



Ref. Certif. No.

JPTUV-088990

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

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

CB TEST CERTIFICATE**CERTIFICAT D'ESSAI OC**

Product
Produit

LCD Monitor

Name and address of the applicant
Nom et adresse du demandeur

Darwin Precisions Corporation
No. 45, Ln. 313
Sec. 3, Minsheng Road, Daya Dist., Taichung City 428 Taiwan

Name and address of the manufacturer
Nom et adresse du fabricant

NEC Display Solutions, Ltd.
4-28, Mita 1-chome, Minato-ku
Tokyo, 108-0073 Japan

Name and address of the factory
Nom et adresse de l'usine

DARWIN PRECISIONS (XIAMEN) CORP
3089 NORTH OF XIANG'AN RD
XIANG'AN BRANCH TORCH, HI-TECH INDUSTRIAL DEVELOPMENT,
ZONE XIAMEN FUJIAN 361102, P. R. China

Ratings and principal characteristics
Valeurs nominales et caractéristiques principales

1) AC 100-240V; 50/60Hz; 0.76A; Class I
2) AC 100V; 50/60Hz; 0.76A; Class I

Trademark (if any)
Marque de fabrique (si elle existe)

NEC

Type of Manufacturer's Testing Laboratories used
Type de programme du laboratoire d'essais constructeur

N/A

Model / Type Ref.
Ref. de type

BT421

Additional information (if necessary may also be
reported on page 2)
Les informations complémentaires (si nécessaire,
peuvent être indiqués sur la 2^{ème} page)

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

IEC 62368-1:2014
See Test Report for National Differences

As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue partie de ce Certificat

50158647 001

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

**TÜVRheinland®**

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Global Technology Assessment Center
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Date: 26.06.2018

Signature:

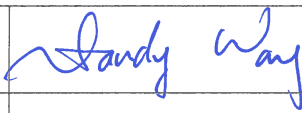
Dipl.-Ing. F. Stöckel



Test Report issued under the responsibility of:



TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	50158647 001
Date of issue	June, 25, 2018
Total number of pages	80
Applicant's name	Darwin Precisions Corporation
Address	No. 45, Ln. 313, Sec. 3, Minsheng Road, Daya Dist., Taichung City 428 Taiwan
Test specification:	
Standard.....	IEC 62368-1:2014 (Second Edition)
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC62368_1B
Test Report Form(s) Originator.....	UL(US)
Master TRF	2014-03
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General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

Test Item description	LCD Monitor	
Trade Mark	NEC	
Manufacturer	NEC Display Solutions, Ltd. 4-28, Mita 1-chome, Minato-ku, Tokyo, 108-0073 Japan	
Model/Type reference	BT421	
Ratings	1) AC 100-240 V, 50/60 Hz, 0.76 A 2) AC 100 V, 50/60 Hz, 0.76 A	
Testing procedure and testing location:		
☒ CB Testing Laboratory:	TÜV Rheinland Taiwan Ltd., Taichung Branch	
Testing location/ address	No. 9, Ln. 36, Sec. 3, Minsheng Rd., Daya District, Taichung City, 428 Taiwan Chinese Taipei	
Tested by (name, function + signature).....:	Sandy Wang / Project handler	
Approved by (name, function + signature) ...:	Kevin Chang / Technical Reviewer	
☐ Testing procedure: CTF Stage 1		
Testing location/ address		
Tested by (name, function + signature).....:		
Approved by (name, function + signature) ...:		
☐ Testing procedure: CTF Stage 2		
Testing location/ address		
Tested by (name, function + signature).....:		
Witnessed by (name, function + signature) ..:		
Approved by (name, function + signature) ...:		
☐ Testing procedure: CTF Stage 3		
☐ Testing procedure: CTF Stage 4		
Testing location/ address		
Tested by (name, function + signature).....:		
Approved by (name, function + signature) ...:		
Supervised by (name, function + signature):		

List of Attachments (including a total number of pages in each attachment): - Photo Documentation - National Differences - ATTACHMENT (included Transformer specifications) Total number of pages in each attachment is indicated in each individual attachment.	
Summary of testing:	
Tests performed (name of test and test clause): All applicable tests as described in Test Case and Measurement Sections were performed. • The manufacturer specified the maximum ambient temperature as +50 °C. • Highest load condition for this equipment is to operate at maximum backlight, brightness and contrast of LED backlight, additional load of 5V/0.5A for USB 2.0 port * 1. • Test samples are pre-production samples without serial numbers. • The LCD Monitor could be operated in landscape (0°) and portrait mode (rotate at 90 °) with mainboard downside. • The equipment has been evaluated according to the specified by the manufacturer maximum operating altitude of 3000 m (correction factor for clearances according to IEC 60664:1992+A1:2000+A2:2002 of 1.14 is considered).	Testing location: All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 2.
Summary of compliance with National Differences: List of countries addressed: <u>Summary of compliance with National Differences to IEC 62368-1:2014 (Second Edition) and EN 62368-1:2014 (for explanation of codes see below):</u> EU Group Differences, EU Special National Conditions, CA, DE, DK, FI, IT, NO, SE, US. Explanation of used codes: CA=Canada, DE=Germany, DK=Denmark, FI=Finland, IT=Italy, NO=Norway, SE=Sweden, US=United States of America. ☒ The product fulfils the requirements of <u>EN 62368-1:2014</u>. ☒ The product fulfils the requirements of <u>EN 62368-1:2014 + A11:2017</u> For National Differences see corresponding Attachment.	

Copy of marking plate:

NEC
LCD-BT421

LCD MONITOR
液晶ディスプレイ
(MODEL : BT421)

For Japan only

警告 

高圧注意
サービスマン以外の方は分解しないでください。内部には高電圧部分があり、万一さわると危険です。

感電注意
電源コードのアースリード線は必ず接地ください。故障のときに感電の原因になります。



VOLTS 定格電圧 : 100V~
FREQUENCY 定格周波数 : 50/60Hz
AMPERES 定格電流 : 0.76A

NECディスプレイソリューションズ株式会社
NEC Display Solutions, Ltd.
4-28,Mita 1-chome, Minato-ku, Tokyo, Japan

MADE IN CHINA

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE THE ENCLOSURE.
NO USER-SERVICEABLE PARTS INSIDE.

ATTENTION: AFIN DE PREVENIR DE TOUT CHOC ELECTRIQUES, NE PAS OUVRIR CE BOITIER. AUCUNE PIECE INTERNE NE PEUT-ETRE CHANGEE PAR L'UTILISATEUR.

ACHTUNG: ZUR TRENNUNG VOM NETZ IST DER NETZSTECKER AUS DER STECKDOSE ZU ZIEHEN. GERÄT NICHT ÖFFNEN. ES SIND KEINE DURCH DEN BENUTZER AUSWECHSELBAREN TEILE IM GERÄT VORHANDEN.

PRECAUCIÓN: PARA PREVENIR DESCARGA ELÉCTRICA, NO QUITTE EL RECINTO. NINGUNAS PIEZAS DEL USUARIO SERVICABLE ADENTRO.

この装置は、クラス A 機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI - A

NEC
LCD-BT421

LCD MONITOR
液晶ディスプレイ
(MODEL : BT421)

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この装置は、クラス A 機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI - A

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.

TEST ITEM PARTICULARS:	
Classification of use by	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☐ Children likely to be present
Supply Connection	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance	☒ +10%/-10% ☐ +20%/-15% ☐ +15 %/-15 % ☐ None

Supply Connection – Type	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other: _____
Considered current rating of protective device as part of building or equipment installation	16 A, 13 A (GB) or 20 A (US and Canada) (For building) Installation location: ☒ building; ☒ equipment
Equipment mobility	☐ movable ☐ hand-held ☐ transportable ☒ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment	☒ Class I ☐ Class II ☐ Class III
Access location	☐ restricted access location ☒ N/A
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maximum operating ambient	50 °C
IP protection class	☐ IPX0 ☒ IP20
Power Systems	☒ TN ☐ TT ☐ IT - 230 V _{L-L}
Altitude during operation (m)	☐ 2000 m or less ☒ Up to 3000 m
Altitude of test laboratory (m)	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg)	☒ Approx. 8.99 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	2018-05-17
Date (s) of performance of tests	2018-05-17 to 2018-05-31
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.	

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) :	Name and address of factory (ies) : DARWIN PRECISIONS (XIAMEN) CORP 3089 NORTH OF XIANG'AN RD XIANG'AN BRANCH TORCH, HI-TECH INDUSTRIAL DEVELOPMENT, ZONE XIAMEN FUJIAN 361102, P. R. China
GENERAL PRODUCT INFORMATION:	
Product Description – The equipment models which see page 2 is a LCD Monitor for using within the scope of this standard. The equipment is incorporated with following critical parts: • LCD panel (LED backlight type) • LED Driver Board • Building-in type non-approved switching power supply board • Main board (USB 2.0 *1,DVI *3, RS232 *1, LAN *1) • IR / control board The suitable power supply cord will be provided and evaluated during national approval. This equipment is intended to be installed by qualified service personnel.	
Model Differences	
N/A	

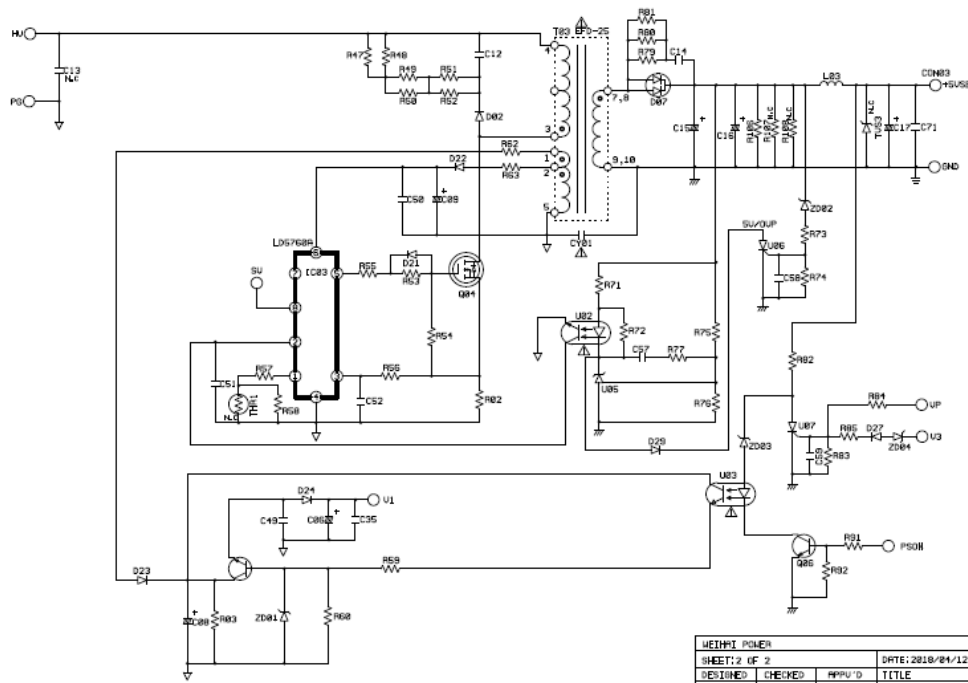
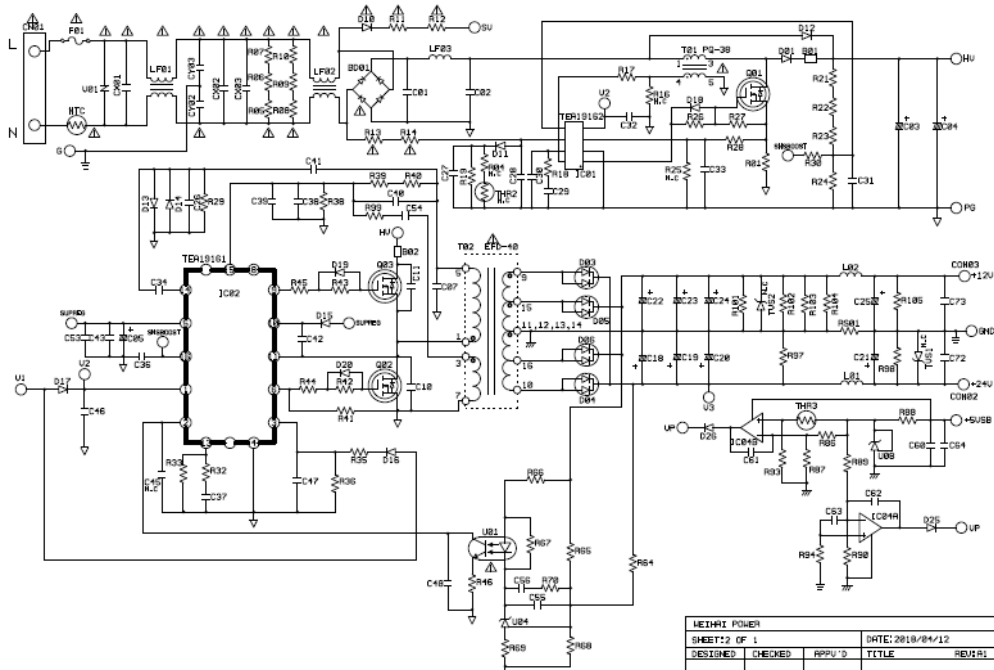
ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5):	
(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	Corresponding classification (ES)
All Primary circuits	ES3
All secondary circuits	ES1
All output connectors	ES1
Metal Enclosure	ES1
Electrically-caused fire (Clause 6):	
(Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	Corresponding classification (PS)

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Building-in Power board circuit (Both primary and secondary circuit)	PS3
Mainboard circuit	PS3
Output connector	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	Corresponding chemical
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Sharp edges and corners	MS1
Equipment mass	MS2
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	Corresponding classification (TS)
All accessible parts	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	Corresponding classification (RS)
LCD Panel	RS1
Photocoupler	RS1
Indicating Light	RS1

ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

See overview below.



