



Shenzhen Academy of Metrology & Quality Inspection

# Certificate

Of

## Compliance

No: WT163003837

The applicant

**Accuenergy (Canada) INC**

2 Lansing Square, Suite 1001, Toronto, ON M2J 4P8, Canada

has successfully demonstrated that its product

**Three-phase DIN-Rail multifunction meter**

AcuRev1300, AcuRev1310, AcuRev1301, AcuRev1302, AcuRev1303,  
AcuRev1304, AcuRev1311, AcuRev1312, AcuRev1313, AcuRev1314

is compliant with

**EN61010-1: 2010**

The certificate of compliance shows that the tested sample technically complies with safety requirement of the European Union LVD 2014/35/EU directive and its latest amended version. The certificate applies to the tested sample above mentioned only and shall not imply an assessment of the whole production.



Authorized Signer :



Issued Date : July 26<sup>th</sup>, 2016

# LVD TEST REPORT

For

**Three-phase DIN-Rail multifunction meter**

Model Number:




**AcuRev1300, AcuRev1310, AcuRev1301, AcuRev1302, AcuRev1303,**

**AcuRev1304, AcuRev1311, AcuRev1312, AcuRev1313, AcuRev1314**



Report Number: WT163003837

Test Laboratory	Shenzhen Academy of Metrology and Quality Inspection National Digital Electronic Product Testing Center
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<b>TEST REPORT</b> <b>IEC / EN 61010-1</b> <b>Safety requirements for electrical equipment for measurement, control, and laboratory use</b> <b>Part 1: General requirements</b>	
<b>Report reference No</b> .....	WT163003837
<b>Tested by:</b> .....	Junxi He 
<b>Checked by:</b> .....	Weidong Cao 
<b>Approved by:</b> .....	Feng Liu 
<b>Date of issue</b> .....	2016.07.26
<b>Testing organisation</b> .....	Shenzhen Academy of Metrology and Quality Inspection
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<b>Testing location</b> .....	Shenzhen Academy of Metrology and Quality Inspection
<b>Applicant's name</b> .....	Accuenergy(Canada)INC
<b>Address</b> .....	2 Lansing Square, Suite 1001, Toronto, ON M2J 4P8, Canada
<b>Factory's name</b> .....	Beijing Accuenergy Technology Co.,Ltd.
<b>Address</b> .....	No.12,FengRun East Road, YongFeng Industrial Park, Haidian District, Beijing, China100094
<b>Test specification:</b>	
<b>Standard</b> .....	IEC/EN 61010-1: 2010
<b>Test Procedure</b> .....	CE
<b>Procedure deviation</b> .....	N/A
<b>Non-standard test method</b> .....	N/A
<b>Test item description</b> .....	
<b>Trademark</b> .....	Accuenergy, AcuRev

Model/Type reference .....	AcuRev1301, AcuRev1302, AcuRev1303, AcuRev1304, AcuRev1311, AcuRev1312, AcuRev1313, AcuRev1314
Rating(s).....	100-415Vac, 50/60Hz; 100-300Vdc, <2W or 10VA
<b>Test item particulars</b> .....	
Type of item tested.....	--
Description of equipment function .....	--
Intended use .....	--
Measurement category .....	CAT III
Pollution degree .....	2
Environmental rating .....	--
Equipment mobility.....	Fixed equipment
Connection to mains supply.....	--
Operating conditions	-25 °C to 70 °C
Mass of the equipment (kg) .....	0.30kg
Marked degree of protection to IEC 60529.....	N/A
Accessories and detachable parts included in the evaluation.....	--
Options included .....	--
<b>Test case verdicts:</b>	
Test case does not apply to the test object.....	N/A
Test object does meet the requirement.....	P(Pass)
Test object does not meet the requirement.....	F(Fail)
<b>General remarks:</b>	
1. All models covered in this report are identical, except for model name, appearance. See Table 2.	
2. The test results presented in this report relate only to the item(s) tested. All test and measurement are done on AcuRev1314.	
3. "(see remark #)" refers to a remark appended to the report. "(see Annex #)" refers to an annex appended to the report. "(see Form A.#)" refers to a table appended to the report.	
4. Throughout this report a comma (point) is used as the decimal separator.	
Test report history:	None
Summary of test results (information/comments):	Pass.
Copy of marking plate:	Refer to photo

IEC/EN 61010-1			
Clause	Requirement – Test	Result - Remark	Verdict
<b>4.4</b>	<b>Testing in SINGLE FAULT CONDITIONS</b>		<b>P</b>
4.4.1	Fault tests	(See Form A.1 )	P
4.4.2	Application of SINGLE FAULT CONDITIONS		P
4.4.2.1	SINGLE FAULT CONDITIONS not covered by 4.4.2.1 to 4.4.2.14	(See Form A.1 )	—
4.4.2.2	PROTECTIVE IMPEDANCE		N/A
4.4.2.3	PROTECTIVE CONDUCTOR		N/A
4.4.2.4	Equipment or parts for short-term or intermittent operation		N/A
4.4.2.5	Motors		N/A
4.4.2.6	Capacitors		N/A
4.4.2.7	MAINS transformers		N/A
4.4.2.7.2	Short circuit		N/A
4.4.2.7.3	Overload		N/A
4.4.2.8	Outputs		N/A
4.4.2.9	Equipment for more than one supply		N/A
4.4.2.10	Cooling		N/A
4.4.2.11	Heating devices		N/A
4.4.2.12	Insulation between circuits and parts	(See Form A.1 )	P
4.4.2.13	Interlocks		N/A
4.4.2.14	Voltage selectors		N/A
4.4.3	Duration of tests	(See Form A.1 )	—
4.4.4	Conformity after application of fault conditions	(See Form A.1; A.6; A.18; )	P

<b>5</b>	<b>MARKING AND DOCUMENTATION</b>		<b>P</b>
5.1.1	General		P
	Required equipment markings are:		—
	visible:		P
	From the exterior; or		P

