APPLICATION FOR TEST REPORT

On Behalf of

Shenzhen Four Seas Global Link Network Technology Co., Ltd.

Wireless AP

Model: See model list on page 3 for details

Prepared For	:	**Shenzhen Four Seas Global Link Network Technology Co., Ltd. Room 607-610, Block B, TAOJINDI Electronic Business Incubation Base, Tenglong Road, Longhua District, Shenzhen, China**
Prepared By	:	**Shenzhen LCS Compliance Testing Laboratory Ltd. 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China**
Date of Test	:	**May 12, 2016 – May 19, 2016**
Date of Report	:	**May 19, 2016**
Report Number	:	**LCS1605120893S**

TEST REPORT

EN 60950-1

Information technology equipment – Safety –

Part 1: General requirements

Report reference No……:	LCS1605120893S
Compiled by (+ signature)……:	Cassie Ling
Approved by (+ signature)……:	Hart Qiu
Date of issue……..:	May 19, 2016
Contents……..:	54 pages
Testing laboratory	
Name……:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address……:	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Testing location……...:	Same as above
Client	
Name…….....:	Shenzhen Four Seas Global Link Network Technology Co., Ltd.
Address……:	Room 607-610, Block B, TAOJINDI Electronic Business Incubation Base, Tenglong Road, Longhua District, Shenzhen, China
Test specification standard……..:	IEC 60950-1: 2005+A1: 2009+A2: 2013; EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013
Test procedure……:	Compliance with IEC 60950-1: 2005+A1: 2009+A2: 2013; EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013
Non-standard test method……..:	N/A
Test item description……..:	Wireless AP
Trademark……...:	COMFAST
Model and/or type reference……:	See model list on page 3 for details
Manufacturer……...:	Shenzhen Four Seas Global Link Network Technology Co., Ltd.
Address……:	Room 607-610, Block B, TAOJINDI Electronic Business Incubation Base, Tenglong Road, Longhua District, Shenzhen, China
Rating(s)……..:	48V⎓, 0.32A

Test item particulars	
Equipment mobility .....:	[ ] movable [ ] hand-held [ ] transportable
	[X] stationary [ ] for building-in [ ] direct plug-in
Connection to the mains. .....:	[ ] pluggable equipment
	[ ] permanent connection
	[ ] detachable power supply cord
	[ ] non-detachable power supply cord
	[X] not directly connected to the mains
Operating condition .....:	[X] continuous [ ] rated operating / resting time:
Access location .....:	[X] operator accessible [ ] restricted access location
Over voltage category (OVC) .....:	[ ] OVC I [ ] OVC II [ ] OVC III [ ] OVC IV
	[X] other
Mains supply tolerance (%) or absolute mains supply values .....:	N/A
Tested for IT power systems .....:	[ ] Yes [X] No
IT testing, phase-phase voltage (V) .....:	N/A
Class of equipment.....:	[ ] Class I [ ] Class II [X] Class III [ ] Not classified
Considered current rating (A) .....:	N/A
Pollution degree (PD) .....:	[ ] PD 1 [X] PD 2 [ ] PD 3
IP protection class .....:	IPX0
Altitude during operation (m) .....:	Not over 2000m
Altitude of test laboratory (m) .....:	Not over 2000m
Mass of equipment (kg) ……...:	Approx. 0.13kg
Test case verdicts	
Test case does not apply to the test object……..…:	N(N/A)
Test item does meet the requirement……..:	P(Pass)
Test item does not meet the requirement……..:	F(Fail)
Testing	
Date of receipt of test item ……..:	May 12, 2016
Date(s) of performance of test……:	May 12, 2016 – May 19, 2016

General remarks

Modified Information

Version	Report No.	Revision Data	Summary
V1.0	LCS1605120893S	/	Original Version

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

"(see remark #)" refers to a remark appended to the report.

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

Throughout this report a comma is used as the decimal separator.

Remark

1. The test report includes:

   Part 1: IEC 60950-1: 2005+A1: 2009+A2: 2013

   Part 2: Attachment 1- National Differences for EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013.

2. Attachment 2: 4 pages of product photos.
3. Instructions and equipment marking related to safety is applied in the language that is acceptable in the country in which the equipment is to be sold.
4. The product was submitted and tested for use at the manufacturer's recommended ambient temperature (Tma) of 45°C.
5. All models are similar except their model name, appearance and all test conducted on model CF-E520N.
6. Model list:

CF-E520N	CF-E530N	CF-E535N	CF-E536N
CF-E351AC	CF-E355AC	CF-E380AC	CF-E314N
CF-E317A	CF-E318AC	CF-WA350	CF-WA700
CF-WA750	CF-WA800	CF-WA850	CF-WR601N
CF-WR602N	CF-WR603AC	CF-WR605N	CF-WR606AC
CF-WR607AC	CF-910AC	CF-911AC	CF-913AC
CF-915AC	CF-916AC	CF-918AC	--

Copy of marking plate (s):

COMFAST
Wireless AP
Model: CF-E520N
48V⎓, 0.32A
Importer: XXXX
Address: XXXX

Shenzhen Four Seas Global Link Network Technology Co., Ltd.
Made In China

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls	No thermal controls.	N
1.5.4	Transformers	No Transformers	N
1.5.5	Interconnecting cables		N
1.5.6	Capacitors bridging insulation		N
1.5.7	Resistors bridging insulation		N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8	Components in equipment for IT power distribution systems		N
1.5.9	Surge suppressors		N
1.5.9.1	General		N
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N
1.6	Power interface		P
1.6.1	AC power distribution systems		N
1.6.2	Input current	See the table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment		N
1.6.4	Neutral conductor		N
1.7	Marking and instructions		P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	Power rating and identification markings	See below	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:	Single power source	N
	Rated voltage(s) or voltage range(s) (V) ..... :	48V	P
	Symbol for nature of supply, for d.c. only ..... :	⎓	P
	Rated frequency or rated frequency range (Hz) ... :		N
	Rated current (mA or A) ..... :	0.32A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark ..... :	See copy of marking plate	P
	Model identification or type reference ..... :	See model list on page 3 for details	P
	Symbol for Class II equipment only ..... :	Class III	N
	Other markings and symbols ..... :	Additional symbol or marking does not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols		N
1.7.2	Safety instructions and marking	English version provided. (Version in other language will be provided when submitted for national approval)	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices		N
1.7.2.3	Overcurrent protective device	Not such equipment.	N
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool	No operator accessible area that needs to be accessed by the use of a tool.	N
1.7.2.6	Ozone	Not such equipment.	N
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Supply voltage adjustment ..... :	No voltage selector.	N
	Methods and means of adjustment; reference to installation instructions ..... :		N
1.7.5	Power outlets on the equipment ..... :		N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:		N
1.7.7	Wiring terminals	See below.	N
1.7.7.1	Protective earthing and bonding terminals.....:	Class III equipment.	N
1.7.7.2	Terminals for a.c. mains supply conductors	No terminals used	N
1.7.7.3	Terminals for d.c. mains supply conductors		N

