



TEST REPORT

IEC 60950-1 and/or EN 60950-1

**Information technology equipment – Safety –
Part 1: General requirements**

Report reference No: E06.0608.950.026N

Tested by
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Date of issue: 2006-06-08

Testing Laboratory Name: ETL

Address: #371-51, Kasan-Dong, Keumcheon-Ku, Seoul, 153-803, Korea.

Testing location: as above

Applicant's Name: ORION COMMUNICATIONS CO., LTD.

Address: Rm1614, Samkoo Building, 16-49 Hangangro-3ka, Yongsan-ku, Seoul, 140-879, Korea

Test specification

Standard: IEC 60950-1:2001 (1st Edition) and/or EN 60950-1:2001

Test procedure: CB–Scheme

Non-standard test method: N/A

Test Report Form No.: IECEN60950_1B

TRF originator: SGS Fimko Ltd

Master TRF: dated 2003-03

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Test item description: 19" TFT LCD Monitor

Trademark:

Manufacturer: Same as applicant

Factory: Yuri Electronics Co., Ltd.
122-6 Youngcheon-ri Dongtan-myeon Hawseong-shi, Kyunggi-do,
445-813, Korea

Model and/or type reference: OR1921SH, H1922P, HCD-19A, SV19, KMC-19B, NO1901, VO192S

Serial number: -







Rating(s): 12 Vd.c.; 4,0 A



Particulars: test item vs. test requirements	
Equipment mobility	Movable
Operating condition	Continuous
Mains supply tolerance (%)	N/A
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class III
Mass of equipment (kg)	5,1 kg (without adapter)
Protection against ingress of water	IPX0
Test case verdicts	
Test case does not apply to the test object :	N/A
Test item does meet the requirement	P(ass)
Test item does not meet the requirement ...:	F(ail)
Testing	
Date of receipt of test item	2006-04-25
Date(s) of performance of test	2006-04-25 ~ 2006-05-22
Attachments	
- Photograph	9 pages
General remarks	
"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IEC 60950-1".	
The test result presented in this report relate only to the object(s) 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.	

General product information:

1. Model OR1921SH is basic model, which was tested.
2. Model differences;

Model name	Trademark
OR1921SH	
H1922P	
HCD-19A	
SV19	
KMC-19B	
NO1901	
VO192S	



Clause	Requirement – Test	Result – Remark	Verdict
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1	GENERAL		
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1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.</p> <p>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.</p> <p>Component, 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>	P
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors in primary circuits		N/A
1.5.7	Double insulation or reinforced insulation bridged by components		N/A
1.5.7.1	General		N/A
1.5.7.2	Bridging capacitors		N/A
1.5.7.3	Bridging resistors		N/A
1.5.7.4	Accessible parts		N/A
1.5.8	Components in equipment for IT power systems		N/A

1.6	Power interface		P
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A



Clause	Requirement – Test	Result – Remark	Verdict
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1.6.4	Neutral conductor		N/A
1.7	Marking and instructions		P
1.7.1	Power rating		P
	Rated voltage(s) or voltage range(s) (V)	12 Vd.c.	P
	Symbol for nature of supply, for d.c. only.....	—	P
	Rated frequency or rated frequency range (Hz) :		N/A
	Rated current (mA or A)	4,0 A	P
	Manufacturer's name or trademark or identification mark		P
	Type/model or type reference	OR1921SH, H1922P, HCD-19A, SV19, KMC-19B, NO1901, VO192S	P
	Symbol for Class II equipment only	Class III equipment	N/A
	Other symbols		N/A
	Certification marks		N/A
1.7.2	Safety instructions		P
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment		N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No standard power outlet	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		N/A
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		P
1.7.8.1	Identification, location and marking	Adjacent to the switch	P
1.7.8.2	Colours	Green and Orange	P
1.7.8.3	Symbols according to IEC 60417.....	The switch is marked with the symbol for "Stand-by" (60417-1-IEC-5009)	P