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Clause	Requirement – Test	Result - Remark	Verdict
	After removing a cover; or		N/A
	Opening a door		N/A
	After removal from a rack or panel		N/A
	Not put on parts which can be removed by an operator		P
	Letter symbols (IEC 60027) used	Complied.	P
	Graphic symbols (IEC 61010-1: Table 1) used		P
5.1.2	Identification		—
	Equipment is identified by:		P
	a) Manufacturer's or supplier's name or trademark	Accuenergy	P
	b) Model number, name or other means	AcuRev1314	P
	Manufacturing location identified		N/A
5.1.3	MAINS supply		P
	Equipment is marked as follows:		P
	a) Nature of supply:		—
	1) a.c. RATED MAINS frequency or range of frequencies .....	50/60Hz	P
	2) d.c. with symbol 1		P
	b) RATED supply voltage(s) or range .....	100-415Vac 100-300Vdc	P
	c) Max. RATED power (W or VA) or input current...	<2W or 10VA	P
	The marked value not less than 90 % of the maximum value		N/A
	If more than one voltage range:		—
	Separate values marked; or		N/A
	Values differ by less than 20 %		N/A
	d) OPERATOR-set for different RATED supply voltages:		—
	Indicates the equipment set voltage		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	Portable equipment indication is visible from the exterior		N/A
	Changing the setting changes the indication		N/A
	e) Accessory MAINS socket-outlets accepting standard MAINS plugs are marked:		N/A
	With the voltage if it is different from the MAINS supply voltage .....		N/A
	For use only with specific equipment		N/A
	If not marked for specific equipment it is marked with:		N/A
	The maximum rated current or power; or		N/A
	Symbol 14 with full details in the documentation		N/A
5.1.4	Fuses	No fuse	N/A
	Operator replaceable fuse marking (see also 5.4.5) .....		N/A
5.1.5	TERMINALS, connections and operating devices		P
5.1.5.1	General		P
	Where necessary for safety, indication of purpose of TERMINALS, connectors, controls and indicators marked		P
	If insufficient space, symbol 14 used		P
	Push-buttons and actuators of emergency stop devices and indicators:		—
	used only to indicate a warning of danger or		N/A
	the need for urgent action		N/A
	coloured red		N/A
	coded as specified in IEC 60073		N/A
	Supplementary means of coding provided, if meaning of colour relates (see IEC 60073):		N/A
	to safety of persons; or		N/A
	safety of the environment		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
5.1.5.2	TERMINALS	No such terminals	P
	MAINS supply TERMINAL identified		P
	Other TERMINAL marking:		P
	a) FUNCTIONAL EARTH TERMINALS (symbol 5 used)		P
	b) PROTECTIVE CONDUCTOR TERMINALS:		N/A
	Symbol 6 is placed close to or on the TERMINAL; or		N/A
	Part of appliance inlet		N/A
	c) TERMINALS of control circuits (symbol 7 used)		N/A
	d) HAZARDOUS LIVE TERMINALS supplied from the interior		N/A
	Standard MAINS socket outlet; or		N/A
	RATINGS marked; or		N/A
	Symbol 14 used		N/A
5.1.6	Switches and circuit breakers	No such switches and circuit breakers.	N/A
	If disconnecting device, off position clearly marked		N/A
	If push-button used as power supply switch:		N/A
	Symbol 9 and 15 used for on-position		N/A
	Symbol 10 and 16 used for off-position		N/A
	Pair of symbols 9, 15 and 10, 16 close together		N/A
5.1.7	Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION		N/A
	Protected throughout (symbol 11 used)		N/A
	Only partially protected (symbol 11 not used)		N/A
5.1.8	Field-wiring TERMINAL boxes		N/A
	If TERMINAL or ENCLOSURE exceeds 60 °C:		N/A
	Cable temperature RATING marked.....:		N/A



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Clause	Requirement – Test	Result - Remark	Verdict
	Marking visible before and during connection or beside TERMINAL		N/A
5.2	Warning markings	See below.	P
	Visible when ready for NORMAL USE		P
	Are near or on applicable parts		P
	Symbols and text correct dimensions and colour:		—
	a) symbols min 2,75 mm and text 1,5 mm high and contrasting in colour with background	Symbols:4.0 mm high Text:2.0mm high.	P
	b) symbols and text moulded, stamped or engraved in material min. 2,0 mm high and		N/A
	0.5 mm depth or raised if not contrasting in colour		N/A
	If necessary marked with symbol 14		N/A
	Statement to isolate or disconnect if access by using a tool to HAZARDOUS LIVE parts is permitted		P
5.3	Durability of markings		P
	The required markings remain clear and legible in NORMAL USE	(see Form A.3)	P
5.4	Documentation		P
5.4.1	General		P
	Equipment is accompanied by documentation for safety purposes for OPERATOR or RESPONSIBLE BODY		P
	Safety documentation for service personnel authorized by the manufacturer		N/A
	Documentation necessary for safe operation is provided in printed media or		P
	in electronic media if available at any time		P
	Documentation includes:		—
	a) intended use		P
	b) technical specification		P

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Clause	Requirement – Test	Result - Remark	Verdict
	c) name and address of manufacturer or supplier		P
	d) Information specified in 5.4.2 to 5.4.6		P
	e) information to mitigate residual RISK (see also subclause 17)		N/A
	f) accessories for safe operation of the equipment specified		N/A
	g) guidance provided to check correct function of the equipment, if incorrect reading may cause a HAZARD from harmful or corrosive substances of HAZARDOUS live parts		P
	h) instructions for lifting and carrying		N/A
	Warning statements and a clear explanation of warning symbols:		—
	Provided in the documentation; or		P
	Information is marked on the equipment		P
5.4.2	Equipment ratings		P
	Documentation includes:		—
	a) Supply voltage or voltage range .....		P
	Frequency or frequency range .....		P
	Power or current rating .....		P
	b) Description of all input and output connections in accordance to 6.6.1 a)		P
	c) RATING of insulation of external circuits in accordance to 6.6.1 b)	CAT III	P
	d) Statement of the range of environmental conditions (see 1.4)		P
	e) Degree of protection (IEC 60529)		N/A
	f) if impact rating less than 5 J:		N/A
	IK code in accordance to IEC 62262 marked or		N/A
	symbol 14 of table 1 marked, with		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	RATED energy level and test method stated		N/A
5.4.3	Equipment installation		P
	Documentation includes instructions for:		P
	a) assembly, location and mounting requirements		P
	b) protective earthing		N/A
	c) connections to supply		P
	d) permanently connected equipment:		P
	1) Supply wiring requirements		P
	2) If external switch or circuit-breaker, requirements and location recommendation		P
	e) ventilation requirements		P
	f) special services (e. g. air, cooling liquid)		N/A
	g) Instructions relating to sound level		N/A
5.4.4	Equipment operation		P
	Instructions for use include:		P
	a) identification and description of operating controls		P
	b) positioning for disconnection		N/A
	c) instructions for interconnection		N/A
	d) specification of intermittent operation limits		N/A
	e) explanation of symbols used		P
	f) replacement of consumable materials		N/A
	g) cleaning and decontamination		N/A
	h) Listing of any poisonous or injurious gases and quantities		N/A
	i) RISK reduction procedures relating to flammable liquids (see 9.5)		N/A
	j) RISK reduction procedures relating burn from surfaces permitted to exceed limits of 10.1		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	Additional precautions for IEC 60950 conforming equipment in regard to moistures and liquids		N/A
	A statement about protection impairment if used in a manner not specified by the manufacturer		P
5.4.5	Equipment maintenance and service		N/A
	Instructions for RESPONSIBLE BODY include:		—
	Instructions sufficient in detail permitting safe maintenance and inspection and continued safety:		N/A
	Instruction against the use of detachable MAINS supply cord with inadequate rating		N/A
	Specific battery type of user replaceable batteries		N/A
	Any manufacturer specified parts		N/A
	Rating and characteristics of fuses		N/A
	Instructions include following subjects permitting safe servicing and continued safety:		N/A
	a) product specific RISKS may affect service personnel		N/A
	b) protective measures for these RISKS		N/A
	c) verification of the safe state after repair		N/A
5.4.6	Integration into systems or effects resulting from special conditions		N/A
	Aspects described in documentation		N/A

<b>6</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		<b>P</b>
6.1	General	(see Form A.14 and A.15)	P
6.1.1	Requirements		—
	Protection against electric shock maintained in NORMAL CONDITION and SINGLE FAULT CONDITION		P
	ACCESSIBLE parts not HAZARDOUS LIVE		P

