LANTRONIX® CE CPSM CORPORATION

CERTIFICATE OF SAFETY

A sample of the following Lantronix Inc. product has been examined and found to comply with applicable international safety requirements for:

INFORMATION TECHNOLOGY EQUIPMENT

The following standards were used in the determination of the safety construction:
IEC 62368-1:2014 (Second Edition)

Name of Unit: Device Server
Model No.: XDirect and XDT
Rating: 5 Vdc, 1 A or POE 48 V, 350 mA

Evaluated By: C M Bayhi

Charles M. Bayhi, P.E. November 27, 2020
CPSM Corporation

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	:	**20201117**
Date of issue	:	November 17, 2020
Total number of pages	:	
Applicant's name	:	Lantronix Inc..
Address	:	7535 Irvine Center Drive, Suite 100 Irvine, CA 92618 USA
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

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

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 ..... :		Device Server	
Trade Mark ..... :			
Manufacturer ..... :		Lantronix Inc. 7535 Irvine Center Drive, Suite 100 Irvine, CA 92618 USA	
Model/Type reference ..... :		XDirect and XDT	
Ratings ..... :		Not required (5 Vdc, 1 A or POE 48 V, 350 mA)	
Testing procedure and testing location:			
	Testing Laboratory:	CPSM Corporation	
Testing location/ address ..... :		26982 Venado Dr., Mission Viejo, CA 92691	
	Associated CB Testing Laboratory:		
Testing location/ address ..... :			
Tested by (name + signature) ..... :		Charles Bayhi	
Approved by (name + signature)..... :		Charles Bayhi	
	Testing procedure: TMP/CTF Stage 1		
Testing location/ address ..... :			
Tested by (name + signature) ..... :			
Approved by (name + signature)..... :			
	Testing procedure: WMT/CTF Stage 2		
Testing location/ address ..... :			
Tested by (name + signature) ..... :			
Witnessed by (name + signature) ..... :			
Approved by (name + signature)..... :			
	Testing procedure: SMT/CTF Stage 3 or 4		

Testing location/ address .....:		
Tested by (name + signature) ..... :		
Approved by (name + signature)..... :		
Supervised by (name + signature) ..... :		

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

National Deviations to IEC 62368-1

Photographs –

Diagrams – Energy Source Diagrams

Schematics -

Summary of testing: Unless otherwise indicated, all tests were conducted at CPSM Corporation

Tests performed (name of test and test clause):	**Testing location:**
Input Test: Single Phase (Annex B.2.5) **Normal Operating Conditions Temperature Test (6.3)**	**CPSM Corporation** **26982 Venado** **Mission Viejo, CA 92691 USA**

Summary of compliance with National Differences:

List of countries addressed

Denmark, Group(including Denmark, Finland, Ireland, Italy, Sweden, Norway and United Kingdom), Canada, and United States.

The product fulfils the requirements of EN62368-1:2014.

Copy of marking plate:

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


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I.T.E
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TEST ITEM PARTICULARS:	
Classification of use by :	Ordinary person YES Instructed person Skilled person Children likely to be present
Supply Connection :	AC Mains DC Mains External Circuit - not Mains connected YES - ES1 ES2 ES3
Supply % Tolerance :	+10%/-10% for AC Configuration +20%/-15% for DC Configuration +____%/ -_____% None
Supply Connection – Type :	pluggable equipment type A for AC Configuration N/A non-detachable supply cord appliance coupler direct plug-in mating connector pluggable equipment type B - non-detachable supply cord appliance coupler permanent connection for DC Configuration
Considered current rating of protective device as part of building or equipment installation :	20A; N/A 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 IP___
Power Systems :	For AC Configuration: TN TT IT - ____ V_{L-L} For DC Configuration: DC Mains Supply N/A
Altitude during operation (m) :	2000 m or less _____ m
Altitude of test laboratory (m) :	2000 m or less _____ m
Mass of equipment (kg) :	<18 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 ..... :	
Date (s) of performance of tests ..... :	

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 IECEE 02:

:	**Yes** **Not applicable**

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

Name and address of factory (ies) ..... :	

GENERAL PRODUCT INFORMATION:

Product Description –

Model xDirect is Device Servers that consists of printed wiring board with input and output connectors housed in a Nonmetallic enclosure. It connect serial peripheral port device(s) to ethernet LAN. It is a Class III product provided with an external LPS or Class 2 power supply and intended to connect to the local area networks. Product also has option to connect to Power via POE only to IEEE 802.3 series Standard (Ethernet). It is only intended to be connected to PoE networks without routing to the outside plant.

Model Differences –

Models are Identical except in model designation.

Additional application considerations – (Considerations used to test a component or sub-assembly) –

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)**
DB9 Serial Port	ES1
RJ45 10/100 Ethernet Port	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)**
DB9 Serial Port	PS1
RJ45 10/100 Ethernet Port	PS1
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	
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)**
N/A	
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)**
Enclosure	**TS1**

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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)**
INDICATOR LEDS	RS1

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

See Energy Source Diagrams in Diagrams attachments to this report.

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	ES1:LPS Power Supply (DC)	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
I/O Circuits	PS1:LPS Power Supply (DC)	N/A	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	Battery – Coin Cell (non rechargeable)	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)
N/A	N/A			
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Enclosure	9.2.2.2, 9.2.6, Annex B.3	-	-

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10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1 (Indicator LEDs)	Unit Enclosure	-	-

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**		Pass
4.1.1	Acceptance of materials, components and subassemblies		Pass
4.1.2	Use of components		Pass
4.1.3	Equipment design and construction		Pass
4.1.15	Markings and instructions ..... :	(See Annex F)	Pass
4.4.4	Safeguard robustness		Pass
4.4.4.2	Steady force tests ..... :	ES1 Device	Pass
4.4.4.3	Drop tests :	(See Annex T.7)	N/A
4.4.4.4	Impact tests ..... :	ES1 Device	Pass
4.4.4.5	Internal accessible safeguard enclosure and barrier tests ..... :	(See Annex T.3)	N/A
4.4.4.6	Glass Impact tests ..... :	(See Annex T.9, Annex U)	N/A
4.4.4.74	Thermoplastic material tests..... :	(See Annex T.8)	N/A
4.4.4.8	Air comprising a safeguard..... :	(See Annex T)	N/A
4.4.4.9	Accessibility and safeguard effectiveness		Pass
4.5	Explosion	No explosion occurred.	Pass
4.6	Fixing of conductors	No conductors are accessible to the operator.	N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to ..... :		N/A
4.7	Equipment for direct insertion into mains socket - outlets		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	The unit is considered professional 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 :	No doors or covers to the coin type battery.	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)	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICALLY-CAUSED INJURY**		Pass
5.2.1	Electrical energy source classifications.....:	(See appended table 5.2)	Pass
5.2.2	ES1, ES2 and ES3 limits	ES3 and ES1	Pass
5.2.2.2	Steady-state voltage and current.....:	See appended table 5.2)	Pass
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 .....:	Covered as an element of the certified modem. (See Annex H)	N/A
5.2.2.7	Audio signals .....:	(See Clause E.1)	N/A
5.3	Protection against electrical energy sources		Pass
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		Pass
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuits are accessible.	Pass
5.3.2.2	Contact requirements		Pass
	a) Test with test probe from Annex V .....:		Pass
	b) Electric strength test potential (V) .....:		Pass
	c) Air gap (mm).....:		Pass
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		Pass
5.4.1.2	Properties of insulating material	Covered as an element of the power supply certification.	Pass
5.4.1.3	Humidity conditioning .....:	Covered as an element of the power supply certification.(See sub- clause 5.4.8)	Pass
5.4.1.4	Maximum operating temperature for insulating materials .....:	(See appended table 5.4.1.4)	Pass
5.4.1.5	Pollution degree.....:	PD2	
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	Covered as an element of the power supply certification.	Pass
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage	Covered as an element of the power supply certification.	Pass
5.4.1.9	Insulating surfaces	Covered as an element of the power supply certification.	Pass
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Covered as an element of the power supply certification.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.2	Vicat softening temperature.....:	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure .....:	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances	Covered as an element of the power supply certification.	N/A
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	N/A
5.4.2.3	Determining clearance using required withstand voltage .....:	(See appended table 5.4.2.3)	N/A
	a) .....a.c.		|
	b) .....d.c.		|
	c).....ext		|
	d) transient voltage determined by measurement		|
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....:		N/A
5.4.3	Creepage distances.....:	Covered as an element of the power supply certification.	Pass
5.4.3.1	General		N/A
5.4.3.3	Material Group .....:		|
5.4.4	Solid insulation	Covered as an element of the power supply certification.	Pass
5.4.4.2	Minimum distance through insulation .....:	(See appended table 5.4.4.2)	N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		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.....:	(See appended Table 5.4.9)	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)	N/A
5.4.5	Antenna terminal insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (M∧) .....:		|
5.4.6	Insulation of internal wire as part of supplementary safeguard.....:	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Covered as an element of the power supply certification.	Pass
	Relative humidity (%).....:		|
	Temperature (°C).....:		|
	Duration (h).....:		|
5.4.9	Electric strength test .....:	(See appended table 5.4.9)	Pass
5.4.9.1	Test procedure for a solid insulation type test		Pass
5.4.9.2	Test procedure for routine tests		Pass
5.4.10	Protection against transient voltages between external circuit	Covered as an element of the certified modem.	N/A
5.4.10.1	Parts and circuits separated from external circuits	Covered as an element of the certified modem. Additionally, see appended table 5.4.9.	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 .....:	Covered as an element of the certified modem. Additionally, see appended table 5.4.9.	N/A
5.4.10.2.3	Steady-state test.....:	Covered as an element of the certified modem. Additionally, see appended table 5.4.9.	N/A
5.4.11	Insulation between external circuits and earthed circuitry .....:	Covered as an element of the certified modem. Additionally, see appended table 5.4.9.	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	Supplementary earthing provided.	Pass
5.4.11.2	Requirements		Pass
	Rated operating voltage U_{op} (V) .....:		|
	Nominal voltage U_{peak} (V) .....:		|
	Max increase due to variation U_{sp} .....:		|
	Max increase due to ageing ⊗U_{sa} .....:		|
	U_{op}= U_{peak} + ⊗ U_{sp} + ⊗U_{sa} .....:		|
5.5	Components as safeguards		
5.5.1	General	Covered as an element of the power supply certification.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2	Capacitors and RC units	Covered as an element of the power supply certification.	Pass
5.5.2.1	General requirement	Covered as an element of the power supply certification.	Pass
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....:	(See appended table 5.5.2.2)	Pass
5.5.3	Transformers	Covered as an element of the power supply certification	Pass
5.5.4	Optocouplers	Covered as an element of the power supply certification and uses Certified components in the device	Pass
5.5.5	Relays	No mains relays.(See Annex G.2)	N/A
5.5.6	Resistors	Covered as an element of the power supply certification	Pass
5.5.7	SPD's	Covered as an element of the power supply certification	Pass
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 .....:	(See Annex G.10.3)	N/A
5.6	Protective conductor		Pass
5.6.2	Requirement for protective conductors		Pass
5.6.2.1	General requirements		Pass
5.6.2.2	Colour of insulation	Green/Yellow	N/A
5.6.3	Requirement for protective earthing conductors		Pass
	Protective earthing conductor size (mm^2) :	18AWG (0.75 mm^2)	|
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		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm). :		N/A
5.6.5.2	Corrosion		Pass

5.6.6	Resistance of the protective system		Pass
5.6.6.1	Requirements		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.6.2	Test Method Resistance (∧) :	(See appended table 5.6.6.2)	N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current :	(See appended table 5.7.4)	N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection) :	N/A	|
	Multiple connections to mains (one connection at a time/simultaneous connections) :		|
5.7.4	Earthed conductive accessible parts :	(See appended Table 5.7.4)	N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V) :		|
	Measured current (mA) :		|
	Instructional Safeguard :	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	Unit provided with certified modem. Covered as an element of the Certified modem.	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**		Pass
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		Pass
6.2.2	Power source circuit classifications	(See appended table 6.2.2)	Pass
6.2.2.1	General	(See appended table 6.2.2)	Pass
6.2.2.2	Power measurement for worst-case load fault :	(See appended table 6.2.2)	Pass
6.2.2.3	Power measurement for worst-case power source fault..... :	(See appended table 6.2.2)	Pass

6.2.2.4	PS1 .....:	(See appended table 6.2.2)	Pass
6.2.2.5	PS2 .....:		Pass
6.2.2.6	PS3 .....:	(See appended table 6.2.3.1)	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.3	Classification of potential ignition sources	(See appended table 6.2.3.2)	Pass
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	Pass
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	Pass
6.3	Safeguards against fire under normal operating and abnormal operating conditions		Pass
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)	Pass
6.3.1 (b)	Combustible materials outside fire enclosure		Pass
6.4	Safeguards against fire under single fault conditions		Pass
6.4.1	Safeguard Method	Certified components and fire enclosure.	Pass
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		Pass
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		Pass
6.4.3.1	General		Pass
6.4.3.2	Supplementary Safeguards	PTC provided for certified modem.	N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :	(See appended table 6.4.3)	Pass
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	PTC	N/A
6.4.5	Control of fire spread in PS2 circuits	PTC, V-1 rated PWB, min. V-2 thermoplastic materials and the fire enclosure.	N/A
6.4.5.2	Supplementary safeguards .....:	(See appended tables 4.1.2 and Annex G)	Pass
6.4.6	Control of fire spread in PS3 circuit		Pass
6.4.7	Separation of combustible materials from a PIS		Pass
6.4.7.1	General .....:	(See tables 6.2.3.1 and 6.2.3.2)	Pass
6.4.7.2	Separation by distance	Power supplies are constructed using minimum V-1 boards.	Pass
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		Pass
6.4.8.1	Fire enclosure and fire barrier material properties		Pass
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		Pass
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		Pass
6.4.8.3.1	Fire enclosure and fire barrier openings		Pass
6.4.8.3.2	Fire barrier dimensions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) ..... :	No top openings on unit.	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) ..... :	No bottom openings.	N/A
	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) ..... :	Access only by Service Person.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating..... :		N/A
6.5	Internal and external wiring		Pass
6.5.1	Requirements	Wire insulation rated VW-1.	Pass
6.5.2	Cross-sectional area (mm^2)..... :		|
6.5.3	Requirements for interconnection to building wiring ..... :	(See Annex Q.)	N/A
6.6	Safeguards against fire due to connection to additional equipment		Pass
	External port limited to PS2 or complies with Clause Q.1		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		Pass
7.2	Reduction of exposure to hazardous substances	Certified button cell used.	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)	N/A
8	**MECHANICALLY-CAUSED INJURY**		Pass
8.1	General		Pass
8.2	Mechanical energy source classifications		N/A
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		Pass
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)	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 :	(See appended table 8.5.5.2)	N/A

8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard :		|

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Clause	Requirement + Test	Result - Remark	Verdict
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).....:		|
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) :		|

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Clause	Requirement + Test	Result - Remark	Verdict
9	**THERMAL BURN INJURY**		Pass
9.2	Thermal energy source classifications	TS1 (enclosure)	Pass
9.3	Safeguard against thermal energy sources	Enclosure for ordinary person (T1)	Pass
9.4	Requirements for safeguards		Pass
9.4.1	Equipment safeguard		Pass
9.4.2	Instructional safeguard :		N/A
10	**RADIATION**		Pass
10.2	Radiation energy source classification	Indicator LEDs are Exempt Group	Pass
10.2.1	General classification	RS1	Pass
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		|
	Normal, abnormal, single-fault..... :	(See attached laser test report)	N/A
	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 ..... :	(See appended table B.3 & B.4)	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 :	(See appended table B.3 & B.4)	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation :		|

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Clause	Requirement + Test	Result - Remark	Verdict
	Abnormal and single-fault condition :	(See appended table B.3 & B.4)	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) $_{LAeq}$ 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**		Pass
B.2	Normal Operating Conditions		Pass
B.2.1	General requirements.....:	(See Test Item Particulars and appended test tables)	Pass
	Audio Amplifiers and equipment with audio amplifiers.....:	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		Pass
B.2.5	Input test.....:	(See appended table B.2.5)	Pass
B.3	Simulated abnormal operating conditions		Pass
B.3.1	General requirements.....:	(See appended table B.3)	Pass
B.3.2	Covering of ventilation openings		Pass
B.3.3	D.C. mains polarity test	Unit marked to indicate connections and connected only by skilled personnel.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.4	Setting of voltage selector :		N/A
B.3.5	Maximum load at output terminals :		Pass
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		Pass
B.4	Simulated single fault conditions		N/A
B.4.2	Temperature controlling device open or short-circuited :	(See appended table B.4)	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature :	(See Clause G.5)	N/A
B.4.4	Short circuit of functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		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		N/A
B.4.6	Short circuit or disconnect of passive components		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		N/A
B.4.9	Battery charging under single fault conditions ... :	(See Annex M)	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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**		Pass
F.1	General requirements		Pass
	Instructions – Language :	Only English reviewed.	|
F.2	Letter symbols and graphical symbols		Pass
F.2.1	Letter symbols according to IEC60027-1		Pass
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		Pass
F.3	Equipment markings		Pass
F.3.1	Equipment marking locations		Pass
F.3.2	Equipment identification markings		Pass
F.3.2.1	Manufacturer identification .....:		|
F.3.2.2	Model identification .....:		|
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		Pass
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage :	AC and DC Configurations	|
F.3.3.4	Rated voltage :	See Cover Page	|
F.3.3.4	Rated frequency :	See Cover Page	|
F.3.3.6	Rated current or rated power :	See Cover Page	|
F.3.3.7	Equipment with multiple supply connections		Pass
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		Pass
F.3.5.1	Mains appliance outlet and socket-outlet markings.....:		N/A
F.3.5.2	Switch position identification marking.....:		N/A
F.3.5.3	Replacement fuse identification and rating markings.....:	Only Service Person can change fuse.	N/A
F.3.5.4	Replacement battery identification marking .....:	Only Service Person can change battery. Instruction provided in Service Manual.	N/A
F.3.5.5	Terminal marking location		Pass
F.3.6	Equipment markings related to equipment classification		Pass

F.3.6.1	Class I Equipment		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal	Noted for DC connection.	N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		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 .....:		|
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		Pass
F.3.10	Test for permanence of markings		Pass
F.4	Instructions		Pass
	a) Equipment for use in locations where children not likely to be present - marking		Pass
	b) Instructions given for installation or initial use		Pass
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		Pass
	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		Pass
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
j)	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		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**		Pass
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	No mains relays.	N/A
G.2.2	Overload test		N/A

G.2.3	Relay controlling connectors supply power		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		Pass
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 (∧) . :		|
G.3.3	PTC Thermistors		Pass
G.3.4	Overcurrent protection devices		Pass
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**		Pass
G.4.1	Spacings	ES1 (ES3 covered as an element of the Certified power supplies.)	Pass
G.4.2	Mains connector configuration .....:	Certified AC Mains connectors used in power supplies.	Pass
G.4.3	Plug is shaped that insertion into mains socket- outlets or appliance coupler is unlikely	See enclosure Miscellaneous for Manufacturer's letter of Assurance.	Pass
G.5	**Wound Components**		N/A
G.5.1	Wire insulation in wound components.....	Covered as an element of the Certified power supplies	Pass
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

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3	**Transformers**		Pass
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....:	Covered as an element of the Certified power supplies.	Pass
	Position.....:		
	Method of protection .....:		
G.5.3.2	Insulation		N/A
	Protection from displacement of windings :		
G.5.3.3	Overload test .....:	(See appended table B.3)	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) .....:		
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

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Clause	Requirement + Test	Result - Remark	Verdict
G.6.1	General	Basic, Supplementary and Reinforced insulation covered in Certified power supplies.	Pass
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements	See Miscellaneous for Manufacturer's Letter of Assurance.	Pass
	Type :	See Miscellaneous for Manufacturer's Letter of Assurance	|
	Rated current (A) :		|
	Cross-sectional area (mm^2), (AWG) :		|
G.7.2	Compliance and test method	See Miscellaneous for Manufacturer's Letter of Assurance	Pass
G.7.3	Cord anchorages and strain relief for non- detachable power supply cords	Detachable cords used for AC configuration.	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 .....:	(See appended table 5.4.11.1)	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**		N/A
G.8.1	General requirements	Covered as an element of the Certified power supplies.	Pass
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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**		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors	Covered as an element of the Certified power supplies.	Pass
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) :	Covered as an element of the Certified power supplies and those used in device	Pass
	Type test voltage Vini .....:		|
	Routine test voltage, Vini,b .....:		|
G.13	**Printed boards**		Pass
G.13.1	General requirements	Only Functional insulation on the main board. Also, covered as an element of the Certified power supplies.	Pass
G.13.2	Uncoated printed boards		Pass
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	:	(See appended table 5.4.4.5)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 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	Covered as an element of the Certified modem.	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) :		|

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Clause	Requirement + Test	Result - Remark	Verdict
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	(See Annex G)	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**		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment	For DC Configuration	N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		Pass
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		Pass
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		Pass

M.1	General requirements		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements	Certified coin type battery used.	N/A
M.2.2	Compliance and test method (identify method) .. :	Based on inspection.	Pass
M.3	Protection circuits	Provided with Certified IC Battery Protection	N/A
M.3.1	Requirements		Pass
M.3.2	Tests		Pass
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery	Provided with Certified IC Battery Protection	N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		Pass
M.3.3	Compliance ..... :	(See appended Tables and Annex M and M.4)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		Pass
M.4.1	General		Pass
M.4.2	Charging safeguards	Provided with Certified IC Battery Protection	N/A
M.4.2.1	Charging operating limits	Provided with Certified IC Battery Protection	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		Pass
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

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Clause	Requirement + Test	Result - Remark	Verdict
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 *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**		Pass
	Metal(s) used ..... :	Pollution degree considered	|
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Figures O.1 to O.20 of this Annex applied..... :		|
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		Pass
P.1	General requirements		Pass

P.2.2	Safeguards against entry of foreign object		Pass
	Location and Dimensions (mm) .....:		

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3	Safeguard against the consequences of entry of foreign object		Pass
P.2.3.1	Safeguards against the entry of a foreign object	No bare conductive parts of ES3 or PS3 can be bridged.	Pass
	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**		Pass
Q.1	Limited power sources	(See Annex Q.1). Signal only.	Pass
Q.1.1 a)	Inherently limited output	(See Annex Q.1). Signal only.	Pass
Q.1.1 b)	Impedance limited output	(See Annex Q.1). Signal only.	Pass
	- 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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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)..... :		|
	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

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Clause	Requirement + Test	Result - Remark	Verdict
T	**MECHANICAL STRENGTH TESTS**		Pass
T.1	General requirements		Pass
T.2	Steady force test, 10 N :	(See appended table T.2)	N/A
T.3	Steady force test, 30 N :	No internal barriers. (See appended table T3)	N/A
T.4	Steady force test, 100 N :	(See appended table T4)	N/A
T.5	Steady force test, 250 N :	Unit enclosure comprised of substantial metal. (See appended table T5)	N/A
T.6	Enclosure impact test	Unit enclosure comprised of substantial metal. (See appended table T6)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test :	(See appended table T7)	N/A
T.8	Stress relief test :	(See appended table T8)	N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)..... :		|
	Height (m)..... :		|
T.10	Glass fragmentation test ..... :	(See sub-clause 4.4.4.9)	N/A
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)**		Pass
V.1	Accessible parts of equipment		Pass
V.2	Accessible part criterion		Pass

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IEC 62368-1 (List of Critical Components)			
Clause	Requirement + Test	Result - Remark	Verdict

Enclosure (Electrical)	Sabic Innovative Plastics or Interchangeable	C2950HF or Interchangeable	Plastic. Min 2 mm thick. Overall approximately 8.7 by 2.8 by 2.6 cm. Rated V-0. RTI Electrical 85 C	UL94	UL
Cable Assembly (Optional}	Various	Various	SELV. Cable marked VW-1	UL94	UL
Connector (J1) – RJ45. Non telecom	Various	Various	SELV, Min. V-2	UL 1977	UL
Connector (J3)	Various	Various	SELV, Min. V-2	UL 1977	UL
Transformer (T1) PoE	Coilcraft or Interchangeable	FA2672 or Interchangeable	SELV	--	--
Transformer (T1) Ethernet	Pulse or Interchangeable	HX2019 or Interchangeable	SELV	--	--
OptoIsolator (Optional) (U2)	Renesas Electronics or Interchangeable	PS2911-1 or Interchangeable	SELV, 2500 vac isolation	UL1577	UL
Power Supply (Optional)	Top Microsystems Golden Profit Electronics	W050010GPX 1LX GPE053A-V051100-Z	Rated 100-240 Vac, 50/60 Hz, 0.2 A. Output 15 Vdc, 1A. LPS	UL 60950-1 EN 62368-1	UL CB Report
Power Supply (Optional)	Various	Various	Rated 100-240 Vac, 50/60 Hz, 0.2 A. Output 15 Vdc, 1A. LPS	UL 60950-1 EN 62368-1	UL CB Report
Printed Wiring Board	Various	Various	V-1 Min. 105 C	UL796	UL
Label	Various	Various	75 ºC, for application to Plastic	UL 969	UL

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

2) Description line content is optional. Main line description needs to clearly detail the component used for testing

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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

4.8.4.6 TABLE: Crush test

Test position	Surface tested	Crushing Force (N)	Duration force applied (s)

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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	-	-	-	N/A
			Abnormal	-	-	-	
			Single fault – SC/OC	-	-	-	

Test Conditions:

Normal –

Abnormal -

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

#-Evaluated during component power supply investigation. See Energy Source Diagram for ES levels considered.

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**					Pass
	Supply voltage (V) - DC :	5 Vdc				
	Ambient T_{min} (°C) :	-				
	Ambient T_{max} (°C) :	75				
	Tma (°C) :	50				
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
External Enclosure		82.3				90
Interconnecting Cable between Connector and Body of Unit		81.4				90
Printed Wiring Board		93.8				105
Input Connector where power enters unit		82.2				85

Supplementary information: Heating (Thermal Requirements) Test was conducted in Maximum Normal Load. Maximum Normal Load: Series port connection as CTS to RTS and TxD to RxD to simulate data communication. PWB rated 105°C was used as Tmax

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

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)

- Tma is not included in assessment of Touch Temperatures. Touch temperatures are based on 25 degrees C. For TS1, for external metal surfaces and assuming touch time greater than 10 secs and less than 1 min., the max. allowed is 51 degrees for normal heating test and 61 degrees for abnormal operation tests. Measured touch temperatures are within max. allowed limits.

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Clause	Requirement + Test	Result - Remark	Verdict

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) :	δ 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**							N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm) [2]	Required[3] cr (mm)	cr (mm)	

Supplementary information:

Note 1: Only for frequency above 30 kHz
Note 2: See table 5.4.2.4 if this is based on electric strength test

Note 3: Provide Material Group

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.3	**TABLE: Minimum Clearances distances using required withstand voltage**			N/A
	Overvoltage Category (OV):			
	Pollution Degree:			
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)

Supplementary information:

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**				N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)

Supplementary information: Also, covered as an element of the certified power supplies.					

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.9 TABLE: Electric strength tests			
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Routine Tests:			

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

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Clause	Requirement + Test	Result - Remark	Verdict

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

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Clause	Requirement + Test	Result - Remark	Verdict

5.6.6.2	**TABLE: Resistance of protective conductors and terminations**			N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (0)
Supplementary information:				

5.7.2.2, 5.7.4	**TABLE: Earthed accessible conductive part**	N/A
Supply voltage ..... :		—
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)

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.

PS1:

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2 Table: Electrical power sources (PS) measurements for classification N/A

Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
A		Power (W) :			
		V_A (V) :			
		I_A (A) :			
B		Power (W) :			
		V_A (V) :			
		I_A (A) :			
C		Power (W) :			
		V_A (V) :			
		I_A (A) :			
D		Power (W) :			
		V_A (V) :			
		I_A (A) :			

Supplementary Information:
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

6.2.3.1 Table: Determination of Potential Ignition Sources (Arcing PIS) N/A

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

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 $_{(Irms)}$ is greater than 15.

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2 Table: Determination of Potential Ignition Sources (Resistive PIS)					N/A
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

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)	:		--
Pressure (operating) (MPa)	:		--
Operating time (minutes)	:		—
Explosion method	:		—
Max particle length escaping enclosure (mm) . :			--
Max particle length beyond 1 m (mm)	:		--
Overall result ..... :			
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	**TABLE: Input test**						Pass
U (V)	I (mA)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5	143.5 mA	1	0.725				Maximum Normal Load

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Clause	Requirement + Test	Result - Remark	Verdict
B.2.5	**TABLE: Input test**		N/A

U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status

Supplementary information:
Equipment may be have rated current or rated power or both. Both should be measured

B.3	**TABLE: Abnormal operating condition tests**							N/A
Ambient temperature (°C) .....:								-
Power source for EUT: Manufacturer, model/type, output rating .:								-
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.

IEC62368_1B

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

B.4	**TABLE: Fault condition tests**							N/A
Ambient temperature (°C) .....:								-
Power source for EUT: Manufacturer, model/type, output rating . :								-
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation

Supplementary information: (1): This test was not conducted because there was no voltage measured at the USB mini port.								

Annex M	**TABLE: Batteries**								N/A
The tests of Annex M are applicable only when appropriate battery data is not available									N/A
Is it possible to install the battery in a reverse polarity position? :							No		Pass
	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									-

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Clause	Requirement + Test	Result - Remark	Verdict

- Emission of flame or expulsion of molten metal		-
- Electric strength tests of equipment after completion of tests		-
Supplementary information: Certified Battery Protection Chip provides reverse charging current protection to coin type Battery.		

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Clause	Requirement + Test	Result - Remark	Verdict

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)**					Pass
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary Information: SC=Short circuit, OC=Open circuit						

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Clause	Requirement + Test	Result - Remark	Verdict

T.2, T.3, T.4, T.5	**TABLE: Steady force test**				N/A
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Supplementary information: Based on substantial metal enclosure construction, steady force test was not deemed necessary.					

T.6, T.9 **TABLE: Impact tests**				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Supplementary information: Based on substantial metal enclosure construction, impact test was not deemed necessary.				

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

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

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List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or WMT/CTF stage 2 procedure has been used.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date
N/A				

CPSM CORPORATION
TEST INSTRUMENTS REFERENCE LIST

Instr. Code	Instrument I.D.	Instrument Type	Range Used Or ***	Make and Model **	Calibration Date	
					Last	Due
CPSM002	G0112241	Calipers	15cm	MHC/15 cm	2/18/20	2/18/21
CPSM004	320	Dielectric Tester	0-6000V, dc	Associated Research/AR 5060AT	2/18/20	2/18/21
CPSM005	7024014	Digit. Therm.	Auto	Fluke/51	12/17/19	12/17/20
~~CPSM006~~	~~B190863~~	~~Dual Time Base~~	~~Auto~~	~~Tektronix/7B53A~~	~~2/20/19~~	~~2/20/20~~
~~CPSM007~~	~~B189863~~	~~Dual Trace Amp~~	~~Auto~~	~~Tektronix/7A26~~	~~2/20/19~~	~~2/20/20~~
CPSM009	0147	High Current	0-45A, 0-200mΩ	Hypatia/306	2/18/20	2/18/21
CPSM010	382-1179	Leakage Current	0.3, 1, 3, 10mA	Simpson/229-2	12/17/19	12/17/20
CPSM011	69631792	Multimeter	Auto	Fluke/73	12/17/19	12/17/20
CPSM012	77520321	Multimeter	Auto	Fluke/79	12/17/19	12/17/20
CPSM013	69531032	Multimeter	Auto	Fluke/75	12/17/19	12/17/20
CPSM015	----	Steel Ball	--	--	n/r	n/r
~~CPSM016~~	~~B195543~~	~~Storage Scope/Time Meter~~	~~Auto~~	~~Tektronix/7623A~~	~~2/20/19~~	~~2/20/20~~
CPSM023	----	Thermocouple	--	----/Type J	2/18/20	2/18/21
CPSM024	----	Force Gage	0-50 lb.	Chatillon/DPP-50	2/18/20	2/18/21

Enclosures:

National Deviations to IEC 62368-1
Photographs
Diagrams
Schematics
Certifications

ATTACHMENT TO TEST REPORT IEC 62368-1
DENMARK NATIONAL DIFFERENCES

Audio/video, information and communication technology equipment –

Part 1: Safety requirements

Differences according to ..... :	DS/EN 62368-1:2014
Attachment Form No..... :	DK_ND_IEC62368_1B
Attachment Originator ..... :	UL (Demko)
Master Attachment..... :	2014-10

	National Differences		
4.1.15	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: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.”		N/A
5.2.2.2	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
5.6.1	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. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	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
5.7.6.2	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	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 Justification: Heavy Current Regulations, Section 6c		N/A

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
Attachment Form No.	:	EU_GD_IEC62368_1B
Attachment Originator	:	Intertek Semko AB
Master Attachment	:	Date (2015-08)
Copyright © 2015 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE)		

	CENELEC COMMON MODIFICATIONS (EN)		
1	NOTE Z1		N/A
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a) Included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A
5.4.2.3.2.4	Interconnection with external circuit		N/A
10.2.1	Additional requirements in 10.5.1		N/A
10.5.1	RS1 compliance measurement conditions		N/A
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N/A
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N/A
G.7.1	NOTE Z1		N/A

ZB	***ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)***		
4.1.15	**Denmark, Finland, Norway and Sweden:** Class I pluggable equipment type A marking		N/A
4.7.3	**United Kingdom:** Torque test socket-outlet BS 1363, and the plug part BS 1363.		N/A
5.2.2.2	**Denmark:** Warning for high touch current		N/A
5.4.11. 1 and Annex G	**Finland and Sweden:** Separation of the telecommunication network from earth		N/A
5.5.2.1	**Norway:** Capacitors rated for the applicable line-to-line voltage (230 V).		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	**Finland, Norway and Sweden:** Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N/A
5.6.1	**Denmark:** Protection for pluggable equipment type A; integral part of the equipment		N/A
5.6.4.2.1	**Ireland and United Kingdom:** The protective current rating is taken to be 13 A		N/A
5.6.5.1	**Ireland and United Kingdom:** Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N/A
5.7.5	**Denmark:** The installation instruction affixed to the equipment if high protective conductor current		N/A
5.7.6.1	**Norway and Sweden:** Television distribution system isolation text in user manual		N/A
5.7.6.2	**Denmark:** Warning for high touch current		N/A
B.3. 1 and B.4	**Ireland and United Kingdom:** Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N/A
G.4.2	**Denmark:** Appliances rated ≤13 A provided with a plug according to DS 60884-2-D1:2011.		N/A
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N/A
	If a single-phase equipment having rated >13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N/A
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N/A
	Mains socket-outlets with earth 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		N/A
G.4.2	**United Kingdom:** The plug part of direct plug-in equipment assessed to BS 1363		N/A
G.7.1	**United Kingdom:** Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N/A
G.7.1	**Ireland:** Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N/A
G.7.2	**Ireland and United Kingdom:** A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	***ANNEX ZC, NATIONAL DEVIATIONS (EN)***		
10.5.2	**Germany:** Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N/A
F.1	**Italy:** The power consumption in Watts (W) indicated on TV receiver and in instruction for use		N/A
	TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.		N/A
	Marking for controls and terminals in Italian language.		N/A
	Conformity declaration according to the above requirements in the instruction manual		N/A
	First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover.		N/A

ATTACHMENT TO TEST REPORT IEC 62368-1 2th 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

Clause	Requirement + Test	Result - Remark	Verdict
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.		N/A
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
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.*		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.		N/A

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

Clause	Requirement + Test	Result - Remark	Verdict
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		N/A
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		N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.	Covered as an element of the Certified modem.	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.		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.		Pass
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.		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.		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.		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.		N/A

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

Clause	Requirement + Test	Result - Remark	Verdict
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.	Covered as an element of the Certified modem.	N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 $_{Vpeak}$ 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.	Covered as an element of the Certified modem.	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.		N/A
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.		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.		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.		N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A

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

Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		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.		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).		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).		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.”		N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		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		N/A

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

Clause	Requirement + Test	Result - Remark	Verdict
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).		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.		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.		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).		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.		N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1are marked with the voltage rating and “Class 2” or equivalent; marking is located adjacent to the terminals and visible during wiring.		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.		N/A

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

Clause	Requirement + Test	Result - Remark	Verdict
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
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.		Pass
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		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.		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.		N/A

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

Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	SELV.	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.		N/A

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.	Covered as an element of the Certified modem.	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.		N/A

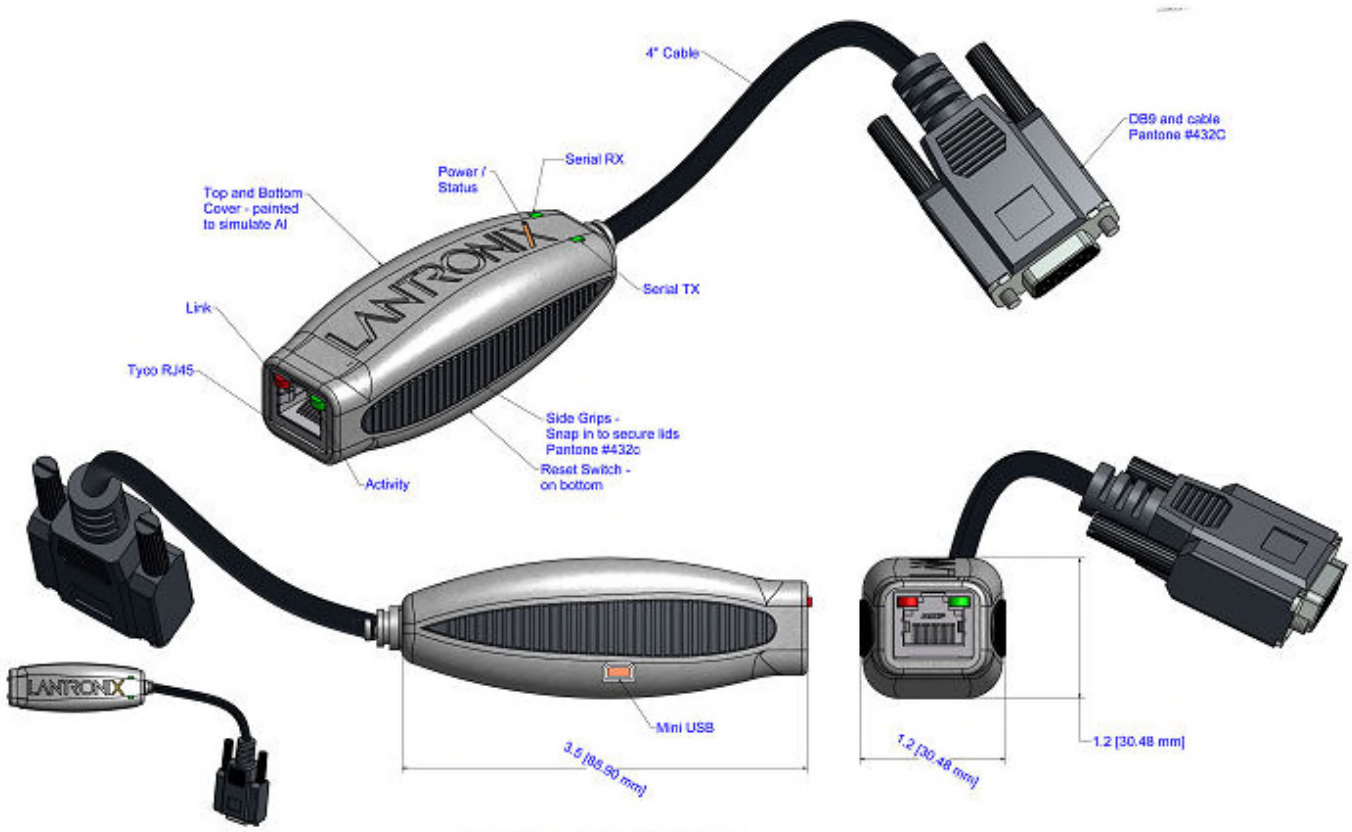
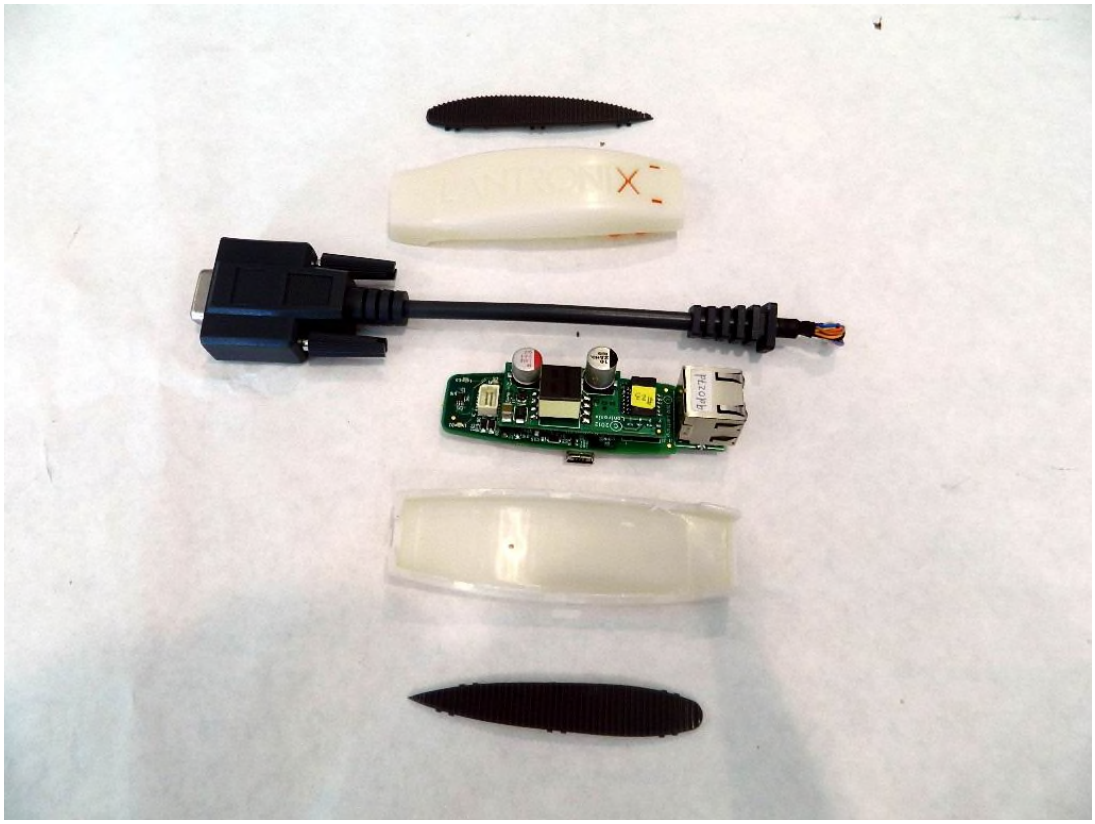


Figure 1 – Expected Size

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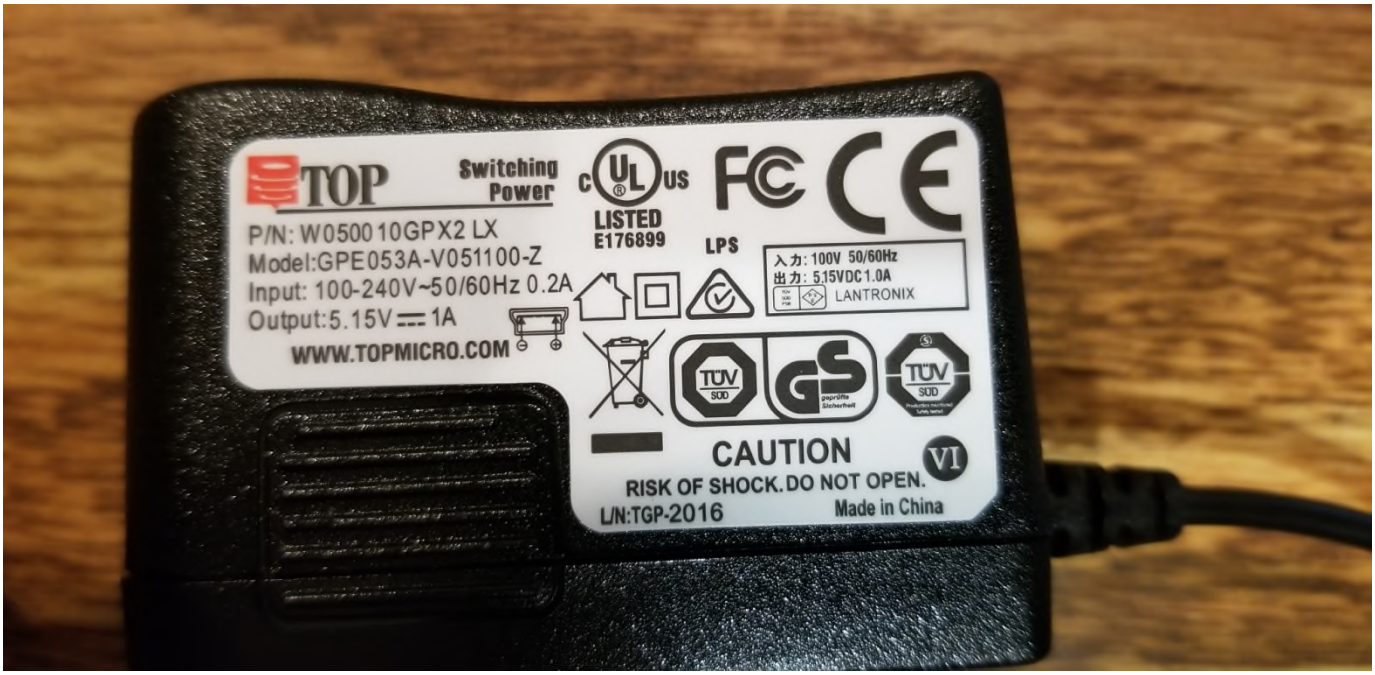
TOP
Switching Power
LISTED
E176899
LPS
P/N: W050010GPX2 LX
Model:GPE053A-V051100-Z
Input: 100-240V~50/60Hz 0.2A
Output:5.15V ⎓ 1A
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入力: 100V 50/60Hz
出力: 5.15VDC 1.0A
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RISK OF SHOCK.DO NOT OPEN.
L/N:TGP-2016
Made in China

UL Product iQ™

QMFZ2.E45329 - Plastics - Component

Plastics - Component

See General Information for Plastics - Component

SABIC INNOVATIVE PLASTICS B V E45329
EUROPE - RESIN
PLASTICSLAAN 1
4612 PX BERGEN OP ZOOM, THE NETHERLANDS

Material Dsg	Color	Min. Thk mm	Flame Class	HWI	HAI	Elec	RTI Mech Imp	RTI Mech Str	HVTR	D495	CTI	
C2950	ALL	1.0	-	-	-	60	60	60	2	6	0
		1.5	V-0	3	0	85	75	85			
		2.0	V-0	3	0	85	75	85			

UL Product iQ™

FPQU2.E72422 - Optical Isolators - Component

Note: We are enhancing our systems and you may notice missing/outdated data. During this interim period, please refer to your Certificate of Compliance or contact our Customer Service at https://www.ul.com/about/locations.

