

# CENTRE OF TESTING SERVICE INTERNATIONAL

**OPERATE ACCORDING TO ISO/IEC 17025** 

# LVD TEST REPORT

TEST REPORT NUMBER: CGZ3140815-02895-L-D





CTS (Ningbo) Testing Service Technology Co., Ltd. Fl.2 South Huoju Building, No.181 Canghai Rd., Jiangdong High-tech Park, Ningbo, China



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# 1 General Information

# 1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has Passed all the relevant tests conforms to a specification (only telecommunication products).

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.

The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

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Date: 20 August 2014





#### 1.2 **Tester**

Tested by:

20 August 2014 **Kate Zhang** 

Date Name Signature

Reviewed by:

**Rock Weng** 20 August 2014

Signature Date Name

Approved by:

20 August 2014 Jun Yang

Date Name Signature

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## 1.3 **Testing laboratory**

#### 1.3.1 Location

CTS (Ningbo) Testing Service Technology Co., Ltd.

Fl. 2 South Huoju Building, No. 181. Canghai Rd., Jiangdong High-tech Park,

Ningbo, China

Telephone: +86-574-87912121 Telefax: +86-574-87907993

#### 1.3.2 Test location, where different from CTS:

Name: ./. Street: ./. Town: ./. Country: ./. Telephone: ./. Fax: ./. Teletex: ./.

#### 1.4 Client details

#### 1.4.1 **Details of applicant**

Name : Guangzhou BaoLun Electronics Co., Ltd. Street : No.1 Building, Zhongcun Industrial B Zone, : Zhongcun Street, Panyu, Guangzhou, Town

: China Country

Telephone : +86-020-84548170 Fax : +86-020-39907268

**Teletex** :/

Contact :/ Telephone :/

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#### **Details of manufacturer** 1.4.2

Name : Guangzhou BaoLun Electronics Co., Ltd. : No.1 Building, Zhongcun Industrial B Zone, Street Town : Zhongcun Street, Panyu, Guangzhou,

Country : China

: +86-020-84548170 Telephone Fax : +86-020-39907268

**Teletex** :/

Contact :/ Telephone :/

1.4.3 **Details of factory** 

Name : Guangzhou BaoLun Electronics Co., Ltd. Street : No.1 Building, Zhongcun Industrial B Zone, : Zhongcun Street, Panyu, Guangzhou, Town

Country : China

#### 1.4.4 **Dates of application**

Date of receipt of application : 07 November 2013

: 07 November 2013 Date of receipt of test item

Date of test : 07 November - 17 December 2013

## 1.5 **Test item Description**

#### 1.5.1 **Description of test item**

Type of product : MIXER AMPLIFIER

: T-4120MP (T-4012) Model/Type reference

Serial number

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### 1.5.2 Test item particulars

Test item:	MIXER AMPLIFIER
Trade Mark:	ITC
Appliance Mobility:	☑ PORTABLE APPARATUS;
	☐ TRANSPORTABLE APPARATUS;
	☐ Others: N/A
Protection Class	□ Class I; □ Others:
RATED SUPPLY VOLTAGE	230Vac
(Range):	
Rated MAINS Frequency:	☐ 50Hz; ☐ 60Hz; ☐ 50/60Hz; ☐ DC; ☐ Other:
Rated Power(Current)	450 W
CONSUMPTION:	
Degree of Protection:	
Fed from:	⊠ MAINS;
	☐ SUPPLY APPARATUS FOR GENERAL USE;
	□ SPECIAL SUPPLY APPARATUS;
	□ Batteries;
	☐ REMOTE POWER FEEDING;
	□ Other:
Mass of Equipment:	17 Kg
Dimension of Equipment:	
Instructions language:	□ English; □ French; □ Other:

(all informations was provided by the applicant or detected at the sample) Please see also attachment

#### 1.6 **Test standards**

EN 60065: 2002 + A1: 2006 + A11: 2008 + A2: 2010 + A12: 2011 Audio, video and similar electronic apparatus- Safety requirements (IEC 60065: 2001 + A1: 2005 + A2: 2010)

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# **Technical test**

## 2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

### 2.2 **Test environment**

15 ... 35 °C Temperature:

20 ... 75 % Relative humidity content:

86 ... 103 kPa Air pressure:

Details of power supply: 100-300V, AC

Other parameters:

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## **Conformity verification - Summary of inspection** 2.3

Clause	Summary of inspection	Т	est resu	lt
	• •	N.A.	Pass	Fail
3	General requirements		$\boxtimes$	
4	General test conditions		$\boxtimes$	
5	Marking and instructions		$\boxtimes$	
6	Hazardous radiations	$\boxtimes$		
7	Heating under normal operating conditions		$\boxtimes$	
8	Constructional requirements with regard to protection against electric shock		$\boxtimes$	
9	Electric shock hazard under normal operating conditions		$\boxtimes$	
10	Insulation requirements		$\boxtimes$	
11	Fault conditions		$\boxtimes$	
12	Mechanical strength		$\boxtimes$	
13	Clearances and creepage distances		$\boxtimes$	
14	Components		$\boxtimes$	
15	Terminals		$\boxtimes$	
16	External flexible cords		$\boxtimes$	
17	Electrical connections and mechanical fixings		$\boxtimes$	
18	Mechanical strength of picture tubes and protection against the effects of implosion		$\boxtimes$	
19	Stability and mechanical hazards		$\boxtimes$	
20	Resistance to fire		$\boxtimes$	
Annexes			$\boxtimes$	

# Test case verdicts

Test case does not apply to the test object Pass: Test item does meet the requirement Fail: Test item does not meet the requirement

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# Test results basic standard(s)

## 3.1 Particulars: test item vs. Test requirements

# IEC60065 and/or EN 60065 Audio, video and similar electronic apparatus- Safety requirements

## Possible test case verdicts:

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

## **Test specification:**

☑ EN 60065:2002 + A1: 2006 + A11: 2008 + A2: 2010+ A12:

2011

Test procedure .....: LVD DOC approval.

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

**Test Report Form No**.....: EN 60065\_A

Test Report Form(s) Originator ...... Centre of Testing Service

Master TRF...... Dated Jan 2012

Copyright blank test report Centre of Testing Service

## 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.

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## **Product description:**

- The unit under test was evaluated at a maximum ambient temperature with 35  $\,^\circ\mathrm{C}$
- The equipment is designated as a professional apparatus by manufacturer, and intended for indoor use, but not intended for sale to the general public.
- The equipment can be supplied by AC mains only via detachable power cord, the mains plug and mains cord shall be evaluated within the national approval.
- All models covered by this report are identical, except their model designation and appearance. after review, all tests were conducted on the model T-4120MP(T-4012).

## Special description:

This is an additional report which is base on original report CGZ3131107-03269-L and tested model T-4120MP (T-4012).

There are no any difference among the original model except for the applicant name.

No need to conduct any test.

## Copy of marking plate:

MIXER AMPLIFIER
MODEL NO.: T-4120MP (T-4012)
INPUT: 230V~, 50/60Hz, 450W

Guangzhou BaoLun Electronics Co., Ltd



## Remarks:

- The above markings are the minimum requirements required by safety standard. For the final production, the additional markings which do not give rise to misunderstanding may be added.
- The marking label was silk-screened or labeled on rear enclosure.
- The CE marking and WEEE symbol should be at least 5,0 mm and 7,0 mm respectively in height.
- The model no. can be replaced by others listed in this report.

