



Test Report issued under the responsibility of:

SGS Fimko Ltd.

TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.....	SZES190701416301
Date of issue.....	2019-09-06
Total number of pages	52 Pages
Applicant's name	Sichuan Changhong Electric Co., Ltd.
Address.....	35 Mianxing East Road, HI-Tech Development Zone, Mianyang, Sichuan, China
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am1:2009 + Am2:2013
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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Test item description :	Laser projector (Product name: Laser Theater)	
Trade Mark :	CHiQ	
Manufacturer	Same as applicant	
Model/Type reference	B5U	
Ratings	Input: 100 - 240 V~, 50 - 60 Hz, 3,6 A, Class I	
Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Testing location/ address :		No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China 518057
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address :		
Tested by (name + signature)		Emily Wang
Approved by (name + signature) :		Peter He
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1:	N/A
Testing location/ address :		
Tested by (name + signature)		
Approved by (name + signature) :		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2:	N/A
Testing location/ address :		
Tested by (name + signature)		
Witnessed by (name + signature) :		
Approved by (name + signature) :		
<input type="checkbox"/>	Testing procedure: SMT/CTF Stage 3 or 4:	N/A
Testing location/ address :		
Tested by (name + signature)		
Witnessed by (name + signature) :		
Approved by (name + signature) :		
Supervised by (name + signature)		

List of Attachments (including a total number of pages in each attachment):

Attachment 1: 15 pages of Photos;

Attachment 2: 3 page of Safety information in manual;

Attachment 3: 19 pages of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES.

Summary of testing:

The sample(s) tested complies with the requirements of IEC 60950-1: 2005 (Second Edition) + Am 1: 2009 + Am 2: 2013.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

Heating test (4.5):

T_{ma} = 40 °C (declared by manufacturer)

T_{amb} = 23,9 °C – 25,1 °C

Input voltage range: 90 V - 264 V (+/-10% according to manufacturer)

USB Output: load with 5 VDC, 0,5 A for each port

T-type thermocouple used for temperature measurement.

Tests performed (name of test and test clause):

- ☒ 1. GENERAL
- ☒ 2. PROTECTION FROM HAZARDS
- ☒ 3. WIRING, CONNECTIONS AND SUPPLY
- ☒ 4. PHYSICAL REQUIREMENTS
- ☒ 5. ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS
- ☐ 6. CONNECTION TO TELECOMMUNICATION NETWORKS
- ☐ 7. CONNECTION TO CABLE DISTRIBUTION SYSTEMS

Testing location:

SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China
518057

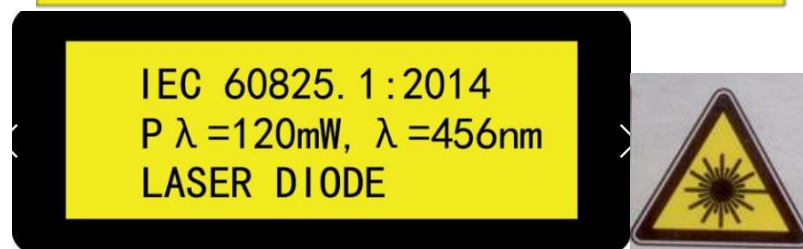
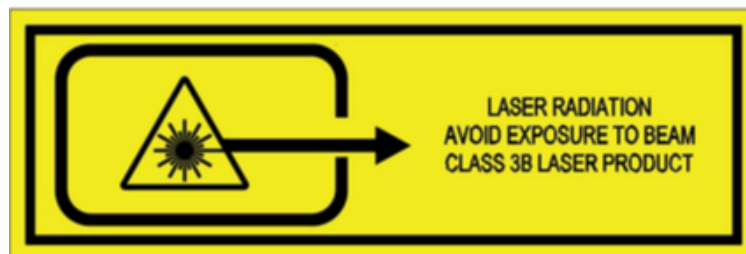
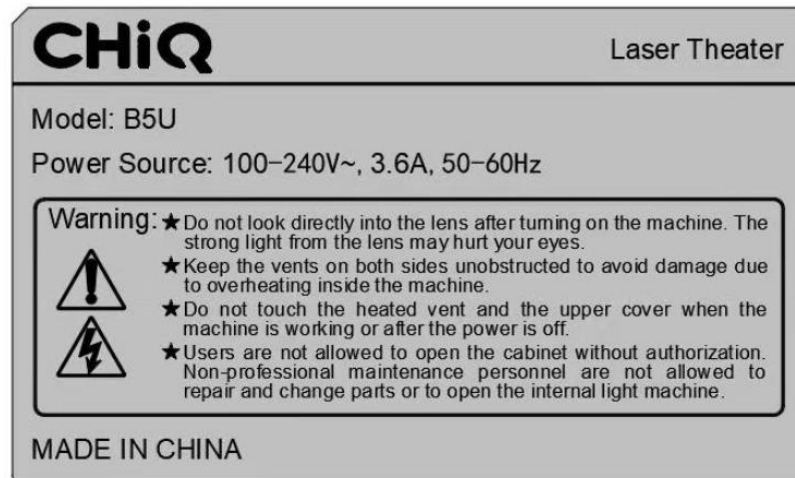
Summary of compliance with National Differences:**List of countries addressed:**

1. EU Group Differences (EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013)
2. EU Special National Conditions, EU A-deviations: none

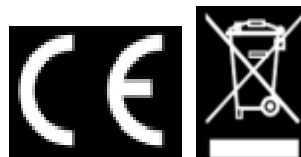
The product fulfils the above requirements.

Copy of marking plate:

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



- The above markings are the minimum requirements required by the safety standard. For the final production, the additional markings which do not give rise to misunderstanding may be added.

Marking label for EU market:**Remark (For EU Market):**

1. As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
2. Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.
3. The Height of CE logo shall not be less than 5 mm; Height of WEEE logo shall not be less than 7 mm

Test item particulars..... :	
Equipment mobility.....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains.....:	<input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition.....:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	+/-10% according to manufacturer
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	16 A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	2000 m
Altitude of test laboratory (m)	Shenzhen: Max. 120 m
Mass of equipment (kg)	9,8 kg

Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing.....:	
Date of receipt of test item.....	2019-07-05
Date (s) of performance of tests	2019-07-06 to 2019-08-21

General remarks:

"(see Enclosure #)" refers to additional information appended to the report.

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

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

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

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

☐ Yes
☒ Not applicable

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

Name and address of factory (ies) Sichuan Changhong Electric Co., Ltd.
 No.186, Middle Section of Mianzhou Avenue, Jingkai District, Mianyang, Sichuan, China

General product information:

Functions	LAN, Audio Out, AV IN, VGA, VGA AUDIO IN, USB, HDMI,
Power source	AC mains
Material of enclosure	Plastic Enclosure, fixed by screws

Abbreviations used in the report:

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

Indicate used abbreviations (if any)

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

1	GENERAL		P
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1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls	No such component	N/A
1.5.4	Transformers		P
1.5.5	Interconnecting cables		P
1.5.6	Capacitors bridging insulation		P
1.5.7	Resistors bridging insulation		P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Resistors bridged functional insulation only	P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems		N/A
1.5.9	Surge suppressors		P
1.5.9.1	General		P
1.5.9.2	Protection of VDRs		P
1.5.9.3	Bridging of functional insulation by a VDR		P
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

1.6	Power interface		P
1.6.1	AC power distribution systems	TN, TT	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor		P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V):	100-240 V~	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Symbol for nature of supply, for d.c. only..... :	AC only	N/A
	Rated frequency or rated frequency range (Hz) ... :	50-60 Hz	P
	Rated current (mA or A) :	3,6 A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark :	CHiQ	P
	Model identification or type reference :	B5U	P
	Symbol for Class II equipment only :	Class I	N/A
	Other markings and symbols :	See marking plate	P
1.7.1.3	Use of graphical symbols		P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	AC Inlet	P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool		N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment :		N/A
	Methods and means of adjustment; reference to installation instructions :		N/A
1.7.5	Power outlets on the equipment :		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) :	F101: T5AL, 250 VAC	P
1.7.7	Wiring terminals		P
1.7.7.1	Protective earthing and bonding terminals :	Marked on AC Inlet terminal	P
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		P
1.7.8.1	Identification, location and marking :		N/A
1.7.8.2	Colours :		N/A
1.7.8.3	Symbols according to IEC 60417..... :	Standby symbol used	P
1.7.8.4	Markings using figures :		N/A
1.7.9	Isolation of multiple power sources :		N/A
1.7.10	Thermostats and other regulating devices :		N/A
1.7.11	Durability		P
1.7.12	Removable parts		P

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

1.7.13	Replaceable batteries		N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations		N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts		P
	Test by inspection	Not possible to access hazardous voltage part	P
	Test with test finger (Figure 2A)	Test finger can not access hazardous live part	P
	Test with test pin (Figure 2B)	Test pin can not access hazardous live part	P
	Test with test probe (Figure 2C)		N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring		P
2.1.1.5	Energy hazards	(see appended tables 2.1.1.5)	P
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s).....	Measured time when the voltage decayed to 37 % of its original value: 0,186 s < 1 s Measured voltage after 1s: 4 V < 37 % of its original value	—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ..		N/A
	b) Internal battery connected to the d.c. mains supply :		N/A
2.1.1.9	Audio amplifiers	Comply with 2.1.1.1	P
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	See table 2.2	P

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

2.2.3	Voltages under fault conditions (V)	See table 2.2	P
2.2.4	Connection of SELV circuits to other circuits	SELV	P

2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		P
2.4.1	General requirements		P
2.4.2	Limit values		P
	Frequency (Hz)		—
	Measured current (mA)	Max. 0,090 mA (Limit: 0,7 mA);	—
	Measured voltage (V)	Max. 45 mV	—
	Measured circuit capacitance (nF or μ F)	CY108: 1000 pF; CY107: 470 pF; CY101, CY102: 1000 pF	—
2.4.3	Connection of limited current circuits to other circuits		P

2.5	Limited power sources		P
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition	See tabel 2.5	P
	Use of integrated circuit (IC) current limiters		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	See appended table 2.5	—
	Current rating of overcurrent protective device (A) ..		—

2.6	Provisions for earthing and bonding		—
2.6.1	Protective earthing	Accessible conductive parts are reliably connected to protective earth.	P
2.6.2	Functional earthing		N/A
	Use of symbol for functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG	3,6 A, 0,75 mm ² , 18 AWG	—
2.6.3.3	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG	Comply with the requirement of 2.6.3.4	—
	Protective current rating (A), cross-sectional area (mm ²), AWG		N/A
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)	For 32 A / 2 minutes, Measured: 0,077 Ω (Limit: 0,1 Ω)	P
2.6.3.5	Colour of insulation	Green and yellow	P
2.6.4	Terminals		P
2.6.4.1	General		P
2.6.4.2	Protective earthing and bonding terminals	Comply with the requirement of 2.6.3.4	P
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		P
2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment		P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		P
2.6.5.3	Disconnection of protective earth		P
2.6.5.4	Parts that can be removed by an operator		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.5	Parts removed during servicing		P
2.6.5.6	Corrosion resistance		P
2.6.5.7	Screws for protective bonding		P
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A
2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements		P
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		P
2.7.3	Short-circuit backup protection	Fuse (F101) used	P
2.7.4	Number and location of protective devices :	Only one fuse used in L-line	P
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel :		N/A
2.8	Safety interlocks		N/A
2.8.1	General principles		N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) :		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials		P
2.9.2	Humidity conditioning		P
	Relative humidity (%), temperature (°C) :	93 % Rh, 40 °C for 120 h	—

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Clause	Requirement + Test	Result - Remark	Verdict
2.9.3	Grade of insulation	Functional insulation, basic insulation, supplementary insulation and reinforced insulation	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used	Method 1 and 3	—

2.10	Clearances, creepage distances and distances through insulation		—
2.10.1	General		P
2.10.1.1	Frequency	Considered	P
2.10.1.2	Pollution degrees	Pollution degree 2	P
2.10.1.3	Reduced values for functional insulation		P
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage	(see appended table 2.10.2)	P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(see appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(see appended table 2.10.2)	P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply	Overvoltage category II, Mains transient voltages: 2500 V~	P
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply	2500 V _{peak}	P
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	Material group IIIb is assumed to be used	—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices	(see appended table 2.10.5)	P
2.10.5.5	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		P
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs)	2 layers of insulating tape	—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	(see appended table 2.10.5)	P
	Electric strength test		—
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage	(see appended table 2.10.2)	P
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U	Certified triple insulated wire used as pri. winding See appended table 1.5.1	P
	Two wires in contact inside wound component; angle between 45° and 90°	Tubing used as physical separation	P
2.10.5.13	Wire with solvent-based enamel in wound components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection		P
3.1.2	Protection against mechanical damage		P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors	Primay lead wire were connected to Inlet by connector	P
	10 N pull test	Components are adequately fixed	P
3.1.10	Sleeving on wiring		N/A

3.2	Connection to a mains supply		P
3.2.1	Means of connection		P
3.2.1.1	Connection to an a.c. mains supply	AC Inlet	P
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets		P
3.2.5	Power supply cords		P
3.2.5.1	AC power supply cords		P
	Type	PVC	—
	Rated current (A), cross-sectional area (mm ²), AWG	3,6 A, 0,75 mm ² , 18 AWG	—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A

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3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices	Appliance coupler	P
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment	single-phase	P
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits	SELV	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment	USB and HDMI terminal comply with LPS. and other terminal just for data transfer no voltage output	P

4	PHYSICAL REQUIREMENTS		--
4.1	Stability		P
	Angle of 10°		P
	Test force (N)		N/A
4.2	Mechanical strength		P
4.2.1	General		P

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	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		P
	Fall test		P
	Swing test		P
4.2.6	Drop test; height (mm) :		N/A
4.2.7	Stress relief test	70 degree C	P
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)	294 N	P

4.3	Design and construction		P
4.3.1	Edges and corners		P
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets		P
4.3.6	Direct plug-in equipment		N/A
	Torque		—
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids		N/A
	Quantity of liquid (l)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Flash point (°C)		N/A
4.3.13	Radiation		P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		P
4.3.13.5.1	Lasers (including laser diodes)		P
	Laser class	Class 3B	—
4.3.13.5.2	Light emitting diodes (LEDs)		—
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		P
4.4.1	General		P
4.4.2	Protection in operator access areas		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		P
4.4.5	Protection against moving fan blades		P
4.4.5.1	General		P
	Not considered to cause pain or injury. a).....	Can't be touched moving part	P
	Is considered to cause pain, not injury. b)		N/A
	Considered to cause injury. c)		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning		N/A
4.4.5.3	Protection for service persons		P
	Use of symbol or warning		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L	See table 1.6.2	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat		N/A

4.6	Openings in enclosures		P
4.6.1	Top and side openings	Only opening on side, unlikely that objects will enter the openings and create hazards	P
	Dimensions (mm)	The Circular opening: 1,71 mm Max.	—
4.6.2	Bottoms of fire enclosures	Can't emit material likely to ignite the supporting surface 5° vertical projection from internal live parts don't locate on the bottom openings	P
	Construction of the bottom, dimensions (mm) ..	The opening width: 2,85 mm	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks).....		—

4.7	Resistance to fire		—
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	See appended table 4.7	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P

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4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures	Fire enclosure is rated V-0	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Min. V-1 PWB used	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		—
5.1	Touch current and protective conductor current		—
5.1.1	General	(see appended Table 5.1)	P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply		P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument		P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V)	264 V~, 60 Hz	—
	Measured touch current (mA)	(see appended Table 5.1)	—
	Max. allowed touch current (mA)	0,25 mA	—
	Measured protective conductor current (mA)	(see appended Table 5.1)	—
	Max. allowed protective conductor current (mA) ..	3,5 mA	—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—

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Clause	Requirement + Test	Result - Remark	Verdict

	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

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

5.3	Abnormal operating and fault conditions		—
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N/A
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation	a), c)	P
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE	Refer the test method in IEC 60065	P
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		—
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		—
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Clause	Requirement + Test	Result - Remark	Verdict

6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		—
	Max. output current (A)		—
	Current limiting method		—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		—
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		—
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples		—
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—

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Clause	Requirement + Test	Result - Remark	Verdict

A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		—
A.2.1	Samples, material		—
	Wall thickness (mm)		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		—
B.1	General requirements		P
	Position	See photos for detail	—
	Manufacturer	See tabel 1.5.1	—
	Type	See tabel 1.5.1	—
	Rated values	See tabel 1.5.1	—
B.2	Test conditions		P
B.3	Maximum temperatures		P
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—

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Clause	Requirement + Test	Result - Remark	Verdict
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		P
B.7.1	General		P
B.7.2	Test procedure		P
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		—
	Position	T301 Between pri. – sec.	—
	Manufacturer	See table 1.5.1	—
	Type	See table 1.5.1	—
	Rated values	See table 1.5.1	—
	Method of protection	Fuse (F101)	—
C.1	Overload test	See appended table 5.3	P
C.2	Insulation	See appended table 5.2 and C2	P
	Protection from displacement of windings		P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		—
D.1	Measuring instrument		P
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		—
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P

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Clause	Requirement + Test	Result - Remark	Verdict

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		—
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		—

J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		—
	Metal(s) used		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		—
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		—
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		—
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)		N/A

N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		—
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

P	ANNEX P, NORMATIVE REFERENCES		—
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Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		—
	- Preferred climatic categories	Provide separate certi. of VDR, See table 1.5.1	P
	- Maximum continuous voltage		P
	- Combination pulse current		P

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Clause	Requirement + Test	Result - Remark	Verdict

	Body of the VDR Test according to IEC60695-11-5.....:		N/A
	Body of the VDR. Flammability class of material (min V-1).....:		P

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		—
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

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

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		—
			—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
			—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		—
V.1	Introduction		P
V.2	TN power distribution systems		P

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Clause	Requirement + Test	Result - Remark	Verdict

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		—
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A

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

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		—
Y.1	Test apparatus		N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		—

AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		—
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BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
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CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		—
CC.1	General		N/A
CC.2	Test program 1.....		N/A
CC.3	Test program 2.....		N/A
CC.4	Test program 3.....		N/A
CC.5	Compliance.....		N/A

DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		—
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....		N/A
DD.3	Mechanical strength test, 250N, including end stops.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

DD.4	Compliance.....:		N/A
EE	ANNEX EE, Household and home/office document/media shredders		—
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A)		N/A
	Test with wedge probe (Figure EE1 and EE2)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹	
Plug (EU)	Zhejiang Yuehua Telecommunicati on Co., Ltd.	YP304	16 A, 250 VAC	DIN VDE 0620- 2-1 (VDE 0620- 2-1):2013-03	VDE (40007669)	
Plug (UK)	Scolmore International Ltd	SW168	13 A, 250 VAC	BS 1363 Parts 1-5	BSI (KM 10807)	
Alt.	Zhejiang Yuehua Telecommunicati on Co., Ltd.	YP317	13 A, 250 VAC	BS 1363 Parts 1-5	BSI (KM 512007)	
Power cord	Zhejiang Yuehua Telecommunicati on Co., Ltd.	H03VV-F, H05VV-F	3 x 0,75 mm ²	EN 50525-2-11: 2011	VDE (130596)	
Power connector	Zhejiang Yuehua Telecommunicati on Co., Ltd.	YP312	10 A, 250 VAC	EN 60320-1: 2015 + AC: 2016 EN 60320-3: 2014 IEC 60320-1 (ed.3)+COR1:2 016 IEC 60320-3 (ed.1)	VDE (40008077)	
AC Coupler	Yueqing Hongchang Radio Co., Ltd	DB-14-03, DB- 14-07	10 A, 250 VAC	IEC 60320- 1:2015; DIN EN 60320-1 (VDE 0625-1):2016- 04; EN 60320- 1:2015 + AC:2016	VDE (40028645)	
Primary lead wire	MIANYANG XINFUZHOU CABLE CO LTD	1672	105 °C, 300 Vac, 18 AWG	--	UL (E365737)	
Alt.	Interchangeable	1672	105 °C, 300 Vac, 18 AWG	--	UL	
Bonding Earth wire	MIANYANG XINFUZHOU CABLE CO LTD	1672	105 °C, 300 Vac, 20 AWG	--	UL (E365737)	
Alt.	Interchangeable	1672	105 °C, 300 Vac, 20 AWG	--	UL	

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Clause	Requirement + Test	Result - Remark		Verdict	
Tubing	SHENZHEN WOER HEAT- SHRINKABLE MATERIAL CO LTD	RSFR	125 °C, 600 Vac	--	UL (E203950)
Fuse (F101)	Littelfuse Inc.	392	T5AL, 250 VAC	EN 60127-3: 2015 IEC 60127-1: 2006/AMD2:201 5 IEC 60127-3: 2015 EN 60127-1: 2006+A1:2011+ A2:2015	VDE (126983)
Alt.	Littelfuse Inc.	382	T5AL, 250 VAC	EN 60127-3: 2015 IEC 60127-1: 2006/AMD2:201 5 IEC 60127-3: 2015 EN 60127-1: 2006+A1:2011+ A2:2015	VDE (40018250)
Alt.	Hollyland Company Limited	5ET	T5AL, 250 VAC	EN 60127-3: 2015 IEC 60127-1: 2006/AMD2:201 5 IEC 60127-3: 2015 EN 60127-1: 2006+A1:2011+ A2:2015	VDE (40015669)
Varistor (RV101)	Chengdu Tieda Electronics Corporation	MYN15-621K	620V/385V Class current: 50 A; Max. peak current: 5000 A, 85 °C	IEC 61051- 1:2007 IEC 61051- 2:1991/AMD1:2 009 IEC 60950- 1:2005/ Annex Q	VDE (40008571)
X-Cap. (CX101, CX102)	Xiamen Faratronic Co. Ltd.	MKP62	AC 275 V / 305 V, 40/110/56 or 40/105/56, X2, 0,68 µF	EN 60384-14: 2013-08 IEC 60384- 14(ed.4)	VDE (40000358)

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.	Yangzhou Nissei Electronics Co., Ltd.	MP1	AC 275 V / 300 V / 305 V / 310 V, 40/110/56, 40/100/21 or 40/085/21, X2, 0,68 µF	EN 60384-14: 2013-08 IEC 60384-14(ed.4)	VDE (40041628)
Y-Cap. (CY107)	Yinan Don's Electronic Component Co., Ltd.	CT81	AC 250 V / 400 V, 470 pF, Y1, 25/125/21	EN 60384-14: 2013-08 EN 60384-14:2013/A1:2016 IEC 60384-14: 2013 IEC 60384-14: 2013/AMD1:2016	VDE (135256)
Alt.	Kunshan Wansheng Electronics Co., Ltd.	CT7	AC 250 V / 300 V / 400 V / 500 V, 470 pF, Y1, 40/125/21	EN 60384-14: 2013-08 EN 60384-14:2013/A1:2016 IEC 60384-14: 2013 IEC 60384-14: 2013/AMD1:2016	VDE (40012143)
Y-Cap. (CY101, CY102, CY108)	Yinan Don's Electronic Component Co., Ltd.	CT81	AC 250 V / 400 V, 1000 pF, Y2, 25/125/21	EN 60384-14: 2013-08 EN 60384-14:2013/A1:2016 IEC 60384-14: 2013 IEC 60384-14: 2013/AMD1:2016	VDE (135256)
Alt.	Kunshan Wansheng Electronics Co., Ltd.	CT7	AC 250 V / 300 V / 400 V / 500 V, 1000 pF, Y2, 40/125/21	EN 60384-14: 2013-08 EN 60384-14:2013/A1:2016 IEC 60384-14: 2013 IEC 60384-14: 2013/AMD1:2016	VDE (40012143)

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Opto-coupler (N301, N302, N303)	Kodenshi Korea Corp.	PC-17K1, PC-17K1-C, PC-17L1	Int. CR / Ext. CR / Dti. (mm) ≥ 7,0 mm / ≥ 7,0 mm / ≥ 0,4 mm, 100 °C	DIN EN 60747-5-5 (0884-5):2015-11; EN 60747-5-5:2011; A1:2015	VDE (40029733)
Alt.	Everlight Electronics Co., Ltd.	EL817 (blank; V)	Int. CR / Ext. CR / Dti. ≥ 7,6 mm / ≥ 7,6 mm / ≥ 0,4 mm, 55/110/21	DIN EN 60747-5-5 (0884-5):2015-11; EN 60747-5-5:2011; A1:2015	VDE (132249)
Line filter (FL101)	Sichuan Changhong Electric Component Co., Ltd.	LCL-E119	L1: φ 0,65 mm /33 Ts; L1: φ 0,65 mm /33 Ts	--	Tested with appliance
--Base board	CHANG CHUN PLASTICS CO LTD	4130	V-0, 140 °C	--	UL (E59481)
Alt.	KINGBOARD LAMINATES HOLDINGS LTD	KB-6160A	V-0, 130 °C	--	UL (E123995)
--Magnet wire	Interchangeable	Interchangeable	130 °C	--	UL
Line filter (FL102)	Sichuan Changhong Electric Component Co., Ltd.	LCL-E62	L1: φ 0,6 mm /46 Ts; L1: φ 0,6 mm /46 Ts	--	Tested with appliance
--Base board	CHANG CHUN PLASTICS CO LTD	4130	V-0, 140 °C	--	UL (E59481)
Alt.	KINGBOARD LAMINATES HOLDINGS LTD	KB-6160A	V-0, 130 °C	--	UL (E123995)
--Magnet wire	Interchangeable	Interchangeable	130 °C	--	UL
Line filter (FL103)	Sichuan Changhong Electric Component Co., Ltd.	LCL-E177	L1: φ 0,5 mm /10 Ts; L1: φ 0,5 mm /10 Ts	--	Tested with appliance
--TIW	Shanghai Xiangxiang Electron Co., Ltd.	TKW-B	130 °C	--	VDE (40026588)

IEC 60950-1					
Clause	Requirement + Test	Result - Remark		Verdict	
--Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT-286F	130 °C	--	UL (E165111)
--Magnet wire	Interchangeable	Interchangeable	130 °C	--	UL
Line filter (L101)	Sichuan Changhong Electric Component Co., Ltd.	LGT-120uH-D	L1: \varnothing 0,8 mm /45 Ts	--	Tested with appliance
--Magnet wire	Interchangeable	Interchangeable	130 °C	--	UL
Line filter (L201, L202)	Sichuan Changhong Electric Component Co., Ltd.	LGT-150uH-D	N1: \varnothing 0,1 x 40 mm /64 Ts; N2: \varnothing 0,3 mm /9 Ts	--	Tested with appliance
--Bobbin	CHANGSHU SOUTH-EAST PLASTIC CO LTD	PF2A5-151J(b)	V-0, 150 °C	--	UL (E136137)
Alt.	CHANG CHUN PLASTICS CO LTD	T375J	V-0, 150 °C	--	UL (E59481)
--Magnet wire	Interchangeable	Interchangeable	130 °C	--	UL
--Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT-286F, CT-280B	130 °C	--	UL (E165111)
--Tubing	GREAT HOLDING INDUSTRIAL CO., LTD	TFT	200 °C	--	UL (E156256)
Transformer (T301)	Sichuan Changhong Electric Component Co., Ltd.	BCK-94057O	See Annex C for details	--	Tested with appliance
--Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF, T375J	V-0, 150 °C, min. thickness 0,8 mm	--	UL (E59481)

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.	SUMITOMO BAKELITE CO LTD	PM-9820, PM- 9630	V-0, 150 °C, min. thickness 0,8 mm	--	UL (E41429)
Alt.	CHANGSHU SOUTH-EAST PLASTIC CO LTD	PF2A5-151J(b)	V-0, 150 °C, min. thickness 0,8 mm	--	UL (E136137)
--Magnet wire	Interchangeable	Interchangeable	130 °C	--	UL
--TIW	Shanghai Xiangxiang Electron Co., Ltd.	TKW-B	130 °C	--	VDE (40026588)
--Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT-286F, CT- 280B	130 °C	--	UL (E165111)
--Tubing	GREAT HOLDING INDUSTRIAL CO., LTD	TFT	200 °C	--	UL (E156256)
Insulation sheet under power supply	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX PP WT-10	PP, V-0, min. thickness 0,4 mm	--	UL (E315185)
--Alt.	KUNSHAN DOBESTY OPTOELECTRO NIC MATERIALS CO LTD	DB98HD	PC, V-0, min. thickness 0,4 mm	--	UL (E339070)
PWB	Interchangeable	Interchangeable	130 °C, V-0	--	UL
Plastic material of enclosure	SHANGHAI KUMHO SUNNY PLASTICS CO LTD	PC/ABSHAC82 50NH-xxxx	PC/ABS, V-0, Min. thickness 1,5 mm	--	UL (E254819)
LASER MODULE	Sichuan Changhong electric Co.Ltd.	L1500CUU	Blue: 453 nm, Green: 519 nm, Red: 609 nm	--	Test with appliance
DC Fan	Nidec Corporation Shiga Technical Center	T92T12MHA7	12VDC, 1,2 A	EN 60950- 1:2006/A2:2013	TUV SUD (Cert.: B 057006 0073 Rev. 06)
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

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

1.5.1	TABLE: Opto Electronic Devices	P
Manufacturer: See table 1.5.1		
Type: See table 1.5.1		
Separately tested: See table 1.5.1		
Bridging insulation.....: Reinforce insulation		
External creepage distance: See table 1.5.1		
Internal creepage distance: See table 1.5.1		
Distance through insulation: See table 1.5.1		
Tested under the following conditions: See table 1.5.1		
Input: --		
Output: --		
supplementary information		
Evaluated as part of approved power supply		

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (V)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status	
90 V / 50 Hz	2,784	--	242,0	F101	2,784	Output: USB Load: 4,8 Vd.c. / 0,5 A Speaker: 3,53 V	
90 V / 60 Hz	2,787	--	242,3	F101	2,787	Ditto	
100 V / 50 Hz	2,508	3,6	241,1	F101	2,508	Ditto	
100 V / 60 Hz	2,504	3,6	240,2	F101	2,504	Ditto	
240 V / 50 Hz	1,022	3,6	234,8	F101	1,022	Ditto	
240 V / 60 Hz	1,020	3,6	234,7	F101	1,020	Ditto	
264 V / 50 Hz	0,934	--	234,4	F101	0,934	Ditto	
264 V / 60 Hz	0,929	--	234,3	F101	0,929	Ditto	
Supplementary information:--							

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
5,0	0,5	5,03	1,43	5,98	

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Clause	Requirement + Test	Result - Remark	Verdict

supplementary information:
Tested with USB output

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

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
Transformer (T301) pin 7/10		18,8	--	--
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)		
--		--		
supplementary information:				
Sc=Short circuit				

2.5	TABLE: Limited power sources					P
Circuit output tested: USB output						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (single fault)	Uoc (V)	I _{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
USB output	Overload	5,03	1,43	8	5,98	100
USB output (UU01 pin 3/5)	Sc	5,03	3,19	8	11,12	100
USB output (UP08 pin 1/8)	Sc	5,03	1,49	8	6,08	100
HDMI output (UP01 pin 1/2)	Sc	0	0	8	0	100
supplementary information:						
Sc=Short circuit, Oc=Open circuit						

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location	Peak voltage (V)	RMS voltage (V)	Comments	
T301 pin 9-1	348	169		
T301 pin 9-2	348	173		
T301 pin 9-3	364	171		
T301 pin 9-4	364	171		
T301 pin 9-5	380	172		
T301 pin 9-6	352	170		
T301 pin 9-7	364	170		
T301 pin 9-8	404	178		
T301 pin 10-1	364	170		
T301 pin 10-2	364	170		
T301 pin 10-3	344	169		
T301 pin 10-4	344	169		
T301 pin 10-5	360	170		
T301 pin 10-6	360	170		
T301 pin 10-7	384	173		
T301 pin 10-8	384	173		
T301 pin 11-1	384	173		
T301 pin 11-2	352	169		
T301 pin 11-3	368	171		
T301 pin 11-4	368	171		
T301 pin 11-5	352	170		
T301 pin 11-6	380	172		
T301 pin 11-7	408	180		
T301 pin 11-8	306	170		
T301 pin 14-1	408	227		
T301 pin 14-2	412	250		
T301 pin 14-3	396	237		
T301 pin 14-4	396	237		
T301 pin 14-5	404	249		
T301 pin 14-6	404	229		
T301 pin 14-7	424	212		

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Clause	Requirement + Test	Result - Remark	Verdict
T301 pin 14-8	440	266	Max. Vrms & Max. Vpeak
T301 pin 16-1	340	176	
T301 pin 16-2	328	169	
T301 pin 16-3	324	172	
T301 pin 16-4	324	172	
T301 pin 16-5	324	170	
T301 pin 16-6	336	175	
T301 pin 16-7	340	175	
T301 pin 16-8	356	168	
CY108 pin 1-2	348	209	
CY101 pin 1-2	339	240	
CY102 pin 1-2	339	240	
N301 pin 1-3	352	212	
N301 pin 1-4	352	213	
N301 pin 2-3	352	213	
N301 pin 2-4	352	212	
N303 pin 1-3	392	214	
N303 pin 1-4	392	214	
N303 pin 2-3	392	214	
N303 pin 2-4	392	214	
N302 pin 1-3	400	224	
N302 pin 1-4	400	224	
N302 pin 2-3	400	224	
N302 pin 2-4	400	224	
CY107 pin 1-2	348	209	
supplementary information:			
--			

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Functional:							
--	--	--	--	--	--	--	--
Basic/supplementary:							
Across fuse F101	< 420	< 250	2,0	3,8	2,5	3,8	
Across primary directly connected to mains before F101	< 420	< 250	2,0	3,6	2,5	3,6	
L/N to Earth	< 420	< 250	2,0	8,0	2,5	8,0	
Separation of Y-cap. on PWB (CY101, CY102, CY108) (R)	< 420	< 250	2,0	8,0	2,5	8,0	
Reinforced:							
Separation of Y-cap. on PWB (CY107) (R)	< 420	< 250	4,0	8,0	5,0	8,0	
Input to output of optocoupler (N301, N302, N303) on PWB (R)	< 420	< 250	4,0	7,1	5,0	7,1	
Input to output of optocoupler body (N301, N302, N303) (R)	< 420	< 250	4,0	See table 14	5,0	See table 14	
Primary to secondary of T301 on PWB (R)	440	266	4,2	8,1	5,4	8,1	
Pri. winding to sec. pins of T301 (R)	440	266	4,2	8,9	5,4	8,9	
Ferrite core to pri. pins of T301 (B)	440	266	2,1	5,5	2,7	5,5	
Ferrite core to sec. pins of T301 (S)	440	266	2,1	5,5	2,7	5,5	
Supplementary information:							
--							

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Bobbin of transformer T301	440	266	3000 Vrms	0,4	0,8	
Insulation sheet covered power board	<420	<250	3000 Vrms	0,4	min. 0,4	

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Plastic enclosure		<420	<250	3000 Vrms	0,4	Min. 1,5
Supplementary information: --						

4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available					--				--
Is it possible to install the battery in a reverse polarity position?					--				--
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--
--									
Test results:					--				Verdict
- Chemical leaks					--				--
- Explosion of the battery					--				--
- Emission of flame or expulsion of molten metal					--				--
- Electric strength tests of equipment after completion of tests					--				--
Supplementary information:									

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

4.3.8	TABLE: Batteries	N/A
Battery category: --		
Manufacturer: --		
Type / model: --		
Voltage: --		
Capacity: --		
Tested and Certified by (incl. Ref. No.).....: --		
Circuit protection diagram: --		
--		