Optical Isolators - Component

See General Information for Optical Isolators - Component

RENESAS ELECTRONICS CORPORATION E72422
IOT AND INFRASTRUCTURE BUSINESS UNIT INDUSTRIAL ANALOG & POWER BUSINESS DIVISION
ANALOG PRODUCTS DEPARTMENT PHOTOCOUPLER PRODUCTS SECTION
111 NISHIYOKOTE-MACHI
TAKASAKI-SHI, GUNMA-KEN 370-0021 JAPAN

Single protection optical isolators, providing 2500 vac isolation, Model(s) PS2801-1+, PS2801A-1+, PS2801C-1+, PS2805-1+, PS2805C-1+, PS2811-1+, PS2815-1+, PS2911-1#, PS2913-1#, PS2915-1#, PS2932-1#, PS2933-1#

- May be provided with suffixes -L, -L1, -L2, -L3, -V, -E1, -E2, -E3, -E4, -E5, -E6, -E7, -F3 or -F4.

	Ref. Certif. No.
IEC IECEE CB SCHEME	JPTUV-100183

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	Switching Adapter for Keypad
Name and address of the applicant Nom et adresse du demandeur	Golden Profit Electronics Ltd. Shayao Chenwu Village Shijie Town, Dongguan, Guangdong 523292, P. R. China
Name and address of the manufacturer Nom et adresse du fabricant	Golden Profit Electronics Ltd. Shayao Chenwu Village Shijie Town, Dongguan, Guangdong 523292, P. R. China
Name and address of the factory Nom et adresse de l'usine	Golden Profit Electronics Ltd. Shayao Chenwu Village Shijie Town, Dongguan, Guangdong 523292, P. R. China
Ratings and principal characteristics Valeurs nominales et charactéristiques principales	Input : AC 100-240V, 50/60Hz, 0.2A; Class II Output : Refer to the test report.
Trademark (if any) Marque de fabrique (si elle existe)	GPE
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	N/A
Model / Type Ref. Ref. de type	GPE006D-xxxyyy-z, GPE006E-xxxyyy-z, GPE053A-Vxxxyyy-z, GPE053B-Vxxxyyy-z (xxx, yyy and z are variables, refer to the test report.)
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page)	For model differences, refer to the test report.
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	50232208 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®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 06.09.2019

Signature: Martin Wang

UL Product iQ™

QQGQ.E176899 - Power Supplies, Information Technology Equipment Including Electrical Business Equipment

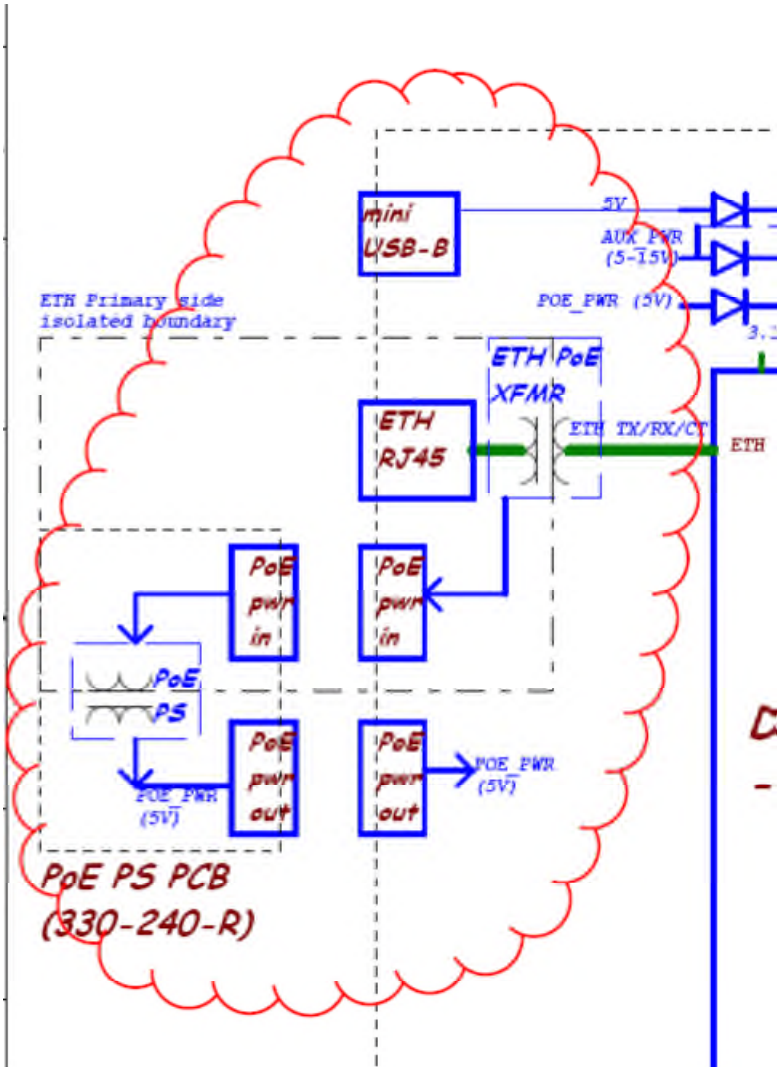
Power Supplies, Information Technology Equipment Including Electrical Business Equipment

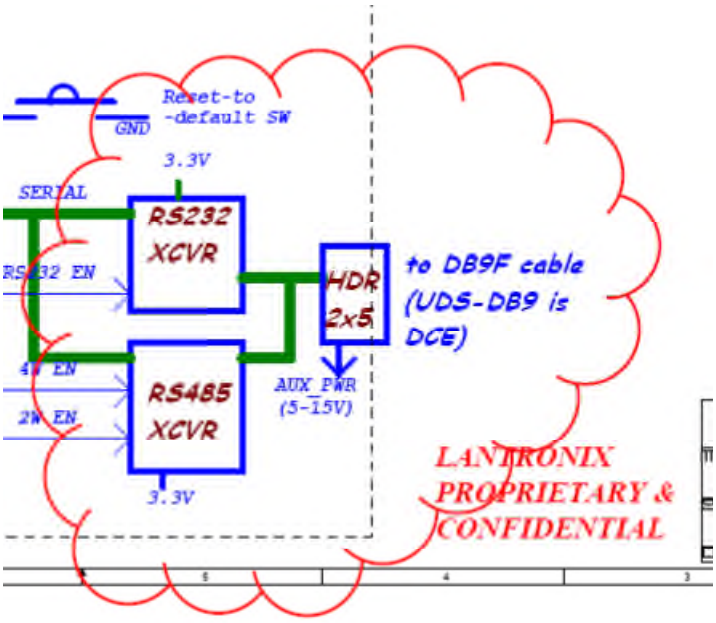
See General Information for Power Supplies, Information Technology Equipment Including Electrical Business Equipment

