Report No. EN 83054 M0A0 MET Project No. 83054

#### Test Report issued under the responsibility of:

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TEST REPORT EN 60950-1 Information technology equipment – Safety –		
Part 1: General requirements Report Number		
Date of Investigation		
Total number of pages	81 pages	
CB Testing Laboratory	MET Laboratories, Inc.	
Address	914 West Patapsco Ave, Baltimore, MD 21230, USA	
Applicant's name	Ubiquiti Networks	
Address	91 E. Tasman San Jose, CA 95134, U.S.A	
Manufacturer's name:	Ubiquiti Networks	
Address	91 E. Tasman San Jose, CA 95134, U.S.A	
Test specification:	CE	
Standard	<u>EN 60950-1: 2006 + A1:2010</u>	
Test procedure:	CE Scheme	
Non-standard test method	N/A	
Test Report Form No	IEC60950_1B	
Test Report Form(s) Originator:	SGS Fimko Ltd	
Master TRF	Dated 2010-04	
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Test item description:	Indoor/Outdoor Wireless Network Device.
Trade Mark:	UBIQUITI
Manufacturer:	Ubiquiti Networks.
Model/Type reference	NanoStation loco M5 5GHz Indoor-Outdoor AirMax 13dBi CPE
	NanoStation M5 5GHz Indoor-Outdoor AirMax 16dBi CPE
Ratings	Powered by Listed AC/DC Adaptor with an output of 24VDC, 0.5A

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Test	ing procedure and testing location:		
	CB Testing Laboratory:		
Testi	ing location/ address		
	Tested by (name + signature):		
	Approved by (name + signature):		
$\square$	Associated CB Laboratory:	MET Laboratories, Inc.	
Test	ing location/ address	33439 Western Ave. Union City, CA 94587	
	Tested by (name + signature):	Shaima Adin	A.
	Approved by (name + signature):	Nader Tabesh	Much Call.

#### List of Attachments:

Enclosure 1: Other Country National And Group Differences, pg 43

Enclosure 2: Photographs (Figures) and Illustrations, pg 64

Enclosure 3: EN 60950-22

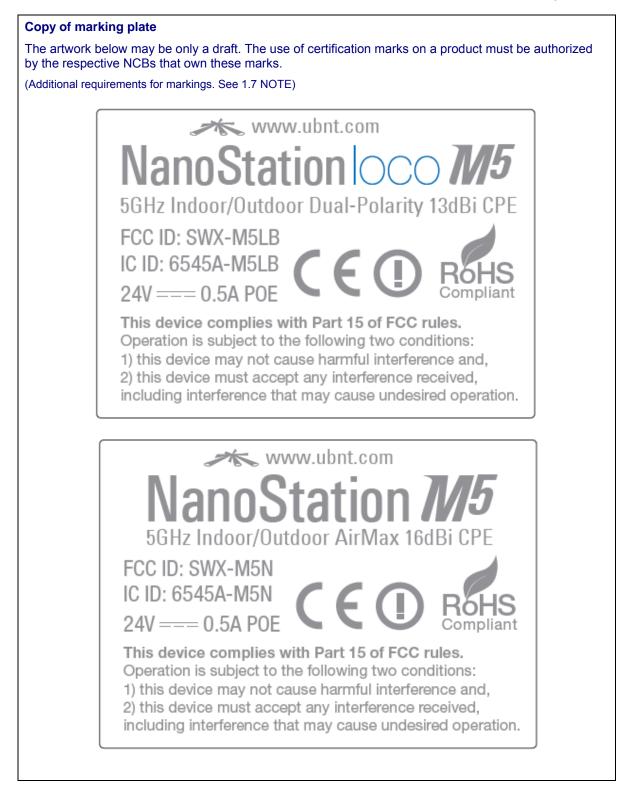
#### Summary of testing:

Tests performed (nan	ne of test and test clause):	Testing location:
1.7.13	Marking Durability Test	33439 Western Ave.
1.6.2	Input Current Test	
4.5.1	Temperature Test	Union City, CA. 94587
5.2	Dielectric Test	
6.2.2.2	Steady State Test	
4.2.10	Pole Mounting Test	

Summary of compliance with National Differences

List of countries addressed: AT, BE, CH, CN, CZ, DE, DK, FI, GB, KR, JP, NL, NO, SE, SG, SL, & US.

Group Differences are applicable for CENELEC member countries: Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom and CENELEC affiliate member countries: Turkey.



Test item particulars		
Equipment mobility	Pole mounted	
Connection to the mains	Through external Listed AC/DC power supply adaptor.	
Operating condition	Continuous	
Access location	Operator Accessible.	
Over voltage category (OVC)	Other DC.	
Mains supply tolerance (%) or absolute mains supply values	-15% and +20%	
Tested for IT power systems	No	
IT testing, phase-phase voltage (V)	N/A	
Class of equipment	TNV-1	
Considered current rating of protective device as part of the building installation (A)	20A	
Pollution degree (PD)	PD II	
IP protection class	IP22	
Altitude during operation (m)	14	
Altitude of test laboratory (m)	14	
Mass of equipment (kg)	1 Kg	
Possible test case verdicts:		
- test case does not apply to the test object	N/A (or N)	
- 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 3, 2011	
Date(s) of performance of tests	March 22, 2011	
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 application for obtaining a CB Test Certificate	☐ Yes	
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	⊠ Not applicable	
When differences exist; they shall be identified in the G	Seneral product information section.	
Name and address of factory (ies)	Ubiquiti Networks	
	91 E. Tasman San Jose, CA 95134, U.S.A	
General product information:		
• NanoStation packs some phenomenal performance with a revolutionary design combining a hi- gain 4 antenna system, advanced radio architecture, and highly researched and developed firmware technology allowing throughput, stability, and capacity performance rivaling even the highest-end WiMax networks		

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Р

1.5	Components		Р
1.5.1	General		Р
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	Ρ
1.5.2	Evaluation and testing of components	Components certified to EN harmonized Standards and checked for correct application. Components not certified are used in accordance with their ratings and they comply with applicable parts of EN 60950 and the relevant component Standards.	Ρ
1.5.3	Thermal controls	No thermal control	N/A
1.5.4	Transformers	Isolation transformer internal to the unit only intended to be used in application of this product.	Р
1.5.5	Interconnecting cables	Addressed in the manual.	Р
1.5.6	Capacitors bridging insulation	No capacitor bridging	N/A
1.5.7	Resistors bridging insulation	No resistor bridging	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	No resistor bridging	N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No resistor bridging	N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	No resistor bridging	N/A
1.5.8	Components in equipment for IT power systems	No such components	N/A
1.5.9	Surge suppressors	DC equipment. surge suppressor part of the external Listed AC/DC power supply	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
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

1.6	Power interface		Р
1.6.1	AC power distribution systems	DC unit.	N/A

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GENERAL

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		IVIL I FIQ	ect NO. <u>850</u>
1.6.2	Input current	(see appended table 1.6.2)	Р
1.6.3	Voltage limit of hand-held equipment	Not hand-held unit.	N/A
1.6.4	Neutral conductor	Part of the external Listed AC/DC power supply	N/A

1.7	Marking and instructions		Р
1.7.1	Power rating and identification markings	Provided on the label	Р
1.7.1.1	Power rating marking	Provided on the label	Р
	Multiple mains supply connections		Р
	Rated voltage(s) or voltage range(s) (V):	24VDC	Р
	Symbol for nature of supply, for d.c. only:	Provided on the label	Р
	Rated frequency or rated frequency range (Hz) :	No frequency. DC equipment.	N/A
	Rated current (mA or A):	0.5A	Р
1.7.1.2	Identification markings	Equipment name and model number marked on the equipment.	Ρ
	Manufacturer's name or trade-mark or identification mark:	Marked on the equipment	Ρ
	Model identification or type reference:	Model type is provided on the equipment	Ρ
	Symbol for Class II equipment only:	Not Class II equipment	N/A
	Other markings and symbols:		N/A
1.7.2	Safety instructions and marking	provided in the manual	Р
1.7.2.1	General	Provided in the manual	Р
1.7.2.2	Disconnect devices	Addressed in the manual	Р
1.7.2.3	Overcurrent protective device	Part of the external listed power supply	Ρ
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool	No tool necessary. No operator access	N/A
1.2.7.6	Ozone	No ozone generated	N/A
1.7.3	Short duty cycles	Not intended for such application	N/A
1.7.4	Supply voltage adjustment:	Part of the external listed power supply	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment:	No power outlets on equipment	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference):	No operator replaceable fuse	N/A
1.7.7	Wiring terminals	No wiring terminals	N/A

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1.7.7.1	Protective earthing and bonding terminals:	Part of the Ethernet cable shield. No terminals	N/A
1.7.7.2	Terminals for a.c. mains supply conductors	Part of the external power supply	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	No terminals	N/A
1.7.8	Controls and indicators	None	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	Single power source	N/A
1.7.10	Thermostats and other regulating devices	None	N/A
1.7.11	Durability	Test performed. marking legible after test	Р
1.7.12	Removable parts	No removable parts	N/A
1.7.13	Replaceable batteries	None	N/A
	Language(s):		
1.7.14	Equipment for restricted access locations	Addressed in the manual	Р

