Test Report issued under the responsibility of

Fujitsu Technology Solutions GmbH
Product Compliance Center

TEST REPORT

IEC 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report Number.....:	CER+1SB12-0012+S01
Date of issue.....:	Apr 04, 2013
Total number of pages.....	56
Testing Laboratory .....:	Fujitsu Technology Solutions GmbH Product Compliance Center
Address.....:	Buergermeister-Ulrich-Str. 100, 86199 Augsburg, Germany
Applicant's name .....:	Fujitsu Technology Solutions GmbH
Address.....:	Buergermeister-Ulrich-Str. 100, 86199 Augsburg, Germany
Manufacturer's name.....:	Fujitsu Technology Solutions GmbH
Address.....:	Buergermeister-Ulrich-Str. 100, 86199 Augsburg, Germany
Test specification:	
Standard .....:	IEC 60950-1:2005 (Second Edition), Am 1: 2009
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No. .....:	**IEC60950_1C**
Test Report Form(s) Originator.....:	SGS Fimko Ltd
Master TRF.....:	Dated 2012-08

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

Test item description..... :	System board
Trade Mark .....:	FUJITSU
Manufacturer.....:	See above
Model/Type reference.....:	**D3222-B** (The model designation may be followed by additional letters and numbers or blanks denoting differences in SELV secondary circuits or minor mechanical differences.)
Ratings.....:	-

Testing procedure and testing location:

☐ **Test laboratory accredited by:**

Testing location/ address .....: **Fujitsu Technology Solutions GmbH**
Product Compliance Center

Buergermeister-Ulrich-Str. 100, 86199 Augsburg, Germany

Tested by
(printed name, title and signature) ..... : Preparer
PreparerTitle

Approved by
(printed name, title and signature) ..... : Reviewer
ReviewerTitle

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

1. Photographs (4 Pages)
2. European group differences and national differences (13 pages)
3. Test Equipment (1 page)

Summary of testing:	
Tests performed (name of test and test clause): Cl. 2.5 Limited Power Cl. 4.3.8 Batteries CL. 4.5 Temperature	Testing location: Fujitsu Technology Solutions GmbH Product Compliance Center Buergermeister-Ulrich-Str. 100 86899 Augsburg Germany

Summary of compliance with National Differences

List of countries addressed:

All CENELEC members as listed in EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

☒ The product fulfills the requirements of EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

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.

(Additional requirements for markings. See 1.7 NOTE)

Calibration:	All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Further information about traceability will be given on request.
Measurement uncertainty:	Measurement uncertainties are calculated for all instruments and instrument set-ups given in this report. Calculations are based on the principles given in the standard EA-4/02 (Dec. 1999), IEC Guide 115:2007 and relevant internal SOPs of Product Compliance Center. Further information about measurement uncertainties will be given on request.
Evaluation of results:	If not explicitly stated otherwise in the standard, the test is passed if the measured value is equal to or below (above) the limit line, regardless of the measurement uncertainty. If the measured value is above (below) the limit line, the test is not passed - ref IEC Guide 115:2007. The instrumentation accuracy is within limits agreed by IECEE-CTL (ref. Measurement accuracy - Product Safety).

Test item particulars ..... :	
Equipment mobility ..... :	[] movable [] hand-held [] transportable [] stationary [X] for building-in [] direct plug-in
Connection to the mains ..... :	[] pluggable equipment [] type A [] type B [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [X] not directly connected to the mains
Operating condition ..... :	[X] continuous [] rated operating / resting time:
Access location ..... :	[X] operator accessible [] restricted access location
Over voltage category (OVC) ..... :	[X] OVC I [] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values ..... :	-
Tested for IT power systems ..... :	[] Yes [] No
IT testing, phase-phase voltage (V) ..... :	
Class of equipment ..... :	[] Class I [] Class II [X] Class III [] Not classified
Considered current rating of protective device as part of the building installation (A) ..... :	
Pollution degree (PD) ..... :	[] PD 1 [X] PD 2 [] PD 3
IP protection class ..... :	IP20
Altitude during operation (m) ..... :	3000
Altitude of test laboratory (m) ..... :	489
Mass of equipment (kg) ..... :	-
Dimensions (mm) ..... :	213 x 243mm
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 ..... :	March 2013
Date(s) of performance of tests ..... :	March to April 2013

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(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 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) ..... Fujitsu Technology Solutions GmbH
Buergermeister-Ulrich-Str. 100
86199 Augsburg, Germany

General product information:

D3222-B is a µATX board, chipset Intel® Q87 with PS2, Audio, USB, DVI, VGA, DisplayPort, COM and LAN ports.

Source	Voltage	Min. PS Load	Max.Voltage Tolerance	Mainboard Capacitive Load	Max. Mainboard Current
	+ 12V	0.1A	± 5 %	10.000µF	14A/18A [1)]
Main Power	- 12V	0A	± 10 %	500µF	0.1A
Supply	+ 5V	0.2A	± 5 %	10.000µF	5A
	+ 3.3V	0A	± 5 %	6.000µF	2A
Aux. Power Supply	+ 5Vaux	0A	+5 % / -3%	7.000µF	2.5A

Maximum recommended ambient (Tmra): 50°C

The equipment has only been evaluated for use in office environment (pollution degree 2).

The equipment must be supplied by a power supply with SELV secondary output voltages according IEC60950-1 / EN60950-1.

Instructions and markings related to safety shall be in a language acceptable where the equipment is to be used.

1.1.2 - Additional requirements:
Exposure to extreme temperatures, excessive dust, moisture or vibration; to flammable gases; to corrosive or explosive atmospheres:
This equipment is intended to operate in a "normal" environment (Offices and homes).

Electromedical equipment connected to the patient:
This equipment is not an electromedical equipment intended to be physically connected to a patient.

Equipment used in vehicles, ships or aircrafts, in tropical countries, or at elevations > 2000m:
This equipment is intended to operate in a "normal" environment (Offices and homes).

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)

- short circuit	s-c	- over load	o-l

Condition of acceptability:

- The equipment was evaluated for use in a maximum ambient temperature of 50°C.
- Instructions and markings related to safety shall be in a language acceptable where the equipment is to be used.
- Fire enclosure must be considered in the end application.
- The air flow must be ensured in the end application.
- DC-outputs comply with SELV requirements according IEC / EN60950-1.

Information about the documents considered:

Thermography test report no. THP+1SB12-0012+K01

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

1	**GENERAL**	**P**

1.5	**Components**		**P**
1.5.1	General		**P**
	Comply with IEC 60950-1 or relevant component standard	(see appended 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	No isolating transformer in the equipment.	**N/A**
1.5.5	Interconnecting cables	No interconnecting cables.	**N/A**
1.5.6	Capacitors bridging insulation	No capacitors bridging double or reinforced insulation.	**N/A**
1.5.7	Resistors bridging insulation	No resistors bridging double or reinforced insulation.	**N/A**
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	No resistors bridging basic or supplementary insulation. No hazard by resistors which are bridging functional insulation.	**N/A**
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No resistors bridging double or reinforced insulation.	**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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.8	Components in equipment for IT power systems	No components connected between line and earth.	**N/A**
1.5.9	Surge suppressors	No Surge suppressors in the equipment	**N/A**
1.5.9.1	General	Refer below	**N/A**
1.5.9.2	Protection of VDRs	No VDRs	**N/A**
1.5.9.3	Bridging of functional insulation by a VDR	No VDR in the equipment	**N/A**
1.5.9.4	Bridging of basic insulation by a VDR	No VDR in the equipment	**N/A**
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	No VDR in the equipment	**N/A**
1.6	**Power interface**		**N/A**
1.6.1	AC power distribution systems		**N/A**
1.6.2	Input current		**N/A**
1.6.3	Voltage limit of hand-held equipment		**N/A**
1.6.4	Neutral conductor		**N/A**
1.7	**Marking and instructions**		**P**
1.7.1	Power rating and identification markings	Not necessary, product is class III equipment	**N/A**
1.7.1.1	Power rating marking	Not necessary, product is class III equipment	**N/A**
	Multiple mains supply connections.....:	-	**-**
	Rated voltage(s) or voltage range(s) (V) ..... :	-	**-**
	Symbol for nature of supply, for d.c. only..... :	-	**-**
	Rated frequency or rated frequency range (Hz) .... :	-	**-**
	Rated current (mA or A) ..... :	-	**-**
1.7.1.2	Identification markings	**-**	**P**
	Manufacturer's name or trade-mark or identification mark ..... :	FUJITSU	**P**
	Model identification or type reference ..... :	**D3222-B** (The model designation may be followed by additional letters and numbers or blanks denoting differences in SELV secondary circuits or minor mechanical differences.)	**P**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
	Symbol for Class II equipment only ..... :	The EUT is Class III.	**N/A**
	Other markings and symbols ..... :	The additional marking does not give rise to misunderstandings.	**P**
1.7.2	Safety instructions and marking	No safety instructions and markings	**N/A**
1.7.2.1	General	See below.	**P**
1.7.2.2	Disconnect devices	-	**N/A**
1.7.2.3	Overcurrent protective device	-	**N/A**
1.7.2.4	IT power distribution systems	-	**N/A**
1.7.2.5	Operator access with a tool	Equipment for building in	**N/A**
1.2.7.6	Ozone	The equipment does not emitt ozone	**N/A**
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	**N/A**
1.7.4	Supply voltage adjustment ..... :	EUT is Class III equipment. No voltage adjustment is used.	**N/A**
	Methods and means of adjustment; reference to installation instructions ..... :	-	**-**
1.7.5	Power outlets on the equipment ..... :	No power outlet.	**N/A**
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) ..... :	No fuse used .	**N/A**
1.7.7	Wiring terminals	Refer below:	**-**
1.7.7.1	Protective earthing and bonding terminals ..... :	No connection to mains	**N/A**
1.7.7.2	Terminals for a.c. mains supply conductors	Not a.c. supplied.	**N/A**
1.7.7.3	Terminals for d.c. mains supply conductors	Not d.c. supplied.	**N/A**
1.7.8	Controls and indicators	Refer below:	**-**
1.7.8.1	Identification, location and marking ..... :	The function of controls affecting safety is obvious without knowledge of language etc.	**P**
1.7.8.2	Colours ..... :	No indicators with colours where safety is involved.	**N/A**
1.7.8.3	Symbols according to IEC 60417..... :	No such symbols used	**N/A**
1.7.8.4	Markings using figures ..... :	No controls.	**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

1.7.9	Isolation of multiple power sources ..... :	-	**N/A**
1.7.10	Thermostats and other regulating devices ..... :	No thermostats or other regulating devices.	**N/A**
1.7.11	Durability	The marking withstands required tests	**P**
1.7.12	Removable parts	No removable parts.	**N/A**
1.7.13	Replaceable batteries ..... :	A Li-battery is used. Equipment for building in and therefore the necessary text must be involved in the manual of the end product.	**N/A**
	Language(s) ..... :	-	—
1.7.14	Equipment for restricted access locations ..... :	Equipment not intended for installation in RAL.	**N/A**

2	**PROTECTION FROM HAZARDS**		**P**
2.1	Protection from electric shock and energy hazards		**P**
2.1.1	Protection in operator access areas	Refer below:	**N/A**
2.1.1.1	Access to energized parts	Equipment is a class III product and for building in. Must be considered in the end product.	**N/A**
	Test by inspection .....:	-	**-**
	Test with test finger (Figure 2A) .....:	-	**-**
	Test with test pin (Figure 2B) .....:	-	**-**
	Test with test probe (Figure 2C) .....:	-	**-**
2.1.1.2	Battery compartments	No such battery compartments.	**N/A**
2.1.1.3	Access to ELV wiring	Equipment is a class III product	**N/A**
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)	-	-
2.1.1.4	Access to hazardous voltage circuit wiring	Equipment is a class III product and for building in. Must be considered in the end product.	**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.5	Energy hazards .....:	Equipment is a class III product and for building in. Must be considered in the end product.	**N/A**
2.1.1.6	Manual controls	No shafts of knobs etc.	**N/A**
2.1.1.7	Discharge of capacitors in equipment	Equipment is a class III product	**N/A**
	Measured voltage (V); time-constant (s) .....:	-	—
2.1.1.8	Energy hazards – d.c. 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 .....:	The lithium battery cannot source 240W for 60seconds	**N/A**
2.1.1.9	Audio amplifiers .....:	No such audio amplifier used.	**N/A**
2.1.2	Protection in service access areas	Equipment is a class III product	**N/A**
2.1.3	Protection in restricted access locations	Equipment not intended for installation in RAL.	**N/A**

2.2	**SELV circuits**		**P**
2.2.1	General requirements	SELV limits are not exceeded under normal condition and after a single fault.	**P**
2.2.2	Voltages under normal conditions (V) ..... :	Within SELV limits. Equipment is a class III product	**P**
2.2.3	Voltages under fault conditions (V) ..... :	Within SELV limits. Equipment is a class III product	**P**
2.2.4	Connection of SELV circuits to other circuits .....:	Equipment is a class III product and for building in. Must be considered in the end product.	**N/A**

2.3	**TNV circuits**		**N/A**
2.3.1	Limits		**N/A**
	Type of TNV circuits ..... :		-

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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		**N/A**
	Insulation employed ..... :		-
2.3.4	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		**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	-	**N/A**
	b) Impedance limited output	(See appended table 1.5.1)	**P**
	c) Regulating network limited output under normal operating and single fault condition	-	**N/A**
	d) Overcurrent protective device limited output	-	**N/A**
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :	Considered are following ports: USB, Keyboard, Mouse, DVI, VGA, DisplayPort (See appended table 2.5)	—
	Current rating of overcurrent protective device (A) .:	-	—
	Use of integrated circuit (IC) current limiters	(See Annex CC)	**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

2.6	**Provisions for earthing and bonding**		**N/A**
2.6.1	Protective earthing		**N/A**
2.6.2	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		**N/A**
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		-
	Protective current rating (A), cross-sectional area (mm^2), AWG ..... :		-
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)..... :		**N/A**
2.6.3.5	Colour of insulation ..... :		**N/A**
2.6.4	Terminals		**N/A**
2.6.4.1	General		**N/A**
2.6.4.2	Protective earthing and bonding terminals		**N/A**
	Rated current (A), type, nominal thread diameter (mm) ..... :		-
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		**N/A**
2.6.5	Integrity of protective earthing		**N/A**
2.6.5.1	Interconnection of equipment		**N/A**
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		**N/A**
2.6.5.3	Disconnection of protective earth		**N/A**
2.6.5.4	Parts that can be removed by an operator		**N/A**
2.6.5.5	Parts removed during servicing		**N/A**
2.6.5.6	Corrosion resistance		**N/A**
2.6.5.7	Screws for protective bonding		**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.8	Reliance on telecommunication network or cable distribution system		**N/A**
2.7	**Overcurrent and earth fault protection in primary circuits**		**N/A**
2.7.1	Basic requirements		**N/A**
	Instructions when protection relies on building installation		**N/A**
2.7.2	Faults not simulated in 5.3.7		**N/A**
2.7.3	Short-circuit backup protection		**N/A**
2.7.4	Number and location of protective devices ..... :		**N/A**
2.7.5	Protection by several devices		**N/A**
2.7.6	Warning to service personnel ..... :		**N/A**
2.8	**Safety interlocks**		**N/A**
2.8.1	General principles		**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**		**P**
2.9.1	Properties of insulating materials		**N/A**
2.9.2	Humidity conditioning		**N/A**
	Relative humidity (%), temperature (°C) ..... :		—

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.3	Grade of insulation	EUT is powered by SELV. Only functional insulation is used.	**P**
2.9.4	Separation from hazardous voltages		**N/A**
	Method(s) used ..... :		—