4.5	TABLE: Thermal requirements					P	
	Supply voltage (V)	90	264	--	--	—	—
	Ambient T _{min} (°C)	23,5	23,9	--	--	—	—
	Ambient T _{max} (°C)	24,4	24,4	--	--	—	—
Maximum measured temperature T of part/at::		T (°C)				Allowed T (°C) T _{ma} = 40 °C	
Pri. lead wire		25,7	27,1	--	--	105	90
Surface of pluggable connector		24,9	26,7	--	--	Ref.	Ref.
Surface of VDR (RV101)		26,6	28,2	--	--	85	70
Surface of X-cap (CX102)		30,9	30,8	--	--	85	70
Surface of Y-cap (CY107)		31,2	31,2	--	--	125	110
Surface of optocoupler (N301)		32,7	32,3	--	--	100	85
Surface of E-cap (C203)		30,1	31,1	--	--	105	90
Winding of line filter (FL101)		36,7	30,1	--	--	120	105
Winding of line filter (L202)		23,9	24,0	--	--	120	105
Winding of transformer (Switch mode) T301		37,3	37,3	--	--	110	95
Ferrite core of transformer T301		35,6	35,6	--	--	Ref.	Ref.
Winding of transformer (Switch mode) T301		36,9	36,9	--	--	110	95
PWB (near BD101(on power board))		38,6	32,6	--	--	130	115
PWB (near Q203(on power board))		37,7	33,7	--	--	130	115
PWB (near Q303(on power board))		31,7	31,4	--	--	130	115
PWB (near D401(on power board))		33,4	33,4	--	--	130	115
PWB (near D404(on power board))		40,6	40,5	--	--	130	115
PWB (near D602(on power board))		41,5	40,6	--	--	130	115
PWB (near Q601(on power board))		41,5	40,7	--	--	130	115

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Clause	Requirement + Test			Result - Remark			Verdict
PWB (near Q403(on power board))	41,4	40,6	--	--	130	115	
PWB (near UA01(on main board))	34,7	34,8	--	--	130	115	
PWB (near UP05(on main board))	34,4	34,3	--	--	130	115	
Heat-sink surface (on main board))	34,9	35,9	--	--	Ref.	Ref.	
PWB (near UP09 (on main board))	28,4	28,5	--	--	130	115	
PWB (near UUO1 (on main board))	28,6	29,2	--	--	130	115	
Heat-sink surface Point 1(on main board for laser part)	50,0	49,5	--	--	Ref.	Ref.	
Heat-sink surface Point 2(on main board for laser part)	42,2	41,7	--	--	Ref.	Ref.	
PWB (near Q6(on main board for laser part))	50,2	49,6	--	--	130	115	
PWB (near U29(on main board for laser part))	54,5	54,1	--	--	130	115	
PWB (near U1017(on main board for laser part))	44,1	43,3	--	--	130	115	
PWB (near U501(on main board for laser part))	52,5	51,9	--	--	130	115	
PWB (near Q503(on main board for laser part))	53,0	52,4	--	--	130	115	
PWB (near U8(on main board for laser part))	46,1	45,6	--	--	130	115	
Heat-sink surface, near the left fan	41,7	41,2	--	--	Ref.	Ref.	
Heat-sink surface, laser output	32,5	36,7	--	--	Ref.	Ref.	
Fans (Left)	39,9	39,3	--	--	Ref.	Ref.	
Enclosure inside (near Bottom of power board)	28,0	29,4	--	--	Ref.	Ref.	
Enclosure inside (near Top of main board)	25,7	28,2	--	--	Ref.	Ref.	
Enclosure inside (near Top)	34,4	34,1	--	--	Ref.	Ref.	
Non-metallic enclosure surface (Top, near Top of LED heat sink)	29,3	30,5	--	--	95	80	
Non-metallic button surface	24,2	24,7	--	--	85	70	
Non-metallic enclosure surface (Side)	25,8	26,2	--	--	95	80	
Supplementary information: --							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	B
Supplementary information:							

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

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm)	≤ 2 mm	—
Part		Test temperature (°C)	Impression diameter (mm)
--		--	--
Supplementary information:			

4.7	TABLE: Resistance to fire					P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
--	--	--	--	--	--	--
Supplementary information: See table 1,5,1 for details						

5.1	TABLE: touch current measurement			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
Measured between L/N and earthed terminals	0,004	0,25	Normal condition, e position close	
Measured between L/N and plastic enclosure	Max. 0,004	0,25	Normal condition, e position close	
Measured between L/N and earthed terminals	Max. 0,136	3,5	Normal condition, e position open	
supplementary information:				
--				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:				
--	--	--	--	
Basic/supplementary:				
L/N of plug and earth	AC	1500	No	
L and N of plug (before fuse)	AC	1500	No	
Reinforced:				
L/N of plug and output terminal	AC	3000	No	
L/N of plug and plastic enclosure	AC	3000	No	
Supplementary information:				

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

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C)				21,2 - 21,4 °C	—
	Power source for EUT: Manufacturer, model/type, output rating				--	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
USB1	Overload	90	2 h 12 min	F101	2,819 → 2,687	USB1 output current 1,46 A for attainign steady conditions, after add 5% output current, input change to 233,6 W, no hazard. Winding of transformer (Switch mode)T301 = 37,3 °C
USB1	Overload	264	1 h 2 min	F101	0,950 → 0,910	Output1 current 1,43 A for attainign steady conditions, after add 5% output current, input change to 237,8 W, no hazard. Winding of transformer (Switch mode)T301 = 37,0 °C
Whole apparatus	Audio: 100% of max. non-clipped output power with 1 kHz sine wave signal input; Video: the three vertical bar signal products three equidistant vertical white bars on a black background	264	1 h 58 min	F101	1,029	EUT run for steady state, no component damage, no hazard. Winding of transformer (Switch mode)T301 = 40,0 °C

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
Whole apparatus	Audio: 100% of max. non-clipped output power with 1 kHz sine wave signal input; Video: the three vertical bar signal products three equidistant vertical white bars on a black background	90	1 h 31 min	F101	3,147	EUT run for steady state, no component damage, no hazard. Winding of transformer (Switch mode)T301 = 39,1 °C
Openings of enclosure	Blocked ventilation	90	1 h 41 min	F101	2,787	No component damage, no hazard. Winding of transformer (Switch mode)T301 = 61,8 °C
Fan (Left)	Locked	264	--	F101	0,932	No higher temperature rise than normal, no component damage, no hazard.
Fan (Right)	Locked	264	--	F101	0,270	No higher temperature rise than normal, no component damage, no hazard.
Speaker "L"	s-c	264	10 min.	F101	0,921	No higher temperature rise than normal, no component damage, no hazard.
USB1	s-c	264	10 min.	F101	0,912	No higher temperature rise than normal, no component damage, no hazard.
C515	s-c	264	10 min.	F101	0,931	No higher temperature rise than normal, no component damage, no hazard.
C746	s-c	264	10 min.	F101	0,274	No higher temperature rise than normal, no component damage, no hazard.
C1163	s-c	264	10 min.	F101	0,929	No higher temperature rise than normal, no component damage, no hazard.
C1167	s-c	264	10 min.	F101	0,930	No higher temperature rise than normal, no component damage, no hazard.

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
CP25	s-c	264	10 min.	F101	0,173	No higher temperature rise than normal, no component damage, no hazard.
CP75	s-c	264	10 min.	F101	0,169	No higher temperature rise than normal, no component damage, no hazard.
N301	s-c pin diode	264	10 min.	F101	0,933	No higher temperature rise than normal, no component damage, no hazard.
N301	s-c pin c/e	264	10 min.	F101	1,031	EUT shut down immediately, no hazard.
N302	s-c pin diode	264	10 min.	F101	1,533	No higher temperature rise than normal, no component damage, no hazard.
N302	s-c pin c/e	264	10 min.	F101	0,932	No higher temperature rise than normal, no component damage, no hazard.
N303	s-c pin diode	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
N303	s-c pin c/e	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
C411	s-c	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
C606	s-c	264	10 min.	F101	0,623	No higher temperature rise than normal, no component damage, no hazard.
C419	s-c	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
C401	s-c	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
D602	s-c	264	10 min.	F101	0,625	No higher temperature rise than normal, no component damage, no hazard.
D404	s-c	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
D401	s-c	264	10 min.	F101	0,110	EUT shut down immediately, no hazard.
Q601	s-c pin D/S	90	10 min.	F101	0,110	EUT shut down immediately, no hazard.
Q303	s-c pin D/S	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q303, R204 damage, no hazard.
Q303	s-c pin D/S	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q303, R204 damage, no hazard.

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
Q303	s-c pin D/G	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q303, R204 damage, no hazard.
Q303	s-c pin D/G	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q303, R204 damage, no hazard.
Q201	s-c pin D/S	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q201, R204 damage, no hazard.
Q201	s-c pin D/S	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q201, R204 damage, no hazard.
Q201	s-c pin D/G	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q201, R204 damage, no hazard.
Q201	s-c pin D/G	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q201, R204 damage, no hazard.
R204	s-c	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q303, Q203 damage, no hazard.
R204	s-c	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components Q303, Q203 damage, no hazard.
BD101	s-c pin 1-2	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components no damage, no hazard.
BD101	s-c pin 1-2	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components no damage, no hazard.
BD101	s-c pin 2-3	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components no damage, no hazard.
BD101	s-c pin 2-3	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components no damage, no hazard.
C203	s-c	90	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components no damage, no hazard.
C203	s-c	264	10 min.	F101	0	EUT shut down immediately, fuse F101 opened and components no damage, no hazard.
Supplementary information: Electric strength test for primary – secondary after tests: 3000 V, 1 min: OK.						

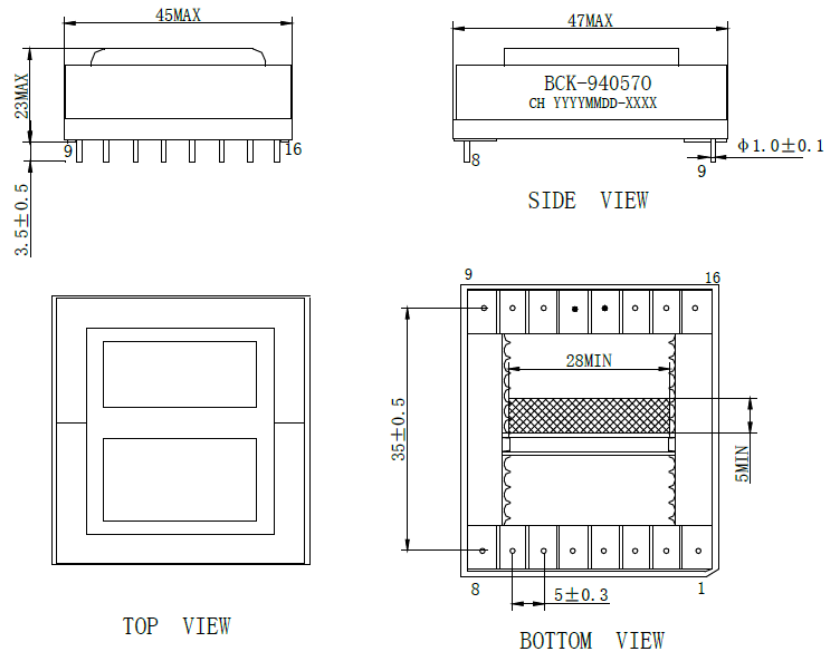
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

C.2		TABLE: transformers						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
T301 pri. and sec.	Reinforce insulation	440	266	AC 3000V	4,2	5,4	0,4	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T301 Pri. to sec.	Reinforce insulation			AC 3000	8,9	8,9	--	
T301 Ferrite core to pri.	Basic insulation			AC 1500	5,5	5,5	--	
T301 Ferrite core to sec.	Supplement insulation			AC 1500	5,5	5,5	--	
T301 Bobbin	Reinforce insulation			AC 3000	--	--	Min. 0,8 mm	
T301 Insulation tape	Reinforce insulation			AC 3000	--	--	2 layer	
supplementary information:								
Ferrite core was considered as secondary part.								
C.2		TABLE: transformers						P

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

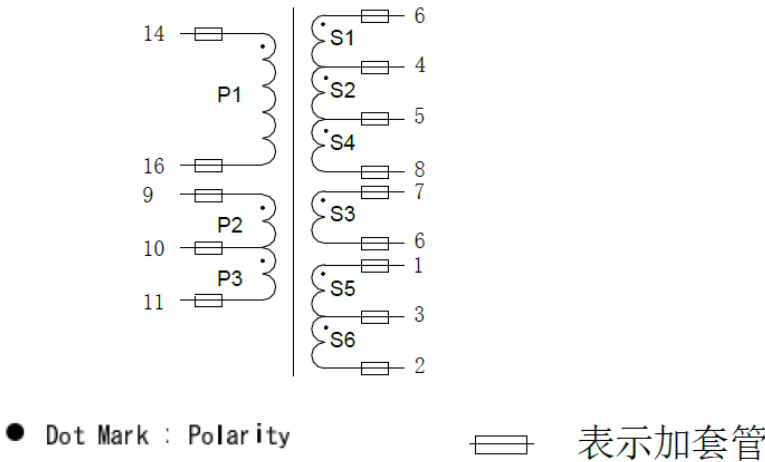
Transformer for T301

1、 DIMENSION 尺寸 (Unit 单位:mm)



- 注： 1. 磁芯外包两层 0.025×10.5mm 胶带固定,磁芯中柱点胶。
2. 产品去掉第 12、13 脚，所有绕组穿套管。
3. 在变压器初级绕组和中隔板之间反包胶带两层，反包胶带宽度大于 28mm，且反包长度和深度都大于 5mm。
4. 绕线方向为 P1 出线交叉。

2. CONNECTION 电路连接图

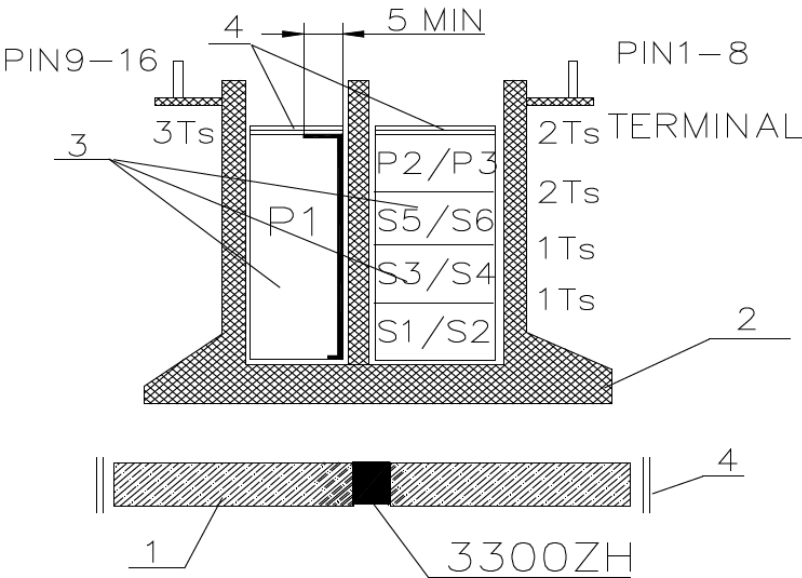


IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

3. WINDING SPEC. 绕线说明

NO.	Barrier Tape		Terminal		Winding			Insulation		Remark
	PRI	SEC.	S	F	WIRE	Ts	Method	P.E TAPE	Ts	
P1			14	16	QA-1 Φ 0.1×80	46	密绕	0.025/15	3	
S1			6	4	QA-1 Φ 0.10×100	3	同层密绕 并绕	0.025/11	1	
S2			4	5	QA-1 Φ 0.10×100	3				
S3			7	6	QA-1 Φ 0.10×100	6	同层密绕 并绕	0.025/11	1	
S4			5	8	QA-1 Φ 0.10×100	6				
S5			1	3	QA-1 Φ 0.10×30	4	同层密绕 并绕	0.025/11	2	
S6			3	2	QA-1 Φ 0.10×30	4				
P2			9	10	三层绝缘线 TKW-B Φ 0.30	5	同层密绕 并绕，绕在 次级线槽	0.025/11	2	
P3			10	11	三层绝缘线 TKW-B Φ 0.30	5				