Р
Р
Р
Р
N/A
N/A
N/A
N/A
N/A

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			ojeci no. <u>85</u>
2.1.1.8	Energy hazards – d.c. mains supply	Permanently connected equipment.	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:	No audio amplifiers	N/A
2.1.2	Protection in service access areas	no service access area	N/A
2.1.3	Protection in restricted access locations	no energy hazards in restricted access area	N/A

2.2	SELV circuits		Р
2.2.1	General requirements	Power provided by Listed LPS external AC/DC power supply	Ρ
2.2.2	Voltages under normal conditions (V):	SELV	Р
2.2.3	Voltages under fault conditions (V):	SELV	Р
2.2.4	Connection of SELV circuits to other circuits:	SELV to SELV	Р

2.3	TNV circuits		Р
2.3.1	Limits	Voltage level of the equipment does not exceed SELV and is subject to overvoltage.	Ρ
	Type of TNV circuits	TNV-1	
2.3.2	Separation from other circuits and from accessible parts	Basic insulation between TNV-1 and antenna	Р
2.3.2.1	General requirements	TNV-1 and antenna	Р
2.3.2.2	Protection by basic insulation	Basic insulation between TNV-1 and antenna	Ρ
2.3.2.3	Protection by earthing	Permanently connected equipment. Protective earthing part of the special RJ 45 cable. It is addressed in the manual that only this shielded cable is to be used.	Ρ
2.3.2.4	Protection by other constructions:		N/A
2.3.3	Separation from hazardous voltages	No hazardous voltage levels.	N/A
	Insulation employed:		
2.3.4	Connection of TNV circuits to other circuits	TNV-1 to TNV-1	Р
	Insulation employed:	Basic insulation	
2.3.5	Test for operating voltages generated externally	None	N/A

2.4	Limited current circuits	N/A
	Not evaluated for limited current circuit.	
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		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition	Covered by external LPS Listed AC/DC power supply	Р
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)		—
	Current rating of overcurrent protective device (A) .:		
	Use of integrated circuit (IC) current limiters		

2.6	Provisions for earthing and bonding		Р
2.6.1	Protective earthing	Part of the shielded category 5 cable	Р
2.6.2	Functional earthing	Not considered	N/A
2.6.3	Protective earthing and protective bonding conductors	Protective earthing Part of the shielded category 5 cable. Addressed in the manual	Р
2.6.3.1	General	Protective earthing Part of the shielded category 5 cable. Addressed in the manual	Р
2.6.3.2	Size of protective earthing conductors	Protective earthing Part of the shielded category 5 cable. Addressed in the manual	Р
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG:		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG:		
	Protective current rating (A), cross-sectional area (mm <sup>2</sup> ), AWG:		

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2.6.3.4	Resistance of earthing conductors and their terminations; resistance ( $\Omega$ ), voltage drop (V), test current (A), duration (min)		N/A
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals	No terminals	N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals	No terminals. Part of the LAN wire.	N/A
	Rated current (A), type, nominal thread diameter (mm):	Protective earthing Part of the shielded category 5 cable. Addressed in the manual	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Part of the shielded LAN wire. It is permanently connected	Р
2.6.5	Integrity of protective earthing	Part of the shielded LAN wire. It is permanently connected	Р
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No such components	N/A
2.6.5.3	Disconnection of protective earth		
2.6.5.4	Parts that can be removed by an operator	No parts in equipment that can be removed by operator	N/A
2.6.5.5	Parts removed during servicing	No protective earthing on parts that can be removed by servicing	N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		
2.6.5.8	Reliance on telecommunication network or cable distribution system	Protective earthing does not rely on telecommunication network or cable distribution system.	N/A

2.7	.7 Overcurrent and earth fault protection in primary circuits	
	Not prin	mary circuit
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
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		No safety interlocks.	
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		Р
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	Р
2.9.2	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C)		_
2.9.3	Grade of insulation	Basic insulation: TNV-1 to antenna.	Ρ
2.9.4	Separation from hazardous voltages	No hazardous voltage levels	N/A
	Method(s) used		—

2.10	Clearances, creepage distances and distances through insulation		Р
	Covered by external LPS listed adaptor		
2.10.1	General	Equipment powered at SELV only with no exposure to transient overvoltages – exclusion of 5.3.4b applied for functional insulation	Ρ
2.10.1.1	Frequency	DC equipment	N/A
2.10.1.2	Pollution degrees	Pollution Degree II	N/A
2.10.1.3	Reduced values for functional insualtion		N/A
2.10.1.4	Intervening unconnected conductive parts	No such parts	N/A
2.10.1.5	Insulation with varying dimensions	None	N/A
2.10.1.6	Special separation requirements	None	N/A

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2.10.1.7	Insulation in circuits generating starting pulses	No such circuits	N/A
2.10.2	Determination of working voltage	24VDC	Р
2.10.2.1	General	Rated DC voltage	Р
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances	Part of Listed Power Adaptor	Р
2.10.3.1	General	Functional	Р
2.10.3.2	Mains transient voltages	No directly connected to mains. Covered by Listed Power Adaptor	N/A
	a) AC mains supply	Part of Listed Power Adaptor	N/A
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation	No batteries	N/A
2.10.3.3	Clearances in primary circuits	Part of Listed Power Adaptor No primary circuitry	N/A
2.10.3.4	Clearances in secondary circuits	>0.1mm	Р
2.10.3.5	Clearances in circuits having starting pulses	No such circuits	N/A
2.10.3.6	Transients from a.c. mains supply	Not directly connected to AC mains	N/A
2.10.3.7	Transients from d.c. mains supply	Part of Listed Power Adaptor	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems	No such connections	N/A
2.10.3.9	Measurement of transient voltage levels	Part of Listed Power Adaptor	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		Р
2.10.4.1	General	Equipment powered at SELV only with no exposure to transient overvoltages – exclusion of 5.3.4b applied for functional insulation	Ρ
2.10.4.2	Material group and comparative tracking index		Р
	CTI tests	Material group IIIb is assumed to be used	
2.10.4.3	Minimum creepage distances		Р
2.10.5	Solid insulation	No 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	MET.	Project No. <u>8</u> 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	No such board.	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

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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 General		Р
3.1			Р
3.1.1	Current rating and overcurrent protection	Part of Listed Power Adaptor	N/A
3.1.2	Protection against mechanical damage	Well routed wires and smooth edges, no sharp edges or corners	Р
3.1.3	Securing of internal wiring	Well routed and secured	Р
3.1.4	Insulation of conductors	Dielectric test performed. refer to test data.	Р
3.1.5	Beads and ceramic insulators	No Beads and ceramic insulators.	N/A
3.1.6	Screws for electrical contact pressure	No screws used.	N/A
3.1.7	Insulating materials in electrical connections	No electrical connections that rely on insulating material for adequate contact pressure.	N/A
3.1.8	Self-tapping and spaced thread screws	No such screws.	N/A
3.1.9	Termination of conductors	No terminations.	N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	Sleeving is not used.	N/A

3.2	Connection to a mains supply		N/A
3.2.1	Means of connection	Not directly connected to mains. Power is provided to equipment through external LPS listed power supply.	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):		—

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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
	Туре:	
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), 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
	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	No 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 <sup>2</sup> )		—
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		Р
	Part of the external Listed LPS power supply		
3.4.1	General requirement	Part of the external Listed LPS power supply	Р
3.4.2	Disconnect devices	Plug of external power supply Addressed in the manual	Р
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized	No such parts	N/A

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3.4.5	Switches in flexible cords	No switches	N/A
3.4.6	Number of poles - single-phase and d.c. equipment	Disconnect device not part of the equipment.	N/A
3.4.7	Number of poles - three-phase equipment	Not three phase equipment.	N/A
3.4.8	Switches as disconnect devices	No switch as disconnect device	N/A
3.4.9	Plugs as disconnect devices	Plug of external power supply Addressed in the manual	Р
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources	Single power source	N/A

3.5	Interconnection of equipment		Р
3.5.1	General requirements	TNV-1 to TNV-1	Р
		SELV to SELV	
3.5.2	Types of interconnection circuits:	TNV-1 and SELV	Р
3.5.3	ELV circuits as interconnection circuits	No ELV wiring	N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS		Р
4.1	Stability	Stability	
	Angle of 10°	Stationary equipment. poll mounted or wall mounted	N/A
	Test force (N)		N/A

4.2	Mechanical strength		Р
4.2.1	General		Р
	Rack-mounted equipment.	Not rack mounted	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	Equipment powered with under 15VA power.	N/A
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm)	Not hand-held	N/A
4.2.7	Stress relief test	Test performed. No reduction in spacing or damage to the enclosure that may result in a hazard.	Ρ
4.2.8	Cathode ray tubes		N/A

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	Picture tube separately certified:		N/A
4.2.9	High pressure lamps	No high pressure lamps	N/A
4.2.10	Wall or ceiling mounted equipment; force (N):	Pole mounted equipment.	N/A
4.2.11	Rotating solid media		N/A
	Test to cover on the door		N/A

