TEST REPORT
EN 61010-1 / IEC 61010-1
Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 1: General requirements

Reference No. ..... : UT106078-1

Compiled by (+ signature) ..... :

Tony Cheng / Vice Manager

Approved by (+ signature) ..... :

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Total number of pages ..... : 102 pages

Applicant's name ..... : Sturdy Industrial Co., Ltd.

Address ..... : No. 168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City 24872, Taiwan

Test specification:

Standard ..... : EN 61010-1:2010 , IEC 61010-1:2010 (Third Edition)

Test procedure ..... : According to above

Non-standard test method…….. ..... : N/A

Testing laboratory name ..... : Universal Testing Inc.

(TAF Certification No. 1994)

Address ..... : 2F, No. 13, Lane 28, Sec.1, Huanshan Road, Nei-Hu, Taipei 114, Taiwan

Testing location ..... : as above

Test item description ..... : Autoclave Sterilizer

Trade Mark ..... : STURDY

Manufacturer ..... : Same as the applicant

Model/Type reference ..... : SA-252F , SA-300H, SA-302H, SA-300VF,SA-300VL, SA-300VLA

Ratings ..... : 220 – 240 V , 50 / 60 Hz, 9A (SA-252F) , 11.9 A (SA-300H,SA-302H) ,13.5 A (SA-300VF), 10A (SA-300VL, SA-300VLA)

List of Attachments (including a total number of pages in each attachment - Table 1):		
Document No.	Documents included / attached to this report (description)	Page Numbers
1	Photos	9 pages

Summary of testing:

Passed

Test Report History:
This report may consist of more than one report and is valid only with additional or previous issued reports:

Ref. No.	Item

Summary of compliance with National Differences

List of countries addressed:

none

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)**

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

STURDY INDUSTRIAL CO., LTD.
168, Sec. 1, Zhongxing Road, Wugu District,
New Taipei City, 24872, Taiwan, R.O.C.
MODEL NO.:SA-300VLA (F-A500)
220V-240V ~ 50/60 Hz 10A Fuse Rating: 15A ~ 250V x 2
Max. Permissible Pressure/temp.: 2.1 bar / 135℃
Design Pressure: 2.6 bar / 140℃ , Fluids Group II, Steam
Safety accessories: 2.50 - 2.55 bar
Chamber Volume: 50 L
Test Pressure: 3.9 bar
Autoclave-Steam Sterilier
SN 170425011-001

STURDY INDUSTRIAL CO., LTD.
168, Sec. 1, Zhongxing Road, Wugu District,
New Taipei City, 24872, Taiwan, R.O.C.
MODEL NO.:SA-302H (F-A110)
220V-240V ~ 50/60 Hz 11.9A Fuse Rating: 15A ~ 250V x 2
Max. Permissible Pressure/temp.: 2.1 bar / 135℃
Design Pressure: 2.6 bar / 140℃ , Fluids Group II, Steam
Safety accessories: 2.50 - 2.55 bar
Chamber Volume: 50 L
Test Pressure: 3.9 bar
Autoclave-Steam Sterilier
SN 171102011-001

STURDY INDUSTRIAL CO., LTD.
168, Sec. 1, Zhongxing Road, Wugu District,
New Taipei City, 24872, Taiwan, R.O.C.
MODEL NO.:SA-300VL (F-A500)
220V-240V ~ 50/60 Hz 10A Fuse Rating: 15A ~ 250V x 2
Max. Permissible Pressure/temp.: 2.1 bar / 135℃
Design Pressure: 2.6 bar / 140℃ , Fluids Group II, Steam
Safety accessories: 2.50 - 2.55 bar
Chamber Volume: 50 L
Test Pressure: 3.9 bar
Autoclave-Steam Sterilier
SN 171012010-001

STURDY INDUSTRIAL CO., LTD.
168, Sec. 1, Zhongxing Road, Wugu District,
New Taipei City, 24872, Taiwan, R.O.C.
MODEL NO.:SA-300H (F-A110)
220V-240V ~ 50/60 Hz 11.9A Fuse Rating: 15A ~ 250V x 2
Max. Permissible Pressure/temp.: 2.1 bar / 135℃
Design Pressure: 2.6 bar / 140℃ , Fluids Group II, Steam
Safety accessories: 2.50 - 2.55 bar
Chamber Volume: 40 L
Test Pressure: 3.9 bar
Autoclave-Steam Sterilier
SN 170930011-001

STURDY INDUSTRIAL CO., LTD.
168, Sec. 1, Zhongxing Road, Wugu District,
New Taipei City, 24872, Taiwan, R.O.C.
MODEL NO.:SA-300VF (F-A500)
220V-240V ~ 50/60 Hz 13.5A Fuse Rating: 20A ~ 250V x 2
Max. Permissible Pressure/temp.: 2.1 bar / 135℃
Design Pressure: 2.6 bar / 140℃ , Fluids Group II, Steam
Safety accessories: 2.50 - 2.55 bar
Chamber Volume: 50 L
Test Pressure: 3.9 bar
Autoclave-Steam Sterilier
SN 171102010-001

STURDY INDUSTRIAL CO., LTD.
168, Sec. 1, Zhongxing Road, Wugu District,
New Taipei City, 24872, Taiwan, R.O.C.
MODEL NO.:SA-252F (F-A110)
220V-240V ~ 50/60 Hz 9A Fuse Rating: 15A ~ 250V x 2
Max. Permissible Pressure/temp.: 2.1 bar / 135℃
Design Pressure: 2.6 bar / 140℃ , Fluids Group II, Steam
Safety accessories: 2.50 - 2.55 bar
Chamber Volume: 24 L
Test Pressure: 3.9 bar
Autoclave-Steam Sterilier
SN 171101012-001

Test item particulars:	
Type of item	Laboratory Use Equipment
Description of equipment function.....	To sterilize heat and moisture stable reusable items(including dental handpieces) that are compatible with steam sterilizers
Connection to MAINS supply.....	Cord -connected (Non detachable cord set)
Overvoltage category	II
POLLUTION DEGREE.....	2
Means of protection	Class I (PE connected)
Environmental conditions	Normal
For use in wet locations.....	No
Equipment mobility	fixed
Operating conditions.....	Continuous
Overall size of equipment (W x D x H).....	SA-252F - 630 mm (D) x 540mm (W) x 450mm (H) SA-300H - 740 mm (D) x 600 mm (W) x 470 mm (H) SA-302H - 840 mm (D) x 600 mm (W) x 470 mm (H) SA-300VF,SA-300VL - 450 mm (D) x 600 mm (W) x 1090 mm (H) SA-300VLA - 450 mm (D) x 600 mm (W) x 980 mm (H)
Mass of equipment (kg).....	SA-252F – 45 kg, SA-300H – 66 kg, SA-302H – 68.5 kg, SA-300VF,SA-300VL – 52 kg, SA-300VLA – 57 kg
Marked degree of protection to IEC 60529	None
Possible test case verdicts:	
- Test case does not apply to the test object.....	N/A
- Test object does meet the requirement...	P (Pass)
- Test object does not meet the requirement.....	F (Fail)
Testing:	
Date of receipt of test item.....	November 15, 2017
Date (s) of performance of tests.....	December 25, 2017 – January 22, 2018

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see ENCLOSURE #)" refers to additional information appended to the report.
"(see Form A.xx)" refers to a table appended to the report.
Bottom lines for measurement tables Form A.xx are optional if used as record.

Throughout this report a ☐ comma / ☐ point is used as the decimal separator.

General product information:

It is a Class I equipment with metal enclosure. It incorporates a pressure vessel using steam and intended for the treatment of medical materials and for laboratory processes. It is without automatic loading and unloading system. For indoor use only. All models are completely the same except the heater , size of the chamber and the enclosure. Tests were done with Model SA-252F and SA-300VLA as the representative except where noted.

Description of model differences.