Clause	Requirement – Test	Result – Remark	Verdict
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1.7.8.4	Markings using figures	No controls using figures	N/A
1.7.9	Isolation of multiple power sources	No multiple power sources	N/A
1.7.10	IT power distribution systems		N/A
1.7.11	Thermostats and other regulating devices	No thermostats and other regulating devices	N/A
1.7.12	Language(s)	English	—
1.7.13	Durability	The marking withstands required tests	P
1.7.14	Removable parts	No removable parts	N/A
1.7.15	Replaceable batteries	No batteries	N/A
	Language(s)		—
1.7.16	Operator access with a tool.....		N/A
1.7.17	Equipment for restricted access locations		N/A

2	PROTECTION FROM HAZARDS		
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	No part of ELV or hazardous voltages are accessible	P
	Test by inspection	Inspection	P
	Test with test finger	No hazard	P
	Test with test pin	No hazard	P
	Test with test probe		N/A
2.1.1.2	Battery compartments	No battery compartments	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring accessible	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous wiring accessible	N/A
2.1.1.5	Energy hazards	No energy hazard in operator access area	P
2.1.1.6	Manual controls	No conductive shafts connected to hazardous voltage part	N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Time-constant (s); measured voltage (V).....		—



Clause	Requirement – Test	Result – Remark	Verdict
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2.1.2	Protection in service access areas	Checked by inspection, unintentional contact is unlikely during service operations	P
2.1.3	Protection in restricted access locations	Not intended to be used in restricted locations	N/A
2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	< SELV	P
2.2.3	Voltages under fault conditions (V)	< SELV	P
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)		N/A
2.2.3.2	Separation by earthed screen (method 2)		N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N/A
2.2.4	Connection of SELV circuits to other circuits	SELV circuit meet the requirements of 2.2.2 and 2.2.3	P

2.3	TNV circuits		N/A
2.3.1	Limits	No TNV circuit in the equipment.	N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed		—
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		P
2.4.1	General requirements		P
2.4.2	Limit values	33,3 mA	P
	Frequency (Hz).....	47,6 kHz	—
	Measured current (mA)	17,0 mA	—
	Measured voltage (V)	34 V	—



Clause	Requirement – Test	Result – Remark	Verdict
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	Measured capacitance (μF)	< 0,01 μF	—
2.4.3	Connection of limited current circuits to other circuits	DC/AC Inverter	P

2.5	Limited power sources		N/A
	Inherently limited output		N/A
	Impedance limited output		N/A
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition		N/A
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA)		—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	Class III equipment	N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG		—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A)		N/A
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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	Rated current (A), type and nominal thread diameter (mm).....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	Class III equipment	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not covered in 5.3		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel.....:		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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2.8.7.1	Contact gaps (mm)		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		N/A
2.9.1	Properties of insulating materials		N/A
2.9.2	Humidity conditioning		N/A
	Humidity (%)		—
	Temperature (°C)		—
2.9.3	Grade of insulation		N/A

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	Only functional insulation (see clause 5.3.4)	P
2.10.2	Determination of working voltage		N/A
2.10.3	Clearances		N/A
2.10.3.1	General		N/A
2.10.3.2	Clearances in primary circuits		N/A
2.10.3.3	Clearances in secondary circuits		N/A
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances		N/A
	CTI tests		—
2.10.5	Solid insulation		N/A
2.10.5.1	Minimum distance through insulation		N/A
2.10.5.2	Thin sheet material		N/A
	Number of layers (pcs)		—
	Electric strength test		—
2.10.5.3	Printed boards		N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material		—



Clause	Requirement – Test	Result – Remark	Verdict
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	Number of layers (pcs).....:		N/A
2.10.5.4	Wound components		N/A
	Number of layers (pcs).....:		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.6	Coated printed boards		N/A
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C).....:		N/A
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test		—
2.10.7	Enclosed and sealed parts.....:		N/A
	Temperature $T_1=T_2 + T_{ma} - T_{amb} + 10K$ (°C)		N/A
2.10.8	Spacings filled by insulating compound		N/A
	Electric strength test		—
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		N/A

3	WIRING, CONNECTIONS AND SUPPLY		
3.1	General		P
3.1.1	Current rating and overcurrent protection	Adequate cross sectional areas on internal wiring.	P
3.1.2	Protection against mechanical damage		P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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3.1.10	Sleeving on wiring		N/A
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3.2	Connection to an a.c. mains supply or a d.c. mains supply		N/A
3.2.1	Means of connection	Class III equipment	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 (mm) of cable and conduits		—
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type.....		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g)		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—



