50Hz	118W
ZA-7	Carmen Ghia	18W	18W	230V	.41A	50Hz	95W
ZA-15	Z28	18W	25W	230V	.39A	50Hz	92W
ZA-30	Monza	18W	26W	230V	.44A	50Hz	101W
ZA-31	Z Wreck	38W	39W	230V	.72A	50Hz	166W
ZA-20	Senior NR	38W	44W	230V	.76A	50Hz	174W
ZA-5	Senior	38W	51.8W	230V	.86A	50Hz	198W
ZA-22	Stangray	38W	42.5W	230V	.702A	50Hz	161.5W
ZA-10	Route 66	38W	33W	230V	.624A	50Hz	144W
ZA-27	Remedy	50W	49W	230V	.74A	50Hz	171W
ZA-26	EZG	50W	47W	230V	.80A	50Hz	184W
ZA-28	Z Verb	n/a	n/a	230V	.096A	50Hz	22.1W

**Summary of testing:**

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

TEST PERFORMED	PARAGRAPH
Durability of Markings Test	5
Input Test	5.1-7.1
Temperature Test	7.1
Determination of Hazardous Live Parts Test	9.1.1.1
Dielectric Withstand Test	10.3
Insulation Resistance Test	10.3
Fault conditions Tests	11.1
Bump Test	12.1.2
Vibration Test	12.1.2
Impact Tests	12.1.3
Creepage and Clearance Test	13
Earth Resistance Test	15.2
Stability Tests	19.1-19.2

**Testing location:**

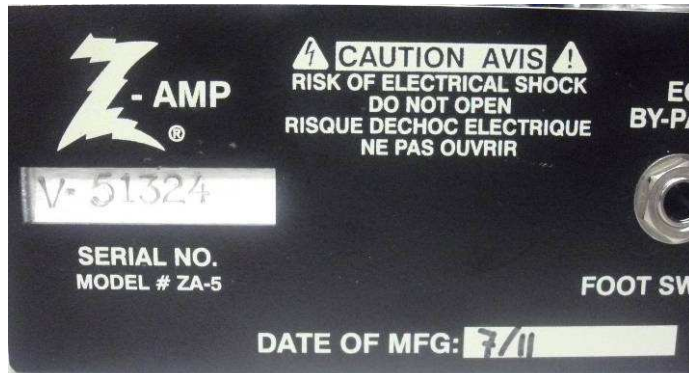
Intertek Testing Services NA, Inc.  
 2307 East Aurora Road, Unit B7  
 Twinsburg, OH 44087, USA

Vibration Test Only:

4700 Broadmoor SE, Suite 200  
 Kentwood, MI 49512, USA

**Summary of compliance with National Differences: None-Addressed**

**Copy of marking plate representative of all models covered in this report (includes Cautionary and French Markings)**



<b>Test item particulars</b> .....	
Classification of installation and use .....	Class I, Overvoltage Category II
Supply Connection .....	230 VAC Mains operation. Detachable Cord connected.
.....	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	NA
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement .....	F (Fail)
<b>Testing</b> .....	
Date of receipt of test item .....	2011-05-24
Date (s) of performance of tests .....	2011-05-25 to 2011-10-13
<b>General remarks:</b>	
<p>The test results presented in this report relate only to the object tested.  This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  "(see Enclosure #)" refers to additional information appended to the report.  "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a point is used as the decimal separator.</p>	
<b>General product information:</b>	
<p>The products evaluated in this report are portable guitar amplifiers. The amplifiers are detachable, cord connected units for household and professional use. Units are for indoor use only.  These units have not been evaluated for use in tropical climates.</p> <p><b>Modification 1:</b>  The original test report 100094189CLE-001, dated 2011-10-28 was modified on 2012-01-16 under Intertek project G100094189 to correct the following:</p> <ul style="list-style-type: none"> <li>On Table 14: list of critical components and materials: Second item, Power/Standby Switches, had an incorrect part number associated with it. The part number listed is "1112 R." the part number is being replaced by "110-63". The component has not changed. This is a non-technical, typo correction. No additional testing or construction was deemed necessary.</li> </ul>	

14	<b>TABLE: list of critical components and materials</b>				<b>P</b>
Object/Part No.	Manufacturer /Trademark	Type/Model	Technical Data <sup>2)</sup>	Standard	Mark(s) of Conformity <sup>1)</sup>
Power/ Standby Switches	Carling	1112 R <b>Modification 1:</b> 110-63	Rated 3A, 250V, 6A, 125V. Mechanically secured onto enclosure by nuts and washers	IEC 60065	Tested as part of the complete end product



Test Report issued under the responsibility of:



**TEST REPORT  
IEC 60065  
Audio, Video and Similar Electronic Apparatus: Safety Requirements**

Report Reference No. .... 100094189CLE-001  
Date of issue ..... 2011-10-28  
Total number of pages ..... 51  
Prepared By: Carlos Cajica-Sierra  
Reviewed By: Zekarias Bekele

Testing Laboratory ..... Intertek Testing Services NA, Inc.  
Address ..... 2307 East Aurora Road, Unit B7  
Twinsburg, OH 44087, USA

Applicant's name ..... Dr. Z Amplification  
Address ..... 17011 Broadway Ave.  
Maple Hts. OH 44137

Test specification:  
Standard..... IEC 60065 : 2001 (7th Edition ) + Amendment 1  
Test procedure ..... ETL Testing Lab  
Non-standard test method..... NA


Test Report Form No. .... IEC60065F  
Test Report Form(s) Originator..... ASTA BEAB  
Master TRF ..... Dated 2006-09

**Copyright © 2006 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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

Test item description..... Guitar Amplifiers  
Trade Mark.....   
Manufacturer ..... Dr Z Amplification

Model/Type reference ..... ZA-18, ZA-8, ZA-7, ZA-15, ZA-30, ZA-31, ZA-20, ZA-5, ZA-22, ZA-10, ZA-27, ZA-26, ZA-28

Ratings ..... 230VAC, 50Hz, 205W max.

Refer to table below for specific model differences and ratings.

Model #	Name	Power Output	Max Output	Volts	Amps	Hertz	Watts
ZA-18	Junior NR	18W	25W	230V	.465A	50Hz	107W
ZA-8	Junior	18W	24W	230V	.51A	50Hz	118W
ZA-7	Carmen Ghia	18W	18W	230V	.41A	50Hz	95W
ZA-15	Z28	18W	25W	230V	.39A	50Hz	92W
ZA-30	Monza	18W	26W	230V	.44A	50Hz	101W
ZA-31	Z Wreck	38W	39W	230V	.72A	50Hz	166W
ZA-20	Senior NR	38W	44W	230V	.76A	50Hz	174W
ZA-5	Senior	38W	51.8W	230V	.86A	50Hz	198W
ZA-22	Stangray	38W	42.5W	230V	.702A	50Hz	161.5W
ZA-10	Route 66	38W	33W	230V	.624A	50Hz	144W
ZA-27	Remedy	50W	49W	230V	.74A	50Hz	171W
ZA-26	EZG	50W	47W	230V	.80A	50Hz	184W
ZA-28	Z Verb	n/a	n/a	230V	.096A	50Hz	22.1W

**Summary of testing:**

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

TEST PERFORMED	PARAGRAPH
Durability of Markings Test	5
Input Test	5.1-7.1
Temperature Test	7.1
Determination of Hazardous Live Parts Test	9.1.1.1
Dielectric Withstand Test	10.3
Insulation Resistance Test	10.3
Fault conditions Tests	11.1
Bump Test	12.1.2
Vibration Test	12.1.2
Impact Tests	12.1.3
Creepage and Clearance Test	13
Earth Resistance Test	15.2
Stability Tests	19.1-19.2