INTERNAL CONSTRUCTION 内部结构

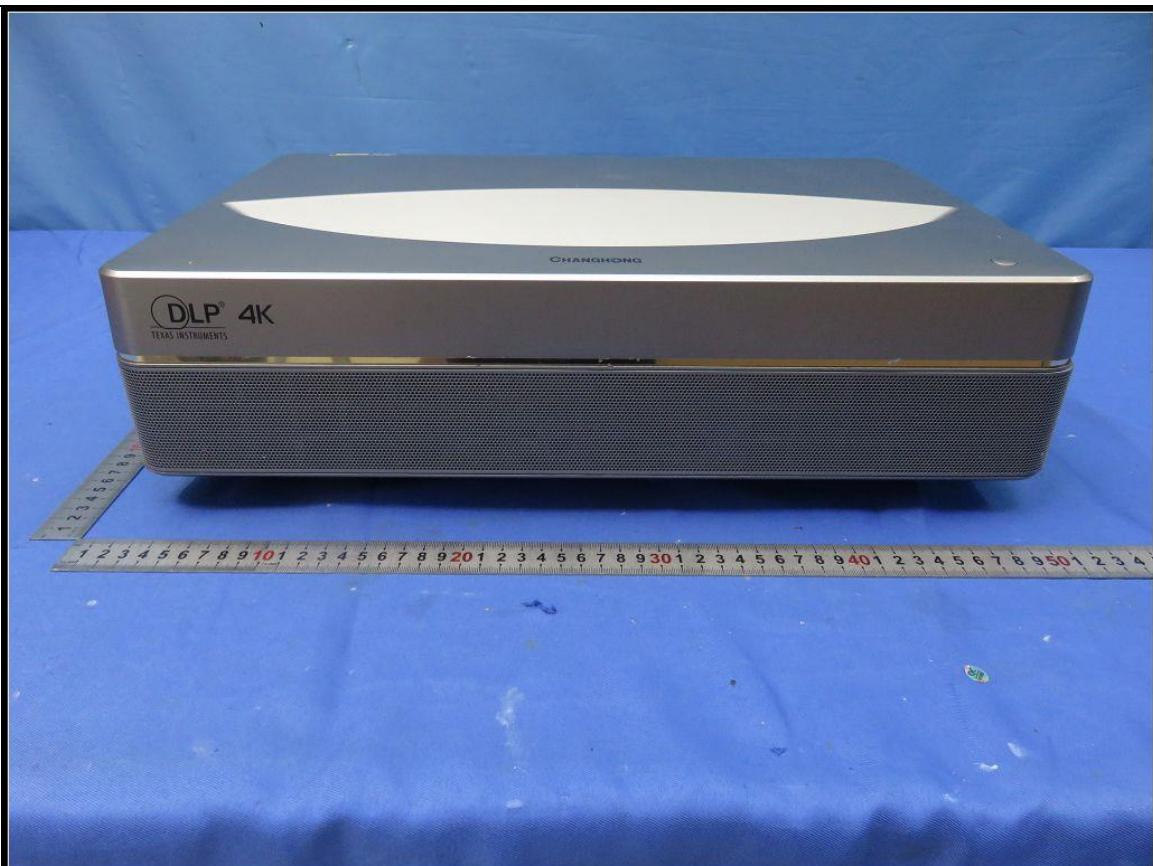


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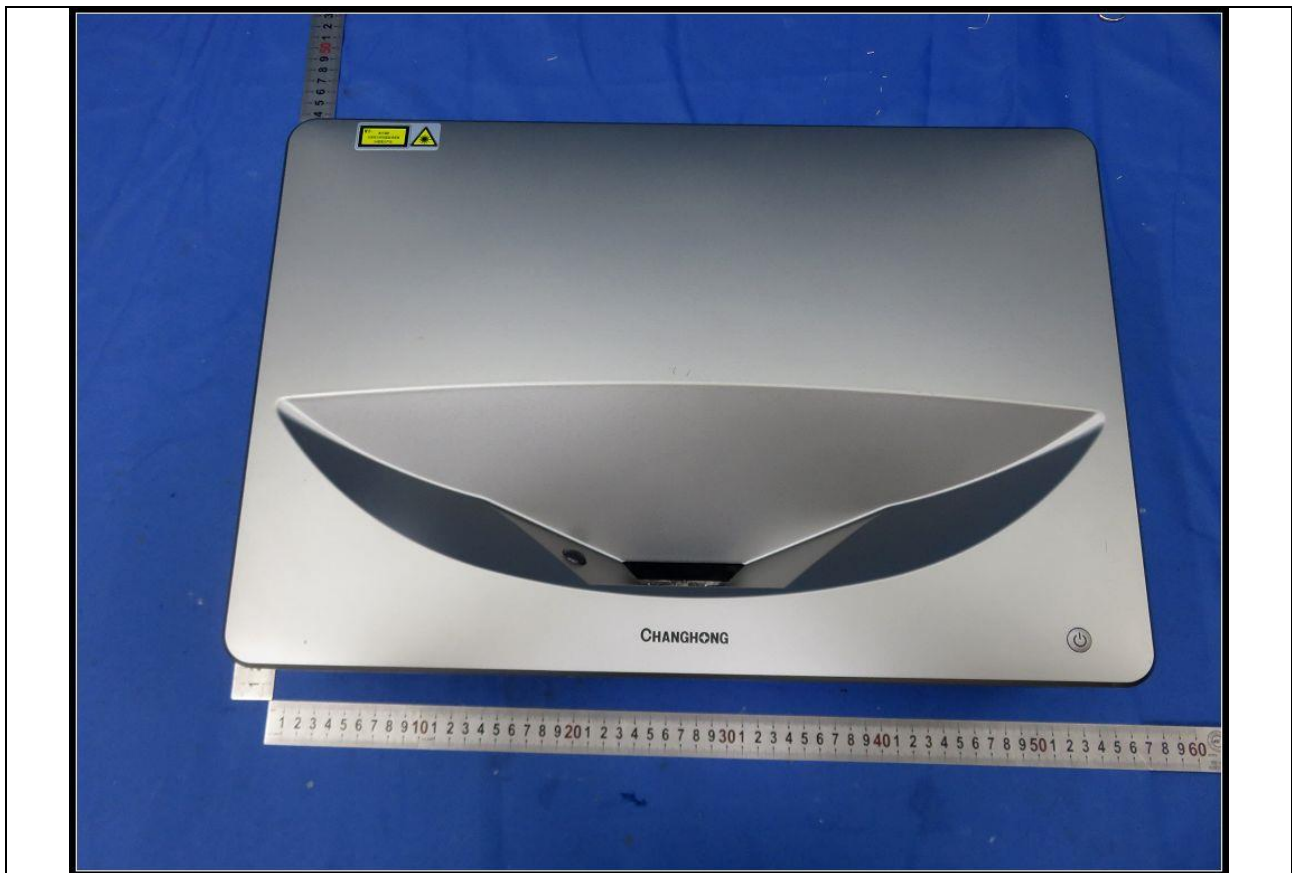
Whole Unit