2.10	**Clearances, creepage distances and distances through insulation**		**N/A**
2.10.1	General		**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 .....:		**N/A**
	c) Unearthed 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 .....:		**N/A**
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:		**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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**
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		**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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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		**N/A**
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**	**N/A**
3.1	General	**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.1	Current rating and overcurrent protection		**N/A**
3.1.2	Protection against mechanical damage		**N/A**
3.1.3	Securing of internal wiring		**N/A**
3.1.4	Insulation of conductors		**N/A**
3.1.5	Beads and ceramic insulators		**N/A**
3.1.6	Screws for electrical contact pressure		**N/A**
3.1.7	Insulating materials in electrical connections		**N/A**
3.1.8	Self-tapping and spaced thread screws		**N/A**
3.1.9	Termination of conductors		**N/A**
	10 N pull test		**N/A**
3.1.10	Sleeving on wiring		**N/A**
3.2	**Connection to a mains supply**		**N/A**
3.2.1	Means of connection		**N/A**
3.2.1.1	Connection to an a.c. mains supply		**N/A**
3.2.1.2	Connection to a d.c. mains supply		**N/A**
3.2.2	Multiple supply connections		**N/A**
3.2.3	Permanently connected equipment		**N/A**
	Number of conductors, diameter of cable and conduits (mm) .....:		—
3.2.4	Appliance inlets		**N/A**
3.2.5	Power supply cords		**N/A**
3.2.5.1	AC power supply cords		**N/A**
	Type .....:		—
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
3.2.5.2	DC power supply cords		**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		**N/A**
3.2.8	Cord guards		**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
	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		**N/A**
3.3.2	Connection of non-detachable power supply cords		**N/A**
3.3.3	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**		**N/A**
3.4.1	General requirement		**N/A**
3.4.2	Disconnect devices		**N/A**
3.4.3	Permanently connected equipment		**N/A**
3.4.4	Parts which remain energized		**N/A**
3.4.5	Switches in flexible cords		**N/A**
3.4.6	Number of poles - single-phase and d.c. equipment		**N/A**
3.4.7	Number of poles - 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		**N/A**
3.4.11	Multiple power sources		**N/A**
3.5	**Interconnection of equipment**		**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
3.5.1	General requirements		**N/A**
3.5.2	Types of interconnection circuits .....:		**N/A**
3.5.3	ELV circuits as interconnection circuits		**N/A**
3.5.4	Data ports for additional equipment		**N/A**
4	**PHYSICAL REQUIREMENTS**		**P**
4.1	Stability		
	Angle of 10°	The equipment is for building-in. Must be considered in the end product.	**N/A**
	Test force (N) .....:	The equipment is for building-in. Must be considered in the end product.	**N/A**
4.2	**Mechanical strength**		**N/A**
4.2.1	General		**N/A**
	Rack-mounted equipment.		**N/A**
4.2.2	Steady force test, 10 N		**N/A**
4.2.3	Steady force test, 30 N		**N/A**
4.2.4	Steady force test, 250 N		**N/A**
4.2.5	Impact test		**N/A**
	Fall test		**N/A**
	Swing test		**N/A**
4.2.6	Drop test; height (mm) .....:		**N/A**
4.2.7	Stress relief test		**N/A**
4.2.8	Cathode ray tubes		**N/A**
	Picture tube separately certified .....:		**N/A**
4.2.9	High pressure lamps		**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 rounded and/or smoothed.	**P**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.2	Handles and manual controls; force (N)..... :	No knobs, grips, handles, lever etc.	**N/A**
4.3.3	Adjustable controls	No hazardous adjustable controls.	**N/A**
4.3.4	Securing of parts	No dangerous parts in the EUT	**N/A**
4.3.5	Connection by plugs and sockets	SELV connectors do not comply with IEC 60320 or IEC 60083.	**P**
4.3.6	Direct plug-in equipment	Not intended to plug directly into a wall socket-outlet.	**N/A**
	Torque .....:	-	—
	Compliance with the relevant mains plug standard .....:	-	**N/A**
4.3.7	Heating elements in earthed equipment	No heating elements provided.	**N/A**
4.3.8	Batteries	Only Li battery for BIOS back up. See appended table 4.3.8.	**P**
	- Overcharging of a rechargeable battery	No rechargeable battery.	—
	- Unintentional charging of a non-rechargeable battery	Considered see table 4.3.8	—
	- Reverse charging of a rechargeable battery	No rechargeable battery.	—
	- Excessive discharging rate for any battery	Considered see table 4.3.8	—
4.3.9	Oil and grease	Insulation is not exposed to oil, grease etc.	**N/A**
4.3.10	Dust, powders, liquids and gases	The equipment does not generate dust, powder and does not contain flammable liquids or gases.	**N/A**
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	**N/A**
4.3.12	Flammable liquids .....:	The equipment does not contain flammable liquid.	**N/A**
	Quantity of liquid (l) .....:	-	—
	Flash point (°C) .....:	-	—
4.3.13	Radiation	Refer below:	**N/A**
4.3.13.1	General	Refer below:	**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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 .....:	The equipment does not produce significant UV radiation.	**N/A**
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:	The equipment does not use a laser	**N/A**
4.3.13.5	Lasers (including laser diodes) and LEDs	The equipment does not use a laser	**N/A**
4.3.13.5.1	Lasers (including laser diodes)	The equipment does not use a laser	**N/A**
	Laser class .....:	-	—
4.3.13.5.2	Light emitting diodes (LEDs)	No such light emitting diodes	**N/A**
4.3.13.6	Other types .....:	No other types of radiation	**N/A**

4.4	**Protection against hazardous moving parts**		**N/A**
4.4.1	General	Must be considered in the end product according to the used CPU fan.	**N/A**
4.4.2	Protection in operator access areas .....:	Must be considered in the end product according to the used CPU fan.	**N/A**
	Household and home/office document/media shredders	(see Annex EE)	**N/A**
4.4.3	Protection in restricted access locations .....:	Not intended for installation in RAL.	**N/A**
4.4.4	Protection in service access areas	Unintentional contact is not likely in service access areas.	**N/A**
4.4.5	Protection against moving fan blades	Must be considered in the end product according to the used CPU fan.	**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
4.4.5.1	General	Must be considered in the end product according to the used CPU fan.	**N/A**
	Not considered to cause pain or injury. a)……..:	-	**N/A**
	Is considered to cause pain, not injury. b) ……:	-	**N/A**
	Considered to cause injury. c) ……:	-	**N/A**
4.4.5.2	Protection for users		**N/A**
	Use of symbol or warning ……:		**N/A**
4.4.5.3	Protection for service persons		**N/A**
	Use of symbol or warning ……:		**N/A**
4.5	**Thermal requirements**		**N/A**
4.5.1	General		**N/A**
4.5.2	Temperature tests		**N/A**
	Normal load condition per Annex L .....:		**N/A**
4.5.3	Temperature limits for materials		**N/A**
4.5.4	Touch temperature limits		**N/A**
4.5.5	Resistance to abnormal heat .....:		**N/A**
4.6	**Openings in enclosures**		**N/A**
4.6.1	Top and side openings		**N/A**
	Dimensions (mm) .....:		—
4.6.2	Bottoms of fire enclosures		**N/A**
	Construction of the bottomm, dimensions (mm) ..:		—
4.6.3	Doors or covers in fire enclosures		**N/A**
4.6.4	Openings in 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) .....:		—

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

4.7	**Resistance to fire**		**P**
4.7.1	Reducing the risk of ignition and spread of flame	Refer below	**P**
	Method 1, selection and application of components wiring and materials	Method 1 is used.	**P**
	Method 2, application of all of simulated fault condition tests	-.	**N/A**
4.7.2	Conditions for a fire enclosure	Equipment for building-in, fire enclosure must be considered for the end product.	**N/A**
4.7.2.1	Parts requiring a fire enclosure	Equipment for building-in, fire enclosure must be considered for the end product.	**N/A**
4.7.2.2	Parts not requiring a fire enclosure	Equipment for building-in, fire enclosure must be considered for the end product.	**N/A**
4.7.3	Materials		**P**
4.7.3.1	General	Refer below:	**P**
4.7.3.2	Materials for fire enclosures	Equipment for building-in, fire enclosure must be considered for the end product.	**N/A**
4.7.3.3	Materials for components and other parts outside fire enclosures	Equipment for building-in, fire enclosure must be considered for the end product.	**N/A**
4.7.3.4	Materials for components and other parts inside fire enclosures	Considered	**P**
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	**N/A**
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	**N/A**

5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		**P**
5.1	**Touch current and protective conductor current**		**N/A**
5.1.1	General		**N/A**
5.1.2	Configuration of equipment under test (EUT)		**N/A**
5.1.2.1	Single connection to an a.c. mains supply		**N/A**
5.1.2.2	Redundant multiple connections to an a.c. mains supply		**N/A**
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.3	Test circuit		**N/A**
5.1.4	Application of measuring instrument		**N/A**
5.1.5	Test procedure		**N/A**
5.1.6	Test measurements		**N/A**
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA) ...:		—
5.1.7	Equipment with touch current exceeding 3,5 mA		**N/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		**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) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks		**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**		**N/A**
5.2.1	General		**N/A**
5.2.2	Test procedure		**N/A**