**Testing location:**

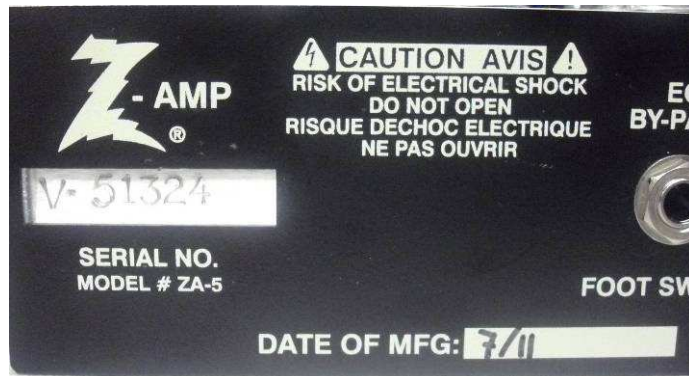
Intertek Testing Services NA, Inc.  
 2307 East Aurora Road, Unit B7  
 Twinsburg, OH 44087, USA

Vibration Test Only:

4700 Broadmoor SE, Suite 200  
 Kentwood, MI 49512, USA

**Summary of compliance with National Differences: None-Addressed**

**Copy of marking plate representative of all models covered in this report (includes Cautionary and French Markings)**





<b>Test item particulars</b> .....	
Classification of installation and use .....	Class I, Overvoltage Category II
Supply Connection.....	230 VAC Mains operation. Detachable Cord connected.
.....	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	NA
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement .....	F (Fail)
<b>Testing</b> .....	
Date of receipt of test item .....	2011-05-24
Date (s) of performance of tests .....	2011-05-25 to 2011-10-13
<b>General remarks:</b>	
<p>The test results presented in this report relate only to the object tested.  This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  "(see Enclosure #)" refers to additional information appended to the report.  "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a point is used as the decimal separator.</p>	
<b>General product information:</b>	
<p>The products evaluated in this report are portable guitar amplifiers. The amplifiers are detachable, cord connected units for household and professional use. Units are for indoor use only.  These units have not been evaluated for use in tropical climates.</p>	

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
<b>3</b>	<b>GENERAL REQUIREMENTS</b>		
	Safety class of the apparatus .....	Unit is a Class I device. All accessible conductive parts are connected to the protective earthing conductor.	P
<b>4</b>	<b>GENERAL CONDITIONS OF TESTS</b>		
4.1.4	Ventilation instructions require the use of the test box	Temperature Test was conducted without impeding ventilation	P
<b>5</b>	<b>MARKING</b>		
	Comprehensible and easily discernible	The Model numbers of the unit are easily readable	P
	Permanent durability against water and petroleum spirit	<p>Durability of marking test has been performed and found compliant.</p> <p>Markings are silkscreen, painted on the enclosure. Test was performed by rubbing the areas for 15 seconds on the following areas:</p> <ul style="list-style-type: none"> <li>• Ratings area: Rubbed with water and Petroleum Spirits: Marking remained legible. No curling</li> <li>• Cautionary Marking (Shock hazard marking): Rubbed with water and petroleum Spirits: Marking remained legible. No curling</li> </ul> <p>Materials used:</p> <ol style="list-style-type: none"> <li>1) Methanol Spirits, expiration due date 09/01/2012</li> <li>2) Stopwatch, SW012, Cal. due date 01/19/2012</li> <li>3) Humidity and Temperature recorder: HT024, cal. Due date: 03/21/2012</li> </ol> <p>Test date: 10/16/2011 Test conditions: 24.5°C, 45% RH</p>	P
5.1 a), b)	Identification, maker, model .....	Z-AMP, Model numbers of the units have been provided	P
c)	Class II symbol if applicable	Unit is Class I	NA
d), e)	Rated supply voltage and symbol .....	230 V~	P
f)	Frequency if safety dependant	50Hz	P
g), h), i)	Rated current or power consumption .....	Input Test was conducted to verify ratings. Refer to Table 7.1 for test data.	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
5.2	Earth terminal	Earth connection is achieved by using an NRTL approved appliance inlet which contains an Earth pin suitable for its intended use.	P
a)			
b)	Hazardous live terminals	No hazardous live terminal that can cause operator harm under normal operating condition other than Mains	NA
c)	Supply output terminals (other than mains)	Output terminals are clearly marked with the type reference of the apparatuses to be used.	P
5.3	Use of triangle with exclamation mark	The warning mark is used in the operator's manual page 2 as well as the unit.	P
5.4	Instructions for use	Operation of the unit is stated in the Operator's Manual on page 3&4. All of the required instructions applicable to the unit and per sub-clauses 1 through 14 have been provided, reviewed and deemed compliant with the requirements of the standard. Refer to Operations Manual Rev 11-Dec-07 present on file.	P
5.4.1	Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	Marking is provided in manual.	P
a)			
b)	Hazardous live terminals, instructions for wiring	Live hazardous parts exists inside the enclosure and a warning symbol and instruction is stated in the instruction manual	P
c)	Instructions for replacing lithium battery	It's not a battery operated unit	P
	Instructions for modem if fitted	No modem fitted on this unit	P
d)	Class I earth connection warning	Main plug socket has plug with earth ground (three prongs)	P
e)	Instructions for multimedia system connection	No such multimedia connection	NA
f)	Special stability warning for fixed installation	Stability test was performed per clause 19.1 and found compliant to the requirements of the standard. Refer to clause 19.1 and 19.2. Additional warning not required for portable unit	P
g)	Batteries not exposed to heat/sun warning	No batteries used on this unit	NA
h)	CRT with protective film in accordance to IEC 61965 must have a warning sign	NO CRT's in unit needing protective film or warning signs	NA
5.4.2	Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings		P
	Instructions for permanently connected equipment	The unit is not permanently connected	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

6	<b>HAZARDOUS RADIATION</b>		
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No such means	NA
6.2	Laser radiation, emission limits to IEC 60825-1 .... :	Class	
	Emission limits under fault conditions ..... :	Class	NA

7	<b>HEATING UNDER NORMAL OPERATING CONDITIONS</b>		
7.1	Temperature rises not exceeding specified values, any single protective device defeated except those of Cl. 7.1 a) and b)	Temperature test was conducted and found compliant with the requirements of the standard. Refer to temperature test section (See appended table)	P
7.1.1	Temperature rise of accessible parts	(See appended table)	P
7.1.2	Temperature rise of parts providing electrical insulation	(See appended table)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	(See appended table)	P
7.1.4	Temperature rise of windings	Transformers are fully sealed. Temperature was taken at enclosure(See appended table)	NA
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(See appended table)	NA
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C	(See appended table)	NA