External view



External view



External view



External view



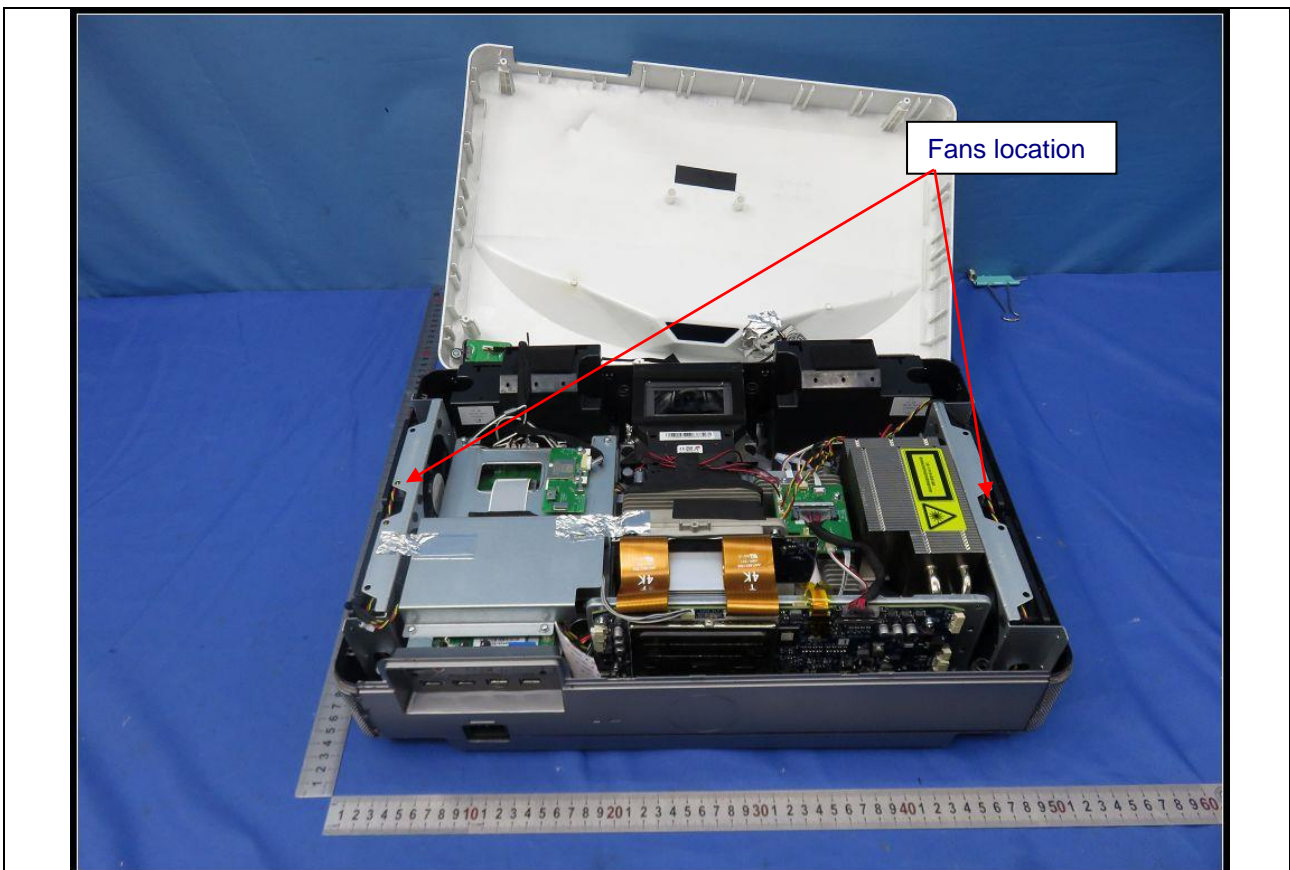
External view



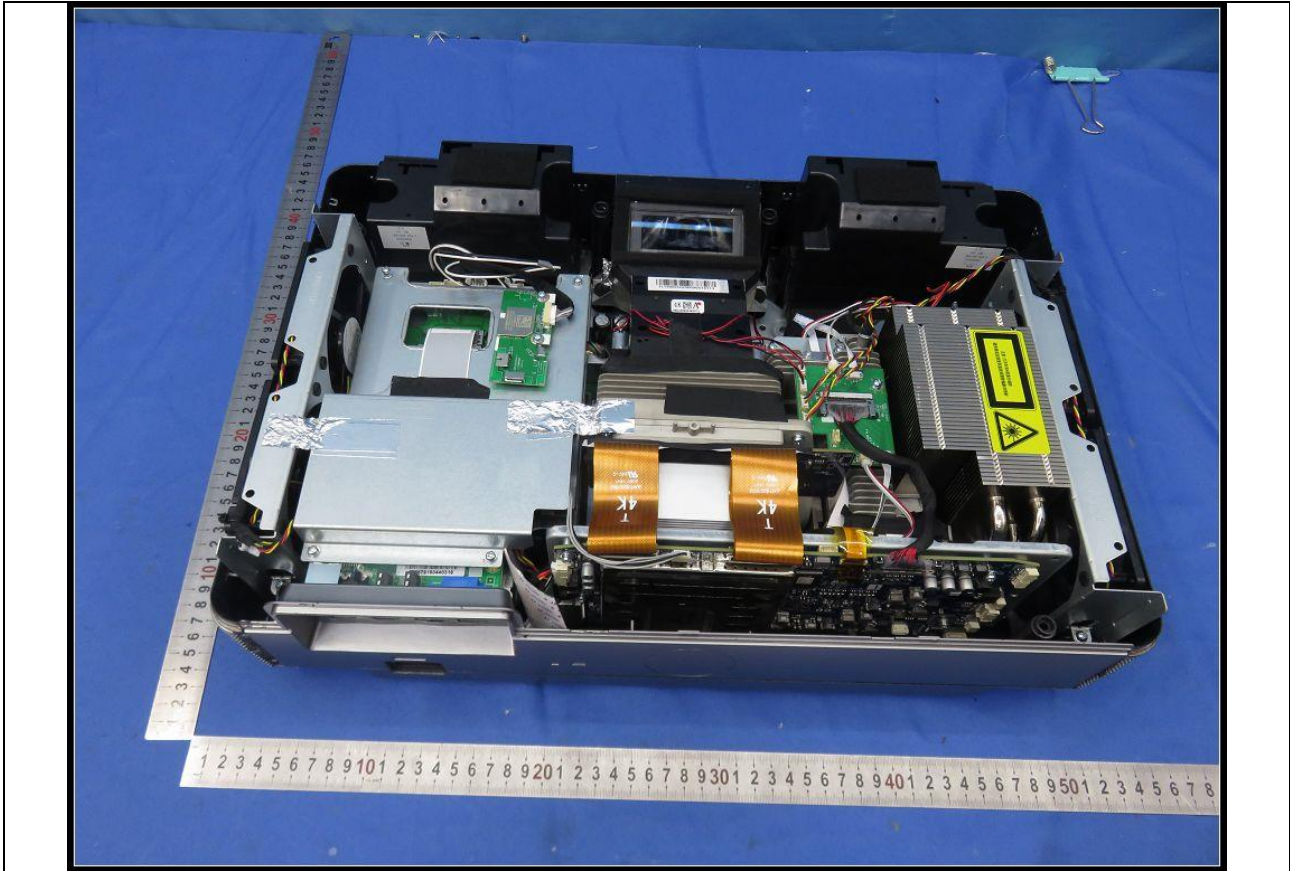
Terminal view



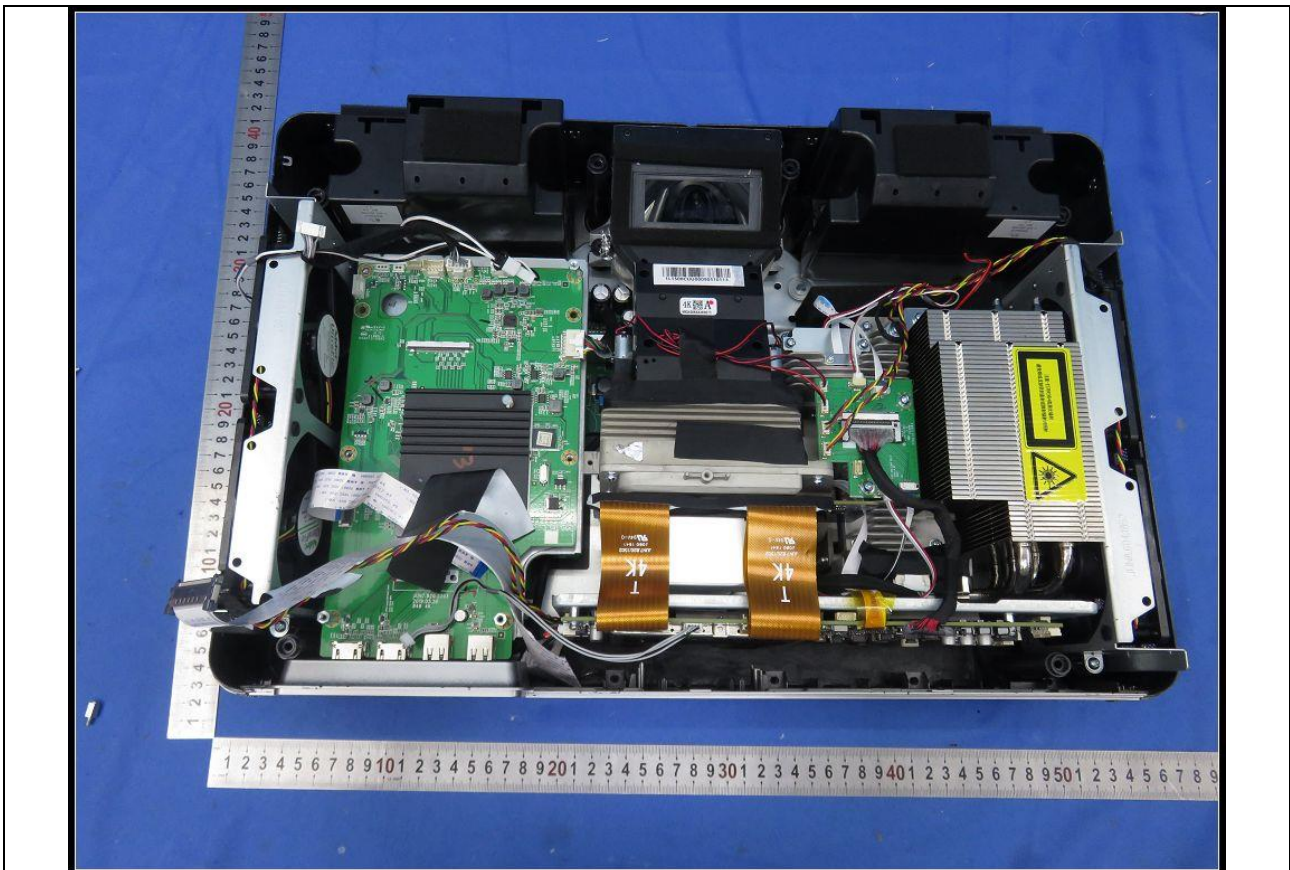
Internal view



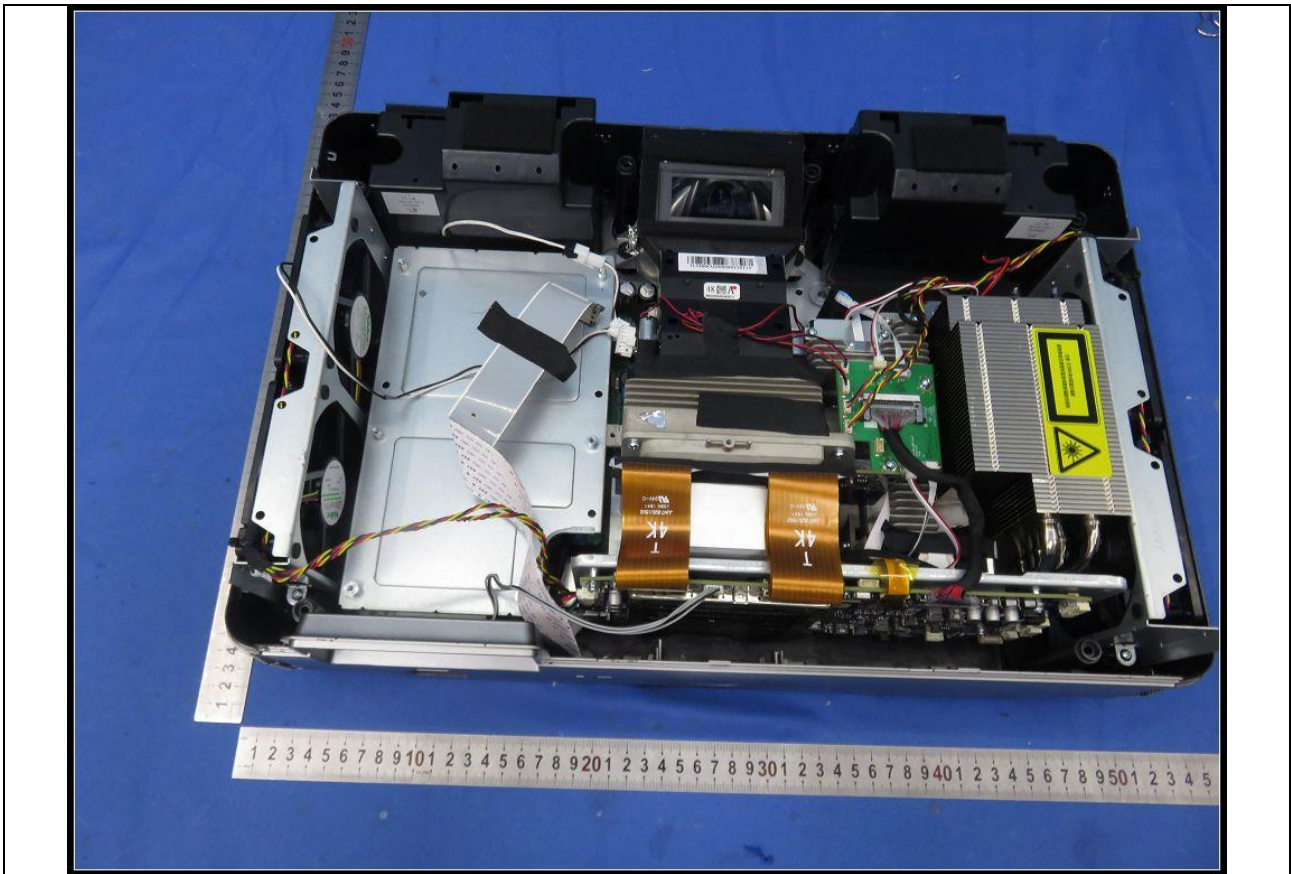
Internal view



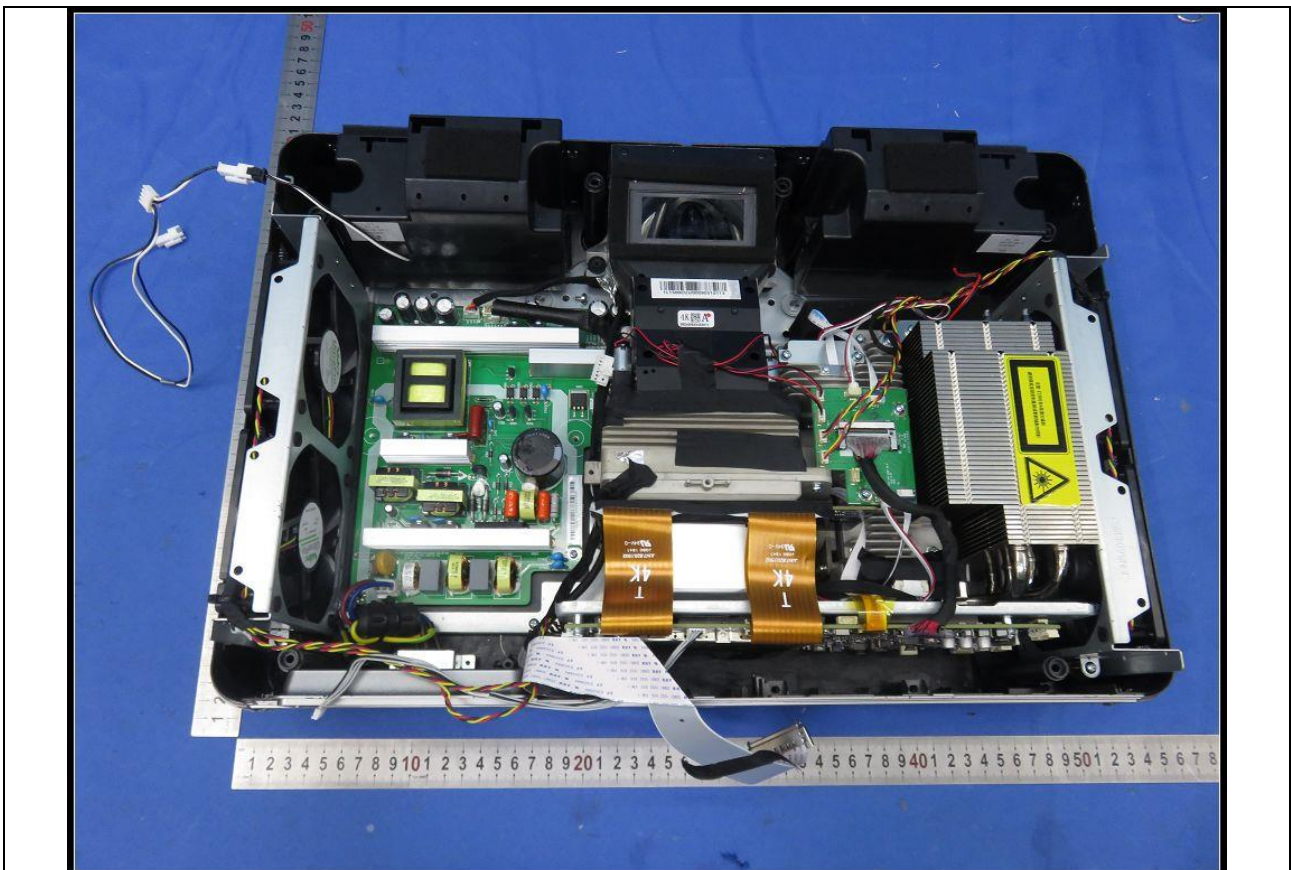
Internal view



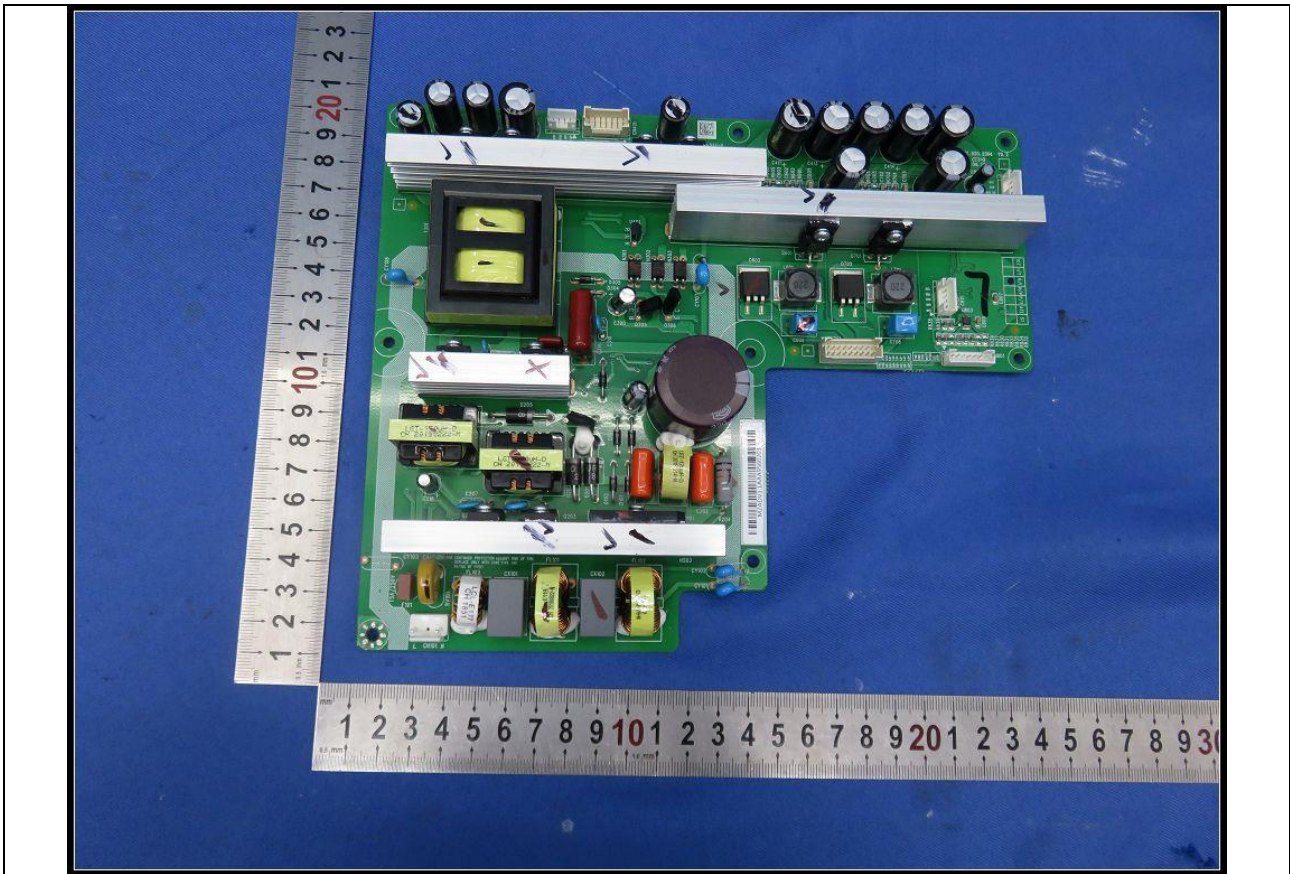
Internal view