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## General requirements and results 3.2

	IEC 60065 and/or EN 60065		
Clause	Clause Requirement – Test Result - Remark		
3	GENERAL REQUIREMENTS		
	Safety class of the apparatus:	Class I apparatus.	Р

4	GENERAL CONDITIONS OF TESTS		
4.1.4	Ventilation instructions require the use of the test box	No test box used The appliance is positioned in accordance with the instructions for use provided by the manufacturer.	Р

5	MARKING		
	Comprehensible and easily discernible	Yes / No	Р
	Permanent durability against water and petroleum spirit	Yes / No Tested and complied with.	Р
5.1	Identification, maker, model	See marking plate.	Р
	Class II symbol if applicable		N
	Rated supply voltage and symbol	See marking plate.	Р
	Frequency if safety dependant	See marking plate.	Р
	Rated current or power consumption for apparatus supplied by supply apparatus for general use:	AC mains directly supplied apparatus.	N
	Measured current or power consumption:		N
	Deviation % (max 10%)		N
	Rated current or power consumption for apparatus intended for connection to an a.c. mains supply:		Р
	Measured current or power consumption	(see appended table)	Р
	Measured current or power consumption for Television set:		N
	Deviation % (max 10%)	(see appended table)	Р
5.2	Earth terminal	Symbol marked.	Р
	Hazardous live terminals	Symbol marked.	Р
	Supply output terminals (other than mains)	No such parts.	N
5.3	Use of triangle with exclamation mark	Marked in circuit diagram and mentioned in user manual.	Р

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	IEC 60065 and/or EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict	
5.4	Instructions for use	Marking and instruction for use provided in English. Version of other languages will be provided when it is submitted for national approval.	Р	
5.4.1	Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.		Р	
	Hazardous live terminals, instructions for wiring	This Information with regard to the safety is given in an instruction for installation or use.	Р	
	Instructions for replacing lithium battery	No battery used	N	
	Instructions for modem if fitted		N	
	Class I earth connection warning	Connected to a MANS socket outlet with a protective earthing connection.	Р	
	Instructions for multimedia system connection	Provided in user's manual.	Р	
	Special stability warning for fixed installation		N	
5.4.2	Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	An appliance coupler / inlet provided and remain readily operable.	Р	
	Instructions for permanently connected equipment	Not permanently connected equipment.	N	
	Marking, signal lamps or similar for completely disconnection from the mains		N	

6	HAZARDOUS RADIATION		
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No ionizing radiation	N
	European Council Directive 96/29/Euratom of 13 May 1996 10cm from outer surface of apparatus <1µSv/h (0,1mR/h)		N
6.2	Laser radiation, emission limits to IEC 60825-1	No laser radiation	N
	Emission limits under fault conditions	:	N

7	HEATING UNDER NORMAL OPERATING CONDITIONS		
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(see appended table)	Р

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	IEC 60065 and/or EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict	
7.1.1	Temperature rise of accessible parts	(see appended table)	Р	
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table)	Р	
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	No such parts	N	
7.1.4	Temperature rise of windings	(see appended table)	Р	
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table)	Р	
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150°C		N	

8	CONSTRUCTIONAL REQUIREMENTS WITH REAGAINST ELECTRIC SHOCK	GARD TO THE PROTECTION	_
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	No shock hazard.	Р
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	Tools are required.	N
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No hygroscopic materials used as the insulation.	Р
8.4	No risk of electric shock following the removal of a cover which can be removed by hand	Tools are required.	N
8.5	Class I equipment		Р
	Basic insulation between hazardous live parts and earthed accessible parts	Considered and complied with.	Р
	Resistors bridging basic insulation complying with 14.1 a)		
	Capacitor or RC-unit bridging basic insulation complying with 14.2.1 a)	Y1 type capacitor (C48, C49) bridged basic insulation between hazardous live parts and accessible conductive parts connected to the protective earthing terminal.	Р
8.6	Class II equipment and Class II constructions within Class I equipment	Class II constructions within class I equipment.	Р
	Reinforced or double insulation between hazardous live parts and accessible parts	Hazardous live parts to accessible parts are separated by either reinforced or double insulation.	Р

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	IEC 60065 and/or EN 6	0065	
Clause	Requirement – Test	Result - Remark	Verdict
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3	Approved Y1 capacitor (C18) used for bridging reinforced insulation.	Р
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)		N
	Reinforced or double insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1 b)	Approved Y1-capacitor (C18) bridged reinforced insulation between primary and secondary circuits individually.	Р
	Basic insulation bridged by components complying with 14.3.4.3		N
8.7	This clause is void		
8.8	Basic or supplementary insulation > 0,4 mm (mm)	Thickness of bobbin between primary winding or secondary winding and iron core of mains transformer: 0,71 mm.	Р
	Reinforced insulation > 0,4 mm (mm):	Thickness of bobbin between primary winding and secondary winding of mains transformer: 0,71 mm.	Р
	Thin sheet insulation	See below.	Р
	Basic or supplementary insulation, at least two layers, each meeting 10.3	Two layers insulation between bottom parts of iron core and primary/secondary winding of switching transformers (T1, T3) used as basic or supplementary insulation.	Р
		Each of two layers can withstand dielectric strength test specified in 10.3 (test voltage; 2120Vpeak).	
	Basic or supplementary insulation, three layers any two of which meet 10.3		N

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	IEC 60065 and/or EN 6	60065	
Clause	Requirement – Test	Result - Remark	Verdict
	Reinforced insulation, two layers each of which meet 10.3	Two layers insulation tape between primary and secondary winding of switching transformers (T1, T3) used as reinforced insulation.	Р
		Each of two layers can withstand dielectric strength test specified in 10.3 (test voltage; 4240Vpeak).	
	Reinforced insulation, three layers any two which meet 10.3		N
8.9	Adequate insulation between internal hazardous live conductors and accessible parts	Secondary wires cannot touch primary hazardous live parts.	N
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts		N
8.10	Double insulation between conductors connected to the mains and accessible parts	Class I apparatus.	N
8.11	Detaching of wires		Р
	No undue reduction of creepages or clearance distances if wires become detached	Conductors with mechanical securing and quick connection.	Р
		Primary and secondary lead wires separated by cable ties.	
	Vibration test carried out	See sub-clause 12.1.2.	Р
8.12	This clause is void		
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)	No access to hazardous live parts.	Р
8.14	Adequate fastening of covers (pull test 50 N for 10 s)	No access to hazardous live parts.	Р
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	Internal lead wire cannot touch hot parts or sharp edges.	Р
8.16	Only special supply equipment can be used	Supplied from mains only, No such apparatus.	N
8.17	Insulated winding wire without additional interleaved insulation	No such winding.	N
8.18	Endurance test as required by 8.17		N
8.19	Disconnection from the mains	See below.	Р
8.19.1	Disconnect device	Appliance coupler (or inlet) used.	Р

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	IEC 60065 and/or EN 60065				
Clause	Clause Requirement – Test Result - Remark				
	All-pole switch or circuit breaker with >3mm contact separation	No such device used as disconnect device.	N		
8.19.2	Mains switch ON indication		N		
8.20	Switch not fitted in the mains cord	Fitted in front enclosure.	Р		
8.21	Bridging components comply with clause 14	No such parts.	N		
8.22	Non-separable thin sheet material	No such material.	N		

9	ELECTRIC SHOCK HAZARD UNDER NORMAL O	PERATING CONDITIONS	
9.1	Testing on the outside		Р
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	No such high voltage.	N
9.1.1.1	Open circuit voltages		Р
	Touch current measured from terminal devices using the network in annex D:	- Between L/N and metallic enclosure with the protective earthing connection disconnected:	Р
		U1: max. 40,2Vpeak	
		U2: max. 2,1Vpeak	
		( limited:	
		Touch current to earth ≤ 3,5mA rms.)	
		Formula: measured (2,1Vpeak/500)/1,414=	
		2,97mA rms. <3,5mA	
		- Between L/N and accessible secondary terminals:	
		U1: max. 1,02Vpeak	
		U2: max. 0,256Vpeak	
		(Limited: U1≤35Vpeak and U2 ≤0,35Vpeak)	
	Discharge not exceeding 45 μC	Less than 45 μC.	Р
	Energy of discharge not exceeding 350 mJ		N
9.1.1.2	Test with test finger and test probe	No access to hazardous live parts.	Р
9.1.2	No hazardous live shafts of knobs, handles or levers	No access to hazardous live parts.	Р
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	No access to hazardous live parts.	Р