■ ES ■ PS ■ MS ■ TS ■ RS

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: X-capacitors connected between L and N ES3: Accessible pins of appliance inlet after mains disconnection	N/A	N/A	Bleeder resistors
Ordinary	ES3: Primary circuits	N/A	N/A	Plastic enclosure, transformer, optocoupler, bridging capacitor
Ordinary	ES1: All output connector	N/A	N/A	N/A
Ordinary	ES1: metal enclosure	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible materials within equipment fire enclosure	PS3: > 100 Watt circuit (Primary circuits)	No ignition occurs see sub-clause 6.3	see sub-clause 6.4.5, 6.4.6 for detail	N/A
	PS3: >100 Watt circuit (Secondary circuits)		see sub-clause 6.4.5 for detail	
Metal enclosure	PS3: > 100 Watt circuit (Primary circuits)	No ignition occurs see sub-clause 6.3	see sub-clause 6.4.5, 6.4.6, 6.4.8 for detail	N/A
	PS3: > 100 Watt circuit (Secondary circuits)		see sub-clause 6.4.5 for detail	
Internal wiring material	PS3: > 100 Watt circuit (Primary circuits) PS3: > 100 Watt circuit (Secondary circuits)	No ignition occurs see sub-clause 6.3	see sub-clause 6.5. for detail	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced

				(Enclosure)
Ordinary	MS1: Sharp edges and corners	N/A	N/A	N/A
Ordinary	MS2: Equipment mass – mass < 25 kg	see sub-clause 8.6	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: All accessible parts	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: Indicating lights	N/A	N/A	N/A
Ordinary	RS1: Photo coupler	N/A	N/A	N/A
Ordinary	RS1: LED backlight of LCD panel	N/A	N/A	N/A
Supplementary information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” – Single Fault.				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2.	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.1.3	Equipment design and construction	No accessible part which could cause injury. Also see sub-clause B.2, B.3 and B.4	P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness		N/A
4.4.4.2	Steady force tests.....		N/A
4.4.4.3	Drop tests		N/A
4.4.4.4	Impact tests		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests		N/A
4.4.4.6	Glass Impact tests.....	Laminated glass used.	N/A
4.4.4.7	Thermoplastic material tests	Phenolic material used and described in sub-clauses 5.4.1.10 to 5.4.1.10.3. For metal enclosure: See table T.8	P
4.4.4.8	Air comprising a safeguard	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	No damaged. The class 3/2 energy sources could not become accessible to an ordinary person, and all other safeguards remain effective during and after above tests.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions.	P
4.6	Fixing of conductors	See below.	P
4.6.1	Fix conductors not to defeat a safeguard	Compliance checked.	P
4.6.2	10 N force test applied to	10 N applied to all components other than the parts serving as an enclosure (See appended table 5.4.2.2, 5.4.2.4 and 5.4.3).	P
4.7	Equipment for direct insertion into mains socket - outlets	The equipment is not for direct insertion into mains socket-outlets.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.2	Mains plug part complies with the relevant standard		N/A
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries	No lithium coin/button batteries are used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....		—
4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....	See Annex P	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications.....	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
5.2.2	ES1, ES2 and ES3 limits	See below.	P
5.2.2.2	Steady-state voltage and current	(See appended table 5.2)	P
5.2.2.3	Capacitance limits	(See appended table 5.2)	P
5.2.2.4	Single pulse limits		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringings signals		N/A
5.2.2.7	Audio signals	(See Clause E.1)	P
5.3	Protection against electrical energy sources	See below.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See "OVERVIEW OF EMPLOYED SAFEGUARDS" table.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES3 source cannot access by ordinary persons Double or reinforced safeguard is provided between ES3 and ordinary persons.	P
5.3.2.2	Contact requirements	See below.	P
	a) Test with test probe from Annex V	No bare parts at ES3 or ES3 basic safeguard could be accessed by operator.	P
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)	Complied with the minimum distance requirement. (See appended table 5.4.2.2, 5.4.2.4 and 5.4.3.)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.4	Terminals for connecting stripped wire	No such terminals.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	Hygroscopic materials are not used for insulating material. Also see sub-clause 5.4.8 and 5.4.9.1	P
5.4.1.3	Humidity conditioning	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Certified sources of optical isolators used.	P
5.4.1.5.3	Thermal cycling	Certified sources of optical isolators used.	P
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage	Max. V _{peak} of T02= 416V Max. V _{rms} of T02 = 250V Max. V _{peak} of T03 = 496V Max. V _{rms} of T03 = 358V Other see table 5.4.2.2, 5.4.2.4, 5.4.3	P
5.4.1.9	Insulating surfaces	Considered.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Bobbin materials of transformers and primary choke are Phenolic that is accepted without further tests.	P
5.4.1.10.2	Vicat softening temperature.....		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances	See below.	P
5.4.2.2	Determining clearance using peak working voltage	See 5.4.2.3	N/A
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage	2500 V _{peak}	—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Not applicable.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages	Multiplication factor is 1.14 for altitude up to 3000m.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.3	Creepage distances.....:	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General	See below.	P
5.4.3.3	Material Group	Material group IIIb assumed.	—
5.4.4	Solid insulation	See below.	P
5.4.4.2	Minimum distance through insulation	(See appended table 5.4.4.2, 5.4.4.5 c) and 5.4.4.9)	P
5.4.4.3	Insulation compound forming solid insulation	Alternative by 5.4.4.4.	N/A
5.4.4.4	Solid insulation in semiconductor devices	Complies with Clause G.12.	P
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material	See below.	P
5.4.4.6.1	General requirements	See table 5.4.9	P
5.4.4.6.2	Separable thin sheet material	See table 5.4.9	P
	Number of layers (pcs)	See table 5.4.9	P
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz	(See appended Table 5.4.4.9) and (See appended Table 5.4.9)	P
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....:		—
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Complied (Electric strength test conducted after humidity treatment.)	P
	Relative humidity (%).....:	95	—
	Temperature (°C)	40	—
	Duration (h)	120	—
5.4.9	Electric strength test.....:	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test	Method 1 is chose.	P
5.4.9.2	Test procedure for routine tests		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.11	Insulation between external circuits and earthed circuitry		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V).....		—
	Nominal voltage U_{peak} (V).....		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units	See below.	P
5.5.2.1	General requirement	X-Cap. and Y-Cap. are IEC 60384-14 approval components and complied with Annex G.11.	P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See subclause 5.4 or Annex G.12)	P
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's	The varistor across mains but not used between the mains and earth.	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....	No such external circuits.	N/A
5.6	Protective conductor		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2	Requirement for protective conductors	Protective conductor served as a supplementary safeguard to prevent accessible conductive parts from exceeding ES2 limits.	P
5.6.2.1	General requirements	No switch or overcurrent protective device in protective conductor.	P
5.6.2.2	Colour of insulation	No insulation used for protective bonding conductor.	N/A
5.6.3	Requirement for protective earthing conductors	Appliance inlet used.	N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors	See below.	P
5.6.4.1	Protective bonding conductors	Protective bonding traces complied with 5.6.6.	P
	Protective bonding conductor size (mm ²)	See above.	—
	Protective current rating (A)	20A	—
5.6.4.3	Current limiting and overcurrent protective devices	No current limiting and overcurrent protective devices in parallel with any other components.	P
5.6.5	Terminals for protective conductors	See below.	P
5.6.5.1	Requirement	Complied with Table 32.	P
	Conductor size (mm ²), nominal thread diameter (mm)		P
5.6.5.2	Corrosion	Complied.	P
5.6.6	Resistance of the protective system	See below.	P
5.6.6.1	Requirements	See below.	P
5.6.6.2	Test Method Resistance (Ω)	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 5 of IEC 60990 was used in determining of the limit of ES2. Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current	(See appended table 5.7.2.2, 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage		P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990: 1999 applied.	P
	System of interconnected equipment (separate connections/single connection)	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)	Single connection.	—
5.7.4	Earthed conductive accessible parts	(See appended Table 5.7.4)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	Protective conductor current	Protective conductor current does not exceed the ES2 limits.	N/A
	Supply Voltage (V).....:		—
	Measured current (mA).....:		—
	Instructional Safeguard.....:		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA).....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
6.2.2.1	General	See the following details.	P
6.2.2.2	Power measurement for worst-case load fault	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault.....:	(See appended table 6.2.2)	P
6.2.2.4	PS1		N/A
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3	Building-in power board circuit were considered to be PS3	P
6.2.3	Classification of potential ignition sources	See the following details.	P
6.2.3.1	Arcing PIS	All components located within the equipment are considered as arcing PIS.	P
6.2.3.2	Resistive PIS	All components located within the equipment are considered as resistive PIS.	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	No ignition and such temperature attained within the metal fire enclosure (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6).	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.3.1 (b)	Combustible materials outside fire enclosure	No such materials used.	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control fire spread. See the appropriate requirements are detailed in 6.4.4, 6.4.5, 6.4.6, 6.4.7, 6.4.8	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions.....:		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits	See below.	P
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: - <u>Printed board</u> : rated min. V-1 class material; - <u>Wire insulation and tubing</u> : complying with Clause 6. - <u>All other components</u> : - Min. V-2 - Mounted on V-1 PCB - Not ignite during single fault condition. - <u>Isolating transformer</u> : complying with G.5.3. (See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	In additional of the compliance of sub-clause 6.4.5, a fire enclosure according to sub-clause 6.4.8 is provided with the equipment.	P
6.4.7	Separation of combustible materials from a PIS	See 6.4.8	P
6.4.7.1	General.....:	See below	P
6.4.7.2	Separation by distance	See below	P
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Metal enclosure provided as rear fire enclosure.	P
6.4.8.1	Fire enclosure and fire barrier material properties	See 6.4.8	P
6.4.8.2.1	Requirements for a fire barrier		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.2.2	Requirements for a fire enclosure	See 6.4.8	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See below	P
6.4.8.3.1	Fire enclosure and fire barrier openings	Figure 41 and Figure 42 considered, detail see 6.4.8.3.3 and 6.4.8.3.4.	P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	Top/rear/side: no openings.	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	Bottom: no openings.	P
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)	No such door or cover can be opened by ordinary persons.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Metal enclosure provided.	P
6.5	Internal and external wiring		P
6.5.1	Requirements	The material of VW-1 on internal wiring were considered compliance equivalent to IEC/TS 60695-11-21 relevant standards.	P
6.5.2	Cross-sectional area (mm ²)	See above.	—
6.5.3	Requirements for interconnection to building wiring	No such interconnection to building wiring.	N/A
6.6	Safeguards against fire due to connection to additional equipment	All power delivering output connectors complied with Annex Q.1	P
	External port limited to PS2 or complies with Clause Q.1	See above.	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	N/A
7.3	Ozone exposure	No ozone production within the equipment.	N/A
7.4	Use of personal safeguards (PPE)	No such consideration.	N/A
	Personal safeguards and instructions	See above.	—
7.5	Use of instructional safeguards and instructions	No chemical-caused injuries, the instruction safeguard was not required.	N/A
	Instructional safeguard (ISO 7010)	(See Annex F)	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

7.6	Batteries	No batteries are used.	N/A
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8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See the following details.	P
8.2	Mechanical energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
8.3	Safeguards against mechanical energy sources	See "OVERVIEW OF EMPLOYED SAFEGUARDS" table.	P
8.4	Safeguards against parts with sharp edges and corners	No sharp edges and corners in accessible area.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....		N/A
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard	Not television sets.	—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)..... :		N/A
	Position of feet or movable parts..... :		—
8.7	Equipment mounted to wall or ceiling	See below	P
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)	Four Ø5.84mm screws used.	P
8.7.2	Direction and applied force..... :	Test 2: 35.96kg applied for each point (four directions plus inward and outward). Test 3: 2.5Nm applied.	P
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—
8.10.6	Thermoplastic temperature stability (°C)..... :		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas..... :		N/A
	Button/Ball diameter (mm)..... :		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

9.3	Safeguard against thermal energy sources	See above.	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard	See above.	N/A
9.4.2	Instructional safeguard	See above.	N/A

10	RADIATION		P
10.2	Radiation energy source classification	See below.	P
10.2.1	General classification	The following parts are considered as RS1 without tests: - Photo coupler - LCD panel - Indicating lights.	P
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault		
	Instructional safeguard		—
	Tool.....		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....		N/A
	Personal safeguard (PPE) instructional safeguard.....		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1.:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....		N/A
10.4.1.f)	UV attenuation.....		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation		N/A
10.4.1.i)	Exempt Group under normal operating conditions		N/A
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		—
	Abnormal and single-fault condition		N/A
	Maximum radiation (pA/kg)		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions	See the following details.	P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	Considered	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :	(See appended table B.3 and B.4)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.2	Covering of ventilation openings	(See appended table B.3 and B.4)	P
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector :		N/A
B.3.5	Maximum load at output terminals :	(See appended table B.3 and B.4)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	(See appended table B.3 and B.4)	P
B.3.8	Safeguards functional during and after abnormal operating conditions	Abnormal operating condition does not lead to a single fault condition, all safeguards remain effective. After restoration of normal operating conditions, all safeguards comply with applicable requirements.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited :	No such devices.	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature :		N/A
B.4.4	Short circuit of functional insulation	For traces before fuse, comply with the clearance/creepage for basic insulation, others are considered to perform short-circuited during the tests.	P
B.4.4.1	Short circuit of clearances for functional insulation	See above.	P
B.4.4.2	Short circuit of creepage distances for functional insulation	See above.	P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions ... :		N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See the following details.	P
	Instructions – Language	English. The other languages will be provided during the national approval.	—
F.2	Letter symbols and graphical symbols	See the following details.	P
F.2.1	Letter symbols according to IEC 60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010. -  (IEC 60417-5019) for the wiring terminal of protective earthing - The product also marked with  (IEC 60417-5009) for the stand-by condition. -  (IEC 60417-5007) and  (IEC 60417-5008) on power switch.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment marking is located on the exterior surface and is easily visible.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification	See copy of marking plate.	—
F.3.2.2	Model identification	See copy of marking plate.	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is connected to AC mains supply.	P
F.3.3.2	Equipment without direct connection to mains	See above.	N/A
F.3.3.3	Nature of supply voltage	~	—
F.3.3.4	Rated voltage	See copy of marking plate.	—
F.3.3.4	Rated frequency	See copy of marking plate.	—
F.3.3.6	Rated current or rated power	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	No such devices within the equipment.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings	No such devices within the equipment.	N/A
F.3.5.2	Switch position identification marking		N/A
F.3.5.3	Replacement fuse identification and rating markings	The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse marking is marked on PCB near fuse : F01 T5 A, 250 Vac.	P
F.3.5.4	Replacement battery identification marking	No such battery within the equipment.	N/A
F.3.5.5	Terminal marking location	See markings specified in F.3.6.1 and F.3.6.2.2 is not placed on removable parts such as screws.	P
F.3.6	Equipment markings related to equipment classification	See the following details.	P
F.3.6.1	Class I Equipment	See the following details.	P
F.3.6.1.1	Protective earthing conductor terminal	See F.2.2	P
F.3.6.1.2	Neutral conductor terminal	The equipment is not permanently connected equipment.	N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC 60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	This equipment is classified as IP20.	—
F.3.8	External power supply output marking	Not external power supply.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.9	Durability, legibility and permanence of marking	See the following details.	P
F.3.10	Test for permanence of markings	The marking plate was subjected to the permanence of marking test. The marking plate was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After each test, there was no damage to the marking plate. The marking on the label did not fade. There was no curling of the marking plate and removed by hand.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	Provided in user's manual.	P
	c) Equipment intended to be fastened in place	Provided in user's manual.	P
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard	The instruction is provided in the user's manual.	P
	g) Protective earthing conductor current exceeding ES2 limits	Not exceed the ES2 limits.	N/A
	h) Symbols used on equipment	Graphical symbols not used as an instructional safeguard.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards	No instructional safeguard required.	N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	COMPONENTS		P
G.1	Switches		P
G.1.1	General requirements	See appended table 4.1.2 for details.	P
G.1.2	Ratings, endurance, spacing, maximum load	See appended table 4.1.2 for details.	P
G.2	Relays		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω). :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	All sources of fuse (F01) complied with IEC 60127-3.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....:		N/A
G.4	Connectors		P
G.4.1	Spacings	The distances between primary conductor of power switch to user accessible area exceed 10mm.	P
G.4.2	Mains connector configuration		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No misconnection likely.	P
G.5	Wound Components		P
G.5.1	Wire insulation in wound components..... :	(See Annex J)	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	The tubing was provided for all windings of transformer to protect against mechanical stress.	P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	Meet the requirements in G.5.3.2 and G.5.3.3.	P
	Position	See appended table 4.1.2.	—
	Method of protection	Overcurrent protection.	—
G.5.3.2	Insulation	See attachment Transformer table.	P
	Protection from displacement of windings	Displacement of windings is unlikely.	—
G.5.3.3	Overload test	(See appended table B.3 & B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3 & B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General		P
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	Approved appliance inlet is used.	N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		P
G.8.1	General requirements	The varistor connected across the mains provided within the equipment. (See appended table 4.1.2)	P
G.8.2	Safeguard against shock	Complied.	P
G.8.3	Safeguard against fire		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		P
G.11.1	General requirements	The X-Capacitor and the Y-Capacitor are used as safeguard and complied with IEC/EN 60384-14:2013 (See appended table 4.1.2).	P
G.11.2	Conditioning of capacitors and RC units	At least 21 days at 40 ± 2 °C and 93 ± 3 % RH.	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)	The optocouplers used in the equipment are complied with IEC/EN 60747-5-2 and IEC/EN 60950-1 (see appended table 4.1.2)	P
	Type test voltage V_{ini}	See above.	—
	Routine test voltage, $V_{ini,b}$	See above.	—
G.13	Printed boards		P
G.13.1	General requirements	See below.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.13.2	Uncoated printed boards	(see appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

L	DISCONNECT DEVICES		P
L.1	General requirements	Appliance Inlet as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	When the power cord is removed from the inlet no remaining parts with hazardous voltage in the equipment.	P
L.4	Single phase equipment	The disconnect device disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		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
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature		—
M.4.2.2 b)	Single faults in charging circuitry		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		P
	Metal(s) used	Complied.	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied :	Considered.	—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See the following details.	P
P.2.2	Safeguards against entry of foreign object	See below	P
	Location and Dimensions (mm) :		—
P.2.3	Safeguard against the consequences of entry of foreign object	See above.	P
P.2.3.1	Safeguards against the entry of a foreign object	See above.	P
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) :		N/A
P.3	Safeguards against spillage of internal liquids	No such consideration.	N/A
P.3.1	General requirements	See 6.4.8.3.3 and 6.4.8.3.4	N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C) :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing :		N/A
P.4.2 c)	Mechanical strength testing :	See appended tables annex T.	P
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output	(See appended table Annex Q.1)	P
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition	(See appended table Annex Q.1)	P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	(See appended table Annex Q.1)	P
Q.2	Test for external circuits – paired conductor cable		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Maximum output current (A)		—
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A). :		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements	See the following details.	P
T.2	Steady force test, 10 N	10 N applied to all components other than the parts serving as an enclosure.	P
T.3	Steady force test, 30 N	No internal enclosure .	N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	See appended table T.2, T.3, T.4, T.5	P
T.6	Enclosure impact test	No damage. ES3 cannot become accessible to an ordinary person or to an instructed person, and all other safeguards remain effective during and after subjected impact test (See appended table T.6, T.9).	P
	Fall test	A 500 g steel sphere ball fell freely from rest through a vertical distance of 1300 mm onto the sample.	P
	Swing test	By fall test above.	P
T.7	Drop test		N/A
T.8	Stress relief test		N/A
T.9	Impact Test (glass)	No such glass is provided within the equipment.	N/A
T.9.1	General requirements	See above.	N/A
T.9.2	Impact test and compliance	See above.	N/A
	Impact energy (J)	See above.	—
	Height (m)	See above.	—
T.10	Glass fragmentation test	(See subclause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas	No such antennas are provided within the equipment.	N/A
	Torque value (Nm)	See above.	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen:		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	Suitable Test Probe used.	P
V.2	Accessible part criterion		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹
LCD Panel (LED backlight type)	DARWIN	96.42S1A.xxx (x=0-9,A-Z)	42 inch TFT-LCD Module.	--	--
Metal Enclosure	Interchangeable	Interchangeable	Metal , thickness 0.8 mm min.	--	--
Remote Controller (option)	Interchangeable	Interchangeable	--	--	--
Power Switch	RONG FENG INDUSTRIAL CO LTD	RF-1003	10 A, 250 Vac.	IEC/EN 61058-1, ANSI/UL 1054	ENEC, UL
AC Inlet	RONG FENG INDUSTRIAL CO LTD	SS-7B, SS-7B-1	UL: 250 Vac, 15 A, 105 °C. VDE: 250 Vac, 10 A, 70 °C.	IEC/EN 60320-1, ANSI/UL498	UL, VDE
Polyswitch (location no. F1) (For USB port)	THINKING ELECTRONIC INDUSTRIAL CO LTD	KMC3S150	8 Vdc, 1.5 A.	IEC/EN 60730-1, UL 1434	TUV, UL
P.C.B	Interchangeable	Interchangeable	V-1 or better Min. 105 °C.	UL 796	UL
IR Base	LG CHEM LTD	AF365(&)	V-1 or better, thickness 1.7 mm min.	UL 94	UL
-IR Lens	SABIC JAPAN L L C	121RC(f2)	HB or better.	UL 94	UL
Keypad Cover	LG CHEM LTD	AF365(&)	V-1 or better, thickness 1.7 mm min.	UL 94	UL
Super Capacitor (C724)	ELNA	DXJ	5.5 Vdc , 0.33F	--	--
Primary Connector (female connector)	ZHEJIANG AMA & HIEN TECHNOLOGY CO LTD	VH-3Y	7 A, 250 Vac.	IEC/EN 61984 , UL 1977	VDE ,UL
Alt.	JOINT TECH ELECTRONIC INDUSTRIAL CO LTD	A3961H03P	7 A, 250 Vac.	IEC/EN 61984 , UL 1977	TUV ,UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Mylar (on metal enclosure)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR117 series	VTM-0, min. 0.05-0.23.	UL 94	UL
-Glue	JUSTAPE ADVANCED MATERIAL CO LTD	P\$\$	Max. 150°C	IEC 60950-1	Tested in the equipment
Alt.	JUSTAPE ADVANCED MATERIAL CO LTD	R\$\$	Max. 150°C	IEC 60950-1	Tested in the equipment
For Power Supply Board					
Primary Connector (location no. CON1)	Weli Sheng	MX-I39606R Series	7 A, 250 Vac.	IEC/EN 61984 , UL 1977	TUV, UL
Alt.	JOWLE	A3963WR2 Series	7 A, 250 Vac.	IEC/EN 61984 UL 1977	TUV, UL
Fuse (location no. F01)	Walter	2010	T5 A, 250 Vac.	IEC/EN 60127-1, IEC/EN 60127-3 UL 248-1 UL 248-14	VDE, UL
Alt.	Conquer	MST	T5 A, 250 Vac.	IEC/EN 60127-1, IEC/EN 60127-3 UL 248-1 UL 248-14	VDE, UL
Bleeder Resistors (location no. R05, R07, R08, R10)	Interchangeable	Interchangeable	Max. 910 kΩ, min. 1/4 W.	--	--
Bleeder Resistors (location no. R06, R09)	Interchangeable	Interchangeable	Max. 750 kΩ, min. 1/4 W.	--	--
Thermistor (location no. NTC)	Interchangeable	Interchangeable	Min. 7 A, Max. 1.5 Ω, at 25 °C.	--	--
Varistor (location no. V01) (optional)	THINKING ELECTRONIC INDUSTRIAL CO LTD	TVR10471-D, TVR10471-V, TVR14471	Rated 300 Vac, 385 Vdc, 40/85/56, 6 KV/3 KA, pluse test passed V-0 coating.	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, UL 1449 3rd	VDE, UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.	JOYIN CO LTD	14N471K	Rated 300 Vac, 385 Vdc, 40/85/56, 6 KV/3 KA, pluse test passed V-0 coating.	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, UL 1449 3rd	VDE, UL
X-Capacitors (location no. CX01, CX02, CX03) (X1 or X2 type) (Optional)	Carli	MPX	Max. 0.22 μ F, min. 275 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
Alt.	ULTRA TECH XIPHI ENTERPRISE CO LTD	HQX	Max. 0.22 μ F, min. 275 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
Y-Capacitors (location no. CY02, CY03) (Y1 type) (Optional)	MURATA MFG CO LTD	KX	Max. 680 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
	TDK CORPORATION	CD	Max. 680 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
	SUCCESS ELECTRONICS CO LTD	SB, SE	Max. 680 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
	WALSIN TECHNOLOGY CORP	AH	Max. 680 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
Bridge-Capacitors (location no. CY01) (Y1 type) (Optional)	MURATA MFG CO LTD	KX	Max. 2200 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
	TDK CORPORATION	CD	Max. 2200 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
	SUCCESS ELECTRONICS CO LTD	SB, SE	Max. 2200 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
	WALSIN TECHNOLOGY CORP	AH	Max. 2200 pF, min. 250 Vac, min. 85 °C.	IEC / EN / UL 60384-14	VDE, UL
Line Choke (location no. LF01) (Optional)	Mao Hsin Electronic Co., Ltd.	MH-12014	Min. 105°C.	--	--

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Line Choke (location no. LF02) (Optional)	Mao Hsin Electronic Co., Ltd.	MH-11469	Min. 105°C.	--	--
Line Choke (location no. LF03) (Optional)	Mao Hsin Electronic Co., Ltd.	MH-11996	Min. 105 °C.	--	--
PFC Choke (location no. T01) (Optional)	Mao Hsin Electronic Co., Ltd.	MH-11995	Min. 105 °C.	--	--
Bridge Diodes (location no. BD01)	Interchangeable	Interchangeable	Min. 10 A, min. 600 Vac.	--	--
Transistor (location no. Q01)	Interchangeable	Interchangeable	Min. 20 A, min. 500 V.	--	--
Transistor (location no. Q02, Q03)	Interchangeable	Interchangeable	Min. 10 A, min. 600 V.	--	--
Transistor (location no. Q04)	Interchangeable	Interchangeable	Min. 6 A, min. 600 V.	--	--
Ripple Capacitors (location no. C03, C04)	Interchangeable	Interchangeable	82 µF, min. 450 V, min 105 °C	--	--
Transformer (location no. T02)	Mao Hsin Electronic Co., Ltd.	MH-11994	Class B	Applicable part in IEC 62368 and evaluated according to IEC 60085	Tested in the equipment
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	V-0, phenolic, 150 °C.	UL 94	UL
-Insulation tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 (b)	130 °C.	UL 510	UL
Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130 °C.	UL 510	UL
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A (b)	130 °C.	UL 510	UL

IEC 62368-1					
Clause	Requirement + Test	Result - Remark		Verdict	
-Triple Insulation Wire	GREAT LEOFLON INDUSTRIAL CO LTD	TRW(B)*	130 °C.	IEC 60950-1, EN 60950-1, UL 2353	VDE, UL
-Insulation Margin Tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	44 (a)	130 °C.	UL 510	UL
Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF* (c)(h)	130 °C.	UL 510	UL
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	WF310 (a)	130 °C.	UL 510	UL
Transformer (location no. T03)	Mao Hsin Electronic Co., Ltd.	MH-11999	Class B	Applicable part in IEC 62368 and evaluated according to IEC 60085	Tested in the equipment
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	V-0, phenolic, 150 °C.	UL 94	UL
-Insulation Tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 (b)	130 °C.	UL 510	UL
Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130 °C.	UL 510	UL
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A (b)	130 °C.	UL 510	UL
-Insulation Margin Tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	44 (a)	130 °C.	UL 510	UL

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF* (c)(h)	130 °C.	UL 510	UL
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	WF310 (a)	130 °C.	UL 510	UL
Photo Couplers (location no. U01, U02, U03)	LITE-ON	LTV-817	Dti=0.6 mm, int.cr= thermal cycling test, ext. cr more than 8.0 mm, 100°C.	DIN EN 60747-5- 2:2003 , IEC/EN 60950-1, UL 1577	VDE, UL,
Alt.	Everlight	EL817	Dti=0.5mm, int. cr= thermal cycling test, ext. cr more than 7.7 mm, 100°C.	DIN EN 60747-5- 2:2003 IEC/EN 60950-1 UL 1577	VDE, UL,
Alt.	Cosmo	K1010	Dti= 0.5 mm, int cr.= 5.3 mm, ext cr.= 8 mm, 5000 Vac, 115°C.	DIN EN 60747-5- 2:2003 IEC/EN 60950-1 UL 1577	VDE, UL,

Supplementary information:

- 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.
- 2) In the technical data column of optocoupler, where "Dti" means distance through insulation, "Int. cr" means internal creepage distance, and "Ext. cr" means external creepage distance.

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test			—
Battery part no. :				—
Battery Installation/withdrawal			Battery Installation/Removal Cycle	Comments
			1	
			2	
			3	
			4	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
		5		
		6		
		8		
		9		
		10		
4.8.4.4	TABLE: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
			1	
			2	
			3	
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:				

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result			N/A
Test position		Surface tested	Force (N)	Duration force applied (s)
Supplementary information:				

5.2	TABLE: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions ¹⁾	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
1	264Vac	+5Vsb – Earth (earth)	Normal	5.12Vrms	--	--	ES1
			Abnormal - Output short	0	--	--	
			Abnormal - opening block	5.12Vrms	--	--	
			Single fault - Fuse open	0	--	--	
			Single fault - Unit shutdown	0	--	--	
			Single fault - normal	5.12Vrms	--	--	
			Transformer overload	5.12Vrms	--	--	
2	264Vac	+12V - Earth	Normal	12.0Vrms	--	--	ES1
			Abnormal - Output short	0	--	--	
			Abnormal - opening block	12.0Vrms	--	--	
			Single fault - Fuse open	0	--	--	
			Single fault - Unit shutdown	0	--	--	
			Single fault - panel shutdown	12.0Vrms	--	--	
			Transformer overload	12.0Vrms	--	--	
3	264Vac	+24V – GND (earth)	Normal	24.0Vrms	--	--	ES1
			Abnormal - Output short	0	--	--	
			Abnormal - opening block	24.0Vrms	--	--	
			Single fault - Fuse open	0	--	--	
			Single fault - Unit shutdown	0	--	--	
			Single fault - normal	24.0Vrms	--	--	
			Transformer overload	24.0Vrms	--	--	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4	264Vac	VLED – GND (earth)	Normal	57.7 Vrms	--	--	ES1
			Abnormal - Output short	51.5Vrms	--	--	
			Single fault - normal	Max. 51.6Vrms	--	--	
				Capacitance, nF	Upk (V)		
1	264 Vac 60 Hz	CX01	Normal	See table 4.1.2	375		ES3
		CX02	Abnormal	--	--		
		CX03	Single fault – SC/OC	--	--		

5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions:

Normal – Max. normal load

Abnormal – No load

Supplementary information: SC = Short-circuited, OC = Open-circuited

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V) :	See below.				—
	Ambient T _{min} (°C) :	--	--	--	--	—
	Ambient T _{max} (°C) :	--	--	--	--	—
	Tma (°C) :	--	--	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
Supply voltage (V/Hz)		90/60	90/60	264/60	--	--
Test Orientation		Horizontal	Vertical (main board downward)	Vertical (main board downward)	--	--
1.AC inlet near L pin		62.5	64.1	63.4	--	70
2.CN01 body		66.6	67.4	64.9	--	70
3.V01 body		70.0	70.9	67.3	--	85
4.CX01 body		69.9	71.4	67.3	--	85
5.CX03 body		68.5	70.5	67.7	--	85
6.LF01 coil		68.1	70.1	66.2	--	105
7.LF02 coil		72.6	74.0	69.2	--	105
8.PCB near BD01		73.6	79.3	72.1	--	105
9.LF03 coil		74.5	81.4	74.0	--	105
10.T01 coil		81.9	88.6	81.1	--	105
11.PCB near Q01		84.9	93.3	90.8	--	105
12.C03 body		75.4	86.9	84.5	--	105
13.PCB near Q02		89.8	90.9	89.2	--	105
14.T02 core		99.7	102.2	100.4	--	110
15.T02 coil		100.4	105.4	103.1	--	110
16.U01 body		91.7	86.1	84.8	--	100
17.T03 core		85.8	81.6	80.6	--	110
18.T03 coil		86.9	81.4	80.2	--	110
19.U02 body		83.4	79.5	78.1	--	100
20.CY01 body		79.2	75.8	74.5	--	85
21.PCB near D07		89.1	79.7	78.7	--	105

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
22.PCB near D03	88.7	88.3	86.2	--	105
23.PCB near D05	87.4	82.4	81.0	--	105
24.L4 coil	72.3	72.1	71.3	--	105
25.L1 coil	71.4	69.6	69.1	--	105
26.C724 body (main board)	64.7	64.1	63.8	--	85
27.PCB near U317	65.4	65.9	65.7	--	105
28.PCB near F1 (main board)	61.8	61.5	61.5	--	105
34.Ambient (actual temp.)	50.0 (22.6)	50.0 (22.5)	50.0 (22.8)	--	--
29.USB port output near metal	31.6	31.9	31.5	--	48
30.Outside Metal near T02	37.9	38.2	36.4	--	48
31.Key pay body	31.4	33.3	33.0	--	48
32.Switch body	32.1	33.0	32.6	--	48
33.Panel body	38.1	34.6	34.5	--	48
34.Ambient (actual temp.)	25.0 (22.6)	25.0 (22.5)	25.0 (22.8)	--	--
Abnormal condition	USB output overload (Vertical)	T02 after D03, D04(+24V) output overload (Vertical)	T02 after D05, D06(+12V) output overload (Vertical)	T03 after D07(+5VS B) output overload (Vertical)	--
Test voltage/Frequency	240/60	240/60	240/60	240/60	--
1.AC inlet near L pin	64.5	65.1	65.3	64.2	300
2.CN01 body	66.3	68.4	69.4	66.3	300
3.V01 body	69.0	74.5	75.8	69.2	300
4.CX01 body	68.7	73.4	74.3	68.8	300
5.CX03 body	69.7	74.5	76.7	70.1	300
6.LF01 coil	68.1	72.9	74.6	68.3	300
7.LF02 coil	71.5	79.0	80.7	71.9	300
8.PCB near BD01	75.2	83.5	86.1	75.8	300
9.LF03 coil	77.3	86.7	90.2	78.1	300
10.T01 coil	85.8	94.7	99.2	87.1	300
11.PCB near Q01	95.7	105.5	111.9	97.1	300
12.C03 body	89.0	97.0	103.7	90.3	300
13.PCB near Q02	97.1	102.6	109.0	101.1	300

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict

14.T02 core	103.4	119.3	133.5	104.4	175
15.T02 coil	105.6	119.9	134.1	106.8	175
16.U01 body	95.1	94.4	107.1	98.4	300
17.T03 coil	99.5	86.9	96.5	106.9	175
18.T03 core	97.4	87.2	96.0	104.3	175
19.U02 body	91.7	84.4	94.0	96.6	300
20.CY01 body	82.9	80.3	88.0	85.4	300
21.PCB near D07	93.9	84.5	101.4	98.5	300
22.PCB near D03	88.7	115.2	111.0	88.9	300
23.PCB near D05	84.7	96.2	129.1	85.2	300
24.L4 coil	72.5	72.5	72.9	72.0	300
25.L1 coil	70.7	70.0	70.1	69.7	300
26.C724 body (main board)	67.2	64.6	65.0	64.3	300
27.PCB near U317	67.7	66.8	67.4	66.4	300
28.PCB near F1 (main board)	73.1	62.6	63.2	62.3	300
34.Ambient (actual temp.)	50.0(23.0)	50.0(22.5)	50.0(22.9)	50.0(22.9)	--
29. USB port output near metal	32.6	32.5	32.4	32.4	58
30. Outside Metal near T02	38.5	41.8	44.5	38.7	58
31.Key pay body	33.8	34.0	34.5	33.8	58
32.Switch body	33.4	34.3	34.5	33.4	58
33.Panel body	35.4	35.8	35.9	35.7	58
34.Ambient (actual temp.)	25.0(23.0)	25.0(22.5)	25.0(22.9)	25.0(22.9)	--

Supplementary information:

Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (T_{ma}) of 50 °C.

Note 2: The temperatures were measured under the worse case normal mode defined in table B.2.5.

Note 3: Temperature limits are calculated as follows:

Winding components providing safety isolation:

Class B → T_{max} = 120 – 10 = 110 °C

Note 4: The values for T (°C) are re-calculated from ambient to reflect the ambient temperature value of 25°C.

Note 5: The tests were performed with speaker adjust to max. volume.

Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

Note 1: Tma should be considered as directed by applicable requirement.

Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9).

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm).....:			—
Object/ Part No./Material	Manufacturer/trademark	T softening (°C)	
--	--	--	
Supplementary information:			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm) : ≤ 2 mm				—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Functional:							
Line trace to Neutral trace before fuse	420	250	--	See 5.4.2.3	3.2	2.5	3.2
Under Fuse F01	420	250	--	See 5.4.2.3	4.5	2.5	4.5
Basic/supplementary:							
Primary component (with 10N) or trace to earthed component (with 10N) or trace	420	250	--	See 5.4.2.3	See below	2.5	See below
Under CY02	420	250	--	See 5.4.2.3	6.8	2.5	6.8
Under CY03	420	250	--	See 5.4.2.3	6.9	2.5	6.9
Power board to Metal chassis	420	250	--	See 5.4.2.3	7.2	2.5	7.2
Between C12 to T03 core	420	250	--	See 5.4.2.3	5.0	2.5	5.0
Between D02 to T03 core	420	250	--	See 5.4.2.3	5.0	2.5	5.0
Reinforced:							

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict

Primary trace to secondary component or trace	420	250	--	See 5.4.2.3	See below	7.3	See below
Under CY01	420	250	--	See 5.4.2.3	7.2	5.7	7.2
Under U01	420	250	--	See 5.4.2.3	6.1	5.7	6.1
Under U02	420	250	--	See 5.4.2.3	6.5	5.0	6.5
Under U03	420	250	--	See 5.4.2.3	6.5	5.0	6.5
U01 secondary to T03 core	420	250	--	See 5.4.2.3	6.8	5.0	6.8
U01 secondary to T03 core	420	250	--	See 5.4.2.3	6.8	5.0	6.8
T02	424	260	16.6KHz	See 5.4.2.3	44.0	5.0	44.0
T03	496	359	1.71KHz	See 5.4.2.3	14.0	5.0	14.0

Supplementary information:

- 1) Material Group IIIa, IIIb considered.
- 2) Core of transformer T02 and T03 are considered as floating part.
- 3) Consider the altitude up to 3000m, multiplication factor (according to Table 17) is 1.14.
- 4) Glued component: CY01.
- 5) For clearance and creepage did not describe above are far larger than limit above.

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Under fuse	2500	1.8	See table 5.4.2.2, 5.4.2.4 and 5.4.3	
Before fuse (between L-N)	2500	1.8	See above	
Line / Neutral to earth	2500	1.8	See above	
Transformer (T02, T03) to earth	2500	1.8	See above	
Primary components to earth	2500	1.8	See above	
Primary / secondary components to floating part	2500	1.8	See above	
Under T02,T03	2500	3.5	See above	
Under U01,U02,U03	2500	3.5	See above	
Under (CY01, CY02, CY03)	2500	3.5	See above	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

The equipment to be operated up to 3000 m above sea level, each clearance multiplied with an altitude correction factor of 1.14.

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak / r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					P
Distance through insulation di at/of:		Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
Photo Coupler (U01, U02, U03)		420	Above 30	See table 4.1.2	0.4	¹⁾
Bobbin of T02, T03		420	Above 30	See table 4.1.2	0.4	0.45 min.
Supplementary information:						
1) For details refer to appended table 4.1.2.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
Unit: primary and earth		DC	2500	No
T02: primary and core		AC	1769	No
T02: Secondary and core		AC	1769	No
T03: primary and core		AC	1769	No
T03: Secondary and core		AC	1769	No
Reinforced:				
Unit: primary and secondary		DC	4000	No
Transformer (T02): primary and secondary		AC	2829	No
Transformer (T03): primary and secondary		AC	2829	No
Bobbin		AC	2829	No
Insulation tape		AC	2829	No
Photo couplers		AC	2829	No

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Transformer (T02/T03): primary winding to secondary winding			
	DC	4000	No
Routine Tests:			
--	--	--	--
Supplementary information:			
1) Higher Value used upon client request.			

5.5.2.2	TABLE: Stored discharge on capacitors					P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
110, 60	Phase to Neutral	N	Off	12.5 Vrms	ES1	
110, 60	Phase to Neutral	S (R05 open)	Off	22.9 Vrms	ES1	
110, 60	Phase to Neutral	S (R06 open)	Off	22.9 Vrms	ES1	
110, 60	Phase to Neutral	S (R07 open)	Off	22.9 Vrms	ES1	
110, 60	Phase to Neutral	S (R08 open)	Off	22.9 Vrms	ES1	
110, 60	Phase to Neutral	S (R09 open)	Off	22.9 Vrms	ES1	
110, 60	Phase to Neutral	S (R10 open)	Off	22.9 Vrms	ES1	
264, 60	Phase to Neutral	N	Off	29.2 Vrms	ES1	
264, 60	Phase to Neutral	S (R05 open)	Off	50.0 Vrms	ES1	
264, 60	Phase to Neutral	S (R06 open)	Off	50.0 Vrms	ES1	
264, 60	Phase to Neutral	S (R07 open)	Off	50.0 Vrms	ES1	
264, 60	Phase to Neutral	S (R08 open)	Off	50.0 Vrms	ES1	
264, 60	Phase to Neutral	S (R09 open)	Off	50.0 Vrms	ES1	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

264, 60	Phase to Neutral	S (R10 open)	Off	50.0 Vrms	ES1
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Supplementary information:

X-capacitors installed for testing are: refer to table 4.1.2

☒ bleeding resistor rating: refer to table 4.1.2

☐ Additional test for ICX:

Notes:

A. Test Location:

Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth.

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S – Single fault condition.

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (mΩ)	
AC inlet earth pin to Metal enclosure	32	2	0.610	19	
AC inlet earth pin to Metal enclosure	40	2	0.800	20	
Trace (earth screw) to CY03 / CY02 earth	32	2	0.128	4	
Trace (earth screw) to CY03 / CY02 earth	40	2	0.160	4	
Supplementary information:					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage	264 Vac	—	
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)	
Line to earth, Neutral to earth	1	Max. 0.54(normal)	
	2*	--	
	3	--	
	4	--	
	5	--	
	6	--	
	8	--	
Supplementary information:			

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage.

[2] Earthed neutral conductor [Voltage differences less than 1% or more].

[3] Specify method used for measurement as described in IEC 60990 subclause 4.3.

[4] IEC60990, subclause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, subclause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2	TABLE: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
264Vac	For +24V output (power board) (normal)	Power (W) :	--	98.04	PS2
		V _A (V) :	--	24.2	
		I _A (A) :	--	4.3	
264Vac	For +12V output (power board)	Power (W) :	--	81.9	PS2
		V _A (V) :	--	12.0	
		I _A (A) :	--	7.8	
264Vac	For +5VSB output (power board)	Power (W) :	--	16.72	PS2
		V _A (V) :	--	5.13	
		I _A (A) :	--	3.8	
264Vac	For +5VSB output (power board) (R71 short)	Power (W) :	1.70	--	PS1
		V _A (V) :	5.13	--	
		I _A (A) :	0.33	--	
264Vac	For +5VSB output (power board) (R02 short)	Power (W) :	1.70	--	PS1
		V _A (V) :	5.13	--	
		I _A (A) :	0.33	--	
264Vac	For +5VSB output (power board) (R65 short)	Power (W) :	1.70	--	PS1
		V _A (V) :	5.13	--	
		I _A (A) :	0.33	--	
264Vac	For +5VSB output (power board) (R66 short)	Power (W) :	1.70	--	PS1
		V _A (V) :	5.13	--	
		I _A (A) :	0.33	--	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
264Vac	For +5VSB output (power board) (R41 short)	Power (W) :	1.70	--	PS1
		V _A (V) :	5.13	--	
		I _A (A) :	0.33	--	
264Vac	For +12V output (power board) (R71 short)	Power (W) :	4.2	--	PS1
		V _A (V) :	12.0	--	
		I _A (A) :	0.35	--	
264Vac	For +12V output (power board) (R02 short)	Power (W) :	4.2	--	PS1
		V _A (V) :	12.0	--	
		I _A (A) :	0.35	--	
264Vac	For +12V output (power board) (R65 short)	Power (W) :	4.2	--	PS1
		V _A (V) :	12.0	--	
		I _A (A) :	0.35	--	
264Vac	For +12V output (power board) (R66 short)	Power (W) :	4.2	--	PS1
		V _A (V) :	12.0	--	
		I _A (A) :	0.35	--	
264Vac	For +12V output (power board) (R41 short)	Power (W) :	0	--	PS1
		V _A (V) :	0	--	
		I _A (A) :	0	--	
264Vac	For +24V output (power board) (R71 short)	Power (W) :	--	44.4	PS2
		V _A (V) :	--	24.2	
		I _A (A) :	--	1.85	
264Vac	For +24V output (power board) (R02 short)	Power (W) :	--	44.4	PS2
		V _A (V) :	--	24.2	
		I _A (A) :	--	1.85	
264Vac	For +24V output	Power (W) :	--	27.45	PS2
		V _A (V) :	--	18.3	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	(power board) (R65 short)	I_A (A) :	--	1.50	
264Vac	For +24V output (power board) (R66 short)	Power (W) :	--	44.4	PS2
		V_A (V) :	--	24.2	
		I_A (A) :	--	1.85	
264Vac	For +24V output (power board) (R41 short)	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	

Supplementary information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits.

Note: The worst case is considered at the power measurement for worst-case fault.

6.2.3.1	TABLE: Determination of Potential Ignition Sources (Arcing PIS)				P
Location		Open circuit voltage After 3 s (V_p)	Measured r.m.s current (I_{rms})	Calculated value ($V_p \times I_{rms}$)	Arcing PIS? Yes / No
2)		2)	2)	2)	Yes

Supplementary information:

- 1) An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.
- 2) All components located within the EUT are considered as arcing PIS.

6.2.3.2	TABLE: Determination of Potential Ignition Sources (Resistive PIS)					P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No	
3)	3)	3)	3)	--	Yes	

Supplementary information:

- 1) A combination of voltmeter, V_A and ammeter I_A may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of ($V_A \times I_A$) is used to determine Resistive PIS classification.
- 2) A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.
- 3) All components located within the EUT are considered as resistive PIS.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type:			—
Manufacturer:			—
Cat no.:			—
Pressure (cold) (MPa):			MS_
Pressure (operating) (MPa):			MS_
Operating time (minutes):			—
Explosion method:			—
Max particle length escaping enclosure (mm):			MS_
Max particle length beyond 1 m (mm):			MS_
Overall result			
Supplementary information:			

B.2.5	TABLE: Input test						P
U (Vac)/Freq (Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No.	I fuse (A)	Condition/status
DVI Mode							
90/50	0.77	--	67.8	--	F01	0.77	Maximum normal load
90/60	0.77	--	67.8	--	F01	0.77	Maximum normal load
100/50	0.69	0.76	67.5	--	F01	0.69	Maximum normal load
100/60	0.69	0.76	67.5	--	F01	0.69	Maximum normal load
110/50	0.62	0.76	67.1	--	F01	0.62	Maximum normal load
110/60	0.62	0.76	67.1	--	F01	0.62	Maximum normal load
240/50	0.33	0.76	66.6	--	F01	0.33	Maximum normal load
240/60	0.33	0.76	66.6	--	F01	0.33	Maximum normal load
264/50	0.31	--	66.6	--	F01	0.31	Maximum normal load
264/60	0.31	--	66.6	--	F01	0.31	Maximum normal load
Supplementary information:							
The measured input current at rated voltage shall be less than or equal to 110 % of rated current.							

B.3	TABLE: Abnormal operating tests						P
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Ambient temperature (°C)						25 °C, if not specified		—
Power source for EUT: Manufacturer, model/type, output rating ...						--		—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
T02 after D03, D04(+24V)	Overload	240	3hr 9min	F01	0.74	--	T02 coil =91.6°C T02 core =91.1°C T03 coil =59.4°C T03 core =59.0°C Ambient =22.6°C	CT at 4.0 A, increase 4.2 A, Unit shutdown, NC, NB, NT, No hazards.
T02 after D05, D06(+12V)	Overload	240	3hr 56min	F01	0.77	--	T02 coil =105.8°C T02 core =105.3°C T03 coil =68.8°C T03 core =68.2°C Ambient =22.6°C	CT at 8.5A, increase 8.7 A, Unit shutdown, NC, NB, NT, No hazards.
T03 after D07(+5VSB)	Overload	240	4hr 6min	F01	0.41	--	T02 coil =80.0°C T02 core =77.6°C T03 coil =80.3°C T03 core =77.6°C Ambient =23.1°C	CT at 3.0 A, increase 3.2 A, Unit shutdown, NC, NB, NT, No hazards, NCD
USB output	Overload	240	4hr 44min	F01	0.38	--	8)	CT at 2.5 A, increase 2.6 A, USB output shutdown, No hazards, no damage, NB, NC, NT.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating tests							P
Ambient temperature (°C)					25 °C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ...					--			—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
+5SBV output	short	240	10 min	F01	0.06	--	--	Unit shutdown, no damage, NB, NC, NT.
+12V output	short	240	10 min	F01	0.06	--	--	Unit shutdown, no damage, NB, NC, NT.
+24V output	short	240	10 min	F01	0.06	--	--	Unit shutdown, no damage, NB, NC, NT.
T02 after D03, D04(+24V)	Output overload	240	3hr 57min	F01	0.74	--	8)	CT at 4.0 A, increase 4.2 A, Unit shutdown, NC, NB, NT, No hazards.
T02 after D05, D06(+12V)	Output overload	240	4hr 12min	F01	0.77	--	8)	CT at 8.5A, increase 8.7 A, Unit shutdown, NC, NB, NT, No hazards.
T03 after D07(+5VSB)	Output overload	240	3hr 25min	F01	0.41	--	8)	CT at 3.0 A, increase 3.2, A Unit shutdown, NC, NB, NT, No hazards, NCD
For Super capacitor (C724)								

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating tests							P
Ambient temperature (°C)					25 °C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ...					--			—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
U25 Pin 1-8 (C724 charge condition)	short	240	7hr	F01	0.33	--	--	Unit normal operation, NB, NC, NT.C724 body= 36.1°C Ambient=23.0°C
U25 Pin 1-8 (C724 discharge condition)	short	240	1hr 20min	F01	0.33	--	--	Unit normal operation, NB, NC, NT.C724 body= 24.0°C Ambient=22.6°C
D5 (C724 charge condition)	short	240	7hr	F01	0.33	--	--	Unit normal operation, NB, NC, NT.C724 body= 37.0°C Ambient=23.7°C
D5 (C724 discharge condition)	short	240	1hr 5min	F01	0.33	--	--	Unit normal operation, NB, NC, NT.C724 body= 25.0°C Ambient=23.0°C

Supplementary information:

Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.

- 1) SC: Short-circuited; OC: Open-circuited; OL: Overloaded.
- 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
- 3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
- 4) For fuse opened condition, carried out for all sources of fuse.
- 5) For test results with fuse opened condition have been repeated twice (three tests total) for all sources of fuse with the same outcome.
- 6) The overloaded condition is according to annex G.5.3.3.
Winding Limit for T02/T03 winding: 175 °C – (40 – 25) °C = 160°C
- 7) For other related components temp. which do not recorded above were far away from limited value.
- 8) All temperature measurement refer to appended table 5.4.1.4

B.4	TABLE: Single Fault operating tests							P
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Ambient temperature (°C)						25 °C, if not specified		—
Power source for EUT: Manufacturer, model/type, output rating ...						--		—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
BD01 Pin(+, -)	Short	240Vac	1Sec	F01	0	--	--	F01 opened immediately, NB, NC, NT.
C03	Short	240Vac	1Sec	F01	0	--	--	F01 opened immediately, NB, NC, NT.
D03	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
D04	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
D05	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
D06	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
D07	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
T03 pin 7,8-9,10	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
T02 pin 9-15	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
T02 pin15-11,12,13,14	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
T02 pin 16-11,12,13,14	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
T02 pin 10-16	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
T03 pin 1-2	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Single Fault operating tests							P
Ambient temperature (°C)					25 °C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ...					--			—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
T03 pin 2-5	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
T03 pin 3-4	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
T02 pin 5-1	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
T02 pin 3-7	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
U01 pin 1-2	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U01 pin 3-4	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U01 pin 1	Open	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U02 pin 1-2	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U02 pin 3-4	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U02 pin 1	Open	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U03 pin 1-2	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U03 pin 3-4	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
U03 pin 1	Open	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
IC03 pin 2-6	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
IC02 pin 2-11	Short	240Vac	10mins	F01	0.07	--	--	Unit shutdown, NB, NC, NT.
Q03 pin G-S	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Single Fault operating tests							P
Ambient temperature (°C)					25 °C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ...:					--			—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Q03 pin D-S	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
Q03 pin D-G	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
Q02 pin G-S	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
Q02 pin D-S	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
Q02 pin D-G	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
Q04 pin G-S	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
Q04 pin D-S	Short	240Vac	1Sec	F01	--	--	--	F01 opened immediately, NB, NC, NT.
Q04 pin D-G	Short	240Vac	1Sec	F01	--	--	--	F01 opened immediately, NB, NC, NT.
R02	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.
+12V to metal part	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
+12V to secondary connector	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
+5SBV to metal part	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
+5SBV to secondary connector	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
+24V to metal part	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.
+24V to secondary connector	Short	240Vac	10mins	F01	0.06	--	--	Unit shutdown, NB, NC, NT.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Single Fault operating tests							P
Ambient temperature (°C)					25 °C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ..					--			—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
C724	Short	240Vac	10mins	F01	0.33	--	--	Unit normal operation, NB, NC, NT.

Supplementary information:

Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.

1)SC: Short-circuited; OC: Open-circuited; OL: Overloaded.

2)The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.

3)The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.

4)For fuse opened condition, carried out for all sources of fuse.

5) For test results with fuse opened condition have been repeated twice (three tests total) for all sources of fuse with the same outcome.

6)The overloaded condition is according to annex G.5.3.3.

Winding Limit for T02/T03 winding: 175 °C – (40 – 25) °C = 160 °C

7) For other related components temp. which do not recorded above were far away from limited value.

Annex M	TABLE: Batteries								N/A	
The tests of Annex M 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										

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

- Explosion of the battery		
- Emission of flame or expulsion of molten metal		
- Electric strength tests of equipment after completion of tests		
Supplementary information:		

Annex M.4 Table: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				
	Normal				
	Abnormal				
	Single fault – SC/OC				
Supplementary Information:					
Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	
Supplementary Information:					

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P	
Note: Measured UOC (V) with all load circuits disconnected:							
Output Circuit	Components	U _{oc} (Vdc)	I _{sc} (A)		S (VA)		
			Meas.	Limit	Meas.	Limit	
DVI IN2 connector (J53)							
Pin1,2,9,10,17,18, 23,24	Normal	3.29	0	8.0	0	100	
Pin 6,7	Normal	3.51	0	8.0	0	100	
Other pins	Normal	0	--	8.0	--	100	
micro DVI IN1 connector (J57)							
Pin1,2,9,10,17,18, 23,24	Normal	1.54	0	8.0	0	100	
Pin6,7	Normal	3.42	0	8.0	0	100	
Other pins	Normal	0	--	8.0	--	100	
DVI OUT connector (J54)							

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Pin 6	Normal	8.77	0	8.0	0	100
Pin 7	Normal	8.65	0	8.0	0	100
Pin 14	Normal	5.11	0	8.0	0	100
Pin 16	Normal	2.13	0	8.0	0	100
Other pins	Normal	0	--	8.0	--	100
RS232 connector (J8)						
All pins	Normal	0	--	8.0	--	100
RJ17 connector (J17)						
All pins	Normal	0	--	8.0	--	100
USB2.0 connector (J1)						
Pin 1	Normal	5.11	4.0	8.0	12.73	100
Other pins	Normal	0	--	8.0	--	100
Supplementary information: SC = Short-circuited; OC = Open-circuited.						

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test duration (sec)	Observation	
Enclosure / Top	See appended table 4.1.2	See appended table 4.1.2	250N	5	¹⁾	
Enclosure / Side	See appended table 4.1.2	See appended table 4.1.2	250N	5	¹⁾	
Enclosure / Bottom	See appended table 4.1.2	See appended table 4.1.2	250N	5	¹⁾	
Supplementary information: Containing all sources during the test. For details refer to appended table 4.1.2.						

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
External metal enclosure (Top rear and sides)	See table 4.1.2	See table 4.1.2	1300	All safeguards remained effective.	
Supplementary information: Containing all sources during the test. For details refer to appended table 4.1.2.					

T.7	TABLE: Drop tests				N/A
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Part/Location	Material	Thickness (mm)	Drop height (mm)	Observation

Supplementary information:

Containing all sources during the test. For details refer to appended table 4.1.2.

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven temperature (°C)	Duration (h)	Observation	
Mylar sheet	See table 4.1.2	See table 4.1.2	70	7	All safeguards remained effective.	

Supplementary information:

Containing all sources during the test. For details refer to appended table 4.1.2.

Clause	Requirement + Test	Result - Remark	Verdict
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G.5.3.2	TABLE: Transformers						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)
T02	Primary to Secondary	424	260	DC 4000V	3.6	5.2	Min. two layers or 0.4mm thickness
T02	Primary to Core	424	260	DC 2500V	1.8	2.6	Min. two layers or 0.4mm thickness
T02	Secondary to Core	424	260	DC 2500V	1.8	2.6	Min. two layers or 0.4mm thickness
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T02	Primary pin to Secondary pin			DC 4000V	44.0	44.0	See supplementary information
T02	Primary wire to Secondary wire			DC 4000V	6.5	6.5	See supplementary information
T02	Primary pin to Core			DC 2500V	3.3	3.3	See supplementary information
T02	Secondary pin to Core			DC 2500V	3.3	3.3	See supplementary information
T02	Primary wire to Core			DC 2500V	3.0	3.0	See supplementary information

Clause	Requirement + Test	Result - Remark	Verdict
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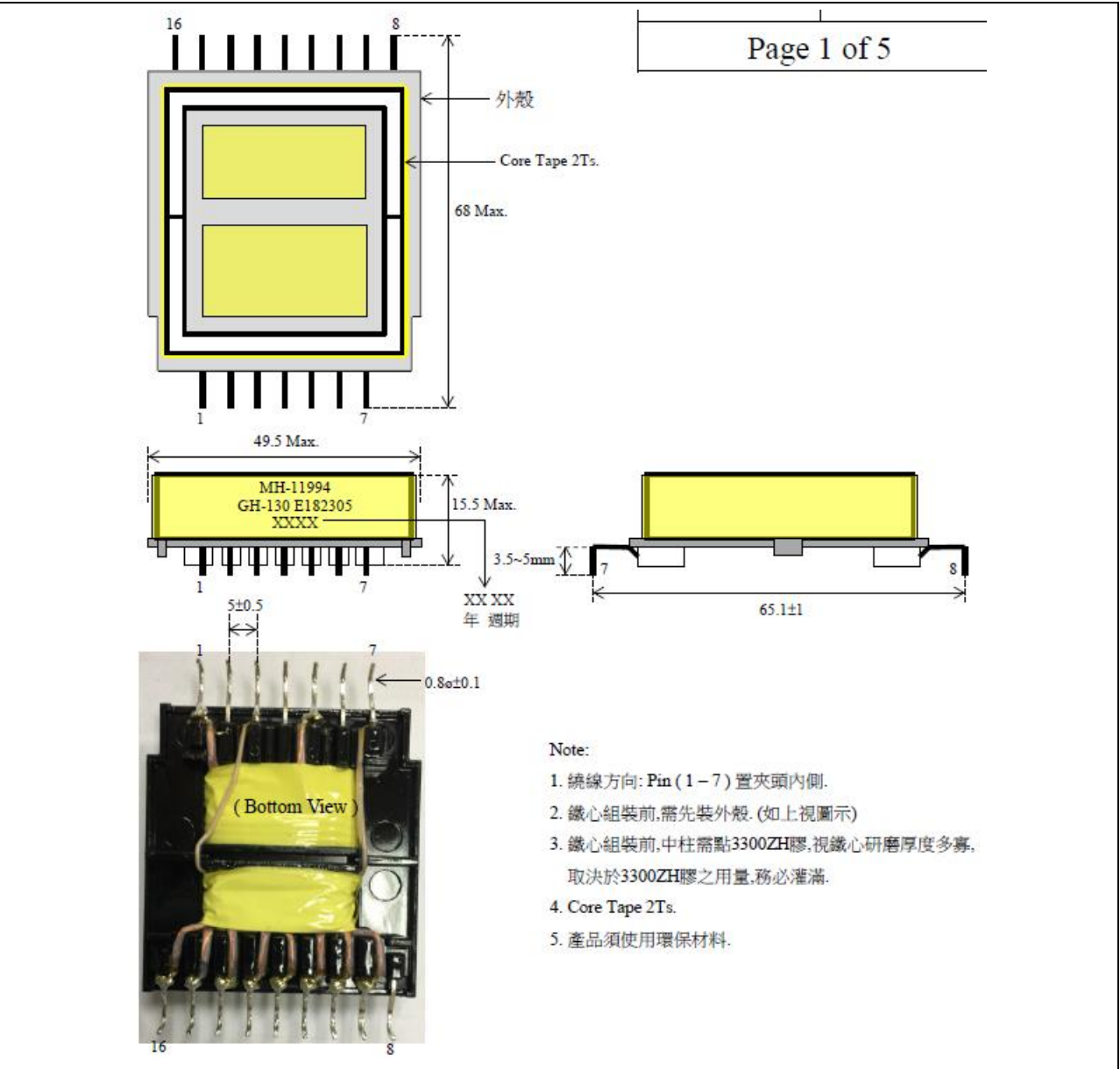
T02	Secondary wire to Core	DC 2500V	3.0	3.0	See supplemen tary information
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supplementary information:

Same construction for all sources of T9101.

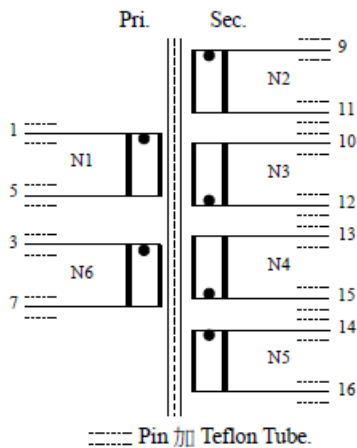
C.2	TABLE: transformers	P
The transformer primary and secondary winding are separated completely by bobbin design and top cover, all winding exit provide tubes, for construction details, refer to below illustrations from manufacturer spec.		

Clause	Requirement + Test	Result - Remark	Verdict
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Clause	Requirement + Test	Result - Remark	Verdict
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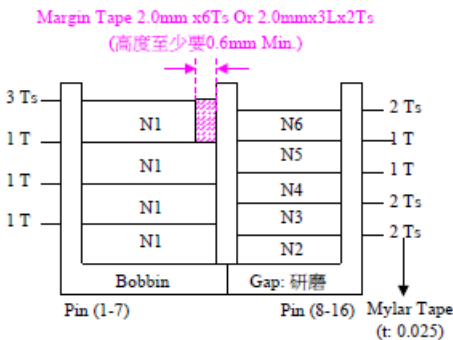
2. Schematic: (線路圖)



Model No. | MH-11994

Page 2 of 5

3. Winding: (剖面圖)



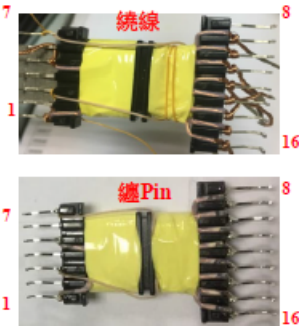
4. Winding Table: (繞線結構)

Step	Symbol	Winding Detail					Margin Tape		Mylar Tape
		Start Pin	Finish Pin	Wire m/m	Turns	M	Pin 1-7	Pin 8-16	
1	N1	1	5	0.1øx60 股 (絞線)	34	密繞	0 / 2.0mm	0 / 0	3
2	N2	9	11	0.1øx70 股 (絞線)	4	疏繞	0 / 0	0 / 0	2
3	N3	12	10	0.1øx70 股 (絞線)	4	疏繞	0 / 0	0 / 0	2
4	N4	15	13	0.1øx70 股 (絞線)	2	密右	0 / 0	0 / 0	1
5	N5	14	16	0.1øx70 股 (絞線)	2	密左	0 / 0	0 / 0	1
6	N6	3	7	0.3ø TRW(B)	3	疏繞	0 / 0	0 / 0	2

Note:

- 繞線方向: Pin (1 - 7) 置夾頭內側.
- Pin 加 Teflon Tube.
- N1 繞線需層間絕緣,繞線約四層,繞第四層需加 Margin Tape 2.0mm x6Ts Or 2.0mmx3Lx2Ts, (Margin Tape 高度至少要0.6mm Min.)
- N6 使用三層絕緣線,進,出線加套管,繞線方式,如右圖示.
- 各Pin須扭緊,Pin纏 2/3 或 1T 即可,線頭直接剪斷,若線頭過長須修短.

(N6 繞線及纏Pin方式)



Clause	Requirement + Test	Result - Remark	Verdict
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7. Material List :

Item	Name	Material	Supplier	Approval	
1.	Insulation System	Class 130(B) GH-130	Mao Hsin Electronic Co Ltd	E182305	V
2.	Core EFD-40A	Ferrite core NH9	Lianfeng Or Equiv		V
3.	Bobbin	LONGLITE T375J	Chang Chun Plastics Co Ltd.	E59481	V
4.	Cover	LONGLITE 4130 (100%Virgin) (a)(b)	Chang Chun Plastics Co Ltd.	E59481	V
5.	Wire	UEWS/U (MW75-C)	Pacific Electric Wire & Cable (Shenzhen) Co Ltd.	E201757	
		UEW-4@ (MW75-C)	Jung Shing Wire Co Ltd.	E174837	V
		TRW(B)* Serie(s)	Great Leoflon Industrial Co Ltd.	E211989	V
		TM-Litz-2-2 (MW28-C) (絞線)	Xin Mao Wire & Cable Plant	E220377	V
6.	Tape	1350F-1(b)	3M Company Electrical Markets DIV (EMD)	E17385	
		CT* (c)(g)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd.	E165111	
		JY25-A (b)	Jingjiang Jingyi Adhesive Product Co. Ltd	E246950	V
7.	Margin Tape	44(a)	3M Company Electrical Markets DIV (EMD)	E17385	
		WF* (c)(h)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd.	E165111	
		WF310 (a)	Jingjiang Jingyi Adhesive Product Co. Ltd	E246950	V
8.	Sleeving	TFL	Great Holding Industrial Co Ltd.	E156256	V
9.	Varnish	BC-359	John C Dolph Co.	E317427	V

Description of design:

Bobbin

Primary/input pins.....: 1-5, 3-7

Secondary/output pins.....: 9-11, 12-10, 15-13, 14-16

Material (manufacturer, type, ratings): See above

Thickness (mm).....: Min. 0.5 mm

G.5.3.2	TABLE: Transformers						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)

Clause	Requirement + Test	Result - Remark		Verdict
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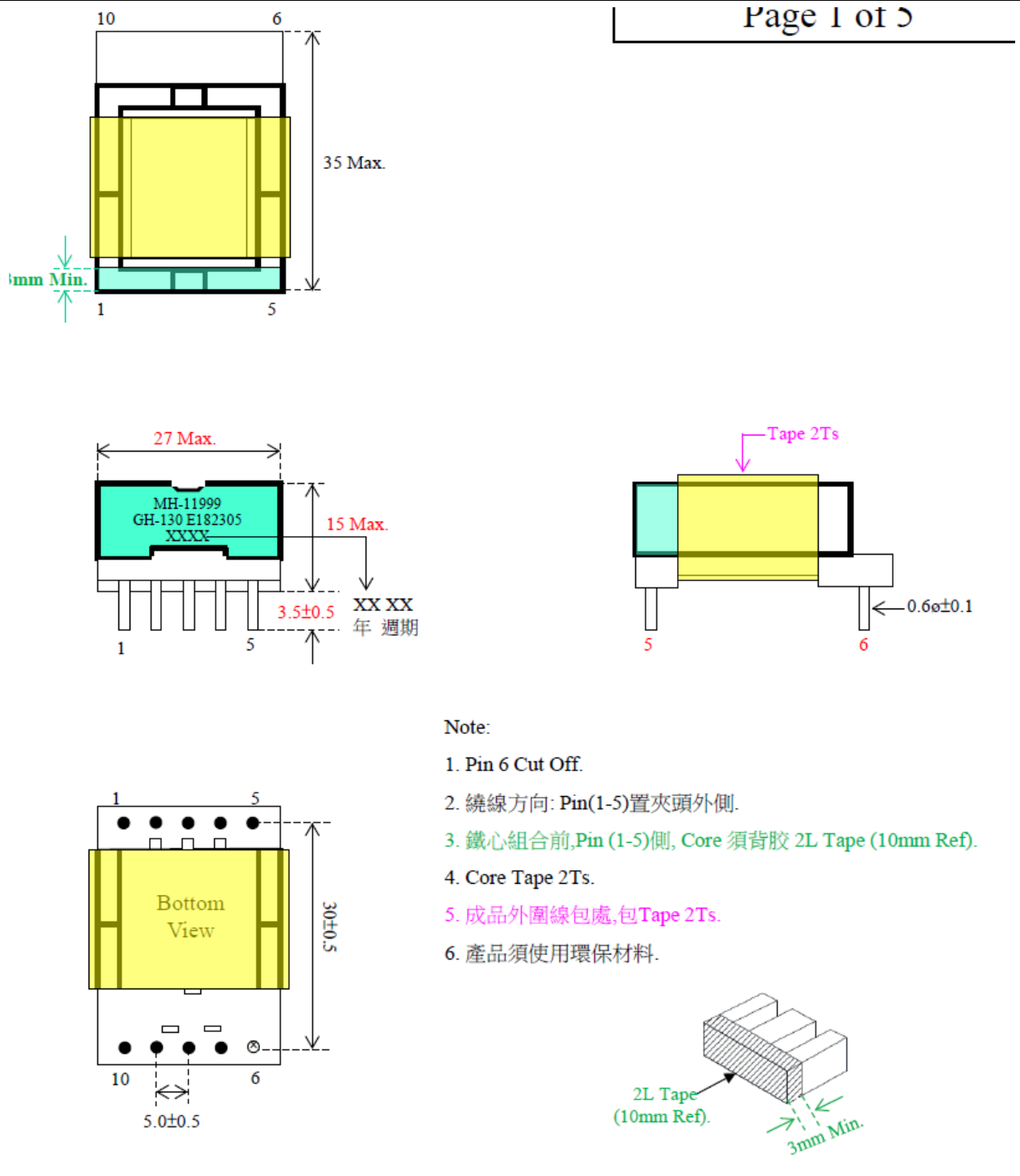
T03	Primary to Secondary	496	359	DC 4000V	3.5	7.2	Min. two layers or 0.4mm thickness
T03	Primary wire to Core	496	359	DC 2500V	1.8	3.6	Min. two layers or 0.4mm thickness
T03	Secondary wire to Core	496	359	DC 2500V	1.8	3.6	Min. two layers or 0.4mm thickness
T03	Primary pin to core	496	359	DC 2500V	1.8	3.6	Min. two layers or 0.4mm thickness
T03	Secondary pin to core	496	359	DC 2500V	1.8	3.6	Min. two layers or 0.4mm thickness
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T03	Primary pin to Secondary pin			DC 4000V	29.6	29.6	See supplementary information
T03	Primary wire to Secondary wire			DC 4000V	10.0	10.0	See supplementary information
T03	Primary wire to core			DC 2500V	3.8	3.8	See supplementary information
T03	Secondary wire to core			DC 2500V	3.8	3.8	See supplementary information