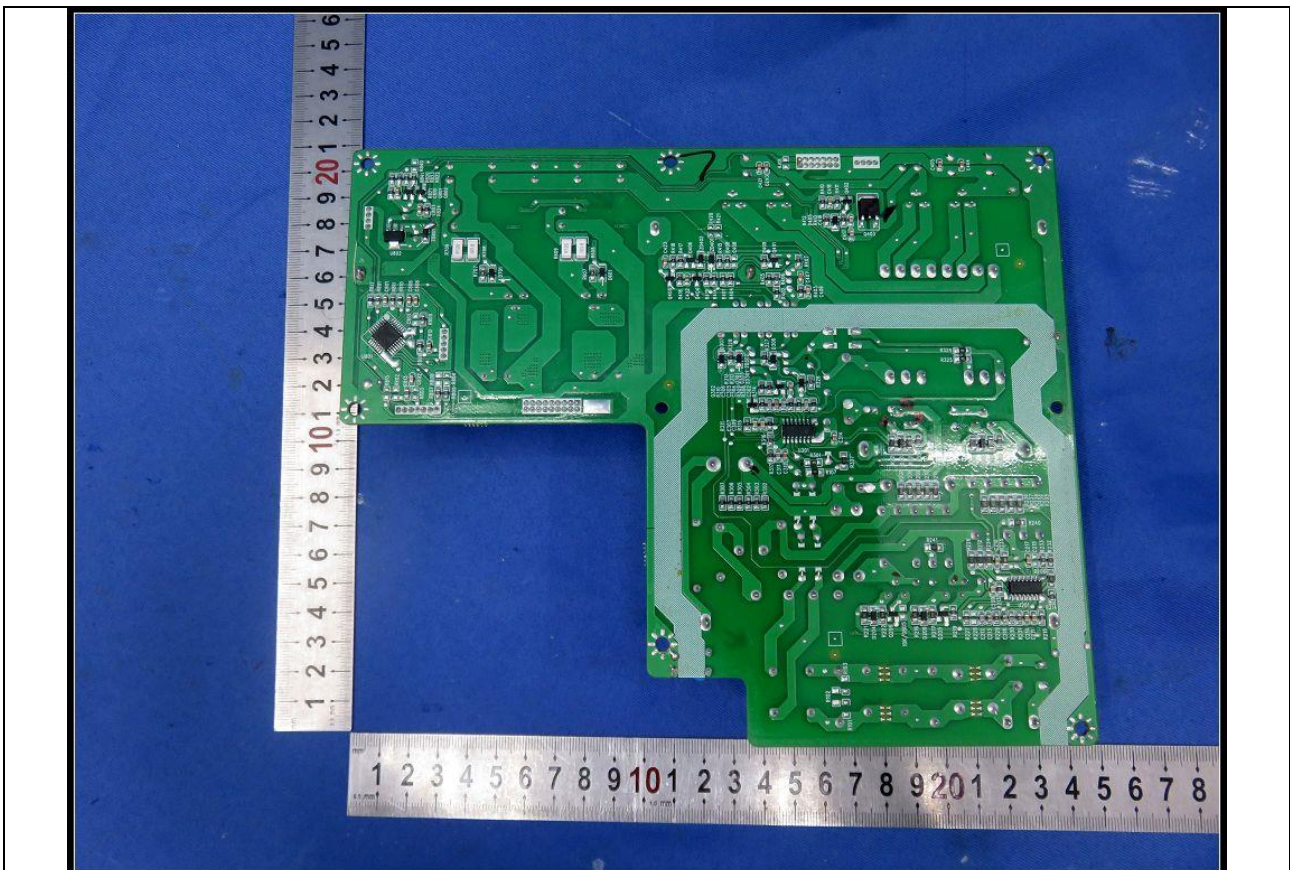
Internal view



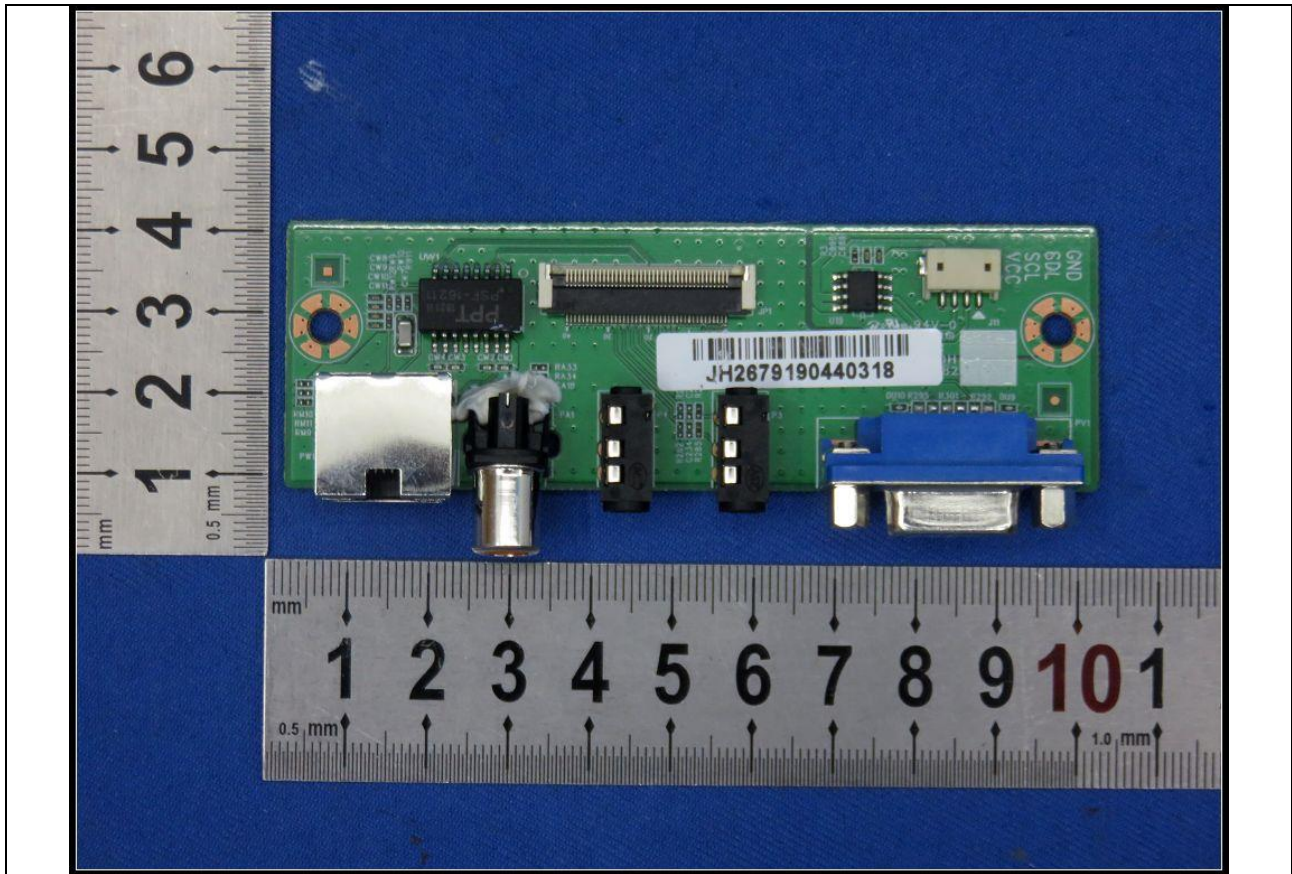
Power board



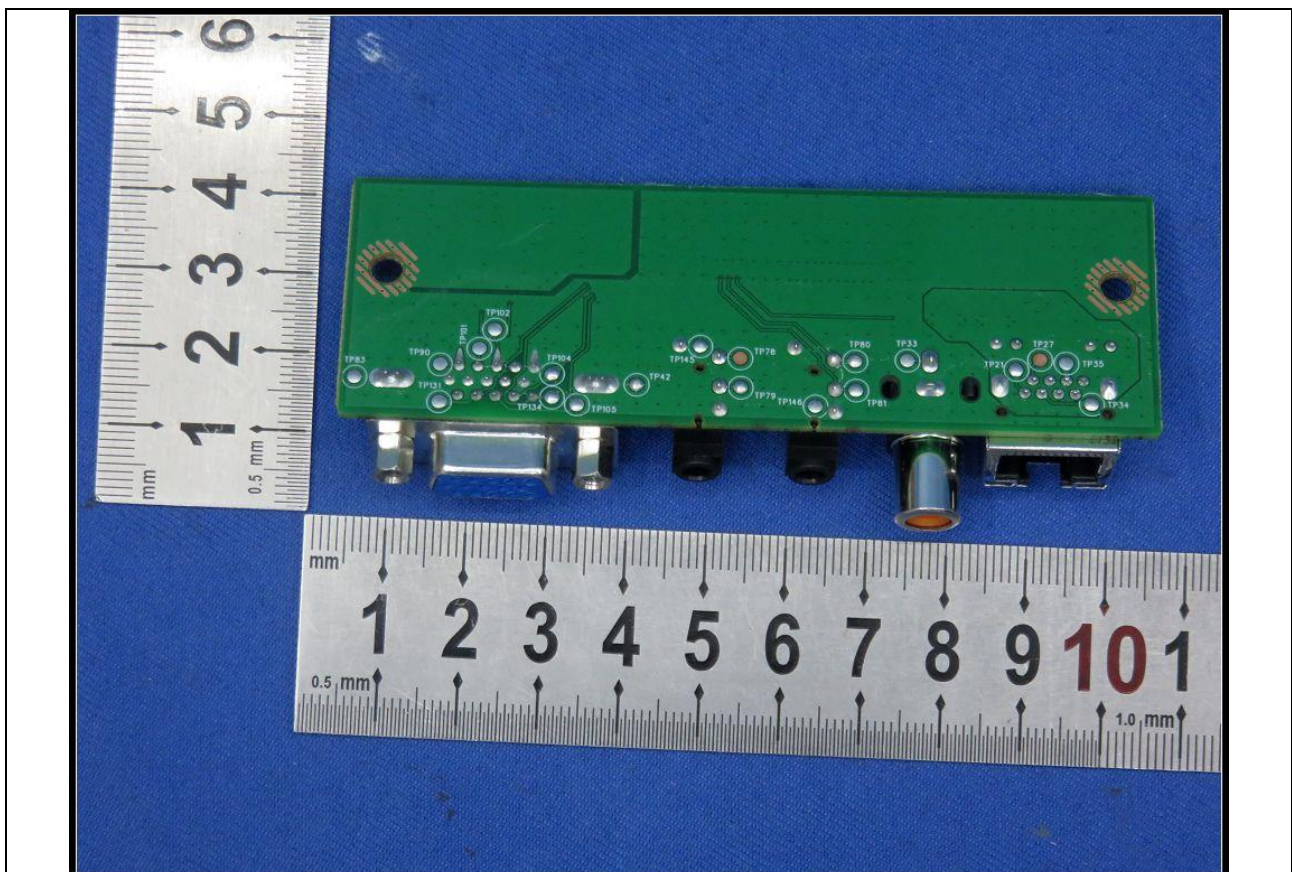
Power board



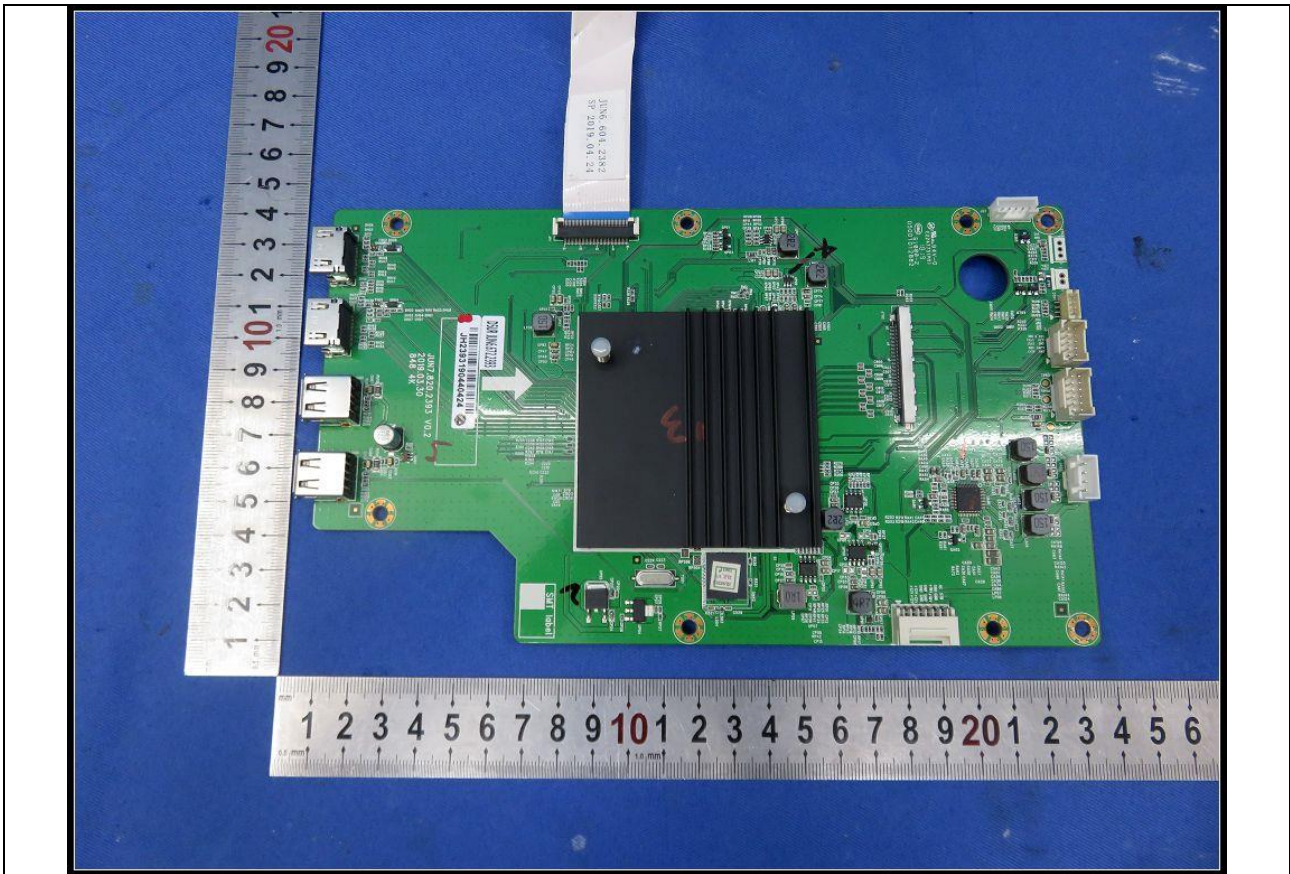
PWB (signal board)



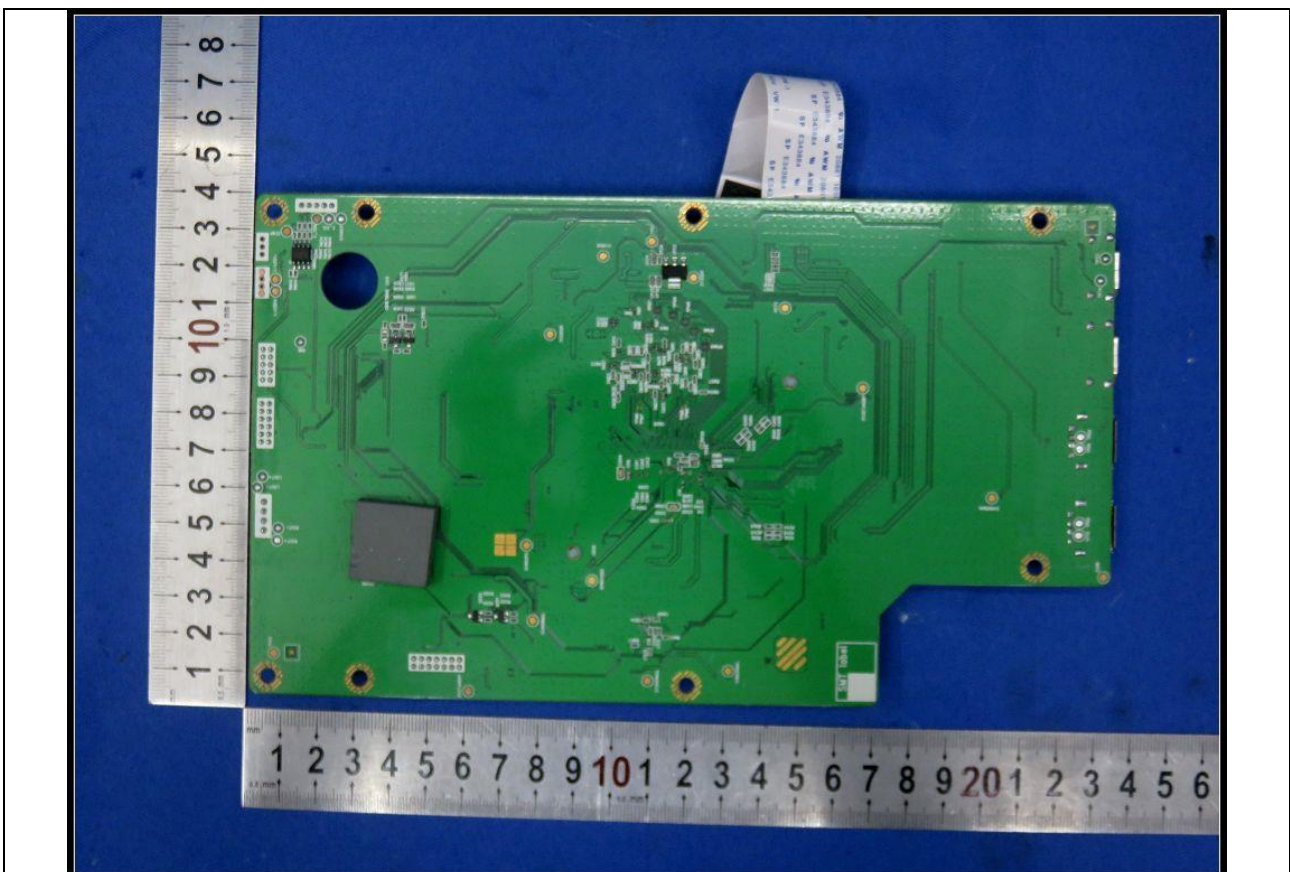
PWB (signal board)



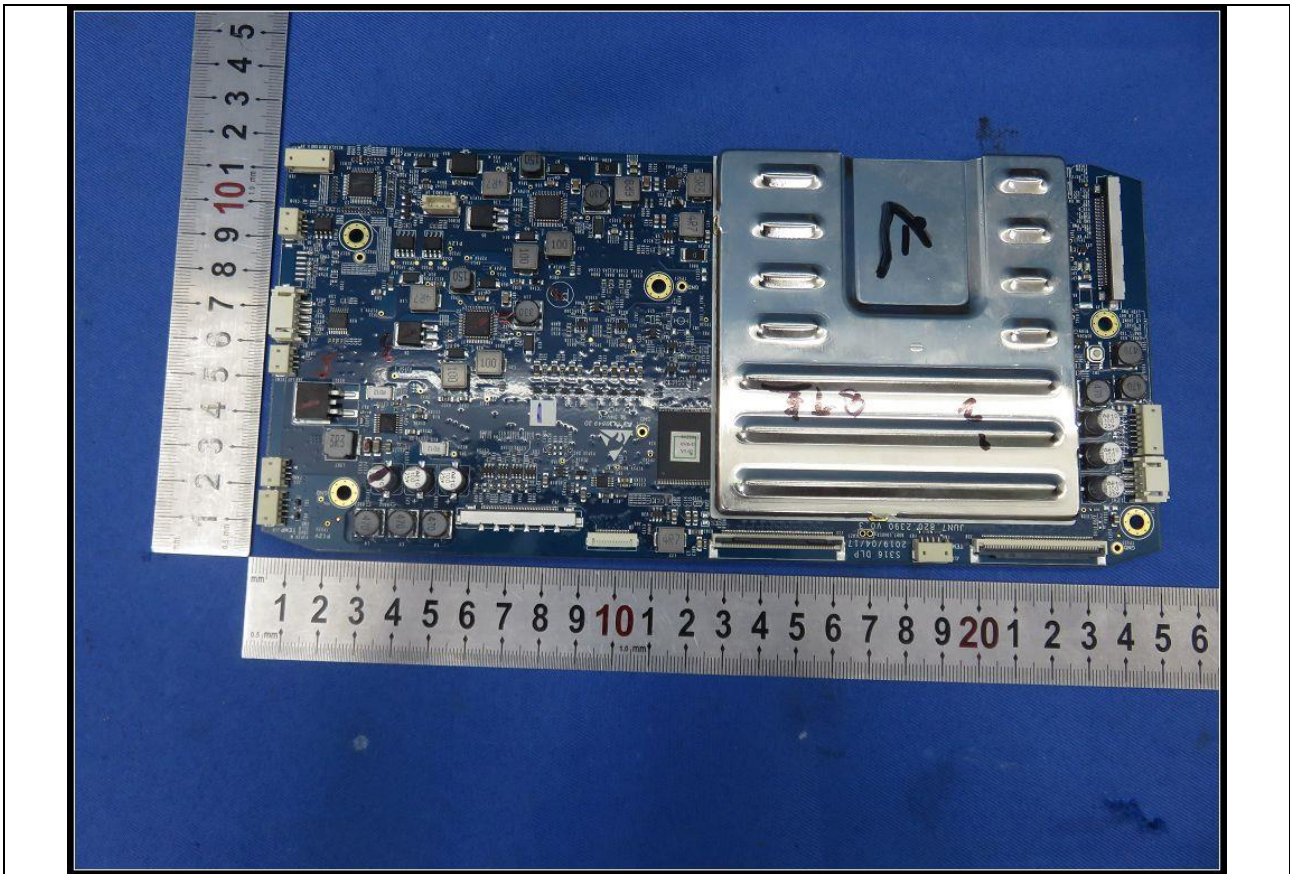
PWB (main board)



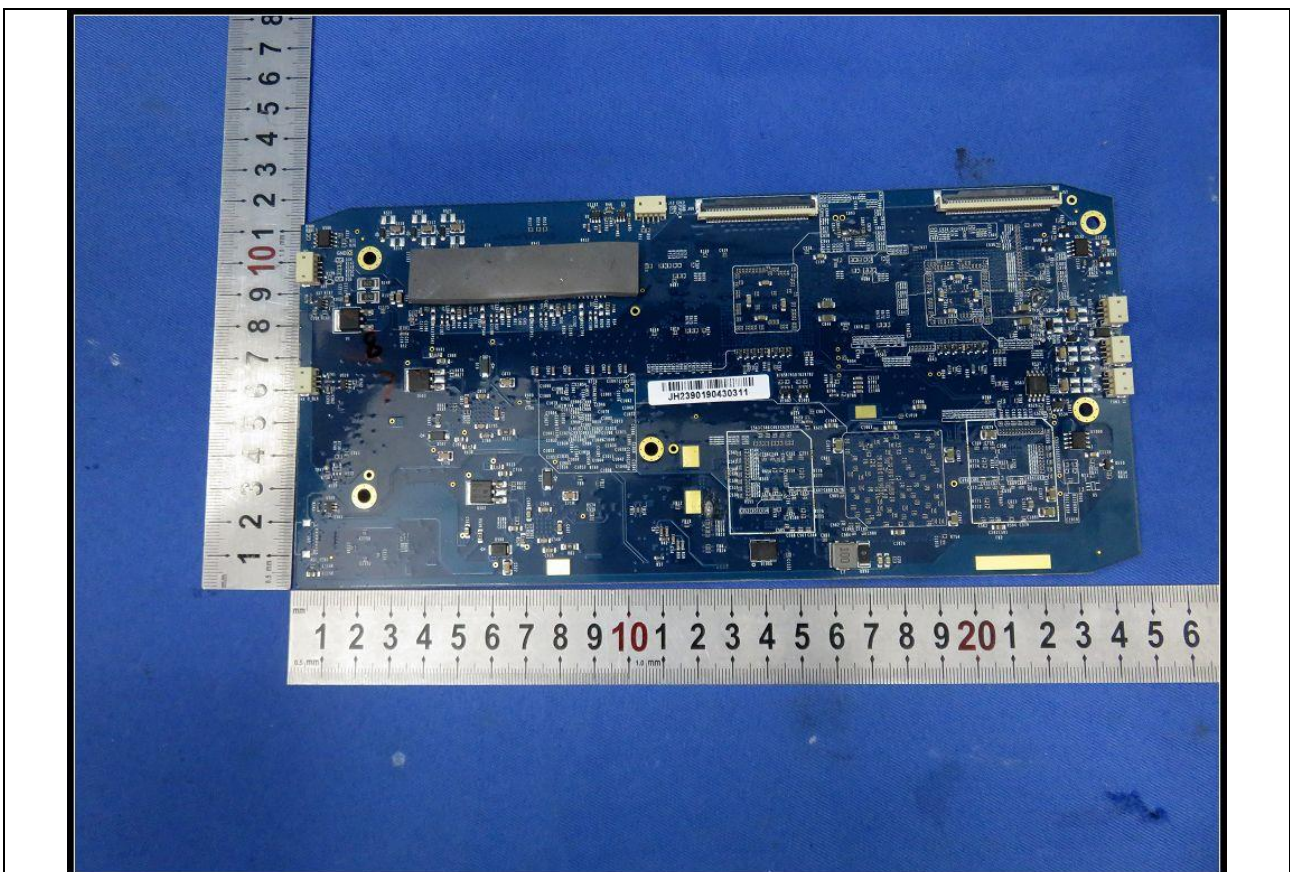
PWB (main board)