8	<b>CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK</b>		
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	The outside enclosure is made of Birch plywood, inside chassis and the marking plate are made of Aluminium	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No changing voltage occurs. Units evaluated in this report are rated 230 VAC only	NA
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No such material used	NA
8.4	No risk of electric shock following the removal of a cover which can be removed by hand	No covers except the mesh wire unit the protects the inside components and fastened by 4 screws	P
8.5	Class I equipment		
	Basic insulation between hazardous live parts and earthed accessible parts	There is a basic Insulation available on the units	P
	Capacitors bridging basic insulation complying with 14.2.1 a)	No Capacitor bridging	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
8.6	Class II equipment and Class II constructions within Class I equipment		
	Reinforced or double insulation between hazardous live parts and accessible parts	Only Basic Insulation is used	NA
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3	Only Basic Insulation is used	NA
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)	Only Basic Insulation is used no bridging by a capacitor	NA
	Reinforced or double insulation being bridged with 2 capacitors in series complying with 14.2.1 a)	Only Basic Insulation is used	NA
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1 b)	Only Basic Insulation is used	NA
	Basic insulation bridged by components complying with 14.3.4.3	Only Basic Insulation is used	NA
8.7	<i>This sub-clause is void</i>		
8.8	Double Insulation: the Basic or Supplementary insulation > 0,4 mm (mm) .....	Only Basic Insulation is used	NA
	Reinforced insulation > 0,4 mm (mm) .....	<b>Only Basic Insulation is used</b>	NA
	Thin sheet insulation used inside the enclosure.	No such mean is used	NA
	Basic or supplementary insulation, at least two layers, each meeting 10.3 dielectric	Only Basic Insulation is used and it pass the dielectric test	P
	Basic or supplementary insulation, three layers any two of which meet 10.3 dielectric	Only Basic Insulation is used	NA
	Reinforced insulation, two layers each of which meet 10.3 dielectric	Only Basic Insulation is used	NA
	Reinforced insulation, three layers any two which meet 10.3 dielectric	Only Basic Insulation is used	NA
8.9	Primary Wiring: Adequate insulation between internal hazardous live conductors and accessible parts	Internal wiring made of PVC needs to be 0.4mm thick. Can use a PTFE insulation having a thickness of at least 0.24mm. Units are using 20 AWG PVC wiring	P
	Secondary Wiring: Adequate insulation between internal hazardous live parts and conductors connected to accessible parts	See above	P
8.10	Class II Wiring: (1) Primary: Double insulation between conductors connected to the mains and accessible parts. (2) Secondary: Double insulation between conductors connected to accessible parts and the mains	Not a Class II apparatus	NA
8.11	Detaching of wires		
	No undue reduction of creepages or clearance distances if wires become detached	There is no risk of wiring becoming detached. Internal wiring is safely secured inside the unit. Wiring is not subject to strain	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
	Vibration test carried out .....	Vibration Test per clause 12.1.2 was performed to verify compliance, and was found to comply with the requirements of the standard. Refer to test report G100094189GRR-001 present on file folder	P
8.12	<i>This sub-clause is void</i>		NA
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)	There screws that fasten the vent screens and components area also fasten by screws as well	P
8.14	Adequate fastening of covers (pull test 50 N for 10 s)	See above	P
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges (2N force)	No damage to insulation	P
8.16	Only special supply equipment can be used	No special supply equipment used	NA
8.17	Insulated winding wire without additional interleaved insulation	Wires are insulated	P
8.18	Endurance test as required by 8.17	No cycling test is required	NA
8.19	Disconnection from the mains	There is a power supply the connects the main to the unit	P
8.19.1	Disconnect device	There's a mains plug and appliance coupler	P
	All-pole switch or circuit breaker with >3mm contact separation	No CB is used	NA
8.19.2	Mains switch ON indication	There's a power switch but there's No Main Switch ON indication on units. However, there's an illumination for the ON switch.	P
8.20	Switch not fitted in the mains cord	No switch fitted on the main cord	NA
8.21	Bridging components comply with clause 14	No bridging components on this unit	NA
8.22	Test of non-separable thin sheet material	No such means used	NA

<b>9</b>	<b>ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS</b>		
9.1	Testing on the outside		
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	Testing per this clause was conducted. All Output terminals were tested to determine if hazardous voltages exist. Test results are compliant. Refer to test tables	P
9.1.1.1	a) Determination of Hazardous Live parts	Refer to clause 9.1.1	P
	b) Touch current measured from terminal devices using the network in annex D .....		NA
	c) Discharge not exceeding 45 µC		NA
	d) Energy of discharge not exceeding 350 mJ		NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
9.1.1.2	Test with test finger and test probe	Finger probe was able to access the interior of the unit from the bottom of the grid; which gave access to the tubes, capacitors and Transformers. Manufacturer replied by submitting a modified sample of the back grid. The modified sample does not allow for access to the probe to any live parts. Photos of the modified equipment have been submitted and are present at the end of this report.  Compliant	P
9.1.2	No hazardous live shafts of knobs, handles or levers	No hazardous knobs, handles or levers exists on this unit (verified by testing)	P
9.1.3	Ventilation holes tested by means of 4 mm x 100 mm test pin	It passed the test pin test. Holes are measured about 3.66mm	P
9.1.4	Terminal devices - within 25mm tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No terminal device on this unit	NA
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	See above	NA
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No such means	NA
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s :	See below	P
	If C is not greater than 0,1 $\mu$ F no test needed	Tested results is 1.097nF (0.001097 $\mu$ F) by LCR001, Cal. Due Date 1/17/12	P
9.1.7	Enclosure sufficiently resistant to external force	The enclosure in made of the aluminium metal	P
a)	Test probe 11 of IEC 61032 for 10 s (50 N)	No access to live parts possible. Refer to clause 9.1.1.2	P
b)	Test hook of fig. 4 for 10 s (20 N)	No such means	NA
c)	Conductive enclosure: 30 mm diameter test tool for 5 s (100 or 250 N) .....	Test per clause 19.1 and 19.2 was conducted with compliant results. Refer to test data	P
9.2	No hazard 2s after removing a cover by hand	No cover to be removed on this unit	NA
<b>10</b>	<b>INSULATION REQUIREMENTS</b>		
10.1	Insulation resistance (M $\Omega$ ) at least 2 M $\Omega$ min. after surge test for basic and 4 M $\Omega$ min. for reinforced insulation .....	More than 2 M $\Omega$	P
10.2	Humidity treatment 48 h or 120 h .....	All approved components used.	NA
10.3	Insulation resistance and dielectric strength between mains terminals	Insulation Resistance and Dielectric Strength Test was conducted with compliant results. Refer to test data	P
	Insulation resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class 1)	See above	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
	Insulation resistance across REINFORCED insulation (Class II)	No such means	NA

11	FAULT CONDITIONS		
11.1	No shock hazard under fault condition	Fault conditions testing was performed and found compliant. Refer to test data.	P
11.2	Heating under fault condition	No heating	P
	No hazard from softening solder	See above	P
	No flaming more than 10s	See above	P
	Soldered terminations not used as protective mechanism	See above	P
11.2.1	Measurement of temperature rises	See test table	NA
11.2.2	Temperature rise of accessible parts	See above	NA

11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	See test table	NA
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min	See above	NA
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm <sup>2</sup>	See above	NA
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm <sup>2</sup> for a maximum of 5 min	See above	NA
	Meets all the special conditions if conductors on printed circuit boards are interrupted	See above	NA
	Class I protective earthing maintained	Class I unit	P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	No such means	NA
11.2.5	Temperature rise of windings	No such means	NA
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5 Table 3 e) "Other Parts"		NA



## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
<b>12</b>	<b>MECHANICAL STRENGTH</b>		
12.1.1	Bump test where mass >7 kg	The unit was placed on a horizontal wooden support, and was let fall 50 times from a height of 5 cm. onto a wooden table. No damage was noted. Unit functioned correctly afterwards Test Date: 05/27/2011 Equipment Used: Barometer: HT024- Cal. Due date: 03/21/2012 Test conditions: 18.5°C, 76% RH	P
12.1.2	Vibration test (portable, metal, musical amps)	Vibration Test per clause 12.1.2 was performed to verify compliance, and was found to comply with the requirements of the standard. Refer to test report G100094189GRR-001 present on file folder	P
12.1.3	Impact hammer test	Impact Test was performed and complies with the requirements of the standard. Steel ball of 50 mm. in diameter, 500g, fell freely through a vertical distance and stroke the enclosure 3 times. No damage was noted. No hazardous live parts became accessible. No visible cracks noted. Test Date: 05/27/2011 Test conditions: 18.5°C. 76% RH Test Equipment used: Barometer: HT024, Cal. Date 03/21/2012 Steel Ball- SB007 – Cal. Date 07/22/2013`	P
	Steel ball test (for non-ventilated solid areas)	See above	P
12.1.4	Drop test for portable apparatus where mass = 7 kg	Unit weighs 14 kg. Weighed with Calibrated scale with ID# SC002, with a cal. Due date of 05/18/2012	NA
12.1.5	Thermoplastic enclosures stress relief test	The enclosure is made of Birch plywood	NA
12.2	Fixing of knobs, push buttons, keys and levers	No knobs, push buttons or levers does not impair the protection against electric shock	NA
12.3	Remote controls with hazardous live parts	No remote control on this unit	NA
12.4	Drawers (pull test 50 N, 10 s)	No drawer on this unit	NA
12.5	Antenna coaxial sockets providing isolation	No antenna on this unit	NA
12.6	Telescoping or rod antennas construction	No telescoping or antennas	NA
12.6.1	Telescoping or rod antennas securement	No telescoping or antennas	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