5.3	**Abnormal operating and fault conditions**		**P**
5.3.1	Protection against overload and abnormal operation	See also appended table 2.5	**P**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.2	Motors	No motors except CPU fan. Must be considered in the end product according to the used CPU fan.	**N/A**
5.3.3	Transformers	No such transformers.	**N/A**
5.3.4	Functional insulation .....:	Complies with c). All components are mounted on PWB with min. V-1 material.	**P**
5.3.5	Electromechanical components	No electromechanical components.	**N/A**
5.3.6	Audio amplifiers in ITE .....:	No such amplifers are used.	**N/A**
5.3.7	Simulation of faults	See also appended table 2.5	**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	See below	**P**
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	**P**
5.3.9.2	After the tests	No reduction of clearance and creepage distances.	**P**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		**N/A**
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**
6.1.2.1	Requirements		**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		**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**		**N/A**
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		**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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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) ..... :		—
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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
	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)**		**N/A**
B.1	General requirements		**N/A**
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
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		**N/A**
B.7.1	General		**N/A**
B.7.2	Test procedure		**N/A**
B.7.3	Alternative test procedure		**N/A**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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 ..... :		—
	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**
D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)**		**N/A**
D.1	Measuring instrument		**N/A**
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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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**

J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		**N/A**
	Metal(s) used ..... :		—

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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)**		**N/A**
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		**N/A**

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**
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**	—

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

Q	**ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)**		**N/A**
	a) Preferred climatic categories ..... :		**N/A**
	b) Maximum continuous voltage ..... :		**N/A**
	c) Pulse current ..... :		**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**
		See separate test report	—

V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)**		**N/A**
V.1	Introduction		**N/A**
V.2	TN power distribution systems		**N/A**

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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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)**		**N/A**
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**
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**

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
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**

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])
Printed circuit board	CMK Global Brands MFR Ltd	DS or ML	94V-0, min. 105°C	UL94	UR (E211079)
alternate	Topsearch Printed Circuits	TS-M-8V03	94V-0, min. 105°C	UL94	UR (E96016)
alternate	Topsearch Printed Circuits	TS-M-8V01C	94V-0, min. 105°C	UL94	UR (E96016)
alternate	Elec & Eltek Co Ltd	E3330BM	94V-0, min. 105°C	UL94	UR (E54926)
alternate	Elec & Eltek Co Ltd	E3330GM	94V-0, min. 105°C	UL94	UR (E54926)
alternate	Elec & Eltek Co Ltd	E3330HF	94V-0, min. 105°C	UL94	UR (E54926)
alternate	Kalex Circuit Board Ltd	K688	94V-0, min. 105°C	UL94	UR (E81159)
alternate	Bestmult Industry Co Ltd	101	94V-0, min. 105°C	UL94	UR (E97362)
alternate	Maxedge	MEC-2	94V-0, min. 105°C	UL94	UR (E179889)
alternate	Maxedge	MEC-6	94V-0, min. 105°C	UL94	UR (E179889)
alternate	Kubatronik	U1	94V-0, min. 105°C	UL94	UR (E111380)
alternate	Dynamic Electronics	NM0-V0	94V-0, min. 105°C	UL94	UR (E150630)
alternate	Merix Corp	M1	94V-0, min. 105°C	UL94	UR (E161964)
alternate	GUL Tech China	GTW 12	94V-0, min. 105°C	UL94	UR (E244417)
alternate	KCE Thailand	KCE MV-1	94V-0, min. 105°C	UL94	UR (E88599)
alternate	Paltech China	PAL-B	94V-0, min. 105°C	UL94	UR (E197709)
alternate	Unitech Taiwan	-	94V-0, min. 105°C	UL94	UR (E97564)
alternate	Hannstar	MV-4	94V-0, min. 105°C	UL94	UR (E89382)

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])
alternate	Hannstar	MV-6	94V-0, min. 105°C	UL94	UR (E89382)
alternate	Foxconn	ML1	94V-0, min. 105°C	UL94	UR (E253117)
alternate	CHUAN YI COMPUTER (P&Q)	CM-1	94V-0, min. 105°C	UL94	UR (E162264)
alternate	Boardtek Computer	BTC-202	94V-0, min. 105°C	UL94	UR (E220370)
alternate	Guang Dong Ellington Electronics Technology	ET856 or ET866	94V-0, min. 105°C	UL94	UR (E213441)
alternate	Elekonta Marek GmbH & Co KG	E8	94V-0, min. 105°C	UL94	UR (E70150)
alternate	Kunshan Yuanmao Electronics	ML-4 or ML	94V-0, min. 105°C	UL94	UR (E251244)
Lithium battery	Hitachi Maxell	CR2032	220mAh/10 mA 2)	UL1642	UR (MH12568)
alternate	KTS (VIC-DAWN)	CR2032	210mAh /10 mA 2)	UL1642	UR (MH20550)
alternate	FDK Energy	CR2032	220mAh /10 mA 2)	UL1642	UR (MH13421)
Battery protection circuit	Various	diode (430V51) resis. (430R50) resis. (470R70) resis. (760R10) IC (500D00)	430V51: diode 430R50: 1kΩ 470R70: 2.2kΩ 760R10: 0Ω 500D00: IC	-	Tested in the equipment
Protective device for secondary (SELV) outputs					
PTC	Tyco (Raychem)	miniSMDC200	2.0A / 4.0A 3)	IEC60730-1 UL 1434	UR (E74889)
alternate	Bourns	MF-MSMF200-2	2.0A / 4.0A 3)	IEC60730-1 UL 1434	UR (E174545)
alternate	Tyco (Raychem)	nanoSMDC075F	0.75A / 1.5A 3)	IEC60730-1 UL 1434	UR (E74889)
alternate	Bourns	MF-NSMF075	0.75A / 1.5A 3)	IEC60730-1 UL 1434	UR (E174545)

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])
Internal plastics	Various	Various	Min V-2, HF-2 or VTM-2, except small parts	UL94	UR

Supplementary information:

1) An asterisk indicates a mark which assures the agreed level of surveillance.

2) Nominal discharge current (from data sheet) / max. abnormal charging current (from UL data base)

3) I_{hold} / I_{trip}

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		

1.6.2	TABLE: Electrical data (in normal conditions)					N/A
U (V)	F (Hz)	Irated (A)	I (A)	P (W)	Ifuse (A)	Condition/status
Supplementary information:						

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:				

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

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

2.1.1.7	TABLE: Capacitance discharge test	N/A

Measurement Location	Switch Position (worst case)	Input voltage (Volt)	37% of Input (Volt)	Time at 37% of voltage (Seconds)	Time at 0% of voltage (Seconds)
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:

2.5	TABLE: limited power sources	P

General:

If PTCs are used I_{OL} is equal to I_{trip}

Circuit output tested: **DVI**				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**3.9**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**1.1**	**8.0**	**4.3**	**100**

Circuit output tested: **VGA**				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**3.9**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**1.1**	**8.0**	**4.3**	**100**

Circuit output tested: **DisplayPort**				
Measured Uoc (V) with all load circuits disconnected:	**3.3**			
Measured U_{OL} (V):	**2.3**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**1.2**	**8.0**	**2.8**	**100**

Circuit output tested: **USB** rear P08, P09, P10, P11 (located in 4 * USB jack)				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**3.9**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**4.0**	**8.0**	**15.6**	**100**

Circuit output tested: **USB** rear P02, P03, P12, P13 (located in 2 * USB jack)				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**4.0**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**3.5**	**8.0**	**14.0**	**100**

Circuit output tested: **USB** rear P06, P07 (2 * located in combined LAN jack)				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**3.7**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**3.4**	**8.0**	**13.0**	**100**

Circuit output tested: **USB** front P01, P05 (located in 2 * USB jack)				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**3.9**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**3.3**	**8.0**	**12.9**	**100**

Circuit output tested: **USB** front P00, P4 (located in 2 * USB jack)				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**3.9**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**3.3**	**8.0**	**12.9**	**100**

