AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.
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Certificate of Compliance

No.: ACSS1204061

The following products have been tested by us with the listed standards and found in compliance with the council LVD directive 2006/95/EC. It is possible to use CE marking to demonstrate the compliance with this LVD Directive.

Submitter : **ZyXEL Communications Corporation**

Address : **No. 6, Innovation RD II, Science-Based Industrial Park, Hsin-Chu, Taiwan R.O.C.**

Product : **Wireless N Home Router**

Model No. : **NBG-418N**

Test Standards :	
IEC 60950-1: 2005+A1: 2009 / EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011	**Information technology equipment – Safety – Part 1: General requirements**

CE

AUDIX® 信華科技(深圳)有限公司
Audix Technology (Shenzhen) Co., Ltd.
Safety 部門報告專用章
Stamp only for Safety Dept. Report
Signature:

Carolyn Kang
Manager
Date: Apr. 26, 2012

The certificate is based on a single evaluation of sample(s)of above mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. logo.

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TEST REPORT
IEC/EN 60950-1
Information technology equipment – Safety – Part 1: General requirements

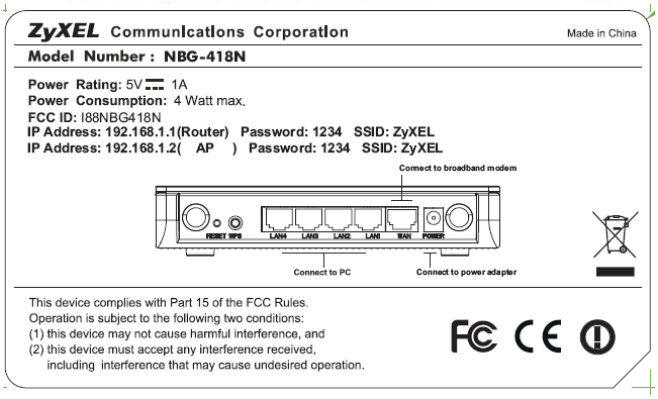
Report Reference No. ..... :	ACSS1204061	
Tested by (name + signature) ..... :	Windy He	Windy He
Reported by (name + signature) ..... :	Jessie Zhang	Jessie Zhang
Reviewed by (name + signature) ..... :	Ditto Yu	
Approved by (name + signature) ..... :	Carolyn Kang	
Date of issue ..... :	Apr. 26, 2012	
Contents ..... :	Report: 53 pages, Attachment: A to B, 6 pages	
Testing Laboratory ..... :	Audix Technology (Shenzhen) Co., Ltd.	
Address ..... :	No. 6, Kefeng Rd., 52 Block Shenzhen Science & Industry Park, Nantou, Shenzhen, Guangdong, China.	
Testing location/ address ..... :	Same as above	
Applicant's name ..... :	ZyXEL Communications Corporation	
Address ..... :	No. 6, Innovation RD II, Science-Based Industrial Park, Hsin-Chu, Taiwan R.O.C	
Manufacturer's name.....:	ZyXEL Communications Corporation	
Address ..... :	No. 6, Innovation RD II, Science-Based Industrial Park, Hsin-Chu, Taiwan R.O.C	
Test specification:		
Standard ..... :	IEC 60950-1: 2005+A1: 2009 / EN 60950-1: 2006 + A 11: 2009 + A1: 2010 + A12: 2011	
Test procedure ..... :	CE-LVD	
Procedure deviation ..... :	N/A	
Non-standard test method..... :	N/A	
Test Report Form No. ..... :	SRENIT-01V1.2	
Test item description ..... :	Wireless N Home Router	
Trade Mark/Brand name..... :	ZyXEL	
Model/Type reference..... :	NBG-418N	
Ratings..... :	Power Supply: input: 100-240V~, 50/60Hz, 0.3A; output: 5V⎓, 1A Router: 5V⎓, 1A	

Copy of marking plate

1. Power Supply:

(Remark: Above label stuck on and moulded on the enclosure)

2. Router:



(Remark: Above label stuck on the bottom enclosure)

Note(s):

- The marking plate(s) artwork appended to this report may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.)

- The height of CE symbol should be 5.0 mm Min., the height of WEEE symbol should be 7.0mm Min..

Summary of testing:

Following symbols and abbreviations may be used in this test report.

F= Function Insulation
B= Basic Insulation
S= Supplementary Insulation
D/R= Double or Reinforced Insulation

S/C= Short-Circuit
O/C= Open-Circuit
O/L= Over-Load
B/L= Block

IP= Internal protection operated (list component)
CT= Constant temperatures were obtained
CD= Components damaged (list damaged components)
NB= No indication of dielectric breakdown
NC= Cheesecloth remained intact
NT= Tissue paper remained intact
NH= No hazard occured

Pri.= Primary
Sec.= Secondary
PCB= Printed Circuit Board
PSU= Power Supply Unit
EUT= Equipment Under Test
EPS= External Power Supply

Test item particulars:	
Equipment mobility……..…..…:	[x] movable [] hand-held [] transportable [] stationary [] for building-in [] direct plug-in [] rack-mounted
Connection to the mains ……..……:	[x] pluggable equipment: [x] type A [] type B [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operation condition ……..…:	[x] continuous [] rated operating / resting time:
Access location .....:	[x] operator accessible [] restricted access location
Over voltage category (OVC) .....:	[] OVC I [x] OVC II [] OVC III [] OVC IV
Mains supply tolerance (%) or absolute mains supply values .....:	+6%, -10%
Tested for IT power systems .....:	[x] Yes [] No
IT testing, phase-phase voltage (V) .....:	230V (only for norway)
Class of equipment .....:	[] Class I [x] Class II [] Class III [] Not classified
Pollution degree (PD) .....:	[] PD 1 [x] PD 2 [] PD 3
IP protection class .....:	IP20
Altitude during operation (m) .....:	Up to 2000m
Altitude of test laboratory (m) .....:	Up to 2000m
Mass of equipment (kg) ……..:	Router: approx. 0.23Kg; Power Supply: approx. 0.08Kg
Maximum operation ambient ……..……:	40°C
Possible test case verdicts:	
- Test case does not apply to the test object ……..:	N (Not Applicable)
- Test object does meet the requirement……:	P (Pass)
- Test object does not meet the requirement……..:	F (Fail)
Testing:	
Date of receipt of test item……...:	Apr. 01, 2012
Date(s) of performance of tests ……..:	Apr. 09, 2012 to Apr. 12, 2012

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 Attachment #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report, a point (coma) is used as the decimal separator.

List of test equipment must be kept on file and available for review.

General product information:

- All applicable tests according to the referenced standard(s) have been carried out.

- The EUT is a Router, supplied by an external power supply, electronic components mounted on PCB and enclosed in plastic enclosure.
- Alternated two approved EPS, each complies with L.P.S. and SELV, see append table 1.5.1 for the detail.
- All tests and construction inspections are conducted on model NBG-418N and Power Supply (Model No.: DSA-6E-05 EU 050100).

Report modify history

No.	Report No. / issue date	Model No.	Modification to the appliances:
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Additional information:
N/A

Attached enclosure(s):

Attachment A: 4 pages of photo-documentation.

Attachment B: 2 pages of Power supply's CB Certificate.

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		**P**

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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6	Power interface		P
1.6.1	AC power distribution systems	Evaluated in approved external Power supply: IT power system for Norway only, TN power system for others.	P
1.6.2	Input current	The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD. (see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	This appliance is not hand-held equipment.	N
1.6.4	Neutral conductor	Evaluated in approved external Power supply.	P

1.7	Marking and instructions		P
1.7.1	Power rating	Rating marking readily visible to operator.	P
	Rated voltage(s) or voltage range(s) (V) .....:	Refer to page 2.	P
	Symbol for nature of supply, for d.c. only ..... :	Refer to page 2.	P
	Rated frequency or rated frequency range (Hz) ... :	Refer to page 2.	P
	Rated current (mA or A) ..... :	Refer to page 2.	P
	Manufacturer's name or trade-mark or identification mark ..... :	Refer to page 2.	P
	Model identification or type reference ..... :	Refer to page 2.	P
	Symbol for Class II equipment only .....:	Symbol "⧈" (IEC 60417-5172) marked on the outer enclosure of approved external Power supply.	P
	Other markings and symbols .....:	Other symbols do not affect safety.	P
1.7.2	Safety instructions and marking	Reviewed English Version.	P
1.7.2.1	General	Operating/safety instructions is available to the user.	P
1.7.2.2	Disconnect devices	Direct plug-in Power supply.	N
1.7.2.3	Overcurrent protective device		N
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool		N
1.7.2.6	Ozone		N
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N
1.7.4	Supply voltage adjustment ..... :	No voltage selector.	N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Methods and means of adjustment; reference to installation instructions ..... :		N
1.7.5	Power outlets on the equipment ..... :	No standard power outlet.	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) ..... :	Evaluated in approved external Power supply (Fuse resistor used)	P
1.7.7	Wiring terminals	Approved external Power supply is class II equipment.	N
1.7.7.1	Protective earthing and bonding terminals ..... :		N
1.7.7.2	Terminals for a.c. mains supply conductors		N
1.7.7.3	Terminals for d.c. mains supply conductors		N
1.7.8	Controls and indicators	Refer to below:	P
1.7.8.1	Identification, location and marking ..... :	The function of indicators affecting safety is obvious without knowledge of language.	P
1.7.8.2	Colours ..... :	Colours are used for functional indications, not involved safety.	P
1.7.8.3	Symbols according to IEC 60417 ..... :	The symbol "⏻" complies IEC 60417 - 5009 marked on front panel.	P
1.7.8.4	Markings using figures ..... :	No controls use figures.	N
1.7.9	Isolation of multiple power sources ..... :	Only one connection supplying hazardous voltages and energy levels to the equipment.	N
1.7.10	Thermostats and other regulating devices ..... :	No thermostats or other regulating devices.	N
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No removable parts.	N
1.7.13	Replaceable batteries ..... :	No battery in the equipment.	N
	Language(s) ..... :		—
1.7.14	Equipment for restricted access locations..... :	Equipment not intended for installation in RAL.	N

2	**PROTECTION FROM HAZARDS**	**P**
2.1	Protection from electric shock and energy hazards	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1	Protection in operator access areas	Evaluated in approved external Power Supply. **Router**: supplied from approved Power Supply which provides SELV output only, and no any hazardous live parts in operator access areas.	P
2.1.1.1	Access to energized parts		N
	Test by inspection .....:		N
	Test with test finger (Figure 2A) .....:		N
	Test with test pin (Figure 2B) .....:		N
	Test with test probe (Figure 2C) .....:	No TNV circuits in the equipment.	N
2.1.1.2	Battery compartments	No battery compartments.	N
2.1.1.3	Access to ELV wiring	No internal wiring at ELV accessible to the operator.	N
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	N
2.1.1.5	Energy hazards .....:	Evaluated in approved external Power supply.	P
2.1.1.6	Manual controls	No shafts of knobs etc.	N
2.1.1.7	Discharge of capacitors in equipment	Evaluated in approved external Power supply (no X-cap.)	N
	Measured voltage (V); time-constant (s) .....:		—
2.1.1.8	Energy hazards – d.c. mains supply		N
	a) Capacitor connected to the d.c. mains supply ....:		N
	b) Internal battery connected to the d.c. mains supply .....:		N
2.1.1.9	Audio amplifiers .....:		N
2.1.2	Protection in service access areas	No hazardous bare parts inside.	P
2.1.3	Protection in restricted access locations	Equipment not intended for installation in RAL.	N

2.2	SELV circuits		P
2.2.1	General requirements	Evaluated in approved external Power supply. SELV limits are not exceeded under normal condition and after a single fault.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.2.2	Voltages under normal conditions (V) ..... :	Between any SELV circuit, 42.4V peak or 60Vdc were not exceeded.	P
2.2.3	Voltages under fault conditions (V) ..... :	Limits of 71V peak or 120Vdc were not exceeded within 0.2 seconds and limits of 42.4V peak or 60Vdc were not exceeded for longer than 0.2 seconds.	P
2.2.4	Connection of SELV circuits to other circuits ..... :	SELV circuits are only connected to other SELV circuits.	P

2.3	TNV circuits *For Power Supply: No TNV circuits.* *For Router: No TNV circuits.*		N
2.3.1	Limits		N
	Type of TNV circuits ..... :		—
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions ..... :		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed ..... :		—
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed ..... :		—
2.3.5	Test for operating voltages generated externally		N