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	IEC 60065 and/or EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No access to hazardous live parts.	Р
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	No access to hazardous live parts.	Р
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 control.	N
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s:	Measured: Normal condition: 18Vdc. Fault condition(opened R2): 18Vdc.	Р
	If C is not greater than 0,1 μF no test needed		N
9.1.7	Enclosure sufficiently resistant to external force		Р
	Test probe 11 of IEC 61032 for 10 s (50 N)	No damage to the enclosure.	Р
	Test hook of fig. 4 for 10 s (20 N)	No damage to the enclosure.	Р
	30 mm diameter test tool for 5 s (100 or 250 N):	250N applied at choose of manufacturer.	Р
9.2	No hazard after removing a cover by hand	Tools are required.	N

10	INSULATION REQUIREMENTS		
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	Measured greater than 4 $M\Omega$ after surge test, between other terminals and mains supply terminals.	Р
10.2	Humidity treatment 48 h or 120 h	48h, 30℃, 93%RH	Р
10.3	Insulation resistance and dielectric strength	(see appended table 10.3)	Р

11	FAULT CONDITIONS		
11.1	No shock hazard under fault condition	Accessible voltage remained non-hazardous live.	Р
11.2	Heating under fault condition	No fire hazard, no excessive temperature.	Р
	Flames extinguish within 10 seconds	No flame.	N
	No hazard from softening solder	No hazards	N
	Soldered terminations not used as protective mechanism		N
11.2.1	Measurement of temperature rises	(see appended table)	Р

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	IEC 60065 and/or EN 6	0065	
Clause	Requirement – Test	Result - Remark	Verdict
11.2.2	Temperature rise of accessible parts	(see appended table)	Р
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	(see appended table)	Р
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	No such parts	N
11.2.5	Temperature rise of windings	(see appended table)	Р
11.2.6	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min	PCB temperature rise did not exceed the limits of table 3.	N
	Printed circuit board (PCB) classified as V-0 accoding to 60695-11-10 or clause G.1 may exceed the limited in table 3 in case a) and b):		N
	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 cm²		N
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm² for a maximum of 5 min		N
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N
	Class I protective earthing maintained		Р
11.2.7	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5	(see appended table)	Р

12	MECHANICAL STRENGTH		
12.1.1	Bump test where mass >7 kg	No damage after the test.	Р
12.1.2	Vibration test	No damage after the test.	Р
12.1.3	Impact hammer test	No damage after the impact test.	Р
	Steel ball test	No damage after the steel ball test.	Р
12.1.4	Drop test for portable apparatus where mass < 7 kg	No portable apparatus.	N
12.1.5	Thermoplastic enclosures strain relief test	Metallic enclosure.	N
12.2	Fixing of knobs, push buttons, keys and levers	No damage.	Р
12.3	Remote controls with hazardous live parts	No such parts.	N
12.4	Drawers (pull test 50 N, 10 s)	No such parts.	N

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	IEC 60065 and/or EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
12.5	Antenna coaxial sockets providing isolation	No such parts.	N
12.6	Telescoping or rod antennas construction	No such parts.	N
12.6.1	Telescoping or rod antennas securement	No such parts.	N

13	CLEARANCE AND CREEPAGE DISTANCES		
13.1	Clearances in accordance with 13.3	Pollution degree: 2	Р
	Creepage distances in accordance with 13.4	Pollution degree 2 and material group IIIb.	Р
13.2	Determination of operating voltage		Р
13.3	Clearances		Р
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9	(see appended table)	Р
13.3.3	Circuits not conductively connected to the mains comply with table 10		N
13.3.4	Measurement of transient voltages		N
13.4	Creepage distances		Р
	Creepage distances greater than table 11 minimum values.	(see appended table)	Р
13.5	Printed boards	No such PCB.	N
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		N
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	No such component.	N
	Conductive parts along reliably cemented joints comply with 8.8		N
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12	No such component.	N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	No such component.	N

	14	COMPONENTS		
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	IEC 60065 and/or EN 6	0065	1
Clause	Requirement – Test	Result - Remark	Verdict
14.1	Resistors		N
	a) Resistors between hazardous live parts and accessible metal parts	No such component.	N
	b) Resistors, other than between hazardous live parts and accessible parts		N
	b) Resistors separately approved:		N
14.2	Capacitors and RC units		Р
	Capacitors separately approved		Р
14.2.1	Y capacitors tested to IEC 60384-14, 2nd edition:	Approved Y1 capacitors(C18, C48, C49) used.	Р
14.2.2	X capacitors tested to IEC 60384-14, 2nd edition .:	Approved X2 capacitor (C1, C2) used.	Р
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2:	No such component.	N
14.2.5	Capacitors with volume exceeding 1750 mm³, where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better:		N
	Capacitors with volume exceeding 1750 mm³, mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60 384-1, 4.38 category B or better:		N
	Shielded by a barrier to V-0 or metal:		N
14.3	Inductors and windings		Р
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N
14.3.1	Transformers and inductors marked with manufacturer's name and type:	Marked on transformers.	Р
	Transformers and inductors separately approved .:	Tested with appliance.	N
14.3.2	General		Р
14.3.3	Constructional requirements		Р
14.3.3.1	Clearances and creepage distances comply with clause 13	See appended table.	Р
14.3.3.2	Transformers meet the constructional requirements		Р
14.3.4	Separation between windings		Р

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	IEC 60065 and/or EN 6		
Clause	Requirement – Test	Result - Remark	Verdict
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)	Transformer bobbin used as reinforced insulation provided between primary windings and secondary windings.	Р
	Coil formers and partition walls > 0,4 mm	Thickness of bobbin is 0,71mm.	Р
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		N
14.3.4.3	Separating transformers with at least basic insulation		N
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	See sub-clause 14.3.4.1.	Р
	Coil formers and partition walls > 0,4 mm		Р
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	Class II transformer used.	N
	Winding wires connected to protective earth have adequate current-carrying capacity		N
14.4	High voltage components	No high voltage components.	N
	High-voltage components and assemblies: U > 4 kV (peak) separately approved		N
	Component meets category V-1 of IEC 60707		N
14.4.1	High voltage transformers and multipliers tested as part of the submission		N
14.4.2	High voltage assemblies and other parts tested as part of the submission		N
14.5	Protective devices	Mains current fuse used.	Р
	Protective devices used within their ratings		Р
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	(see appended table 13.)	Р
14.5.1.1	a) Thermal cut-outs separately approved	No such parts.	N
	b) Thermal cut-outs tested as part of the submission		N
14.5.1.2	a) Thermal links separately approved		N

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	IEC 60065 and/or EN 6	0000	
Clause	Requirement – Test	Result - Remark	Verdict
	b) Thermal links tested as part of the submission		N
14.5.1.3	Thermal devices re-settable by soldering		N
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	Approved fuse-link used. (see appended table 14)	Р
14.5.2.2	Correct marking of fuse-links adjacent to holder:	Appliance inlet with integrated fuse-holder. "T6.3AL, 250Vac" marked close to appliance inlet.	Р
14.5.2.3	Not possible to connect fuses in parallel:	Appliance inlet with integrated fuse-holder only.	Р
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool:	Complied.	Р
14.5.3	PTC-S thermistors comply with IEC 60730-1	None.	N
	PTC-S devices (15 W) category V-1 or better		N
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked		N
14.6	Switches	Approved mains switch used.	Р
14.6.1 a)	Separate testing to IEC 61058 including: 10 000 operations Normal pollution suitability Resistance to heat and fire level 3 and V-0 compliance with annex G, G.1.1		Р
14.6.1 b)	Tested in the apparatus:		N
	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		N
	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		N
	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		N
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		N
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N