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.8	Controls and indicators		N
1.7.8.1	Identification, location and marking .....:		N
1.7.8.2	Colours .....:		N
1.7.8.3	Symbols according to IEC 60417.....:		N
1.7.8.4	Markings using figures .....:		N
1.7.9	Isolation of multiple power sources .....:		N
1.7.10	Thermostats and other regulating devices .....:	Such devices not used.	N
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge.	P
1.7.12	Removable parts	No removable part.	N
1.7.13	Replaceable batteries ..... :		N
	Language(s) .....:		—
1.7.14	Equipment for restricted access locations ..... :	Not intended for use in restricted access locations.	N

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	No access with test finger and test pin to any hazardous parts.	P
2.1.1.1	Access to energized parts		N
	Test by inspection .....:		N
	Test with test finger (Figure 2A) .....:		N
	Test with test pin (Figure 2B) .....:		N
	Test with test probe (Figure 2C) .....:		N
2.1.1.2	Battery compartments		N
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	N

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.5	Energy hazards .....:		P
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		N
	Measured voltage (V); time-constant (s).....:		—
2.1.1.8	Energy hazards – d.c. mains supply		N
	a) Capacitor connected to the d.c. mains supply ..:		N
	b) Internal battery connected to the d.c. mains supply……..:		N
2.1.1.9	Audio amplifiers .....:		N
2.1.2	Protection in service access areas	No operator accessible area that needs to be accessed by the use of a tool.	N
2.1.3	Protection in restricted access locations	Not intended for use in restricted access locations.	N
2.2	SELV circuits		P
2.2.1	General requirements	The secondary circuits were tested as SELV. See 2.2.2 to 2.2.4.	P
2.2.2	Voltages under normal conditions (V) .....:		P
2.2.3	Voltages under fault conditions (V) .....:	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V d.c. were not exceeded within 0.2 seconds and limits 42.4V peak and 60V d.c. were not exceeded for longer than 0.2 seconds.	P
2.2.4	Connection of SELV circuits to other circuits .....:	See sub-clauses 2.2.2 and 2.2.3. and 2.4.2	P
2.3	TNV circuits		N
2.3.1	Limits		N
	Type of TNV circuits.....:		—
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions .....:		N
2.3.3	Separation from hazardous voltages		N

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation employed .....:		—
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed .....:		—
2.3.5	Test for operating voltages generated externally		N
2.4	Limited current circuits		N
2.4.1	General requirements		N
2.4.2	Limit values		N
	Frequency (Hz).....:		N
	Measured current (mA) .....:		—
	Measured voltage (V) .....:		—
	Measured circuit capacitance (nF or µF).....:		—
2.4.3	Connection of limited current circuits to other circuits		N
2.5	Limited power sources		N
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition		N
	Use of integrated circuit (IC) current limiters		N
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA) .....:		—
	Current rating of overcurrent protective device (A) ……..:		N
2.6	Provisions for earthing and bonding		N
2.6.1	Protective earthing	Class III equipment.	N
2.6.2	Functional earthing		N
	Use of symbol for functional earthing .....:		N
2.6.3	Protective earthing conductors and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm^2), AWG.....:		—
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm^2),		—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	AWG.....:		
	Protective current rating (A), cross-sectional area (mm^2), AWG .....:		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min) .....:		N
2.6.3.5	Colour of insulation.....:		N
2.6.4	Terminals		N
2.6.4.1	General		N
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type, nominal thread diameter (mm) .....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N
2.7	Overcurrent and earth fault protection in primary circuits		N
2.7.1	Basic requirements		N
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices .....:		N
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel.....:		N
2.8	Safety interlocks		N
2.8.1	General principles	No safety interlocks used	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Protection against extreme hazard		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches, relays and their related circuits		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) .....:		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test		N
2.8.8	Mechanical actuators		N
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials		P
2.9.2	Humidity conditioning	Performed at 45°C, 93% R.H. for 120h (requested by manufacturer). Test was performed on product with each source of transformer listed in table 1.5.1	P
	Relative humidity (%), temperature (°C) .....:	See above.	—
2.9.3	Grade of insulation	See above.	—
2.9.4	Separation from hazardous voltages	.	N
	Method(s) used .....:	SELV separated from primary by reinforced or double insulation.	—
2.10	Clearances, creepage distances and distances through insulation		N
2.10.1	General		N
2.10.1.1	Frequency .....:		N
2.10.1.2	Pollution degrees .....:		N
2.10.1.3	Reduced values for functional insulation		N
2.10.1.4	Intervening unconnected conductive parts		N
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage		N
2.10.2.1	General		N
2.10.2.2	RMS working voltage		N
2.10.2.3	Peak working voltage		N
2.10.3	Clearances		N
2.10.3.1	General		N

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.2	Mains transient voltages		N
	a) AC mains supply .....:		N
	b) Earthed d.c. mains supplies .....:		N
	c) Unearthed d.c. mains supplies .....:		N
	d) Battery operation .....:		N
2.10.3.3	Clearances in primary circuits		N
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply .....:		N
2.10.3.7	Transients from d.c. mains supply .....:		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains supply		N
	For an a.c. mains supply .....:		N
	For a d.c. mains supply .....:		N
	b) Transients from a telecommunication network :		N
2.10.4	Creepage distances		N
2.10.4.1	General		N
2.10.4.2	Material group and comparative tracking index		N
	CTI tests .....:		—
2.10.4.3	Minimum creepage distances		N
2.10.5	Solid insulation		N
2.10.5.1	General		N
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5.	Cemented joints		N
2.10.5.6	Thin sheet material – General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (pcs) .....:		—
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N
	Electric strength test		—
2.10.5.11	Insulation in wound components		N
2.10.5.12	Wire in wound components		N
	Working voltage .....:		N
	a) Basic insulation not under stress .....:		N

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Basic, supplementary, reinforced insulation .....:		N
	c) Compliance with Annex U .....:		N
	Two wires in contact inside wound component; angle between 45° and 90° .....:		N
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		N
2.10.5.14	Additional insulation in wound components		N
	Working voltage .....:		N
	- Basic insulation not under stress .....:		N
	- Supplementary, reinforced insulation .....:		N
2.10.6	Construction of printed boards		N
2.10.6.1	Uncoated printed boards		N
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs).....:		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N
3	WIRING, CONNECTIONS AND SUPPLY		N
3.1	General		N
3.1.1	Current rating and overcurrent protection		N
3.1.2	Protection against mechanical damage	.	N
3.1.3	Securing of internal wiring		N
3.1.4	Insulation of conductors		N