2.4	Limited current circuits *Evaluated in approved external Power supply.*		P
2.4.1	General requirements		N
2.4.2	Limit values		N
	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

2.5	Limited power sources		P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Evaluated in approved external Power supply.		
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition		N
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :		—
	Current rating of overcurrent protective device (A) .:		—

2.6	Provisions for earthing and bonding *Approved external Power supply is class II equipment.*		N
2.6.1	Protective earthing		N
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
	Protective current rating (A), cross-sectional area (mm^2), AWG..... :		—
	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....:		N
2.6.3.5	Colour of insulation.....:		N
2.6.4	Terminals		N
2.6.4.1	General		N
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type, nominal thread diameter (mm) .....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N
2.7	Overcurrent and earth fault protection in primary circuits *Evaluated in approved external Power supply.*		P
2.7.1	Basic requirements		N
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices .....:		—
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel .....:		—
2.8	Safety interlocks *No safety interlocks provided.*		N
2.8.1	General principles		N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches, relays and their related circuits		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) ..... :		—
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test		N
2.8.8	Mechanical actuators		N
2.9	Electrical insulation *Evaluated in approved external Power supply.*		P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used.	P
2.9.2	Humidity conditioning		N
	Relative humidity (%), temperature (°C) ..... :		—
2.9.3	Grade of insulation	For **Router** Function Insulation is adequate.	P
2.9.4	Separation from hazardous voltages	For **Router** is supplied by approved external Power supply	P
	Method(s) used ..... :		—

2.10	Clearances, creepage distances and distances through insulation *Evaluated in approved external Power supply.* *For Router: see below.*		P
2.10.1	General		P
2.10.1.1	Frequency ..... :		N
2.10.1.2	Pollution degrees ..... :		N
2.10.1.3	Reduced values for functional insualtion		N
2.10.1.4	Intervening unconnected conductive parts		N
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage		N
2.10.2.1	General		N
2.10.2.2	RMS working voltage		N
2.10.2.3	Peak working voltage		N
2.10.3	Clearances	Refer to below:	P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		N
	a) AC mains supply ..... :		N
	b) Earthed d.c. mains supplies ..... :		N
	c) Unearthed d.c. mains supplies ..... :		N
	d) Battery operation ..... :		N
2.10.3.3	Clearances in primary circuits		N
2.10.3.4	Clearances in secondary circuits	Function insulation comply with 5.3.4 c)	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.5	Clearances in circuits having starting pulses	The circuit will not generate starting pulse.	N
2.10.3.6	Transients from a.c. mains supply ..... :		N
2.10.3.7	Transients from d.c. mains supply ..... :		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems ..... :		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains suplply		N
	For an a.c. mains supply ..... :		N
	For a d.c. mains supply ..... :		N
	b) Transients from a telecommunication network :		N
2.10.4	Creepage distances		P
2.10.4.1	General	Refer to below	P
2.10.4.2	Material group and comparative tracking index		N
	CTI tests ..... :		—
2.10.4.3	Minimum creepage distances	Function insulation comply with 5.3.4 c)	P
2.10.5	Solid insulation		N
2.10.5.1	General		N
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5.	Cemented joints		N
2.10.5.6	Thin sheet material – General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (pcs) ..... :		—
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N
	Electric strength test		N
2.10.5.11	Insulation in wound components		N
2.10.5.12	Wire in wound components		N
	Working voltage ..... :		N
	a) Basic insulation not under stress ..... :		N
	b) Basic, supplemetary, reinforced insulation ..... :		N
	c) Compliance with Annex U ..... :		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Two wires in contact inside wound component; angle between 45° and 90° ..... :		N
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		N
2.10.5.14	Additional insulation in wound components		N
	Working voltage ..... :		N
	- Basic insulation not under stress ..... :		N
	- Supplemetary, reinforced insulation ..... :		N
2.10.6	Construction of printed boards		N
2.10.6.1	Uncoated printed boards		N
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs) ..... :		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N

3	**WIRING, CONNECTIONS AND SUPPLY** ***Evaluated in approved external Power supply.***		**P**
3.1	General		P
3.1.1	Current rating and overcurrent protection		N
3.1.2	Protection against mechanical damage		N
3.1.3	Securing of internal wiring		N
3.1.4	Insulation of conductors		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.5	Beads and ceramic insulators		N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws		N
3.1.9	Termination of conductors		N
	10 N pull test		N
3.1.10	Sleeving on wiring		N

3.2	Connection to a mains supply *Evaluated in approved external Power supply.*		P
3.2.1	Means of connection		N
3.2.1.1	Connection to an a.c. mains supply		N
3.2.1.2	Connection to a d.c. mains supply		N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter of cable and conduits (mm) ..... :		—
3.2.4	Appliance inlets		N
3.2.5	Power supply cords		N
3.2.5.1	AC power supply cords		N
	Type ..... :		—
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N) ..... :		—
	Longitudinal displacement (mm) ..... :		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g) ..... :		—
	Radius of curvature of cord (mm) ..... :		—
3.2.9	Supply wiring space		N

3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals	No wiring terminals.	N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N

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Clause	Requirement + Test	Result - Remark	Verdict
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm^2) ..... :		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type, nominal thread diameter (mm) ..... :		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N

3.4	Disconnection from the mains supply *Evaluated in approved external Power supply*		P
3.4.1	General requirement		N
3.4.2	Disconnect devices		N
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles - single-phase and d.c. equipment		N
3.4.7	Number of poles - three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N

3.5	Interconnection of equipment		P
3.5.1	General requirements	Considered.	P
3.5.2	Types of interconnection circuits .....:	SELV circuits.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	N
3.5.4	Data ports for additional equipment		P

4	**PHYSICAL REQUIREMENTS**		**P**
4.1	Stability		N
	Angle of 10°	<7 kg.	N
	Test force (N) ..... :	The unit is not floor-standing.	—

4.2	Mechanical strength *Evaluated in approved external Power supply.* *For Router: see below.*	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.1	General		N
4.2.2	Steady force test, 10 N		N
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N		N
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm) ..... :		N
4.2.7	Stress relief test		N
4.2.8	Cathode ray tubes		N
	Picture tube separately certified ..... :		N
4.2.9	High pressure lamps		N
4.2.10	Wall or ceiling mounted equipment; force (N) ..... :	The mounting means withstands 50N force.	P
4.2.11	Rotating solid media		N
	Test to cover on the door……..:		—
4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N).....:	No knobs, grips, handles, lever etc.	N
4.3.3	Adjustable controls	No hazardous adjustable controls.	N
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets	Output connector of approved external Power Supply cannot be misconnected. No connectors which complying with IEC60083 or IEC60032 used for SELV circuits or TNV circuit.	P
4.3.6	Direct plug-in equipment	Evaluated in approved external Power supply.	P
	Torque ..... :		—
	Compliance with the relevant mains plug standard ..... :		N
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N
4.3.8	Batteries	No batteries in the equipment.	N
	- Overcharging of a rechargeable battery		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease	Insulation is not exposed to oil, grease etc.	N
4.3.10	Dust, powders, liquids and gases	The equipment does not contain flammable liquids or gases.	N
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	N
4.3.12	Flammable liquids ..... :	The equipment does not contain flammable liquid.	N
	Quantity of liquid (l) ..... :		N
	Flash point (°C) ..... :		N
4.3.13	Radiation		P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation	The equipment does not generate ionizing radiation.	N
	Measured radiation (pA/kg) ..... :		—
	Measured high-voltage (kV) ..... :		—
	Measured focus voltage (kV) ..... :		—
	CRT markings ..... :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	The equipment does not produce significant UV radiation.	N
	Part, property, retention after test, flammability classification ..... :		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..... :	The equipment does not produce significant UV radiation.	N
4.3.13.5	Lasers (including laser diodes) and LEDs		P
4.3.13.5.1	Lasers (including laser laser diodes)		N
	Laser class ..... :		—
4.3.13.5.2	Light emitting diodes (LEDs)	Diffusive LED only, the energy of the indicator LED is far below the limit for class I LED products.	P
4.3.13.6	Other types ..... :	The equipment does not generate other types of radiation.	N

4.4	Protection against hazardous moving parts	N

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.1	General	No hazardous moving part within the equipment.	N
4.4.2	Protection in operator access areas ..... :		N
4.4.3	Protection in restricted access locations ..... :		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. a)……:		—
	Is considered to cause pain, not injury. b) ……:		—
	Considered to cause injury. c) ……:		—
4.4.5.2	Protection for users		N
	Use of symbol or warning ……..……:		—
4.4.5.3	Protection for service persons		N
	Use of symbol or warning ……..……:		—

4.5	Thermal requirements		P
4.5.1	General	Evaluated in approved external Power supply For **Router**: see below.	P
4.5.2	Temperature tests	(See appended table 4.5.2)	P
	Normal load condition per Annex L .....:	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	—
4.5.3	Temperature limits for materials	(See appended table 4.5.2)	P
4.5.4	Touch temperature limits	(See appended table 4.5.2)	P
4.5.5	Resistance to abnormal heat ..... :	Evaluated in approved external Power supply.	P

4.6	Openings in enclosures		P
4.6.1	Top and side openings	Side openings in which vertical entry is prevented.	P
	Dimensions (mm) ..... :	For Power Supply: no openings; For **Router**: Left and Right sides, Numerous slot openings. each is maximum 1.1 mm x 16 mm, cover areas 16 mm x 86 mm, no hazardous parts inside.	—

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Clause	Requirement + Test	Result - Remark	Verdict
4.6.2	Bottoms of fire enclosures	For Power Supply: no openings. For **Router**: no openings.	P
	Construction of the bottomm, dimensions (mm) .. :		—
4.6.3	Doors or covers in fire enclosures	No doors or covers in fire enclosure.	N
4.6.4	Openings in transportable equipment	The unit is not regarded as transportable equipment.	N
4.6.4.1	Constructional design measures		N
	Dimensions (mm) ..... :		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes	Adhesives not used.	N
	Conditioning temperature (°C), time (weeks) ..... :		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	Evaluated in approved external Power supply	P
	Method 2, application of all of simulated fault condition tests	Method 1 used.	N
4.7.2	Conditions for a fire enclosure	Refer to below:	P
4.7.2.1	Parts requiring a fire enclosure	Evaluated in approved external Power supply.	P
4.7.2.2	Parts not requiring a fire enclosure	For **Router**: intended to be supplied by approved external Power Supply, which complied with L.P.S., and all components mounted on min.V-1 PWB. Therefore, the fire enclosure is not required.	P
4.7.3	Materials	Refer to below:	P
4.7.3.1	General	Components and materials have adequate flammability classification. (see appended table 1.5.1)	P
4.7.3.2	Materials for fire enclosures	Evaluated in approved external Power supply.	P
4.7.3.3	Materials for components and other parts outside fire enclosures	For **Router**: min. HB plastic enclosure used.	P
4.7.3.4	Materials for components and other parts inside fire enclosures	Evaluated in approved external Power supply.	P
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N

5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS** ***Evaluated in approved external Power supply.***		**P**
5.1	Touch current and protective conductor current		N
5.1.1	General		N
5.1.2	Configuration of equipment under test (EUT)		N
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit		N
5.1.4	Application of measuring instrument		N
5.1.5	Test procedure		N
5.1.6	Test measurements		N
	Supply voltage (V) ..... :		—
	Measured touch current (mA) ..... :		—
	Max. allowed touch current (mA) ..... :		—
	Measured protective conductor current (mA) ..... :		—
	Max. allowed protective conductor current (mA).. :		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N
5.1.7.1	General ..... :		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	Supply voltage (V) ..... :		—
	Measured touch current (mA) ..... :		—
	Max. allowed touch current (mA) ..... :		—
5.1.8.2	Summation of touch currents from telecommunication networks		N
	a) EUT with earthed telecommunication ports .... :		N
	b) EUT whose telecommunication ports have no reference to protective earth		N

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Clause	Requirement + Test	Result - Remark	Verdict
5.2	Electric strength *Evaluated in approved external Power supply.*		P
5.2.1	General		N
5.2.2	Test procedure		N

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	Evaluated in approved external Power supply. For **Router**: (see appended table 5.3)	P
5.3.2	Motors	No motors.	N
5.3.3	Transformers	Evaluated in approved external Power supply	P
5.3.4	Functional insulation ..... :	Complies with method c). Also evaluated in approved external Power Supply.	P
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	N
5.3.6	Audio amplifiers in ITE ..... :	The equipment does not contain audio amplifies.	N
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs	N
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment. No molten metal was emitted. No any hazard.	P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P

6	**CONNECTION TO TELECOMMUNICATION NETWORKS** ***The equipment is not connected to a TELECOMMUNICATION NETWORKS***		**N**
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements		N
	Supply voltage (V) ..... :		—
	Current in the test circuit (mA) ..... :		—
6.1.2.2	Exclusions ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N

6.3	Protection of the telecommunication wiring system from overheating		N
	Max. Output current (A) ..... :		—
	Current limiting method ..... :		—

7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS** ***The equipment is not connected to a CABLE DISTRIBUTION SYSTEMS.***		**N**
7.1	General		N
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N

A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		**N**
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N
A.1.1	Samples ..... :		—
	Wall thickness (mm) ..... :		—
A.1.2	Conditioning of samples; temperature (°C) ..... :		N
A.1.3	Mounting of samples ..... :		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D ..... :		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s) ..... :		—
	Sample 2 burning time (s) ..... :		—

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

B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)**		**N**
B.1	General requirements		N
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days) ..... :		—
	Electric strength test: test voltage (V) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V) ..... :		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V) ..... :		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V) ..... :		—

C	**ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)** ***Evaluated in approved external Power supply.***		**P**
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
	Method of protection ..... :		—
C.1	Overload test		N
C.2	Insulation		N
	Protection from displacement of windings ..... :		N

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

E	**ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)**		**N**

F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)**		**N**

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Clause	Requirement + Test	Result - Remark	Verdict
G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		**N**
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply ..... :		N
G.2.2	Earthed d.c. mains supplies ..... :		N
G.2.3	Unearthed d.c. mains supplies ..... :		N
G.2.4	Battery operation ..... :		N
G.3	Determination of telecommunication network transient voltage (V) ..... :		N
G.4	Determination of required withstand voltage (V)		N
G.4.1	Mains transients and internal repetitive peaks .... :		N
G.4.2	Transients from telecommunication networks ..... :		N
G.4.3	Combination of transients		N
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient voltages (V)		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances ..... :		N

H	**ANNEX H, IONIZING RADIATION (see 4.3.13)**		**N**

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)**		**P**
L.1	Typewriters		N
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		P

M	**ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)**		**N**
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing signal		N
M.3.1.1	Frequency (Hz) ..... :		—
M.3.1.2	Voltage (V) ..... :		—
M.3.1.3	Cadence; time (s), voltage (V) ..... :		—
M.3.1.4	Single fault current (mA) ..... :		—
M.3.2	Tripping device and monitoring voltage ..... :		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V) ..... :		—

N	**ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)**		**N**
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N

P	**ANNEX P, NORMATIVE REFERENCES**		—

Q	**ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)** ***Evaluated in approved external Power supply.***		**P**
	a) Preferred climatic categories ..... :		—
	b) Maximum continuous voltage ..... :		—
	c) Pulse current ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		**N**
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		**N**
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)**		**N**
	Not protected against ingress of water.		—
U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)**		**N**
	No such insulated winding wires for use without interleave.		—
V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)**		**P**
V.1	Introduction	Evaluated in approved external Power supply	P
V.2	TN power distribution systems		P
V.3	TT power distribution systems		N
V.4	IT power distribution systems		N
W	**ANNEX W, SUMMATION OF TOUCH CURRENTS**		**N**
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
X	**ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)**		**N**
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N

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Clause	Requirement + Test	Result - Remark	Verdict

Y	**ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)**		**N**
Y.1	Test apparatus .....:		N
Y.2	Mounting of test samples .....:		N
Y.3	Carbon-arc light-exposure apparatus .....:		N
Y.4	Xenon-arc light exposure apparatus .....:		N

Z	**ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)**	**N**

AA	**ANNEX AA, MANDREL TEST (see 2.10.5.8)**	**N**

BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**	**—**

CC	**ANNEX CC, Evaluation of integrated circuit (IC) current limiters**		**N**
CC.1	**General**		**N**
CC.2	**Test program 1.....:**		**—**
CC.3	**Test program 2.....:**		**—**

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

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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		P
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N
1.3.Z1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		N
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N
1.7.2.1 (A12.2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N
	Zx Protection against excessive sound pressure from personal music players		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: is designed to allow the user to listen to recorded or broadcast sound or video; and primarily uses headphones or earphones that can be worn in or on or around the ears; and allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.		N
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."  **Figure 1 – Warning label (IEC 60417-6044)** Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N
	Zx.4 Requirements for listening devices (headphones and earphones)		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		N
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.		N
	Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;		N
	c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N
2.7.2	This subclause has been declared 'void'.		N
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N
3.2.5.1	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 | 0,75 [a] | Over 6 up to and including 10| (0,75) [b] 1,0 | Over 10 up to and including 16| (1,0) [c] 1,5 | In the conditions applicable to Table 3B delete the words "in some countries" in condition [a]. In NOTE 1, applicable to Table 3B, delete the second sentence.		N

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

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

ZB	**ANNEX ZB (normative) SPECIAL NATIONAL CONDITIONS**		—
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N
1.2.13.14	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag” In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).”		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.” Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		N
1.7.5	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		N
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Evaluated in approved external Power Supply.	P
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.		N
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N
7.3	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N

1.5.1	TABLE: list of critical components				P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity[1])
Power Supply	Dee Van Enterprise Co., Ltd.	DSA-6E-05 EU 050100, DSA-6E-05 UK 050100	Input: 100-240V~, 50/60Hz, 0.3A; output: 5V⎓, 1A; Complies with L.P.S, The max. operation ambient is 40℃.	IEC 60950-1:2005 (2nd Edition); EN 60950-1:2006 + A11:2009	TUVRheinland (CB Certificate No.: JPTUV-033503, Report No.: 16024458 001)
Plastic enclosure	Various	Various	Min.94HB. 60℃.	UL94	UL
PCB	Various	Various	Min.V-1, 105℃.	UL796	UL
supplementary information: --					

1.6.2	TABLE: Electrical data (in normal conditions)			P
U (V)	F (Hz)	P (W)	I (mA)	Conditon/Status
Router with Power Supply (Model No.: SA-6E-05 EU 050100)				
90	50/60	2.04/2.04	45.4/46.0	Max normal load
100	50/60	2.05/2.05	43.1/43.5	Max normal load
240	50/60	2.20/2.20	28.3/28.6	Max normal load
254.4	50/60	2.23/2.23	27.5/27.9	Max normal load
Router				
5Vdc	--	1.31	262	Max normal load
Note(s): Power Supply, input: 100-240V~, 50/60Hz, 0.3A; output: 5V⎓, 1A. **Router,** input: 5V⎓, 1A Max. normal load: All the output ports transfer data continuously. The input current of the equipment is not exceed the rated current by more than 10% under normal condition.				

2.1.1.5	TABLE: Max. V, A, VA measurement				N
Output tested	**Output current (rated) (A)**	**Voltage (max.) (V)**	**Current (max.) (A)**	**VA (max.) (VA)**	**HAZ/EL (Yes / No)**
--	--	--	--	--	--
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.					

2.1.1.7	TABLE: Discharge test				N
Location	**Condition**	**Vpeak (Vac)**	**37% Vpeak (Vdc)**	**Vpeak at tc (Vdc)**	**Comment**
					Pluggable equipment type A
	Standby				Pluggable equipment type A
Note(s): Input voltage:___V/__Hz; X capacitor: _____, dicharge resistor(s): _____. The voltage at the external point of disconnection shall decay to less than 37 percent of its original value in 1.0 second. Evaluated in approved external Power supply (no X-cap.)					

2.2.2	TABLE: Hazardous voltage measurement			N
Component	**Location**	**Max. voltage (V) (normal operation)**		**Voltage Limiting Components**
		V peak	**V dc**	
--	--	--	--	--
Note(s): The output of external Power supply complied with SELV requirement, refer to separated EPS test report.				

2.2.3	TABLE: SELV voltage measurement		N
Location	**Voltage measured (V)**	**Comments**	
--	--	--	
Note(s): The output of external Power supply complied with SELV requirement, refer to separated EPS test report.			

2.4.2	TABLE: Limited current circuits test				N
Location	**Voltage (V)**	**Current (mA)**	**Freq. (kHz)**	**Limit (mA)**	
--	--	--	--	--	
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.					

2.5	TABLE: Limited power sources test							N
Output tested	**Location**		**Single fault**	**Measured Maximum**			**Limited**	
	From	**To**		**Uoc (V)**	**Isc (A)**	**VA**	**Isc (A)**	**VA**
--	--	--	--	--	--	--	--	--
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.								

2.6.3.4	TABLE: Earthing test			N
Test point between	**Current (A)**	**Duration (min)**	**Measured resistance or voltage drops (ohms or V)**	**Limited resistance or voltage drops (ohms/V)**
--	--	--	--	--
Note(s): Approved external Power supply is class II equipment.				

2.10.2	TABLE: Working voltage measurement				
Component	**Location**		**Peak Voltage (Vac)**	**RMS Voltage (Vac)**	**Comments**
	From	**To**			
--	--	--	--	--	--
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.					

2.10.3 and 2.10.4	TABLE: Clearances and creepage distances measurement						N
Rated supply voltage:	**100-240V**	**Pollution degree:**	**2**	**Material Group:**			**IIIb**
Location	**Operating Voltage**		**Clearance (mm)**		**Creepage (mm)**		**CTI**
	V peak	**V rms**	**Min**	**Actual**	**Min**	**Actual**	**--**
--	--	--	--	--	--	--	--
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.							

2.10.5	TABLE: Distance through insulation measurement				N
Distance through insulation (DTI) at/of:	**U peak (V)**	**U rms (V)**	**Test voltage (V)**	**Required dti (mm)**	**dti (mm)**
--	--	--	--	--	--
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.					

4.3.8	TABLE: Batteries								N
The tests of 4.3.8 are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?									
	Non-rechargeable batteries			**Rechargeable batteries**					
	Discharging		**Un-intentional charging**	**Charging**		**Discharging**		**Reversed charging**	
	Meas. current	**Manuf. Specs.**		**Meas. current**	**Manuf. Specs.**	**Meas. current**	**Manuf. Specs.**	**Meas. current**	**Manuf. Specs.**
Max. current during normal condition									
Max. current during fault condition									

Test results:	Verdict
- Chemical leaks	
- Explosion of the battery	
- Emission of flame or expulsion of molten metal	
- Electric strength tests of equipment after completion of tests	

Supplementary information:	
Battery category	(Lithium, NiMh, NiCad, Lithium Ion …)
Manufacturer	
Type / model	
Voltage	
Capacity	mAh
Tested and Certified by (incl. Ref. No.).....	
Circuit protection diagram:	
Note(s):	

4.5.2	TABLE: Thermal requirements			P
	Supply voltage (V)……..:	90Vac, 60Hz		—
Maximum measured temperature T of part/at:		**Measured T**	**Calculated T (°C)**	**Allowed Tmax (°C)**
Horizontal position				
1. DC jack J4, outside		27.7	43.8	85
2. C50 body		30.5	46.6	105
3. U20 body		33.6	49.7	105
4. L18 winding		33.9	50.0	130
5. U11 body		35.8	51.9	105
6. U2 body		51.8	67.9	105
7. U13 body		35.9	52.0	105
8. Plastic enclosure near U2, outside		31.9	48.0	60
9. Power supply body		33.6	49.7	95
10. Ambient		23.9	40.0	--
Vertical position				
1. DC jack J4, outside		27.5	43.5	85
2. C50 body		29.6	45.6	105
3. U20 body		32.1	48.1	105
4. L18 winding		31.2	47.2	130
5. U11 body		32.7	48.7	105
6. U2 body		48.9	64.9	105
7. U13 body		34.8	50.8	105
8. Plastic enclosure near U2, outside		28.2	44.2	60
9. Power supply body		33.1	49.1	95
10. Ambient		24.0	40.0	--

Note(s): --

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

Note(s):

1. The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 and at voltages as described in sub-clause 1.4.5.
2. Thermocouple method used for measuring the temperatures
3. Unit specified with maximum of 40°C ambient temperature and all temperatures were calculated for a maximum ambient temperature of 40°C.

Plastic enclosure: temp is 60 ℃; PCB: Max. temp is 105 ℃, U20, U11, U2 and U13 limit refer to PCB.

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

Part	Test temperature (°C)	Impression diameter (mm)
--	--	--
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.		