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	IEC 60065 and/or EN 6	80065	
Clause	Requirement – Test	Result - Remark	Verdict
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1	No such switch used.	N
	Socket outlet current marking correct		N
14.7	Safety interlocks	None.	N
	Safety interlocks to 2.8 of IEC 60950		N
14.8	Voltage setting devices		N
	Voltage setting device not likely to be changed accidentally		N
14.9	Motors	No such parts	N
14.9.1	Endurance test on motors		N
	Motor start test		N
	Dielectric strength test		N
14.9.2	Not adversely affected by oil or grease etc.		N
14.9.3	Protection against moving parts		N
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		N
14.10	Batteries		N
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N
14.10.2	No possibility of recharging non-rechargeable batteries		N
14.10.3	Recharging currents and times within manufacturers limits		N
	Lithium batteries discharge and reverse currents within the manufacturers limits		N
14.10.4	Battery mould stress relief		N
14.10.5	Battery drop test		N
14.11	Optocouplers	Approved optocoupler used. (see appended table 14)	Р
	Optocouplers comply with Cl. 8		N
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)		N
14.12	Surge suppression varistors		Р
	Comply with IEC 61051-2		Р

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	IEC 60065 and/or EN 60065				
Clause	Requirement – Test	Result - Remark	Verdict		
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus	Complied with.	Р		
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12	Complied with.	Р		

15	TERMINALS		
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	(see appended table 14)	Р
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets		N
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N
15.1.2	Connectors for antenna, earth, audio, video or data:		Р
	No risk of insertion in mains socket-outlets	Mismatch of connector is prevented by its incompatible form or location.	Р
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2	No outlets marked with the symbol of 5.2.	N
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	No such output terminal.	N
15.2	Provision for protective earthing		Р
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	Complied with.	Р
	Protective earth conductors correctly coloured	Green/yellow	Р
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input	Detachable mains cord provided.	N
	Protective earth terminal resistant to corrosion		Р
	Earth resistance test: < 0,1 $\Omega$ at 25 A	Measured: 0,05Ω	Р
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N
15.3.1	Adequate terminals for connection of permanent wiring	_	N
15.3.2	Reliable connection of non-detachable cords:		N

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	IEC 60065 and/or EN 6	0065	
Clause	Requirement – Test	Result - Remark	Verdict
	Not soldered to conductors of a printed circuit board		N
	Adequate clearances and creepage distances between connections should a wire break away		N
	Wire secured by additional means to the conductor		N
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		N
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N
	Clamping of conductor and insulation if not soldered or held by screws		N
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment		N
15.3.6	Terminals to 15.3.3 have sizes required by table 16		N
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N
	Terminals designed to avoid conductor slipping out when tightened or loosened		N
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		N
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		N
15.3.9	Termination of non-detachable cords: wires terminated near to each other		N
	Terminals located and shielded: test with 8 mm strand		N
15.4	Devices forming a part of the mains plug	Cord connected apparatus.	N
15.4.1	No undue strain on mains socket-outlets		N
15.4.2	Device complies with standard for dimensions of mains plugs		N
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N
	<u> </u>	1	

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	IEC 60065 and/or EN 6	0065	
Clause	Requirement – Test	Result - Remark	Verdict
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords:	Approved power cord used.	Р
	Non-detachable cords for Class I have green/yellow core for protective earth	Intended for use with detachable power cord.	N
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	At least 3x0,75mm <sup>2</sup>	Р
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	No such cord.	N
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N
16.5	Adequate strain relief on external flexible cords	Detachable power supply cord is used.	N
	Not possible to push cord back into equipment		N
	Strain relief device unlikely to damage flexible cord		N
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		N
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1		N
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N

17	ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS		
17.1	Torque test to table 20:		Р

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	IEC 60065 and/or EN 60065				
Clause	Requirement – Test	Result - Remark	Verdict		
	- screws into metal: 5 times	Metal screw with diameter 3 mm for fastening of metallic enclosure.	Р		
	- screws into non-metallic material: 10 times		N		
17.2	Correct introduction into female threads in non-metallic material		N		
17.3	Cover fixing screws: captive	No reduction of clearance or creepage distance.	Р		
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	No hazard when replaced by a screw whose length is 10 times nominal diameter.	Р		
17.4	No loosening of conductive parts carrying a current > 0,2 A	All conductive fire parts are fixed on PCB by at least two soldering points.	Р		
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	Complied with.	Р		
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N		
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous	No cover fixing devices.	N		
17.8	Fixing devices for detachable legs or stands provided	No detachable legs or stands.	N		
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected	Internal pluggable connections have mechanical securing.	Р		

18	MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		
	Picture tube separately approved to IEC 61965:	No CRT	N
	Picture tube separately approved to 18.1		N
18.1	Picture tubes > 16 cm intrinsically protected		N
	Non-intrinsically protected tubes > 16 cm used with protective screen		N
18.2	Intrinsically protected tubes: tests on 12 samples		N
18.2.1	Samples subject to ageing: 6		N
18.2.2	Samples subject to implosion test: 6		N

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IEC 60065 and/or EN 60065				
Clause	Requirement – Test	Result - Remark	Verdict	
18.2.3	Samples subject to mechanical strength test (steel ball): 6		N	
18.3	Non-intrinsically protected tubes tested to 18.3		N	

19	STABILITY AND MECHANICAL HAZARDS		
	Mass of the equipment exceeding 7 kg	: Measured weight: max. 17Kg.	Р
	Apparatus intended to be fastened in place – suitable instructions		N
19.1	Test on a plane, inclined at 10o to the horizontal	No hazard, No damage after the test.	Р
19.2	100 N force applied vertically downwards	No hazard, No damage after the test.	Р
19.3	Apparatus mass > 25 kg or height > 1 M or supplied with cart or stand		N
19.4	Edges or corners not hazardous	No sharp edges.	Р
19.5	Glass surfaces with an area exceeding 0,1 m² or maximum dimension > 450 mm, pass the test of 19.5.1	No such parts.	N
19.6	Wall or ceiling mountings adequate		N

20	RESISTANCE TO FIRE		
20.1	Electrical components and mechanical parts		Р
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60707 with openings not exceeding 1 mm in width	Metallic enclosure provided.	N
	b) Exemption for small components as defined in 20.1		Р
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4		Р
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	No such high voltage.	Р
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		N

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	IEC 60065 and/or EN 6	0065	
Clause	Requirement – Test	Result - Remark	Verdict
	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	V-0 PCB used.	Р
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 appended table 14)	Р
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13		N
	Apparatus with voltages>4Kg under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure.		N
20.2	Fire enclosure		N
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	Less than 4 KV.	N
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N

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### 3.3 Annex as stated in the standards

IEC 60065 and/or EN 60065				
Clause	Requirement – Test		Result - Remark	Verdict

A	APPENDIX A, ADDITIONAL REQUIREMENTS FOR PROTECTION AGAINST SPLASHING WATER	R APPARATUS WITH	
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply		N
A.10.2.1	Enclosure provides protection against splashing water		N
A.10.2.2	Humidity treatment carried out for 7 days		N

В	APPENDIX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS	
	Complies with IEC 62151 clause 1	N
	Complies with IEC 62151 clause 2	N
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard	N
	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	N
	Complies with IEC 62151 cause 5 but with 5.3.1 modified in accordance with annex B of this standard	N
	Complies with IEC 62151 clause 6	N
	Complies with IEC 62151 clause 7	N
	Complies with IEC 62151 annex A, B and C	N

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Clause Requirement - Test Result - Remark Verdict	IEC 60065 and/or EN 60065					
Treduit Treduit Treduit Treduit Treduit	Clause	Requirement – Test		Result - Remark	Verdict	