Clause	Requirement + Test	Result - Remark	Verdict
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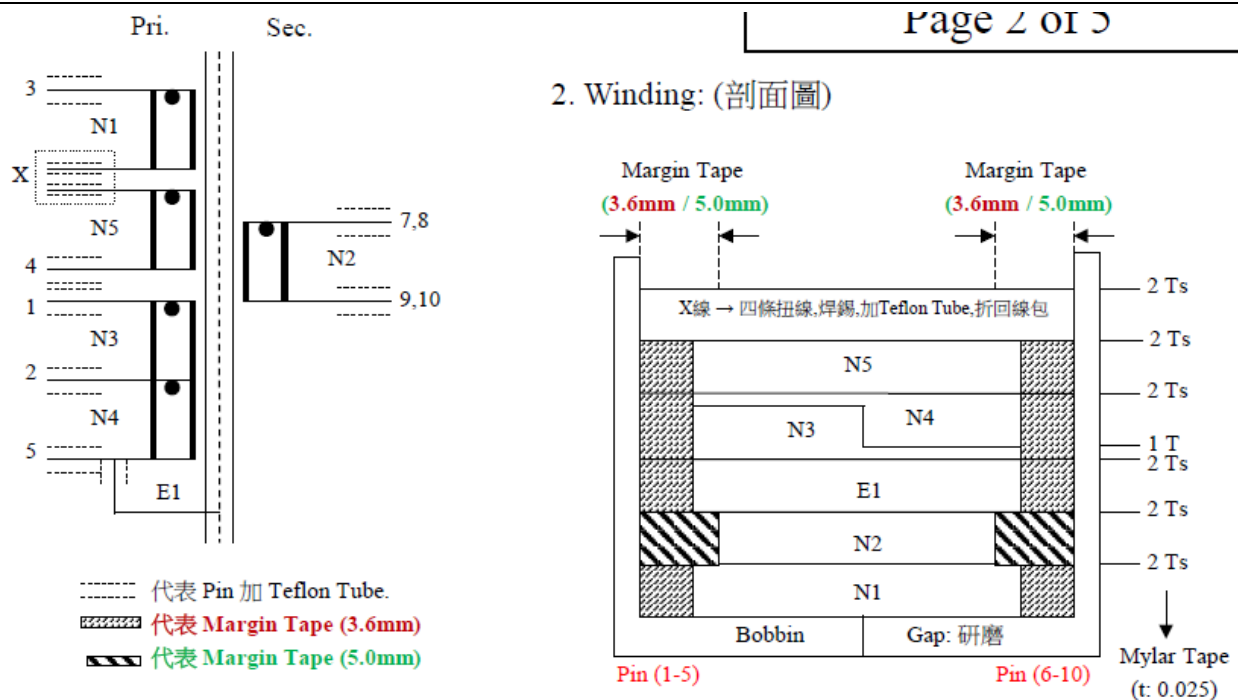
T03	Primary pin to core	DC 2500V	5.3	5.3	See supplementary information
T03	Secondary pin to core	DC 2500V	10.0	10.0	See supplementary information
supplementary information:					
Same construction for all sources of T9201.					

C.2	TABLE: transformers	P
The transformer primary and secondary winding are separated completely by bobbin design and top cover, all winding exit provide tubes, for construction details, refer to below illustrations from manufacturer spec.		

Clause	Requirement + Test	Result - Remark	Verdict
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Clause	Requirement + Test	Result - Remark	Verdict
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3. Winding Table: (繞線結構)

[illegible]

Note:

1. 繞線方向: **Pin(1-5)**置夾頭外側.
2. **Pin**加 Teflon Tube.
3. N1,N5→X進.出線加套管,由底部**Pin(1-5)**出線,待所有繞組完成後,四條扭線,焊錫,加套管,折回線包.
4. E1 使用背膠銅箔.
5. N3,N4 同層密繞, 先繞N3 (靠一次側密繞), 再繞N4 (靠二次側密繞).

Clause	Requirement + Test	Result - Remark	Verdict
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7. Material List :

Item	Name	Material	Supplier	Approval	
1.	Insulation System	Class 130(B) GH-130	Mao Hsin Electronic Co Ltd	E182305	
2.	Core EFD-25 Or Equiv	Ferrite core NH2C	Lianfeng (聯豐)		V
		Ferrite core SSP-44	Sunshine (尚朋)		V
3.	Bobbin 150°C	LONGLITE T375J	Chang Chun Plastics Co Ltd.	E59481	V
4.	Wire 135°C	UEWS/U (MW75-C)	Pacific Electric Wire & Cable (Shenzhen) Co Ltd.	E201757	
		UEW-4@ (MW75-C)	Jung Shing Wire Co Ltd.	E174837	V
5.	Tape 130°C	1350F-1(b)	3M Company Electrical Markets DIV (EMD)	E17385	
		CT* (c)(g)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd.	E165111	
		JY25-A (b)	Jingjiang Jingyi Adhesive Product Co. Ltd	E246950	V
6.	Margin Tape 130°C	44(a)	3M Company Electrical Markets DIV (EMD)	E17385	
		WF* (c)(h)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd.	E165111	
		WF310 (a)	Jingjiang Jingyi Adhesive Product Co. Ltd	E246950	V
7.	Sleeving 200°C	TFL	Great Holding Industrial Co Ltd.	E156256	V
8.	Varnish 130°C	BC-359	John C Dolph Co.	E317427	V
9.	Copper Foil	0.025t x 9w (背膠銅箔)	Dong Guan City Hao Fu Hardware & Electron produce Co.,Ltd		V

Description of design:

Bobbin

Primary/input pins.....:	3-X, X-4, 1-2, 2-5
Secondary/output pins.....:	7, 8-9, 10
Material (manufacturer, type, ratings)	See above
Thickness (mm).....:	Min. 0.5 mm

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)	
Differences according to.....	EN 62368-1:2014+A11:2017
Attachment Form No.....	EU_GD_IEC62368_1B_II
Attachment Originator	Nemko AS
Master Attachment	Date 2017-09-22
Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	CENELEC COMMON MODIFICATIONS (EN)					P																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed “Z”.					P																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					P																																				
	Delete all the “country” notes in the reference document (IEC 62368-1:2014) according to the following list: <table border="1"><tr><td>0.2.1</td><td>Note</td><td>1</td><td>Note 3</td><td>4.1.15</td><td>Note</td></tr><tr><td>4.7.3</td><td>Note 1 and 2</td><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 13</td><td>Note c</td></tr><tr><td>5.4.2.3.2.4</td><td>Note 1 and 3</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3</td></tr><tr><td>5.7.5</td><td>Note</td><td>5.7.6.1</td><td>Note 1 and 2</td><td>10.2.1 Table 39</td><td>Note 2, 3 and 4</td></tr><tr><td>10.5.3</td><td>Note 2</td><td>10.6.2.1</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td></tr></table>					0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																					
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c																																					
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note																																					
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3																																					
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4																																					
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																					
	For special national conditions, see Annex ZB.					P																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.			Added.		P																																				

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	Add the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.	Added.	N/A
5.4.2.3.2.4	Add the following to the end of this subclause: The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.	Added.	N/A
10.2.1	Add the following to c) and d) in table 39: For additional requirements, see 10.5.1.	Added.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	Add the following after the first paragraph: <i>For RS1 compliance is checked by measurement under the following conditions:</i> <i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i> NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. <i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i> <i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i> <i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i> NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.	Added.	N/A
10.6.1	Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.	Added.	N/A
10.Z1	Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566	Added.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.	Added.	N/A
Bibliography	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.	Added.	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"	See rating label for details.	P
4.7.3	United Kingdom To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	Denmark After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	Finland and Sweden To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • 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 5.4.11; • 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

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	Norway After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		P
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Considered.	P
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A , the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.	Considered.	P
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm ² to 1,5 mm ² in cross-sectional area.		N/A
5.7.5	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	Norway and Sweden To the end of the subclause the following is added: The screen of the television 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 needs to be isolated from the screen of a cable distribution system. 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 a retailer, for example. 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: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, 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. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater 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 apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	Denmark To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	Ireland and United Kingdom The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment , tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32 A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment , until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	Denmark To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If 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. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	United Kingdom To the end of the subclause the following is added: 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.		N/A
G.7.1	United Kingdom To the first paragraph the following is added: Equipment 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 shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	Ireland To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm ² is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		P
10.5.2	Germany The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de	No cathode ray tube is provided.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2 th Ed. U.S.A. NATIONAL DIFFERENCES	
Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to.....:	CSA/UL 62368-1:2014
Attachment Form No.....:	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.	Considered.	P
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.	Not exceeding 3.05 m.	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.	Overall acceptance has to be evaluated during the national approval process.	N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.	No such parts.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment	An appliance inlet provided that is connected by an approved appliance coupler serves as main protective earthing terminal. No power supply cord provided.	N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.	No TNV circuits within the equipment.	N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.	No such parts.	N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	The equipment is not permanent connection equipment.	N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power cord provided	N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	See above.	N/A
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.	See above.	N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits within the equipment.	N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits within the equipment.	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.	No such parts.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.	The equipment not intended to be used within such environments.	N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Not such equipment.	N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.	The equipment is not for children used.	N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a baby monitors.	N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No flammable liquids within the equipment.	N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.	No such application.	N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	Single phase only.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current	Not such application.	N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position	No such parts.	N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	.	N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).	No such parts.	N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.	No such parts.	N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No such parts.	N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).	No such parts.	N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.	Not such application.	N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.	Not applicable for the equipment.	N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.	Not such application.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	Not such application.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.	UL approved components used. Refer to table 4.1.2 of IEC 62368-1 test report for details.	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.	Pluggable equipment type A.	N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.	No terminals for permanent wiring.	N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	No wire binding screws.	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.	The equipment not connected to a centralized d.c. power system.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No TNV circuits within the equipment.	N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No TNV circuits within the equipment.	N/A