13	<b>CLEARANCE AND CREEPAGE DISTANCES</b>		
13.1	Clearances in accordance with 13.3	See test table	P
	Creepage distances in accordance with 13.4	See test table	P
13.2	Determination of operating voltage	The operating voltage of the unit was measured at a maximum of 230 VAC line voltage and 580 VAC at secondary of Mains transformer. Clearance and creepage requirements per these voltages were applied.	P
13.3	Clearances	See test table All measurements made with Calibrated callipers ID# CL016, cal date 04/01/2012	P
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9		NA
13.3.3	Circuits not conductively connected to the mains comply with table 10		NA
13.3.4	Measurement of transient voltages	No such means	NA
13.4	Creepage distances	See test table	P
	Creepage distances greater than table 11 minima	See above	P
13.5	Printed boards		-
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10	Components on PCB are all from low voltage circuitry	NA
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)	No Coating exists on circuit board	NA
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	See above	NA
	Conductive parts along reliably cemented joints comply with 8.8	See above	NA
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12	See above	NA
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	No insulating compound on circuit board	NA

14	<b>COMPONENTS</b>		
14.1	Resistors		-
	a) Resistors between hazardous live parts and accessible metal parts	Resistors are not inline resistors, and not require to be Approved components	NA
	b) Resistors, other than between hazardous live parts and accessible parts	See above	NA
	Resistors separately approved .....	No	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
14.2	Capacitors and RC units		-
	Capacitors separately approved	No, Capacitors are electrolytic capacitors and not required to be approved components. Only capacitors approved are as stated in clause 14.2.5	NA
14.2.1	Y capacitors tested to IEC 60384-14, 2 <sup>nd</sup> edition ... :	Y1 Y2	NA
14.2.2	X capacitors tested to IEC 60384-14, 2 <sup>nd</sup> edition ... :	X1 X2	NA
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....		
14.2.5 a)	Capacitors with volume exceeding 1750 mm <sup>3</sup> , where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better .....	Yes capacitor is compliant with IEC 60384-1	P
b)	Capacitors with volume exceeding 1750 mm <sup>3</sup> , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60 384-1, 4.38 category B or better .....	It exceeds the 50mm limit in the upward direction and 13 mm from sideways dimension	P
	Shielded by a barrier per Table 21 .....	No	NA
14.3	Inductors and windings		NA
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		
14.3.1	Transformers and inductors marked with manufacturer's name and type .....	Code numbers are provided for all transformers, which are internal to the unit	P
	Transformers and inductors separately approved .. :	Yes/No	NA
14.3.2	General		
14.3.3	Constructional requirements (complete appended tables or include manufacturers constructional insulation descriptions)	No winding on this unit	NA
14.3.3.1	Clearances and creepage distances comply with clause 13	See test table	NA
14.3.3.2	Transformers meet the constructional requirements	Transformers are unapproved components. Transformers were tested as part of the complete end product. They comply with normal and abnormal testing. Construction of transformer is done with NRTL approved insulation. Construction was verified.	P
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)	No Class II Transformers	NA
	Coil formers and partition walls = 0,4 mm	See above	NA
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met	Refer to 14.3.3.2	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
14.3.4.3	Separating transformers with at least basic insulation	Reinforced insulation used in Transformers	P
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	Not Class II Xfmrs	NA
	Coil formers and partition walls = 0,4 mm	See above	NA
14.3.5.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal	Refer to 14.3.3.2	P
	Winding wires connected to protective earth have adequate current-carrying capacity	No windings	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
14.4	High voltage components		-
	High-voltage components and assemblies: U > 4 kV (peak) separately approved	No such high voltage components (see appended table)	
	Component meets category V-1 of IEC 60707	Not a high voltage Unit- See above	NA
14.4.1	High voltage transformers and multipliers tested as part of the submission	See above	NA
14.4.2	High voltage assemblies and other parts tested as part of the submission	See above	NA
14.5	Protective devices		-
	Protective devices used within their ratings	Protective device used in the unit is a fuse that is rated at 1A, 250 V. Results of the input test confirm that the fuse is used within its ratings. Compliant	P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	Fuse and fuseholder are NRTL approved devices which conform to the requirements of their individual component standards for creepage and clearance	P
14.5.1.1	a) Thermal cut-outs separately approved	No thermal cutouts	NA
	b) Thermal cut-outs tested as part of the submission	See above	NA
14.5.1.2	a) Thermal links separately approved	No thermal links	NA
	b) Thermal links tested as part of the submission	See above	NA
14.5.1.3	Thermal devices re-settable by soldering	See above	NA
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	Refer to clause 14.5	P
14.5.2.2	Correct marking of fuse-links adjacent to holder ... :	Rating of the fuse in A and Volts is provided as a marking. Refer to clause 14.5 above. Marking is present on ratings plate	P
14.5.2.3	Not possible to connect fuses in parallel .....	Only 1 fuse, impossible to misconnect	NA
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool .....	NRTL approved fuseholder	P
14.5.3	PTC-S thermistors comply with IEC 60730-1	No such devices used for safety	NA
	PTC-S devices (15 W) category V-1 or better	See above	NA
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked	Protective device already addressed in 14.5	NA
14.6	Switches	ON/OFF and standby Switch rating exceeds the rating of the total current consumption of the apparatus. Switch is an NRTI approved device suitable to its intended use and used within its ratings. Refer to input test data and component information table	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
14.6.1 a)	Separate testing to IEC 61058 including: 10 000 operations Normal pollution suitability Resistance to heat and fire level 3 V-0 compliance with annex G, G.1.1 and Peak inrush rating of switch Measured/calculated inrush.....:	ON/OFF and standby Switch used on these units is rated for a minimum of 6K endurance operation test per the IEC 61058-1	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
14.6.1 b)	Tested in the apparatus:		P
	Switch controlling > 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.3, 14.6.4 and V-0 in annex G, G.1.1	ON/OFF and standby Switch has been tested as part of the complete end product and is an NRTL approved component suitable for its intended use and used within its ratings	P
	Switch controlling > 0.2A with open contact voltage < 35 V (peak)/24 V dc complying with 14.6.3 and V-0 in annex G, G.1.1	See above	P
	Switch controlling = 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.4 and V-0 in annex G, G.1.1	See above	P
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation	See above	P
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d), l) and m) not attaining excessive temperatures in use	See above	P
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength	See above	P
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1	Switch does not control any Mains socket outlets	NA
	Socket outlet current marking correct		NA
14.7	Safety interlocks		-
	Safety interlocks to 2.8 of IEC 60950	No Safety interlocks	NA
14.8	Voltage setting devices		-
	Voltage setting device not likely to be changed accidentally	No Voltage setting devices	NA
14.9	Motors		NA
14.9.1	Endurance test on motors	No endurance or cycle test- No Motor	NA
	Motor start test	See above	NA
	Dielectric strength test	See above	NA
14.9.2	Not adversely affected by oil or grease etc.	No such means	NA
14.9.3	Protection against moving parts	All components are enclosed	NA
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950, Annex B	No such means	NA
14.10	Batteries		-
14.10.1	Batteries mounted with no risk of accumulation of flammable gases	No batteries used	NA
14.10.2	No possibility of recharging non-rechargeable batteries	See above	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
14.10.3	Recharging currents and times within manufacturers limits	See above	NA
	Lithium batteries discharge and reverse currents within the manufacturers limits	See above	NA
14.10.4	Battery mould stress relief	See above	NA
14.10.5	Battery drop test	See above	NA
14.11	Optocouplers		-
	Optocouplers comply with Cl. 8	No optocoupler is used on this unit	NA
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)	See above	NA
14.12	Surge suppression varistors		-
	Comply with IEC 61051-2	No varistors is used on this unit	NA
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus	See above	NA
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12	See above	NA
<b>15</b>	<b>TERMINALS</b>		
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the cross-sectional area specified in 16.2 for ext. cords	Unit uses an NRTL approved appliance inlet as well as an approved powercord which comply with the requirements of the standard.  Refer to component information table for 4 component details	P
15.1.2	Connectors for antenna, earth, audio, video or data:		P
	No risk of insertion in mains socket-outlets	Connectors are speaker, guitar and foot input and output connectors which are widely used in industry standards. Connection to Mains through this connectors is highly unlikely, unless intentional	P
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2	No risks of misconnection to Mains. All outputs and inputs are clearly marked Refer to clause 5.2	P
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	All inputs and outputs are clearly marked, and are not compatible with Mains outlets	P
15.2	Provision for protective earthing		P
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	Unit use an NRTL approved appliance inlet which contains provisions for protective earth connections. The inlet in turn is mechanically connected onto all accessible metal parts by means of a bolt, starwashers and nuts.	P



## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
	Protective earth conductors correctly coloured	Green coloured conductors used for internal Earthing	P
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input	Detachable cord connected	NA
	Earthing connection of parts removable by hand.	No parts removable by hand	NA
	Protective earth terminal resistant to corrosion	No earth terminal external to equipment which requires to be corrosion protected.	NA
	Earth resistance test: < 0,1 $\Omega$ at 25 A .....	<p>Test is required and was conducted.</p> <p>Test current: 30 A.</p> <p>Time: 1 minute</p> <p>Resistance measured: 0.079302 <math>\Omega</math></p> <p>Voltage drop (calculated): 2.37 V</p> <p>No damage to Earth Conductors noted.</p> <p>Test Conditions: 25°C, 34% RH</p> <p>Test Date: 10/11/2011</p> <p>Equipment used:</p> <p>Barometer – BAR002- 07/11/2012</p> <p>Ground Bond Tester- GI006- Cal. date 05/25/2012</p> <p>Stopwatch- SW012 01/19/2012</p> <p>Compliant.</p>	P
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		NA
15.3.1	Adequate terminals for connection of permanent wiring	Not for permanent connection to the Mains supply. Unit is detachable cord connected	NA
15.3.2	Reliable connection of non-detachable cords:		NA
	Not soldered to conductors of a printed circuit board	No such means	NA
	Adequate clearances and creepage distances between connections should a wire break away	See above	NA
	Wire secured by additional means to the conductor	See above	NA
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar	No such means	NA
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means	No such means	NA
	Clamping of conductor and insulation if not soldered or held by screws	See above	NA
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment	See above	NA
15.3.6	Terminals to 15.3.3 have sizes required by table 16	See above	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
15.3.7	Terminals clamp conductors between metal and have adequate pressure	See above	NA
	Terminals designed to avoid conductor slipping out when tightened or loosened	See above	NA
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided	See above	NA
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic	See above	NA
15.3.9	Termination of non-detachable cords: wires terminated near to each other	See above	NA
	Terminals located and shielded: test with 8 mm strand	See above	NA
15.4	Devices forming a part of the mains plug		NA
15.4.1	No undue strain on mains socket-outlets	Mains Appliance inlet is an NRTL approved component. Cord and inlet are not subjected to undue strain for detachable cord connected equipment	NA
15.4.2	Device complies with standard for dimensions of mains plugs	See above	NA
15.4.3	Device has adequate mechanical strength (tests a,b,c)	See above	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

16	<b>EXTERNAL FLEXIBLE CORDS</b>		
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .....	Mains powercord needs to comply with IEC 60227 or IEC 60245. Refer to Mains Powercord on component information table for cord details.	P
	Non-detachable cords for Class I have green/yellow core for protective earth	Cord is detachable	NA
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	Cord is AWG 18 (0.82 mm <sup>2</sup> ), which complies with table 18 for a maximum current draw of 1A	P
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength	Cord complies with 16.1	NA
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)	See above	NA
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions	See above	NA
16.5	Adequate strain relief on external flexible cords	No strain relief required for detachable cord connected unit	NA
	Not possible to push cord back into equipment	See above	NA
	Strain relief device unlikely to damage flexible cord	See above	NA
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor	See above	NA
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use	NRTL approved appliance inlet and cords	NA
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1	Appliance inlet is NRTL approved	P
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord	Detachable cord used	P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

17	<b>ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS</b>		
17.1	Torque test to table 20:		P
	- screws into metal: 5 times	Screws were loosen and tightened 5 times	P
	- screws into non-metallic material: 10 times	No applicable	NA
17.2	Correct introduction into female threads in non-metallic material	No applicable	NA
17.3	Cover fixing screws: captive	No such screws to fix covers, legs stands or the like that affect safety	NA
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	No applicable	NA
17.4	No loosening of conductive parts carrying a current > 0,2 A	No applicable	NA
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	No applicable	NA
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder	No applicable	NA
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous	No applicable	NA
17.8	Fixing devices for detachable legs or stands provided	No applicable	NA
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected	No applicable	NA

18	<b>MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		
	Picture tube separately approved to IEC 61965:	No such picture tubes	NA
	Picture tube separately approved to 18.1 .....	See below	NA
18.1	Picture tubes > 16 cm intrinsically protected	No applicable	NA
	Non-intrinsically protected tubes > 16 cm used with protective screen	See above	NA
18.2	Intrinsically protected tubes: tests on 12 samples	No applicable	NA
18.2.1	Samples subject to ageing: 6	No applicable	NA
18.2.2	Samples subject to implosion test: 6	No applicable	NA
18.2.3	Samples subject to mechanical strength test (steel ball): 6	No applicable	NA
18.3	Non-intrinsically protected tubes tested to 18.3	No applicable	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

<b>19 STABILITY AND MECHANICAL HAZARDS</b>			
	Mass of the equipment exceeding 7 kg .....	Equipment weighs 14 kgs. Testing per 19.1 and 19.2 was conducted and found compliant to the requirements of the standard.	P
	Apparatus intended to be fastened in place – suitable instructions	No applicable	NA
19.1	Test on a plane, inclined at 10° to the horizontal	Unit was placed inclined at an angle of 10° to the horizontal. Unit was also rotated slowly through an angle of 360° around its vertical axis. Unit did not tip over. No hazards noted Test date: 10/06/2011 Test Conditions: 24.5°C. 45%RH Test equipment used: Barometer HT024- Cal. due date: 03/21/2012 Angle Meter- ANG003- Cal. due date: 09/06/2012	P
19.2	100 N force applied vertically downwards	A force of 100N was applied directed vertically onto the top of the enclosure. Unit did not tip over or fell sideways. No hazards noted. Test date: 10/06/2011 Test Conditions: 24.5°C. 45%RH Test equipment used: Barometer HT024- Cal. due date: 03/21/2012 Force Gauge- FG009- Cal. due date: 01/18/2012	P
19.3	Apparatus mass > 25 kg or height > 1 M or supplied with cart or stand. Topple test.	Unit weighs less than 25 kg. Weighed with calibrated scale- SC002 Cal. Date 05/18/2012. Test is not applicable	NA
19.4	Edges or corners not hazardous	Edges and corners are rounded by the means of metallic protectors	P
19.5	Glass surfaces with an area exceeding 0,1 m <sup>2</sup> or maximum dimension > 450 mm, pass the test of 19.5.1	No glass surfaces needed to be tested	NA
19.6	Wall or ceiling mountings adequate	Not for wall or ceiling mount	NA
<b>20 RESISTANCE TO FIRE</b>			
20.1	Electrical components and mechanical parts		P

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width	The component outside enclosure is made of Birch plywood and the housing of live parts and critical components is made of aluminum metal and enclosure is suitable for containing any fire with in the unit. Ventilation openings comply with industry minimum standards (3.66 mm by CL016, Cal. due date 4/1/12)	P
	b) Exemption for small components as defined in 20.1 mounted on a board of flammability category of V-1 to IEC 60695-11-10	See above	NA
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	See above	NA
20.1.2	Insulation of internal wiring working at voltages > 4 Kv or leaving an internal fire enclosure, not contributing to the spread of fire	See above	NA
20.1.3	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC60707, unless used in a fire enclosure	The PCB is rated for V-0 and also protected by an aluminum enclosure.	P
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707	See above	NA
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21	See above	NA
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13	See above	NA
	Apparatus with voltages > 4 kV under normal conditions, and distances to enclosure exceed those specified by Table 21, HB40 min enclosure	See above	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
20.2	Fire enclosure		-
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1	No open circuit voltage that exceeds 4kV . Refer to test data sheets	NA
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled	See above	NA
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure	See above	NA

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

<b>A</b>	<b>ANNEX A, ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER</b>		
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply	Not for outdoor use	NA
A.10.2.1	Enclosure provides protection against splashing water		NA
A.10.2.2	Humidity treatment carried out for 7 days		NA