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Clause	Requirement – Test	Result - Remark	Verdict
	Voltage, current, charge or energy below the limits in NORMAL CONDITION and in SINGLE FAULT CONDITION between:		—
	ACCESSIBLE parts and earth		P
	two ACCESSIBLE parts on same piece of the equipment within a distance of 1,8 m		P
	Conformity is checked by the determination of 6.2 and 6.3 followed by the tests of 6.4 to 6.11	Complied.	P
6.1.2	Exceptions		N/A
	Following HAZARDOUS LIVE parts may be accessible to an OPERATOR:		N/A
	a) parts of lamps and lamp sockets after lamp removal		N/A
	b) parts to be replaced by operator only by the use of tool and warning marking		N/A
	Those parts not HAZARDOUS LIVE 10 s after interruption of supply		N/A
	Capacitance test if charge is received from internal capacitor		N/A
6.2	Determination of accessible parts	(see Form A.4)	P
6.2.1	General		P
	Unless obviously determination of accessible parts as specified in 6.2.2 to 6.2.4		P
6.2.2	Examination		P
	- with jointed test finger (as specified B.2)		P
	- with rigid test finger (as specified B.1) and a force of 10 N		P
6.2.3	Openings above parts that are HAZARDOUS LIVE		P
	- test pin with length of 100 mm and 4 mm in diameter applied		P
6.2.4	Openings for pre-set controls		N/A
	- test pin with length of 100 mm and 3 mm in diameter applied		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
6.3	Limit values for ACCESSIBLE parts		P
6.3.1	Levels in NORMAL CONDITION	(see Form A.5)	P
	a) Voltage limits less than 33 V r.m.s. and 46,7 V peak or 70 V d.c.		P
	for wet locations voltage limits less than 16 V r.m.s. and 22,6 V peak or 35 V d.c.		N/A
	Voltages are not HAZARDOUS LIVE the levels of:		—
	b) Current less than 0,5 mA r.m.s. for sinusoidal, 0,7 mA peak non sinusoidal or mixed frequencies or 2 mA d.c. when measured with measuring circuit A.1 or A.2 if less than 100 Hz		P
	for wet locations measuring circuit A.4 used		N/A
	or		--
	c) Levels of capacitive charge or energy less:		N/A
	1) 45 µC for voltages up to 15 kV peak or d.c. or line A of Figure 3		N/A
	2) 350 mJ stored energy for voltages above 15 kV peak or d.c.		N/A
6.3.2	Levels in SINGLE FAULT CONDITION	(see Form A.6)	P
	a) Voltage limits less than 55 V r.m.s. and 78 V peak or 140 V d.c.		P
	for wet locations voltage limits less than 33 V r.m.s. and 46,7 V peak or 70 V d.c.		N/A
	Voltages are not HAZARDOUS LIVE the levels of:		—
	b) Current less than 0,5 mA r.m.s. for sinusoidal, 0,7 mA peak non sinusoidal or mixed frequencies or 2 mA d.c. when measured with measuring circuit A.1 or A.2 if less than 100 Hz		P
	for wet locations measuring circuit A.4 used		N/A
	c) Levels of capacitive charge or energy less B of figure 3		N/A
6.4	Primary means of protection		P

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Clause	Requirement – Test	Result - Remark	Verdict
6.4.1	ACCESSIBLE parts prevented from being HAZARDOUS LIVE by one or more of following means:		P
	a) ENCLOSURES or PROTECTIVE BARRIERS (see 6.4.2)		P
	b) BASIC INSULATION (see 6.4.3)		P
	c) Impedance (see 6.4.4)		N/A
6.4.2	ENCLOSURES or PROTECTIVE BARRIERS	(see Form A.15)	P
	- meet rigidity requirements of 8.1		P
	- meet requirements for BASIC INSULATION, if protection is provided by insulation		N/A
	- meet requirements of 6.7 for CREEPAGE and CLEARANCES between ACCESSIBLE parts and HAZARDOUS live parts, if protection is provided by limited access		N/A
6.4.3	BASIC INSULATION		P
	- meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		P
6.4.4	Impedance		N/A
	Impedance used as primary means of protection meets all of following requirements:		—
	a) limits current or voltage to level of 6.3.2		N/A
	b) RATED for maximum WORKING VOLTAGE and the amount of power it will dissipate		N/A
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of BASIC INSULATION of 6.7		N/A
6.5	Additional means of protection in case of SINGLE FAULT CONDITION		P
6.5.1	ACCESSIBLE parts are prevented from becoming HAZARDOUS live by the primary means of protection and supplemented by one of:		P
	a) PROTECTIVE BONDING (see 6.5.2)		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	b) SUPPLEMENTARY INSULATION (see 6.5.3)		N/A
	c) automatic disconnection of the supply (see 6.5.5)		N/A
	d) current- or voltage-limiting device (see 6.5.6)		N/A
	Alternatively one of the single means of protection is used:		N/A
	e) REINFORCED INSULATION (see 6.5.3)		P
	f) PROTECTIVE IMPEDANCE (see 6.5.4)		N/A
6.5.2	PROTECTIVE BONDING		N/A
6.5.2.1	ACCESSIBLE conductive parts, may become HARZARDOUS LIVE in SINGLE FAULT CONDITION:		N/A
	Bonded to the PROTECTIVE CONDUCTOR TERMINAL; or		N/A
	Separated by conductive screen or barrier bonded to PROTECTIVE CONDUCTOR TERMINAL		N/A
6.5.2.2	Integrity of PROTECTIVE BONDING		N/A
	a) PROTECTIVE BONDING consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses		N/A
	b) Soldered connections:		N/A
	Independently secured against loosening		N/A
	Not used for other purposes		N/A
	c) Screw connections are secured		N/A
	d) PROTECTIVE BONDING not interrupted; or		N/A
	exempted as removable part carries MAINS SUPPLY INPUT connection		N/A
	e) Any moveable PROTECTIVE BONDING connection specifically designed, and meets 6.5.2.4		N/A
	f) No external metal braid of cables used (not regarded as PROTECTIVE BONDING)		N/A



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Clause	Requirement – Test	Result - Remark	Verdict
	g) IF MAINS SUPPLY PASSES THROUGH:		N/A
	Means provided for passing protective conductor;		N/A
	Impedance meets 6.5.2.4		N/A
	h) Protective conductors bare or insulated, if insulated, green/yellow		N/A
	Exceptions:		N/A
	1) earthing braids;		N/A
	2) internal protective conductors etc.;		N/A
	Green/yellow not used for other purposes		N/A
	TERMINAL suitable for connection of a PROTECTIVE CONDUCTOR, and meets 6.5.2.3		N/A
6.5.2.3	Protective conductor terminal		N/A
	a) Contact surfaces are metal		N/A
	b) Appliance inlet used		N/A
	c) For rewirable cords and PERMANENTLY CONNECTED EQUIPMENT, PROTECTIVE CONDUCTOR TERMINAL is close to MAINS supply TERMINALS		N/A
	d) If no MAINS supply is required, any PROTECTIVE CONDUCTOR TERMINAL:		N/A
	Is near terminals of circuit for which protective earthing is necessary		N/A
	External if other terminals external		N/A
	e) Equivalent current-carrying capacity to MAINS supply TERMINALS		N/A
	f) If plug-in, makes first and breaks last		N/A
	g) If also used for other bonding purposes, protective conductor:		N/A
	Applied first;		N/A
	Secured independently;		N/A
	Unlikely to be removed by servicing		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	h) PROTECTIVE CONDUCTOR of measuring circuit:		N/A
	1) Current RATING equivalent to measuring circuit TERMINAL;		N/A
	2) PROTECTIVE BONDING:		N/A
	Not interrupted; or		N/A
	i) FUNCTIONAL EARTH TERMINALS allow independent connection		N/A
	j) If a binding screw used for PROTECTIVE CONDUCTOR TERMINAL:		N/A
	Suitable size for bond wire		N/A
	Not smaller than M 4 (No. 6)		N/A
	At least 3 turns of screw engaged		N/A
	Passes tightening torque test		N/A
	k) Contact pressure not capable being reduced by deformation of materials		N/A
6.5.2.4	Impedance of PROTECTIVE BONDING of plug-connected equipment		N/A
	Impedance between PROTECTIVE CONDUCTOR TERMINAL and each ACCESSIBLE part where PROTECTIVE BONDING is specified, is:		—
	less than 0,1 Ohm; or		N/A
	less than 0,2 Ohm if equipment is provided with non detachable cord		N/A
6.5.2.5	Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT		N/A
6.5.2.6	Transformer PROTECTIVE BONDING screen		N/A
	Transformer provided with screen for protective bonding:		N/A
	screen bonding consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses (see 6.5.2.2 a )		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	screen bonding with soldered connection (see 6.5.2.2 b ) is:		N/A
	- Independently secured against loosening		N/A
	- Not used for other purposes		N/A
6.5.3	SUPPLEMENTARY and REINFORCED INSULATION		P
	- meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		P
6.5.4	PROTECTIVE IMPEDANCE		N/A
	Limits current or voltage to level of 6.3.1 in NORMAL and to level of 6.3.2 in SINGLE FAULT CONDITION		N/A
	CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of DOUBLE or REINFORCED INSULATION of 6.7		N/A
	The protective impedance consists of one or more of the following:		—
	a) appropriate single component suitable for safety and reliability for protection, it is:		N/A
	1) RATED twice the maximum WORKING VOLTAGE		N/A
	2) resistor RATED for twice the power dissipation for maximum WORKING VOLTAGE		N/A
	b) combination of components		N/A
	Single electronic device not used as PROTECTIVE IMPEDANCE		N/A
6.5.5	Automatic disconnection of the supply		N/A
	a) RATED to disconnect the load within time specified in Figure 2		N/A
	b) RATED for the maximum load conditions of the equipment		N/A
6.5.6	Current- or voltage limiting devices		N/A
	Device complies with all of:		N/A
	a) RATED to limit the current or voltage to the level of 6.3.2		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	b) RATED for the maximum working voltage; and		N/A
	RATED for the maximum operational current if applicable		N/A
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of SUPPLEMENTARY INSULATION of 6.7		N/A
6.6	Connections to external circuits		N/A
6.6.1	Connections do not cause ACCESSIBLE parts of the following to become HAZARDOUS LIVE in NORMAL CONDITION or SINGLE FAULT CONDITION:		N/A
	- the external circuits		N/A
	- the equipment		N/A
	Protection achieved by separation of circuits; or		N/A
	short circuit of separation does not cause a HAZARD		N/A
	Instructions or markings for each terminal include:		N/A
	a) RATED conditions for TERMINAL		N/A
	b) Required RATING of external circuit INSULATION		N/A
6.6.2	TERMINALS for external circuits		N/A
	TERMINALS which receive a charge from an internal capacitor are not HAZARDOUS LIVE after 10 s of interrupting supply connection		N/A
6.6.3	Circuits with terminals which are HAZARDOUS LIVE		N/A
	These circuits are:		—
	Not connected to ACCESSIBLE conductive parts; or		N/A
	Connected to ACCESSIBLE conductive parts, but are not MAINS circuits and have one TERMINAL contact at earth potential		N/A
	No ACCESSIBLE conductive parts are HAZARDOUS LIVE		N/A
6.6.4	ACCESSIBLE terminals for stranded conductors		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	No RISK of accidental contact because:		N/A
	Located or shielded		N/A
	Self-evident or marked whether or not connected to ACCESSIBLE conductive parts		N/A
	ACCESSIBLE TERMINALS will not work loose		N/A
<b>6.7</b>	<b>Insulation requirements</b>		<b>P</b>
6.7.1	The nature of insulation		P
6.7.1.1	Insulation between ACCESSIBLE parts or between separate circuits consist of CLEARANCES, CREEPAGE DISTANCES and solid insulation if provided as protection against a HAZARD		P
6.7.1.2	CLEARANCES		P
	Required CLEARANCES reflecting factors of 6.7.1.1	(See Form A..14 and A.15)	P
	Equipment rated for operating altitude greater than 2000 m correction factor of Table 3 of 61010-1 applied		N/A
6.7.1.3	CREEPAGE DISTANCES		P
	Required CLEARANCES reflecting factors of 6.7.1.1	(See Form A.14 and A.15)	P
	CTI material group reflected by requirements		P
	CTI test performed		N/A
6.7.1.4	Solid insulation		P
	Required CLEARANCES reflecting factors of 6.7.1.1		P
6.7.1.5	Requirements for insulation according to type of circuit		P
	a) 6.7.2 MAINS circuits of OVERVOLTAGE CATEGORY II up to nominal supply voltage of 300 V		N/A
	b) 6.7.3 Secondary circuits separated from circuits defined in a) by transformer		N/A
	c) K.1 MAINS circuits of OVERVOLTAGE CATEGORY III and IV or OVERVOLTAGE CATEGORY II over 300 V		P

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Clause	Requirement – Test	Result - Remark	Verdict
	d) K.2 Secondary circuits separated from circuits defined in a) by transformer		N/A
	e) K.3 Circuits having one or more of:		N/A
	1) maximum TRANSIENT OVERVOLTAGE is limited to known level below the level of MAINS CIRCUIT		N/A
	2) maximum TRANSIENT OVERVOLTAGE above the level of MAINS CIRCUIT		N/A
	3) WORKING VOLTAGE is the sum of more than one circuit or a mixed voltage		N/A
	4) WORKING VOLTAGE includes recurring peak voltage, may include non-sinusoidal or non-periodic waveform		N/A
	5) WORKING VOLTAGE with a frequency above 30 kHz		N/A
6.7.2	Insulation for MAINS CIRCUITS of OVERVOLTAGE CATEGORY II with a nominal supply voltage up to 300 V	No such equipment.	N/A
6.7.2.1	CLEARANCES and CREEPAGE DISTANCES		N/A
	Values for MAINS CIRCUITS of table 4 are met		N/A
	Coatings to achieve reduction to POLLUTION DEGREE I comply with requirements of Annex H		N/A
6.7.2.2	Solid insulation		N/A
6.7.2.2.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		N/A
	Equipment passed voltage tests of 6.8.3 with values of Table 5		N/A
	Complies as applicable:		N/A
	a) ENCLOSURE or PROTECTIVE BARRIER Clause 8		N/A
	b) moulded and potted parts requirements of 6.7.2.2.2		N/A
	c) inner layers of printed wiring boards requirements of 6.7.2.2.3		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	d) thin-film insulation requirements of 6.7.2.2.4		N/A
6.7.2.2.2	Moulded and potted parts		N/A
	Conductors between same two layers are separated by at least 0,4 mm after moulding is completed		N/A
6.7.2.2.3	Inner insulation layers of printed wiring boards		N/A
	Separated by at least 0,4 mm between same two layers		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N/A
	a) thickness at least 0,4 mm		N/A
	b) insulation is assembled of minimum two separate layers, each RATED for test voltage of Table 5 for BASIC INSULATION		N/A
	c) insulation is assembled of minimum two separate layers, where the combination is rated for test voltage of Table 5 for REINFORCED INSULATION		N/A
6.7.2.2.4	Thin-film insulation		N/A
	Conductors between same two layers are separated by applicable CLEARANCES and CREEPAGE DISTANCES		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N/A
	a) thickness at least 0,4 mm		N/A
	b) insulation is assembled of min two separate layers, each RATED for test voltage of Table 5 for BASIC INSULATION		N/A
	c) insulation is assembled of min three separate layers, where the combination of two layers passed voltage tests of 6.8.3 with values of Table 5 for REINFORCED INSULATION		N/A
6.7.3	Insulation for secondary circuits derived from MAINS of OVERVOLTAGE CATEGORY II up to 300 V	No such equipment	N/A

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Clause	Requirement – Test	Result - Remark	Verdict
6.7.3.1	Secondary circuits where separation from MAINS CIRCUITS is achieved by a transformer providing:		—
	- REINFORCED INSULATION		N/A
	- DOUBLE INSULATION		N/A
	- screen connected to the PROTECTIVE CONDUCTOR TERMINAL		N/A
6.7.3.2	CLEARANCES		N/A
	a) meet the values of Table 6 for BASIC INSULATION and SUPPLEMENTARY INSULATION; or		N/A
	twice the values of Table 6 for REINFORCED INSULATION		N/A
	or		—
	b) pass the voltage tests of 6.8 with values of Table 6; with following adjustments:		N/A
	1) values for REINFORCED INSULATION are 1,6 times the values for BASIC INSULATION		N/A
	2) if operating altitude is greater than 2000 m values of CLEARANCES multiplied with factor of Table 3		N/A
	3) minimum CLEARANCE is 0,2 mm for POLLUTION DEGREE 2 and 0,8 mm for POLLUTION DEGREE 3		N/A
6.7.3.3	CREEPAGE DISTANCES		N/A
	Based on WORKING VOLTAGE meets the values of Table 7 for BASIC and SUPPLEMENTARY INSULATION		N/A
	Values for REINFORCED INSULATION are twice the values of BASIC INSULATION		N/A
	Coatings to achieve reduction to POLLUTION DEGREE I comply with requirements of Annex H		N/A
6.7.3.4	Solid insulation		N/A
6.7.3.4.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		N/A



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Clause	Requirement – Test	Result - Remark	Verdict
	a) Equipment passed voltage test of 6.8.3.1 for 5 s with VALUES of Table 6 for BASIC and SUPPLEMENTARY INSULATION		N/A
	values for REINFORCED INSULATION are 1,6 times the values of BASIC INSULATION		N/A
	b) if WORKING VOLTAGE exceeds 300 V, equipment passed voltage test of 6.8.3.1 for 1 min with a test voltage of 1,5 times working voltage for BASIC or SUPPLEMENTARY INSULATION		N/A
	value for REINFORCED INSULATION are twice the WORKING VOLTAGE		N/A
	Complies as applicable:		N/A
	1) ENCLOSURE or protective barrier Clause 8		N/A
	2) moulded and potted parts requirements of 6.7.3.4.2		N/A
	3) inner layers of printed wiring boards requirements of 6.7.3.4.3		N/A
	4) thin-film insulation requirements of 6.7.3.4.4		N/A
6.7.3.4.2	Moulded and potted parts		N/A
	Conductors between same two layers are separated by applicable distances of Table 8		N/A
6.7.3.4.3	Inner insulation layers of printed wiring boards		N/A
	Separated by at least by applicable distances of Table 8 between same two layers		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N/A
	a) thickness at least applicable distance of Table 8		N/A
	b) insulation is assembled of minimum two separate layers, each RATED for test voltage of Table 6 for BASIC INSULATION		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	c) insulation is assembled of min two separate layers, where the combination is rated for 1,6 times the test voltage of Table 6		N/A
6.7.3.4.4	Thin-film insulation		N/A
	Conductors between same two layers are separated by applicable CLEARANCES and CREEPAGE DISTANCES		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N/A
	a) thickness at least applicable distance of Table 8		N/A
	b) insulation is assembled of min two separate layers, each RATED for test voltage of Table 6 for BASIC INSULATION		N/A
	c) insulation is assembled of min three separate layers, where the combination of two layers passed voltage tests with 1,6 time values of Table 6:		N/A
	a.c. test of 6.8.3.1; or		N/A
	d.c. test of 6.8.3.2 for circuits stressed only by d.c. voltages		N/A
6.8	Procedure for dielectric strength tests	(see Form A.14 and A.18)	P
6.9	Constructional requirements for protection against electric shock		P
6.9.1	If a failure could cause a HAZARD:		—
	a) Security of wiring connections		P
	b) Screws securing removable covers		P
	c) Accidental loosening		P
	d) CREEPAGE and CLEARANCES not reduced below the values of basic insulation by loosening		P
6.9.2	Insulation materials		P

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Clause	Requirement – Test	Result - Remark	Verdict
	Material not to be used for safety relevant insulation:		—
	Easily damaged materials not used		P
	Non-impregnated hygroscopic materials not used		P
6.9.3	Colour coding		N/A
	Green-and-yellow insulation shall not be used except:		N/A
	a) protective earth conductors;		N/A
	b) protective bonding conductors;		N/A
	c) potential equalization conductors;		N/A
	d) functional earth conductors		N/A
6.10	Connection to MAINS supply source and connections between parts of equipment		P
6.10.1	MAINS supply cords		N/A
	RATED for maximum equipment current (see 5.1.3c)		N/A
	Cable complies with IEC 60227 or IEC 60245		N/A
	Heat-resistant if likely to contact hot parts		N/A
	Temperature RATING (cord and inlet) .....		N/A
	Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS		N/A
	Detachable cords with IEC 60320 MAINS connectors:		—
	Conform to IEC 60799; or		N/A
	Have the current RATING of the MAINS connector		N/A
6.10.2	Fitting of non-detachable MAINS supply cords		N/A
6.10.2.1	Cord entry		N/A
	Inlet or bushing smoothly rounded; or		N/A
	Insulated cord guard protruding >5D		N/A
6.10.2.2	Cord anchorage		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	Protective earth conductor is the last to take the strain		N/A
	a) Cord is not clamped by direct pressure from a screw		N/A
	b) Knots are not used		N/A
	c) Cannot push the cord into the equipment to cause a HAZARD		N/A
	d) No failure of cord insulation in anchorage with metal parts		N/A
	e) Not to be loosened without a tool		N/A
	f) Cord replacement does not cause a HAZARD and method of strain relief is clear		N/A
	Push-pull and or torque test		N/A
6.10.3	Plugs and connectors		N/A
	MAINS supply plugs, connectors etc., conform with relevant specifications		N/A
	If equipment supplied at voltages below 6.3.2.a) or from a sole source:		—
	Plugs of supply cords do not fit MAINS sockets above rated SUPPLY voltage		N/A
	MAINS type plugs used only for connection to MAINS supply		N/A
	Plug pins which receive a charge from an internal capacitor		N/A
	Accessory MAINS socket outlets:		—
	a) Marking if accepts a standard MAINS plug (see 5.1.3e)		N/A
	b) Input has a protective earth conductor if outlet has EARTH TERMINAL CONTACT		N/A
6.11	Disconnection from supply source		P
6.11.1	Disconnects all current carrying conductors		P
6.11.2	Exceptions		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
6.11.3	Requirements according to type of equipment		P
6.11.3.1	PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment:		P
	Employs switch or circuit-breaker		P
	If switch or circuit-breaker is not part of the equipment, documentation requires:		—
	a) Switch or circuit-breaker to be included in building installation		N/A
	b) Suitable location easily reached		N/A
	c) Marking as disconnecting for the equipment		N/A
6.11.3.2	Single-phase cord-connected equipment		N/A
	Equipment is provided with one of the following:		N/A
	a) Switch or circuit-breaker		N/A
	b) Appliance coupler (disconnectable without tool)		N/A
	c) Separable plug (without locking device)		N/A
6.11.4	Disconnecting devices		N/A
	Electrically close to the SUPPLY		N/A
6.11.4.1	Switches and circuit-breakers		N/A
	When used as disconnection device:		—
	Meets IEC 60947-1 and IEC 60947-3		N/A
	Marked to indicate function .....		N/A
	Not incorporated in MAINS cord		N/A
	Does not interrupt PROTECTIVE EARTH CONDUCTOR		N/A
6.11.4.2	Appliance couplers and plugs		N/A
	Where an appliance coupler or separable plug is used as the disconnecting device (see 6.11.3.2):		N/A
	Readily identifiable and easily reached by the operator		N/A
	Single-phase portable equipment cord length not more than 3 m		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	PROTECTIVE EARTH CONDUCTOR connected first and disconnected last		N/A
<b>7</b>	<b>PROTECTION AGAINST MECHANICAL HAZARDS</b>		<b>P</b>
7.1	Equipment does not cause a mechanical HAZARD in NORMAL nor in SINGLE FAULT CONDITION	Considered	P
	Conformity is checked by 7.2 to 7.7		P
7.2	Sharp edges	No sharp edges.	P
	Easily touched parts are smooth and rounded		P
	Do not cause injury during NORMAL USE and		P
	Do not cause injury during SINGLE FAULT CONDITION		P
7.3	Moving parts	No moving parts.	N/A
7.3.1	HAZARDS from moving parts limited to a tolerable level with the conditions specified in 7.3.2 and 7.3.5		N/A
	RISK assessment in accordance with 7.3.3 carried out		N/A
7.3.2	Exceptions		N/A
	Access to HAZARDOUS moving parts permitted under following circumstances:		N/A
	a) obviously intended to operate on parts or materials outside of the equipment		N/A
	inadvertent touching of moving parts minimized by equipment design (e .g. guards or handles)		N/A
	b) If operator access is unavoidable outside normal use following precautions have been taken:		N/A
	1) Access requires TOOL		N/A
	2 ) Statement about training in the instructions		N/A
	3 ) Warning markings on covers prohibiting access by untrained operators		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	or symbol 14 with full details in documentation		N/A
7.3.3	RISK assessment for mechanical HAZARDS to body parts		N/A
	RISK is reduced to a tolerable level by protective measures as specified in Table 12		N/A
	Minimum protective measures:		—
	A. Low level measures		N/A
	B. Moderate measures		N/A
	C. Stringent measures		N/A
7.3.4	Limitation of force and pressure		N/A
	Following levels are met in normal and single fault condition:		N/A
	Continuous contact pressure below 50 N / cm <sup>2</sup> with force below 150 N		N/A
	Temporary force below 250 N for an area at least of 3 cm <sup>2</sup> for a maximum duration of 0,75 s		N/A
7.3.5	Gap limitations between moving parts		N/A
7.3.5.1	Access normally allowed		N/A
	If levels of 7.3.4 exceeded and body part may be inserted minimum gap as specified in Table 13 assured in NORMAL and in SINGLE FAULT CONDITION		N/A
7.3.5.2	Access normally prevented		N/A
	Maximum gap as specified in Table 14 assured in NORMAL and in SINGLE FAULT CONDITION		N/A
7.4	Stability	Fixed equipment	N/A
	Equipment not secured to building structure is physical stable		N/A
	Stability maintained after opening of drawers etc. by automatic means, or		N/A
	warning marking requires the application of means		N/A
	Compliance checked by following tests as applicable:		—

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Clause	Requirement – Test	Result - Remark	Verdict
	a) 10° tilt test for other than handheld equipment		N/A
	b) multi-directional force test for equipment exceeds height of 1 m and mass of 25 kg		N/A
	c) downward force test for floor-standing equipment		N/A
	d) overload test with 4 times maximum load for castor or support that supports greatest load		N/A
	e) castor or support that supports greatest load removed from equipment		N/A
7.5	Provisions for lifting and carrying		N/A
7.5.1	Equipment more than 18 kg :		—
	Has means for lifting or carrying; or		N/A
	Directions in documentation		N/A
7.5.2	Handles or grips		N/A
	Handles or grips withstand four times weight		N/A
7.5.3	Lifting devices and supporting parts		N/A
	Rated for maximum load; or		N/A
	tested with four times maximum static load		N/A
7.6	Wall mounting	No wall mounting	N/A
	Mounting brackets withstand four times weight		N/A
7.7	Expelled parts	No expelled parts	N/A
	Equipment contains or limits the energy		N/A
	Protection not removable without the aid of a tool		N/A

<b>8</b>	<b>RESISTANCE TO MECHANICAL STRESSES</b>		<b>P</b>
8.1	Equipment does not cause a HAZARD when subjected to mechanical stresses in NORMAL USE		P
	Normal protection level is 5 J		P
	Levels below 5 J but not less than 1 J are acceptable if all of following criteria are met:		N/A



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Clause	Requirement – Test	Result - Remark	Verdict
	a) lower level justified by RISK assessment of manufacturer		N/A
	b) equipment installed in its intended application is not easily touched		N/A
	c) only occasional access during NORMAL USE		N/A
	d) IK code in accordance to IEC 62262 marked or symbol 14 used with full information in the documentation		N/A
	For non-metallic ENCLOSURES rated below 2 °C ambient temperature value chosen for minimum rated temperature		N/A
	Impact energies between IK values, the IK code marked for nearest lower value		N/A
	Conformity is checked by performing following tests:		—
	1) static test of 8.2.1		P
	2) impact test of 8.2.2 with 5 J except for HAND-HELD EQUIPMENT		P
	if impact energy not selected to 5 J alternate method of IEC 62262 used		N/A
	3) drop test of 8.3.1 or 8.3.2 except for FIXED and EQUIPMENT with mass over 100 kg		N/A
	Equipment rated with an impact rating of IK 08 that obviously meets the criteria		N/A
	After the tests inspection with following results:		—
	- HAZARDOUS LIVE parts above the limits of 6.3.2 not ACCESSIBLE		P
	- insulation pass the voltage tests of 6.8	(see Form A.30)	P
	i) no leaks of corrosive and harmful substances		P
	ii) ENCLOSURE shows no cracks resulting in a HAZARD		P
	iii) CLEARANCES not less than their permitted values		P

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Clause	Requirement – Test	Result - Remark	Verdict
	iv) insulation of internal wiring remains undamaged		P
	v) PROTECTIVE BARRIERS not damaged or loosened	No such barriers	N/A
	vi) No moving parts exposed, except permitted by 7.3	No moving parts	N/A
	vii) no damage which could cause spread of fire		P
8.2	ENCLOSURE rigidity test		P
8.2.1	Static test		P
	- 30 N with 12 mm rod to each part of ENCLOSURE		P
	- in case of doubt test conducted at maximum RATED ambient temperature		P
8.2.2	Impact test		P
	Impact applied to any part of ENCLOSURE causing a HAZARD if damaged		P
	Impact energy level and corresponding IK code .....		N/A
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C		P
8.3	Drop test		N/A
8.3.1	Other than HAND-HELD and DIRECT-PLUG-IN EQUIPMENT		N/A
	Tests conducted with a drop height or angle of .....		N/A
8.3.2	HAND-HELD and DIRECT-PLUG-IN		N/A
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C		N/A
	Drop test conducted with an height of 1 m		N/A

<b>9</b>	<b>PROTECTION AGAINST THE SPREAD OF FIRE</b>		<b>P</b>
9.1	No spread of fire in NORMAL and SINGLE FAULT CONDITION		P
	MAINS supplied equipment meets requirements of 9.6 additionally		P

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Clause	Requirement – Test	Result - Remark	Verdict
	Conformity is checked by minimum one or a combination of the following (see Figure 11):	(See Form A.22)	P
	a) Fault test of 4.4; or	(See Form A.1)	P
	b) Application of 9.2 (eliminating or reducing the sources of ignition); or		N/A
	c) Application of 9.2 (containment of fire within the equipment)		P
9.2	Eliminating or reducing the sources of ignition within the equipment		N/A
	a) 1) Limited-energy circuit (see 9.4); or	No such circuit	N/A
	2) BASIC INSULATION provided for parts of different potential; or		N/A
	Bridging the insulation does not cause ignition		N/A
	b) Surface temperature of liquids and parts (see 9.5)		N/A
	c) No ignition in circuits designed to produce heat		N/A
9.3	Containment of the fire within the equipment, should it occur		P
9.3.1	Spread of fire outside equipment reduced to a tolerable level if:		P
	a) Energizing of the equipment is controlled by an operator held switch		N/A
	b) ENCLOSURE is conform with constructional requirements of 9.3.1; and		P
	Requirements of 9.5 are met		N/A
9.3.2	Constructional requirements		P
	a) Connectors and insulating material have flammability classification V-2 or better	(See Table: 1 or Form A.23)	P
	b) Insulated wires and cables are flame retardant (VW-1 or equivalent)	(See Table: 1 or Form A.23)	P
	c) ENCLOSURE meets following requirements:	(See Form A.22)	P

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Clause	Requirement – Test	Result - Remark	Verdict
	1) Bottom and sides in arc of 5 ° (see Figure 13) to non-limited circuits (9.4) meets:		P
	i) no openings; or		P
	ii) perforated as specified in Table 16; or		N/A
	iii) metal screen with a mesh; or		N/A
	iv) baffles as specified in Figure 12		N/A
	2) Material of ENCLOSURE and any baffle or flame barrier is made of:		P
	Metal (except magnesium); or		N/A
	Non-metallic materials have flammability classification V-1 or better	(see Table: 1 or Form A.22)	P
	3) ENCLOSURE and any baffle or flame barrier have adequate rigidity		P
9.4	Limited-energy circuit		N/A
	a) Potential not more than 30 r.m.s. and 42.4 V peak, or 60 V dc		N/A
	b) Current limited by one of following means:		N/A
	1) Inherently or by impedance (see Table 17); or		N/A
	2) Over current protective device (see Table 18); or		N/A
	3) A regulating network limits also in SINGLE FAULT CONDITION (see Table 17)		N/A
	c) Is separated by at least BASIC INSULATION		N/A
	Fuse or a non-adjustable electromechanical device is used		N/A
9.5	Requirements for equipment containing or using flammable liquids	No such equipment	N/A
	Flammable liquids contained in or specified for use with equipment do not cause spread of fire		N/A
	RISK is reduced to a tolerable level :		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	a) The temperature of surface or parts in contact with flammable liquids is 25 °C below fire point		N/A
	b) The quantity of liquid is limited		N/A
	c) Flames are contained within the equipment		N/A
	Detailed instructions for RISK-reduction provided		N/A
9.6	Overcurrent protection		P
9.6.1	MAINS supplied equipment protected		P
	BASIC INSULATION between MAINS parts of opposite polarity provided		P
	Devices not in the protective conductor		P
	Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase)		P
9.6.2	PERMANENTLY CONNECTED EQUIPMENT		P
	Overcurrent device:		P
	Fitted within the equipment; or		P
	Specified in manufacturer's instructions		P
9.6.3	Other equipment		N/A
	Protection within the equipment		N/A

<b>10</b>	<b>EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT</b>		<b>P</b>
10.1	Surface temperature limits for protection against burns		P
	Easily touched surfaces within the limits in NORMAL and in SINGLE FAULT CONDITION:	(See Form A.26A)	P
	- at an specified ambient temperature of 40 °C		P
	- for equipment rated above 40 °C ambient temperature limits not exceeded raised by the difference to 40 °C		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	Heated surfaces necessary for functional reasons exceeding specified values:		N/A
	Are recognizable as such by appearance or function; or		N/A
	Are marked with symbol 13		N/A
	Guards are not removable without tool		N/A
10.2	Temperatures of windings		P
	Limits not exceeded in:		P
	NORMAL CONDITION		P
	SINGLE FAULT CONDITION		P
10.3	Other temperature measurements		P
	Following measurements conducted if applicable:	(See Form A.26A)	P
	a) Value of 60 °C of field-wiring terminal box not exceeded		N/A
	b) Surface of flammable liquids and parts in contact with this liquids		N/A
	c) Surface of non-metallic ENCLOSURES		P
	d) Parts made of insulating material supporting parts connected to MAINS supply		N/A
	e) Terminals carrying a current more than 0,5 A		N/A
10.4	Conduct of temperature test		P
10.4.1	Tests conducted under reference test conditions and manufacturer's instructions	(See Form A.26A)	P
10.4.2	Temperature measurement of heating equipment		N/A
	Tests conducted in test corner		N/A
10.4.3	Equipment intended for installation in a cabinet or wall		N/A
	Equipment built in as specified in installation instructions		P
10.5	Resistance to heat		P
10.5.1	Integrity of CLEARANCE and CREEPAGE DISTANCES	(See Form A.16)	P

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Clause	Requirement – Test	Result - Remark	Verdict
10.5.2	Non-metallic ENCLOSURES	(See Form A.27)	P
	Within 10 min after treatment:		—
	Equipment subjected to suitable stresses of 8.2 and 8.3 complying with criteria of 8.1		P
10.5.3	Insulating material		N/A
	a) Parts supporting parts connected to MAINS supply		N/A
	b) TERMINALS carrying a current more than 0.5 A		N/A
	Examination of material data; or		—
	in case of doubt:		—
	1) Ball pressure test; or	(See Form A.28)	N/A
	2) Vicat softening test of ISO 306		N/A

<b>11</b>	<b>PROTECTION AGAINST HAZARDS FROM FLUIDS</b>		<b>P</b>
11.1	Protection to OPERATORS and surrounding area provided by EQUIPMENT		N/A
	All fluids specified by manufacturer considered		N/A
11.2	Cleaning	(See Form A.30)	N/A
11.3	Spillage		N/A
11.4	Overflow		N/A
11.5	Battery electrolyte		P
	Battery electrolyte leakage presents no HAZARD		P
11.6	Specially protected equipment		N/A
11.7	Fluid pressure and leakage		N/A
11.7.1	Maximum pressure.....:		N/A
	Maximum pressure of any part does not exceed $P_{RATED}$		N/A
11.7.2	Leakage and rupture at high pressure		N/A
	Fluid containing parts subjected to hydraulic test if:		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	a) product of pressure and volume > 200 kPa; and		N/A
	b) pressure > 50 kPa		N/A
	Parts of refrigerating systems meets pressure-related requirements of IEC 60335-24 or IEC 60335-2-89		N/A
11.7.3	Leakage from low-pressure parts		N/A
11.7.4	Overpressure safety device		N/A
	Does not operate in NORMAL USE		N/A
	a) Connected as close as possible to parts intended to be protected		N/A
	b) Easy access for inspection, maintenance and repair		N/A
	c) Adjustment only with TOOL		N/A
	d) No discharge towards person		N/A
	e) No HAZARD from deposit of discharged material		N/A
	f) Adequate discharge capacity		N/A
	No shut-off valve between overpressure safety device and protected parts		N/A

<b>12</b>	<b>PROTECTION AGAINST RADIATION, INCLUDING LASER SOURCES, AND AGAINST SONIC AND ULTRASONIC PRESSURE</b>	Not such equipment	<b>N/A</b>
12.1	Equipment provides protection		N/A
12.2	Equipment producing ionizing radiation		N/A
12.2.1	Ionizing radiation		N/A
12.2.1.1	Equipment meets the following requirements:		N/A
	a) if intended to emit radiation meets requirements of 12.2.1.2; or		N/A
	tested, classified and marked in accordance to IEC 60405		N/A