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.5	Beads and ceramic insulators		N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws		N
3.1.9	Termination of conductors		N
	10 N pull test		N
3.1.10	Sleeving on wiring		N
3.2	Connection to a.c. mains supply		N
3.2.1	Means of connection		N
3.2.1.1	Connection to an a.c. mains supply		N
3.2.1.2	Connection to a d.c. mains supply		N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter of cable and conduits (mm) .....:		—
3.2.4	Appliance inlets		N
3.2.5	Power supply cords		N
3.2.5.1	AC power supply cords		N
	Type .....:		—
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm) .....:		—
3.2.9	Supply wiring space		N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals		N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm^2) .....:		—
3.3.5	Wiring terminal sizes		N

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A), type, nominal thread diameter (mm) ..... :		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N
3.4	Disconnection from the mains supply		N
3.4.1	General requirement		N
3.4.2	Disconnect devices		N
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords	None	N
3.4.6	Number of poles - single-phase and d.c. equipment		N
3.4.7	Number of poles - three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment	Not interconnected equipment.	N
3.4.11	Multiple power sources	Only one supply connection provided.	N
3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits ..... :		P
3.5.3	ELV circuits as interconnection circuits		N
3.5.4	Data ports for additional equipment		N
4	PHYSICAL REQUIREMENTS		P
4.1	Stability	m<7kg	N
	Angle of 10°		N
	Test force (N) ..... :		N
4.2	Mechanical strength		P
4.2.1	General	See below. Tested with each source of wood materials used for enclosure. After tests, unit complies with the requirements of sub-clauses 2.1.1 and 2.10.	P
	Rack-mounted equipment.	(See Annex DD)	N

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.2	Steady force test, 10 N	10 N applied to all internal components.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N
4.2.4	Steady force test, 250 N	250 N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm) ..... :	1m, See the appended table 4.2.6	P
4.2.7	Stress relief test	After the test at temperature of 70°C, no shrinkage, distortion or loosening of any enclosure part was noticeable on the equipment. (All enclosure material considered.)	P
4.2.8	Cathode ray tubes	No CRT in the unit.	N
	Picture tube separately certified ..... :		N
4.2.9	High pressure lamps	No high pressure lamp provided.	N
4.2.10	Wall or ceiling mounted equipment; force (N) ..... :	50N, 1min, Reliable fixed.	P
4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N) .....:	No handles or controls provided.	N
4.3.3	Adjustable controls	No such controls provided.	N
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets		N
4.3.6	Direct plug-in equipment		N
	Torque ..... :		—
	Compliance with the relevant mains plug standard ..... :		N
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N
4.3.8	Batteries		N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.9	Oil and grease	No oil or grease.	N
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N
4.3.11	Containers for liquids or gases	No container for liquid or gas.	N
4.3.12	Flammable liquids ..... :	No such flammable liquid.	N
	Quantity of liquid (l) ..... :		N
	Flash point (°C) ..... :		N
4.3.13	Radiation		N
4.3.13.1	General		N
4.3.13.2	Ionizing radiation		N
	Measured radiation (pA/kg) ..... :		—
	Measured high-voltage (kV) ..... :		—
	Measured focus voltage (kV) ..... :		—
	CRT markings ..... :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N
	Part, property, retention after test, flammability classification ..... :		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..... :		N
4.3.13.5	Lasers (including laser diodes) and LEDs		N
4.3.13.5.1	Lasers (including laser diodes)		—
	Laser class ..... :		—
4.3.13.5.2	Light emitting diodes (LEDs)		—
4.3.13.6	Other types ..... :		N
4.4	Protection against hazardous moving parts		N
4.4.1	General		N
4.4.2	Protection in operator access areas ..... :		N
	Household and home/office document/media shredders		N
4.4.3	Protection in restricted access locations ..... :		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. a)……:		N
	Is considered to cause pain, not injury. b) ……...:		N
	Considered to cause injury. c) ……:		N
4.4.5.2	Protection for users		N
	Use of symbol or warning ……..:		N
4.4.5.3	Protection for service persons		N
	Use of symbol or warning ……..:		N

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Clause	Requirement + Test	Result - Remark	Verdict
4.5	Thermal requirements		P
4.5.1	General	Equipment loaded with rated output current.	P
4.5.2	Temperature tests	(see appended table 4.5)	P
	Normal load condition per Annex L ..... :	(see appended table 4.5)	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat ..... :		N
4.6	Openings in enclosures		N
4.6.1	Top and side openings		N
	Dimensions (mm) ..... :		—
4.6.2	Bottoms of fire enclosures		N
	Construction of the bottomm, dimensions (mm) .. :		—
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.4.1	Constructional design measures		N
	Dimensions (mm) ..... :		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes		N
	Conditioning temperature (°C), time (weeks) ..... :		—
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	No excessive temperatures. No easily burning materials employed. Fire enclosure provided.	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure	Fire enclosure provided.	P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		N
4.7.3	Materials		P
4.7.3.1	General	See below	P
4.7.3.2	Materials for fire enclosures	V-0 fire enclosure used.	P
4.7.3.3	Materials for components and other parts outside fire enclosures		P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.4	Materials for components and other parts inside fire enclosures	PCB rated V-0. See appended table 1.5.1. Internal components except small parts are V-2 or better.	P
4.7.3.5	Materials for air filter assemblies	No air filters provided.	N
4.7.3.6	Materials used in high-voltage components	No high voltage components provided.	N
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		N
5.1.1	General		N
5.1.2	Configuration of equipment under test (EUT)		N
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit		N
5.1.4	Application of measuring instrument		N
5.1.5	Test procedure		N
5.1.6	Test measurements		N
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA)...:		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N
5.1.7.1	General .....:		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV.	N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks		N
	a) EUT with earthed telecommunication ports .....:		N