<b>B</b>	<b>ANNEX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS</b>		
	Complies with IEC 62151 clause 1	Not for connection to telecommunications network	NA
	Complies with IEC 62151 clause 2	See above	NA
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard	See above	NA
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard	See above	NA
	Complies with IEC 62151 clause 5 but with 5.3.1 modified in accordance with annex B of this standard	See above	NA
	Complies with IEC 62151 clause 6	See above	NA
	Complies with IEC 62151 clause 7	See above	NA
	Complies with IEC 62151 annex A, B and C	See above	NA

<b>L</b>	<b>ANNEX L, ELECTRONIC FLASH APPARATUS FOR PHOTOGRAPHIC PURPOSES</b>		
L.5.4	Battery chargers and supply apparatus marked with model number.	No flash or photographic equipment	NA
L7.1.5	Lithium batteries: temperature rise (Normal)	See above	NA
L.9.1.1	Flash synchroniser terminals not hazardous live.	See above	NA
L.11.2.6	Lithium batteries: temperature rise (Fault).	See above	NA
L.14.6.6	Peak surge current and rated mains current not to exceed mains switch current rating	See above	NA



## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

<b>7.1</b>	<b>TABLE: temperature rise measurements / Ratings verification Test: Conditions</b>		P
	Power consumption in the OFF/Stand-by.....:	NA	—
	Position of the functional switch (W) .....	NA	—

Cond.	Un (V)	Hz	In (A)	Pn (W)	V out	Pout (W)	Operating Condition
Normal Operation	207 VAC	50	0.606	112.5	NA	26 W load	-10% of rated voltage value
	230 VAC	50	0.697	142.5	NA	26 W load	Rated voltage value
	253 VAC	50	0.799	177.3	NA	26 W load	+10% of rated voltage value

A 1Khz signal was applied at the input of the amplifier. Signal had an amplitude of 500mV peak.

Loaded at 1/8 of rated value: 26 W load (at the 4Ω speaker Output)

ZA-5 model tested.

Test Date: 10/11/2011

Test conditions: 25.314°C, 34% RH

Equipment Used:

Barometer: BAR002- Cal. Due date: 07/11/2012

Digital Power Meter: CM002- Cal. Due date: 05/25/2012

AC Power Supply: AC/PS002- Cal. Due date: 01/17/2012

Digital Power Meter: PM001- Cal. Due date: 07/22/2012

Wave Signal Generator: WG002- Cal. Due date: 03/07/2012

Digital Multimeter: MM011- Cal. Due Date: 01/06/2012

All Electrical Tests were conducted at 253 VAC due to highest Wattage consumption.

	Loudspeaker impedance (Ω) .....	4 Ω output was tested	—
	Several loudspeaker systems	3 output ports, 4, 8 and 16 Ohms	P
	Marking of loudspeaker terminals	Present	P

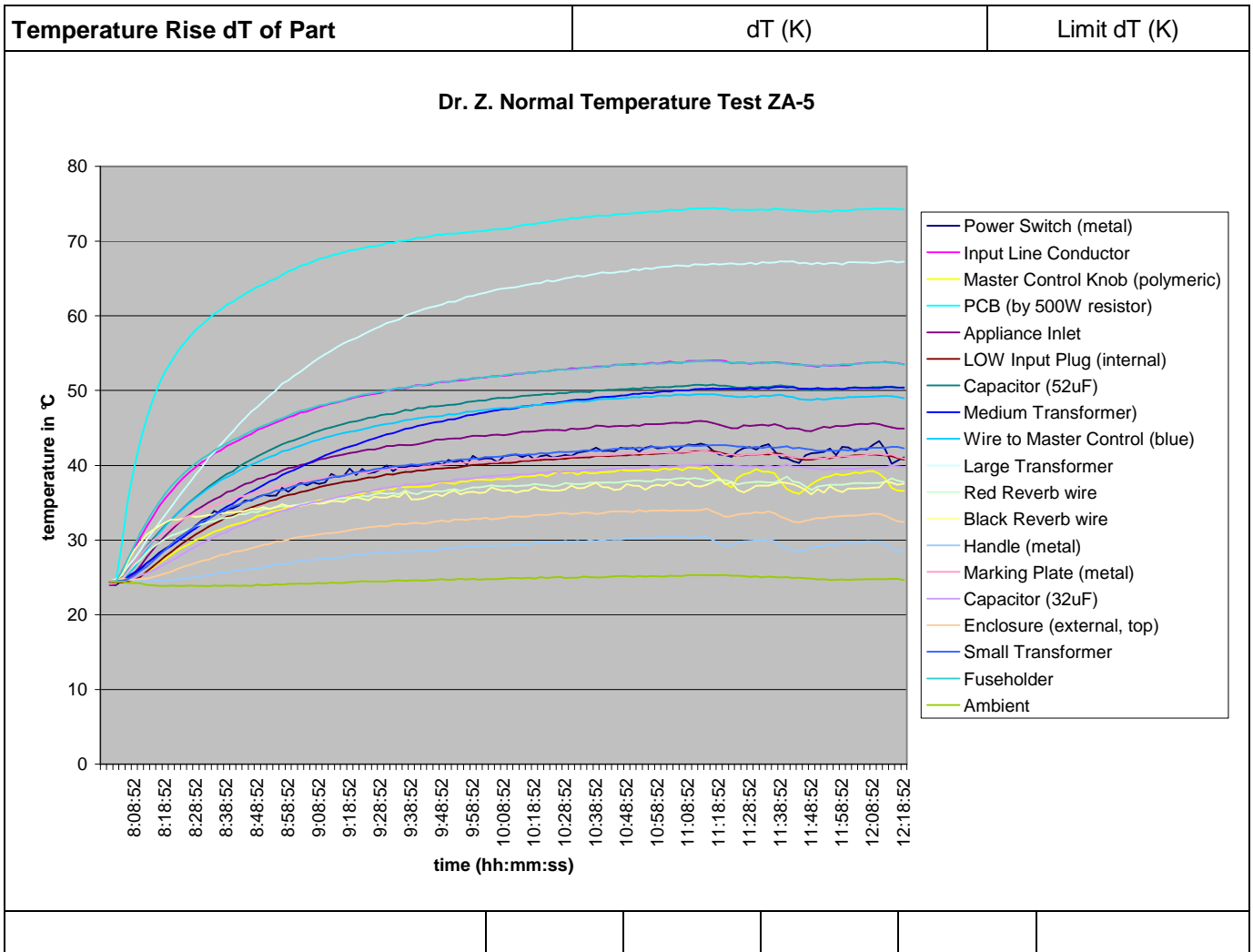
IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Temperature Rise dT of Part	dT (K)			Limit dT (K)	
	Max Temp Rise Measured	Adjusted Temp. Rise (35°C)			
Thermocouple Location					
Power Switch (metal)	17.937	27.623			30
Input Line Conductor	28.715	38.401			60
Master Control Knob	14.478	24.164			50
PCB (by 500W resistor)	49.131	58.817			95
Appliance Inlet	20.599	30.285			60
LOW Input Plug (internal)	16.604	26.29			60
Capacitor (52uF)	25.492	35.178			60
Output Transformer	25.182	34.868			75
Wire to Master Control (blue)	24.209	33.895			60
Power Transformer	42.019	51.705			75
Red Reverb Wire	13.172	22.858			60
Black Reverb Wire	12.945	22.631			60
Handle (metal)	5.218	14.904			30
Marking Plate (metal)	16.541	26.227			40
Capacitor (32uF)	14.867	24.553			60
External enclosure top	8.888	18.574			60
Reverb Transformer	17.394	27.08			75
Fuseholder	28.654	38.34			60
Ambient	25.314	35			-
Winding temperature rise measurements					
Ambient temperature t1 (°C) .....	25.314			—	—
				—	—

IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------



## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

<b>9.1</b>	<b>Shock Hazard</b>		P
	Under normal operating conditions: Does not exceed 35Vpk ac / 60V dc		P

## CLASS I: (single phase)

Part Tested (Outputs)	AC (V)	DC (mV)
Foot Switch	0.0089	0.1
Send	0.0015	0.1
Return	0.149	1.0
Output 4Ω	0.0977	0.2
Output 8Ω	0.1384	0.2
Output 16Ω	0.1972	0.1
Input HIGH	0.0458	5.0
Input LOW	0.0135	0.5

Test Date: 10/07/2011

Test conditions: 25°C, 42% RH

Equipment Used:

Barometer: BAR002- Cal. Due date: 07/11/2012

AC Power Supply: AC/PS002- Cal. Due date: 01/17/2012

Digital Power Meter: PM001- Cal. Due date: 07/22/2012

Digital Multimeter: MM011- Cal. Due Date: 01/06/2012

All Electrical Tests were conducted at 253 VAC due to highest Wattage consumption.