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Clause	Requirement – Test	Result - Remark	Verdict
	b) if only emits stray radiation meets requirements of 12.2.1.3		N/A
12.2.1.2	Equipment intended to emit radiation		N/A
	Effective dose rate of radiation measured..... :		N/A
	If dose rate exceeds 5 µSv/h marked with the following:		N/A
	a) Symbol 17 (ISO 361)		N/A
	b) Abbreviations of the radionuclides.....		N/A
	c) With maximum dose at 1 m; or.....		N/A
	with dose rate value between 1 µSv/h and 5 µSv/h in m .....		N/A
12.2.1.3	Equipment not intended to emit radiation		N/A
	Limit for unintended stray radiation of 1 µSv/h at any easily reached point kept .....		N/A
12.2.2	Accelerated electrons		N/A
	Compartments opened only by the use of a TOOL		N/A
12.3	Ultraviolet (UV) radiation		N/A
	No unintentional HAZARDOUS escape of UV radiation:		N/A
	- checked by inspection; and		N/A
	- evaluation of RISK assessment documentation		N/A
12.4	Micro-wave radiation		N/A
	Power density does not exceed 10 W/m <sup>2</sup> .....		N/A
12.5	Sonic and ultrasonic pressure		N/A
12.5.1	Sound level		N/A
	No HAZARDOUS sound emission		N/A
	Maximum sound pressure level measured and calculated for maximum sound power level as specified in ISO 3746 or ISO 9614-1		N/A
	Instruction describes measures for protection		N/A
12.5.2	Ultrasonic pressure		N/A

IEC/EN 61010-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Equipment not intended to emit ultrasound does not exceed limit of 110 dB between 20 kHz and 100 kHz		N/A
	Equipment intended to emit ultrasound:		N/A
	Outside useful beam does not exceed limit of 110 dB between 20 kHz and 100 kHz		N/A
	If inside useful beam above values exceeded:		N/A
	Marked with Symbol 14 of Table 1		N/A
	and following information in the documentation:		N/A
	a) dimensions of useful beam		N/A
	b) area where ultrasonic pressure exceed 110 dB		N/A
	c) maximum sound pressure inside beam area		N/A
12.6	Laser sources		N/A
	Equipment meets requirements of IEC 60825-1		N/A

13	<b>PROTECTION AGAINST LIBERATED GASES, EXPLOSION AND IMPLOSION</b>		<b>P</b>
13.1	Poisonous and injurious gases		P
	No poisonous or injurious gases or substances liberated in NORMAL CONDITION		P
	Attached data/test reports demonstrate conformity		N/A
13.2	Explosion and implosion		N/A
13.2.1	Components		N/A
	Components liable to explode:		—
	Pressure release device provided; or		N/A
	Apparatus incorporates operator protection (see also 7.7)		N/A
	Pressure release device:		—
	Discharge without danger		N/A
	Cannot be obstructed		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
13.2.2	Batteries and battery charging	(see Form A.37)	P
	If explosion or fire HAZARD could occur:		—
	Protection incorporated in the equipment; or		N/A
	Instructions specify batteries with built-in protection		P
	In case of wrong type of battery used:		—
	No HAZARD; or		P
	Warning by marking and within instructions		N/A
	Equipment with means to charge rechargeable batteries:		—
	Warning against the charging of non-rechargeable batteries; and		P
	Type of rechargeable battery indicated; or		P
	Symbol 14 used		N/A
	Battery compartment design		P
	Single component failure		P
	Polarity reversal test		P
13.2.3	Implosion of cathode ray tubes		N/A
	If maximum face dimensions > 160 mm..... :		—
	Intrinsically protected and correctly mounted; or		N/A
	ENCLOSURE provides protection:		N/A
	If non-intrinsically protected:		—
	Screen not removable without TOOL		N/A
	If glass screen, not in contact with surface of tube		N/A

<b>14</b>	<b>COMPONENTS AND SUBASSEMBLIES</b>		<b>P</b>
14.1	Where safety is involved, components and subassemblies meet relevant requirements		P
14.2	Motors	No motors	N/A
14.2.1	Motor temperatures		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	Does not present a HAZARD when stopped or prevented from starting; or		N/A
	Protected by over-temperature or thermal protection device conform with 14.3		N/A
14.2.2	Series excitation motors		N/A
	Connected direct to device, if over-speeding causes a HAZARD		N/A
14.3	Overtemperature protection devices		N/A
	Devices operating in a SINGLE FAULT CONDITION		N/A
	a) Reliable function is ensured		N/A
	b) RATED to interrupt maximum current and voltage		N/A
	c) Does not operate in NORMAL USE		N/A
	If self-resetting device used to prevent a HAZARD, protected part requires intervention before restarting		N/A
14.4	Fuse holders		N/A
	No access to HAZARDOUS LIVE parts		N/A
14.5	MAINS voltage selecting devices		N/A
	Accidental change not possible		N/A
14.6	MAINS transformers tested outside equipment		N/A
14.7	Printed circuit boards		P
	Data shows conformity with V-1 of IEC 60695-11-10 or better; or		P
	Test shows conformity with V-1 of IEC 60695-11-10 or better		N/A
	Not applicable for printed wiring boards with limited-energy circuits (9.4)		N/A
14.8	Circuits or components used as transient overvoltage limiting devices		P
	Test conducted between each pair of MAINS SUPPLY TERMINALS		P

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Clause	Requirement – Test	Result - Remark	Verdict

	No HAZARD resulting from rupture or overheating of the component:		P
	- no bridging of safety relevant insulation		P
	- no heat to other parts above the self-ignition points		P

<b>15</b>	<b>PROTECTION BY INTERLOCKS</b>	No such interlocks	<b>N/A</b>
15.1	Interlocks are designed to remove a HAZARD before OPERATOR exposed		N/A
15.2	Prevention of reactivation		N/A
15.3	Reliability		N/A
	Single fault unlikely to occur; or		N/A
	Cannot cause a HAZARD		N/A

<b>16</b>	<b>HAZARDS RESULTING FROM APPLICATION</b>		<b>P</b>
16.1	REASONABLY FORESEEABLE MISUSE		P
	No HAZARDS arising from settings not intended and not described in the instructions		P
	Other cases of REASONABLY FORESEEABLE MISUSE addressed by RISK assessment		N/A
16.2	Ergonomic aspects		N/A
	Factors giving rise to a HAZARD the RISK assessment is reflecting those aspects:		N/A
	a) limitation of body dimensions		N/A
	b) displays and indicators		N/A
	c) accessibility and conventions of controls		N/A
	d) arrangement of TERMINALS		N/A

<b>17</b>	<b>Risk assessment</b>	All risks assessed by clauses 6 to 16.	<b>N/A</b>
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IEC/EN 61010-1			
Clause	Requirement – Test	Result - Remark	Verdict
	RISK assessment conducted, if HAZARD might arise and not covered by Clauses 6 to 16		N/A
	TOLERABLE RISK achieved by iterative documented process covering the following:		N/A
	a) RISK analysis		N/A
	Identifies HAZARDS and estimates RISK		N/A
	b) RISK evaluation		N/A
	Plan to judge acceptability of resulting RISK level based on the estimated severity and likelihood of a RISK		N/A
	c) RISK reduction		N/A
	Initial RISK reduced by counter measures;		N/A
	Repeated RISK evaluation without new RISKS introduced		N/A
	RISKS remaining after RISK assessment addressed in instructions to RESPONSIBLE BODY:		N/A
	Information contained how to mitigate these RISKS		N/A
	Following principles in methods of RISK reduction applied by manufacturer in given order:		N/A
	1) RISKS eliminated or reduced as far as possible		N/A
	2) Protective measures taken for RISKS that cannot be eliminated		N/A
	3) User information about residual RISK due to any defect of the protective measures		N/A
	Indication of particular training is required		N/A
	Specification of the need for personal protective equipment		N/A
	Conformity checked by evaluation of the RISK assessment documentation		N/A