Test Report issued under the responsibility of:

TEST REPORT

IEC 60950-1
Information technology equipment – Safety – Part 1: General requirements

Report Number. .....:	**C16O025-A0C0**
Date of issue .....:	2016-04-21
Total number of pages.....	50 pages
Applicant's name.....:	Hanwha Techwin Co., Ltd.
Address .....:	1204, Changwondae–ro, Sungsan-gu, Changwon-si, Gyeongsangnam-do, Korea
Test specification:	
Standard.....:	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60950_1F
Test Report Form(s) Originator .....:	SGS Fimko Ltd
Master TRF.....:	Dated 2014-02

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Test item description ..... :	DIGITAL VIDEO RECORDER (DVR)
Trade Mark .....:	SAMSUNG
Manufacturer.....:	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.
	No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China
Model/Type reference .....:	SRD-1685*, SRD-894*
	(* is N or P: N=NTSC, P=PAL)
Ratings .....:	Input : 100-240 V~, 50/60 Hz, 2.5-1 A

Testing procedure and testing location:			
☒	**CB Testing Laboratory**:	CTK Co., Ltd.	
Testing location/ address .....:		(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF	
☐	**Associated CB Testing Laboratory:**		
Testing location/ address ..... :		N/A	
Tested by (name + signature) ..... :		HyunJe. Sung.	
Approved by (name + signature) ..... :		KwangWon. Lee.	
☐	**Testing procedure: TMP/CTF Stage 1:**		
Testing location/ address ..... :		N/A	
Tested by (name + signature) ..... :		N/A	
Approved by (name + signature) ..... :		N/A	
☐	**Testing procedure: WMT/CTF Stage 2:**		
Testing location/ address ..... :		N/A	
Tested by (name + signature) ..... :		N/A	
Witnessed by (name + signature) ..... :		N/A	
Approved by (name + signature) ..... :		N/A	
☐	**Testing procedure: SMT/CTF Stage 3 or 4:**		
Testing location/ address ..... :		N/A	
Tested by (name + signature) ..... :		N/A	
Witnessed by (name + signature) ..... :		N/A	
Approved by (name + signature) ..... :		N/A	
Supervised by (name + signature) ..... :		N/A	

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

Attachment 1: 18 pages (European group differences and national differences (EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013))

Attachment 2: 12 pages (National differences as CB bulletin)

Attachment 3: 10 pages (Photographs)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
1.6.2 Input test 1.7.11 Durability of marking test 2.1.1.7 Capacitance discharge test 2.5 Limited power source measurements 2.6.3.4 Resistance of earthing 2.9.2 Humidity test 4.2.2 - 4.2.4 Steady force tests 4.2.5 Impact test 4.3.8 Lithium battery reverse current measurement test 4.5.1 Heating test 5.1 Touch current test 5.2 Electric strength tests, impulse tests and voltage surge tests 5.3 Fault condition tests 5.3.7 Connector overload test	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF

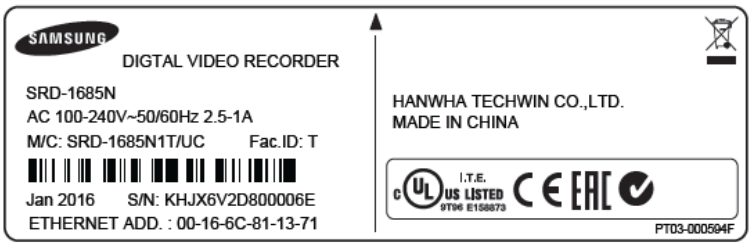
Summary of compliance with National Differences

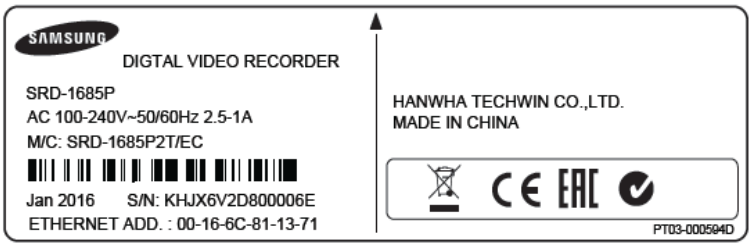
List of countries addressed: Canada, USA and European group differences and national differences

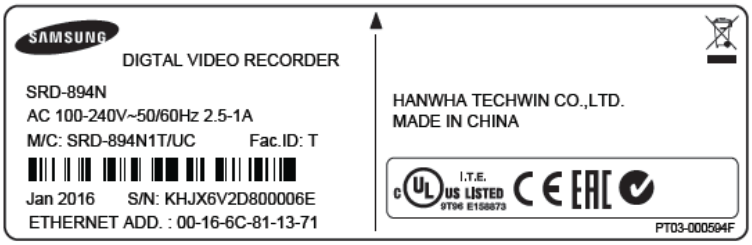
☒ The product fulfils the requirements of IEC 60950-1:2005 + Am 1:2009 + Am 2:2013 and/or EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013

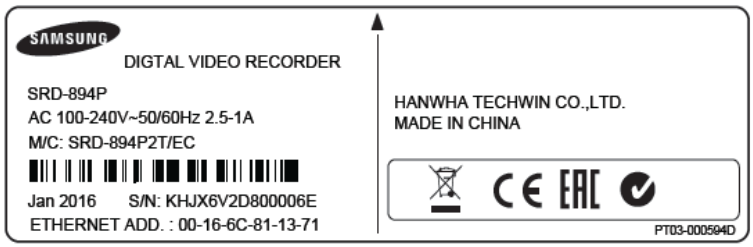
Copy of marking plate

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.









Test item particulars ..... :	
Equipment mobility ..... :	[X] movable [] hand-held [] transportable [] stationary [] for building-in [] direct plug-in
Connection to the mains ..... :	[X] pluggable equipment [X] type A [] type B [] permanent connection [X] detachable power supply cord [] non-detachable power supply cord [] 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 [X] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values ..... :	+10 %, -10 %
Tested for IT power systems ..... :	[] Yes [X] No
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	[X] Class I [] Class II [] Class III [] Not classified
Considered current rating of protective device as part of the building installation (A) ..... :	16 A or 20 A
Pollution degree (PD) ..... :	[] PD 1 [X] PD 2 [] PD 3
IP protection class ..... :	IP X0
Altitude during operation (m) ..... :	Up to 2000
Altitude of test laboratory (m) ..... :	180
Mass of equipment (kg) ..... :	5.4
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 ..... :	2016-03-28
Date(s) of performance of tests ..... :	2016-04-01 to 2016-04-18

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 6.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :	☐ Yes ☒ Not applicable

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

Name and address of factory (ies) ..... :	Tianjin Samsung Techwin Opto-Electronic Co., Ltd. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China

General product information:

1. Test samples are pre-production without serial number.
2. Maximum Specified ambient temperature is 40 °C.
3. The equipment is Class I with certified SMPS used.
4. Model SRD-1685* is basic model with 16 channel of CCD camera port.
5. All test conducted with SRD-1685N at condition as below;
   USB port (2 EA): 5 Vdc, 0.5 A loaded
   Hard disk-drive (Seagate, ST3500414CS) 4 EA connected.
   CCD Camera (Samsung Techwin Co., Ltd., SDC-9441BCN) 16 EA connected.
6. Model SRD-894* is identical to SRD-1685* except model designation and CCD camera port No. (8 CH).
7. The samples submitted for evaluation are representative of the final product and have the same quality in items of safety aspect from each factory.

Abbreviations used in the report:

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

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		
1.5	**Components**		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No thermal controls	N/A
1.5.4	Transformers	Evaluated during SMPS certification	N/A
1.5.5	Interconnecting cables		P
1.5.6	Capacitors bridging insulation	Evaluated during SMPS certification	N/A
1.5.7	Resistors bridging insulation		N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Evaluated during SMPS certification	N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	No resistors bridging double or reinforced insulation.	N/A
1.5.8	Components in equipment for IT power systems	Evaluated during SMPS certification	N/A
1.5.9	Surge suppressors	Evaluated during SMPS certification	N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	**Power interface**		P
1.6.1	AC power distribution systems	TN Power system IT Power system for Norway	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A
1.6.4	Neutral conductor	The neutral is not identified in the equipment. Basic insulation for rated voltage between earthed parts and primary phases. Reinforced insulation for rated voltage between secondary parts and primary phases.	P
1.7	**Marking and instructions**		P
1.7.1	Power rating and identification markings	(see copy of marking plates)	P
1.7.1.1	Power rating marking	Power rating marking is located on the outside surface of the equipment.	P
	Multiple mains supply connections .....:	No multiple mains	N/A
	Rated voltage(s) or voltage range(s) (V) .....:	100-240 V	P
	Symbol for nature of supply, for d.c. only.....:	AC Mains supply	N/A
	Rated frequency or rated frequency range (Hz) ....:	50/ 60 Hz	P
	Rated current (mA or A) .....:	2.5-1 A	P
1.7.1.2	Identification markings	Identification marking is located on the outside surface of the equipment.	P
	Manufacturer's name or trade-mark or identification mark .....:	SAMSUNG	P
	Model identification or type reference .....:	SRD-1685*, SRD-894* (* is N or P: N=NTSC, P=PAL)	P
	Symbol for Class II equipment only .....:	Class I equipment	P
	Other markings and symbols .....:	No markings and symbols give rise to misunderstanding. (see copy of marking plates)	P
1.7.1.3	Use of graphical symbols		P
1.7.2	Safety instructions and marking	User manual provided	P
1.7.2.1	General		P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.2	Disconnect devices	Appliance inlet used	P
1.7.2.3	Overcurrent protective device		P
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool	No operator access area with tool.	N/A
1.7.7.6	Ozone		N/A
1.7.3	Short duty cycles	Continuous operation	N/A
1.7.4	Supply voltage adjustment .....:	No voltage adjustment	N/A
	Methods and means of adjustment; reference to installation instructions .....:		N/A
1.7.5	Power outlets on the equipment .....:	No power outlet provided	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Marked on the PCB with silk-screen in SMPS “F1: 250V, T3.15AL”	P
1.7.7	Wiring terminals	Appliance inlet	P
1.7.7.1	Protective earthing and bonding terminals .....:		P
1.7.7.2	Terminals for a.c. mains supply conductors	Appliance inlet	P
1.7.7.3	Terminals for d.c. mains supply conductors	AC mains supply	N/A
1.7.8	Controls and indicators	No controls and indicators which affects safety.	N/A
1.7.8.1	Identification, location and marking .....:		N/A
1.7.8.2	Colours .....:		N/A
1.7.8.3	Symbols according to IEC 60417.....:		N/A
1.7.8.4	Markings using figures .....:		N/A
1.7.9	Isolation of multiple power sources .....:	No multiple power sources	N/A
1.7.10	Thermostats and other regulating devices .....:	No adjustable thermostats or similar regulating devices	N/A
1.7.11	Durability	Rubbing the marking by hand for 15s with a piece of cloth soaked with water and n-hexane spirit	P
1.7.12	Removable parts	No marking on removable parts	P
1.7.13	Replaceable batteries .....:	The lithium battery is not located in an Operator Access Area. The required warning is in the user manual.	P
	Language(s) .....:	Only English language instructions reviewed.	—
1.7.14	Equipment for restricted access locations .....:	Not limited to be used in restricted access location.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2	**PROTECTION FROM HAZARDS**		
2.1	**Protection from electric shock and energy hazards**		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	No access to energized parts	P
	Test by inspection .....:		P
	Test with test finger (Figure 2A) .....:		P
	Test with test pin (Figure 2B) .....:		P
	Test with test probe (Figure 2C) .....:		P
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No access	N/A
2.1.1.5	Energy hazards .....:	Evaluated during SMPS certification	N/A
2.1.1.6	Manual controls	No manual controls	N/A
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s).....:	After 1 sec, line to neutral is measured as below; Vo= 376 Vpk 37 % Vo=139.12 Vpk Vtc=112 Vpk	—
2.1.1.8	Energy hazards – d.c. mains supply	AC Mains supply	N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	b) Internal battery connected to the d.c. mains supply .....:		N/A
2.1.1.9	Audio amplifiers .....:		N/A
2.1.2	Protection in service access areas	No maintenance work in operation mode necessary.	N/A
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations.	N/A
2.2	**SELV circuits**		N/A
2.2.1	General requirements	Evaluated during SMPS certification	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.2.2	Voltages under normal conditions (V) .....:		N/A
2.2.3	Voltages under fault conditions (V) .....:		N/A
2.2.4	Connection of SELV circuits to other circuits .....:		N/A
2.3	**TNV circuits**		N/A
2.3.1	Limits	No TNV circuit	N/A
	Type of TNV circuits.....:		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions .....:		N/A
2.3.3	Separation from hazardous voltages	No hazardous voltage in the equipment.	N/A
	Insulation employed .....:		—
2.3.4	Connection of TNV circuits to other circuits	No connection of TNV circuits to other circuits	N/A
	Insulation employed .....:		—
2.3.5	Test for operating voltages generated externally		N/A
2.4	**Limited current circuits**		N/A
2.4.1	General requirements	Evaluated during SMPS certification	N/A
2.4.2	Limit values		N/A
	Frequency (Hz).....:		—
	Measured current (mA) .....:		—
	Measured voltage (V).....:		—
	Measured circuit capacitance (nF or µF) .....:		—
2.4.3	Connection of limited current circuits to other circuits		N/A
2.5	**Limited power sources**		P
	a) Inherently limited output	(see appended table 2.5)	P
	b) Impedance limited output		N/A
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition	(see appended table 2.5)	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA) ..... :	(see appended table 2.5)	—
	Current rating of overcurrent protective device (A) :		—
	Use of integrated circuit (IC) current limiters	U20, U36 (see appended table 1.5.1)	P
2.6	**Provisions for earthing and bonding**		P
2.6.1	Protective earthing	One green/yellow wire is hook-in soldering in the PE pin of inlet and then fixed to the metal chassis by mechanical cramp terminal, star washer and nut.	P
2.6.2	Functional earthing	Functional earthing circuit is separated from parts at hazardous voltages by double or reinforced insulation.	P
	Use of symbol for functional earthing .....:		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
2.6.3.3	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm^2), AWG ..... :	2.5-1 A, Min. 0.75 mm^2, 18 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) ..... :	Between AC inlet GND terminal and metal enclosure: 0.012 Ω, 0.384 V, 32 A, 2 min. 0.010 Ω, 0.4 V, 40 A, 2 min.	P
2.6.3.5	Colour of insulation ..... :	See 2.6.1	P
2.6.4	Terminals	The earthing terminal in the appliance inlet (in SMPS)	P
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals	The appliance inlet considered as main protective earthing terminal.	P
	Rated current (A), type, nominal thread diameter (mm)..... :	See 2.6.3.4	—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Appliance inlet used. Only one protective bonding conductor is provided in the equipment.	P
2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment	This unit has it own earthing connection. Any other units connected via the DC output connector shall provide SELV only.	P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No components in protective earthing conductors and protective bonding conductors	P
2.6.5.3	Disconnection of protective earth	Relevant hazard is removed at the same time with disconnection of protective earth	P
2.6.5.4	Parts that can be removed by an operator	No parts	P
2.6.5.5	Parts removed during servicing	No parts	P
2.6.5.6	Corrosion resistance	All safety earthing connections in compliance with Annex J.	P
2.6.5.7	Screws for protective bonding	No self-tapping screws are used. For the earth connection to the metal chassis a washer and a screw are used.	P
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV circuit	N/A
2.7	**Overcurrent and earth fault protection in primary circuits**		P
2.7.1	Basic requirements	Equipment relies on 16 A (20A North America) rated fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit. Over current protection is provided by one built-in fuse.	P
	Instructions when protection relies on building installation	Not applicable for pluggable equipment type A.	N/A
2.7.2	Faults not simulated in 5.3.7	The protection devices are well dimensioned and mounted.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.3	Short-circuit backup protection	The final system is considered as pluggable equipment type A, the building installation is considered as providing short circuit backup protection.	P
2.7.4	Number and location of protective devices .....:	Over current protection by one built-in fuse.	P
2.7.5	Protection by several devices	Only one fuse provided.	N/A
2.7.6	Warning to service personnel .....:	Service manual provided	P
2.8	**Safety interlocks**		N/A
2.8.1	General principles	No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) .....:		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	**Electrical insulation**		N/A
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation	P
2.9.2	Humidity conditioning	Humidity treatment performed for 48 h.	P
	Relative humidity (%), temperature (°C) .....:	93 %, 28 °C	—
2.9.3	Grade of insulation	Basic, supplementary, double, reinforced or functional insulation.	P
2.9.4	Separation from hazardous voltages	Electrical strength test conducted after the humidity treatment, heating, fault test. No flash over or breakdown of insulation	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Method(s) used .....:	Methode 1 and Method 3	—

2.10	**Clearances, creepage distances and distances through insulation**		P
2.10.1	General	Evaluated during SMPS certification	N/A
2.10.1.1	Frequency .....:		N/A
2.10.1.2	Pollution degrees .....:		N/A
2.10.1.3	Reduced values for functional insulation		N/A
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances		N/A
2.10.3.1	General		N/A
2.10.3.2	Mains transient voltages		N/A
	a) AC mains supply .....:		N/A
	b) Earthed d.c. mains supplies .....:	No d.c. mains supplies	N/A
	c) Unearthed d.c. mains supplies .....:	No d.c. mains supplies	N/A
	d) Battery operation .....:		N/A
2.10.3.3	Clearances in primary circuits		N/A
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....:		N/A
2.10.3.7	Transients from d.c. mains supply .....:	a.c. mains supply	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:	Not connected to telecommunication networks and cable distribution systems.	N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply	.	N/A
	For an a.c. mains supply .....:		N/A
	For a d.c. mains supply .....:		N/A
	b) Transients from a telecommunication network .:		N/A
2.10.4	Creepage distances		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.4.1	General		N/A
2.10.4.2	Material group and comparative tracking index		N/A
	CTI tests ..... :		—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation	No such construction used	N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)..... :		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test		—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage ..... :		N/A
	a) Basic insulation not under stress ..... :		N/A
	b) Basic, supplementary, reinforced insulation ..... :		N/A
	c) Compliance with Annex U ..... :		N/A
	Two wires in contact inside wound component; angle between 45° and 90° ..... :		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage ..... :		N/A
	- Basic insulation not under stress ..... :		N/A
	- Supplementary, reinforced insulation ..... :		N/A
2.10.6	Construction of printed boards		N/A
2.10.6.1	Uncoated printed boards		N/A
2.10.6.2	Coated printed boards	No special coating used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs).....:		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A
3	**WIRING, CONNECTIONS AND SUPPLY**		
3.1	**General**		P
3.1.1	Current rating and overcurrent protection	Internal wirings are UL recognized wiring which is PVC insulated, rated VW-1, 300V, min. 80 °C, the wiring gauge is suitable for current intended to be carried.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges. Where they touch heatsinks additional tubing or cable tie is provided so that the heatsink cannot damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	The wiring is so routed and fixed that there is not excessive strength on the wire and terminal connections. Damage of the conductor insulation or loosening of the terminal connection is unlikely.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see sub-clause 3.1.1.	P
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure	To ensure proper earth connection through the PCB, screws and spring-washers are provided to compensate possible shrinkage of the PCB material.	P
3.1.7	Insulating materials in electrical connections	All connections are metal to metal or, where contact pressure is transmitted through PCB material for earthing purposes a combination of screw and spring-washer is provided.	P
3.1.8	Self-tapping and spaced thread screws	No self tapping screws are used.	N/A
3.1.9	Termination of conductors	All conductors are secured reliably by use of solder-pins or glue or other mechanical fixing means.	P
	10 N pull test	After test, no break away or pivot on its terminal.	P
3.1.10	Sleeving on wiring	Heat shrinkable sleeving provided.	P