5.1.6	TABLE: Touch current measurement			N
Measured between:	**Measured (mA)**	**Limit (mA)**	**Comments/conditions**	
--	--	--	--	
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			N
Test voltage applied between:	**Voltage shape (AC, DC, impulse, surge)**	**Test voltage (V)**	**Breakdown Yes / No**	
--	--	--	--	
Note(s): Evaluated in approved external Power supply, refer to separated EPS test report.				

5.3	TABLE: Fault condition test		P
	Ambient temperature (°C) ..... :	See below	—
	Power source for EUT: Manufacturer, model/type, output rating ..... :	See appended table 1.5.1	—

No.	Component	Fault	Test voltage (V)	Test time	Fuse #	Fuse. current (A)	Result
1	Opening	B/L	90Vac 60Hz	1hr 41mins	--	--	Still normal operation, Measured temperature: L18 winding: 34.3°C, Plastic enclosure near U2, outside: 32.4°C, Ambient: 24.2°C, No hazards.
2	U20 (pin2 to pin4)	S/C	240Vac 60Hz	1hr 56mins	--	--	Unit shutdown and cycled, Measured temperature: L18 winding: 31.9°C, Plastic enclosure near U2, outside: 32.4°C, Ambient: 26.2°C, NC, NT, no hazard.

3	U20 (pin2 to pin5)	S/C	240Vac 60Hz	10mins	--	--	Unit shutdown immediately, Recoverable when fault removed, NC, NT, no hazard.
Note(s): --							

6.2.2.2	**TABLE:Electric strength tests (Steady-state)**	**N**
Test voltage applied between:	**Test voltage (V)**	**Breakdown**
--	--	--
--	--	--
Note(s): --		

Attachment A: Photo-documentation

Fig.1 - Overview of model NBG-418N and Power supply (1)

Fig.2 - Overview of model NBG-418N and Power supply (2)
(Overall: approx. 163mm x 115mm x 30mm)