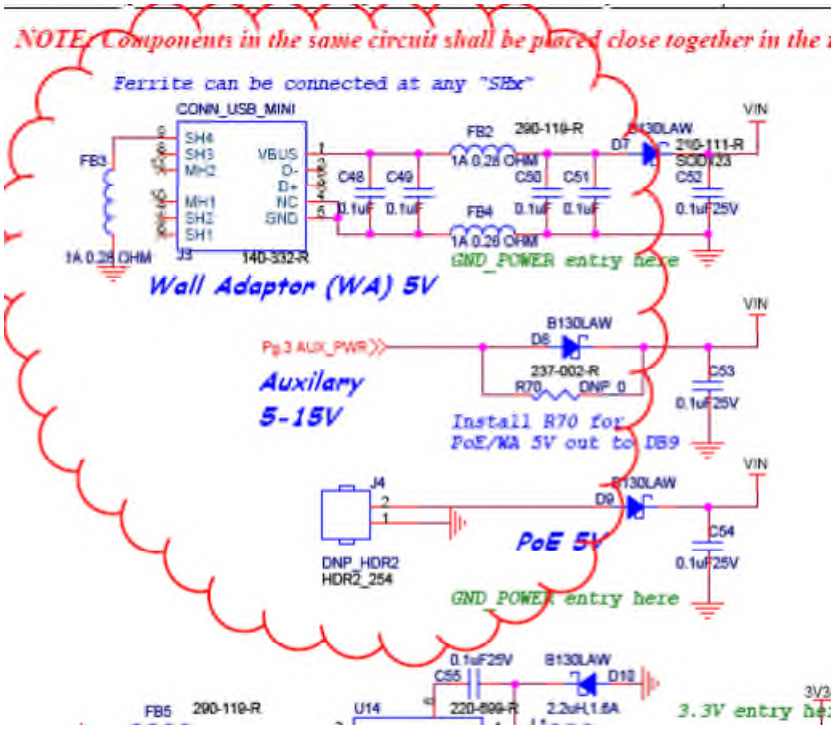
TOP MICROSYSTEMS CORP E176899
1340 NORMAN AVE
SANTA CLARA, CA 95054-2056 USA

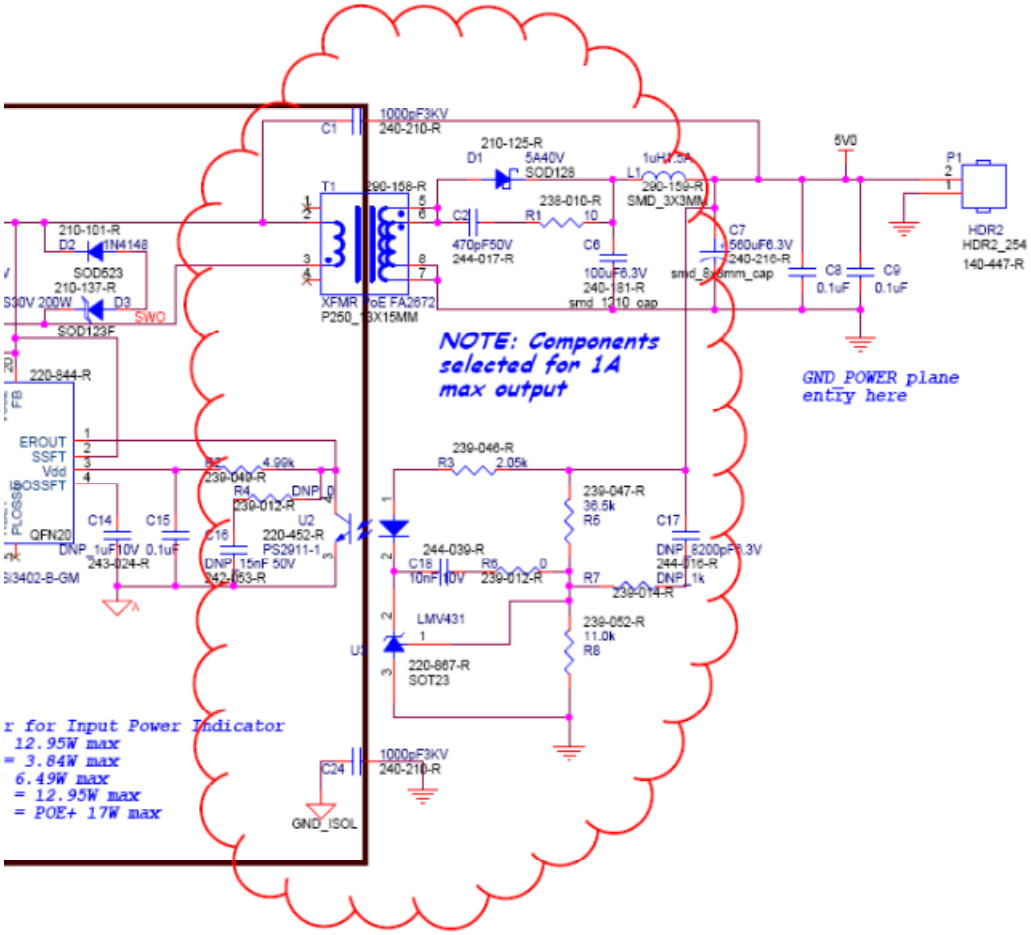
Switching Mode Power Supply, Model(s) AxxxyyyyGP1z [c2], WxxxyyyGOzzzzzzzz [c], WxxxyyyGPzzzzzzzz [c], WxxxyyyyYFz (e) [c2], WxyGPX2z [p]

[c] - XXX=030-240; YYY=001-100 and "z" represents any alphanumeric character, blank, or "-" to denote features, custom, or marketing code.


mini USB-B
5V
AUX PWR (5-15V)
POE_PWR (5V)
ETH Primary side isolated boundary
ETH PoE XFMR
ETH RJ45
ETH TX/RX/CT
ETH
PoE pwr in
PoE pwr in
PoE PS
PoE pwr out
PoE pwr out
POE_PWR (5V)
POE_PWR (5V)
PoE PS PCB (330-240-R)


Reset-to -default SW
GND
3.3V
SERIAL
RS232 XCVR
RS232 EN
HDR 2x5
to DB9F cable (UDS-DB9 is DCE)
4W EN
2W EN
RS485 XCVR
AUX PWR (5-15V)
3.3V
LANTRONIX PROPRIETARY & CONFIDENTIAL


NOTE: Components in the same circuit shall be placed close together in the
Ferrite can be connected at any "SHx"
CONN_USB_MINI
SH4
SH3
MH2
MH1
SH2
SH1
VBUS
D-
D+
NC
GND
J3
140-332-R
FB3
1A 0.2R OHM
C48
C49
0.1uF
FB2
290-110-R
1A 0.2R OHM
C50
C51
FB4
1A 0.2R OHM
D7
B130LAW
210-111-R
SOD-123
C52
0.1uF 25V
VIN
GND_POWER entry here
Wall Adaptor (WA) 5V
Pg 3 AUX_PWR
Auxilary
5-15V
D8
237-002-R
R70
DNP_0
Install R70 for
PoE/WA 5V out to DB9
C53
J4
DNP_HDR2
HDR2_254
D9
PoE 5V
C54
GND_POWER entry here
C55
D10
FB5
290-110-R
U14
220-899-R
2.2uH,1.6A
3.3V entry he


NOTE: Components selected for 1A max output
GND_POWER plane entry here
5V0
P1
HDR2
HDR2_254
140-447-R
1000pF3KV
240-210-R
C1
T1
290-156-R
210-125-R
D1
5A40V
SOD128
1uH7.5A
L1
290-159-R
SMD_3X3MM
238-010-R
R1
10
C3
470pF50V
244-017-R
C6
100uF6.3V
240-181-R
smd_1210_cap
C7
560uF6.3V
240-216-R
smd_8x8mm_cap
C8
0.1uF
C9
0.1uF
XFMR_FoE_FA2672
P250_28X15MM
210-101-R
D2
1N4148
SOD523
210-137-R
D3
SOD123F
SWO
220-844-R
EROUT
SSFT
Vdd
ISOSSFT
QFN20
C14
C15
DNP_1uF10V
0.1uF
243-024-R
R2
4.99k
239-049-R
R4
DNP_0
239-012-R
C16
DNP_15nF 50V
242-053-R
U2
220-452-R
PS2911-1
239-046-R
R3
2.05k
239-047-R
36.5k
R5
C17
DNP_8200pF3.3V
244-016-R
R7
DNP_1k
239-014-R
C18
10nF 10V
R6
0
239-012-R
244-039-R
LMV431
U3
220-867-R
SOT23
239-052-R
11.0k
R8
C24
1000pF3KV
240-210-R
GND_ISOL
r for Input Power Indicator
12.95W max
= 3.84W max
6.49W max
= 12.95W max
= POE+ 17W max