3.2	**Connection to a mains supply**		P
3.2.1	Means of connection		P
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet used	P
3.2.1.2	Connection to a d.c. mains supply	The equipment is not for connection to a d.c. mains supply.	N/A
3.2.2	Multiple supply connections	No multiple supply connections	N/A
3.2.3	Permanently connected equipment	The equipment is not permanently connected	N/A
	Number of conductors, diameter of cable and conduits (mm) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.2.4	Appliance inlets	Appliance inlet complied with IEC 60320-1. The power cord can be inserted without difficultied ans is not intended to supprt the equipment.	P
3.2.5	Power supply cords	AC power supply cords provided.	P
3.2.5.1	AC power supply cords		P
	Type .....:	(see appended table 1.5.1)	—
	Rated current (A), cross-sectional area (mm^2), AWG .....:	(see appended table 1.5.1)	—
3.2.5.2	DC power supply cords	No DC power supply cords are provided.	N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage		P
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm) .....:		—
3.2.9	Supply wiring space		N/A

3.3	**Wiring terminals for connection of external conductors**		N/A
3.3.1	Wiring terminals	Appliance inlet used	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals	No screw terminals	N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm^2) .....:		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	**Disconnection from the mains supply**	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.4.1	General requirement		P
3.4.2	Disconnect devices	Appliance inlet used	N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized	When power cord is removed from inlet (or wall socket) no remaining parts with hazardous voltage in the equipment.	P
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment	Appliance coupler used. The disconnect device disconnects both poles simultaneously.	N/A
3.4.7	Number of poles - three-phase equipment	No three-phase equipment	N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment	This equipment is intended for interconnection to other equipment only by its secondary output connector at SELV level.	N/A
3.4.11	Multiple power sources	Only one supply connection provided.	N/A
3.5	**Interconnection of equipment**		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits .....:	SELV and LCC circuit.	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment	(see appended table 2.5)	P
4	**PHYSICAL REQUIREMENTS**		
4.1	**Stability**		N/A
	Angle of 10°	Mass: 5.4 kg	N/A
	Test force (N) .....:	The unit is not floor-standing.	N/A
4.2	**Mechanical strength**		P
4.2.1	General		P
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N	Components and AC inlet	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.3	Steady force test, 30 N	SMPS enclosure and No damaged as below; - Top / near T1 - Side / near T1 - Bottom / near T1	P
4.2.4	Steady force test, 250 N	Metal enclosure above SMPS and No damaged	P
4.2.5	Impact test		P
	Fall test	Metal enclosure above SMPS and No damaged	P
	Swing test	Metal enclosure above SMPS and No damaged	P
4.2.6	Drop test; height (mm) .....:		N/A
4.2.7	Stress relief test	Metal enclosure	N/A
4.2.8	Cathode ray tubes	No CRT	N/A
	Picture tube separately certified .....:		N/A
4.2.9	High pressure lamps	No high pressure lamp	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		N/A
4.3	**Design and construction**		P
4.3.1	Edges and corners	All edges and corners are composed of rounded and smoothed	P
4.3.2	Handles and manual controls; force (N) .....:	No handles and manual controls which might create a hazard.	N/A
4.3.3	Adjustable controls	No adjustable controls which might create a hazard.	N/A
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	N/A
4.3.5	Connection by plugs and sockets	SELV connectors do not comply with IEC 60320 or IEC 60083	N/A
4.3.6	Direct plug-in equipment		N/A
	Torque .....:		—
	Compliance with the relevant mains plug standard .....:		N/A
4.3.7	Heating elements in earthed equipment	No heating elements in equipment	N/A
4.3.8	Batteries		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery	(see appended table 4.3.8)	P
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No oil, greas or similar substances are used in the equipment.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment does not produce dust and does not use powders, liquids or gases.	N/A
4.3.11	Containers for liquids or gases	No containers for liquids or gases.	N/A
4.3.12	Flammable liquids .....:	No flammable liquid is used.	N/A
	Quantity of liquid (l) .....:		N/A
	Flash point (°C) .....:		N/A
4.3.13	Radiation	No radiation hazard in the equipment.	N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation	The equipment does not generate ionizing radiation.	N/A
	Measured radiation (pA/kg) .....:		—
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	The equipment does not produce significant UV radiation.	N/A
	Part, property, retention after test, flammability classification .....:		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs	Not using lasers and LEDs	N/A
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class .....:		—
4.3.13.5.2	Light emitting diodes (LEDs)		N/A
4.3.13.6	Other types .....:	The equipment does not generate other types of radiation.	N/A

4.4	**Protection against hazardous moving parts**	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.1	General	No harzadous moving part	N/A
4.4.2	Protection in operator access areas .....:	No harzadous moving part	N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations .....:		N/A
4.4.4	Protection in service access areas	No harzadous moving part	N/A
4.4.5	Protection against moving fan blades		P
4.4.5.1	General	For SMPS: N: 9500 r/min, m: 0.025 kg r: 20 mm, K: 541.5 For SRD-1685, SRD-894: N: 3200 r/min, m: 0.08 kg r: 30 mm, K: 442.368	P
	Not considered to cause pain or injury. a) .....:	For SMPS: 0.859 For SRD-1685, SRD-894: 0.398	P
	Is considered to cause pain, not injury. b) .....:		N/A
	Considered to cause injury. c) .....:		N/A
4.4.5.2	Protection for users		P
	Use of symbol or warning .....:		N/A
4.4.5.3	Protection for service persons		P
	Use of symbol or warning .....:	The Fan is not considered to cause pain or injury. No symbol or warning required.	N/A

4.5	**Thermal requirements**		P
4.5.1	General		P
4.5.2	Temperature tests	(see appended table 4.5)	P
	Normal load condition per Annex L .....:	L.7	—
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 .....:	Appliance inlet is certified by IEC/EN 60320-1.	N/A