Circuit output tested: **Keyboard**				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**4.0**			
	I_{OL} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	**1.1**	**8.0**	**4.1**	**100**

Circuit output tested: **Mouse**				
Measured Uoc (V) with all load circuits disconnected:	**5.0**			
Measured U_{OL} (V):	**4.0**			
	I_{OL} (A)		VA	
	Meas.	Meas.	Meas.	Meas.
Normal condition	**1.1**	**8.0**	**4.1**	**100**

2.6.3.4	TABLE: Earthing Test	N/A

Accessible Conductive Part	Current (Ampere)	Voltage Drop		Calculated Resistance (Ohms)	According to
		(Volt)	ac / dc		

Supplementary information:

2.10.2	Table: working voltage measurement	N/A

Location	RMS voltage (V)	Peak voltage (V)	Comments
supplementary information:			

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:						

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:					

4.3.8	TABLE: Batteries	P

Battery category	:	**Lithium**
Manufacturer	:	**Hitachi Maxell / KTS / FDK**
Type / model	:	**CR2032**
Voltage	:	**3V**
Capacity	:	**approx. 210mAh / 220mAh**
Tested and Certified by (incl. Ref. No.)	:	**UL1642 (MH12568 / MH20550 / MH13421)**

Circuit protection diagram:

Description of unintentional charging

Protection circuit is performed by:

- one diode and one resistor and
- one resistor and a integrated circuit

See also page 55.

MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)	
Location of replaceable battery	On the system board
	Must be proofed in the documentation of end product.
Close to the battery	-
In the servicing instructions	Must be proofed in the documentation of end product.
In the operating instructions	Must be proofed in the documentation of end product.

4.3.8	TABLE: Batteries	P
The tests of 4.3.8 are applicable only when appropriate battery data is not available	Refer below:	P
Is it possible to install the battery in a reverse polarity position?	No, because there is used a special socket	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	**5.0µA**	**#1**	**Prevented**						
Max. current during fault condition	**1.3mA** [1)]	**#1**	**#1** **measured: 33.9µA** [2)]						

1) Worst case is short circuit of signal VBATT_SIO to GND.
2) Worst case is short circuit of diode 430V51.

Test according cl. 4.3.8: Battery is placed in circuit during the tests. The test results are independent from battery manufacturer because all used batteries have nominal voltage level of 3.0V.

#1 For manufacturer data and also data from UL data base see batteries in table 1.5.1 “List of critical components”.

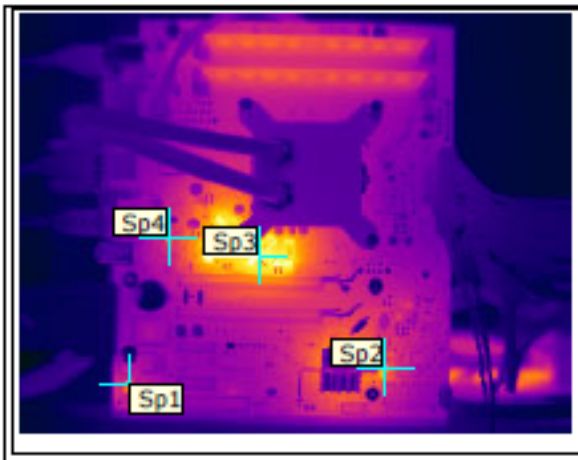
Test results:		Verdict
- Chemical leaks	No leaks	P
- Explosion of the battery	No explosion	P
- Emission of flame or expulsion of molten metal	No flame or molten metal	P
- Electric strength tests of equipment after completion of tests	Equipment is Class III	N/A

Supplementary information:

-

4.5	TABLE: Thermal requirements	P

This picture shows an overall view from the board and gives an estimation of the hot spots.



Date	27.03.2013
Filename	1SB12-0012_001.fff
Max Temperature	50.9 °C
Min Temperature	24.4 °C
Emissionsgrad	0.95
Objektabstand	0.5 m
Atmosphärentemperatur	23.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL19
Bild Kamerafilter	

Sp1 Temperatur	39.9 °C
Sp2 Temperatur	44.3 °C
Sp3 Temperatur	48.4 °C
Sp4 Temperatur	36.0 °C

The hot spots are the components 120V30, 120V13, 120V20 and 120V23. The max. temperature which was detected is 48.4°C by an ambient temperature of 23°C.

The equipment is for building-in and the real temperatures must be considered in the end product. The temperatures depends from cooling system and load of the end product.

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:

4.7	TABLE: Resistance to fire				N/A
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Supplementary information:					

5.1	TABLE: touch current measurement		N/A
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions
supplementary information:			
.			

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			N/A
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:				
-				
Basic/supplementary:				
Reinforced:				
Supplementary information:				

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

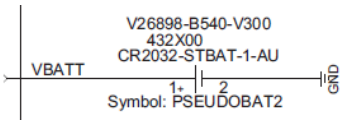
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Supplementary information:						

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 (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:							

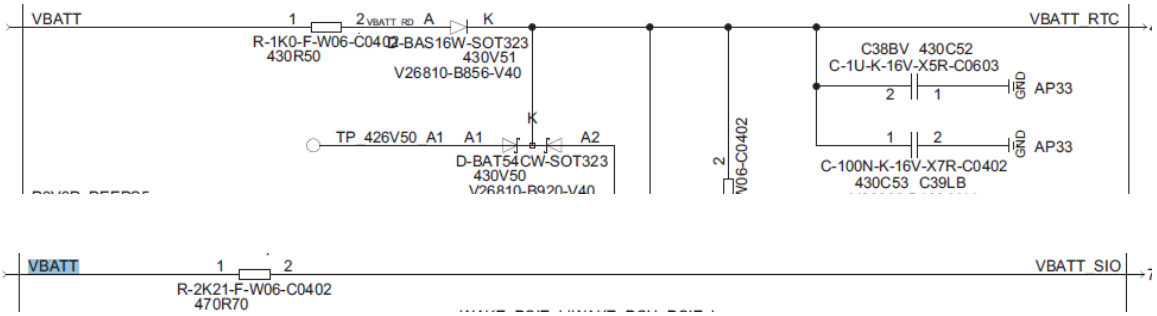
C.2	TABLE: transformers	N/A

Schematics

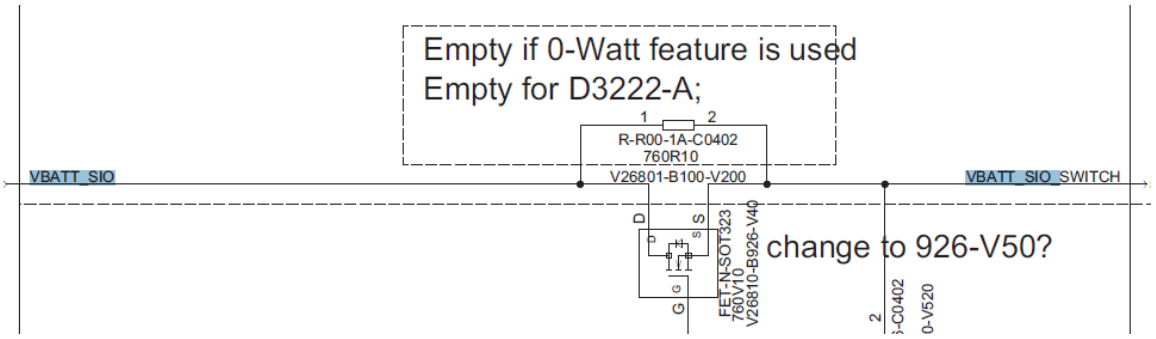
Lithium battery protection



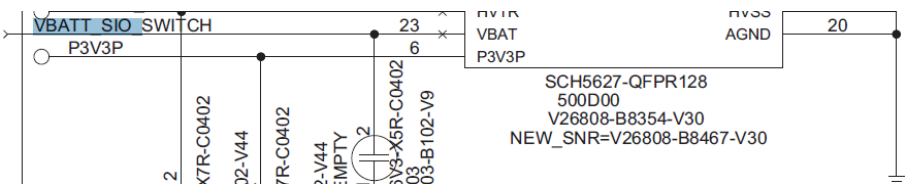
VBATT



VBATT_SIO
(760V10 not assembled)