4.3	Design and construction		Р
4.3.1	Edges and corners	Edges and corners are rounded and smooth.	Ρ
4.3.2	Handles and manual controls; force (N):	No handles.	N/A
4.3.3	Adjustable controls	No such controls.	N/A
4.3.4	Securing of parts	Unit is held together by screws.	Ρ
4.3.5	Connection by plugs and sockets	No such connections	N/A
4.3.6	Direct plug-in equipment	Not direct plug-in.	N/A
	Torque		
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating elements.	N/A
4.3.8	Batteries	Lithium battery used for real time clock	Ρ
	- Overcharging of a rechargeable battery	Protected by a zener diod and a resistor	Ρ
	- Unintentional charging of a non-rechargeable battery	Battery is not a non- rechargeable	N/A
	- Reverse charging of a rechargeable battery	Protected by a zener diod and a resistor	Ρ
	- Excessive discharging rate for any battery	By a resistor	Р
4.3.9	Oil and grease	No oil or grease is used	N/A
4.3.10	Dust, powders, liquids and gases	Equipment does not produce dust, no use of liquid or gases	N/A
4.3.11	Containers for liquids or gases	None used	N/A
4.3.12	Flammable liquids	None used	N/A
	Quantity of liquid (I)		N/A
	Flash point (°C):		N/A
4.3.13	Radiation	No radiation	N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		
	Measured high-voltage (kV)		

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	-	IVIL I I IOJ	$\frac{000}{000}$
	Measured focus voltage (kV)		
	CRT markings		
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No such lamps in equipment.	N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation:	Equipment does not generate UV	N/A
4.3.13.5	Lasers (including laser diodes) 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)		
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No moving parts	N/A
4.4.2	Protection in operator access areas:		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		N/A
4.4.5	Protection against moving fan blades	No fans.	N/A
4.4.5.1	General		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		Р
4.5.1	General		Р

		MET Proj	ect No. <u>830</u>
4.5.2	Temperature tests	Test Conducted. Refer to test data.	Р
		Annex L.7 applies. Operated in the most unfavourable way of operation given in the operation instructions until steady conditions established.	
	Normal load condition per Annex L		
4.5.3	Temperature limits for materials	Refer to test data	Р
4.5.4	Touch temperature limits	Refer to test data	Р
4.5.5	Resistance to abnormal heat:	Less than 15VA equipment.	N/A

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	No openings in enclosure	N/A
	Dimensions (mm):		
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom, 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 metalized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks):		

4.7	Resistance to fire		Р
4.7.1	Reducing the risk of ignition and spread of flame	Power in the unit is rated less than 15 VA.	Р
		Method 1 was used.	
	Method 1, selection and application of components wiring and materials		Р
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	Power in the unit is rated less than 15 VA.	N/A
4.7.2.1	Parts requiring a fire enclosure	None	N/A
4.7.2.2	Parts not requiring a fire enclosure	Power in the unit is rated less than 15 VA.	N/A
4.7.3	Materials	·	Р

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4.7.3.1	General	Power in the unit is rated less than 15 VA.	Р
		The propagation of fire is limited through the selection of materials.	
4.7.3.2	Materials for fire enclosures	EUT powered up by external Listed Power Adaptor with SELV outputs.	N/A
4.7.3.3	Materials for components and other parts outside fire enclosures	No such components	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Components are mounted on a PCB rated 94V-0.	Р
4.7.3.5	Materials for air filter assemblies	None	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		Р
5.1	Touch current and protective conductor current		N/A
5.1.1	General	DC equipment	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
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

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		IVIL I I I UJ	$\frac{830}{830}$
	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		Р
5.2.1	General	Input to Ground: Functional Insulation Basic Insulation: TNV-1 to antenna	Ρ
5.2.2	Test procedure		Р

5.3	Abnormal operating and fault conditions	N/A
5.3.1	Protection against overload and abnormal operation	N/A
5.3.2	Motors	N/A
5.3.3	Transformers	N/A
5.3.4	Functional insulation:	N/A
5.3.5	Electromechanical components	N/A
5.3.6	Audio amplifiers in ITE	N/A
5.3.7	Simulation of faults	N/A
5.3.8	Unattended equipment	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	N/A
5.3.9.1	During the tests	N/A
5.3.9.2	After the tests	N/A

6	CONNECTION TO TELECOMMUNICATION NETV	VORKS	Р
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		Р
6.1.1	Protection from hazardous voltages		Р
	Compliance lies on protective earthing.		
6.1.2	Separation of the telecommunication network from earth		Р
6.1.2.1	Requirements	Refer to exclusion in clause 6.1.2.2	N/A
	Supply voltage (V)		

	Current in the test circuit (mA)		
6.1.2.2		Equipment has a provision to for a permanently connected protective earthing.	Р

6.2	Protection of equipment users from overvoltages on telecommunication networks		Р
6.2.1	Separation requirements	Basic insulation: TNV-1 and antenna	Р
6.2.2	Electric strength test procedure	Refer to appended table 5.2.	Р
		1000V between TNV-1 and antenna	
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test	(see appended table 5.2)	Р
6.2.2.3	Compliance criteria	No insulation breakdown	Р
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
	No connection to cable distribution system.	
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
7.4.3	Impulse test	N/A

Α	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE	N/A
	Less than 15VA powered equipment. No fire hazard	
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
	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

В	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 a 5.3.2)	
B.1	General requirements	N/A
D. I	Position:	IN/A
	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
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)	

С	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)	Р
	Isolation transformer used in equip	ment
	Position	
	Manufacturer	
	Туре	
	Rated values	
	Method of protection	

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C.1	Overload test	
C.2	Insulation	
	Protection from displacement of windings:	

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
		DC equipment.	
D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A

	Е	ANNEX E. TEMPERATURE RISE OF A WINDING (see 1.4.13)	N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)	N/A
	Covered by external listed power supply	

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

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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	

к	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
		No thermal controls.	
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)		Р
L.1	Typewriters	Not a typewriter	N/A
L.2	Adding machines and cash registers	No such equipment	N/A
L.3	Erasers	No erasers	N/A
L.4	Pencil sharpeners	Not pencil sharpeners	N/A
L.5	Duplicators and copy machines	No such machines	N/A
L.6	Motor-operated files	No such files	N/A
L.7	Other business equipment		Р

М	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)	
	No connection to telephone lines	
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)	

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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)	
	Refer to Clause 6	5
N.1	ITU-T impulse test generators	N/A
N.2	IEC 60065 impulse test generator	N/A

Ρ	ANNEX P, NORMATIVE REFERENCES	
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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	
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)				
	Refer to clause 6				
S.1	Test equipment		N/A		
S.2	Test procedure		N/A		
S.3	Examples of waveforms during impulse testing		N/A		

т	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)	
	IP22	
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)	

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

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
		DC equipment.	
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)	
X.1	Determination of maximum input current	N/A
X.2	Overload test procedure	N/A

Υ	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)	
	No	o UV
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
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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	
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-mounte equipment	ed N/A
	Not rack mounted	l equipment
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 shredder	rs N/A
	Not such	equipment
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 TA	BLE: List of critica	al components			Р	
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1</sup> )	
NanoStation M	5					
Enclosure	Various	Various	Polymeric Material	-	-	
Transformer	Ubiquiti Networks	H16125MCG	Isolation Hi- Pot:1500Vrms 1mA 1Sec	Tested in application. Transformer intended to be used in the application of this product only	Tested in application. Transformer intended to be used in the application of this product only	
Fuse	LittleFuse	SMCJ Series	Typical IR less than 1mA above 10V	ANSI/UL 497B, "Protectors for Data Communications and Fire-Alarm Circuits."	E128662	
Listed AC/DC Power Supply	Ubiquiti Networks	Carrier POE Adaptor Model UBI-POE-15-8	Input: 100-240VAC, 50-60Hz, 0.3A Output: DC 15V, 0.8A. 39PW LPS	UL /CSA 60950-1 Listed	E325809	
NanoStation Lo	oco M5					
Enclosure	Various	Various	Polymeric Material	-	-	
Transformer	Ubiquiti Networks	H16125MCG	Isolation Hi- Pot:1500Vrms 1mA 1Sec	Tested in application. Transformer intended to be used in the application of this product only	Tested in application. Transformer intended to be used in the application of this product only	
Fuse	LittleFuse	SMCJ Series	Typical IR less than 1mA above 10V	ANSI/UL 497B, "Protectors for Data Communications and Fire-Alarm Circuits."	E128662	

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1.5.1	TA	BLE: List of critica	I components				Р
Object/part	No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)		irk(s) of formity <sup>1</sup> )
Listed AC/D0 Power Supp	-	Ubiquiti Networks	Carrier POE Adaptor Model UBI-POE-15-8	Input: 100-240VAC, 50-60Hz, 0.3A Output: DC 15V, 0.8A. 39PW LPS	UL /CSA 60950-1 Listed	E3258	309
Supplementa		nformation: ence ensures the ag	reed level of com	Inliance See OD-(	<b>2B2U30</b>		

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

1.5.1	TABLE: Opto Electronic Devices	N/A
Manufacture	er:	
Туре		
Separately f	ested	
Bridging ins	ulation	
External cre	epage distance	
Internal cree	epage distance	
Distance thr	ough insulation	
Tested unde	er the following conditions:	
Input	:	
Output	:	
supplement	ary information	

1.6.2	.6.2 TABLE: Electrical data (in normal conditions)						Р	
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/statu	s	
20V	0.150A	0.5	3.00W	-	-	loco M5		
24V	0.126A	0.5	3.04W	-	-	loco M5		
28V	0.111A	0.5	3.11W	-	-	loco M5		
20V	0.135A	0.5	2.71W	-	-	M5		
24V	0.115A	0.5	2.72W	-	-	M5		
28V	0.102A	0.5	2.82W	-	-	M5		
24.8V	0.123A	0.5	3.06W	-	-	Loco M2 (with listed pov supply)	ver	
24.8V	0.111A	0.5	2.75W	-	-	M2 (with listed power supply)		