Clause	Requirement – Test	Result – Remark	Verdict
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3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		—
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	Class III equipment	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits.....	SELV-SELV circuit	P
3.5.3	ELV circuits as interconnection circuits		N/A

4	PHYSICAL REQUIREMENTS		
4.1	Stability		P
	Angle of 10°		P
	Test: force (N)		N/A

4.2	Mechanical strength		P
4.2.1	General		N/A
4.2.2	Steady force test, 10 N		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		P
	Fall test		P
	Swing test		P
4.2.6	Drop test		N/A
4.2.7	Stress relief test	70 °C; 7 h	P
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified.....:		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)	Applied 150 N	P

4.3	Design and construction		P
4.3.1	Edges and corners	Adequately rounded and smoothed	P
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		P
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Dimensions (mm) of mains plug for direct plug-in		N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N).....:		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries		N/A
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids		N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation; type of radiation		N/A
4.3.13.1	General		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Laser (including LEDs)		N/A
	Laser class		—
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		P
4.5.1	Maximum temperatures	(see appended table 4.5)	P
	Normal load condition per Annex L	L.7 Display testing pattern Max. brightness & contrast.	P
4.5.2	Resistance to abnormal heat		N/A

4.6	Openings in enclosures		P
4.6.1	Top and side openings		P
	Dimensions (mm)	No hazardous voltage or energy hazard.	—
4.6.2	Bottoms of fire enclosures		P
	Construction of the bottom	No opening	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks).....:		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	(see appended table 1.5.1)	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure		P
4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures	(see appended table 1.5.1)	P
4.7.3.3	Materials for components and other parts outside fire enclosures		P
4.7.3.4	Materials for components and other parts inside fire enclosures		N/A
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		
5.1	Touch current and protective conductor current		N/A
5.1.1	General		N/A
5.1.2	Equipment under test (EUT)		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
	Test voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—



Clause	Requirement – Test	Result – Remark	Verdict
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	Max. allowed protective conductor current (mA) :		—
5.1.7	Equipment with touch current exceeding 3.5 mA		N/A
5.1.8	Touch currents to and from 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 and a cable distribution system		N/A
	Test voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A

5.2	Electric strength		N/A
5.2.1	General		N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation.....	c)	P
5.3.5	Electromechanical components	No electromechanical	N/A
5.3.6	Simulation of faults	(see appended table 5.3)	P
5.3.7	Unattended equipment		N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions		P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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6.1.2.1	Requirements	No TNV circuit	N/A
	Test voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

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

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		
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).....		—



Clause	Requirement – Test	Result – Remark	Verdict
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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		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 60695-2-2, cl. 4 and 8		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		
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Clause	Requirement – Test	Result – Remark	Verdict
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B.1	General requirements		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h)		N/A
B.7.3	Electric strength test		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Method of protection.....		—
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings		N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		
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 ETLQP-21-F13-0

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D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		
G.1	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	DC mains supply		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V):.		N/A
G.5	Measurement of transient levels (V)		N/A
G.6	Determination of minimum clearances.....:		N/A

H	ANNEX H, IONIZING RADIATION (see 4.3.13)		
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		
	Metal used		—

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		
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



Clause	Requirement – Test	Result – Remark	Verdict
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L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P

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

N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

P	ANNEX P, NORMATIVE REFERENCES		N/A
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Clause	Requirement – Test	Result – Remark	Verdict
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Q	ANNEX Q, BIBLIOGRAPHY		N/A
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R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		
		See separate test report	—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		
		See separate test report	—

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		
W.1	Touch current from electronic 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)		
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Clause	Requirement – Test	Result – Remark	Verdict
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X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		
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

GENELEC COMMON MODIFICATIONS [C], SPECIAL NATIONAL CONDITIONS [S] AND A-DEVIATIONS (NATIONAL DEVIATIONS) [A] (EN 60950-1:2001, Annex ZB and Annex ZC)			
General	C: Delete all the "country" notes in the reference document according to the following list: 1.1.5 Note 2 1.5.8 Note 2 1.6.1 Note 1.7.2 Note 4 1.7.12 Note 2 2.6 Note 2.2.3 Note 2.2.4 Note 2.3.2 Note 2, 7, 8 2.3.3 Note 1, 2 2.3.4 Note 2,3 2.7.1 Note 2.10.3.1 Note 4 3.2.1.1 Note 3.2.3 Note 1, 2 3.2.5.1 Note 2 4.3.6 Note 1,2 4.7.2.2 Note 4.7.3.1 Note 2 6.1.2.1 Note 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7 Note 4 7.1 Note G2.1 Note 1, 2 Annex H Note 2		N/A
1.2.4.1	S (DK): Certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.5.1	A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.5.8	S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A



Clause	Requirement – Test	Result – Remark	Verdict
1.7.2	<p>S (FI, NO, SE): 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.</p> <p>The marking text in the applicable countries shall be as follows:</p>		N/A
	FI: "Laite on liitettävä suojamaadoitus-koskettimilla varustettuun pistorasiaan"		N/A
	NO: "Apparatet må tilkoples jordet stikkontakt"		N/A
	SE: "Apparaten skall anslutas till jordat uttag"		N/A
	<p>A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p>Viktigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p> <p> eller </p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning."</p>		N/A
1.7.5	S (DK): Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A



Clause	Requirement – Test	Result – Remark	Verdict
1.7.12	<p>A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph item 2):</p> <p>Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language.</p> <p>NOTE: Of this requirement, rules for use even only by service personnel are not exempted.</p>		N/A
1.7.15	<p>A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.</p>		N/A
	<p>A (DE, Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4):</p> <p>a) A licence is required by those who operate an X-ray emission source.</p> <p>b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if</p> <ol style="list-style-type: none"> 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 iSv/h and 2) it is adequately indicated on the X-ray emission source that <ol style="list-style-type: none"> i) X-rays are generated and ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. <p>c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if</p> <ol style="list-style-type: none"> 1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that 		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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	<p>i) X-rays are generated</p> <p>ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p>iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if</p> <p>1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6,</p> <p>2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.</p>		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.		N/A
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	<p>C: Replace the subclause as follows:</p> <p><i>Basic requirements</i></p> <p>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):</p> <p>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;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord,</p>		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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	<p>appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>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.</p> <p>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.</p>		
	<p>S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.</p>		N/A
2.7.2	C: Void.		N/A
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".		N/A
2.10.3.1	<p>S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault</p>		N/A
3.2.1.1	<p>S (CH): 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:</p> <p>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</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10A. 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:</p> <p>SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p>		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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	<p>S (DK): Supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>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.</p> <p>If ply-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.</p>		N/A
	<p>S (ES): 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.</p> <p>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.</p> <p>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.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A
	<p>S (GB): 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 Socket etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A



Clause	Requirement – Test	Result – Remark	Verdict
4.3.6	S (GB): The torque test is performed using a socket outlet complying with BS 1363 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, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.		N/A
	S (IE): 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
4.3.13.6	C: Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.		N/A
6.1.2.1	S (FI, NO, SE): Add the following text between the first and second paragraph: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTING TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.		N/A



Clause	Requirement – Test	Result – Remark	Verdict
	<p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		
6.1.2.2	<p>S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and 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.</p>		N/A
7.1	<p>S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
G.2.1	<p>S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.</p>		N/A
Annex H	<p>C: Replace the last paragraph of this annex by:</p> <p>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.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete Note 2.</p>		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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Annex P	C: Replace the text of this annex by: See annex ZA.		N/A
Annex Q	C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		N/A



Clause	Requirement – Test	Result – Remark	Verdict
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Annex ZA	<p>C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS</p> <p>This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).</p> <p>NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.</p> <table border="0"> <tr><td>—</td><td>IEC 60050-151</td></tr> <tr><td>—</td><td>IEC 60050-195</td></tr> <tr><td>EN 60065:1998 + corr. June 1999</td><td>IEC 60065 (mod):1998</td></tr> <tr><td>EN 60073:1996</td><td>IEC 60073:1996</td></tr> <tr><td>HD 566 S1:1990</td><td>IEC 60085:1984</td></tr> <tr><td>HD 214 S2:1980</td><td>IEC 60112:1979</td></tr> <tr><td>HD 611.4.1.S1:1992</td><td>IEC 60216-4-1:1990</td></tr> <tr><td>HD 21 ¹⁾ Series</td><td>IEC 60227 (mod) Series</td></tr> <tr><td>HD 22 ²⁾ Series</td><td>IEC 60245 (mod) Series</td></tr> <tr><td>EN 60309 Series</td><td>IEC 60309 Series</td></tr> <tr><td>EN 60317-43:1997</td><td>IEC 60317-43:1997</td></tr> <tr><td>EN 60320 Series</td><td>IEC 60320 (mod) Series</td></tr> <tr><td>HD 384.3 S2:1995</td><td>IEC 60364-3 (mod):1993</td></tr> <tr><td>HD 384.4.41 S2:1996</td><td>IEC 60364-4-41 (mod):1992 ³⁾</td></tr> <tr><td>EN 132400:1994 ⁴⁾</td><td>IEC 60384-14:1993</td></tr> <tr><td>+ A2:1998 + A3:1998 + A4:2001</td><td></td></tr> <tr><td>EN 60417-1</td><td>IEC 60417-1</td></tr> <tr><td>HD 625.1 S1:1996 + corr. Nov. 1996</td><td>IEC 60664-1 (mod):1992</td></tr> <tr><td>EN 60695-2-2:1994</td><td>IEC 60695-2-2:1991</td></tr> <tr><td>EN 60695-2-11:2001</td><td>IEC 60695-2-11:2000</td></tr> <tr><td>—</td><td>IEC 60695-2-20:1995</td></tr> <tr><td>—</td><td>IEC 60695-10-2:1995</td></tr> <tr><td>—</td><td>IEC 60695-11-3:2000</td></tr> <tr><td>—</td><td>IEC 60695-11-4:2000</td></tr> <tr><td>EN 60695-11-10:1999</td><td>IEC 60695-11-10:1999</td></tr> <tr><td>EN 60695-11-20:1999</td><td>IEC 60695-11-20:1999</td></tr> <tr><td>EN 60730-1:2000</td><td>IEC 60730-1:1999 (mod)</td></tr> <tr><td>EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997</td><td>IEC 60825-1:1993</td></tr> <tr><td>EN 60825-2:2000</td><td>IEC 60825-2:2000</td></tr> <tr><td>—</td><td>IEC 60825-9:1999</td></tr> <tr><td>EN 60851-3:1996</td><td>IEC 60851-3:1996</td></tr> <tr><td>EN 60851-5:1996</td><td>IEC 60825-5:1996</td></tr> <tr><td>EN 60851-6:1996</td><td>IEC 60851-6:1996</td></tr> <tr><td>—</td><td>IEC 60885-1:1987</td></tr> <tr><td>EN 60990:1999</td><td>IEC 60990:1999</td></tr> <tr><td>—</td><td>IEC 61058-1:2000</td></tr> </table>	—	IEC 60050-151	—	IEC 60050-195	EN 60065:1998 + corr. June 1999	IEC 60065 (mod):1998	EN 60073:1996	IEC 60073:1996	HD 566 S1:1990	IEC 60085:1984	HD 214 S2:1980	IEC 60112:1979	HD 611.4.1.S1:1992	IEC 60216-4-1:1990	HD 21 ¹⁾ Series	IEC 60227 (mod) Series	HD 22 ²⁾ Series	IEC 60245 (mod) Series	EN 60309 Series	IEC 60309 Series	EN 60317-43:1997	IEC 60317-43:1997	EN 60320 Series	IEC 60320 (mod) Series	HD 384.3 S2:1995	IEC 60364-3 (mod):1993	HD 384.4.41 S2:1996	IEC 60364-4-41 (mod):1992 ³⁾	EN 132400:1994 ⁴⁾	IEC 60384-14:1993	+ A2:1998 + A3:1998 + A4:2001		EN 60417-1	IEC 60417-1	HD 625.1 S1:1996 + corr. Nov. 1996	IEC 60664-1 (mod):1992	EN 60695-2-2:1994	IEC 60695-2-2:1991	EN 60695-2-11:2001	IEC 60695-2-11:2000	—	IEC 60695-2-20:1995	—	IEC 60695-10-2:1995	—	IEC 60695-11-3:2000	—	IEC 60695-11-4:2000	EN 60695-11-10:1999	IEC 60695-11-10:1999	EN 60695-11-20:1999	IEC 60695-11-20:1999	EN 60730-1:2000	IEC 60730-1:1999 (mod)	EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997	IEC 60825-1:1993	EN 60825-2:2000	IEC 60825-2:2000	—	IEC 60825-9:1999	EN 60851-3:1996	IEC 60851-3:1996	EN 60851-5:1996	IEC 60825-5:1996	EN 60851-6:1996	IEC 60851-6:1996	—	IEC 60885-1:1987	EN 60990:1999	IEC 60990:1999	—	IEC 61058-1:2000	N/A
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Clause	Requirement – Test	Result – Remark	Verdict
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	EN 61965:2001	IEC 61965:2000	
	EN ISO 178:1996	ISO 178:1993	
	EN ISO 179 Series	ISO 179 Series	
	EN ISO 180:2000	ISO 180:1993	
	—	ISO 261:1998	
	—	ISO 262:1998	
	EN ISO 527 Series	ISO 527 Series	
	—	ISO 386:1984	
	EN ISO 4892 Series	ISO 4892 Series	
	—	ISO 7000:1989	
	EN ISO 8256:1996	ISO 8256:1990	
	—	ISO 9772:1994	
	EN ISO 9773:1998	ISO 9773:1998	
	—	ITU-T:1988 Recommendation K.17	
	—	ITU-T:2000 Recommendation K.21	
	1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series		
	2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series		
	3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001		
	4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14		



1.5.1	TABLE: list of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
DC/AC inverter type. FIF1942-59A						
DC/AC inverter	Frontek Co., Ltd.	FIF1942-59A	11-13 Vdc; 1,95 A	IEC 60950-1	Tested in appliance	
Transformer	DONG HEUNG ELECTRONICS	TRS1501V	Class A	IEC 60950-1	Tested in appliance	
(Alt.)	KYEUNG IN	TRS1501V	Class A	IEC 60950-1	Tested in appliance	
(Alt.)	GET	TRS1501V	Class A	IEC 60950-1	Tested in appliance	
(Alt.)	MTI	TRS1501V	Class A	IEC 60950-1	Tested in appliance	
PCB	Seo Il Electronics	1	V-0; 105 °C; 1,1 mm thickness	-	UL	
(Alt.)	Youknowtech	JH-1	V-0; 105 °C; 1,1 mm thickness	-	UL	
(Alt.)	CNB Electronics	CB2	V-0; 105 °C; 1,1 mm thickness	-	UL	
(Alt.)	ZHEJIANG JUNHAO TECHNOLOGY	XMZ-1	V-0; 105 °C; 1,1 mm thickness	-	UL	
(Alt.)	BEIJING KYODENS ELECTRONIC	BJKDS-2	V-0; 105 °C; 1,1 mm thickness	-	UL	
Fuse/F1	COOPER BUSSMANN	3216FF-4A	32 V; 4 A	-	UL	
(Alt.)	DAITO	KMS40	76 V; 4 A	-	UL	
OTHERS						
LCD Module	LG Philips LCD Co., Ltd	LM190E03	5 Vdc; 0,72 A	-	UL	
(Alt.)	Samsung Electronics Co., Ltd.	LTM190EX-***	5 Vdc; 0,75 A	-	UL	
Enclosure	LG Chemical Ltd.	HI-121 HI-153	HB; 0,7 mm thickness	-	UL	
PCB of Mainboard	Various.	Various	Min. V-1; 2,6 mm thickness	-	UL	
Speaker	-	-	8 Ω ; Max. 2 W	-	-	



object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾
Power Supply Unit	Ya Hsin Industrial Co., Ltd.	123-124000-I3	Input: 100-240 V~; 50/60 Hz; 1,5 A Output: +12 Vdc; 4,0 A	IEC 60950-1	NEMKO
Power Cord Set	Hwajin KDK Co., Ltd.	KKP-4819R H05VV-F KKS-16A	250V; 16A; 3G 0,75mm ² 250V; 10A	IEC 60884-1 IEC 60320-1	FIMKO
(Alt.)	Kuk Je Tong Shin Co., Ltd.	KJP-160 H05VV-F KJC-303 /	250V; 16A; 3G 0,75mm ² 250V; 10A	-	VDE