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

10.3	TABLE: Insulation Resistance Measurements	P
Insulation resistance R between:	R (M $\Omega$ )	Required R (M $\Omega$ )
Between mains poles (primary fuse disconnected)	>2	2
Between parts separated by basic or supplementary insulation	>2	2
Between parts separated by double or reinforced insulation	NA	NA

Test Date: 05/27/2011

Test conditions: 18.5°C, 76% RH

Equipment Used:

Equipment Type	Equipment #	Cal. Due Date
Insulation Resistance Meter	IR003	1/19/12
Temp and Humidity	HT024	3/21/12

10.3	TABLE: Electric Strength Measurements	P
Test voltage applied between:	Test voltage (V)	Breakdown
Mains poles (primary fuse disconnected)	2120 VAC	No
Line and Neutral Shorted with respect to Ground	2120 VAC	No
Between Primary and Secondary of the Mains transformer (at the Mains inlet with respect to the input terminals of vacuum tube)	3000 VAC	No
Test Date: 10/11/2011 Test conditions: 25.314°C, 42% RH Equipment Used: Barometer: BAR002- Cal. Due date: 07/11/2012 Hipot Tester: HP019- Cal. Due date: 07/25/2012 Stopwatch: SW012- Cal. Due date: 01/19/2012 Tested for 60 seconds dwell, 10 seconds ramp.		

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

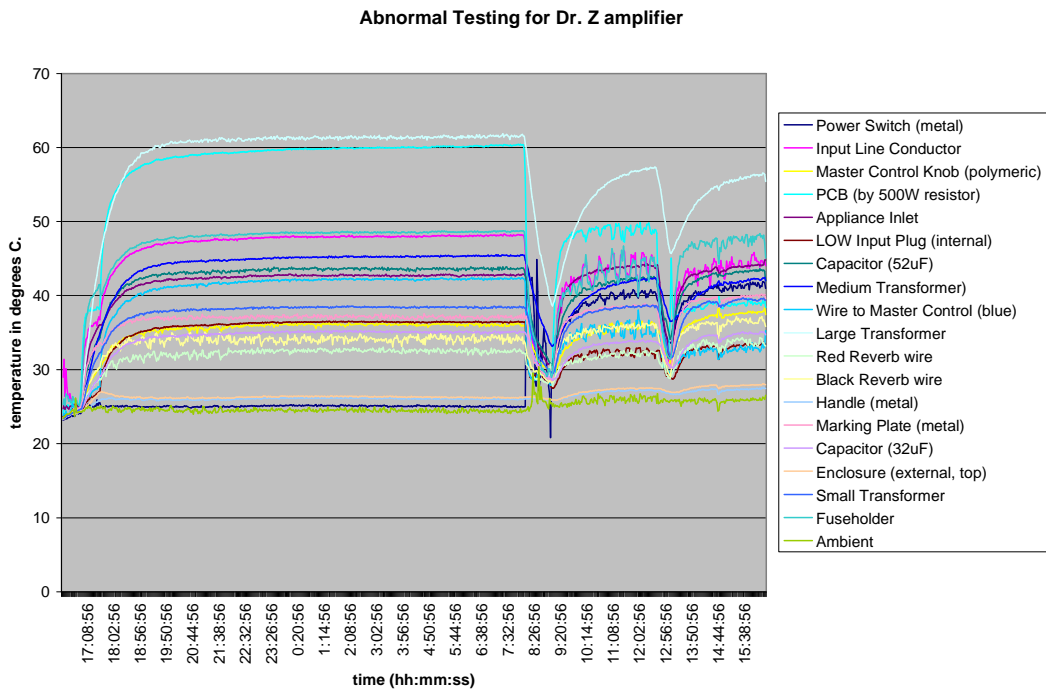
11.2	TABLE: summary of fault condition tests		P
	Voltage (V) 0,9 or 1,1 times rated voltage .....	1,1 times: 253 VAC	—
	Frequency (Hz).....	50	—
	Ambient temperature (°C) .....	30.36	—

No	Component	Fault	Temp Rise/ Component	Other results (include description and test duration)
1	Power Transformer	Short Secondary	31.485	Upon shorting the secondary of the power transformer, the Mains fuse blew immediately; cutting the power to the unit; and effectively ending the test.
2	Output Transformer	Short Secondary	15.160	Shorting the secondary of the output transformer effectively shorts all outputs of the unit (4, 8, 16, Ohm Speaker outputs). The temperatures obtained during the test never exceeded the limits of Table 3 under Fault conditions  Test ran from 16:55 hrs on 10/12 through 8:00 hrs on 10/13.  No hazards observed
3	Reverb Transformer	Short Secondary	9.329	No hazards observed.  Test ran from 09:00 hrs on 10/13 through 12:15 hrs on 10/13
4	Blue Capacitor (52uF)	Short	13.495	No hazards observed.  Test ran from 13:00 hrs on 10/13 through 16:20 hrs on 10/13

IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Abnormal Temperature Chart: (temperatures shown are actual temperatures in degrees C.)



Abnormal Temperature Rise dT of Parts	dT (K)			Limit dT (K)
	Thermocouple Location	Max Temp Rise Measured	Adjusted Temp. Rise (35°C)	
Power Switch (metal)	14.499	19.133	65	
Input Line Conductor	17.926	22.56	100	
Master Control Knob	8.067	12.701	65	
PCB (by 500W resistor)	30.077	34.711	150	
Appliance Inlet	14.45	19.084	100	
LOW Input Plug (internal)	6.167	10.801	100	
Capacitor (52uF)	13.495	18.129	100	
Output Transformer	15.16	19.794	75	
Wire to Master Control (blue)	12.018	16.652	60	
Power Transformer	31.485	36.119	130	
Red Reverb Wire	3.955	8.589	100	
Black Reverb Wire	6.83	11.464	100	
Handle (metal)	0	1.807	65	
Marking Plate (metal)	9.808	14.442	65	
Capacitor (32uF)	4.914	9.548	100	
External enclosure top	0	2.349	65	
Reverb Transformer	9.329	13.963	130	
Fuseholder	18.416	23.05	100	
Ambient	0	4.634	-	
IEC60065F	34	56	ASTABEAB	

Winding temperature rise measurements				
Ambient temperature t1 (°C) .....	25.314			

IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Abnormal Test conditions:

A 1Khz signal was applied at the input of the amplifier. Signal had an amplitude of 500mV peak.

ZA-5 model tested.

Test Date: 10/12/2011 to 10/13/2011

Test conditions: 25.316°C, 41% RH

Equipment Used:

Barometer: BAR002- Cal. Due date: 07/11/2012

Digital Power Meter: CM002- Cal. Due date: 05/25/2012

AC Power Supply: AC/PS002- Cal. Due date: 01/17/2012

Digital Power Meter: PM001- Cal. Due date: 07/22/2012

Wave Signal Generator: WG002- Cal. Due date: 03/07/2012

Digital Multimeter: MM011- Cal. Due Date: 01/06/2012

All Electrical Tests were conducted at 253 VAC due to highest Wattage consumption.




## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

13	TABLES: clearances and creepage distances				P
Rated supply voltage:	230 VAC	Pollution degree:	2	Material Group:	IIIb (assumed)
2 N force on internal parts applied:				NA	
30 N force on outside of conductive enclosure applied:				NA	

Location	Operating Voltage		Clearance (mm)		Creepage (mm)	
	V rms	V peak	Min	Actual	Min	Actual
Circuits conductively connected to the mains (use Tables 8, 9 and 11): see note below.						
Between terminals at front light display	2 VAC	-	2.0 mm	3.95 mm	1.2 mm	4.76 mm
Between 2 points at the vacuum tubes	43 VAC	-	2.0 mm	2.3 mm	1.2 mm	2.90 mm
Secondary of the Mains Transformer at the vacuum tube terminals	580 VAC	-	2.0 mm	7.85 mm	6.3 mm	9.47 mm

**Notes:**

- Secondary circuits of Class II apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9.
- Floating secondary circuits of Class I apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9 unless the floating secondary circuit is separated from the primary circuits by an earthed metal screen (e.g. in the power transformer), or the floating secondary circuit is connected to earth via a component such as a capacitor.
- For insufficient clearances and creepage distances from secondary to secondary circuits and from secondary circuits to earth, see Cl. 4.3.1, 4.3.2 and 11.2.
- If the minimum creepage distance in Table 11 is less than the minimum required clearance in Tables 8, 9 or 10 as required, then the value for clearance is used as the minimum creepage distance .

"Min" = minimum required.

"Actual" = Actual dimensions measured.

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

14	TABLE: list of critical components and materials				P
Object/Part No.	Manufacturer /Trademark	Type/Model	Technical Data <sup>2)</sup>	Standard	Mark(s) of Conformity <sup>1)</sup>
Enclosure	Various	Various	Birch Wood construction. 19 mm. thick. Overall dimensions 50 cm by 24 cm by 25 cm.	IEC 60065	Tested as part of the complete end product
Power/ Standby Switches	Carling	1112 R	Rated 3A, 250V, 6A, 125V. Mechanically secured onto enclosure by nuts and washers	IEC 60065	Tested as part of the complete end product
Reverb Transformer	Schumacher Electric Corp.	5003 / 91-996-080	Unapproved transformer is constructed with NRTL approved insulation. Insulation designation is SB4, Class B(130). Ratings in unit: <u>230 V ratings:</u> Primary: 54.2 VAC, 253 VDC (Red wire to Ground) Secondary: 1.06 VAC, 0 VDC (Green to Black Wires) Transformer is custom built for the application. Refer to table below for unapproved component insulation details	IEC 60065	Tested as part of the complete end product

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Object/Part No.	Manufacturer /Trademark	Type/Model	Technical Data <sup>2)</sup>	Standard	Mark(s) of Conformity <sup>1)</sup>
Output Transformer	Schumacher Electric Corp.	50W/4000/4-8-16 / 91-996-264	'Unapproved transformer is constructed with NRTL approved insulation. Insulation designation is SB4, Class B(130). Ratings in unit: <u>230 V ratings:</u> Primary: 1.0 VAC, 324 VDC (Center Tap, Red wire to White wire stripe), 227 VAC, 320 VDC (Blue Wire to Ground), 228 VAC, 320 VDC (Brown wire to ground). Secondary: 19.1 VAC, 0 VDC (8 Ohm tap, red to black wire), 19.1 VAC, 0VDC (4 Ohm tap, brown to black wire), 19.1 VAC, 0VDC (16 Ohm tap, Orange to black wire)	IEC 60065	Tested as part of the complete end product
	Heyboer	OT 70, OT-7002, HTS-9284-1	Transformer is custom built for the application Refer to table below for unapproved component insulation details	IEC 60065	Tested as part of the complete end product

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Object/Part No.	Manufacturer /Trademark	Type/Model	Technical Data <sup>2)</sup>	Standard	Mark(s) of Conformity <sup>1)</sup>
Power Transformer	Schumacher Electric Corp.	DR Z-5001 / 93-996-333	'Unapproved transformer is constructed with NRTL approved insulation. Insulation designation is SB4, Class B(130). Ratings in unit: <u>230 V ratings:</u> Primary: 230 VAC. Secondary: 570 VAC, 0 VDC (Red to Red wires), 5.3 VAC, 0 VDC (5V rectifier supply, yellow to yellow wires), 6.4 VAC, 0 VDC (filament winding, green to green wires) Transformer is custom built for the application. Refer to table below for unapproved component insulation details	IEC 60065	Tested as part of the complete end product
	Heyboer	HT-6254, DRZ-6001, HTS-10129, DRZ 3001, HT-6258, DRZ-5001, HTS-9060, PT-250		IEC 60065	Tested as part of the complete end product
Fuseholder	Littelfuse	345 Series	Mains fuseholder. Fits 5x20 mm fuse. Rated 250 V max. 20 A. max.	IEC 60065	Tested as part of the complete end product
Appliance Inlet	Inalways	0707-1	Rated 10A, 250 V. Mains appliance inlet	IEC 60065	Tested as part of the complete end product

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Object/Part No.	Manufacturer /Trademark	Type/Model	Technical Data <sup>2)</sup>	Standard	Mark(s) of Conformity <sup>1)</sup>
PCB	Various	FR4	PCB located inside metallic enclosure. Supports live parts circuitry. Mechanically attached onto enclosure with screws. Epoxyglass, FR4 Material. Rated 94-V0, 130°C.	UL 94, UL 746C, UL 746E, UL 746F, UL 796 IEC 60065	UR, Tested as part of the complete end product
Metal Enclosure	Various	Various	Aluminum construction. Enclosure houses all live parts in the units. Thickness is 2.25 mm. Overall dimensions 44 cm. x 6. cm x 19 cm.	IEC 60065	Tested as part of the complete end product
Power Cord	Various	Various	Nominal Cross sectional area must be minimum 0.52 mm <sup>2</sup> . Flexible cord must be a sheated type and comply with IEC 60227 or IEC 60245. cord must be a minimum of 1.5 m long.	IEC 60227 or IEC 60245	Tested as part of the complete end product

<sup>1)</sup> An asterisk indicates a mark which assures the agreed level of surveillance.

<sup>2)</sup> Description to include adjacent markings for critical fuse/s.

## IEC 60065

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

**INSULATED COIL**

	Name	Manufacturer/Trademark	Type / model
	Output Transformer	Heyboer	OT 70, OT-7002, HTS-9284-1
Electrical Rating:	Refer to component information section		Insulation class B
Component Standard used:	UL/CSA/IEC 60065-1		
<b>MATERIALS LIST</b> (refer to illustrations below for assembly component information)			

**INSULATED COIL**

	Name	Manufacturer/Trademark	Type / model
	Power Transformer	Heyboer	HT-6254, DRZ-6001, HTS-10129, DRZ 3001, HT-6258, DRZ-5001, HTS-9060, PT-250
Electrical Rating:	Refer to component information section 4.0 item 5		Insulation class B
Component Standard used:	UL/CSA/IEC 60065-1		
<b>MATERIALS LIST</b> (refer to illustrations below for assembly component information)			

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Photo 1:



Photo 2: -



Photo 3:



Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Photo 4:

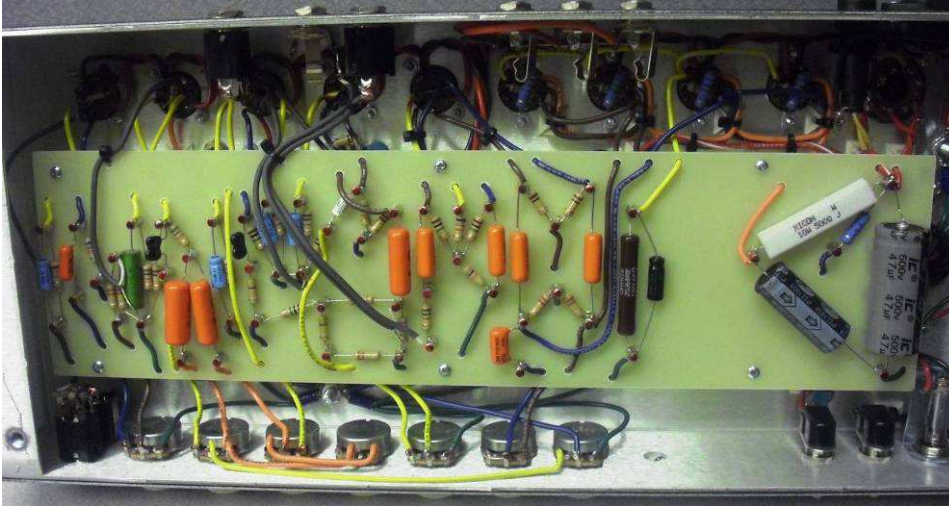


Photo 5:

