Test Report

Product Name:	Dynamic light box
Main test model:	JCD-NW, JCD-RGB, Blueview-NW, Blueview-RGB
Applicant:	Blueview Elec-optic Tech Co., Ltd.
Test category:	Type test

KeySense Testing & Certification International Co., Ltd.

1-3F, Lab Building, No.29 District, ZhongKai Hi-Tech Industrial Development Park, Huizhou, Guangdong, China

Test Report of EN 62368-1 Audio/video, information and communication technology equipment Part 1:safety requirements				
Product name	Dynamic light box			
Model number	JCD-NW, JCD-RGB, Blueview-NW, Blueview-RGB			
Rating(s)	Input: 110-240V~, 50/60Hz, 215W			
Applicant	**Name**	Blueview Elec-optic Tech Co., Ltd.		
	Address	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Shuangliu District, Chengdu City, Sichuan Province, P.R.China		
Manufacturer	**Name**	Blueview Elec-optic Tech Co., Ltd.		
	Address	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Shuangliu District, Chengdu City, Sichuan Province, P.R.China		
Factory	**Name**	Blueview Elec-optic Tech Co., Ltd.		
	Address	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Shuangliu District, Chengdu City, Sichuan Province, P.R.China		
Trade mark	N/A			
Receipt date	November 02, 2021		**Quantity**	1pcs
Standards	EN 62368-1:2014+A11:2017			
Test site	Safety Laboratory (1-3F, Lab Building, No.29 District, ZhongKai Hi-Tech Industrial Development Park, Huizhou, Guangdong, China)			
Test period	November 02, 2021 to November 10, 2021		**Issue Date**	November 15, 2021
Test result	Pass			
Tested by: Sam Wang		**Sign:** Sam Wang	**Date:** 2021.11.15	
Reviewed by: Sophia Qian		**Sign:** Sophia Qian	**Date:** 2021.11.15	**(Stamp)**
Approved by: Tony Xu (General manager)		**Sign:** Tony Xu	**Date:** 2021.11.15	

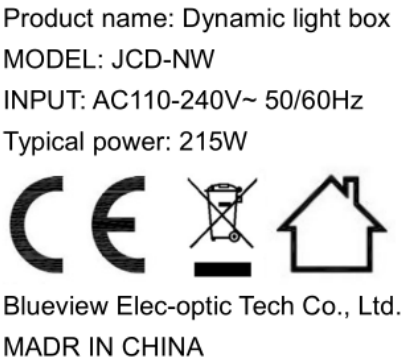
GENERAL INFORMATION

Summary of testing: **The product fulfils the requirements of EN 62368-1:2014+A11:2017**	
Tests performed (name of test and test clause): Full clauses, except not applicable.	**Testing location:** KeySense Testing & Certification International Co., Ltd. 1-3F, Lab Building, No.29 District, ZhongKai Hi-Tech Industrial Development Park, Huizhou, Guangdong, China

General product imformation

1. The product covered in this report is Dynamic light box which is Class Ⅰ equipment, is intended to indoor use with Audio/video or information and communication technology equipment .It is supplied by AC mains via the detachable power cord.
2. The product was submitted and evaluated for use at the maximum ambient temperature permitted by the manufacturer´s specification of 40°C.
3. The enclosure is secured by screw.
4. The equipment was evaluated for a maximum operating altitude of 2000m.
5. All models identical except for the model names.

Copy of marking plate



Note:

- The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
- The height of CE symbol should be minimum 5mm high and the height of WEEE directive symbol should be minimum 7mm high.
- For European market, the following information are on its packaging or in a document accompanying appliance:

Importer name: XXXXX, Importer address: XXXXX, S/N: XXXXX, Manufacturer name: XXXXX. Manufacturer address: XXXXX.

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)

No decide……:—

Test item particulars:	
Classification of use by ..... :	[X]Ordinary person []Instructed person []Skilled person []Children likely to be present
Supply connection..... :	[X] AC mains [] DC Mains [] External Circuit – not Mains connected -[] ES1 -[] ES2 -[] ES3
Supply % tolerance ..... :	[X] +10%/-10%(for AC input) [] +20%/-15% [] +_____%/-_____% [] None
Supply connnection - Type ..... :	[X] pluggable equipment type A- [X] non-detachable power supply cord [] applicane coupler [] direct plug-in [] mating connector [] pluggable equipment type B- [] non-detachable power supply cord [] applicane coupler [] permanent connection [] mating connector [] other.
Considered current rating of protective device as part of building or equipment installation ..... :	16A Installation location: [X]building; []equipment
Equipment mobility..... :	[] movable [] hand-held [] transportable [X] stationary [X] for building-in [] direct plug-in [] rack-mounting [ ]wall-mounted
Over voltage category (OVC) ..... :	[] OVC I [X] OVC II [] OVC III [] OVC IV [] other:
Class of equipment ..... :	[X] Class I [] Class II [] Class III [] Not classified
Access location ..... :	[] restricted access location []N/A [X] operator accessible
Pollution degree (PD) ..... :	[] PD 1 [X] PD 2 [] PD 3
Manufacturer's specified maxium operating ambient:	40°C
IP protection class ..... :	[X]IPX0 []IP
Power systems..... :	[X] TN [] TT []IT-_____V(L-L)
Altitude during operation (m) ..... :	[X]2000m or less []5000m
Altitude of test laboratory (m) ..... :	[X]2000m or less [] _____m
Mass of equipment (kg) ..... :	Approximate: 27.2kg

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)**
Primary circuit before the Switching power supply	ES3
Stored charge on X-capacitor	ES1(Considered in certified built-in power supply unit)
Output terminal for Switching power supply	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)**
All primary circuits inside the equipment enclosure	PS3
Output external circuit for the Switching power supply	PS3
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	MS3
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)**
Internal components	TS3
Accessible surfaces	TS1

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
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)**
LED for indicating only	RS1

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
☒ ES ☒ PS ☒ MS ☒ TS ☒ RS

OVERVIEW OF EMPLOYEDSAFEGUARDS				
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: Primary circuit Before the Switching power supply	Insulation by spacing	N/A	Equipment enclosure
Ordinary	ES1: Output terminal for Switching power supply	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
All combustible materials and wire within equipment	PS3:＞100W All primary circuits inside the equipment enclosure	Equipment safeguard(e.g. no ignition occurs under normal and abnormal operation condition)	Equipment safeguards and fire enclosure	N/A
All combustible materials and wire within equipment	PS3:＜Output external circuit for the Switch power supply	Equipment safeguard(e.g. no ignition occurs under normal and abnormal operation condition)	Equipment safeguards and fire enclosure	N/A
7.1	Injury caused by hazardous substances			
Body Part	Energy Source	Safeguards		

(e.g., skilled)	(hazardous material)	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	MS3:Equipment mass	Robust mounting means	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible surfaces	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	RS1: LED for indicating only	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				

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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	See Annex G	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions .....:	(See Annex F)	—
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests .....:	(See Annex T.2, T.5)	—
4.4.4.3	Drop tests.....:		—
4.4.4.4	Impact tests.....:		—
4.4.4.5	Internal accessible safeguard enclosure and barrier tests .....:	(See Annex T.3)	—
4.4.4.6	Glass Impact tests .....:		—
4.4.4.7	Thermoplastic material tests.....:		—
4.4.4.8	Air comprising a safeguard .....:	(See Annex T)	—
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion	No explosion	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to .....:	Applied to inrernal components. The conductor shall not break away on its terminal, clearances are creepage distances are reduced below the values specified in 5.4.2 and 5.4.3	—
4.7	Equipment for direct insertion into mains socket - outlets	No such equipment	N/A
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 such equipment	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 .....:	(See Table 4.8.4)	—

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Clause	Requirement + Test	Result - Remark	Verdict
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object .....:	(See Annex P)	—
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications .....:	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		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)	N/A
5.2.2.4	Single pulse limits.....:	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses .....:	(See appended table 5.2)	N/A
5.2.2.6	Ringing signals .....:	(See Annex H)	N/A
5.2.2.7	Audio signals .....:	(See Clause E.1)	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 4.3 and 5.3 to 5.5 which applies to protection between the accessible parts and hazardous part of other circuits.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
5.3.2.2	Contact requirements		P
	a) Test with test probe from Annex V .....:		—
	b) Electric strength test potential (V) .....:		—
	c) Air gap (mm) .....:		—
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T and natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning.....:	(See sub-clause 5.4.8)	—
5.4.1.4	Maximum operating temperature for insulating materials .....:	(See appended table 5.4.1.4)	—
5.4.1.5	Pollution degree .....:	PD2	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
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		P
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat softening temperature .....:		N/A
5.4.1.10.3	Ball pressure .....:		N/A
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage		P
5.4.2.3	Determining clearance using required withstand voltage .....:		P
	a) a.c. mains transient voltage .....:	2500 Vpeak	—
	b) d.c. mains transient voltage .....:	No connections to d.c. mains	—
	c) external circuit transient voltage .....:	No connections to external circuit with transient voltage	—
	d) transient voltage determined by measurement ..... :	Option was not used	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....:		P
5.4.3	Creepage distances .....:	From Primary Terminals toEarthed Case	P
5.4.3.1	General		P
5.4.3.3	Material Group .....:	Material group IIIb	—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation .....:	Considered in certified built-in power supply unit	N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices	Considered in certified built-in power supply unit	N/A
5.4.4.5	Cemented joints		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6	Thin sheet material	Considered in certified built-in power supply unit	N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs).....:		N/A
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.....:		N/A
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		P
	Relative humidity (%).....:	93%	—
	Temperature (°C) .....:	40°C	—
	Duration (h).....:	120h	—
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		P
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	No connection to external circuits with transient voltage	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 .....:	(See appended table 5.4.9)	—
5.4.10.2.3	Steady-state test.....:	(See appended table 5.4.9)	—
5.4.11	Insulation between external circuits and earthed circuitry .....:	(See appended table 5.4.9)	—

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
5.5.1	General		P
5.5.2	Capacitors and RC units	Considered in certified built-in power supply unit	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers	Considered in certified built-in power supply unit	N/A
5.5.4	Optocouplers	Considered in certified built-in power supply unit	N/A
5.5.5	Relays	No such component	N/A
5.5.6	Resistors	Considered in certified built-in power supply unit	N/A
5.5.7	SPD's	Considered in certified built-in power supply unit	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.....:		N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation	Green-and-yellow	P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm^2) ..... :	Min.18AWG	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). ..... :		—
	Protective current rating (A)..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		P
5.6.5.1	Requirement		P
	Conductor size (mm^2), nominal thread diameter (mm). ..... :	Min.18AWG	—
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method Resistance (Ω)..... :	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing		P
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current..... :	(See appended table 5.2)	—
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		P
	System of interconnected equipment (separate connections/single connection) ..... :	Single connection	—
	Multiple connections to mains (one connection at a time/simultaneous connections) ..... :		—
5.7.4	Earthed conductive accessible parts..... :		P
5.7.5	Protective conductor current		P
	Supply Voltage (V)..... :	264	—
	Measured current (mA)..... :	0.01	—
	Instructional Safeguard..... :		P
5.7.6	Prospective touch voltage and touch current due to external circuits	ES1	P
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault....:	(See appended table 6.2.2)	—
6.2.2.3	Power measurement for worst-case power source fault .....:	(See appended table 6.2.2)	—
6.2.2.4	PS1 .....:	(See appended table 6.2.2)	—
6.2.2.5	PS2 .....:	(See appended table 6.2.2)	—
6.2.2.6	PS3 .....:	(See appended table 6.2.2)	—
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	—
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	—
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.....:	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	—
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method		P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		P
6.4.3.1	General		P
6.4.3.2	Supplementary Safeguards		P
	Special conditions if conductors on printed boards are opened or peeled		P
6.4.3.3	Single Fault Conditions ..... :		—
	Special conditions for temperature limited by fuse		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards .....:	(See appended tables 4.1.2 and Annex G)	—
6.4.6	Control of fire spread in PS3 circuit		P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General .....:	(See tables 6.2.3.1 and 6.2.3.2)	—
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Min.V-0	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions(mm) .....:		—
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm).....:		—
	Flammability tests for the bottom of a fire enclosure .....:		—
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....:		—
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating ..... :		—
6.5	Internal and external wiring		P
6.5.1	Requirements	VW-1	P
6.5.2	Cross-sectional area (mm^2) ..... :	Min.18AWG	—
6.5.3	Requirements for interconnection to building wiring:	(See Annex Q.)	
6.6	Safeguards against fire due to connection to additional equipment		P

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Clause	Requirement + Test	Result - Remark	Verdict
	External port limited to PS2 or complies with Clause Q.1		P
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions ..... :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	Batteries.....:	(See Annex M)	—
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners	Edges and corners are classed as MS1, Equipment mass are classed as MS3	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..... :	(See Annex F.4 and Annex K)	—
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)..... :		—
8.5.5	High Pressure Lamps		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test ..... :	(See appended table 8.5.5.2)	—
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard ..... :		—
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..... :		—
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		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) ..... :		N/A
8.7.2	Direction and applied force ..... :		N/A
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) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
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 *N* ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	(See Annex T)	N/A
	Button/Ball diameter (mm) ..... :		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	All accessible surfaces are classified as TS1.	P
9.3	Safeguard against thermal energy sources	Enclosure is used as safeguard	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		P
9.4.2	Instructional safeguard ..... :		—
10	**RADIATION**		P
10.2	Radiation energy source classification		P
10.2.1	General classification	RS1: LED for indicating only	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 ..... :		—
10.4.1.b)	RS3 accessible to a skilled person ..... :		—
	Personal safeguard (PPE) instructional safeguard ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 ..... :		—
10.4.1.d)	Normal, abnormal, single-fault conditions .....:	(See appended table B.3 & B.4)	—
10.4.1.e)	Enclosure material employed as safeguard is opaque .....:		—
10.4.1.f)	UV attenuation .....:		—
10.4.1.g)	Materials resistant to degradation UV.....:		—
10.4.1.h)	Enclosure containment of optical radiation.....:		—
10.4.1.i)	Exempt Group under normal operating conditions .....:		—
10.4.2	Instructional safeguard .....:		—
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment:		—
	Normal, abnormal, single fault conditions		—
	Equipment safeguards.....:		—
	Instructional safeguard for skilled person ..... :		—
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition.....:		—
	Maximum radiation (pA/kg).....:		—
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) .....:		—
	Output voltage, unweightedr.m.s. .....:		—
10.6.4	Protection of persons		N/A
	Instructional safeguards.....:		—
	Equipment safeguard prevent ordinary person to RS2 .....:		—
	Means to actively inform user of increase sound pressure .....:		—
	Equipment safeguard prevent ordinary person to RS2 ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
B.2.1	General requirements.....:	(See Test Item Particulars and appended test tables)	—
	Audio Amplifiers and equipment with audio amplifiers.....:	(See Annex E)	—
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test.....:	(See appended table B.2.5)	—
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....:	(See appended table B.3)	—
B.3.2	Covering of ventilation openings		P
B.3.3	D.C. mains polarity test	AC mains	N/A
B.3.4	Setting of voltage selector.....:	No voltage selector	—
B.3.5	Maximum load at output terminals.....:	(See appended table B.3&B.4)	—
B.3.6	Reverse battery polarity	No battery	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No such equipment	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited.....:	(See appended table B.4)	—
B.4.3	Motor tests	No motor	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature .....:	(See Clause G.5)	—
B.4.4	Short circuit of functional insulation	(See appended table B.4)	N/A
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	N/A
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	N/A
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	(See appended table B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	N/A
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 ....:	No batteries	—
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
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) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	Instructions – Language ..... :	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification ..... :	See product label	—
F.3.2.2	Model identification ..... :	See page 1	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage ..... :	~	—
F.3.3.4	Rated voltage ..... :	See product label	—
F.3.3.4	Rated frequency ..... :	See product label	—
F.3.3.6	Rated current or rated power ..... :	See product label	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device	No voltage setting device	N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :		—
F.3.5.2	Switch position identification marking ..... :	No such devices on the equipment	—
F.3.5.3	Replacement fuse identification and rating markings..... :	Considered in certified built-in power supply unit	—
F.3.5.4	Replacement battery identification marking ..... :	No batteries	—
F.3.5.5	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification	On the equipment	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal	⏚ marked close to the protective bonding wiring terminal for the appliance inlet	P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals	⏚ marked close to the protective bonding conductor terminal	P
F.3.6.2	Class II equipment (IEC60417-5172)	Class I Equipment	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 .....:	IPX0	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings	After the test, the marking remains legible.	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		P
	c) Equipment intended to be fastened in place		N/A
	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		P
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment		P
	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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**		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A
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**		N/A
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		N/A
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 .....:	(See appended Table B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Mains connector configuration ..... :		P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	**Wound Components**		N/A
G.5.1	Wire insulation in wound components	Considered in certified built-in power supply unit	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
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
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**		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) ..... :	Considered in certified built-in power supply unit	N/A
	Position ..... :		—
	Method of protection ..... :		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings ..... :		—
G.5.3.3	Overload test..... :		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
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) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
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
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**		N/A
G.6.1	General	Considered in certified built-in power supply unit	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		P
G.7.1	General requirements	(See appended table 4.1.2)	P
	Type ..... :	(See appended table 4.1.2)	—
	Rated current (A)..... :	(See appended table 4.1.2)	—
	Cross-sectional area (mm^2), (AWG) ..... :	(See appended table 4.1.2)	—
G.7.2	Compliance and test method		P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N) ..... :	100N	—
G.7.3.2.2	Strain relief mechanism failure		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ... :	1.10mm	—
G.7.3.2.4	Strain relief comprised of polymeric material		P
G.7.4	Cord Entry .....:	(See appended table 5.4.11.1)	P
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		P
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		P
G.8	**Varistors**		N/A
G.8.1	General requirements	Considered in certified built-in power supply unit	N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test .....:	(See appended table B.3)	N/A
G.8.3.3	Temporary overvoltage .....:	(See appended table B.3)	N/A
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	Considered in certified built-in power supply unit	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	Considered in certified built-in power supply unit	N/A
G.10.2	Resistor test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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**		N/A
G.11.1	General requirements	Considered in certified built-in power supply unit	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....:	Considered in certified built-in power supply unit	N/A
	Type test voltage Vini.....:		—
	Routine test voltage, Vini,b .....:		—
G.13	**Printed boards**		P
G.13.1	General requirements	Approved PCB used	P
G.13.2	Uncoated printed boards		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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	Considered in certified built-in power supply unit	N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage ..... :		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage ..... :		—
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	Ringing 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

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Clause	Requirement + Test	Result - Remark	Verdict
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	Considered in certified built-in power supply unit	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 ..... :	(See appended table B.4)	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 ..... :	(See appended table 5.4.11)	N/A
L	**DISCONNECT DEVICES**		P
L.1	General requirements	Power plug	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment	Disconnect device disconnects all poles simultaneously	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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..... :	(See Table M.4)	—
M.4.2.2 b)	Single faults in charging circuitry..... :	(See Annex B.4)	—
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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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 *Vz* (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 ..... :		—

O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	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		N/A
P.3.1	General requirements		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 ..... :	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing ..... :	(See Annex T)	N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	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**		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	No excessive temperatures. No easily burning materials employed. Fire enclosure provided.	P
	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

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials	UL attestation of min.V-0	P
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does exceed 4 000 W	No excessive temperatures. No easily burning materials employed. Fire enclosure provided.	P
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	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		P
T.2	Steady force test, 10 N ..... :	(See appended table T.2)	—
T.3	Steady force test, 30 N ..... :	(See appended table T.3)	—
T.4	Steady force test, 100 N ..... :		—
T.5	Steady force test, 250 N ..... :	(See appended table T.5)	—
T.6	Enclosure impact test		P
	Fall test		P
	Swing test		P
T.7	Drop test ..... :		—
T.8	Stress relief test ..... :		—
T.9	Impact Test (glass)	No glass	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J) ..... :		—
	Height (m)..... :		—

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T.10	Glass fragmentation test ..... :	(See sub-clause 4.4.4.9)	—
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) ..... :		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS 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 ..... :	(See Annex T)	N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment		P
V.2	Accessible part criterion		P

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

ATTACHMENT TO TEST REPORT 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.: **Attachment Originator:** **Master Attachment:**	EU_GD_IEC62368_1D_II Nemko AS Date 2021-09-22
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<table>
<tr><td></td><td>CENELEC COMMON MODIFICATIONS (EN)</td><td>P</td></tr>
<tr><td></td><td>Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed “Z”.</td><td>P</td></tr>
<tr><td>CONTENTS</td><td>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</td><td>P</td></tr>
<tr><td></td><td>Delete all the “country” notes in the reference document (IEC 62368-1:2014) according to the following list:
<table>
<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 1and 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 1and 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 1and 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></td><td>P</td></tr>
<tr><td></td><td>For special national conditions, see Annex ZB.</td><td>P</td></tr>
<tr><td>1</td><td>Add the following note:
NOTE Z1 The use of certain substances in electrical and
electronic equipment is restricted within the EU:</td><td>N/A</td></tr>
</table>

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	see Directive 2011/65/EU.		
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuitsand earth faults in circuits connected to an a.c.**mains**, protective devices shall be included eitheras integral parts of the equipment or as parts ofthe 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 asparts of the equipment; b) for components in series with the mains input tothe equipment such as the supply cord,appliancecoupler, r.f.i. filter and switch, short-circuit andearth fault protection may be provided byprotective 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.		P
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.		N/A
10.2.1	Add the following to c) and d) in table 39: For additional requirements, see 10.5.1.		N/A
10.5.1	**Add** the following after the first paragraph: For RS 1 compliance is checked by measurement under the following conditions: 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		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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. NOTE Z1 Soldered joints and paint lockings are examplesofadequate locking. 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 theapparatus. 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. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of13 May 1996.		
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methodsand measurement distances apply.		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 electromagneticfields (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 handheld and body-mounted devices, attention		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	isdrawn to EN 50360 and EN 50566		
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding tothe IEC cord types are given in Annex ZD.		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.		N/A
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**: “Apparatetsstikpropskaltilsluttes en stikkontakt med jordsom giver forbindelsetil stikproppensjord.” In **Finland**: "Laite on liitettäväsuojakoskettimilla varustettuunpistorasiaan" In **Norway**: “Apparatetmåtilkoplesjordetstikkontakt” In **Sweden**: “Apparatenskallanslutas till		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	jordatuttag”		
4.7.3	**United Kingdom** To the end of the subclause the following isadded: 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
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following isadded: For separation of the telecommunication networkfrom earth the following is applicable: If this insulation is solid, including insulationforming part of a component, it shall at leastconsist of either · two layers of thin sheet material, each of whichshall pass the electric strength test below, or · one layer having a distance through insulation ofat least 0,4 mm, which shall pass the electricstrength test below. If this insulation forms part of a semiconductorcomponent (e.g. an optocoupler), there is nodistance through insulation requirement for theinsulation consisting of an insulating compoundcompletely filling the casing, so that clearancesand creepage distances do not exist, if the component passes the electric strength test inaccordance with the compliance clause below andin addition · passes the tests and inspection criteria of 5.4.8with an electric strength test of 1,5 kV multipliedby 1,6 (the electric strength test of 5.4.9 shall beperformed using 1,5 kV), and · is subject to routine testing for electric strengthduring manufacturing, using a test voltage of1,5kV. It is permitted to bridge this insulation with		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	acapacitor complying with EN 60384-14:2005,subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under thefollowing conditions: · the insulation requirements are satisfied byhaving a capacitor classified Y3 as defined by EN60384-14, which in addition to the Y3 testing, istested with an impulse test of 2,5 kV defined in5.4.11; · the additional testing shall be performed on allthe test specimens as described in EN 60384-14;the impulse test of 2,5 kV is to be performedbefore the endurance test in EN 60384-14, in thesequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors arerequired to be rated for the applicable line-to-linevoltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following isadded: Resistors used as **basic safeguard** or bridging**basic insulation** in **class I pluggable equipmenttype A** shall comply with G.10.1 and the test ofG.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where thesocketoutlets can be protected with fuses with higherrating than the rating of the socket-outlets theprotection for pluggable equipment type A shall bean integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can beprotected by a 20 A fuse.		N/A
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 13A, this being the largest rating of fuse used in the**mains** plug.		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords tobe accepted by terminals for equipment with arated current over 10 A and up to and including 13A is:1,25 mm2 to 1,5 mm2 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 theequipment if the **protective conductor current**exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.1	**Norway and Sweden** To the end of the subclause the following isadded: The screen of the television distribution system isnormally not earthed at the entrance of thebuilding and there is normally no equipotentialbonding system within the building. Therefore theprotective earthing of the building installationneeds to be isolated from the screen of a cable distribution system.It is however accepted to provide the insulationexternal to the equipment by an adapter or aninterconnection cable with galvanic isolator, whichmay be provided by a retailer, for example.The user manual shall then have the following orsimilar information in Norwegian and Swedishlanguage respectively, depending on in what country the equipment is intended to be used in:“Apparatus connected to the protective earthing ofthe building installation through the mainsconnection or through other apparatus with aconnection to protective earthing – and to atelevision distribution system using coaxial cable,may in some circumstances create a fire hazard.Connection to a television distribution systemtherefore has to be provided through a deviceproviding electrical isolation below a certainfrequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolatorshall provide electrical insulation below 5 MHz.The insulation shall withstand a dielectric strengthof 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	also be accepted in Norway): “Apparatersomerkoplettilbeskyttelsesjordvianettpluggog/eller via annetjordtilkopletutstyr – ogertilkoplet et koaksialbasertkabel-TV nett, kanforårsakebrannfare. For å unngådetteskaldetvedtilkoplingavapparatertilkabel-TV nettinstalleres en galvaniskisolator mellomapparatetogkabel-TV nettet.” Translation to Swedish: ”Apparatersomärkopplad till skyddsjordviajordatvägguttagoch/eller via annanutrustningochsamtidigtärkopplad till kabel-TV nätkanivissa fall medföra risk för brand. Förattundvikadettaskall vid anslutningavapparaten till kabel-TV nätgalvanisk isolator finnasmellanapparatenochkabel-TV nätet.”.		
5.7.6.2	**Denmark** To the end of the subclause the following isadded: The warning (marking safeguard) for high touchcurrent is required if the touch current or theprotective 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 Shortcircuitsin the primary circuit of **direct plug-inequipment**, tests according to Annexes B.3.1 andB.4 shall be conducted using an externalminiature circuit breaker complying with EN60898-1, Type B, rated 32A. If the equipmentdoes not pass thesetests, suitable protective devices shall be includedas an integral part of the **direct plug-inequipment**,until the requirements of Annexes B.3.1 and B.4aremet		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having arated current not exceeding 13 A shall be providedwith a plug according to DS 60884-2-D1:2011.CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intendedto be used in locations where protection againstindirect contact is required according to the wiring rules shall be provided with a plug in		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	accordancewith standard sheet DK 2-1a or DK 2-5a.If a single-phase equipment having a RATEDCURRENT exceeding 13 A or if a poly-phaseequipment is provided with a supply cord with aplug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN60309-2.Mains socket outlets intended for providing powerto Class II apparatus with a rated current of 2,5 Ashall be in accordance DS 60884-2-D1:2011standard sheet DKA 1-4a.Other current rating socket outlets shall be incompliance with Standard Sheet DKA 1-3a orDKA1-1c. Mains socket-outlets with earth shall be incompliance with DS 60884-2-D1:2011 StandardSheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK1-7a Justification: Heavy Current Regulations, Section 6c		
G.4.2	**United Kingdom** To the end of the subclause the following isadded:The plug part of direct plug-in equipment shall beassessed 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 thatthe test of 12.17 is performed at not less than 125°C. Where the metal earth pin is replaced by anInsulated Shutter Opening Device (ISOD), therequirements 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‘standardplug’ in accordance with the Plugs and Socketsetc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 andessentiallymeans an approved plug conforming to BS 1363 or anapproved conversion plug.		N/A
G.7.1	**Ireland**		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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 Statewhich is equivalent to the relevant Irish Standard		
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 mm2is allowed for equipment which is rated over 10 Aand up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		P
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube Intendedfor the display of visual images operating at anacceleration voltage exceeding 40 kV,authorizationis required, or application of type approval(Bauartzulassung) and marking. *Justification:*German ministerial decree against ionizingradiation(Röntgenverordnung), in force since 2002-07-01,implementing the European Directive96/29/EURATOM. **NOTE** Contact address: Physikalisch-TechnischeBundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

EN 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]
Metal enclosure	Interchangeable	Interchangeable	Min. 1.0mm thichkness	EN 62368-1	Tested with appliance
PCB	Interchangeable	Interchangeable	V-1 or better, min. 130°C	UL 94 UL764	UL
Power Plug	Shenzhen Dongzhanwang Electronic Co Ltd	DZW-T12	250Vac,16A	VDE 0620-2-1	VDE 40046929
Power cord	Guangdong Huasheng Electrical Appliances Co., Ltd	H05VV-F	3*0.75mm^2	EN 50525-2-11	VDE 40005362
Secondary internal wire	Interchangeable	Interchangeable	Min.24AWG, VW-1, min. 250Vac, Min. 80°C	UL758	UL
Switching power supply output wire	Interchangeable	Interchangeable	Min.18AWG, VW-1, min. 250Vac, Min. 105°C	UL758	UL
Switching power supply	Vivalyte BVBA	VPSU-400-5	Input: 100-240V~, 50/60Hz, 4.5A, Max. Output: 5Vdc, 60A (Input voltage: 100-200Vac) or 5Vdc, 80A(Input voltage: 200-240 Vac)	IEC/EN 62368-1	Ref. Certif. No. : 4360641.50
Supplementary information: [1)] Provided evidence ensures the agreed level of compliance. [2)] Description line content is optional. Main line description needs to clearly detail the component used for testing					

EN 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.)			

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	--
	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**
--	--	--	--
--	--	--	--
--	--	--	--

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

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	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	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1.	264	Switching power Supply output	Normal	5.12Vdc	--	DC	ES1
			Abnormal	--	--	--	
			Single fault (signle LED circuit)	--	--	--	
2.	264	Accessible metal enclosure to Line/Neutral	Normal	--	0.508mApk	60	ES2
			Abnormal	--	0.508mApk	--	
			Single fault (signle LED circuit)	--	0.508mApk	--	

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
	--	--	Normal	--	--	--
			Abnormal	--	--	
			Single fault – SC/OC	--	--	

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

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
				Off time (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

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)[1]	Required cl (mm)	cl (mm)	Required[3] cr (mm)	cr (mm)
Basic/supplementary							
Line and Neutral of AC terminal	< 420	240	<30KHz	1.5	>4.4	2.5	>4.4
Live part of AC terminal to accessible metal enclosure	< 420	240	<30KHz	1.5	>5.5	2.5	>5.5
Live part to to accessible metal enclosure	< 420	240	<30KHz	1.5	>6.25	2.5	>6.25
Reinforced							
Live part of power module to accessible LED display	< 420	240	<30KHz	3.0	>10	5.0	>10

Supplementary information:

1.The equipment was evaluated for a maximum operation altitude of 2000m.

5.4.1.4, 6.3.2, 9.0, B.2.6	**Temperature measurements**					P
No.	Un(V)	In(A)	Pn(W)	Uout(V)	Pout(W)	Operating conditions

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

1	99V/50Hz	2.304	231	--	--	Normal operation (LED display turn on white lighting model)
3	264V/50Hz	0.899	219	--	--	Normal operation (LED display turn on white lighting model)

Temperature T of part/at……..:		Temperature(°C)				Required T (°C)
		Measured	Adjust to Tmax.	Measured	Adjust to Tmax.	
Test Condition No.		No. 1	No. 2	No.3	No. 4	--
1.	Power cord	49.1	64.1	40.6	55.6	70
2.	Metal enclosure of Switch power supply	47.2	62.2	42.0	57.0	70
3.	Switch power supply input wire	37.0	52.0	35.7	50.7	105
4.	Switch power supply output wire	36.2	51.2	34.1	49.1	105
5.	PCB near U3	43.7	58.7	41.1	56.1	130
6.	PCB near U14	33.7	48.7	33.1	48.1	130
7.	PCB near U34	58.4	73.4	57.7	72.7	130
8.	Metal enclosure	31.2	46.2	29.8	44.8	70
9.	LED dispaly	32.4	47.4	29.1	44.1	94
10.	Ambient	25.0	40.0	25.0	40.0	--

Winding:	R_1 (Ω)	R_2 (Ω)	T (°C)	Required T (°C)	Insulation class
--	--	--	--	--	--
--	--	--	--	--	--

Supplementary information:

The maximum ambient temperature specified by manufacturer is 40°C

5.4.1.10.3	**Ball pressure test of thermoplastics**		N/A
Test specimens	Test temperature(°C)	Measured impression(mm)	Limit (mm)
--	--	--	--
Supplementary information:			

5.4.9	**TABLE: Electric strength tests**		P
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown
Primary circuit and earthed metal enclosure	☐AC ☒DC	2500	☐Yes ☒No

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

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown
Primary circuit and secondart circuit		☐AC ☒DC	4000	☐Yes ☒No
Supplementary information: /				

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
--	--	--	--	--	--

Supplementary information:

X-capacitors installed for testing are:

□ Bleeding resistor rating:

□ 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 (Ω)
AC input connector earthing pin to metal enclosure		32	2	6.72	0.021
Supplementary information: /					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	P
Supply voltage .....:	264V	—
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)
Metal enclosure	1	0.508mAPk
	2×	--
	3	--
	4	--

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

	5	--
	6	--
	8	--

Supplementary Information:

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 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (×) IEC60990, sub-clause 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
Power supply board output	Normal operation	Power (W).....:	--	--	PS3
		V_A (V).....:	--	--	
		I_A (A).....:	--	--	

Supplementary Information:

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

All internal parts are declared as PS3.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			P
Location	Open circuit voltage After 3 s(Vp)	Measured r.m.s current(Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
All internal circuits/ components	--	--	--	Yes

Supplementary information:

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.

Assumption: all circuits inside the equipment enclosure are declared as PS3.

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

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

All internal circuits/ components	--	--	--	--	Yes

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

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.

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	**Input test**						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
99V/50Hz	2.304	--	231	--	--	--	Normal operation (LED display turn on white lighting model)
99V/60Hz	2.289	--	228	--	--	--	
110V/50Hz	2.087	--	229	215	--	--	
110V/60Hz	2.068	--	226	215	--	--	
240V/50Hz	0.965	--	220	215	--	--	
240V/60Hz	0.956	--	217	215	--	--	
264V/50Hz	0.899	--	219	--	--	--	
264V/60Hz	0.887	--	217	--	--	--	

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

Supplementary information:
Equipment may be have rated current or rated power or both. Both should be measured
The measured input ~~[power] [and]~~ [current] ~~[exceed]~~ [did not exceed] the marked input rating by more than 10 percent when the product was operated under normal operating conditions.

B.3	**TABLE: Abnormal operating condition tests**								N/A
Ambient temperature (°C) ..... :					--				—
Power source for EUT: Manufacturer, model/type, output rating . :					See marking plate for details				—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
--	--	--	--	--	--	--	--	--	

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.

B.4	**TABLE: Fault condition tests**							P
Ambient temperature (°C) .....:			25.0					
Model/type……..... :			See marking plate for details					—
Rated markings……..... :			See marking plate for details					—
Component No.	Fault Condition	Supply voltage, (V)	Test time (min)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Switching power supply output	S-C	264	10min	--	--	--	--	Unit shut down, immediately, no damage no hazard

Supplementary information:
S-C: short circuit

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.	

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

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	--	--
- 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 (℃)	
--	Normal	--	--	--	--
--	Abnormal	--	--	--	--
--	Single fault - SC/OC	--	--	--	--
Supplementary information:					

Battery identification	Charging at T_{lowest} (℃)	Observation	Charging at $T_{highest}$ (℃)	Observation
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
Supplementary information:				

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

AnnexQ.1	**TABLE: Circuits intended for interconnection with building wiring(LPS)**						N/A
Output circuit	Components	Uoc(V)	Isc(A)		S（VA）		
			Meas.	Limit	Meas.	Limit	
	--	--	--	--	--	--	
Supplementary information: SC= Short circuit, OC=Open circuit							

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, side, bottom (T.5)	Metal	1.0	250	5	Enclosure remained intact,no crack/ opening developed. Internal ES3,TS3 were not accessible after test.No insulation breakdown.	
Internal components (T.2)	--	--	10	5	The conductor shall not break away on its terminal,clearances and creepage distances are reduce below the values specified in 5.4.2 and 5.4.3. no insulation breakdown	
Supplementary information:--						

T.6, T.9	**TABLE: Impact tests**				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure	Metal	1.0	410	Normal operation	
Supplementary information:					

T.7	**TABLE: Drop tests**				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
--	--	--	--	--	

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

Supplementary information:
×× During and after the application of the test force, the energy source did not become accessible.
During and after the test, equipment safeguards were not defeated.
There was no indication of a dielectric breakdown.

T.8	**TABLE: Stress relief test**				N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
--	--	--	--	--	--
Supplementary information:/					

Attachment – EUT Photo

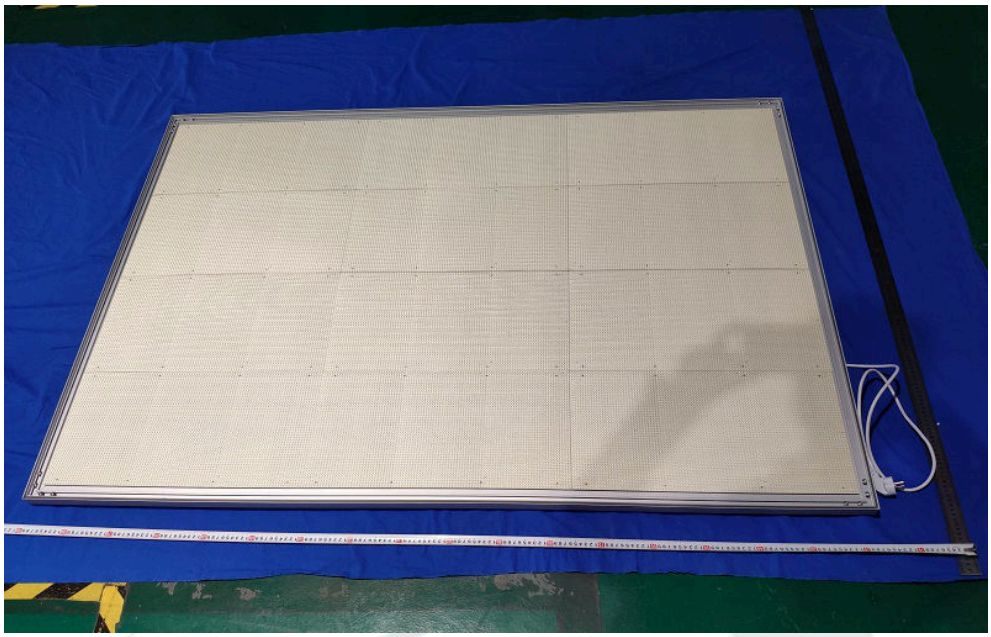

Photo 1 External view

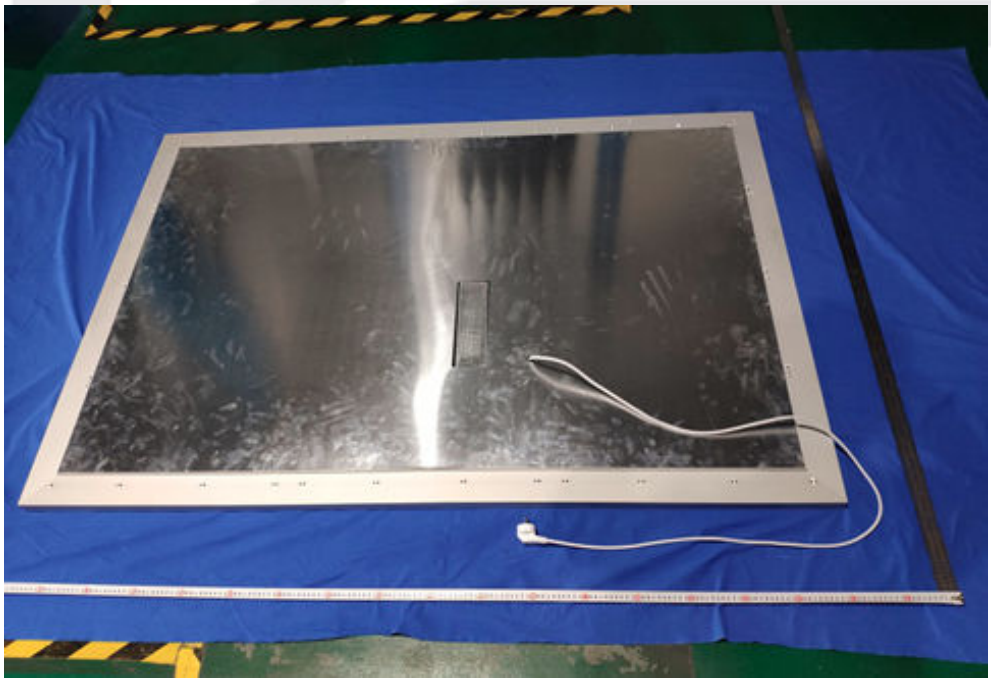

Photo 2 External view

Attachment – EUT Photo

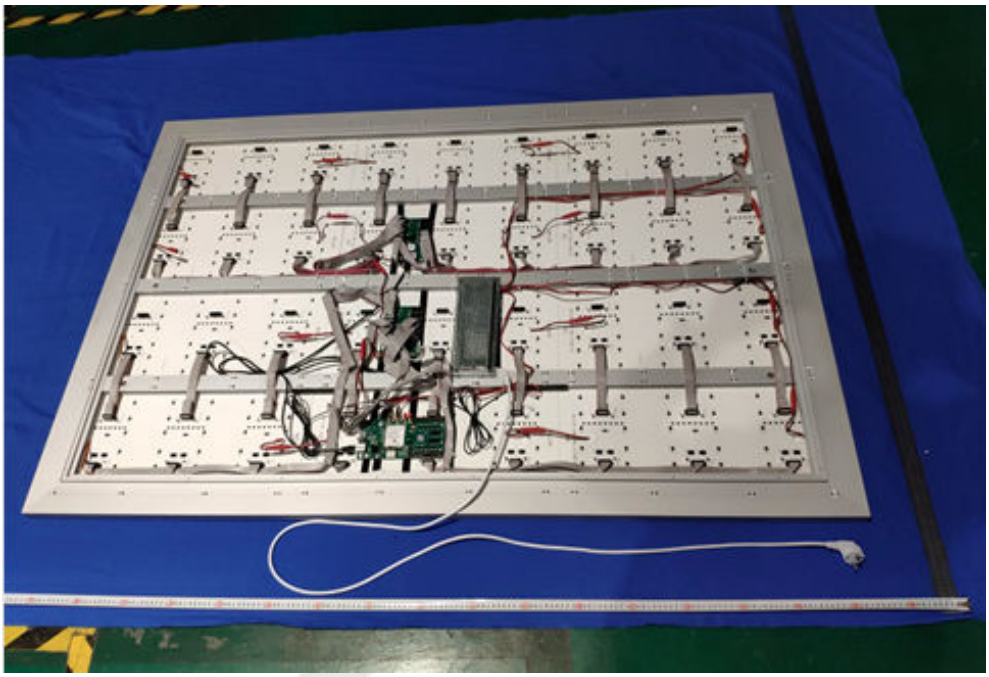

Photo 3 Internal view

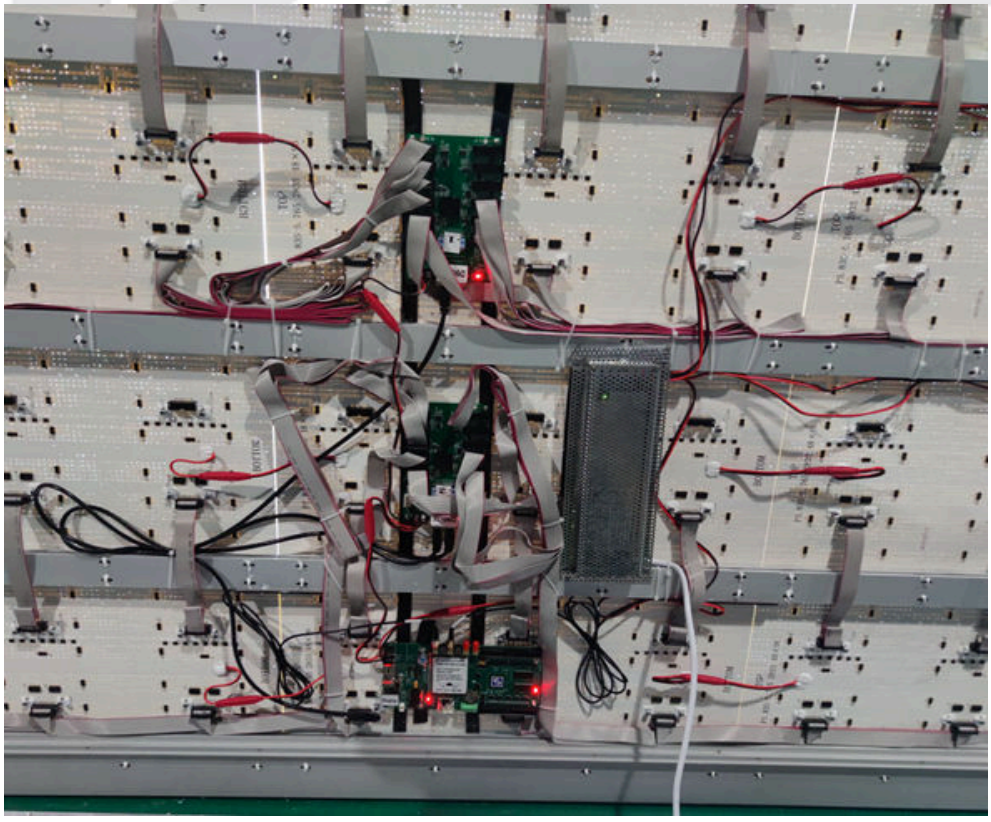

Photo 4 Internal view

Attachment – EUT Photo

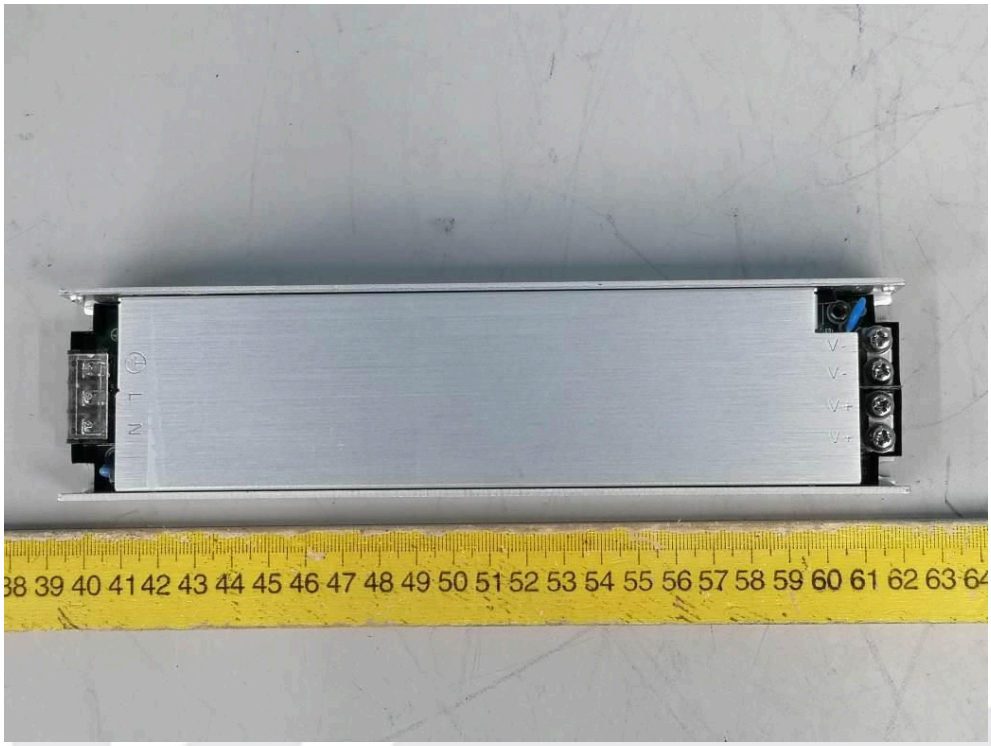

Photo 5 Power supply board view

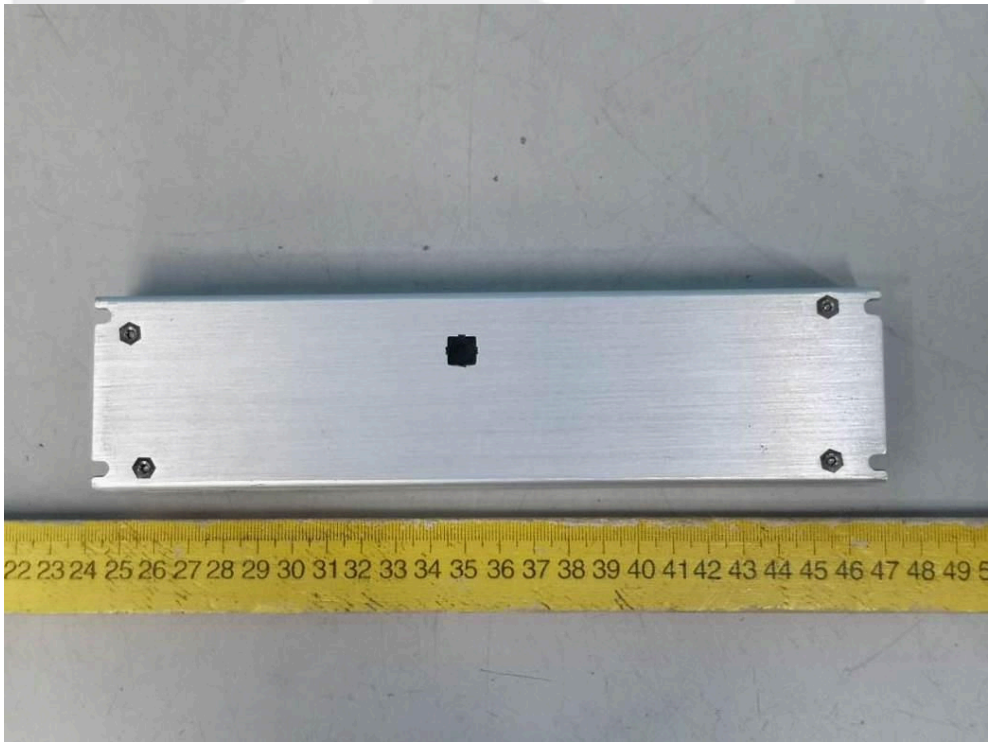

Photo 6 Power supply board view

Attachment – EUT Photo

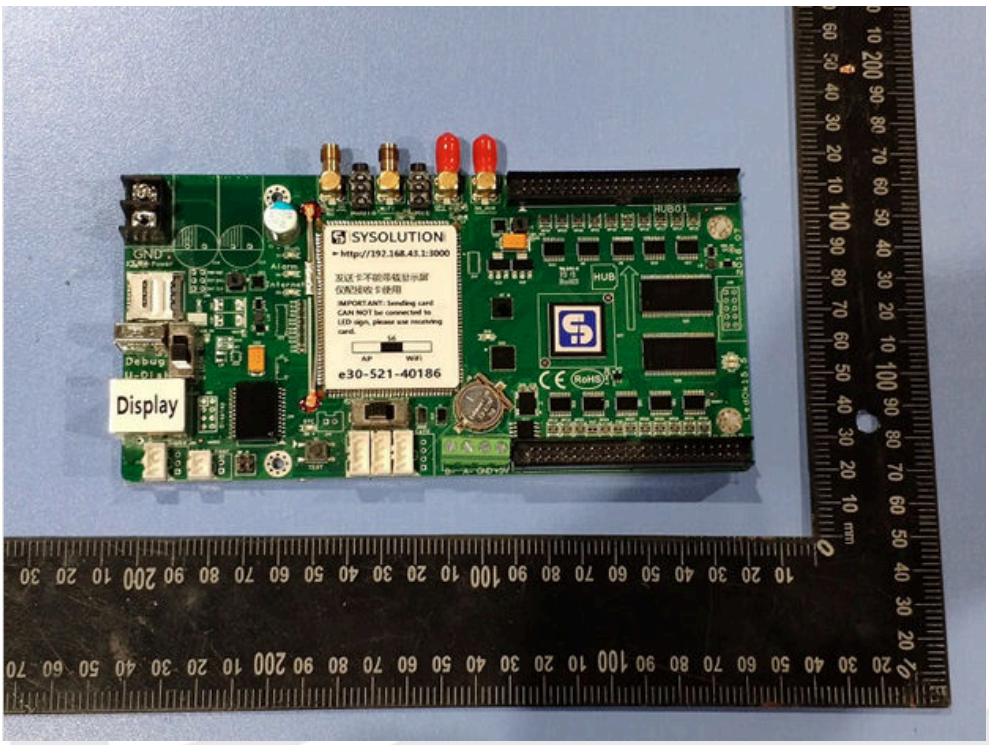

Photo 7 Secondary PCB board view