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

1.6.2 TABLE: electrical data (in normal conditions)						P
fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	condition/status
-	4,0	12	33,7	2,86	-	LCD Module type. LM190E3
-	4,0	12	33,5	2,82	-	LCD Module type. LTM190EX-***

- Full raster with Max. brightness & contrast,
- Audio input terminals(L; R) for front speakers(L; R) : 1 kHz sine wave input , 1/8 non-clipped output power.

2.10.3 and 2.10.4 TABLE: clearance and creepage distance measurements							N/A
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	

2.10.5 TABLE: distance through insulation measurements				N/A
distance through insulation di at/of:	Up (V)	test voltage (V)	required di (mm)	di (mm)



4.5	TABLE: maximum temperatures				P	
	test voltage (V)	12 Vd.c.		—		
	t _{amb1} (°C)	23,0		—		
	t _{amb2} (°C)	23,5		—		
maximum temperature T of part/at::		T (°C) at Tma		allowed T _{max} (°C)		
<Inverter board(Inverter Type. FIF1942-59A)>						
1.	T1 coil	74,5		90		
2.	T1 core	75,3		90		
3.	T2 coil	82,3		90		
4.	T2 core	79,3		90		
5.	C1 body	80,2		105		
<Main board>						
6.	H/S for U101	71,4		-		
7.	H/S for U102	61,2		-		
8.	PCB near U201	64,8		105		
9.	L801	72,6		90		
10.	PCB near C839	73,1		105		
<Others>						
11.	LCD panel	47,1		80		
12.	Top enclosure	49,8		95		
13.	Rear enclosure	47,4		95		
14.	Adapter body	57,3		95		
Maximum temperature T at Tma (40°C) is calculated. (T at Tma=T-Tamb+Tma)						
LCD Module type. LM190E03						
temperature T of winding:		R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed T _{max} (°C)	insulation class

4.5.2	TABLE: ball pressure test of thermoplastic parts			N/A
	allowed impression diameter (mm)	≤ 2 mm		—
part		test temperature (°C)	impression diameter (mm)	



4.7	TABLE: resistance to fire				N/A
part	manufacturer of material	type of material	thickness (mm)	flammability class	

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests			N/A
test voltage applied between:		test voltage (V) a.c. / d.c.	breakdown Yes / No	
supplementary information				

5.3	TABLE: fault condition tests			P
	ambient temperature (°C)	20-25	—	
	model/type of power supply	123-124000-I3	—	
	manufacturer of power supply	Ya Hsin Industrial Co., Ltd.	—	
	rated markings of power supply	Input: 100-240 V~; 50/60 Hz; 1,5 A Output: +12 Vdc; 4,0 A	—	

component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
Openings	Blocked	12 Vd.c.	1h 30 min	-	2,86	Not exceeds temperature limit. No hazard.
C8 in DC/AC inverter	Short	12 Vd.c.	20 min	F1	0,754	Internal protection operated. No component damaged. No hazard.
C21 in DC/AC inverter	Short	12 Vd.c.	20 min	F1	0,754	Inverter damaged. No breakdown, No hazard.
C1 in DC/AC inverter	Short	12 Vd.c.	10 min	F1	0,744	Inverter damaged. No breakdown, No hazard.
U2 (#3-5) in DC/AC inverter	Short	12 Vd.c.	10 min	F1	0,781	Inverter damaged. No breakdown, No hazard.
U2 (#7-9) in DC/AC inverter	Short	12 Vd.c.	10 min	F1	0,758	Internal protection operated. No component damaged. No hazard.
supplementary information						



Note: Before placing the products in the different countries the manufacturer has to guarantee that:

1. Operating instructions and warnings are written in an accepted language of the certain country.
2. The appliance is in compliance with the national standards of the certain country.

End of the Test report