2.1.1.5 c) 1)	TABLE: max. V, A, VA test					N/A
Voltage	(rated)	Current (rated)	Voltage (max.)	Current (max.)	VA (n	· ·
(V	/)	(A)	(V)	(A)	(VA	

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

supplementary information:								

2.1.1.5 c) 2)	TABLE: stored energy				
Capacitance C (µF)		Voltage U (V)	Energy E (J)		
supplementary information:					

2.2	TABLE: evaluation of voltage limiting components in SELV circuits						
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting C	omponents		
		V peak	V d.c.				
Fault test pe	erformed on voltage limiting components	Vol		ured (V) in SELV cir beak or V d.c.)	cuits		
supplementary information: covered by use of External Listed AC/DC Adaptor							

2.5	TABLE: limited power sources		Р		
Circuit outpo	ut tested:				
Measured L disconnecte	Joc (V) with all load circuits d:				
		I <sub>sc</sub> (A) VA			
		Meas.	Limit	Meas.	Limit
Normal con	dition				
supplement	ary information: Covered by use of E	xternal LPS Lis	sted AC/DC Ada	ptor	
Sc=Short ci	rcuit, Oc=Open circuit				

2.10.2	Table: working voltage measurement					
Location		RMS voltage (V)	Peak voltage (V)	Comments		

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Clause	Requirement + Test	Result - Remark	Verdict

#### supplementary information:

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements							
Clearance (cl) and creepage distance (cr) at/of/between:U peak (V)U r.m.s. (V)Required cl 								
Functional:								
Basic/supple	ementary:							
Reinforced:								
Supplementary information: Covered by use of Listed External AC/DC power supply								

2.10.5	TABLE: Distance through insulation measurements						
Distance thr	ough insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Supplement	ary information:						

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4.3.8	TABLE:	Batteries							N/A
The tests o data is not		applicable	only when ap	propriate b	oattery				
Is it possible to install the battery in a reverse polarity position?									
	Non-re	chargeable	e batteries		R	echargeat	ole batterie	es	
	Disch	arging	Un- intentional	Char	ging	Discha	arging		ersed ging
	Meas. current	Manuf. Specs.	charging	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results	S:								Verdict
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric st	rength test	s of equipr	nent after com	pletion of	tests				
Supplemen	tary inform	nation:							

4.3.8	TABLE: Batteries		N/A
Battery cate	egory:	(Lithium, NiMh, NiCad, Lithium Ion)	
Manufactur	er:		
Type / mod	el:		
Voltage	÷		
Capacity	÷	mAh	
Tested and	Certified by (incl. Ref. No.):		
Circuit prote	ection diagram:		

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Requirement + Test Result - Remark

4.5 TABLE:	Thermal requ	irements										Р
Supply v	oltage (V)		:	20	)	DC	;					
Ambient	T <sub>min</sub> (°C)		:	26.	.8							
Ambient	T <sub>max</sub> (°C)		:	50	)							
Maximum measured temperature T of part/at::								T (°C	;)			Allowed T <sub>max</sub> (°C)
Supplementary inform	nation:											
Temperature T of winding:		t <sub>1</sub> (°C)	R <sub>1</sub>	(Ω)	t <sub>2</sub>	(°C)	R	2 (Ω)	T (°	-,	Allowed T <sub>max</sub> (°C)	Insulatio n class
Ambient		26.8		-		-		-	50	C	50	-
loco M2: Transformer		56.8	-			-		-	80	C	100	-
loco M2: Enclosure to	р	42.6	-			-		-	65	.8	80	-
loco M2: POE connec	ctor	47.0		-		-		-	70	.2	95	-
M2: Transformer		53.7		-		-		-	76	.9	100	-
M2: Enclosure top		35.2		-		-		-	58	.4	90	-
M2: POE connector		46.4		-		-		-	69	.6	70	-
Supplementary inform	Supplementary information:				-							
T(°C) represents norr measured values.	malized tempe	rature by a	addin	g ma	ximı	um am	bie	nt oper	ating	temp	erature to	the

4.5.5	TABLE: Ball pressure test of thermoplastic parts				
	Allowed impression diameter (mm)	$\leq 2$	2 mm		
Part			Test temperature (°C)	Impression (mi	

TRF No. IEC60950\_1B

Clause

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

4.7	TABLE:	ABLE: Resistance to fire							
Part	t	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	E	vidence		

Supplementary information: Less than 15VA equipment.

5.1	TABLE: touch current measurement						
Measured be	Measured between:		Limit (mA)	Comments/conditions			
supplementary information: DC equipment							

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests					
Test voltag	e applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdo wn Yes / No	
Functional:	(M5)					
Input –Grou	und		DC	707	No	
Functional:	(Loco M5)		·			
Input-Grou	nd		DC	707	No	
Supplemen	tary information:		•			

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			Р
Test voltage	e applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdo wn Yes / No
Basic/Supplementary: (M5)				
TNV Port -	Antenna	DC	1414	No
Basic/supple	ementary: (Loco M5)			
TNV Port -	Antenna	DC	1414	No
Supplement	ary information: Steady state test Clause 6.			

5.3

TABLE: Fault condition tests

N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Ambient temperature (°C):							
Power source for EUT: Manufacturer, model/type, output rating:				—			
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse urrent (A)	Observation	
	ary information:						

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#### List of test equipment used:

Company N Project # Model # of Project Eng Date	Unit	Ubiquiti Networks 83054 NanoStation Ioco M5 & M5 Shaima Adin March 22, 2011			
Asset Number:	Equipment Type:	Manufacturer Name:	Model Number:	Calibration Date:	Calibration Due Date:
2U539	Temperature Chamber	Thermotron	F150- CHV-25- 305-ECA	FVBU	FVBU
3U1020	Digital Multimeter	Tektronix	TX3	02/28/11	02/28/12
3U1026	Hipot Tester	Biddle	AC/DC HIGH POT TESTER	04/30/10	04/30/11
3U1043	Petroleum Spirit	Fisher Scientific	H292	NCR	NCR
3U1047	Digital DC Power Supply	XANTREX	XDC 80- 75	FVBU	FVBU
3U1055	Bench top Temperature Meter	Omega	MDSSi8	07/13/10	07/13/11
3U1063	Digital Power Analyzer	Valhalla Scientific	2101	10/19/10	10/19/11
3U1076	Temp./Humidity Monitor	Control Company	06-662-4	12/09/09	12/09/11
3U1078	Countdown Timer	Control Company	S90861	04/14/09	04/14/11

\*NCR = No Calibration Required.

\*FVBU = Functional Verification Before Use. Instrument is used with calibrated instruments.

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#### Enclosure 1: Other Country National And Group Differences

#### 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			
Attachment Form No:	EU_GD_IEC60950_1B			
Attachment Originator:	SGS Fimko Ltd			
Master Attachment:	Date (2010-04)			
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Geneva, Switzerland. All rights reserved.				

	IEC 60950-1, GRO	UP DIFFERE	ENCES (CEN	ELEC comm	on modifications EN)	
Clause	Requirement + Test			Resul	lt - Remark	Verdict
Contents	Add the following an	nnexes:		1		Р
	Annex ZA (normativ	/e)			international prresponding European	
	Annex ZB (normativ	ve)	Special nation	onal condition	ns	
General	Delete all the "count to the following list:		ne reference do	cument (IEC	60950-1:2005) according	Р
	1.4.8 Note 2	1.5.1	Note 2 & 3	1.5.7.1 No	te	
	1.5.8 Note 2	1.5.9.4	Note	1.7.2.1 No	te 4, 5 & 6	
	2.2.3 Note		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		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 G.2.1 Note 2 A	7.2 Innex H Note	Note 2	7.3	Note 1 & 2	
General (A1:2010)	Delete all the "count according to the following to the f		ne reference do	cument (IEC	60950-1:2005/A1:2010)	Р
	1.5.7.1 Note	6.1.2	.1 Note	2		
	6.2.2.1 Note 2	EE.3	Note			

#### EN 60950-1:2006/A11:2009/A1:2010 - CENELEC COMMON MODIFICATIONS

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	IEC 60950-1, GROUP DIFFERENCES (CENELEC	common modifications EN)	-
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	Add the following subclause:	Not a portable sound system	N/A
	1.3.Z1 Exposure to excessive sound pressure		
	<ul> <li>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.</li> <li>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 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.</li> </ul>		
1.5.1	Add the following NOTE:		N/A
	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		
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.	Not portable sound system	N/A
2.7.1	Replace the subclause as follows:		N/A
	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;		

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	IEC 60950-1, GROUP DIFFERENCES (CENELEC	common modifications EN)	<u>.</u>
Clause	Requirement + Test	Result - Remark	Verdict
	<ul> <li>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED</li> <li>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.</li> <li>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.</li> </ul>	Addressed in the manual	P
2.7.2	This subclause has been declared 'void'.		N/A
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	<ul> <li>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".</li> <li>In Table 3B, replace the first four lines by the following:</li> <li>Up to and including 6   0,75<sup>a</sup>   Over 6 up to and including 10   (0,75)<sup>b</sup> 1,0   Over 10 up to and including 16   (1,0)<sup>e</sup> 1,5   In the conditions applicable to Table 3B delete the words "in some countries" in condition<sup>a</sup>.</li> <li>In NOTE 1, applicable to Table 3B, delete the second</li> </ul>		P
3.3.4	sentence.		N/A
5.5.4	<ul> <li>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</li> <li>Over 10 up to and including 16   1,5 to 2,5   1,5 to 4  </li> <li>Delete the fifth line: conductor sizes for 13 to 16 A</li> </ul>		N/A
4.3.13.6	Replace the existing NOTE by the following:		N/A
(A1:2010)	<ul> <li>NOTE Z1 Attention is drawn to:</li> <li>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and</li> <li>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).</li> </ul>		
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A

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#### Enclosure 1: Other Country National And Group Differences

	IEC 60950-1, GROUP DIFFERENCES (CENELEC	common modifications EN)	
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 $\mu$ Sv/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.		

#### 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 <b>Denmark</b> , 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.	Not Class I equipment	N/A	
1.2.13.14	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.7.2.1 and 7.3 of this annex.		N/A	
1.5.7.1	In <b>Finland, Norway</b> and <b>Sweden</b> , 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.	Not Class I	N/A	
1.5.8	In <b>Norway</b> , 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 <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A	

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	ZB ANNEX (normative)		
	SPECIAL NATIONAL CONDITIO	NS (EN)	
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , 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.	Not class I equipment	N/A
	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"		
	In <b>Norway</b> and <b>Sweden</b> , 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)."		

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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)				
	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.		N/A	
	Translation to Norwegian (the Swedish text will also be accepted in Norway):			
	<ul> <li>"Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet</li> <li>utstyr – og er tilkoplet et kabel-TV nett, kan forårsake</li> <li>brannfare. For å unngå dette skal det ved tilkopling av</li> <li>utstyret til kabel-TV nettet installeres en galvanisk</li> <li>isolator mellom utstyret og kabel- TV nettet."</li> <li>Translation to Swedish:</li> </ul>			
	"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 <b>Denmark</b> , 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 <b>CLASS II EQUIPMENT</b> the socket outlet shall be in	No socket outlets on equipment	N/A	
2.2.4	accordance with Standard Sheet DKA 1-4a. In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and	Exclusion applies	N/A	
2.3.2	<ul> <li>6.1.2.2 of this annex.</li> <li>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.</li> </ul>	Exclusion applies	N/A	
2.3.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	Exclusion applies	N/A	
2.6.3.3	In the <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.	Exclusion applies.	N/A	
2.7.1	In the <b>United Kingdom</b> , 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.	Not primary circuits	N/A	
2.10.5.13	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		Р	

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	ZB ANNEX (normative)		
	SPECIAL NATIONAL CONDITIC	ONS (EN)	
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In <b>Switzerland</b> , 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:	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A
	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         Plug Type 12         L+N+PE           250 V, 10 A         Plug Type 12         L+N+PE	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/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		
3.2.1.1	In <b>Denmark</b> , 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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A
	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.		

SPECIAL NATIONAL CONDITIO Requirement + Test	NS (EN)						
Requirement + Test		SPECIAL NATIONAL CONDITIONS (EN)					
	Result - Remark	Verdict					
In <b>Spain</b> , 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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A					
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.							
In the <b>United Kingdom</b> , 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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A					
NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.							
In <b>Ireland</b> , 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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A					
In <b>Switzerland</b> , for requirements see 3.2.1.1 of this annex.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A					
In the <b>United Kingdom</b> , 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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A					
In the <b>United Kingdom</b> , 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:	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A					
	<ul> <li>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.</li> <li>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.</li> <li>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</li> <li>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.</li> <li>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</li> <li>In Ireland, apparatus which is 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.</li> <li>In Switzerland, for requirements see 3.2.1.1 of this annex.</li> <li>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.</li> <li>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</li> </ul>	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, this plug shall be in accordance with ture. EN 60309-2.         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.       Power supply cord part of the external listed power supply. Not part of this evaluation.         In Ireland, apparatus which is 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.       Power supply cord part of the external listed power supply. Not part of this evaluation.         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, is:       Power supply cord part of the external listed power supply. Not part of this evaluation.         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 is:       Power supply cord part of the external listed power supply. Not part of this evaluation.					

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	ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)					
Clause	Requirement + Test	Result - Remark	Verdict			
4.3.6	In the <b>United Kingdom</b> , 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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A			
4.3.6	In <b>Ireland</b> , 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			
5.1.7.1	<ul> <li>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</li> <li>STATIONARY PLUGGABLE EQUIPMENT TYPE A that         <ul> <li>is intended to be used in a RESTRICTED</li> <li>ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected</li> <li>PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> <li>STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul> </li> </ul>	DC equipment	N/A			

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	ZB ANNEX (normative)				
	SPECIAL NATIONAL CONDITION	ONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict		
6.1.2.1 (A1:2010)	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , add the following text between the first and second paragraph of the compliance clause:	No solid insulation	N/A		
	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.				
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).		N/A		
	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.				

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	ZB ANNEX (normative)					
	SPECIAL NATIONAL CONDITIONS (EN)					
Clause	Requirement + Test	Result - Remark	Verdict			
6.1.2.2	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , 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.	Protective earthing part of the shielded LAN wire. Addressed in the manual	р			
7.2	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , 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 distribution system. No connection by coaxial cable.	N/A			
7.3	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A			
7.3	In <b>Norway</b> , for installation conditions see EN 60728- 11:2005.		N/A			

#### ATTACHMENT TO TEST REPORT IEC 60950-1 FINLAND NATIONAL DIFFERENCES

Information technology equipment - Safety -

PART 1: GENERAL REQUIREMENTS

Differences according to ..... EN 60950-1:2006/A11:2009/A1:2010

Attachment Form No	FI_ND_IEC60950_1B
Attachment Originator:	SGS Fimko Ltd
Master Attachment:	Date (2010-04)

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General	National Differences           See also Group Differences (EN 60950-1:2006/A11/A1)		
1.5.7.1	In <b>Finland</b> 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.	Not Class I equipment	N/A
1.5.9.4	In <b>Finland</b> , 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 <b>Finland</b> , 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 Finland shall be as follows: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"	Not Class I equipment	N/A
2.3.2	In <b>Finland</b> , there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.10.5.13	In <b>Finland</b> , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A

		*	
5.1.7.1	In <b>Finland</b> , TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:	DC equipment	N/A
	• 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		
	<ul> <li>has provision for a permanently connected</li> <li>PROTECTIVE EARTHING CONDUCTOR; and</li> <li>is provided with instructions for the installation of</li> <li>that conductor by a SERVICE PERSON;</li> </ul>		
	• STATIONARY PLUGGABLE EQUIPMENT TYPE B;		
	• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		
6.1.2.1 (A1:2010)	In <b>Finland</b> , add the following text between the first and second paragraph of the compliance clause:	No solid insulation	N/A
	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 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.		

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	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).		N/A
	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- 14:2005 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 60384-14:2005;		
	- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14:2005, in the sequence of tests as described in EN 60384-14:2005.		
6.1.2.2	In <b>Finland</b> , 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.	Protective earthing part of the shielded LAN wire. Needs to be addressed in the manual	Р
7.2	In <b>Finland</b> , for requirements see 6.1.2.1 and 6.1.2.2 of this annex.	No cable distribution system. No connection by coaxial cable	N/A
	The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		

GERMANY NATIONAL DIFFERENCES				
Clause	Requirement + Test	Result - Remark	Verdict	
	In IEC 60950-1:2005/A1 delete all the "country" notes according to the following list: - 1.5.7.1: Note - 6.1.2.1: Note 2 - 6.2.2.1: Note 2		N/A	
	- EE.3: Note		N1/A	
	For special national conditions, see Annex ZB.		N/A	
1.1.1	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, <i>Guide on the safety of multimedia equipment.</i> For television sets EN 60065 applies.		N/A	
1.2.3	Add the following definition: 1.2.3.Z1 PORTABLE SOUND SYSTEM small battery powered audio equipment: -whose prime purpose is to listen to recorded or broadcasted sound; and -that uses headphones or earphones that can be worn in or on or around the ears; and -that allows the user to walk around NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment.	Not portable sound system	N/A	
1.7.2.1	Delete NOTE Z1. Add the following paragraph at the end of the subclause: 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.	Not portable sound system	N/A	
4.3.13.6	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 (artificial optical radiation). Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A	
Biblio- graphy	Add the following note for the standard indicated: IEC 60908 NOTE Harmonized as EN 60908.		N/A	

		GERMANY NATIONAL DIFFERENCES		
	F	Replace the entire Annex ZA by the following: Annex ZA (normative)		Р
Norn	native re	ferences to international publications wit	h their	
		orresponding European publications		
dated reference	eferenced es, only the referen	documents are indispensable for the application of the edition cited applies. For undated references, the la ced document (including any amendments) applies.	test edition of the	
B 111	**	EN/HD applies.		*7
Publication	Year	Title	EN/HD	Year
		Insulating, sheathing and covering materials for low-voltage energy cables	EN 50363	Series
		Electrical test methods for low voltage energy cables	EN 50395	2005
		Non electrical test methods for low voltage energy cables	EN 50396	2005
IEC 60065 (mod)	2001	Audio, video and similar electronic apparatus – Safety requirements	EN 60065	2002
A1	2005		A1	2006
A2	-		+ A11	2008
			A2 + A12	-
IEC 60068-2- 78	-	Environmental testing Part 2-78: Tests – Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60073	-	Basic and safety principles for manmachine interface, marking and identification – Coding principles for indication devices and actuators	EN 60073	-
IEC 60083	-	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC	-	-
IEC 60085	2004	Electrical insulation – Thermal classification	EN 60085	2004
IEC 60112	-	Method for determining the proof and comparative tracking indices of insulating materials	EN 60112	-
IEC 60227 (mod)	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V	HD 21 1)	Series
IEC 60245 (mod)		Series Rubber insulated cables of rated voltages up to and including 450/750V	HD 22 2)	Series
1) The HD 21 series EN 50386 are to be	taken into ac is related to,	but not directly equivalent with the IEC 60227 series. Also EN 503 ecount. but not directly equivalent with the IEC 60245 series. Also EN 503		<u>.                                    </u>
IEC 60309	Series	<ul> <li>Plugs, socket-outlets and couplers for industrial purposes</li> </ul>	EN 60309	Series
IEC 60317	Series		EN 60317	Series
IEC 60317-43	-	Part 43: Aromatic polyimide tape wrapped round copper wire, class 240	EN 60317-43	-
IEC 60320 (mod	d) Series		EN 60320	Series
IEC 60364-1 (mod)	2001	Electrical installations of buildings Part 1: Fundamental principles, assessment of general	HD 384.1 S2	2001
IEC 60384-14 A	1 1993 1995	characteristics, definitions Fixed capacitors for use in electronic equipment	EN 60384-14	2005

		-	-	
		GERMANY NATIONAL DIFFERENCES	1	
		Part 14: Sectional specification: Fixed		
		capacitors for electromagnetic interference		
		suppression and connection to the supply		
		mains		
IEC 60417	Data-	Graphical symbols for use on equipment	-	-
	base			
IEC 60664-1	1992	Insulation coordination for equipment within	EN 60664-1	2003
+ A1	2000	low-voltage systems		
+ A2	2002	Part 1: Principles, requirements and tests		
IEC 60695-2-11	-	Fire hazard testing	EN 60695-2-11	-
		Part 2-11: Glowing/hot-wire based test methods		
		- Glow-wire flammability test method for end-		
		products		
IEC 60695-2-20	-	Part 2-20: Glowing/hot-wire based test methods	-	-
		– Hot-wire coil ignitability – Apparatus, test		
		method and guidance		
IEC 60695-10-2	-	Part 10-2: Guidance and test methods for	EN 60695-10-2	-
		the minimization of the effects of abnormal		_
		heat on electrotechnical products involved		
		in fires – Method for testing products made		
		from non-metallic materials for resistance		
		to heat using the ball pressure test		
IEC 60695-10-3		Fire hazard testing	EN 60695-10-03	-
IEC 00095-10-5		Part 10-3: Abnormal heat – Mould stress relief	EN 00095-10-05	-
		distortion test IEC 60695-11-3 - Part 11-3: Test flames – 500		
			-	-
		W flames – Apparatus and conformational test		
		methods		
IEC 60695-11-4	-	Part 11-4: Test flames – 50 W flames –	-	-
150 00005 44 40		Apparatus and conformational test methods	EN 00005 44 40	
IEC 60695-11-10	-	Part 11-10: Test flames – 50 W horizontal and	EN 60695-11-10	A1
A1		vertical flame test methods		
IEC 60695-11-20	-	Part 11-20: Test flames – 500 W flame test	EN 60695-11-20	-
A1		methods	A1	-
IEC 60730-1	1999	Automatic electrical controls for household	EN 60730-1	2000
(mod)	2003	and similar use - Part 1: General requirements	A1	2004
A1			+ A12	2003
			+ A13	2004
			+ A14	2005
			+ A15	2007
			+ A16	2007
A2	2007		A2	2008
IEC 60747-5-5	2007	Semiconductor devices – Discrete devices	EN 60747-5-5	-
		Part 5-5: Optoelectronic devices –		
		Photocouplers		
IEC 60825-1	-	Safety of laser products Part 1: Equipment	EN 60825-1	
		classification, requirements and user's guide		
IEC 60825-2	-	Part 2: Safety of optical fiber communication	EN 60825-2	-
		systems	A1	-
IEC/TR 60825-9	-	Part 9: Compilation of maximum permissible	-	-
120/1100020-9		exposure to incoherent optical radiation		
IEC 60825-12	-	Part 12: Safety of free space optical	EN 60825-12	-
120 00020-12	1	communication systems used for transmission		-
		of information		
	1000			1000
IEC 60851-3	1996	Winding wires – Test methods	EN 60851-3	1996

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	1 4	GERMANY NATIONAL DIFFERENCES	T	1 4
A1	1997	Part 3: Mechanical properties	A1	1997
IEC 60851-5	1996	Part 5: Electrical properties	EN 60851-5	1996
A1	1997		A1	1997
A2	2004		A2	2004
IEC 60851-6	1996	Part 6: Thermal properties	EN 60851-6	1996
IEC 60885-1	1987	Electrical test methods for electric cables	-	-
		Part 1: Electrical tests for cables, cords and		
		wires for voltages up to and including		
		450/750 V		
IEC 60906-1	-	IEC System of plugs and socket-outlet for	-	-
		household and similar purposes		
		Part 1: Plugs and socket-outlets 16 A 250 V a.c.		
IEC 60906-2	-	Part 2: Plugs and socket-outlets 15 A 125 V	-	-
		a.c.		
IEC 60947-1	2004	Low voltage switchgear and control gear Part 1:	EN 60947-1	2004
120 000 11 1	2001	General rules		2001
IEC 60990	1999	Methods of measurement of touch current	EN 60990	1999
	1000	and protective conductor current		1000
IEC 61051-2	1991	Varistors for use in electronic equipment		-
120 01031-2	1991	Part 2: Sectional specification for surge	-	-
		suppression varistors		
IEC 61058-1	2000			2002
	2000	Switches for appliances	EN 61058-1 3)	2002
(mod)		Part 1: General requirements	511.00.474	
IEC 62471	-	Photobiological safety of lamps and lamp	EN 62471	-
(mod)		systems		
ISO 178	-	Plastics - Determination of flexural	EN ISO 178	2003
		properties		
ISO 179	Series	Plastics - Determination of Charpy impact	EN ISO 179	Series
		strength		
ISO 180	-	Plastics - Determination of Izod impact strength	EN ISO 180	-
ISO 261	-	ISO general-purpose metric screw threads	-	-
		- General plan		
ISO 262	-	ISO general-purpose metric screw threads	-	-
		- Selected sizes for screws, bolts and nuts		
ISO 527	Series	Plastics - Determination of tensile	EN ISO 527	Series
		properties		
ISO 3864	Series	Safety colors and safety signs	-	-
ISO 4892-1	-	Plastics - Methods of exposure to	EN ISO 4892-1	_
100 4002 1		laboratory light sources		_
		Part 1: General guidance		
ISO 4892-2		Part 2: Xenon-arc sources	EN ISO 4892-2	
ISO 4892-4	-	Part 4: Open-flame carbon-arc lamps	LIN 130 4092-2	-
			-	-
ISO 7000	Data-	Graphical symbols for use on equipment -	-	-
10.0.0070	base	Index and synopsis	51110.0 0050	
ISO 8256	-	Plastics - Determination of tensile-impact	EN ISO 8256	-
	-	strength		
ISO 9772	-	Cellular plastics - Determination of	-	-
		horizontal burning characteristics of small		
		specimens subjected to a small flame		
ISO 9773	-	Plastics - Determination of burning	EN ISO 9773	-
		behavior of thin flexible vertical specimens		
		in contact with a small-flame ignition source		
ITU-T	-	Resistibility tests for telecommunication	-	-
Recommendation	1	equipment exposed to overvoltages and		
1 COOTTINUE TOURDE				
	-	in contact with a small-flame ignition source Resistibility tests for telecommunication	-	-

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#### Enclosure 1: Other Country National And Group Differences

GERMANY NATIONAL DIFFERENCES
3) EN 61058-1:2002 includes A1:2001 to IEC 61058-1:2000.

	GERMANY NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict	
long p	Annex ZB (normative) Special National Cond cial national condition: National characteristic or prace eriod, e.g. climatic conditions, electrical earthing cor part of the European Standard or Harr countries in which the relevant special national app countries they are infor Add the following special national	tice that cannot be changed aditions. If it affects harmoniz nonization Document. Iy these provisions are norma mative.	ation, it forms	
1.5.7.1	In Finland, Norway and Sweden No changes needed - Correction of SNC		N/A	
6.1.2.1	<ul> <li>already Part of A11.</li> <li>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</li> <li>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either <ul> <li>two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> </li> <li>Alternatively for components, 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 <ul> <li>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 <ul> <li>is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> </li> <li>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</li> <li>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</li> </ul></li></ul>		N/A	

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Enclosure 1: Other	Country National And	Group Differences

	GERMANY NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict	
	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.			