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Clause	Requirement + Test	Result - Remark	Verdict
	b) EUT whose telecommunication ports have no reference to protective earth		N
5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P
5.3	Abnormal operatingand fault conditions		P
5.3.1	Protection against overload and abnormal operation		N
5.3.2	Motors		N
5.3.3	Transformers		N
5.3.4	Functional insulation.....:	By short-circuited, results see appended table 5.3.	P
5.3.5	Electromechanical components	No electromechanical component.	N
5.3.6	Audio amplifiers in ITE .....:		N
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment	No such equipment.	N
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P
5.3.9.2	After the tests		P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements		N
	Supply voltage (V) ..... :		—
	Current in the test circuit (mA) ..... :		—
6.1.2.2	Exclusions ..... :		N
6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.3	Compliance criteria		N
6.3	Protection of the telecommunication wiring system from overheating		N
	Max. output current (A) ..... :		—
	Current limiting method ..... :		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
7.1	General		N
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N
A.1.1	Samples ..... :		—
	Wall thickness (mm) ..... :		—
A.1.2	Conditioning of samples; temperature (°C) ..... :		N
A.1.3	Mounting of samples ..... :		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D ..... :		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s)..... :		—
	Sample 2 burning time (s)..... :		—
	Sample 3 burning time (s)..... :		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) UL recognized material V-0 enclosure used.		N
A.2.1	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
A.2.2	Conditioning of samples; temperature (°C) ..... :		—
A.2.3	Mounting of samples ..... :		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C ..... :		—
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N
	Sample 1 burning time (s)..... :		—
	Sample 2 burning time (s)..... :		—
	Sample 3 burning time (s)..... :		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N
	Sample 1 burning time (s)..... :		—
	Sample 2 burning time (s)..... :		—
	Sample 3 burning time (s)..... :		—
A.3	Hot flaming oil test (see 4.6.2)		N
A.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements		N
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days) ..... :		—
	Electric strength test: test voltage (V) ..... :		—
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V) ..... :		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	General		N
B.7.2	Test procedure		N

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Clause	Requirement + Test	Result - Remark	Verdict
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V) .....:		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V) ..... :		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
	Method of protection ..... :		—
C.1	Overload test		N
C.2	Insulation		N
	Protection from displacement of windings ..... :		N
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N
D.1	Measuring instrument		N
D.2	Alternative measuring instrument		N
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		N
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply ..... :		N
G.2.2	Earthed d.c. mains supplies ..... :		N
G.2.3	Unearthed d.c. mains supplies ..... :		N
G.2.4	Battery operation ..... :		N
G.3	Determination of telecommunication network transient voltage (V) ..... :		N
G.4	Determination of required withstand voltage (V)		N

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.1	Mains transients and internal repetitive peaks .....:		N
G.4.2	Transients from telecommunication networks .....:		N
G.4.3	Combination of transients		N
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient voltages (V)		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances .....:		N
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N
	Metal(s) used .....:		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V) .....:		N
K.3	Thermostat endurance test; operating voltage (V).:		N
K.4	Temperature limiter endurance; operating voltage (V) .....:		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation		N
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters		N
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		N
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N

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Clause	Requirement + Test	Result - Remark	Verdict
M.3.1	Ringing signal		N
M.3.1.1	Frequency (Hz) .....:		—
M.3.1.2	Voltage (V) .....:		—
M.3.1.3	Cadence; time (s), voltage (V) .....:		—
M.3.1.4	Single fault current (mA) .....:		—
M.3.2	Tripping device and monitoring voltage .....:		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V) .....:		N
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N
	- Preferred climatic categories .....:		N
	- Maximum continuous voltage .....:		N
	- Combination pulse current .....:		N
	Body of the VDR Test according to IEC60695-11-5.....:		N
	Body of the VDR. Flammability class of material (min V-1).....:		N
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see1.1.2)		N

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Clause	Requirement + Test	Result - Remark	Verdict
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N
U.1	General	UL approved triple insulated wire used transformer.	N
U.2	Type tests		N
U.2.1	General		N
U.2.2	Electric strength		N
U.2.2.1	Solid round winding wires and stranded winding wires		N
U.2.2.1.1	Wires with a nominal conductor diameter up to and including 0,100 mm		N
U.2.2.1.2	Wires with a nominal conductor diameter over 0,100 mm up to and including 2,500 mm		N
U.2.2.1.3	Wires with a nominal conductor diameter over 2,500 mm		N
U.2.2.2	Square or rectangular wires		N
U.2.3	Flexibility and adherence		N
U.2.4	Heat shock		N
U.2.5	Retention of electric strength after bending		N
U.3	Testing during manufacturing		N
U.3.1	General		N
U.3.2	Routine test		N
U.3.3	Sampling test		N
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N
V.1	Introduction		N
V.2	TN power distribution systems		N
V.3	TT power distribution systems		N
V.4	IT power distribution systems		N
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N

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Clause	Requirement + Test	Result - Remark	Verdict
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N
Y.1	Test apparatus ..... :		N
Y.2	Mounting of test samples ..... :		N
Y.3	Carbon-arc light-exposure apparatus ..... :		N
Y.4	Xenon-arc light exposure apparatus ..... :		N
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N
CC.1	Integrated circuit (IC) current limiters		N
CC.2	Test program 1……:		N
CC.3	Test program 2……:		N
CC.4	Test program 3.....:		N
CC.5	Compliance.....:		N
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N
DD.1	General		N
DD.2	Mechanical strength test, variable N……..…..:		N
DD.3	Mechanical strength test, 250N, including end stops……:		N
DD.4	Compliance……..……:		N
EE	ANNEX EE, Household and home/office document/media shredders		N
EE.1	General		N
EE.2	Markings and instructions		N
	Use of markings or symbols……:		N
	Information of user instructions, maintenance and/or servicing instructions……..……:		N
EE.3	Inadvertent reactivation test……..……:		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols……:		N

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Clause	Requirement + Test	Result - Remark	Verdict
EE.5	Protection against hazardous moving parts		N
	Test with test finger (Figure 2A) ……..……:		N
	Test with wedge probe (Figure EE1 and EE2) …..:		N

Tables

1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/trademark	Type/model	Technical data	Standard	Mark(s) of conformity
PCB	Kingboard Laminates Holdings Ltd.	KB-5150	V-0, 130°C	UL 796	UL E123995
Enclosure	CHANG CHUN SB(CHANGSHU) CO., LTD.	EME-5051	V-0, 130°C	UL 94 UL 746C	UL E223871

1.6.2	TABLE: Electrical data test (in normal conditions)					P
Fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition
--	0.32	48V⎓	12.5	0.26	--	Normal working

Remark:
1) Measured input current at the rated voltage should not exceed the rated value by more than 10% under maximum normal load.

1.7.11	TABLE: Durability of marking test			P
Location	Checked by	Time	Result	
External enclosure	Water	15s	No any curling and still legibility	
External enclosure	Petroleum spirit	15s	No any curling and still legibility	

2.1.1.5 c1)	TABLE: Max. V, A, VA test				N
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
--	--	--	--	--	

Remark:
1) The above measurements are the maximum values (max. V and max. A not obtained at the same time).
Vin = 240Vac
2) Under highest rated voltage 240V/60Hz.