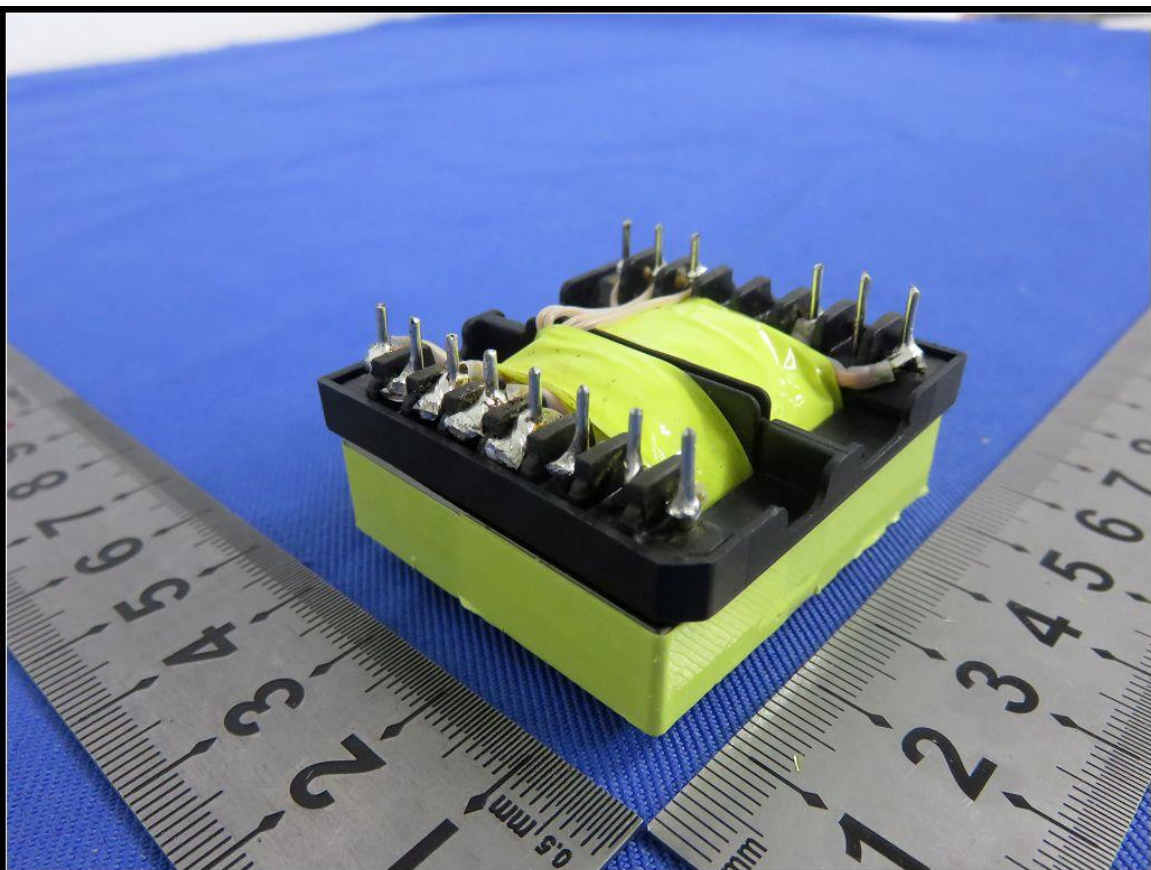
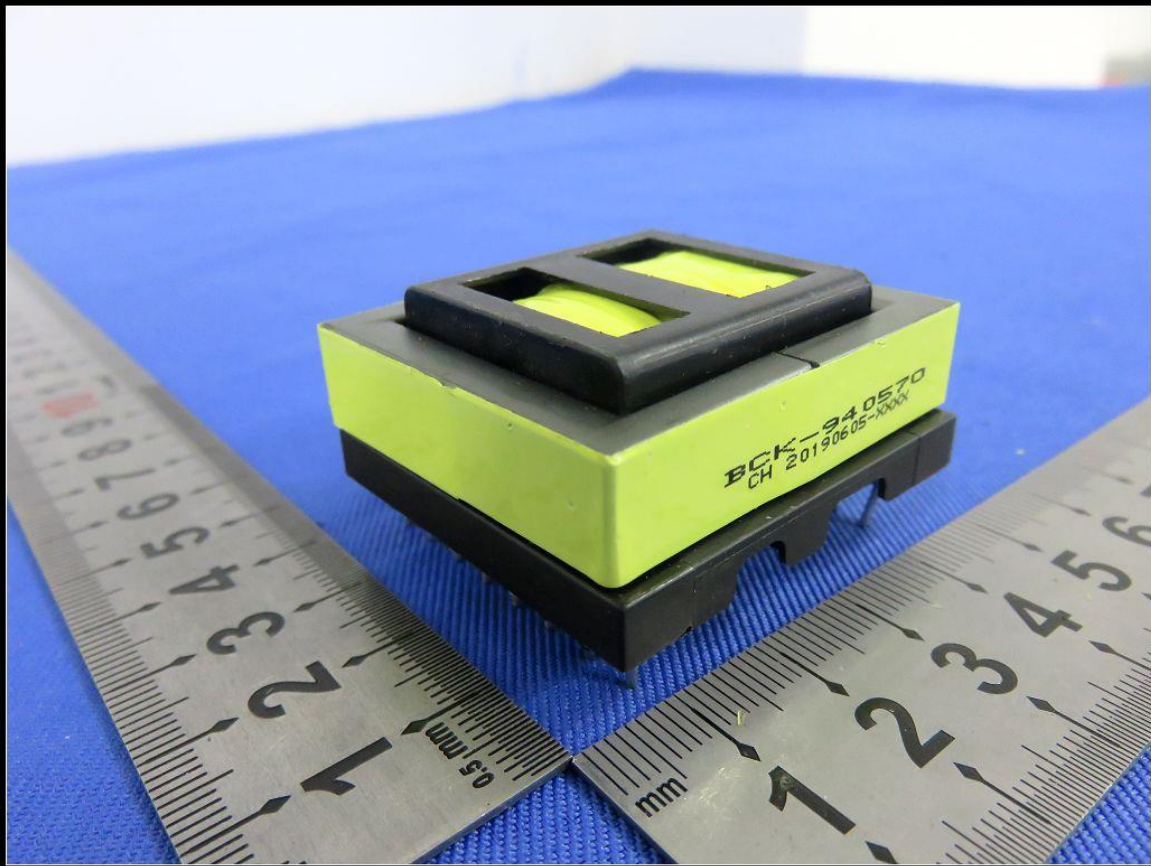
PWB (main board for laser part)

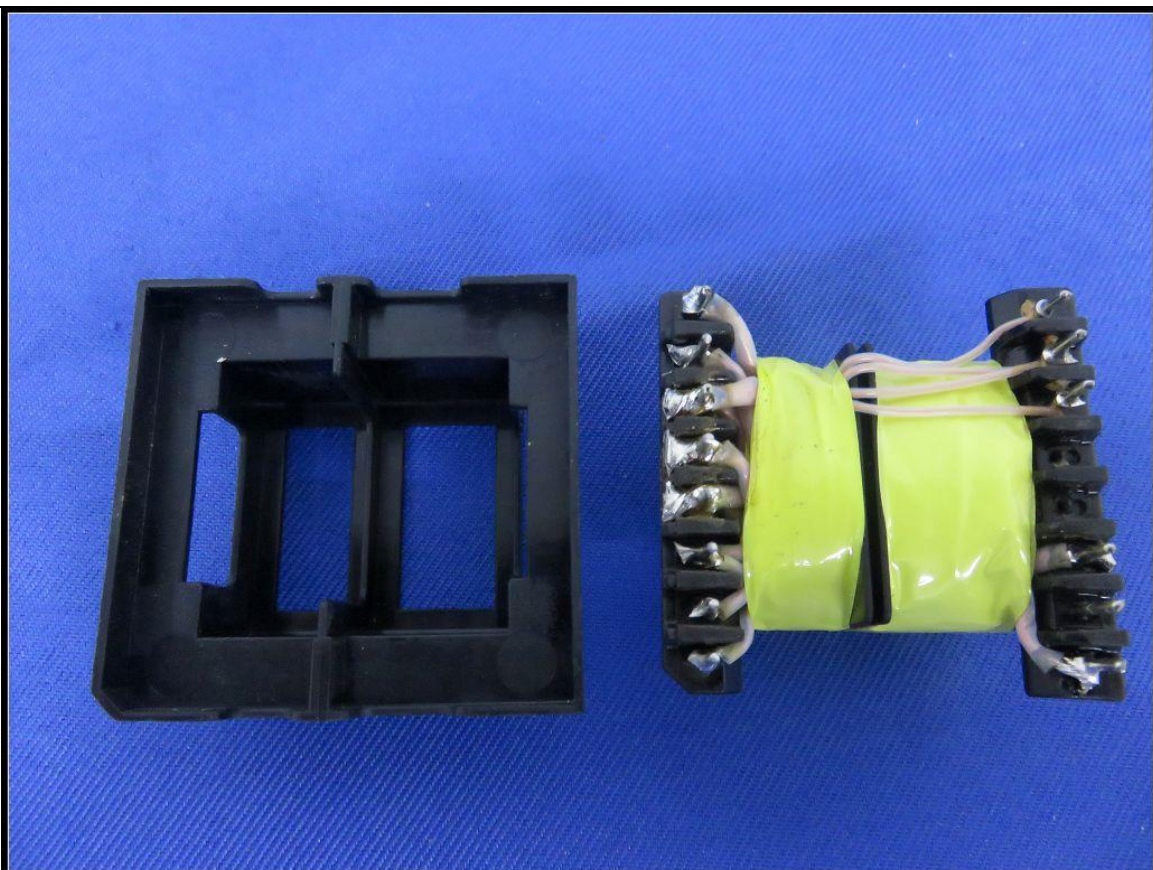
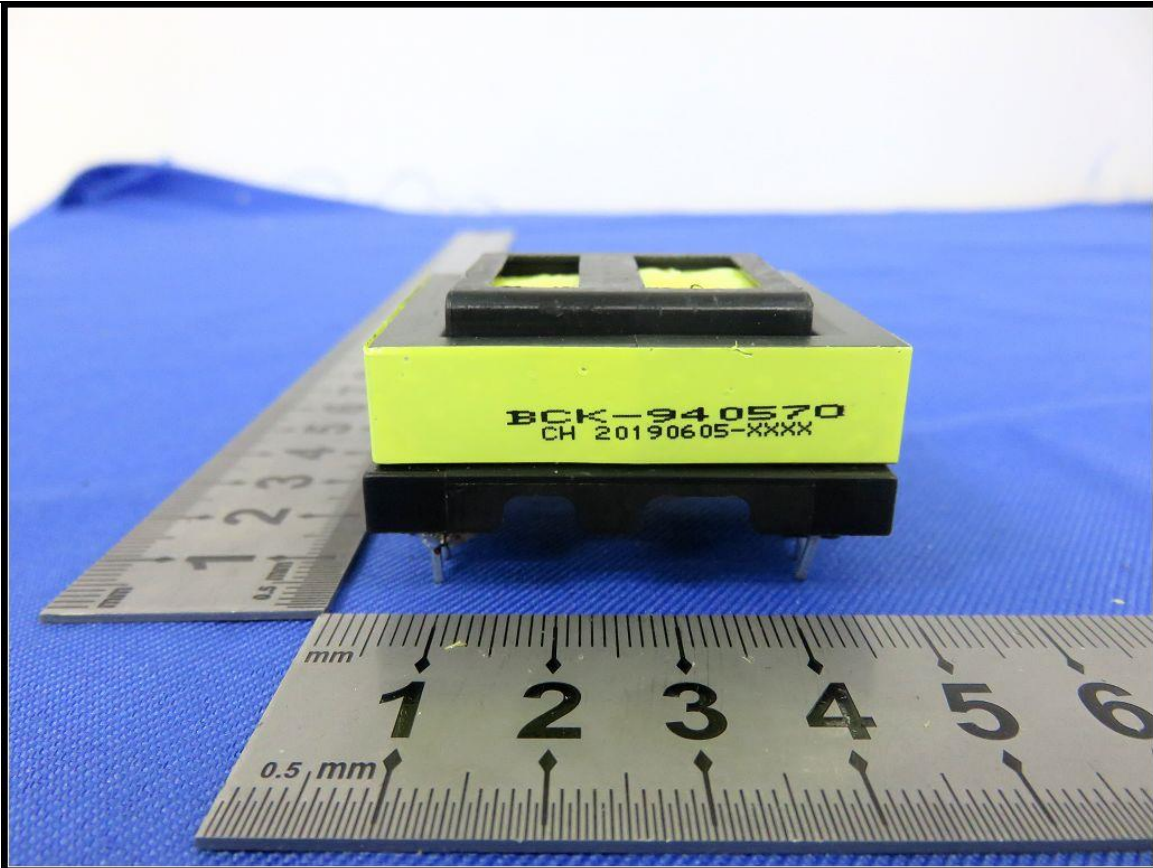


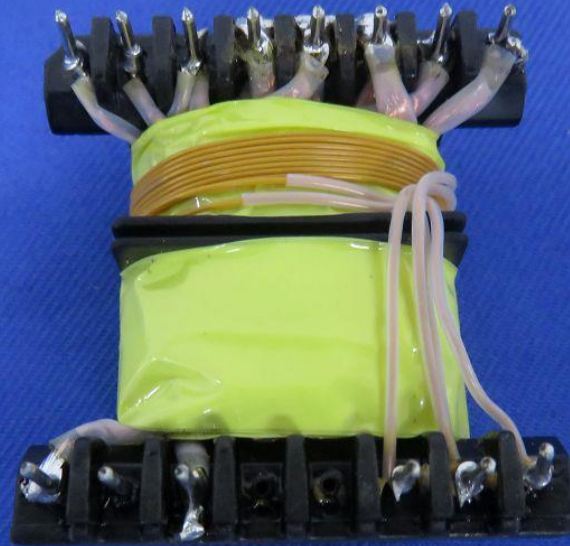
PWB (main board for laser part)



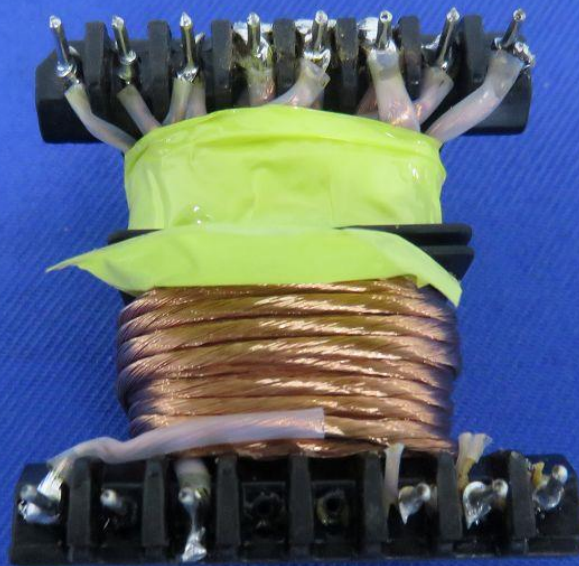
Transformer T301



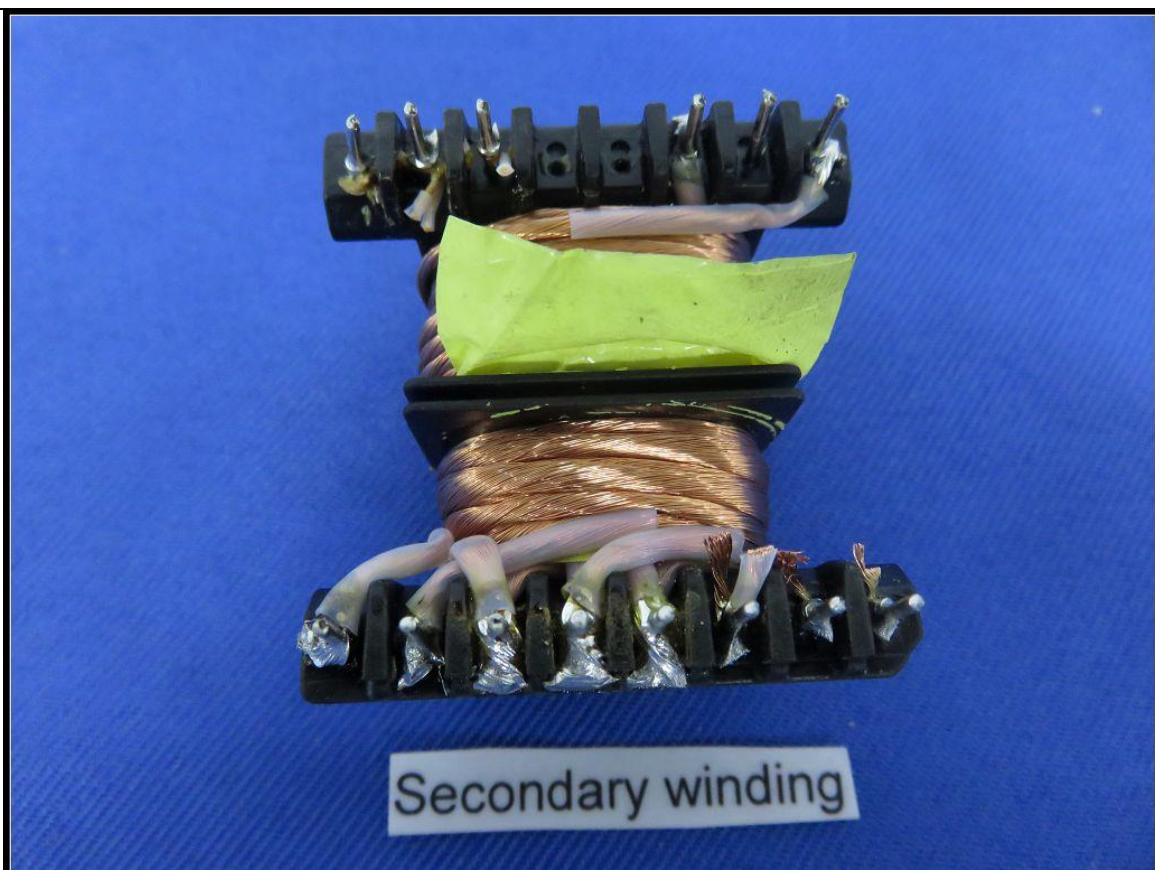
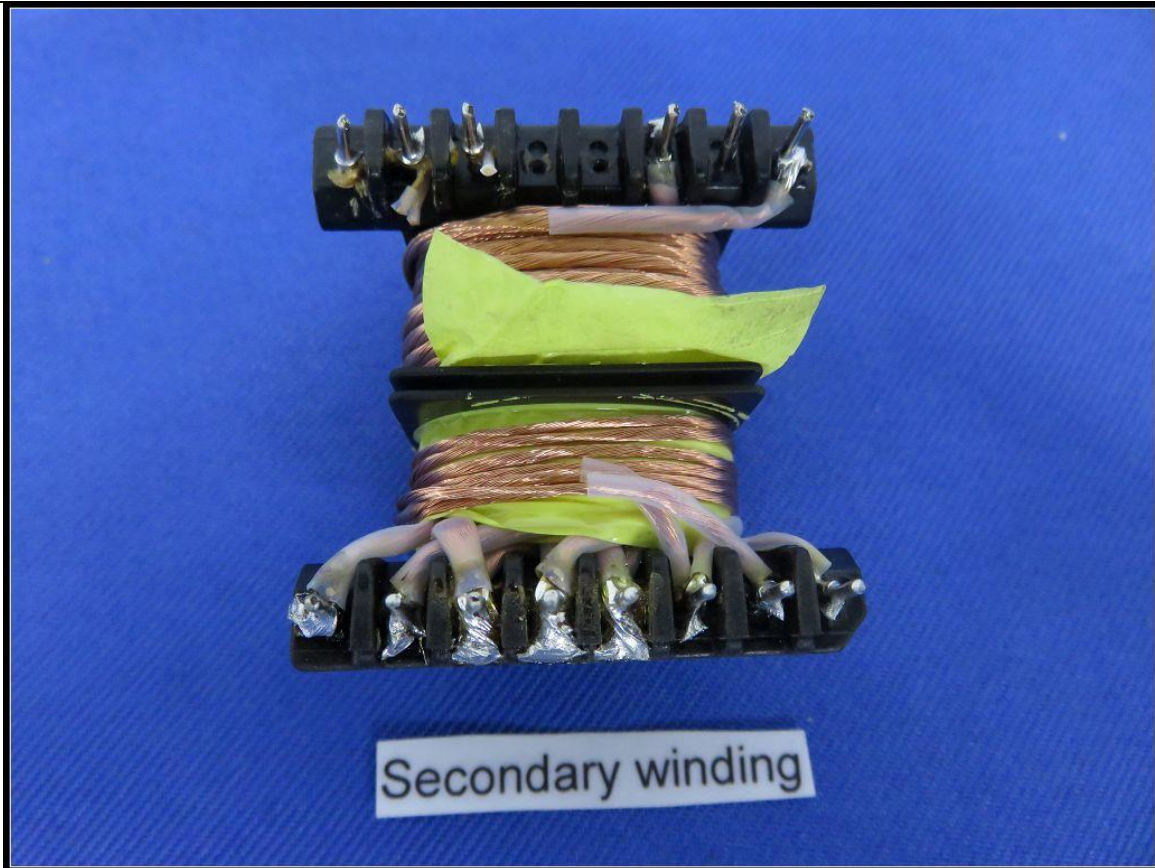