	Korea National Differences			
Clause	Requirement + Test	Result - Remark	Verdict	
1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).		N/A	
8 : EMC	The apparatus shall comply with the relevant CISPR standards		N/A	

	UNITED KINGDOM NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict	
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	
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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A	

# Enclosure 1: Other Country National And Group Differences

П

	UNITED KINGDOM NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict	
3.2.5.1	In the United Kingdom, a power supply cord with conductor of 1,25 mm $^2$ is allowed for equipment with a rated current over 10 A and up to and including 13 A.	Power supply cord part of the external listed power supply. Not part of this evaluation.	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 to 1,5 mm nominal cross- sectional area.	Power supply cord part of the external listed power supply. Not part of this evaluation.	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.	Power supply cord part of the external listed power supply. Not part of this evaluation.	N/A	

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# **Enclosure 2:** Photographs (Figures) and Illustrations

#### FIGURES

Figure 1: Overall View of NanoStation LOCO M5





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# **Enclosure 2:** Photographs (Figures) and Illustrations **FIGURES (Continued)**

Figure 2: Overall view of NanoStation LOCO M5





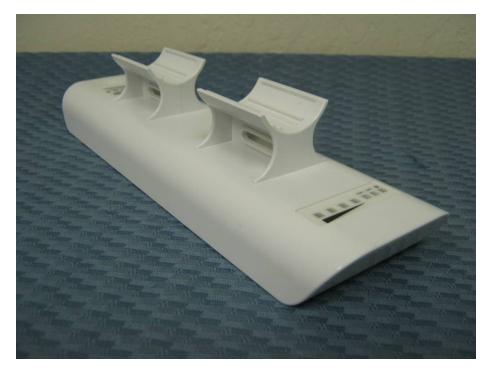
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# **Enclosure 2:** Photographs (Figures) and Illustrations **FIGURES (Continued)**

Figure 3: Overall view of NanoStation M5



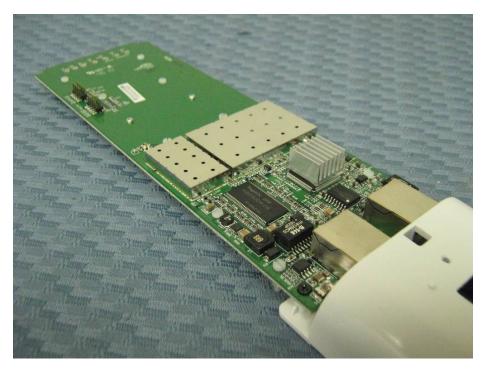


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# **Enclosure 2:** Photographs (Figures) and Illustrations **FIGURES (Continued)**

Figure 4: Overall view of NanoStation LOCO M2





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# **Enclosure 2:** Photographs (Figures) and Illustrations **FIGURES (Continued)**

Figure 5: Listed AC/DC LPS Power Supply Adaptor





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4	CONDITIONS FOR OUTDOOR EQUIPMENT		Р
4.1	Ambient air temperature		Р
	Suitability for use at any temperature in the range specified by the manufacturer. If not specified by the manufacturer, the range is taken as -33°C to +40°C	The manufacturer has not specified it. range taken as -33 to 40°C	
4.2	AC mains supply		N/A
	Suitability for the highest Overvoltage Category expected in the installation location	Not an AC unit	N/A
	Components used to reduce the Overvoltage Category comply with IEC 61643-series		N/A
	Reference to installation instructions		N/A
4.3	Rise of earth potential		Р
	Special earthing conditions	Installation instruction provided	Р
	Reference to installation instructions	Installation instruction provided	Р

5	MARKING AND INSTRUCTIONS		Р
	Special installation features for protection from conditions in the OUTDOOR LOCATION (see 1.7.2 of IEC 60950-1)	IP22	Р
	OUTDOOR ENCLOSURE classification according to IEC 60529 (IP Code)	IP22	Р

6	PROTECTION FROM ELECTRICAL SHOCK IN AN OUTDOOR LOCATION		Р
6.1	Voltage limits of user-accessible parts in OUTDOOR LOCATIONS (2.2.2 and 2.2.3 of IEC 60950-1 with voltage limits of IEC60950-22)		Р
	Voltages under normal conditions (V)	SELV covered by use of Listed AC/DC LPS adaptor	Р
	Voltages under fault conditions (V):	SELV covered by use of Listed AC/DC LPS adaptor	Р
6.2	Limited current circuits in outdoor locations		N/A
	The requirements of 2.4 of IEC60950-1 apply without change	Not evaluated for limited current circuit	N/A

7	WIRING TERMINALS FOR CONNECTION OF EXTERNAL CONDUCTORS		N/A
	The mains supply terminations powered via the normal building installation wiring are as specified in 3.3 of IEC 60950-1	No wiring terminals provided. equipment is powered through POE from listed AC/DC power supply	N/A
	The mains supply terminations powered directly from the mains distribution system are as specified in IEC 60364	No wiring terminals provided. equipment is powered through POE from listed AC/DC power supply	N/A

8	CONSTRUCTION REQUIREMENTS FOR OURDOOR ENCLOSURES				
8.1	General				
	Protection against corrosion by use of suitable materials or by application of a protective coating	Nonmetallic enclosure	N/A		
	Parts serving as a functional part of an OUTDOOR ENCLOSURE (e.g., dials, connectors, etc.) comply with the same environmental protection requirements as for the OUTDOOR ENCLOSURE		N/A		
	Use of OUTDOOR ENCLOSURE to carry current during normal operation		N/A		
	Connection of a conductive part of an OUTDOOR ENCLOSURE to protective earth for carrying fault currents (see 2.6 of IEC 60950-1 and 8.3 of this standard)		N/A		
8.2	Resistance to ultra-violet radiation		N/A		
	Resistance of non-metallic parts of an OUTDOOR ENCLOSURE to degradation by ultra-violet (UV) radiation		N/A		
	Parts providing mechanical support:		N/A		
	Tensile strength test (ISO 527)		N/A		
	Flexural strength test (ISO 178)		N/A		
	Parts providing impact resistance:		N/A		
	Charpy impact test (ISO 179)		N/A		
	Izod impact test (ISO 180)		N/A		
	Tensile impact test (ISO 8256)		N/A		
	All parts:		N/A		
	Flammability classification (1.2.12 and annex A of IEC 60950-1)	(see separate test report IEC 60950-1)	N/A		
		Less than 15VA equipment			
8.3	Resistance to corrosion		N/A		
8.3.1	General	Non metallic enclosure	N/A		

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		<i>) 5 6 2 2</i>	
	Resistance of metallic parts of an OUTDOOR ENCLOSURE to the effects of water-borne contaminants		N/A
	Alternate method for 8.3.2-8.3.4 (IEC 61587-1)		N/A
8.3.2	Test apparatus		N/A
	Salt-spray test (IEC 60068-2-11)		N/A
	Test in a water-saturated sulphur dioxide atmosphere (water-saturated sulphur dioxide atmosphere as described in Annex A; chamber as described in ISO 3231)		N/A
8.3.3	Test procedure		N/A
8.3.4	Compliance criteria		N/A
8.4	Bottoms of FIRE ENCLOSURES		
	Comply with 4.6.2 of IEC 60950-1		Р
	Bottom of FIRE ENCLOSURE of OUTDOOR EQUIPMENT mounted directly and permanently on a non- combustible surface (e.g., concrete or metal)	Wall mounted or pole mounted	Ρ
8.5	Gaskets		N/A
	If gaskets are used as the method for protection against the ingress of potential contaminants, requirements of 8.5.1 through 8.5.3 apply	No gaskets used	N/A
8.5.1	General		N/A
8.5.2	Oil resistance		N/A
8.5.3	Securing means		N/A
0			
J	PROTECTION OF EQUIDMENT WITHIN AN OUTC		NI/A

9	PROTECTION OF EQUIPMENT WITHIN AN OUTDOOR ENCLOSURE		
9.1	Protection from moisture (see Table 2) Less than 15VA		
9.2	Protection from plants and vermin No such hazard exists		N/A
9.3	Protection from excessive dust Less than 15VA equipment		N/A

10	MECHANICAL STRENGTH OF ENCLOSURES			
10.1	General		N/A	
10.2	Impact test (4.2.5 of IEC 60950-1)	Less than 15VA equipment	N/A	
	Compliance criteria:		N/A	
	<ul> <li>after test the level of protection remains in accordance with 9.1of this standard</li> </ul>		N/A	
	- after test the requirements of 4.2.1 of IEC 60950-1 are met		N/A	
11	OUTDOOR EQUIPMENT CONTAINING VENTED B	ATTERIES	N/A	
	Adequate ventilation in the compartment housing a vented battery, where gassing is possible during normal usage or over-charging	No batteries	N/A	
	Protection against the risk of ignition of local concentrations of hydrogen and oxygen in a compartment containing both a battery and electrical components		N/A	
	Hydrogen gas concentration measurement test		N/A	
	Measured hydrogen gas concentration (% by volume):		—	
	Max. allowed gas concentration for the mixture location in proximity to an ignition source (% by volume)	$\leq$ 1% by volume	_	
	Max. allowed gas concentration for the mixture location not in proximity to an ignition source (% by volume):	$\leq$ 2% by volume	_	
	Overcharging of rechargeable battery (see 4.3.8 of IEC 60950-1)	(see separate test report IEC 60950-1)	N/A	
A	ANNEX A, WATER-SATURATED SULPHUR DIOXID (see 8.3.2 and 8.3.3)	DE ATMOSPHERE	N/A	
В	ANNEX B, WATER SPRAY TEST (see 9.1)		N/A	
С	ANNEX C, ULTRAVIOLET LIGHT CONDITIONING T	EST (see 8.2)	N/A	
C.1	Test apparatus		N/A	
C.2	Mounting of test samples		N/A	
C.3	Carbon-arc light-exposure apparatus		N/A	
C.4	Xenon-arc light-exposure apparatus		N/A	
D	ANNEX D, GASKET TESTS (see 8.5)		N/A	
D.1	Gasket tests		N/A	