ZB	ANNEX ZB TO EN 60 065, SPECIAL NATIONAL CO	ONDITIONS		
2.6.1	DK: certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets		N	
13.3.1	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		Р	
15.1.1	DK: mains cord for single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to Heavy Current Regulations Section 107-2-D1		N	
	DK: Class I equipment with socket-outlets with earthing contact, or which are intended to be used in locations where protection against indirect contact is required shall be provided with a plug in compliance with Standard Sheet DK 2-1a		N	
	DK: socket-outlets for providing power to Class II equipment with a rated current of 2,5 A shall have dimensions according to the drawing on page 131 of EN 60 065:98 other dimensions shall be to IEC 60 083 Standard Sheet C 1a for portable socket-outlets		N	
	DK: mains socket-outlets with earthing contact shall comply with Heavy Current Regulations Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a		N	
	GB: equipment fitted with a flexible cable or cord provided with a 13A BS 1363 plug as in Statutory Instrument 1768:94		N	
	IE: equipment fitted with a flexible cable or cord provided with a 13 A plug in accordance with Statutory Instrument 525:97		N	
	NO: mains socket-outlets on Class II equipment meet CEE Publication 7 with the following amendments:			
	- dimensions 2,5 A, 250 V socket-outlets shall comply with Standard Sheet 1 page 132 of EN 60 065:98	No socked-outlet provided.	N	
	- mechanical strength 2,5 A, 250 V socket-outlets tested as specified in EN 60 065, 12.1.3	No socked-outlet provided.	N	
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	IEC 60065 and/or EN 60065					
Clause	Requirement – Test	Result - Remark	Verdict			
	- protecting rim also tested		N			
	NO: method b) of 8.1 is not permitted. Double or reinforced insulation is required between parts connected to the mains and parts connected to the public telecommunications network		N			
J.2	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N			

ZC	ANNEX ZC TO EN 60 065, A-DEVIATIONS		
5	DE: additional markings required in German language:		
	- cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)	No CRT.	N
	- TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV	No TV receivers.	N
	- TV receivers whose picture tube has an accelerating voltage greater than 30 kV	No TV receivers.	N
	- TV receivers whose picture tube has an accelerating voltage less than 20 kV	No TV receivers.	N
5.1	IT: additional markings on the outside of the TV receiver in Italian language	No TV receivers.	N
	IT: user instructions in Italian language including a conformity declaration	No TV receivers.	N
	IT: certification number on the back cover	No TV receivers.	N
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No such parts.	N

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#### 3.4 **Tables**

		IEC60	0065 an	d/or EN 6	0065				
Clause	Requirement	– Test			Result - Remark			Verdict	
7.1	TABLE: temp	erature rise measure	ments					Р	
	Power consu	mption in the OFF/Sta	and-by					N	
	Position of the	e functional switch (W	V)	:				_	
Operating conditions									
		m signal was applied non-clipped output po		nput of the	e audio amplifier.	The a	pparatus '	was operat	ed
Un (V) In (A) Pn (W)		Pn (W)		Pou	t (W)				
207/50Hz		2,34		418					
207/60Hz		2,34		418					
230/50Hz		2,25		420	420				
230/60Hz		2,25		420					
253/50Hz		2,05		425	425				
253/60Hz		2,05		425					
Loudspeaker impedance (Ω)			:	Each 4Ω / chann (Total 4 channel one USB load to	outpu				
Several loudspeaker systems  Marking of loudspeaker terminals						N			
						N			
Monitored	point:				dT (K)		Limit dT (	K)	
Test voltage				207V,60Hz / 253V 50Hz					
Power cord	j				2,7 / 2,5			60	
Inlet near L	ine				22,9 / 20,7			35	
Power switch				10,5 / 8,2			50		
Internal wires				18,8 / 18,4			70		
PCB near D17				34,2 / 31,9			85		
L2 coil					31,8 / 29,6			70	
C1 body					25,1 / 24,4			65	
C31 body					30,0 / 28,9			70	
C18 body					34,5 / 34,7			90	
U1 body					35,1 / 35,0			65	

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	IEC60065 and/or EN 60065				
Clause Requirement – Test		Result - Remark	Verdict		
		•			
T1 coil (primary)		60,8 / 61,5	75		
T1 coil (secondary)		60,9 / 62,0	75		
T1 core		60,0 / 60,9	Ref.		
T3 coil (primary)		36,7 / 37,2	75		
T3 coil (secondary)		39,9 / 44,7	75		
T3 core		36,3 / 35,5	Ref.		
Metallic enclosure		8,6 / 8,8	40		
Knob body		6,0 / 6,2	50		
Ambient		25,0 / 25,0 °C			

## Notes:

- 1) The temperatures for the EUT was measured under worst case normal mode.
- 2) The max. temperature rise is calculated as follows which based upon maximum working ambient of 35°C: Winding components:
- insulated with polyurethane resins ->△T max=85K-10K=75K
- T1 with thermal cut-out ->Tmax=75K+35=110 °C

Electrolyte capacitor or components with:

- max. absolute temp. of 70 °C ->△T max = (70-35)K=35K
- ->△T max = (85-35)K=50K max. absolute temp. of 85 °C
- max. absolute temp. of 105 °C ->△T max = (105-35)K=70K
- max. absolute temp. of 100 °C ->△T max = (100-35)K=65K
- max. absolute temp. of 125 °C ->△T max = (125-35)K=90K

# User accessible parts with:

- Metallic enclosure -> 40 K
- Knobs ->50 K
- 3) For switch mode transformers temperature rise may be measured with a thermocouple placed as close as practicable to the winding. The permitted temperature rise shall be 10K less than that given in table 3.

	Winding temperature rise measurements				N	
	Ambient temperature t1 (°C)				_	
	Ambient temperature t2 (°C)				_	
Temperature rise dT of winding:		R1 (Ω)	R2 (Ω)	dT (K)	Limit dT (K)	Insulation class

7.2	TABLE: softening temperature of thermoplastics	N

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	IEC60065 and/or EN 60065					
Clause	Requirement – Test		Result - Remark	Verdict		

Temperature T of part	T - normal conditions (°C)	T - fault conditions (°C)	T softening (°C)

10.3	TABLE: insulation resistance measurements		Р	
Insulation resistance R between:		R (M Ω )	Required R (M Ω)	
Different poles of mains (primary fuse disconnected)		200	Min.2	
Live parts of	f mains and metallic enclosure	200	Min.2	
Live parts of	f mains and accessible secondary terminals	200	Min.4	
Transforme	r (T1): Primary and secondary windings	200	Min.4	
Transformer (T1): Primary and iron core		200	Min.2	
Transformer (T1): Secondary and iron core		200	Min.2	
Transformer (T3): Primary and secondary windings		200	Min.4	
Transformer (T3): Primary and iron core		200	Min.2	
Transforme	(T3): Secondary and iron core	200	Min.2	
10.3	TABLE: insulation strength measurements		Р	
Test voltage	applied between:	Test voltage (Vpeak)	Breakdown	
Different poles of mains (primary fuse disconnected) 2120		2120	No	
Live parts of mains and metallic enclosure		2120	No	
Live parts of mains and accessible secondary terminals		4240	No	
Transformer (T1): Primary and secondary windings		4240	No	
Transformer (T1): Primary and iron core		2120	No	
Transformer (T1): Secondary and iron core		2120	No	
Transformer (T3): Primary and secondary windings		4240	No	
Transformer (T3): Primary and iron core		2120	No	
Transformer (T3): Secondary and iron core		2120	No	
One layer of insulation tape		2120	No	

11.2	2	TABLE: summary of fault condition tests		Р
		Voltage (V) 0,9 or 1,1 times rated voltage:	230V	_
		Ambient temperature (°C)	25	_

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	IEC60065 and/or EN 60065					
Clause	Requirement – Test		Result - Remark	Verdict		

Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
L2, shorted -circuit, 1s, 253V, I=0A, AC fuse opened immediately, No hazard.		
D17(1-3), shorted-circuit, 1s, 253V, I=0A, AC fuse opened immediately, No hazard.		
Q1(2-3), shorted-circuit, 1s, 253V, I=0A, AC fuse opened immediately, No hazard.		
C31, shorted-circuit, 1s, 253V, I=0A, AC fuse opened immediately, No hazard.		
U1(1-2), shorted-circuit, 1s, 253V, I=2.05A->0,102A, No hazard.		
U3(3-4), shorted-circuit, 1s, 253V, I=2.05A->0,102A, No hazard.		
Q1(2-3), shorted-circuit, 1s, 207V, I=0A, AC fuse opened immediately, No hazard.		
C31, shorted-circuit, 1s, 207V, I=0A, AC fuse opened immediately, No hazard.		
U1(1-2), shorted-circuit, 1s, 207V, I=2,34A->0,079A, No hazard.		
U3(3-4), shorted-circuit, 15min, 207V, I=2,34A->0,079A, No hazard.		
T1 secondary winding, shorted-circuit, 15min, 253V, I=2,05A->0,102A, thermal cut-out opened, the test was carried out three times, No higher temperature rise exceeding its limit occurred. No hazard,		
T2 secondary winding, shorted-circuit, 15min, 253V, I=2,05A->0,102A, No hazard.		
100% max. Non-clipped output power to the rated load impedance, 4h, 207V, I=2,50A, unit operated normally, No hazard.	T1 coil: 98,0°C T2 coil: 49,3 PCB near D17: 45,2	T2 coil:140 PCB near D17: 110 T1coil:140K
100% max. Non-clipped output power to the rated load impedance, 4h, 253V, I=2,30A, unit operated normally, No hazard.	T1 coil: 98,0°C T2 coil: 49,2 PCB near D17: 45,0	T2 coil:140 PCB near D17: 110 T1coil:140K
Speaker terminals, shorted-circuit, 4h, 207V, I=2,45A, No hazard.	T1 coil: 95,0°C T2 coil: 50,9 PCB near D17: 40,2	T2 coil:140 PCB near D17: 110 T1coil:140K

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D17: 110

D17: 110

T1coil:140K

T2 coil:140 PCB near

### CENTRE OF TESTING SERVICE

Clause	Requirement – Test	Result - Remark	Verdict				
T1 output, overloaded, 4h, 207V, I=2,35A->2,45A-2,59A->0A, T1 coil: 105,0°C							
thermal cut-out opened, the test was carried out three times, No higher temperature rise exceeding its limit occurred. No hazard,		PCB near D17:50,2	PCB near D17: 110				
			T1coil:140K				
	overloaded, 4h, 207V, I=2,35A->2,45A-2,59A->0A,	T2 coil:70,5	T1 coil:140				
	Unit shut down when load to 0.9A, No higher rise exceeding its limit occurred.	PCB near D17:49,5	T2 coil:140				
lemperatur			PCB near				

T1 coil: 92°C

T2 coil:44.7

PCB near D17: 39,9

IEC60065 and/or EN 60065

Note(s):

1) Winding components:

Insulated with polyurethane resins -> \(\triangle Tmax = 150K-10K=140K \)

T1 with thermal cut-out->Tmax=150K-10K+35=175 °C.

Ventilation-blocked, 4h, 207V, I=2,34A, No hazard.

2) After each above fault condition tests, the apparatus complied with insulation resistance and dielectric strength test as described in clause 10.3.

13.1	TABLE: Clearan	TABLE: Clearances and creepage distances in accordance with 13.2					
Rated suppl	ly voltage: 230V		Pollution deg	ree: II	Material Gro	up: IIIb	
2 N force or	n internal parts ap	plied			Internal parts	3	Р
30N force o	utside of conducti	ve enclosure a	pplied		enclosure		Р
Clearance distance doi	cl and creepage r at/of:	Upeak (V)	U r.m.s (V)	Required cl (mm)	cl (mm)	Required dcr (mm)	dcr (mm)
Line to neut fuse (B)	ral before AC	420	250	2,0	3,0	2,5	3,0
T1 primary t		535	250	4,4	5,4	5,0	5,4
T2 primary t secondary t		535	250	4,4	5,4	5,0	5,4
C18 primary secondary t		420	250	4,0	6,0	5,0	6,0
U1 primary secondary t		420	250	4,0	6,0	5,0	6,0

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IEC60065 and/or EN 60065							
Clause	Requirement – To	est		Result	- Remark		Verdict
U3 primary		420	250	4,0	6,0	5,0	6,0
secondary trace (R) T1 primary to secondary winding (R)		535	250	4,4	6,0	5,0	6,0
T1 primary winding to iron core (B or S)		535	250	2,2	4,5	2,5	4,5
T1 secondary winding to iron core (S or B)		535	250	2,2	4,5	2,5	4,5
Hazard parts to accessibility metallic enclosure (B)		420	250	2,0	3,0	2,5	3,0
Hazard parts to secondary parts (R)		420	250	4,0	6,0	5,0	6,0

### Note(s):

- 1. B=Basic insulation, S=Supplementary insulation, D=Double insulation, R=Reinforced insulation, Min=minimum required.
- 2. CI= Clearance, Cr= Creepage distance.
- 3. Internal basic insulated wires fixed by cable tie and can not be removed when applied 2N on it.
- 4. Core of Transformer (T1, T3) considered as independent conductive part.
- 5. there are at least two layers of insulation tape wrapped between primary winding and secondary winding of transformers (T1, T3).

14	TAB	BLE: list of critical components and materials				
Component		Manufacturer/ trademark	Type/model	Value / rating	Standard	Mark(s) of conformity <sup>1)</sup>
AC inlet with integrated fuse-holder		DongGuan NarKen Industry Investment Co.,Ltd.	XD-102	10A, 250Vac	IEC 60320-1	VDE
AC Fuse		Shanghai Songshan Electrinics Co.,Ltd	RT1-20	T6,3AL, 250Vac	, ,	
Power switch		Ningbo Soken	RK1-01	10A, 250Vac, 85℃	IEC61058-1	VDE
Metal enclosure				Min. 1,0 mm		Tested with appliance
PCB		Various	Various	Min. V-0, 130 °C	UL796 UL94	UL
Internal L/N wire, including earthing wire		LEADER ELECTRIC WIRE & CABLE CO LTD	1672	300V, 16AWG, VW-1, 105℃		UL

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IEC60065 and/or EN 60065					
Clause	Requirement – Test	Result - Remark	Verdict		

Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Mark(s) of conformity <sup>1)</sup>
Inductor (L1,L2)			130℃		Tested with appliance
X capacitor (C1, C2)	Tenta Electric Industrial Co.,Ltd	MEX	0,47uF, 275Vac, X2 type	IEC 60384-14	VDE
Varistor(R1)	Various	Various	300Vac	IEC61051-2	VDE
Relay(K1)	YONG NENC	YX208Z-S-112D	16A, 250Vac 16A, 14Vdc		TUV RH, UL
Ripple capacitor (C31,C32)			200Vac, 1500uF, 105℃		Tested with appliance
Opto-coupler (U1,U3)	Everlight Electronics Co Ltd	EL817	Cr.>6,0mm; Cl.>7,7mm, Dti=0,5mm, Reinforced insulation.	EN 60747-5-2	VDE
Alternative	Bright Led Electronics Corp	BPC-817	Cr.>6,0mm; Cl.>7,7mm, Dti=0,5mm, Reinforced insulation.	EN 60747-5-2	VDE
Y capacitor (C18, C48,C49)	Zonkas Electronics Co.,Ltd	CD	2200pF, 250Vac, Y1 type	IEC 60384-14	VDE
Alternative	Various	Various	Max.2200pF, 250Vac, Y1 type.	EC 60384-14 I	VDE
Transformer (T1)	Just For You Enterprise Co.,Ltd	P048575T		EN60065	Tested with appliance
- Thermal cut-out		KSD9700	250Vac, 5A, 100℃	EN60691	VDE
- Magnet wire	Various	Various	130℃		UL
- Bobbin	Chang Chun Plastic Co.,Ltd	T375J	V-0, 150°C, min. 0,71mm.	UL94	UL
- Alternative	Changshu South-East plastic Co Ltd	PF2A5-151J	V-0, 150°C, min. 0,71mm.	UL94	UL
- Insulation tape	SUZHOU MAILADUONA ELECTRIC MATERIAL CO LTD	JY312	130℃	UL510	UL

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	IEC60065 and/or EN 60065					
Clause	Requirement – Test		Result - Remark	Verdict		

Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Mark(s) of conformity <sup>1)</sup>
- Alternative	Minnesota Mining & MFG Co.	1350F-1 1350F-2	130℃	UL510	UL
- Margin tape	Jingjiang Yahua Pressure Sensitive Glue Co.,Ltd	WF	130℃	UL510	UL
- Alternative	Chang Shu Liang Yi Tape In	LY-xx	130℃	UL510	UL
- Alternative	Jingjiang Fuwei Adhesive Product Co.,Ltd	WF101	130℃	UL510	UL
Transformer (T3)	Rongle Electrical Industrial Co.,Ltd	EEL-19-2		EN60065	Tested with appliance
- Magent wire	Various	UEW	130℃		UL
- Bobbin	Chang Chun Plastic Co.,Ltd	T375J	V-0, 150℃, min. 0,71mm.	UL94	UL
- Alternative	Changshu South-East plastic Co Ltd	PF2A5-151J	V-0, 150℃, min. 0,71mm.	UL94	UL
- Insulation tape	Suzhou Mailaduona Electric Material Co Ltd	JY312	130℃	UL510	UL
- Alternative	Jingjiang Yahua Pressure Sensitive Glue Co.,Ltd	PZ, CT	130℃	UL510	UL
- Alternative	Jingjiang Fuwei Adhesive Product Co.,Ltd	FW	130℃	UL510	UL
- Alternative	Minnesota Mining & MFG Co.	1350F-1 1350F-2	130℃	UL510	UL
Power cord	YONG RUI	Plug: YR-102 Wire: HOSVV-F Connector: YR-030	10A, 250Vac , 3 X 0,75mm2	VDE 0620 VDE 0281-5 EN 60320-1	VDE

- 1) an asterisk indicates a mark which assures the agreed level of surveillance
- A separately approved power cord which complied with the special national requirements shall be provided with this apparatus which will be marketed in the specified countries.

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# Manufacturer/ Approval holder Declaration

The following identical model(s):

T-4060MP, MPT120, **MPT240**, T-2E120, T-2E240 T-120E, T-240E, T-120MT, T-240MT. T-40MT, T-60MT, TI-120MT, TI-240MT, TI-240S, TI-350S.

belong to the tested device:

Product description: MIXER AMPLIFIER Model name: T-4120MP (T-4012)

No additional models were tested.

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Attac	chments
$\boxtimes$	Photo document
	ВОМ
	CDF (critical data form)
	Copies of certificates of certified components
	Instruction manual
	Circuit diagram
	Explosion block
$\boxtimes$	Other: Equipment list

-----End of report------

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# **Equipment list:**

No.	Equipment No.	Equipment name	Model	Calibration date	Calibrati on interval	Due date	Status
1	CS06A2GM -005	Digital Oscilloscope	DS5102C	2013-11-25	2 years	2015-11-23	Passed
2	CS06A2GO -006	Oven	SC101-2 B	2014-6-10	1 year	2015-6-11	Passed
3	CS06A2GM -008	Humid & Temp. meter	TH-31	2014-6-10	1 year	2015-6-11	Passed
4	CS06A2GM -009	Torque tester for appliance plug	LJ-1	2014-10-18	1 year	2015-10-15	Passed
5	CS06A2GM -010	Force gauge	N-20	2014-6-10	1 year	2015-6-11	Passed
6	CS06A2GT- 011	Ball pressure test apparatus	QY-1	2014-10-18	1 year	2015-10-16	Passed
7	CS06A2GT- 012	Ball pressure test device	QY-1	2014-10-18	1 year	2015-10-16	Passed
8	CS06A2GT- 013	Glow wire test apparatus	ZRS-2	2014-6-10	1 year	2015-6-11	Passed
9	CS06A2GT- 015	Tracking test Apparatus	LDQ-1	2014-6-10	1 year	2015-6-11	Passed
10	CS06A2GT- 016	Barrel test apparatus	GTD-1	2014-6-10	1 year	2015-6-11	Passed
11	CS06A2GT- 017	Flexibility tester of power supply cable	QZ-1	2014-6-10	1 year	2015-6-11	Passed
12	CS06A2GM -018	Insulation test meter	LK2679A	2014-6-10	1 year	2015-6-11	Passed
13	CS06A2GM -019	Ground conditionality test meter	CS2678	2014-10-18	1 year	2015-10-15	Passed
14	CS06A2GM -030	Temperature recording meter (30 channels)	DWC251 5	2014-6-10	1 year	2015-6-11	Passed
15	CS06A2GM -032	Push and pull meter	SN-300	2014-6-10	1 year	2015-6-11	Passed
16	CS06A2GM -033	Electric balance	BL-600	2014-6-10	1 year	2015-6-11	Passed
17	CS06A2GM -035	Digital calipers	CT200-10 6	2014-6-10	1 year	2015-6-28	Passed

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No.	Equipment No.	Equipment name	Model	Calibration date	Calibrati on interval	Due date	Status
18	CS06B2GT- 050	Dust-proof and dust tight-test chamber	JYSD-500	2014-10-18	1 year	2015-10-16	Passed
19	CS06B2GT- 051	Rain-proof and splash-proof test device	JYBL-C	2014-6-10	1 year	2015-6-11	Passed
20	CS06B2GT- 051-4	Water pressure meter	0-0.4MPa	2014-6-10	1 year	2015-6-11	Passed
21	CS06B2GT- 051-5	Water pressure meter	0-0.4MPa	2014-6-10	1 year	2015-6-11	Passed
22	CS06B2GT- 051-6	Water flow meter	LZB-15(4 00L/h)	2012-8-24	2 years	2014-08-23	Passed
23	CS06B2GT- 051-7	Water flow meter	LZB-80(1 0m3/h)	2012-8-24	2 years	2014-08-23	Passed
24	CS06B2GT- 052	Drip-proof test device	JYDL-C	2014-6-10	1 year	2015-6-11	Passed
25	CS06B2GT- 053	High/low temp. & humid. Test apparatus	JYGDWS/ P-100	2014-10-18	1 year	2015-10-16	Passed
26	CS06A2GM -055	Wattage meter	GDW300 1	2014-6-10	1 year	2015-6-11	Passed
27	CS06A2GM -058	Digital multi-meter	EM3052	2014-6-10	1 year	2015-6-11	Passed
28	CS06A2GM -060	Angle meter	SLT-100	2014-6-10	1 year	2015-6-11	Passed
29	CS06A2GM -061	Digital caliper	DJT-150	2014-6-10	1 year	2015-6-11	Passed
30	CS06B2GT- 066	Needle flame test apparatus	SH5403	2014-6-10	1 year	2015-6-11	Passed
31	CS06A2GT- 067	Spring impact hammer (0.35J)	0.35J	2013-9-8	1 year	2014-9-7	Passed
32	CS06A2GT- 068	Spring impact hammer (0.5J)	0.5J	2014-6-10	1 year	2015-6-11	Passed
33	CS06A2GT- 070	Spring impact hammer (1.0J)	1J	2013-9-8	1 year	2014-9-7	Passed
34	CS06A2GT- 081	Test Probe D	Test Probe D	2014-6-10	1 year	2015-6-11	Passed
35	CS06A2GT- 082	Test Probe C	Test Probe C	2014-6-10	1 year	2015-6-11	Passed