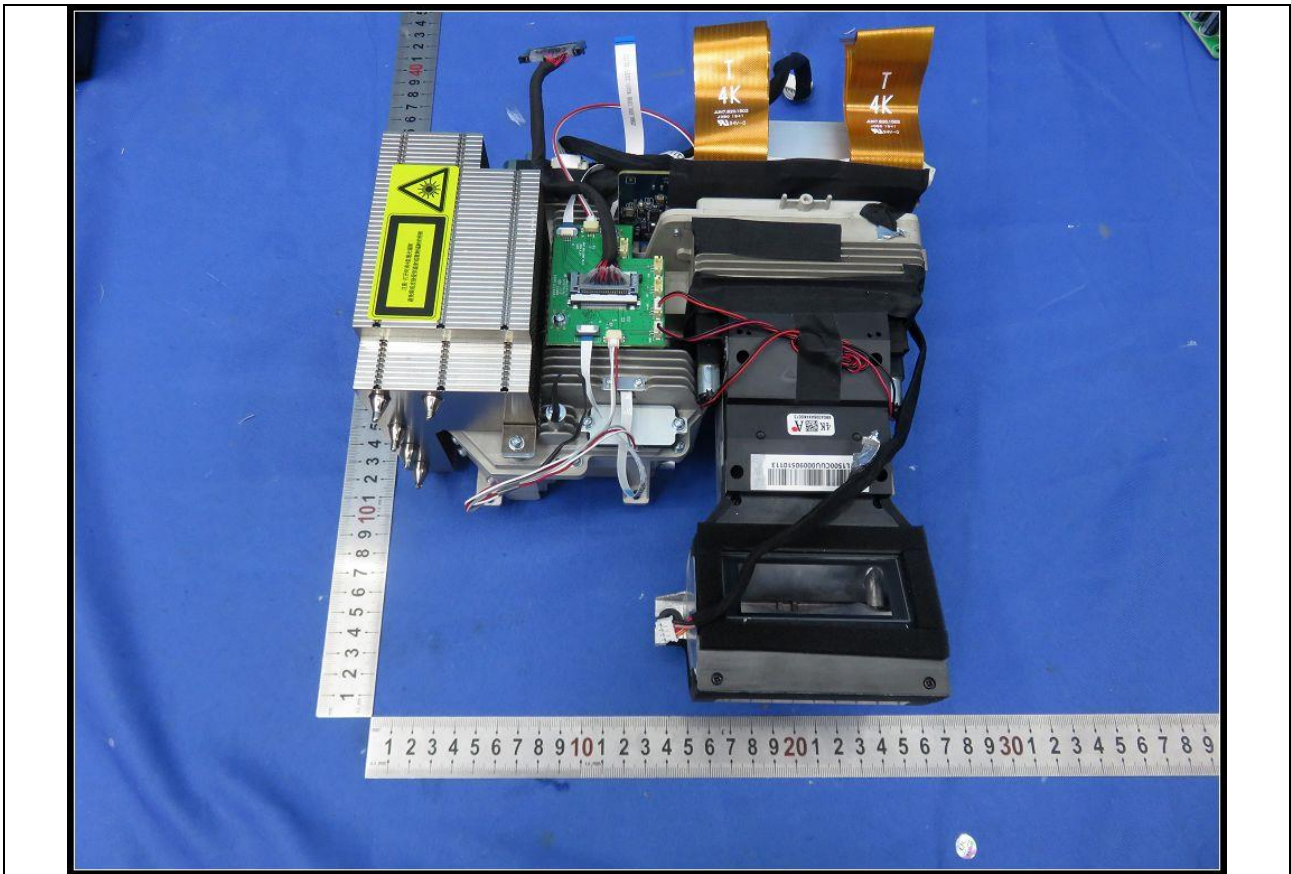
Primary winding



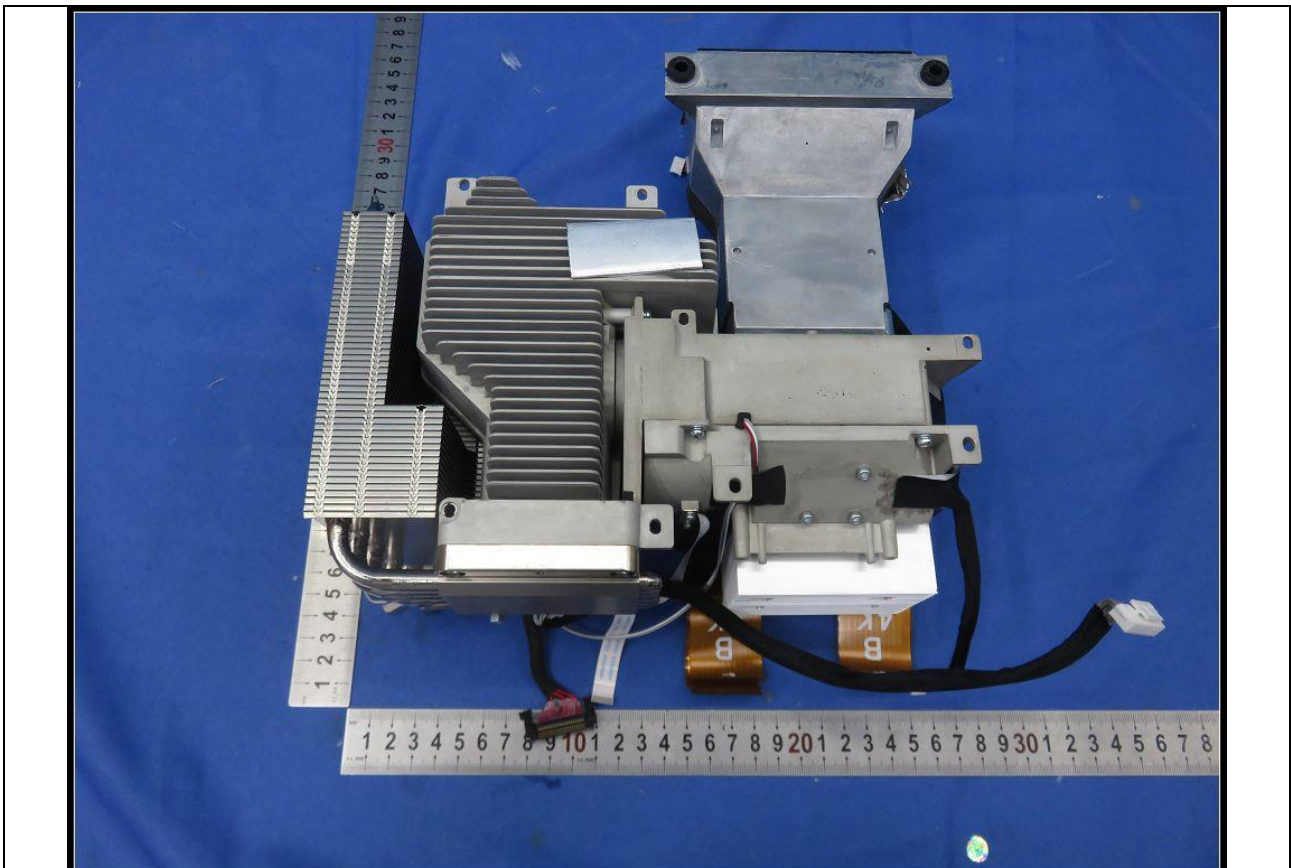
Primary winding



Laser module



Laser module



*****End of Attachment 1*****

2.2 Appearance

2.2.1 Main Unit Structure

Figs. 1 to 4 below show the structure of the unit



Fig. 1 45° left top



Fig. 2 Front top



Fig. 3 Rear view



Fig. 4 30° bottom view

Main Unit Structure	
No.	Name
①	Ventilation mesh
②	Voice emitting hole of built-in speaker
③	Infrared protective sensor
④	Light emitting hole
⑤	Power key and indicator
⑥	Ventilation mesh
⑦	Port
⑧	Power input
⑨	Anti-theft lock hole
⑩	Ventilation mesh
⑪	Height adjusting Kickstand
⑫	Lifting screw hole

2.2.2 Ports

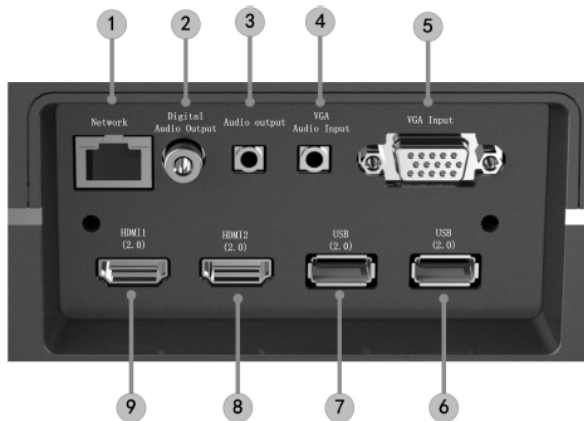


Fig. 5 Port



As the starting current of USB mobile hard disk is big, when the file in USB mobile hard disk is played back in the device, please do not plug and unplug USB mobile hard disk in other USB interface, so as to avoid damaging the device or causing other malfunctions.

Port		
No.	Name	Function
①	Network	For wired network connections
②	Digital audio output	The "coaxial output" mainly provides the transmission of digital audio signals and can be connected to an external sound system
③	Audio output	Provide output of analog audio signal (L/R)
④	VGA audio Input	For connection with output of analog audio in video playback equipment (e.g L/R, Audioout)
⑤	VGA input	For connection with computers or other devices with VGA ports (input ports)
⑥	USB (2.0)	For connection with USB devices, such as flash disk, mobile hard disk drive, etc.
⑦	USB (2.0)	For connection with USB devices, such as flash disk, mobile hard disk drive, etc.
⑧	HDMI2 (2.0)	For connection with external devices with HDMI ports (ARC)
⑨	HDMI1 (2.0)	For connection with external devices with HDMI ports

3.1.1 Installation Method

When changing the installation mode, the display mode (front desktop, rear lifting, front lifting and rear desktop) needs to be changed and set from the OSD menu.

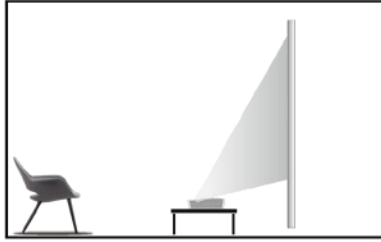


Fig. 9 Desktop Front Projection



Fig. 10 Desktop Rear Projection

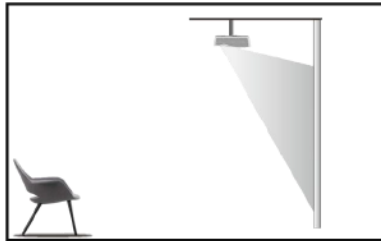


Fig. 11 Lifting Front

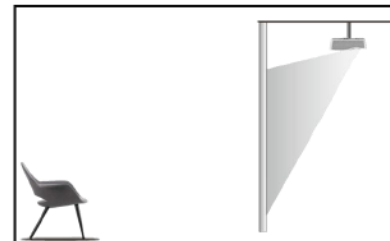


Fig. 12 Lifting Rear

3.1.2 Screen Size and Installation Distance

The distance between the main unit and the screen is proportional to the image size. The closer the main unit is to the screen, the smaller the image size will be; vice versa. The following is a brief description of the relationship between screen size and installation distance, with the desktop front projection as an example. Please refer to the following data to determine the approximate installation distance.

Screen size and installation distance				Unit: mm
Screen Size	Width of Display Area	Height of Display Area	Projection distance①	Height from main unit to screen②
80"	1771	996	102	199
90"	1992	1121	148	230
100"	2214	1245	195	261
110"	2435	1370	241	293

Prompt Information			
①	"①" in Fig. 14 is the distance between the back end of the main unit and the screen	②	"②" in Fig. 14 is the height of the top of the main unit relative to the bottom of the screen
③	It is suggested that the viewing distance should be more than 1.5 times of the diagonal length of the screen. Long-term close watching of the screen may affect vision	④	The above data are for users' reference only. Please be noted that there may be deviations in actual use

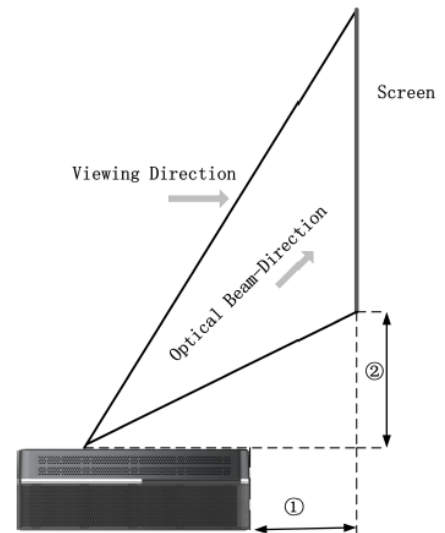



Fig. 13 Installation distance

5. Safety Precautions

This machine contains a laser module. For your safety, please follow the following tips.

	Precautions
①	Do not look directly at the bright light emitted by this machine, otherwise it may cause eye injury
②	Do not open or disassemble the machine, which may cause damage due to exposure to laser radiation
③	Do not use some optical instruments (such as magnifying glass and microscope for experiments) to observe the laser output, otherwise eye injury may be caused
④	Wear professional laser protection glasses when there is a need to have direct contact with bright light
⑤	Appropriate instructions for assembly, operation and maintenance, including preventive measures and clear warnings to avoid possible exposure to laser light and accompanying excessive radiation reaching Class 1 emission limits
⑥	For your safety, please select the right viewing direction

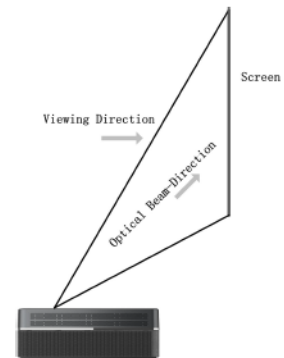


Fig. 16 Viewing direction

Prompt Information:

- Conforming to GB7247.1-2012 safety standards;
- Laser wavelength: 445~465 nm; Output optical power of this machine: $\leq 3.0W$; Pulse width: about 1.5ms;
- Conforming to Class 1 laser equipment conforming to IEC 60825-1: 2014 and IEC 62471-5:2015 Low Risk Group 1.

*****End of Attachment 2*****

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

Attachment 3 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to.....:	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
Attachment Form No.....:	EU_GD_IEC60950_1F
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS
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IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it's amendmets are prefixed "Z"		P
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		P

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Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1 (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *		N/A
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A

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IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx Protection against excessive sound pressure from personal music players</p>		N/A
	<p>Zx.1 General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>		N/A


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IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A
	<p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <p>– equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and</p> <p>– a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</p> <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</p> <p>b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and</p>		N/A

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

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

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

IEC60950_1F - ATTACHMENT			
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IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)									
Clause	Requirement + Test	Result - Remark	Verdict						
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p>		P						
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		N/A						
2.7.2	This subclause has been declared 'void'.		N/A						
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A						
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td>Up to and including 6 </td><td>0,75 ^{a)} </td></tr><tr><td>Over 6 up to and including 10 </td><td>(0,75) ^{b)} 1,0 </td></tr><tr><td>Over 10 up to and including 16 </td><td>(1,0) ^{c)} 1,5 </td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 ^{a)}	Over 6 up to and including 10	(0,75) ^{b)} 1,0	Over 10 up to and including 16	(1,0) ^{c)} 1,5		N/A
Up to and including 6	0,75 ^{a)}								
Over 6 up to and including 10	(0,75) ^{b)} 1,0								
Over 10 up to and including 16	(1,0) ^{c)} 1,5								

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IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A		N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).		N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—

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

IEC60950_1F - ATTACHMENT			
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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.1 (A11:2009)	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
1.7.2.1 (A11:2009)	<p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p>		

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		N/A
1.7.2.1 (A2:2013)	<p>In Denmark, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in Denmark shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”</p>		N/A
1.7.5 1.7.5 (A11:2009)	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>		N/A

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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011.</p> <p>For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a.</p> <p>Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		P
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p>		N/A

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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A</p> <p>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A</p>		N/A
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1 (A2:2013)	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		P

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Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.		N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		P
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 		N/A
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. 		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N/A
6.1.2.2	<p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>		N/A
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
7.3 (A11:2009)	<p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Annex ZD (informative)

IEC and CENELEC code designations for flexible cords

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

*****End of Attachment 3*****