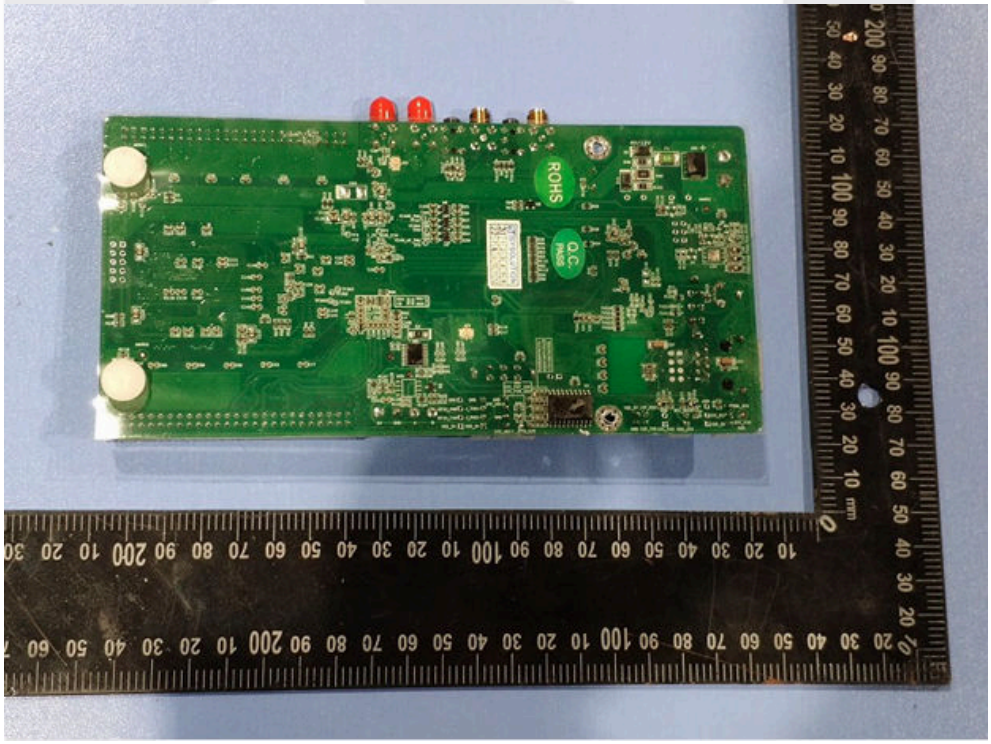

Photo 8 Secondary PCB board view

Attachment – EUT Photo

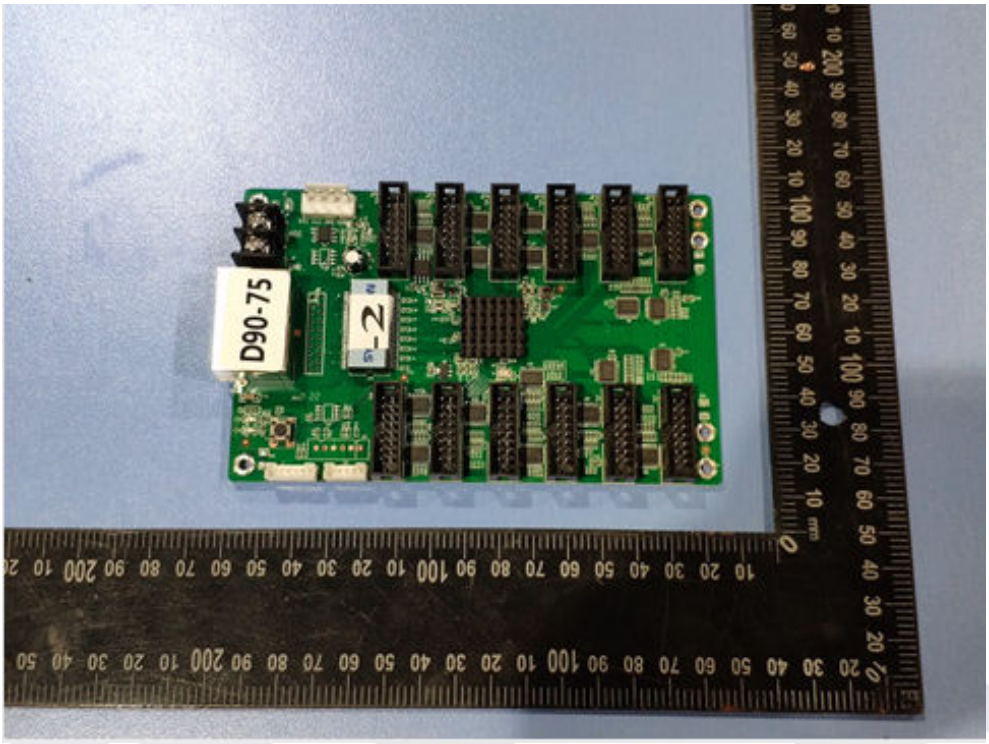

Photo 9 Secondary PCB board view

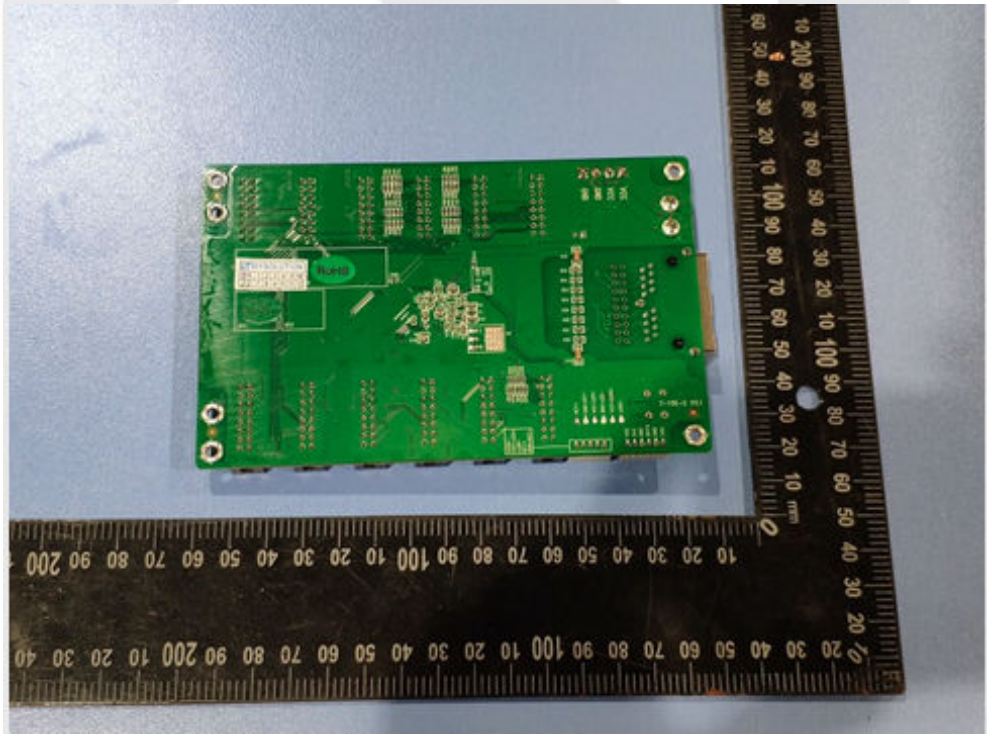

Photo 10 Secondary PCB board view

Attachment – EUT Photo

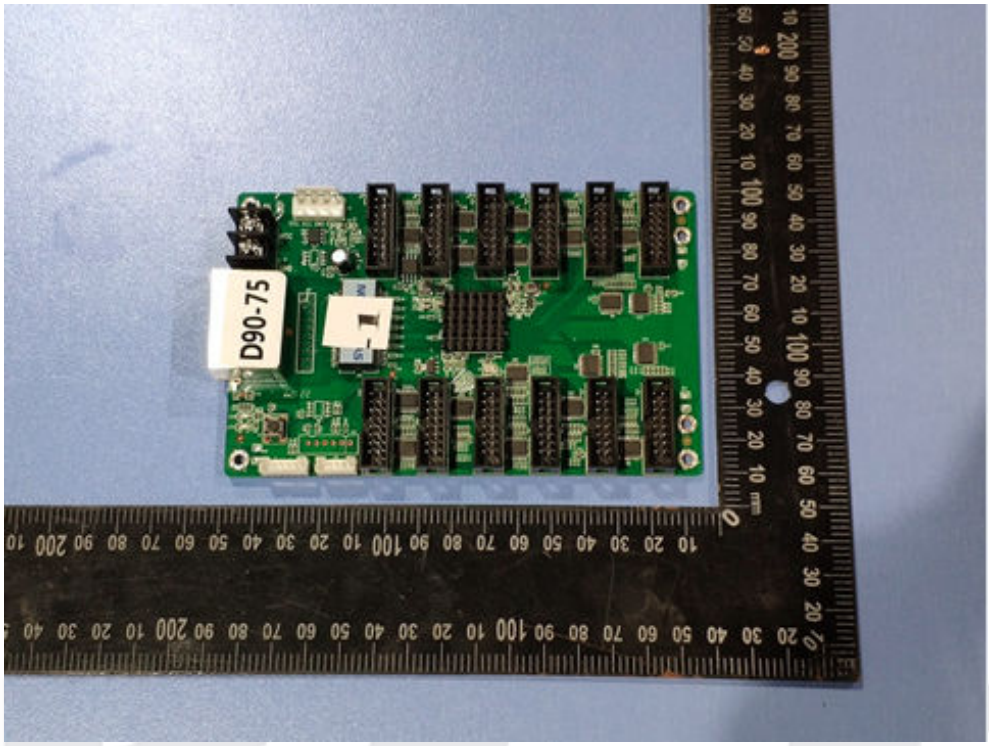

Photo 11 Secondary PCB board view

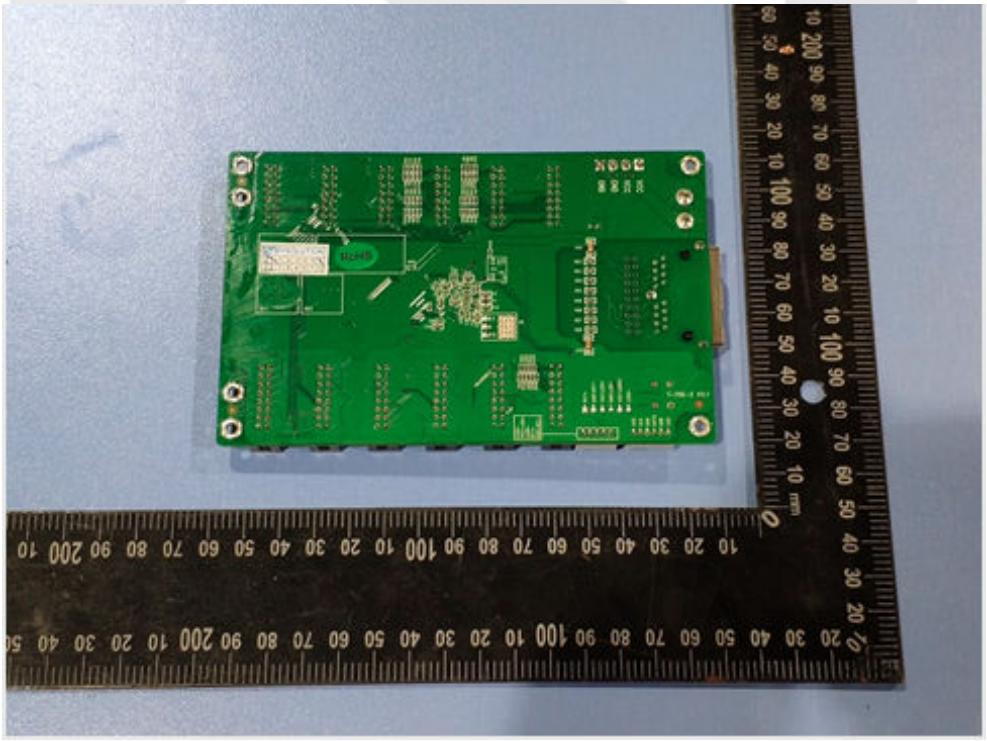

Photo 12 Secondary PCB board view

..... End of Report .....

Statement

1. The calibration and measurement of test equipments used in our laboratory are traceable to National primary standard of measurement and BIPM.
2. The report is invalid without the special test seal of the company.
3. The test report is invalid without the signature of main tester,examiner and approver.
4. The report is invalid if altered and added or deleted.
5. The test results in this report only apply to the tested samples.
6. This test report shall not be reproduced except in full, without the written approval of our laboratory.
7. "☆ "item cannot be Accredited by CNAS.
8. Any objections must be raised to KeySense within 15days since the date when report is received.

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