2.1.1.7	TABLE: Discharge test				N
Condition	ζ calculated	ζ measured	T u →0V(s)	Comments	
--	--	--	--	--	

Remark:
1) Under highest **1.1 rated** voltage --.
2) Overall capacity: --uF(CX1=--uF).
3) Discharge resistor:--Kohm(RX1=RX2=--Kohm)

2.2	TABLE: Hazardous voltage test			N
Component (measured between)	Max. voltage (V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c.		
--	--	--	--	

Remark:
1) Under highest **Rated** Voltage: --

Tables

2) Measured at the output of safety isolation transformer and component used in series with transformer till SELV voltage measured.
3) Any two conductors of the SELV circuit or circuits shall not exceed 42.4 V peak, or 60 V d.c under normal operating conditions.
4) S-C=Short circuit

2.4.2	TABLE: Limited current circuit measurement				N
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments
--	--	--	--	--	--

Remark:
1) Under highest **Rated** Voltage: --.
2) Measured under both normal condition and fault condition. A 2000 ohm non-inductive resistor used when testing.

2.5	TABLE: Limited power source measurement					N
Test condition (Single fault)	Uoc(V)	Isc(A)		S(VA)		
		Measured	Limited	Measured	Limited	
--	--	--	--	--	--	

Remark:
1) Measured Uoc(V) with all load circuit disconnected
2) S-C=Short circuit; O-C= Open circuit
3) Uoc: Max. output voltage
4) Isc: Output current with any non-capacitive load, including a short circuit measured 60s after application of the load
5) S(VA): Max. output VA with any non-capacitive load, including a short circuit, measured 60s after application
6) Measurement According to Table 2B

2.6.3.4	TABLE: Ground continue test		N
Location	Resistance measured(mΩ)	Comments	
--	--	--	

Remark:
1) Test current: 32A, Test time: 2min

2.9.2	TABLE: Humidity test				P
Test condition:	Temperature	Relative Humidity	Duration	Breakdown (Y/N)	
	45°C	93%	120hours	N	

Remark:
1) After humidity test, electric strength test specified in clause 5.2.2 should be applied.

2.10.2	TABLE: Working voltage measurement		N
Location	RMS Voltage (V)	Peak Voltage (V)	Comments
--	--	--	--

Tables

Remark:
1) Under highest **Rated** Voltage: --.
2) Establish common ground between primary and secondary and the unit operated normally.

2.10.3 and 2.10.4	**TABLE: Clearance and Creepage Distance Measurements**					**N**
Clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	Required cl (mm)	Cl (mm)	Required dcr (mm)	Dcr (mm)
--	--	--	--	--	--	--

Test condition :
- Pollution degree: class II
- Material group: III b
- Main transient voltage: 2.5KV

Notes:
1) All internal wires soldered to PCB and internal wire are additionally glued .
2) Core of transformer T1 considered as primary part.

2.10.5	**TABLE: Distance through insulation measurements**			**N**
Distance through insulation (DTI) at/of:	Upeak / Ur.m.s (V)	Test voltage (V)	Required di (mm)	DTI (mm)
--	--	--	--	--

3.2.6	**TABLE: Strain relief test**			**N**
Pull force	Duration	Times	Displaced (≦2mm)	
--	--	--	--	

Remark:
1) After test, cord shall not be damaged, and clearances and creepage distances shall not be reduced.

4.1	**TABLE: Stability test**	**N**
Titled angle	Result	
--	--	

4.2.4	**TABLE: Enclosure push test**				**P**
Test part	Pull force	Duration	Result	Breakdown (Y/N)	
Enclosure (outer side)	250N±10N	5s	No any damage, no any hazardous parts accessible	N	

Remark:
1) After this test, conducted electric strength test according to clause 5.2.2, and no any breakdown.

4.2.5	**TABLE: Impact test**	**N**
Height	External surface	Result
--	--	--

Tables

Remark:
1) After the impact tests, the sample shall continue to comply with the requirements of 2.1.1, 2.6.1, 2.10, 3.2.6 and 4.4.1.
2) Except for equipment identified in 4.2.6, external surfaces of enclosures, the failure of which would give access to hazardous parts, are tested

4.2.6	**TABLE: Drop test**	**P**
Height	Horizontal surface	Result
1m	The horizontal surface consists of hardwood at least 13 mm thick, mounted on two layers of plywood each 19 mm to 20 mm thick, all supported on a concrete or equivalent non-resilientfloor	No damage

Remark:
1) After the drop tests, the sample shall continue to comply with the requirements of 2.1.1, 2.6.1, 2.10, 3.2.6 and 4.4.1.

4.2.7	**TABLE: Stress relief test**	**P**
Temperature (℃)	Duration	Result
70	7h	Damage to finish, cracks, dents and chips are disregarded if they do not adversely affect safety.

Remark:
1) After the test, the sample shall continue to comply with the requirements of 2.1.1, 2.6.1, 2.10, 3.2.6 and 4.4.1.
2) Oven temperature shall be 10 K higher than the maximum temperature on the enclosure but not less than 70°C.

4.3.6	**TABLE: Torque test (direct-plug in)**	**N**
Test Torque	Require Torque	Pass or Fail
--	--	--

Tables

4.3.8	**TABLE: Battery**									**N**
The test of 4.3.8 are applicable only when appropriate battery data is not available									--	N
Is it possible to install the battery in a reverse polarity position									--	N
--	No-rechargeable battery				Rechargeable battery					
--	Discharge		Un-intentional charging		Charging		Discharging		Reversed Charging	
--	Meas. current	Manuf. Specs.	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 result:										Verdict
- Chemical leaks						--				N
- Explosion of the battery						--				N
- Emission of flame or expulsion of molten metal						--				N
- Electric strength tests of equipment after completion tests						--				N
Supplementary information:										

4.5.1	**TABLE: Temperature rise measurements**			**P**
	Test Condition ……..……:	Test 1: EUT working normally		--
	Test Condition ……..……:	Test 2: --		--
	t1 (°C)……..…..…..:	44.7	--	--
	t2 (°C)……..…..…..:	45.2	--	--
Temperature rise Dt of part/at:		T (℃)		Required Tmax (℃)
		Test 1	Test 2	
PCB near U17		56.8	--	130
PCB near U1		55.1	--	130
C5		52.4	--	105
C9		51.9	--	105
C11		53.7	--	105
Enclosure inside		50.2	--	130
Enclosure outside		46.4	--	95

Tables

Remark:
1) T shall not exceed (Tmax + Tamb – Tma), see clause 1.4.12.
T: is the temperature of the given part measured under the prescribed test conditions;
Tmax: is the maxnmum temperature specified for compliance with the test;
Tamb: is the ambient temperature during test;
Tma: is the maximum ambient temperature during permitted by the manufacturer's specification, see below 2).
2) The ambient temperature is +45℃.
Measured by thermocouple, transformer T1 is Class B material, see table 1.5.1 for details.