	Eliciosure 5: EN 00950-22	
D.2	Tensile strength and elongation tests (for gaskets that can stretch)	N/A
	Tensile strength (%)	N/A
	Elongation (%):	N/A
	Visible deterioration, deformation, melting, cracking or hardening of the material	N/A
D.3	Compression test (for gaskets with closed cell construction)	N/A
	Initial thickness of the specimen (mm):	N/A
	Thickness of the specimen after test a) (mm), compression set after test a) (%):	N/A
	Thickness of the specimen after test b) (mm), compression set after test b) (%):	N/A
	Thickness of the specimen after test c) (mm), compression set after test c) (%):	N/A
	Visible cracks or deterioration	N/A
D.4	Oil immersion test	N/A
	Swelling (%)	N/A
	Shrinking (%)	N/A

E	ANNEX E, RATIONALE		
E.1	General		
E.2	Electric shock		
E.3	Energy related hazards		
E.4	Fire		
E.5	Mechanical hazards	—	
E.6	Heat related hazards		
E.7	Radiation		
E.8	Chemical hazards		
E.9	Biological hazards		
E.10	Explosion hazards		

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	IEC 60950-22:2005 – COMMON MODIFICATIONS				
Contents	Add the following annexes:	Р			
	Annex ZA (normative) Normative references to international public their corresponding European publications	cations with			
	Annex ZB (normative) Special national conditions				
General	Delete all the "country" notes in the reference document according to t list:	the following P			
	4.1       Note 3         4.3       Note         8.5       Note         10.2       Note         D.3       Note         D.4       Note				
	Bibliography Add the following notes for the standards indicated:IEC 60364-1 NOTE Harmonized as HD 384.1 S2:2001 (modified).IEC 60364-4-44 NOTE Partly harmonized as HD 60364-4-443:2006 (modified),HD 384.4.442 S1:1997 (related) and R064-004:1999 (IEC 60364-4-444:1996, modified)IEC 60439-5 NOTE Harmonized as EN 60439-5:1996 + A1:1998 (not modified).IEC 60664-1 NOTE Harmonized as EN 60664-1:2003 (not modified).IEC 60721-3-4 NOTE Harmonized as EN 60721-3-4:1995 (not modified).IEC 61587-1 NOTE Harmonized as EN 61587-1:1999 (not modified).IEC 61969-3 NOTE Harmonized as EN 61969-3:2001 (not modified).	. P			

	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB	SPECIAL NATIONAL CONDITIONS		
	Finland, Norway and Sweden		N/A
	There are no special national conditions for this European Standard.		

8.2	TABLE: Resistance to ultra-violet radiation					
8.2a)	Tensile strength test (ISO 527)				N/A	
Material ider (manufactur		n designation)				
Shape and dimensions of test samples					_	
Conditioning	for Set	1 of samples				
		2 of samples				
Test conditions (T °C, RH %)						
(\	without /	Set 1 Annex C conditioning)		(after An	Set 2 nex C conditioning)	
Test sam	ple #	Tensile strength (MPa)	Г	est sample #	Tensile strength	(MPa)
Arithmetic m	nean for	Set 1 (MPa)	:			
Arithmetic m	nean for	Set 2 (MPa)	:			
Retention (%	%)		:			
Supplement	ary infor	mation:				

8.2	TABLE: Resistance to ultra-violet radiation					
8.2b)	Flexural strength test (ISO 178)					
Material ider (manufactur		n designation)			—	
Shape and dimensions of test samples					—	
Conditioning	for Set	1 of samples			_	
Conditioning for Set 2 of samples (including Annex C):					—	
Test conditions (T °C, RH %)					—	
(\	without	Set 1 Annex C conditioning)	(after A	Set 2 nnex C conditioning)		
Test sam	ple #	Flexural strength (MPa)	Test sample #	Flexural strength	(MPa)	
Arithmetic m	nean for	Set 1 (MPa)	.:			
Arithmetic m	nean for	Set 2 (MPa)	.:			
Retention (%	%)		.:			
Supplementary information:						
Supplement	ary infor	mation:				

8.2	TABLE: Resistance to ultra-violet radiation					
8.2c)	Charpy impact test (ISO 179) - unnotched					
Material identification (manufacturer, type designation)						
Shape and o	dimens	sions of test samples:			_	
Conditioning	g for S	et 1 of samples			_	
		et 2 of samples				
Test method (according to Tables 2 and 3 of ISO 179):						
Test conditions (T °C, RH %)					—	
(\v	vithout	Set 1 Annex C conditioning)	(after A	Set 2 nnex C conditioning)		
Test samp	le #	Charpy impact strength (kJ/m <sup>2</sup> )	Test sample #	Charpy impact strengt	gth (kJ/m <sup>2</sup> )	
Arithmetic m	nean fo	or Set 1 (kJ/m <sup>2</sup> ):				
Arithmetic mean for Set 2 (kJ/m <sup>2</sup> ):						
Retention (%):						
Supplement	ary inf	ormation:				

8.2	TABLE: Resistance to ultra-violet radiation				
8.2d)	Charpy impact test (ISO 179) - notched				N/A
Material identification (manufacturer, type designation)				—	
Shape and o	Shape and dimensions of test samples:				
Conditioning	for S	et 1 of samples			
	Conditioning for Set 2 of samples (including Annex C):				
Test method (according to Tables 2 and 3 of ISO 179):					
Test conditions (T °C, RH %)					—
(\	Set 1 Set 2 (without Annex C conditioning) (after Annex C conditioning)				
Test sample # Charpy impact strength (kJ/m <sup>2</sup> )			Test sample #	Charpy impact strength (kJ/m <sup>2</sup> )	
· · · ·					
Arithmetic mean for Set 1 (kJ/m <sup>2</sup> )					
Arithmetic mean for Set 2 (kJ/m <sup>2</sup> ):					
Retention (%)					
Supplementary information:					

8.2	TABLE: Resistance to ultra-violet radiation					
8.2e)	Izod impact test (ISO 180) - unnotched				N/A	
Material identification (manufacturer, type designation)					—	
Shape and o	dimens	sions of test samples:				
Conditioning	g for Se	et 1 of samples				
		et 2 of samples				
Test method (according to Table 1 of ISO 180):						
Test condition	ons (T	°C, RH %)				
Set 1 Set 2 (without Annex C conditioning) (after Annex C conditioning)						
Test samp	le #	Izod impact strength (kJ/m <sup>2</sup> )	Test sample #	Izod impact strength (kJ/m <sup>2</sup> )		
Arithmetic mean for Set 1 (kJ/m <sup>2</sup> )						
Arithmetic mean for Set 2 (kJ/m <sup>2</sup> ):						
Retention (%):						
Supplementary information:						

8.2	TABLE: Resistance to ultra-violet radiation				
8.2f)	Izod impact test (ISO 180) - notched			N/A	
Material identification (manufacturer, type designation):					
Shape and o	dimens	sions of test samples:			—
Conditioning	Conditioning for Set 1 of samples				
Conditioning for Set 2 of samples (including Annex C):					—
Test method (according to Table 1 of ISO 180):					—
Test conditions (T °C, RH %):					—
Set 1Set 2(without Annex C conditioning)(after Annex C conditioning)					
Test samp	le #	Izod impact strength (kJ/m <sup>2</sup> )	Test sample # Izod impact strength (kJ/m <sup>2</sup> )		

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Arithmetic mean for Set 1 (kJ/m <sup>2</sup> ):					
Arithmetic mean for Set 2 (kJ/m <sup>2</sup> ):					
Retention (%)					
Supplementary information:					

8.2	TABLE: Resistance to ultra-violet radiation				
8.2g)	Tensile impact test (ISO 8256) - unnotched			N/A	
Material identification (manufacturer, type designation):					—
Shape and o	limens	sions of test samples:			—
Conditioning	for S	et 1 of samples			—
Conditioning (including Ar	for Sonnex (	et 2 of samples C)			
Test method	l (A or	В)			_
Test condition	ons (T	°C, RH %)			—
(\\	Set 1 (without Annex C conditioning)			Set 2 er Annex C conditioning)	
Test samp	le #	Tensile impact strength (kJ/m <sup>2</sup> )	Test sample #	Tensile impact strength (kJ/m <sup>2</sup> )	
		or Set 1 (kJ/m <sup>2</sup> ):			
Arithmetic m	ean fo	or Set 2 (kJ/m <sup>2</sup> ):			
Retention (%	Retention (%):				
Supplement	Supplementary information:				
8.2	TABLE: Resistance to ultra-violet radiation				
8.2h)	Tensile impact test (ISO 8256) - notched			N/A	
Material identification (manufacturer, type designation):					_
Shape and dimensions of test samples:					
Conditioning for Set 1 of samples					—
Conditioning for Set 2 of samples (including Annex C)					—
Test method (A or B)					_
Test conditions (T °C, RH %):					—

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Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)			
Test sample #	Tensile impact strength (kJ/m <sup>2</sup> )	) Test sample # Tensile impact strength (kJ/m			
Arithmetic mean for Set 1 (kJ/m <sup>2</sup> )					
Arithmetic mean for					
Retention (%):					
Supplementary information:					