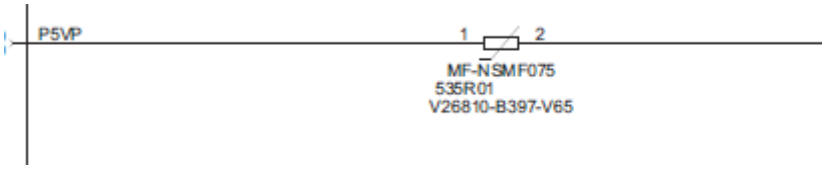


VBATT_SIO_SWITCH



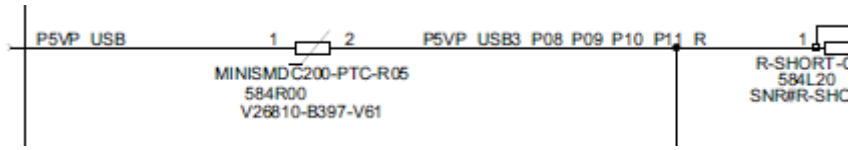
TRF No. IEC60950_1C

PTC for PS2 (Mouse, Keyboard) and DVI / VGA

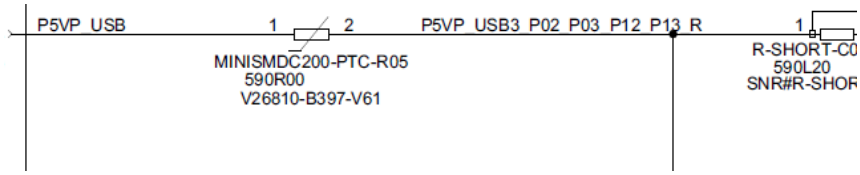


PTC for DisplayPort

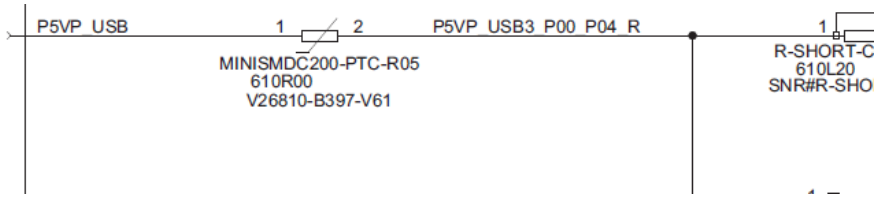
PTC for USB P08, P09, P10, P11



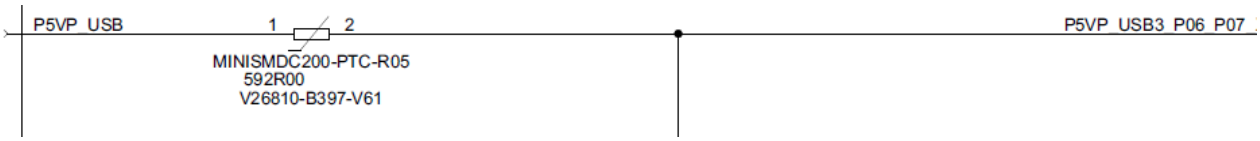
PTC for USB P02, P03, P12, P13



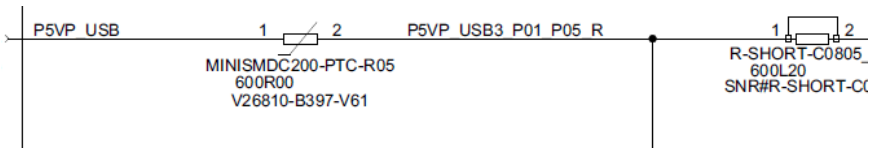
PTC for USB P00, P04