4.5.5	**TABLE: Ball pressure test of thermoplastics**		**N**
	Required impression diameter (mm) ……..:	≤ 2 mm	--

Part	Test temperature (°C)	Impression diameter (mm)
--	--	--

Remark:
1) Test at 125°C or (T-Tamb+Tma+15°C).
2) Part subjected to the ball pressure test (IEC 60695-10-2) with impression diameter less than 2mm.

5.1.6	**TABLE: Touch current measurement**				**N**
Condition	L → terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments	
--	--	--	--	--	

Remark:
1) Under highest **1.1Rated** Voltage: 264V/60Hz.
2) The touch current
-on accessible parts ≤ 0.25 mA r.m.s;
-on earth ≤ 0.75 mA r.m.s for hand-held;
-≤ 3.5 mA rms for other equipment.

5.2	**TABLE: Electric strength tests and impulse tests**	**P**
Test voltage applied between:	Test voltage (Vac)	Breakdown
+/- to enclosure	500	No

Remark: tested after humidity treatment, heating teat, each fault condition tests, impact test and so on.

5.3	**TABLE: Fault condition tests**		**P**
	Ambient temperature (°C) ……..:	45.0	--
	Rated markings of power supply ……..:	--	--

No.	Component No.	Fault	Test voltage (V)	Test time	Fuse No.	Fuse current (A)	Result
1	D2	S-C	48V⎓	10mins	--	--	Input power decreased to 0.11W immediately. Recoverable. No hazard.

Tables

2	R13	S-C	48V⎓	10mins	--	--	Input power decreased to 0.12W immediately. Recoverable. No hazard.
3	U2 Pin1-3	S-C	48V⎓	10mins	--	--	Input power decreased to 0.11W immediately. Recoverable. No hazard.
4	U2 Pin2-6	S-C	48V⎓	10mins	--	--	Input power decreased to 0.12W immediately. Recoverable. No hazard.
5	U1 Pin1-4	S-C	48V⎓	10mins	--	--	Input power decreased to 0.10W immediately. Recoverable. No hazard.
6	U1 Pin2-5	S-C	48V⎓	10mins	--	--	Input power decreased to 0.11W immediately. Recoverable. No hazard.

Supplementary information:

1) S-C=Short circuit; O-l=Over load, O-C= Open circuit; E-C= Extensive charge

2) SELV outputs did not exceed 42,4 Vpeak or 60 Vdc and did not exceed the limit of 71 Vpeak or 120 Vdc within 0.2 second after abnormal conditions were applied.

3) The Electric Strength Tests were successfully conducted after the completion of fault.

4) Temp. limit of transformer (class B) according to table C.1 is 175°C-10=165°C.

ATTACHMENT 1	National Differences for EN 60950-1		
Clause	Requirement – Test	Result – Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to.....:	EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013
Attachment Form No. .....:	EU_GD_IEC60950_1F
Attachment Originator.....:	SGS Fimko Ltd
Master Attachment .....:	Date 2014-02
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS	

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it´s amendmets are prefixed “Z”		--
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 — 1.5.1 Note 2 & 3 — 1.5.7.1 Note 1.5.8 Note 2 — 1.5.9.4 Note — 1.7.2.1 Note 4, 5 & 6 2.2.3 Note — 2.2.4 Note — 2.3.2 Note 2.3.2.1 Note 2 — 2.3.4 Note 2 — 2.6.3.3 Note 2 & 3 2.7.1 Note — 2.10.3.2 Note 2 — 2.10.5.13 Note 3 3.2.1.1 Note — 3.2.4 Note 3. — 2.5.1 Note 2 4.3.6 Note 1 & 2 — 4.7 Note 4 — 4.7.2.2 Note 4.7.3.1 Note 2 — 5.1.7.1 Note 3 & 4 — 5.3.7 Note 1 6 Note 2 & 5 — 6.1.2.1 Note 2 — 6.1.2.2 Note 6.2.2 Note — 6.2.2.1 Note 2 — 6.2.2.2 Note 7.1 Note 3 — 7.2 Note — 7.3 Note 1 & 2 G.2.1 Note 2 — Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note — 6.1.2.1 Note 2 6.2.2.1 Note 2 — EE.3 Note		P

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	Not such equipment.	N
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010	Deleted.	N
1.5.1 (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *	Added.	P

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.	Added.	N
1.7.2.1 (A12.2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.	Replaced.	N
	Zx Protection against excessive sound pressure from personal music players		N
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: -is designed to allow the user to listen to recorded or broadcast sound or video; and -primarily uses headphones or earphones that can be worn in or on or around the ears; and -allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only.	Not such equipment.	N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	The requirements do not apply: -while the personal music player is connected to an external amplifier; or -while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: -hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. -analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.	Not such equipment.	N
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: -equipment provided as a package (personal music player with its listening device), where the acoustic output LAeq,T is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and -a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level LAeq,T is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise”	Not such equipment.	N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	described in EN 50332-1. For music where the average sound pressure (long term LAeq,T) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music typically has an average sound pressure (long term LAeq,T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.	Not such equipment.	N
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: -the symbol of Figure 1 with a minimum height of 5 mm; and -the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."  Figure 1 – Warning label (IEC 60417-6044)		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.	Not such equipment.	N
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.	Not such equipment.	N
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.	Not such equipment.	N
	Zx.4.3 Wireless listening devices In wireless mode: - with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and -respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	-with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.	Not such equipment.	N
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.	Not such equipment.	N
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection,	Replaced	P