4.6	**Openings in enclosures**		P
4.6.1	Top and side openings	Openings in front, side, rear do not allow foreign objects entering the equipment to fall on bare parts. Also, openings are not located within 5° of fire hazardous parts.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Dimensions (mm) .....:	1) No opening in top side. 2) Numerous openings in area of approximately 60 mm by 60 mm, each opening max. 18.0 mm by 2.7 mm.	—
4.6.2	Bottoms of fire enclosures		P
	Construction of the bottomm, dimensions (mm) ...:	Fire enclosure (metal bottom) construction is considered to comply with the requirements. No bottom openings.	—
4.6.3	Doors or covers in fire enclosures	No doors or covers	N/A
4.6.4	Openings in transportable equipment	Not transportable equipment	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....:		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks).....:		—
4.7	**Resistance to fire**		P
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	Materials with suitable flammability classes are use. See appended table 4.7.	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		P
4.7.2.1	Parts requiring a fire enclosure	All parts located in metal enclosure	P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification (see appended table 1.5.1).	P
4.7.3.2	Materials for fire enclosures	The fire enclosure is constructed metal and V-0 material. (see appended table 1.5.1).	P
4.7.3.3	Materials for components and other parts outside fire enclosures	No parts outside the fire enclosure.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.4	Materials for components and other parts inside fire enclosures	All materials are mounded on PCB rated Min. V-1.	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A
5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		
5.1	**Touch current and protective conductor current**		P
5.1.1	General	(see appended Table 5.1)	P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply		P
5.1.2.2	Redundant multiple connections to an a.c. mains supply	No multiple power sources.	N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	No multiple power sources.	N/A
5.1.3	Test circuit	Using the test circuit in figure 5A	P
5.1.4	Application of measuring instrument	Tested using D.1 measuring instrument.	P
5.1.5	Test procedure	Tested using D.1 measuring instrument.	P
5.1.6	Test measurements		P
	Supply voltage (V) .....:	264 Va.c.	—
	Measured touch current (mA) .....:	(see appended table 5.1)	—
	Max. allowed touch current (mA) .....:	(see appended table 5.1)	—
	Measured protective conductor current (mA) .....:	(see appended table 5.1)	—
	Max. allowed protective conductor current (mA)....:	(see appended table 5.1)	—
5.1.7	Equipment with touch current exceeding 3,5 mA	The touch current does not exceed 3.5 mA.	N/A
5.1.7.1	General .....:		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	Not connected to a telecommunication network nor a cable distribution system.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks	No telecommuncation network connection ports for connection of multiple items of other telecommunication equipment.	N/A
	a) EUT with earthed telecommunication ports .....:		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	**Electric strength**		P
5.2.1	General	(See appended table 5.2)	P
5.2.2	Test procedure	Table 5B used	P
5.3	**Abnormal operating and fault conditions**		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	Certified DC FAN used	P
5.3.3	Transformers	Evaluated during SMPS certification	N/A
5.3.4	Functional insulation.....:	Evaluated during SMPS certification	N/A
5.3.5	Electromechanical components	No electromechanical components	N/A
5.3.6	Audio amplifiers in ITE .....:	No audio amplifier in the equipment.	N/A
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire and molten metal or deformation	P
5.3.9.2	After the tests	Electric strength test	P
6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		
6.1	**Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment**		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	Requirements	No TNV circuit	N/A
	Supply voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions .....:		N/A
6.2	**Protection of equipment users from overvoltages on telecommunication networks**		N/A
6.2.1	Separation requirements	No TNV circuit	N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	**Protection of the telecommunication wiring system from overheating**		N/A
	Max. output current (A) .....:		—
	Current limiting method .....:		—
7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS**		
7.1	**General**		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	No connection to cable disribution systems.	N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A
A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
A.1	**Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)**		N/A
A.1.1	Samples .....:		—
	Wall thickness (mm) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
A.1.2	Conditioning of samples; temperature (°C) .....:		N/A
A.1.3	Mounting of samples .....:		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D .....:		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
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)**		N/A
A.2.1	Samples, material .....:		—
	Wall thickness (mm) .....:		—
A.2.2	Conditioning of samples; temperature (°C) .....:		N/A
A.2.3	Mounting of samples .....:		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C .....:		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
A.3	**Hot flaming oil test (see 4.6.2)**		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)**		P
B.1	**General requirements**	DC FAN	P
	Position .....:	Side	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Manufacturer .....:	(see appended table 1.5.1)	—
	Type .....:	(see appended table 1.5.1)	—
	Rated values .....:	(see appended table 1.5.1)	—
B.2	**Test conditions**		N/A
B.3	**Maximum temperatures**		N/A
B.4	**Running overload test**		N/A
B.5	**Locked-rotor overload test**		N/A
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—
B.6	**Running overload test for d.c. motors in secondary circuits**		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) .....:		N/A
B.7	**Locked-rotor overload test for d.c. motors in secondary circuits**		P
B.7.1	General	(see appended table 5.3)	P
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) .....:		N/A
B.8	**Test for motors with capacitors**		N/A
B.9	**Test for three-phase motors**		N/A
B.10	**Test for series motors**		N/A
	Operating voltage (V) .....:		—
C	**ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)**		N/A
	Position .....:	Evaluated during SMPS certification	—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
	Method of protection .....:		—
C.1	**Overload test**		N/A
C.2	**Insulation**		N/A
	Protection from displacement of windings .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)**		P
D.1	**Measuring instrument**	Figure D.1 used.	P
D.2	**Alternative measuring instrument**		N/A
E	**ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)**		N/A
F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)**		N/A
G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		N/A
G.1	**Clearances**		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	**Determination of mains transient voltage (V)**		N/A
G.2.1	AC mains supply .....:		N/A
G.2.2	Earthed d.c. mains supplies .....:		N/A
G.2.3	Unearthed d.c. mains supplies .....:		N/A
G.2.4	Battery operation .....:		N/A
G.3	**Determination of telecommunication network transient voltage (V) .....:**		N/A
G.4	**Determination of required withstand voltage (V)**		N/A
G.4.1	Mains transients and internal repetitive peaks .....:		N/A
G.4.2	Transients from telecommunication networks .....:		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	**Measurement of transient voltages (V)**		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	**Determination of minimum clearances .....:**		N/A
H	**ANNEX H, IONIZING RADIATION (see 4.3.13)**		N/A

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J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		P
	Metal(s) used .....:	Complied	—

K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)**		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) .....:		N/A
K.3	Thermostat endurance test; operating voltage (V) .....:		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....:		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

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/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P

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

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Clause	Requirement + Test	Result - Remark	Verdict
M.3.2.3	Monitoring voltage (V) .....:		N/A
N	**ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)**		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	**ANNEX P, NORMATIVE REFERENCES**		—
Q	**ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)**		N/A
	- Preferred climatic categories .....:	Evaluated during SMPS certification	N/A
	- Maximum continuous voltage .....:		N/A
	- Combination pulse current .....:		N/A
	Body of the VDR Test according to IEC60695-11-5.....:		N/A
	Body of the VDR. Flammability class of material (min V-1).....:		N/A
R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)**		N/A
			—
U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)**		N/A
		Evaluated during SMPS certification	—

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Clause	Requirement + Test	Result - Remark	Verdict
V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)**		P
V.1	Introduction		N/A
V.2	TN power distribution systems		P
W	**ANNEX W, SUMMATION OF TOUCH CURRENTS**		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	**ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)**		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A
Y	**ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)**		N/A
Y.1	Test apparatus ..... :		N/A
Y.2	Mounting of test samples ..... :		N/A
Y.3	Carbon-arc light-exposure apparatus ..... :		N/A
Y.4	Xenon-arc light exposure apparatus ..... :		N/A
Z	**ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)**		P
AA	**ANNEX AA, MANDREL TEST (see 2.10.5.8)**		N/A
BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**		—
CC	**ANNEX CC, Evaluation of integrated circuit (IC) current limiters**		N/A
CC.1	General		N/A
CC.2	Test program 1 ..... :		N/A
CC.3	Test program 2 ..... :		N/A
CC.4	Test program 3 ..... :		N/A
CC.5	Compliance ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

DD	**ANNEX DD, Requirements for the mounting means of rack-mounted equipment**		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N .....:		N/A
DD.3	Mechanical strength test, 250N, including end stops .....:		N/A
DD.4	Compliance .....:		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components	P

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
- Description:					
Power cord set	Longwell	LP-34A H05VV-F LS-60	16 A, 250 V~ 3 x 0.75 mm^2 10 A, 250 V~	EN 60779	FIMKO
Power cord set (alternate)	Weihai Hong Lin Electronic Co., Ltd.	HL-013 + H05VV-F 3G 0.75 mm^2 + HL-026 HL-014 + H05VV-F 3G 0.75 mm^2 + HL-026	16 A, 250 V~ 3 x 0.75 mm^2 10 A, 250 V~	EN 60320-1 EN 60799 K60799	VDE KC (SU01054-11002)
Power cord set (alternate)	Weihai Hong Lin Electronic Co., Ltd.	HL-002 + SVT 18 AWG X 3 + HL-004 HL-002 + SVT 18 AWG X 3 + HL-004	10A 125V~ SVT 3 x 18 AWG (0.824 mm^2), 105 °C, 300 V, VW-1 SVT 3 x 0.824 mm^2 (18 AWG), 105 °C, 300 V, FT2	UL 817	UL (E254927)
SMPS	FSP Group Inc	FSP150-50FGNC	Rated input: 100-240 V~, 50-60 Hz, 2.5-1.0 A Rated output: +3.3 Vdc, 13 A, +5 Vdc, 14 A, +12 Vdc, 10 A, -12 Vdc, 0.3 A, +5 Vsb,2.0 A, +3.3 Vdc & +5 Vdc, Total Power 80W, Total Power 150 W	IEC/EN 60950-1 UL 60950-1	TUV-Rh UL (E190414)
Enclosure (Top)	Interchangeable	Metal	Min. 0.6 mm thickness.	IEC/EN 60950-1 UL 60950-1	Tested in equipment
Enclosure (Bottom)	Interchangeable	Metal	Min. 0.6 mm thickness.	IEC/EN 60950-1 UL 60950-1	Tested in equipment
Front Enclosure	SDI Chemical Co., Ltd.	TH-1100(+)	V-0, 80 °C, Min. 2.0 mm thickness	UL 94 UL 746	UL (E115797)

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
DC Fan	Nidec Corporation	U60T12MHA7-52	DC 12 V, 0.09 A N: 3200 r/min, m: 0.08 kg r: 30 mm, K: 442.368	IEC/EN 60950-1 UL 60950-1	Tested in equipment
Hard Disk Drive (Max. 4 EA)	Seagate or Interchangeable	Interchangeable	SATA type, Max. 8 TB	IEC 60950-1 UL 60950-1	Tested in equipment
Lithium Battery (BT1)	Energizer Battery Mfg Inc	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, 240 mAh	UL 1642	UL (MH29980)
Lithium Battery (BT1) (alternate)	Shenzhen Gaonengda Battery Co., Ltd.	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, 210 mAh	UL 1642	UL (MH30114)
Lithium Battery (BT1) (alternate)	Guangdong Tianqiu Electronics Technology Co., Ltd.	CR1220	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, 40 mAh	UL 1642	UL (MH48705)
Reverse Current Protection Circuit for Lithium Coin Battery (BT1)	Interchangeable	Interchangeable	resistor (R576, 2 K ohm) in series.	IEC/EN 60950-1 UL 60950-1	Tested in equipment
USB Protection IC (U20 and U36)	Texas Instruments Inc	TPS2062	Rated 2.7 – 5.5 Vdc, 1 A	UL 2367	UL (E169910)
Internal Wiring (secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	UL 758	UL

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Clause	Requirement + Test	Result - Remark	Verdict

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
Flat wire Cable (secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	UL 758	UL
Label	Interchangeable	Interchangeable	Min.70 °C if max. surface temperature not specified.	UL 969	UL
PCB	Interchangeable	Interchangeable	V-0, Min. 105 °C	UL796	UL
supplementary information:					
[1]) Provided evidence ensures the agreed level of compliance. See OD-CB2039. The CBTL has verified the component information.					

1.5.1	TABLE: Opto Electronic Devices	N/A
Manufacturer ..... :		
Type ..... :		
Separately tested ..... :		
Bridging insulation ..... :		
External creepage distance ..... :		
Internal creepage distance ..... :		
Distance through insulation ..... :		
Tested under the following conditions ..... :		
Input ..... :		
Output ..... :		
supplementary information		

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)	P

U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
90	0.496	-	43.82	F1	0.496	Rated output loaded at 60 Hz/ Continuous operation
100	0.447	2.5	43.45	F1	0.447	Rated output loaded at 60 Hz/ Continuous operation
240	0.225	1	42.42	F1	0.225	Rated output loaded at 60 Hz/ Continuous operation
264	0.226	-	42.32	F1	0.226	Rated output loaded at 60 Hz/ Continuous operation
90	0.494	-	43.84	F1	0.494	Rated output loaded at 50 Hz/ Continuous operation
100	0.445	2.5	43.62	F1	0.445	Rated output loaded at 50 Hz/ Continuous operation
240	0.223	1	42.25	F1	0.223	Rated output loaded at 50 Hz/ Continuous operation
264	0.226	-	42.07	F1	0.226	Rated output loaded at 50 Hz/ Continuous operation

supplementary information:

Rated output condition:

For model SRD-1685*

USB port (2 EA): 5 Vdc, 0.5 A loaded
Hard disk-drive (Seagate, ST3500414CS) 4 EA connected.
CCD Camera (Samsung Techwin Co., Ltd., SDC-9441BCN) 16 EA connected.

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)	P

U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
90	0.464	-	41.04	F1	0.464	Rated output loaded at 60 Hz/ Continuous operation
100	0.414	2.5	40.45	F1	0.414	Rated output loaded at 60 Hz/ Continuous operation
240	0.209	1	39.32	F1	0.209	Rated output loaded at 60 Hz/ Continuous operation
264	0.202	-	39.10	F1	0.202	Rated output loaded at 60 Hz/ Continuous operation
90	0.461	-	40.91	F1	0.461	Rated output loaded at 50 Hz/ Continuous operation
100	0.411	2.5	40.84	F1	0.411	Rated output loaded at 50 Hz/ Continuous operation
240	0.217	1	4.51	F1	0.217	Rated output loaded at 50 Hz/ Continuous operation
264	0.214	-	39.61	F1	0.214	Rated output loaded at 50 Hz/ Continuous operation

supplementary information:

Rated output condition:

For model SRD-894*

USB port (2 EA): 5 Vdc, 0.5 A loaded
Hard disk-drive (Seagate, ST3500414CS) 4 EA connected.
CCD Camera (Samsung Techwin Co., Ltd., SDC-9441BCN) 8 EA connected.

2.1.1.5 c) 1)	TABLE: max. V, A, VA test	N/A

Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)

supplementary information:

Evaluated during SMPS certification

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Clause	Requirement + Test	Result - Remark	Verdict

2.1.1.5 c) 2)	**TABLE: stored energy**	N/A

Capacitance C (µF)	Voltage U (V)	Energy E (J)
supplementary information:		

2.2	**TABLE: evaluation of voltage limiting components in SELV circuits**	N/A

Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	

Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)
supplementary information:	
Evaluated during SMPS certification	

2.5	**TABLE: Limited power sources**	P

Circuit output tested: USB port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
Front side	Normal	5.09	3.46	8.0	12.90	100
Front side	U20, Pin 2-8, Sc	0	0	8.0	0	100

Circuit output tested: USB port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
Rear side	Normal	5.09	3.46	8.0	12.90	100
Rear side	U36, Pin 2-8, Sc	0	0	8.0	0	100

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Clause	Requirement + Test	Result - Remark	Verdict

Circuit output tested: eSATA port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
All pins	Normal	0	0	8.0	0	100

Circuit output tested: VGA port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
Pin 1-5, 7-11, 13-15	Normal	0	0	8.0	0	100
Pin 6, 12	Normal	2.88	0	8.0	0	100

Circuit output tested: SPOT1 port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
All pins	Normal	0	0	8.0	0	100

Circuit output tested: SPOT2 port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
All pins	Normal	0	0	8.0	0	100

Circuit output tested: VIDEO IN port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
All pins	Normal	0	0	8.0	0	100

Circuit output tested: SERIAL port

Note: Measured Uoc (V) with all load circuits disconnected:

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
All pins	Normal	0	0	8.0	0	100

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Clause	Requirement + Test	Result - Remark	Verdict

Circuit output tested: AUDIO IN port						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
All pins	Normal	0	0	8.0	0	100

Circuit output tested: ALARM IN port						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
Pin 1, 2, 10-20	Normal	0	0	8.0	0	100
Pin 3-9	Normal	3.19	0	8.0	0	100

Circuit output tested: ALARM OUT port						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
Pin 1-14	Normal	0	0	8.0	0	100
Pin 15	Normal	2.73	0	8.0	0	100

supplementary information:
Sc=Short circuit, Oc=Open circuit

2.10.2	**Table: working voltage measurement**	N/A

Location	RMS voltage (V)	Peak voltage (V)	Comments

supplementary information:
Evaluated during SMPS certification

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

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements	N/A

Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Functional:						
Basic/supplementary:						
Reinforced:						
supplementary information:						
Evaluated during SMPS certification						

2.10.5	TABLE: Distance through insulation measurements	N/A

Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
supplementary information:					
Evaluated during SMPS certification					

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.8	**TABLE: Batteries**		P
The tests of 4.3.8 are applicable only when appropriate battery data is not available			P
Is it possible to install the battery in a reverse polarity position?		Not possible	P

	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	0.001 mA	240 mA	Not possible	-	-	-	-	-	-
Max. current during fault condition	0.001 mA (R576, short) 0.001 mA (U37, Pin Vcc-VBAT, short)	240 mA	Not possible	-	-	-	-	-	-

Test results:		Verdict
- Chemical leaks	No leaks	P
- Explosion of the battery	No explosion	P
- Emission of flame or expulsion of molten metal	No molten	P
- Electric strength tests of equipment after completion of tests	(see appended table 5.2)	P
supplementary information:		

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.8	TABLE: Batteries	N/A

Battery category ..... :
Manufacturer ..... :
Type / model ..... :
Voltage ..... :
Capacity ..... :
Tested and Certified by (incl. Ref. No.) ..... :
Circuit protection diagram:

MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	
Language(s) ..... :	
Close to the battery ..... :	
In the servicing instructions ..... :	
In the operating instructions ..... :	

4.5	TABLE: Thermal requirements						P
	Supply voltage (V) ,..... :	90 V 60 Hz	264 V 50 Hz	N/A	N/A	N/A	—
	Ambient T_{min} (°C) ..... :	N/A	N/A	N/A	N/A	N/A	—
	Ambient T_{max} (°C) ..... :	N/A	N/A	N/A	N/A	N/A	—
Maximum measured temperature T of part/at ....:		T (°C)					Allowed T_{max} (°C)
1. Appliance inlet – SMPS		49.3	49.2	N/A	N/A	N/A	70
2. PCB near CN3		55.6	55.9	N/A	N/A	N/A	105
3. PCB near U1		79.0	79.1	N/A	N/A	N/A	105
4. PCB near CN21		49.3	49.5	N/A	N/A	N/A	105
5. PCB near CN20		54.1	54.4	N/A	N/A	N/A	105
6. PCB near BAT1		47.7	48.1	N/A	N/A	N/A	105
7. Enclosure above FAN – metal		44.3	44.5	N/A	N/A	N/A	70
8. Top enclosure above SMPS – metal		45.0	44.9	N/A	N/A	N/A	70
9. Front enclosure – plastic		43.2	43.5	N/A	N/A	N/A	95
10. F1 body – SMPS		52.3	52.2	N/A	N/A	N/A	105

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Clause	Requirement + Test	Result - Remark	Verdict

Maximum measured temperature T of part/at ....:	T (°C)					Allowed T_{max} (°C)
11. Line filter (L5) – SMPS	52.7	52.7	N/A	N/A	N/A	105
12. Line filter (L1) – SMPS	55.5	55.1	N/A	N/A	N/A	105
13. Line filter (L2) – SMPS	58.2	55.6	N/A	N/A	N/A	105
14. Line filter (L10) – SMPS	69.0	57.7	N/A	N/A	N/A	105
15. Transformer (T1) coil – SMPS	62.8	62.6	N/A	N/A	N/A	110 *)
16. Line filter (L20) – SMPS	55.3	55.2	N/A	N/A	N/A	105
17. Ambient (t_2)	40 (20.3 °C)	40 (25.4 °C)	N/A	N/A	N/A	N/A
supplementary information:						
Maximum temperature T at Tma (40 °C) is calculated. (T at Tma = T- t_2+Tma) Temperature test was performed with thermo-couple. *) means Minus (-) 10 °C applied for thermo-couple method for windings. Test conducted with SRD-1685N as below; USB port (2 EA): 5 Vdc, 0.5 A loaded Hard disk-drive (Seagate, ST3500414CS) 4 EA connected. CCD Camera (Samsung Techwin Co., Ltd., SDC-9441BCN) 16 EA connected.						

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:							

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm) ..... :	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)
supplementary information:		
Evaluated during SMPS certification		

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

4.7	TABLE: Resistance to fire	P

Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Enclosure	Interchangeable	Metal	Min. 0.6	-	-
Front Enclosure	SDI Chemical Co., Ltd.	TH-1100(+)	Min. 2.0	V-0	UL
supplementary information:					

5.1	TABLE: touch current measurement	P

Measured between:	Measured (mA)	Limit (mA)	Comments/conditions
GND terminal	0.62	3.5	Switch “e” opened, normal
GND terminal	0.62	3.5	Switch “e” opened, reverse
Output terminal	0.62	3.5	Switch “e” opened, normal
Output terminal	0.62	3.5	Switch “e” opened, reverse
supplementary information:			
Test voltage: 264 V, 60 Hz			

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests	P

Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:			
-	-	-	-
Basic/supplementary:			
Priamry and GND	DC	2506	No
Priamry and GND after humidity test	DC	2506	No
Priamry and GND after heating test	DC	2506	No
Priamry and GND after fault test	DC	2506	No
Reinforced:			
Primary and Secondary	DC	4242	No
Primary and Secondary after humidity test	DC	4242	No
Primary and Secondary after heating test	DC	4242	No
Primary and Secondary after fault test	DC	4242	No
supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No

5.3	TABLE: Fault condition tests		P
	Ambient temperature (°C) ..... :	See below	—
	Power source for EUT: Manufacturer, model/type, output rating ..... :	N/A	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
DC FAN (for SRD-1685N)	Stalled	264	2 hr 37 min	F1	3.15	Immediately FAN malfunction alarm provided, Unit noral operation, CT (Line filter (L5): 40.1 °C; Line filter (L1): 43.1 °C; Line filter (L2): 42.7 °C; Line filter (L10): 43.7 °C; Transformer (T1) coil: 43.2 °C; Ambient: 25.3 °C), NCD, NC, NT, NB, FI : 0.24
DC FAN (for SMPS)	Stalled	264	2 hr 10 min	F1	3.15	Unit noral operation, CT (Transformer (T1) coil: 37.1 °C; Transformer (T2) coil: 47.8 °C; Ambient: 25.3 °C), NCD, NC, NT, NB, FI : 0.24
Open ing	Blocked	264	2 hr 39 min	F1	3.15	Unit normal operation, CT (Line filter (L5): 38.2 °C; Line filter (L1): 38.8 °C; Line filter (L2): 41.1 °C; Line filter (L10): 45.1 °C; Transformer (T1) coil: 48.2 °C; Line filter (L20): 41.3 °C; Ambient: 22.1 °C), NCD, NC, NT, NB. , FI: 0.24 A
USB port	Overload	264	1 hr	F1	3.15	Unit noral operation, NCD, NC, NT, NB, FI: 0.24 A, output loaded at 3.2 A.

supplementary information:

FI – Final Input Current; IP – Internal protection operated;
CD – Component Damaged (list damaged components); NCD – No Component Damaged;
CT – Constant temperatures were obtained (list components: temperature;);
NB – No indication of dielectric breakdown; YB – Dielectric breakdown (indicate time and location);
NC – Cheesecloth remained intact; YC – Cheesecloth charred or flamed;
NT – Tissue paper remained intact; YT – Tissue paper charred or flamed;

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Clause	Requirement + Test	Result - Remark	Verdict

C.2	TABLE: transformers						N/A
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength/ V (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
supplementary information:							
Evaluated during SMPS certification							

C.2	TABLE: transformers	N/A
Manufacturer:		
Type:		

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

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
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”		P
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note 1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6 2.2.3 Note; 2.2.4 Note; 2.3.2 Note 2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3 2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3 3.2.1.1 Note; 3.2.4 Note 3.; 2.5.1 Note 2 4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note 4.7.3.1 Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1 6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note 6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note 7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2 G.2.1 Note 2; Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note; 6.1.2.1 Note 2 6.2.2.1 Note 2; EE.3 Note		P

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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

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Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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. 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.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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.		
	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. 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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” 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.		

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IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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) 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.		N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	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.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		N/A
	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 - 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.		N/A
	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.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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, 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/A
2.7.2	This subclause has been declared ‘void’.		P
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
3.2.5.1	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.		P

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Clause	Requirement + Test	Result - Remark	Verdict

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

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.		N/A
1.2.13.14 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.1 (A11:2009)	In **Finland**, **Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
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”		N/A
1.7.2.1 (A11:2009)	In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.		N/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
	The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: "Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)." 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 som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet." 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 vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."		
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."		N/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5	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.		N/A
1.7.5 (A11:2009)	For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N/A
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. 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		N/A
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A
3.2.1.1	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 3P+N+PE 250/400 V, 10 A 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 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, 250 V, 16 A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		N/A
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/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1 (A2:2013)	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. 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/A
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/A
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/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
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/A
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 - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.		N/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		
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.		N/A
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.		N/A
7.3 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A

Attachment 1 – European Group Differences and National Differences

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

Annex ZD
(informative)

IEC and CENELEC code designations for flexible cords

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

Attachment 2 – National Differences for CB Bulletin

ATTACHMENT TO TEST REPORT IEC 60950-1 with A1:2009 and A2:2013 CANADA NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to .....:	CAN/CSA-C22.2 No. 60950-1-07, Amd 1:2011, Amd 2:2014
Attachment Form No. .....:	CA_ND_IEC60950_1F
Attachment Originator .....:	CSA
Master Attachment .....:	Date (2015-05)
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Canada – National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
1.1.1	All equipment is to be designed to allow installation in accordance with 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, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		N/A
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A:	Considered	P
1.5.5	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 CEC/NEC.		N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC/NEC are required to have special construction features and identification markings.	(see appended table 1.5.1)	P
1.7.1	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.	(see copy of marking plate)	P

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

Canada – National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		P
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and “Class 2” or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	No class 2 output	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No such fuse	P
2.6	Equipment with isolated ground (earthing) receptacles are required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).	Appliance inlet used	N/A
2.7.1	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. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Appliance inlet used	P
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		P
3.2.1.2	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, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	No Permanent connection	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.		P

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

Canada – National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		P
	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
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for US/Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A
3.3.5	First column of Table 3E revised to require “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.”		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13.5.1	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

Canada – National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer 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) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	Metal and V-0 material (see appended table 1.5.1)	P
	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043.		N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No ionizing radiation	N/A
OTHER DIFFERENCES The following key national differences are based on requirements other than national regulatory requirements.			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	(see appended table 1.5.1)	P

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

Canada – National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.	AC mains	N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuit	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092).		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	40A conducted between PE pin of appliance inlet and enclosure.	P
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	No handles and manual controls which might create a hazard.	P
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.	(see appended table 5.3)	P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	(see appended table 5.3)	P

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

Canada – National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuit	N/A
Annex EE	UL articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex NAD	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

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

ATTACHMENT TO TEST REPORT IEC 60950-1 with A1: 2009 and A2:2013 U.S.A. NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to .....:	UL 60950-1-07(Second Edition) + A1: 2011 + A2: 2014
Attachment Form No. .....:	US_ND_IEC60950_1F
Attachment Originator .....:	UL
Master Attachment .....:	Date 2014-07
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USA National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	Special national conditions		
1.1.1	All equipment is designed as to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and if applicable, the National Electrical Safety Code, IEEE C2		P
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75		N/A
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A		P
1.5.5	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 are required to have special construction features and identification markings		N/A
1.7.1	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		N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and		N/A
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions"		N/A

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

USA National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	Likewise, a voltage rating is not to be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions"		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with NEC or CEC Part 1 or NEC are marked with the voltage rating and “Class 2” or equivalent		N/A
	- Marking is located adjacent to the terminals		—
	- Marking is visible during wiring		—
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable		N/A
2.6	Equipment with isolated ground (earthing) receptacles is in compliance with NEC 250.146(D) and CEC 10-112 and 10-906(8)		N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC		N/A
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment		P
3.2.1.2	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 comply with special earthing, wiring, marking and installation instruction requirements		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs		P
3.2.5	Power supply cords are no longer than 4.5 m in length		N/A

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

USA National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
	Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement		N/A
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC		P
3.2.9	Permanently connected equipment has a suitable wiring compartment and wire bending space		N/A
3.3	Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0		N/A
3.3.3	Wire binding screws are not attached with conductors larger than 10 AWG (5.3 mm^2)		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are		N/A
	- rated 125 per cent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7)		N/A
3.3.5	Revise first column of Table 3E to “Smaller of the rated current of the equipment or the protective current rating of the circuit under consideration”		N/A
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,		N/A
	- or if the motor has a nominal voltage rating greater than 120 V		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
3.4.11	For computer 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 computer room remote power-off circuit		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30		N/A
4.3.13.5.1	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

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

USA National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	For computer 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
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9m^2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less		N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less		N/A
4.7.3.1	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043		N/A
Annex H	Equipment that produces ionizing radiation complies with U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370)		N/A
	Other National Differences		
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery backup systems, battery packs, cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cut-offs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables	(see appended table 1.5.1)	P

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

USA National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply		N/A
	This maximum operating voltage includes consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.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		N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts		N/A
2.6.2	Equipment with functional earthing marked with the functional earthing symbol (IEC 60417-6092)		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified	40A conducted between PE pin of appliance inlet and enclosure.	P
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT	No CRT	N/A
4.3.2	Equipment with handles complies with special loading tests	No handles and manual controls which might create a hazard.	P
4.3.8	Battery packs for both portable and stationary applications comply with special component requirements		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals comply with a special touch current measurement tests		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded	(see appended table 5.3)	P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test is repeated twice (three tests total) using new components as necessary	(see appended table 5.3)	P

List of countries addressed: Canada and USA

Attachment 2 – National Differences for CB Bulletin

USA National Differences			
Clause	Requirement + Test	Result - Remark	Verdict
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC	No TNV circuit	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger		N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements		N/A

List of countries addressed: Canada and USA

Attachment 3 – Photographs

<Photo 1 > Front side



<Photo 2 > Rear side



Attachment 3 – Photographs

<Photo 3 > Front panel



<Photo 4 > Left side



Attachment 3 – Photographs

<Photo 5 > Right side

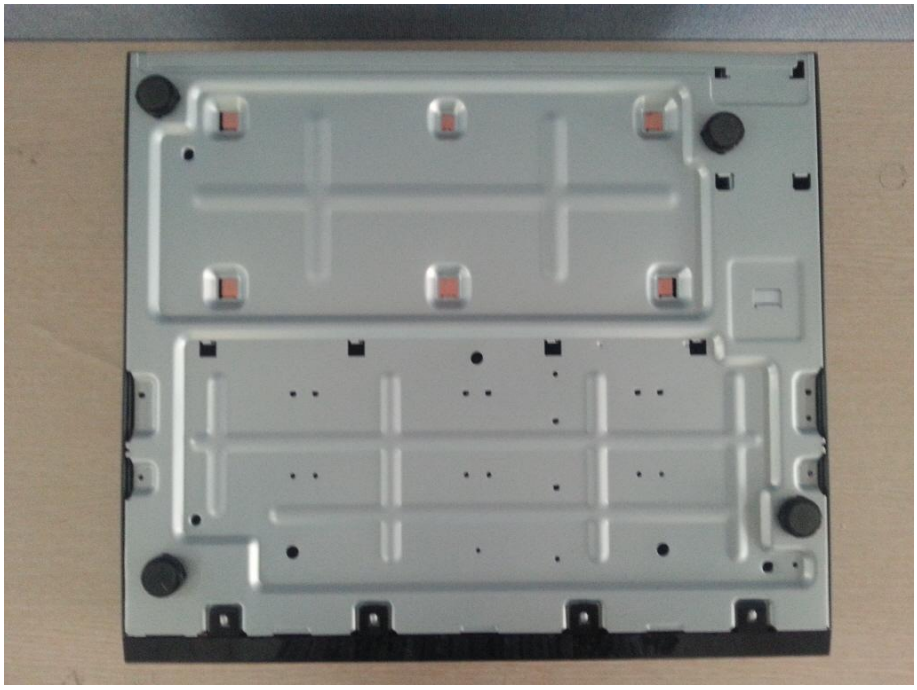


<Photo 6 > Top side



Attachment 3 – Photographs

<Photo 7 > Bottom side

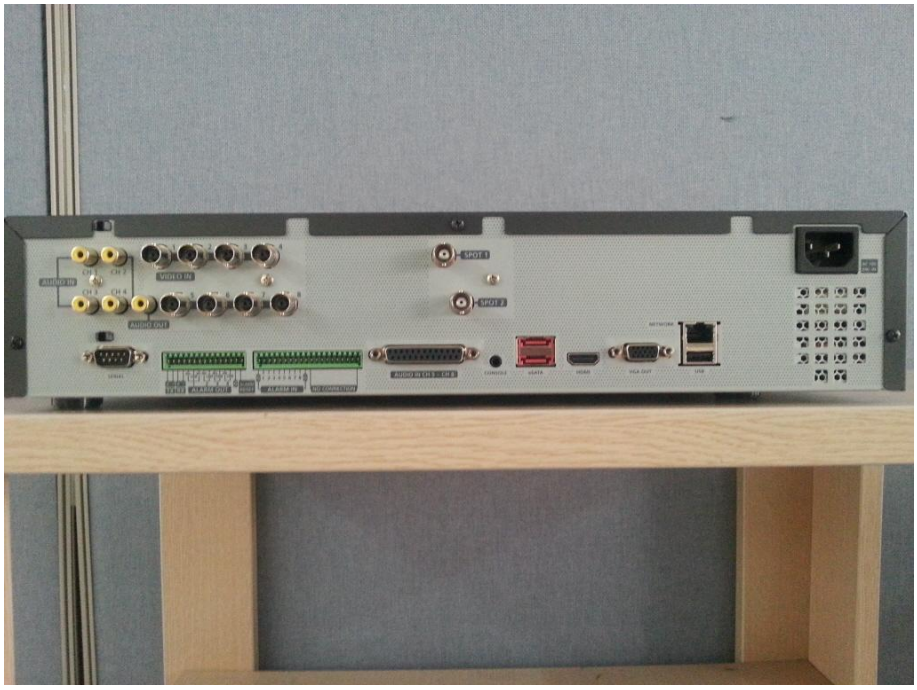


<Photo 8 > Rear panel (SRD-1685*)



Attachment 3 – Photographs

<Photo 9 > Rear panel (SRD-984*)

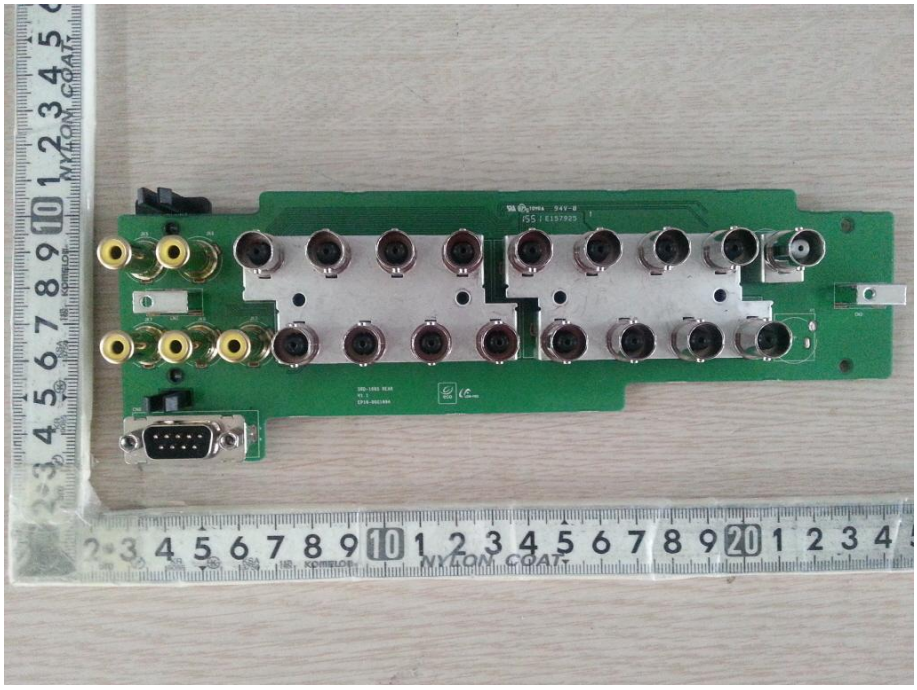


<Photo 10 > Inside

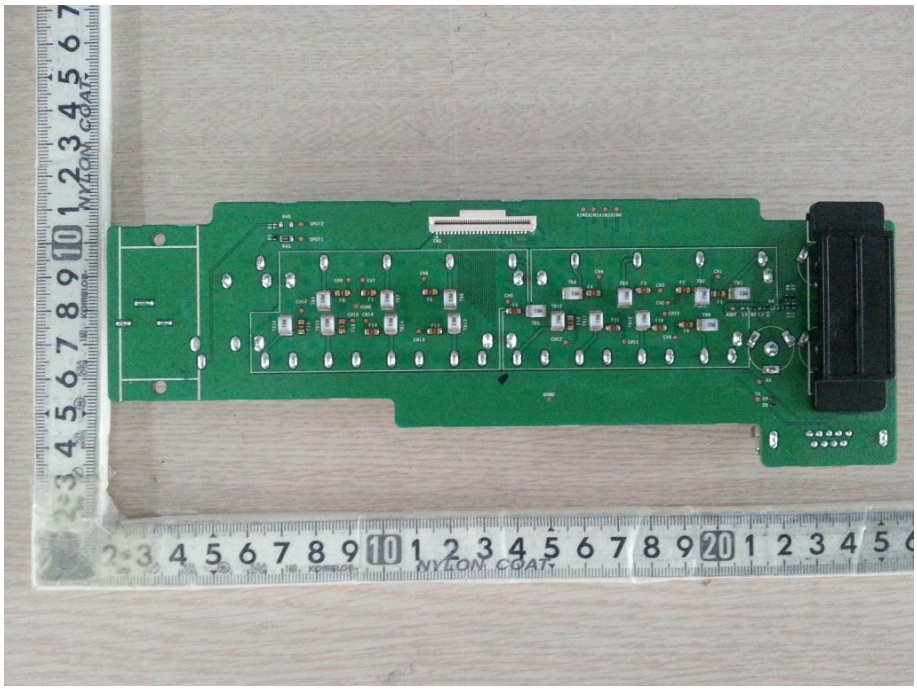


Attachment 3 – Photographs

<Photo 11 > Component side – VGA Bd.

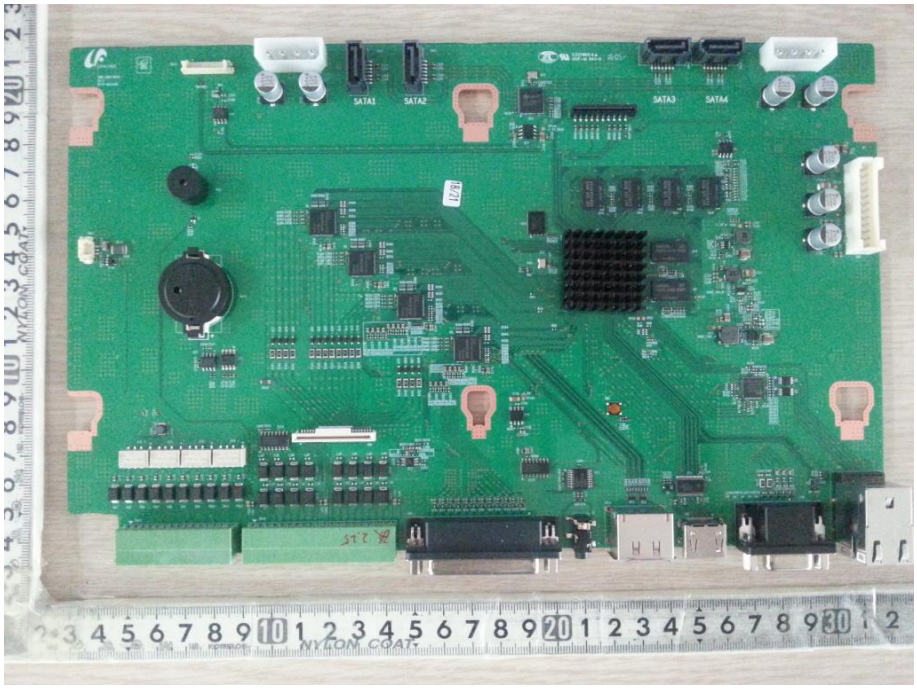


<Photo 12 > Solder side – VGA Bd.

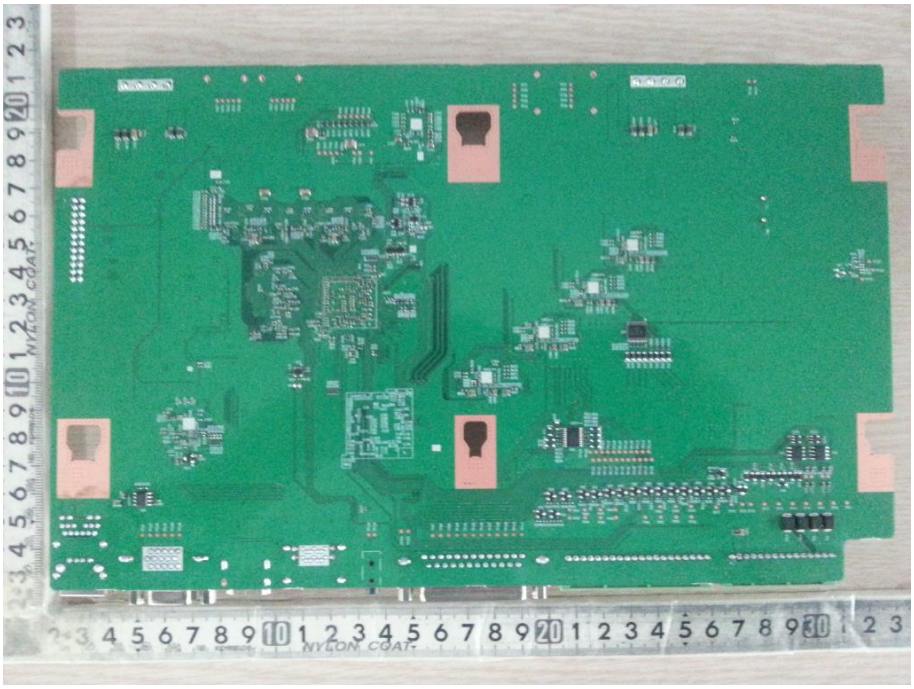


Attachment 3 – Photographs

<Photo 13 > Component side – Main Bd.

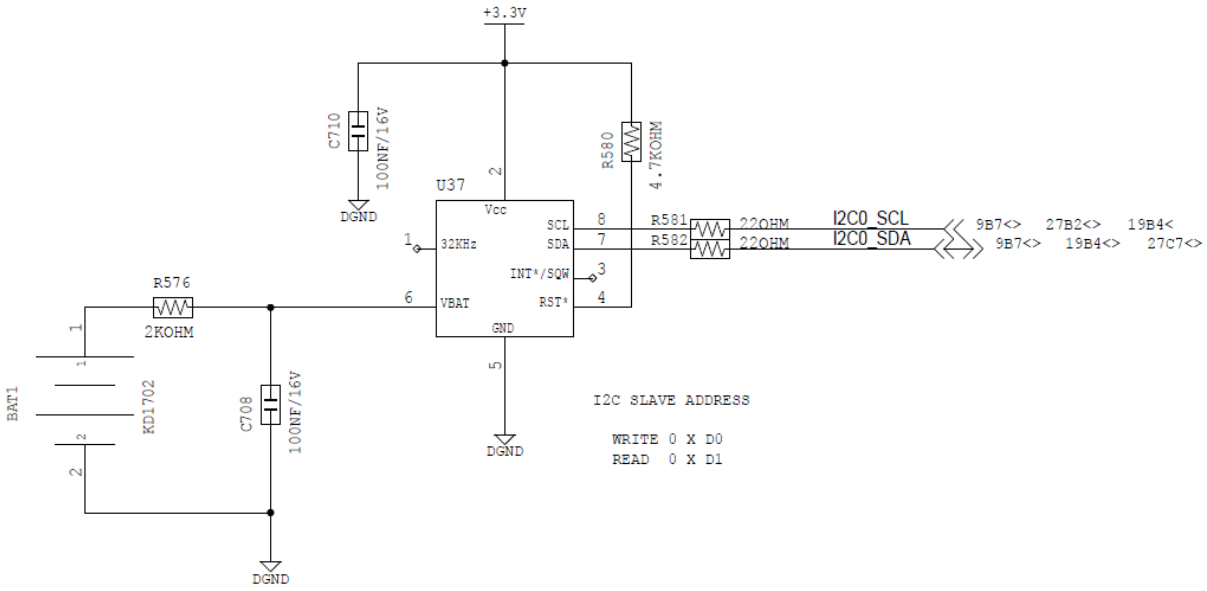


<Photo 14 > Solder side – Main Bd.



Attachment 3 – Photographs

<Photo 15 > Battery circuit – Main Bd.

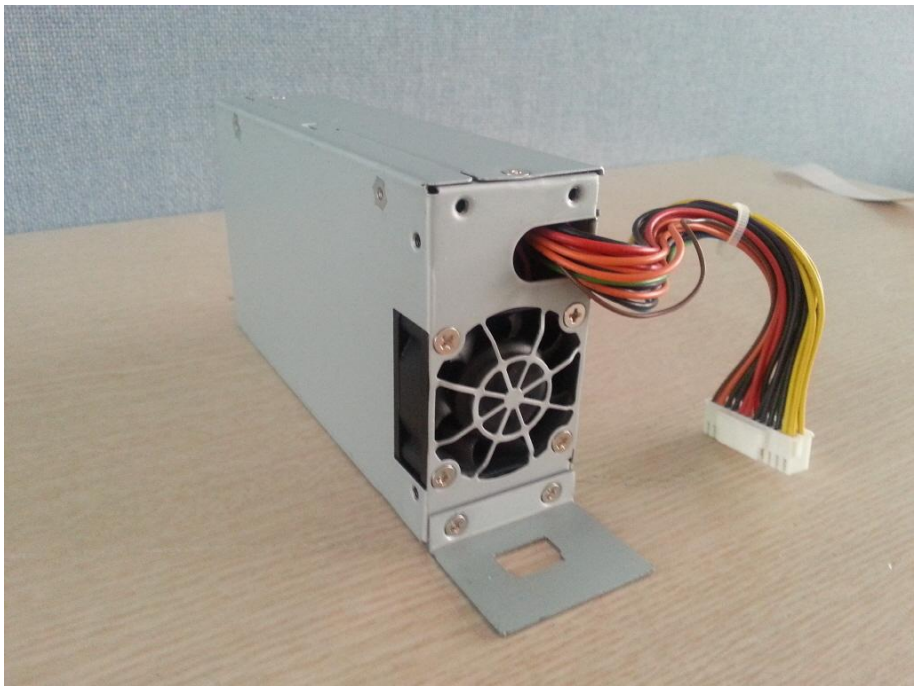


Attachment 3 – Photographs

<Photo 16 > Front side – SMPS



<Photo 17 > Rear side – SMPS



Attachment 3 – Photographs

<Photo 18 > Top side – SMPS



<Photo 19 > Inside – SMPS