Attachment A: Photo-documentation

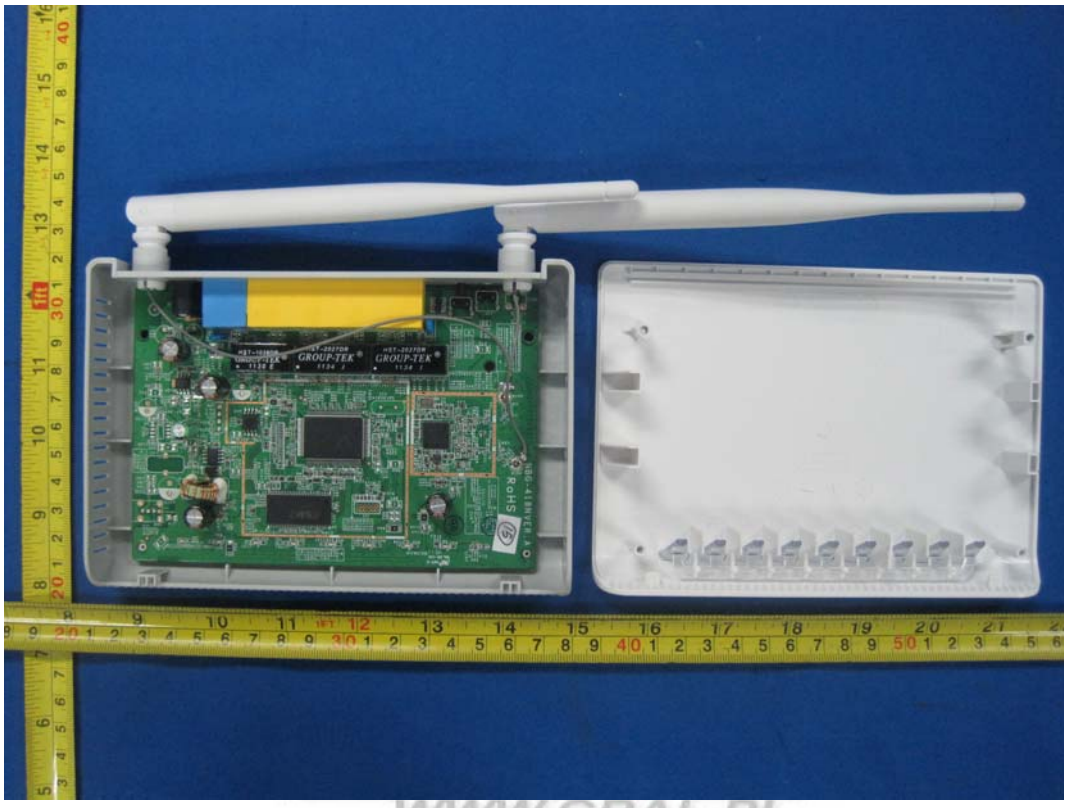

Fig.3 - Internal view of model NBG-418N with non-detachable antenna

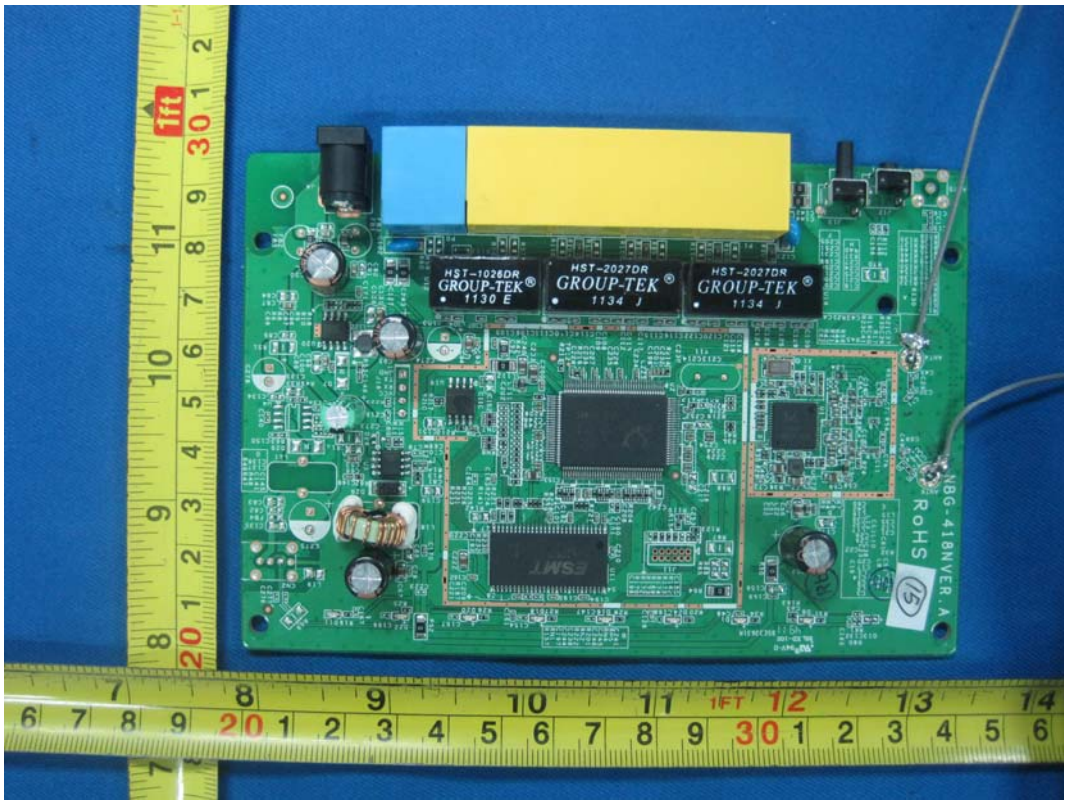

Fig.4 - PCB on components side of main board for model NBG-418N

Attachment A: Photo-documentation

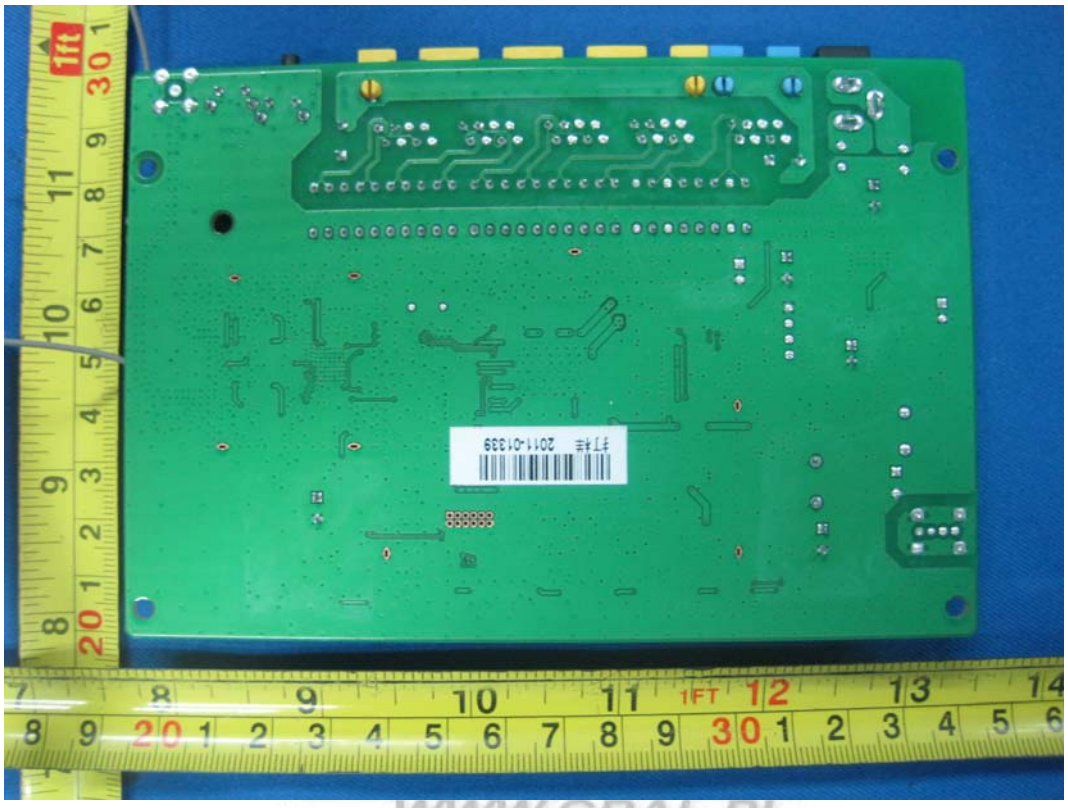

Fig.5 - PCB on trace side of main board for model NBG-418N

Fig.6 - Over view of approved external Power Supply (1)

Attachment A: Photo-documentation

Fig.7 - Over view of approved external Power Supply (2)

Attachment B: Power Supply's CB Certificate

IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-033503

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Switching Adapter
Name and address of the applicant Nom et adresse du demandeur	Dee Van Enterprise Co., Ltd. 5, Pao-Kao Road, Hsin-Tien Taipei 231 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Dee Van Enterprise Co., Ltd. 5, Pao-Kao Road, Hsin-Tien Taipei 231 Taiwan
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input : AC 100-240V; 50/60Hz; 0.3A; Class II Output: refer to the test report
Trade mark (if any) Marque de fabrique (si elle existe)	DVE
Model/type Ref. Ref. de type	DSA-6E-a b xy (a, b, x, y = refer to the test report)
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60950-1:2005 National differences see test report
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	16024458 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

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Global Technology Assessment Center
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Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 09.07.2010

Signature:

Dipl. Ing. (FH) T. Zimmer

Attachment B: Power Supply's CB Certificate **Page 2 of 2**

IEC IECEE CB SCHEME	Ref. Certif. No.
	JPTUV-033503

PAGE 2 OF 2

1. Dee Van Electronics (Shenzhen) Co., Ltd.
   The 5th Industrial District
   Gongming, Bao An District
   Shenzhen, Guangdong 518106, P.R. China

2. Dee Van Electronics (Longchuan) Co., Ltd.
   Meichun Industrial District
   Longchuan Country
   Heyuan, Guangdong 517300, P.R. China

3. Dee Van Technology (Longchuan) Co., Ltd.
   Meichun Industrial District
   Longchuan Country
   Heyuan, Guangdong 517300, P.R. China

4. Dee Van Electronics (Jiashan) Co., Ltd.
   Sanqi Electronics Information
   Industry District Jiashan Economy
   Development Zone, Jiashan Town, Jiaxing, Zhejiang 314100, P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 09.07.2010 Signature: Dipl. Ing. (FH) T. Zimmer