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N
2.7.2	This subclause has been declared 'void'.		N
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Deleted.	N
3.2.5.1	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 |0,75 [a)] | Over 6 up to and including 10| (0,75) [b)] 1,0| Over 10 up to and including 16| (1,0) [c)] 1,5| In the conditions applicable to Table 3B delete the words "in some countries" in condition [a)]. In NOTE 1, applicable to Table 3B, delete the second sentence.	Replaced.	N
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4| Delete the fifth line: conductor sizes for 13 to 16 A	Deleted.	N
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and	Added.	N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation).		N
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.	Replaced	N
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In Denmark, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	Evaluated during national approval	N
1.2.13.14 (A11:2009)	In Norway and Sweden, for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1 (A11:2009)	In Finland, Norway and Sweden, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.5.8	In Norway, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N
1.5.9.4	In Finland, Norway and Sweden, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	No such construction	N
1.7.2.1	In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag”	Evaluated during national approval	N
1.7.2.1 (A11:2009)	NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 Kv r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr isal koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV is, kan forårsake brannfare. For å unngå dette isa lle ved tilkopling av utstyret til kabel-TV nettet isa llers en galvanisk isolator mellom utstyret og kabel- TV nettet.”		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan I isa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		N
1.7.2.1 (A2:2013)	In Denmark, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in Denmark shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”	Evaluated during national approval	N
1.7.5 (A11:2009)	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.	No socket-outlet provided.	N
1.7.5 (A2:2013)	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a.		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c	No socket-outlet provided.	N
2.2.4	In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
2.3.4	In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
2.6.3.3	In the United Kingdom, the current rating of the circuit shall be taken as 13 A, not 16 A.		N
2.7.1	In the United Kingdom, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		P
2.10.5.13	In Finland, Norway and Sweden, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
3.2.1.1	In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3 P+N+PE 250/400 V, 10A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998:Plug Type 21, L+N, 250V, 16A SEV 5934-2.1998: Plug Type 23, L+N+ PE 250V, 16 A		N
3.2.1.1	In Denmark, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. 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 poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N
3.2.1.1 (A2:2013)	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. 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.		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	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. Justification the Heavy Current Regulations, 6c		N
3.2.1.1	In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N
3.2.1.1	In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.1.1	In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N
3.2.4	In Switzerland, for requirements see 3.2.1.1 of this annex.		N
3.2.5.1	In the United Kingdom, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
3.3.4	In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N
4.3.6	In the United Kingdom, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N
4.3.6	In Ireland, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N
6.1.2.1 (A1:2010)	In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either -two layers of thin sheet material, each of which shall pass the electric strength test below, or -one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition	No TNV.	N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	-passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and -is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.		N
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: -the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; -the additional testing shall be performed on all the test specimens as described in EN 60384-14: -the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N
6.1.2.2	In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV	N
7.2	In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	Not connected to cable distribution system.	N

ATTACHMENT 1 National Differences for EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.3 (A11:2009)	In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	Not connected to cable distribution system.	N

Annex ZD (informative)

IEC and CENELEC code designations for flexible cords

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

ATTACHMENT 2

Photo Documentation

View:
Model:
CF-E520N

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

Figure 1

View:

[ ]General
[ ]Front
[X]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

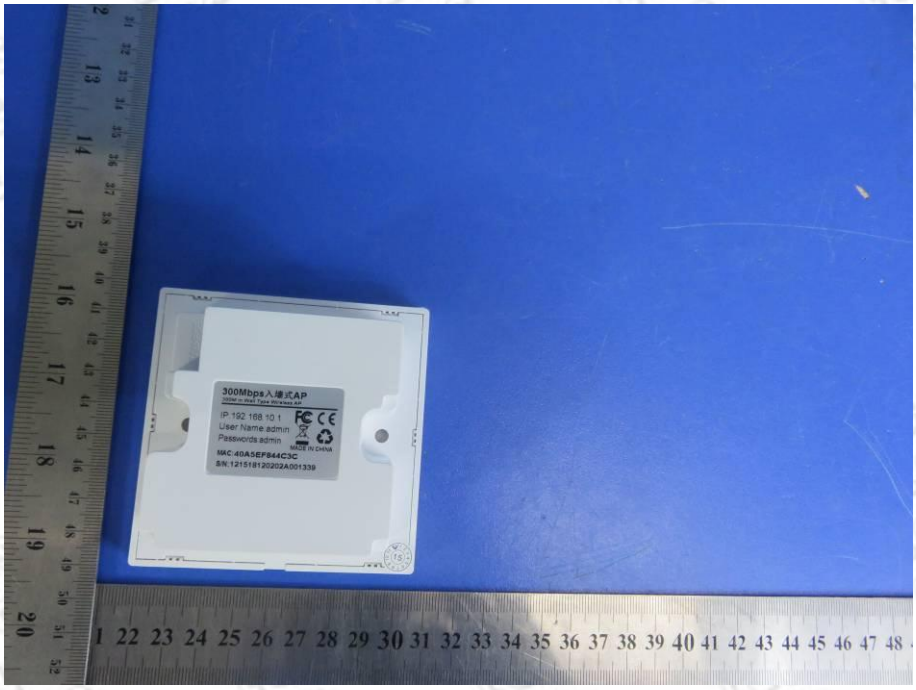

Figure 2

ATTACHMENT 2

Photo Documentation

View:

[ ]General
[ ]Front
[X]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

Figure 3

View:

[ ]General
[ ]Front
[ ]Rear
[X]Internal
[ ]Top
[ ]Bottom
[ ]PWB

Figure 4

ATTACHMENT 2

Photo Documentation

View:

[ ]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[X]PWB

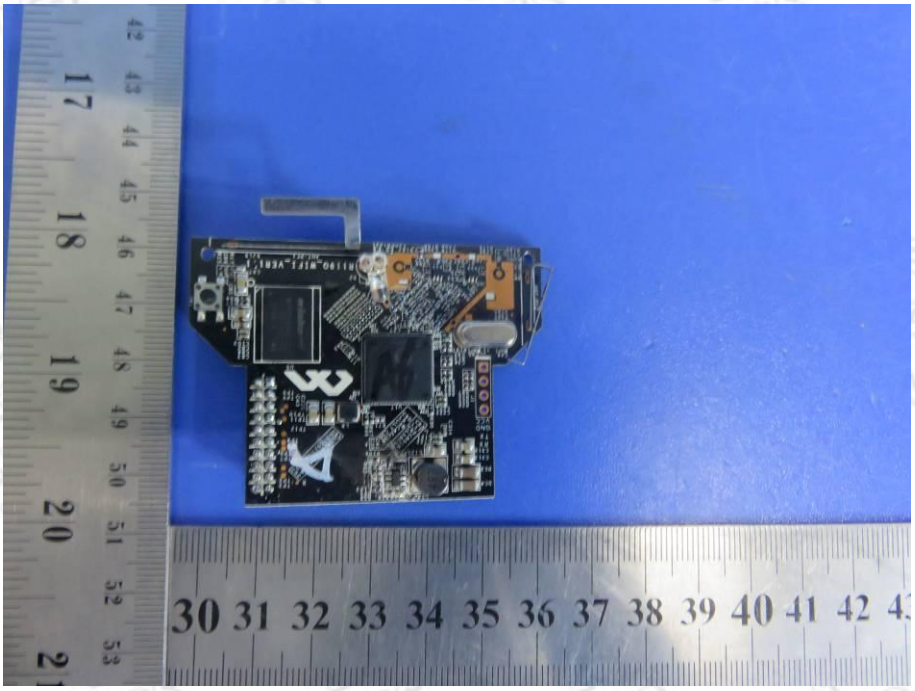

Figure 5

View:

[ ]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[X]PWB

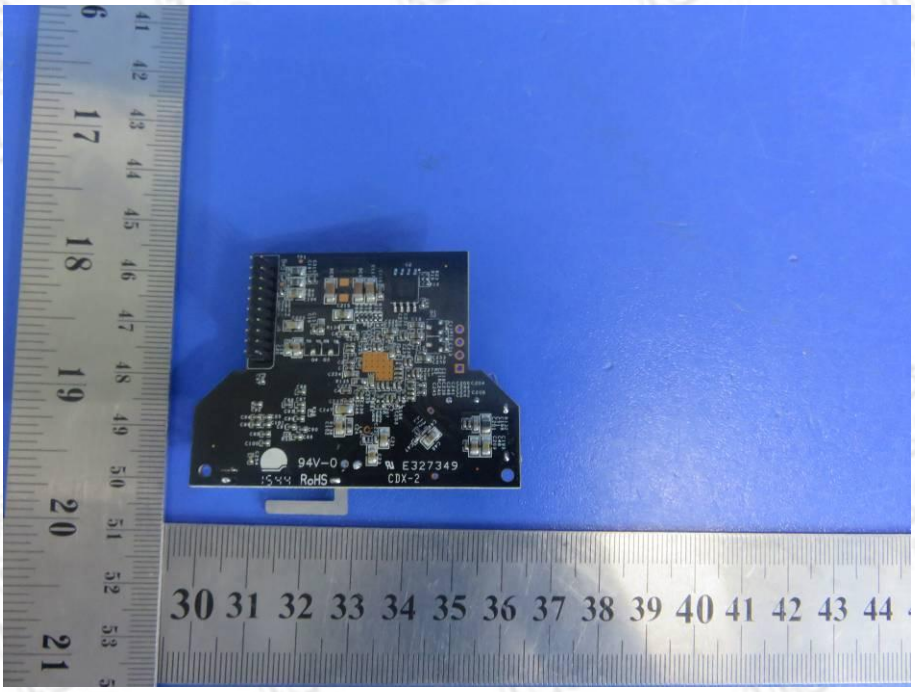

Figure 6

ATTACHMENT 2

Photo Documentation

View:

[ ]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
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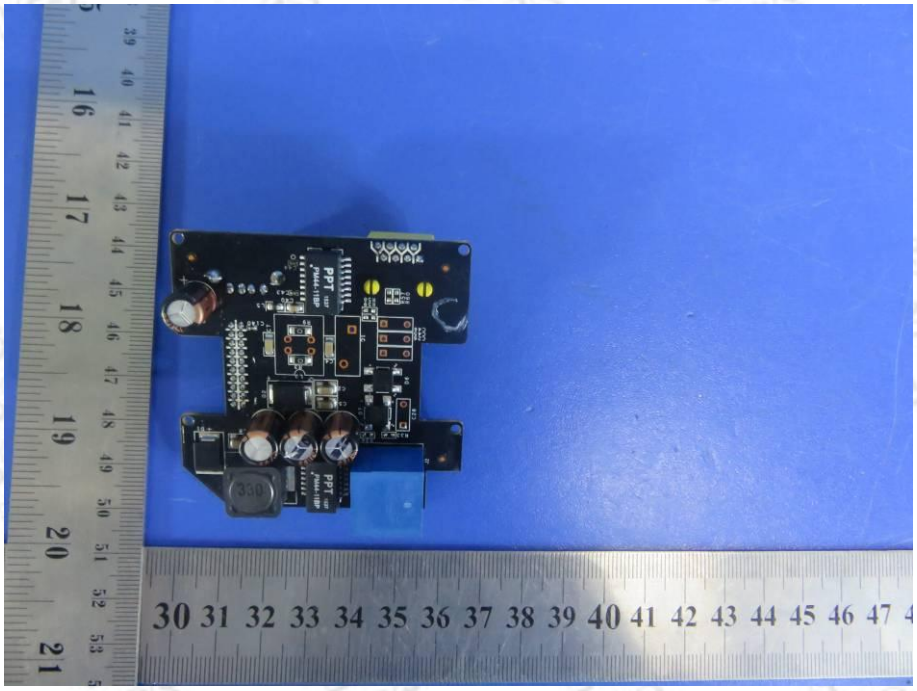

Figure 7

View:

[ ]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[X]PWB

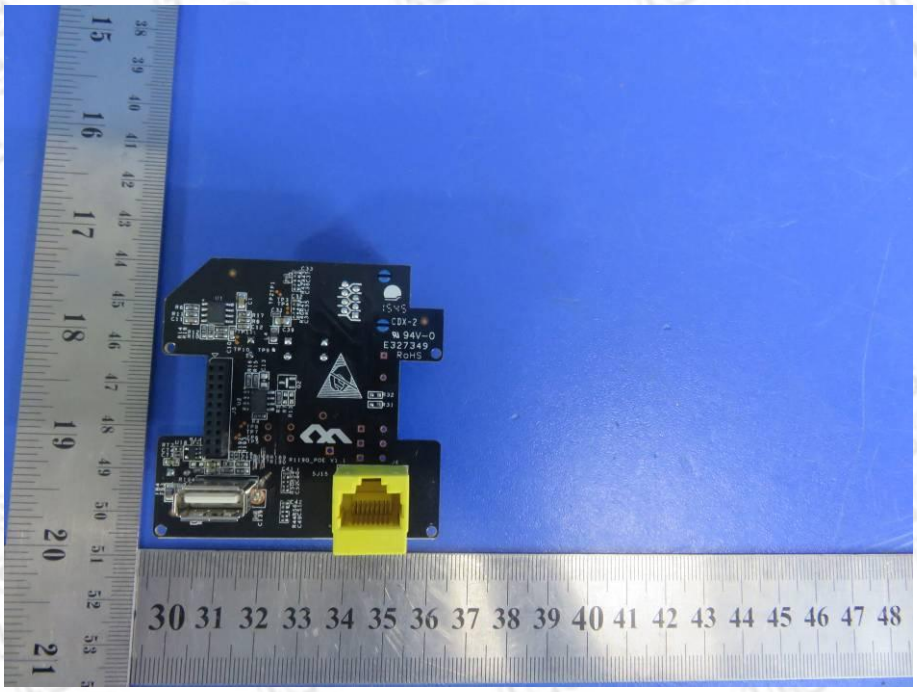

Figure 8