PTC for USB P06, P07



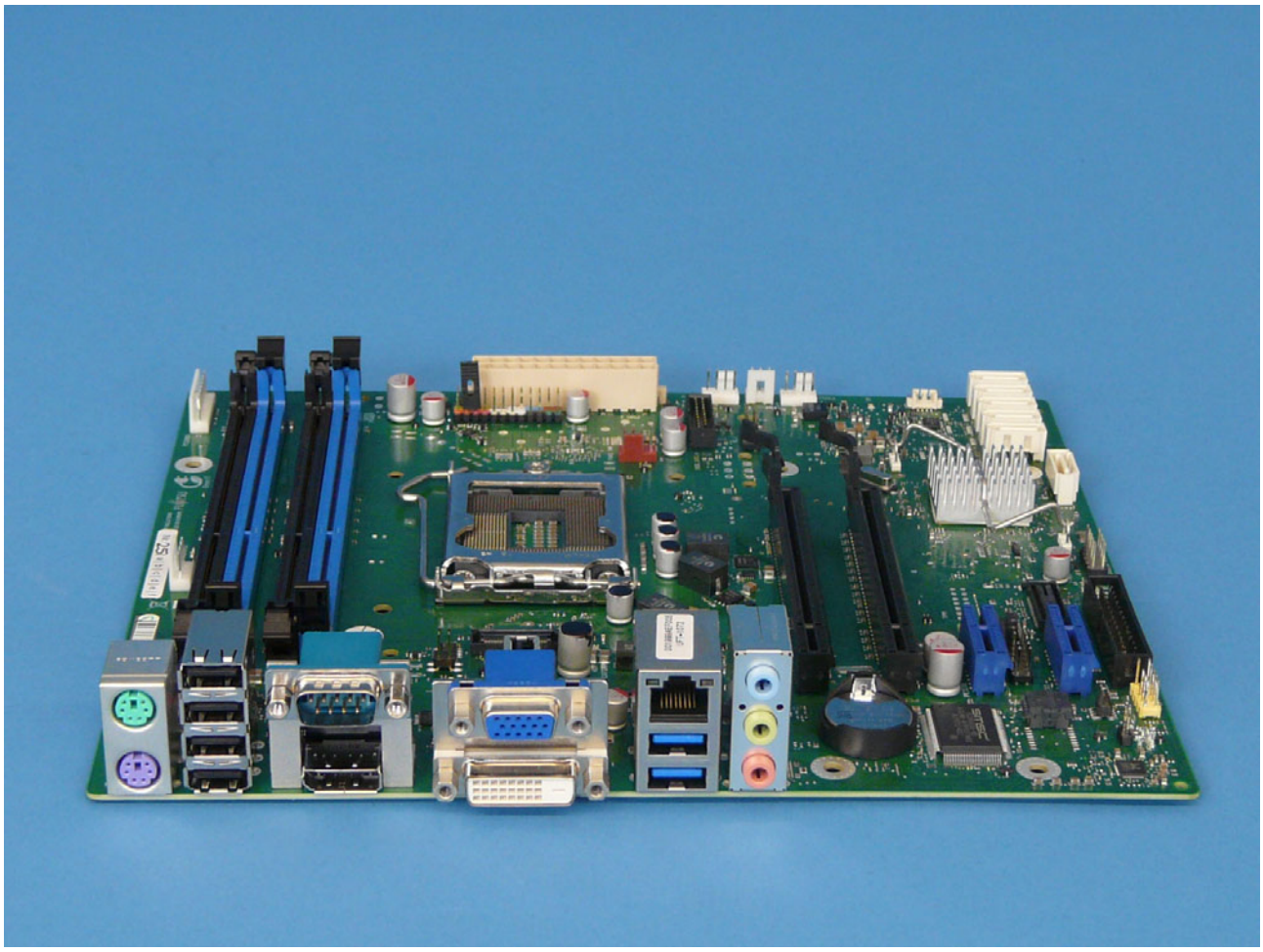
PTC for USB P01, P05



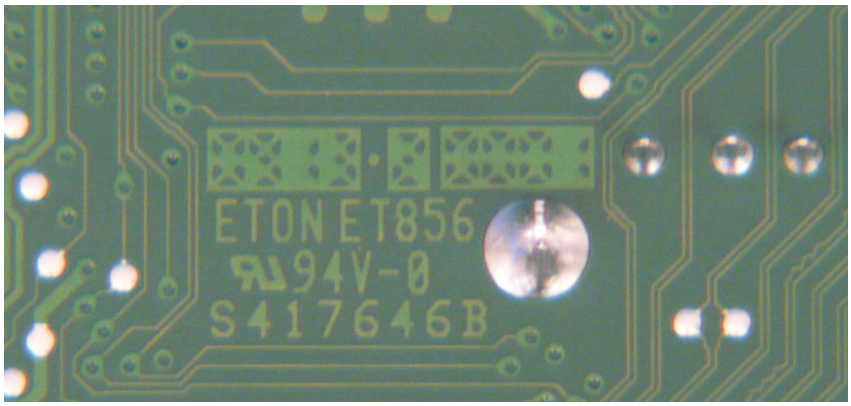
FUJITSU

Report No. CER+1SB12-0012+S01

Front view



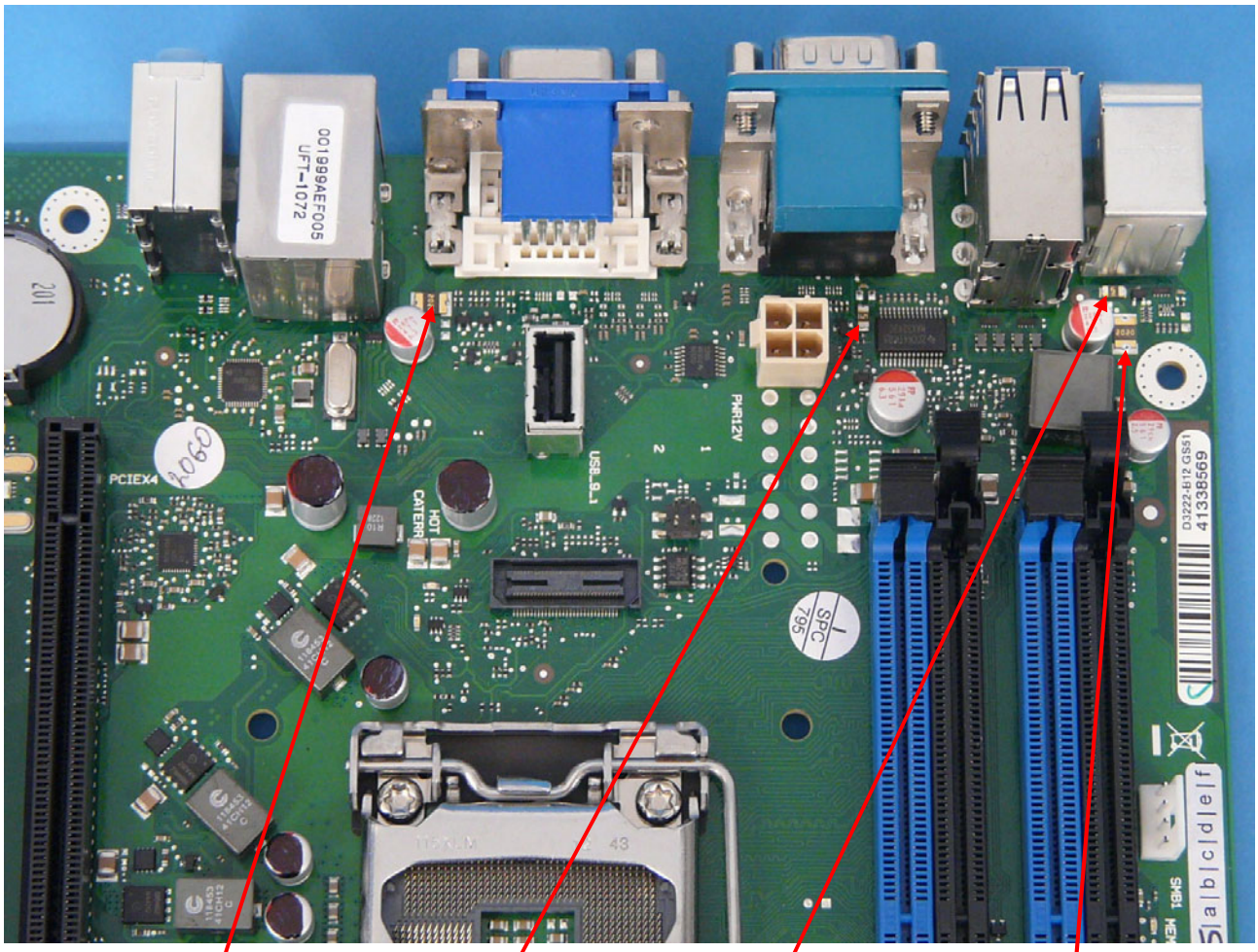
Detailed view to flammability classification / desgination (may be vary):



FUJITSU

Report No. CER+1SB12-0012+S01

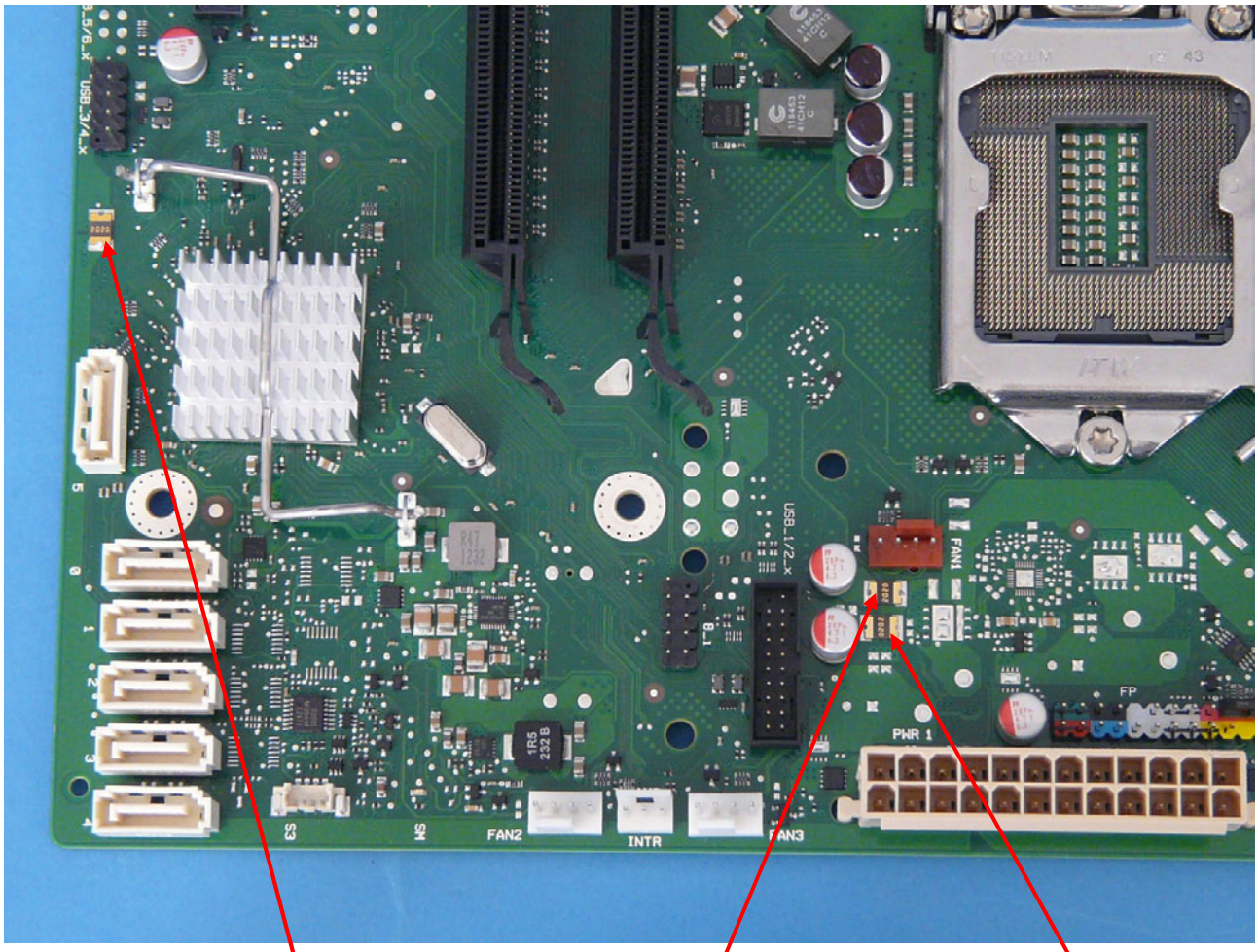
View to PTCs:



FUJITSU

Report No. CER+1SB12-0012+S01

View to PTCs:



590R00, PTC USB
P02, P03, P12, P13

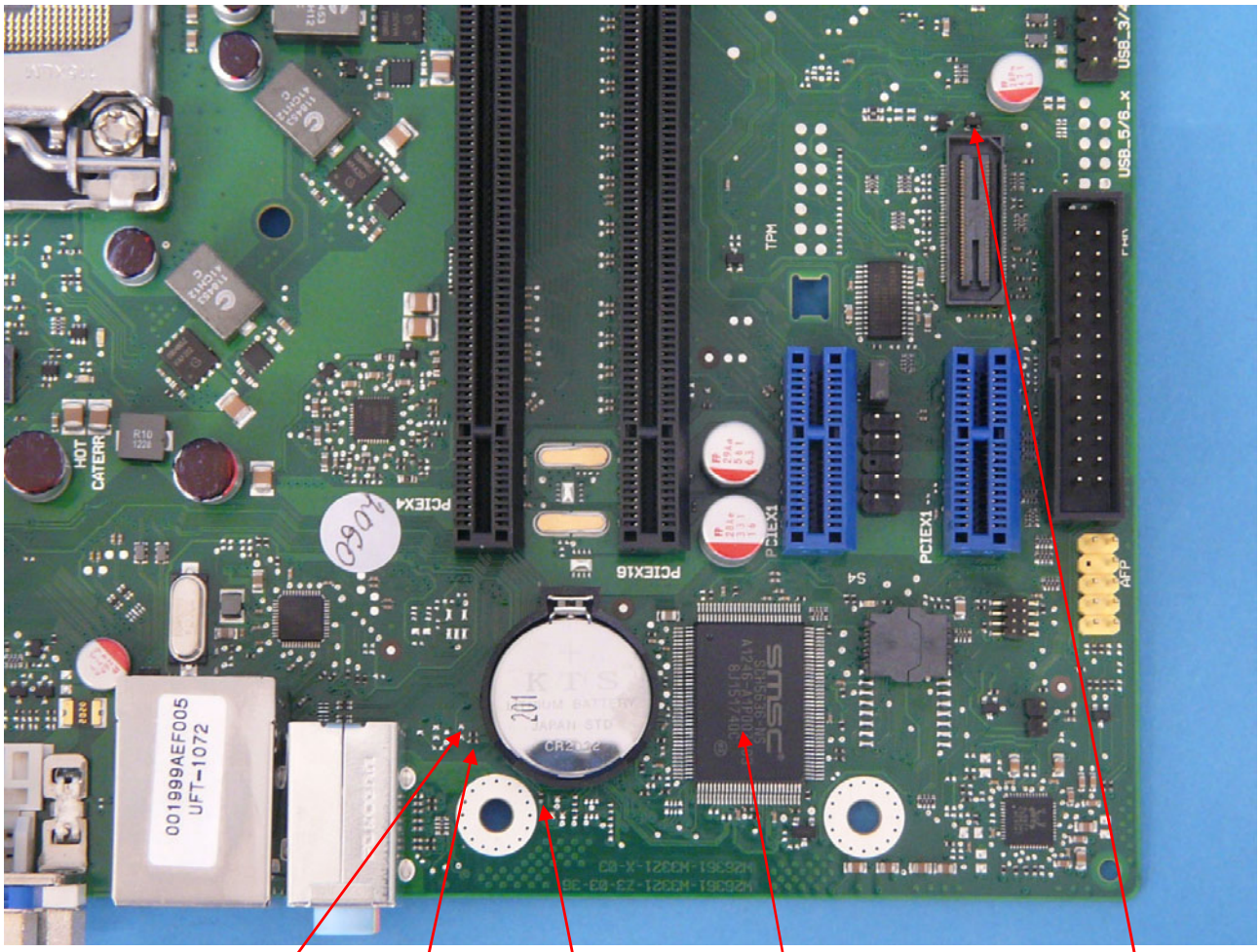
592R00, PTC USB
P06, P07

610R00, PTC USB
P00, P04

FUJITSU

Report No. CER+1SB12-0012+S01

View to location of components for protection of Li battery:



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 + A1 : 2010 + A11:2009 + A12 : 2011
Attachment Form No. .....:	EU_GD_IEC60950_1A
Attachment Originator.....:	SGS Fimko Ltd
Master Attachment .....:	Date (2009-09)

EN 60950-1:2006/A11:2009 – CENELEC COMMON MODIFICATIONS

	IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN))		
Clause	Requirement + Test	Result - Remark	Verdict
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		**P**
General	Delete all the “country” notes in the reference document 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 4.7.3.1Note 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**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Considered.	**P**
1.5.1	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	Considered.	**P**
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss	Considered.	**P**
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;	Considered.	**P**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		
2.7.2	This subclause has been declared 'void'.	Considered.	**P**
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Considered.	**P**
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.	Considered.	**P**
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	Considered.	**P**
4.3.13.6	Add the following NOTE: 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. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.	Considered.	**P**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Considered.	**P**
Bibliography	Additional EN standards.		—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		
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.	Class III equipment	**N/A**
1.2.13.14	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.	Class III equipment	**N/A**
1.5.7.1	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.	Class III equipment	**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).	Class III equipment	**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.	Class III equipment	**N/A**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 suojamaadoituskoskettimilla varustettuun pistorasiaan"	Class III equipment	**N/A**
	In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag” 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. 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	Class III equipment	**N/A**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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."		
1.7.5	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. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.	Class III equipment	**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.	Class III equipment	**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.	No telecommunication equipment.	**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.	No telecommunication equipment.	**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.	Considered.	**P**
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.	No direct plug-in equipment.	**N/A**

IEC60950_1A - ATTACHMENT			
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.	No telecommunication equipment.	**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, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A	Class III equipment	**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.	Class III equipment	**N/A**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Class III equipment	**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.	Class III equipment	**N/A**
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.	Class III equipment	**N/A**
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.	Class III equipment	**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.	Class III equipment	**N/A**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Class III equipment	**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.	Class III equipment	**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.	No direct plug-in equipment.	**N/A**
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.	Class III equipment	**N/A**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	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. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 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.	No telecommunication equipment.	**N/A**
	It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, 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 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.	No telecommunication equipment.	**N/A**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No telecommunication equipment.	**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.	No cable distributions system.	**N/A**
7.3	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	No cable distributions system.	**N/A**
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.	No cable distributions system.	**N/A**
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN).** **A-DEVIATIONS (informative)**		
1.5.1	**Switzerland** (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.	Considered.	**P**
1.7.2.1	**Germany** (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.	Considered.	**P**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.13	**Switzerland** (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.	Considered.	**P**

IEC60950_1A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Zx	**ANNEX Zx, Protection against exessive sound pressure caused by transporttable sound systems**		
Zx.1	General, Definition of exessive sound pressure caused by transporttable sound systems	Considered.	**N/A**
Zx.2	Requirements of products	Considered.	**N/A**
Zx.3	Safety instructions	Considered.	**N/A**
Zx.4	Requirments to Headsets and Earphones	Considered.	**N/A**
Zx.4.1	Analog input, headsets via wire	Considered.	**N/A**
Zx.4.2	Digital input, headsets via wire	Considered.	**N/A**
Zx.4.3	Wireless headsets	Considered.	**N/A**
Zx.5	Measurement methods	Considered.	**N/A**

FUJITSU

Report No. CER+1SB12-0012+S01

Test Equipment

2.5	Limited Power Source Test

Test engineer: Andreas Kripahle Date: April 2013

Type of Instrument	Manufacturer	Model	Next Calibration	Serial No
Digital Multimeter	Fluke	187	Nov 2013	93380163
Volt-Ampere-Ohm-Meter	Siemens	Multizet S	Nov 2013	819.1.TD-196

4.3.8	Battery Test

Test engineer: Andreas Kripahle Date: April 2013

Type of Instrument	Manufacturer	Model	Next Calibration	Serial No
Digital Multimeter	Fluke	187	Nov 2013	93380163

4.5	Temperature Test

Test engineer: Matthias Haerle Date: March 2013

Type of Instrument	Manufacturer	Model	Next Calibration	Serial No
Thermography system	Flir	SC620	Aug 2013	404003720
Lens	Flir	IR lens 0.5X, f=75mm	Aug 2013	-
Lens	Flir	IR lens, f=19mm, 45°	Aug 2013	-