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No.	Equipment No.	Equipment name	Model	Calibration date	Calibrati on interval	Due date	Status
36	CS06A2GT- 083	Spring impact hammer (0.2J)	0.2J	2014-6-10	1 year	2015-6-11	Passed
37	CS06A2GT- 085	Test Probe 1	Test Probe 1	2014-10-18	1 year	2015-10-16	Passed
38	CS06A2GM -086	Electric balance	BWS-501 -150	2014-6-10	1 year	2015-6-11	Passed
39	CS06A2GT- 088	Test Probe 11	Test Probe 11	2014-6-10	1 year	2015-6-11	Passed
40	CS06A2GT- 089	Test Probe A	Test Probe A	2014-6-10	1 year	2015-6-11	Passed
41	CS06A2GT- 090	Test Rod(EN60950)	EN 60950 bild 2C	2014-6-10	1 year	2015-6-11	Passed
42	CS06A2GT- 091	Test nail	EN 60335-1	2014-6-10	1 year	2015-6-11	Passed
43	CS06A2GT- 095	Stopwatch		2014-6-10	1 year	2015-6-11	Passed
44	CS06A2GO -096	Oven	SC101-2 B	2014-6-10	1 year	2015-6-11	Passed
45	CS06B2GT- 097	IPX5 Spray nozzle	Nozzle: 6.3mm	2014-6-10	1 year	2015-6-11	Passed
46	CS06B2GT- 098	IPX6 Spay nozzle	Nozzle: 12.5mm	2014-6-10	1 year	2015-6-11	Passed
47	CS06B2GT- 099	Spray nozzle (For IPX3 and IPX4)		2014-6-10	1 year	2015-6-11	Passed
48	CS06B2GT- 099-1	Water pressure meter	0-0.6MPa	2014-6-10	1 year	2015-6-11	Passed
49	CS06A2GM -100	Digital multi-meter	VICTOR 89A	2014-6-10	1 year	2015-6-11	Passed
50	CS06A2GM -120	Digital multi-meter	F189	2014-6-10	1 year	2015-6-11	Passed
51	CS06A2GM -121	Digital wattage meter	WT210	2014-6-10	1 year	2015-6-11	Passed
52	CS06A2GM -122	Temperature recording meter	MX100	2014-6-10	1 year	2015-6-11	Passed
53	CS06A2GM -123	Leakage current meter	Simpson 228	2014-6-3	1 year	2015-6-11	Passed

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No.	Equipment No.	Equipment name	Model	Calibration date	Calibrati on interval	Due date	Status
54	CS06A2GM -125	Test gauge for creepage and clearance test	CK-2	2014-6-10	1 year	2015-6-11	Passed
55	CS06A2GM -126	Test finger with round plate	ZX-11	2014-6-10	1 year	2015-6-11	Passed
56	CS06A2GM -127	Pull and torque test device for power cable	KXT131	2014-6-10	1 year	2015-6-11	Passed
57	CS06A2GM -128	Torque meter	N6LTDK	2014-6-10	1 year	2015-6-11	Passed
58	CS06A2GM -129	Torque meter	N30LTDK	2014-6-10	1 year	2015-6-11	Passed
59	CS06A2GM -130	Steel Ruler	0-500mm	2014-10-18	1 year	2015-10-16	Passed
60	CS06A2GM -131	Probe 41	ZX-12	2014-6-10	1 year	2015-6-11	Passed
61	CS06A2GM -132	Probe 13	ZX-13	2014-6-10	1 year	2015-6-11	Passed
62	CS06A2GM -140	Temp. & Humid recording device	7210-00	2014-6-10	1 year	2015-6-11	Passed
63	CS06A2GM -150	Probe B	ZX-11	2014-6-10	1 year	2015-6-11	Passed
64	CS07A2GM -151	Steel ruler	JC-568E	2014-10-18	1 year	2015-10-16	Passed
65	CS07A2GO -152	Microscope	JC-10	2014-10-18	1 year	2015-10-16	Passed
66	CS07A2GO -153	Frequency adjusting power supply	HPA-1105	2014-10-18	1 year	2015-10-16	Passed
67	CS07A1GT- 155	Hi-pot meter	TOS5052	2014-10-18	1 year	2015-10-16	Passed
68	CS07A2GT- 156	Test probe 41		2014-10-18	1 year	2015-6-11	Passed
69	CS07A2GO -157	Test voltage generator	TVG-950	2014-10-18	1 year	2015-10-16	Passed
70	CS09A2GO -001L	Durability test hot room	HY-DRF	2013-8-12	2 year	2015-8-12	Passed
71	CS09A2GO -003L	Draught-proof enclosure	HY-FFZ	2013-8-12	2 year	2015-8-12	Passed

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No.	Equipment No.	Equipment name	Model	Calibration date	Calibrati on interval	Due date	Status
72	CS09A2GT- 024L	Fluorescent lamp cathode replacement resistance load	HMDL-23 11A	2014-8-12	1 year	2015-8-12	Passed
73	CS09A2GT- 036L	Load testing instrument of metal halide lamp	SH3324	2014-8-12	1 year	2015-8-12	Passed
74	CS12B2GO -006	Plug discharge test device		2014-8-12	1 year	2015-8-12	Passed
75	CS12B2GM -011	Controller temperature test box for lamps	DJR-1	2014-8-12	1 year	2015-8-12	Passed
76	CS12B2GM -016	Charged winding temperature rise tester	RC2012	2014-8-12	1 year	2015-8-12	Passed
77	CS12A2GT- 001	No power roller test unit	1	2014-8-12	1 year	2015-8-12	Passed
78	CS12A2GT- 002	Reel test device	JZS-G3	2014-8-12	1 year	2015-8-12	Passed
79	CS12B2GT- 003	4mm metal test needle	4mm	2014-8-12	1 year	2015-8-12	Passed
80	CS12B2GT- 004	Noise signal generator	DF1681	2014-8-12	1 year	2015-8-12	Passed
81	CS12B2GT- 005	Tunable filter	F3760	2014-8-12	1 year	2015-8-12	Passed
82	CS12B2GO -006	Plug discharge test device	1	2014-8-12	1 year	2015-8-12	Passed
83	CS12B2GT- 007	Dielectric strength tester	KQ-5	2014-8-12	1 year	2015-8-12	Passed
84	CS12A2GT- 008	Steel ball	GQ-40	2014-8-12	1 year	2015-8-12	Passed
85	CS12A2GO -009	5000Ω resistor	5000Ω	2014-8-12	1 year	2015-8-12	Passed
86	CS12A2GO -010	2000Ω resistor	2000Ω	2014-8-12	1 year	2015-8-12	Passed
87	CS12A2GT- 017	Vibration table	BZ-H/V	2014-8-12	1 year	2015-8-12	Passed
88	CS12A2GT- 018	Scratching needle	THZ-4025	2014-8-12	1 year	2015-8-12	Passed

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No.	Equipment No.	Equipment name	Model	Calibration date	Calibrati on interval	Due date	Status
89	CS12A2GT- 020	Test wedge	CX-ET	2014-8-12	1 year	2015-8-12	Passed
90	CS12A2GT- 021	Drop plate	DL-50	2014-8-12	1 year	2015-8-12	Passed
91	CS12A2GT- 022	30mm circular pressure plane	1	2014-8-12	1 year	2015-8-12	Passed
92	CS12A2GT- 023	Test hook	1	2014-8-12	1 year	2015-8-12	Passed

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**Type Designation:** MIXER AMPLIFIER, T-4120MP (T-4012)



Figure 1 (External view - front)



Figure 2 (External view –rear & base)



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**Type Designation:** MIXER AMPLIFIER, T-4120MP (T-4012)



Figure 3 (External view –side & front)



Figure 4 (External view –side & rear)



Attachment Page 3 of 4

**Type Designation:** MIXER AMPLIFIER, T-4120MP (T-4012)

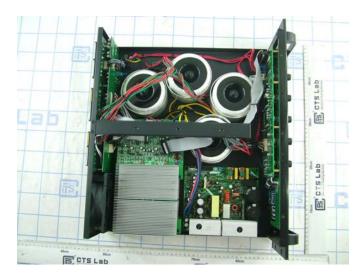


Figure 5 (Internal view -1)



Figure 6 (Internal view -2)





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**Type Designation:** MIXER AMPLIFIER, T-4120MP (T-4012)

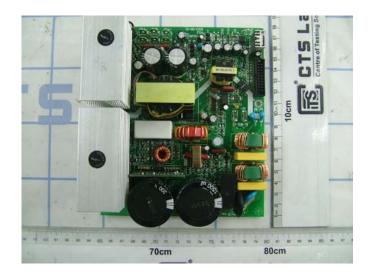


Figure 7 (PCB-component side)

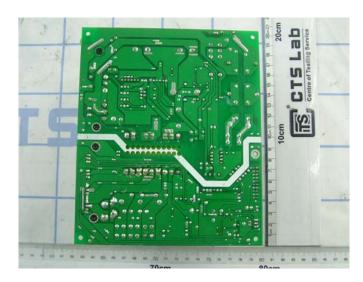


Figure 8 (PCB-solder side)