Falcon series model No.: SA-252F, SA-300H, SA-302H, SA-300VF, SA-300VL, SA-300VLA

Model	SA-252F	SA-300H	SA-302H	SA-300VF	SA-300VL	SA-300VLA
Photo						
Chamber Capacity (L)	24	40	50	50		
External Dimensions (mm)	630(D) x 540(W) x 450(H)	740 (D) x 600 (W) x 470 (H)	840 (D) x 600 (W) x 470 (H)	450(D) x 600(W) x 1,090(H)		450 (D) x 600 (W) x 980 (H)
Chamber Size (mm)	260 Diameter x 450 Depth	300 Diameter x 570 Depth	300 Diameter x 710 Depth	300 Diameter x 710 Depth		
Net Weight (kg)	45	66	68.5	52		57
Gross Weight (kg)	48	75	77.5	72		77
Voltage / Freq. / Current / Watt	220 - 240 V ac, 50/60 Hz, 9 A, 2063W	220 - 240 V ac, 50/60 Hz, 11.9A , 2735W	220 - 240 V ac, 50/60 Hz, 11.9A , 2735W	220 - 240 V ac, 50/60 Hz, 13.5A, 3100W	220 - 240 V ac, 50/60 Hz, 10A, 2300W	
Fuses	15A x 2, No Fuse Breaker		15A x 2, No Fuse Breaker	15A x 2, No Fuse Breaker		

Description of special features.
(HV circuits, high pressure systems etc.)

N/A

EN / IEC 61010-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.4	Testing in SINGLE FAULT CONDITIONS		P
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 4.4.2.2 to 4.4.2.14	(see Form A.1)	—
4.4.2.2	PROTECTIVE IMPEDANCE		N/A
4.4.2.3	PROTECTIVE CONDUCTOR	(see Form A.6)	P
4.4.2.4	Equipment or parts for short-term or intermittent operation	Continuous operation	N/A
4.4.2.5	Motors	Not used	N/A
	– stopped while fully energized		N/A
	– prevented from starting		N/A
	– one phase interrupted (multi-phase)		N/A
4.4.2.6	Capacitors		N/A
4.4.2.7	MAINS transformers	One in the certified power supply board (SA-252F) or a linear transformer (SA-300VLA) after the EMI filter	P
4.4.2.7.2	Short circuit	(see Form A.39)	P
4.4.2.7.3	Overload	(see Form A.26B and A.40)	P
4.4.2.8	Outputs	Tests done to transformer outputs	P
4.4.2.9	Equipment for more than one supply		N/A
4.4.2.10	Cooling	(see Form A.26A)	P
	– air holes closed		P
	– fans stopped		P
	– coolant stopped		N/A
	– loss of cooling liquid		N/A
4.4.2.11	Heating devices		P
	– timer overridden		P
	– temperature controller overridden		P
4.4.2.12	Insulation between circuits and parts		N/A
4.4.2.13	Interlocks		P
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 Forms A.1; A.6, A.18)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5	MARKING AND DOCUMENTATION		P
5.1.1	Required equipment markings	Required markings are printed on back adhesive paper label and put on the rear cover.	P
	- Visible from the exterior; or	All required markings are visible.	P
	- Visible after removing cover or opening door		N/A
	- Visible after removal from a rack or panel	Not for rack or panel mounted.	N/A
	Not put on parts which can be removed by an operator	Marking is not put on door.	P
	Letter symbols (IEC 60027) used	Letter symbols are in accordance with IEC 60027.	P
	Graphic symbols (IEC 61010-1: Table 1) used	Graphic symbol 14 in accordance with Table 1.	P
5.1.2	Identification		P
	Equipment is identified by:		—
	iii) Manufacturer's or supplier's name or trademark	STURDY APEX GROUP	P
	iv) Model number, name or other means	SA-252F , SA-300H, SA-302H, SA-300VF,SA-300VL, SA-300VLA	P
	Manufacturing location identified	One location only	N/A
5.1.3	MAINS supply		P
	Equipment is marked as follows:		P
	a) Nature of supply:		—
	I- a.c. RATED MAINS frequency or range of frequencies	50/ 60 Hz	P
	II- d.c. with symbol 1		N/A
	b) RATED supply voltage(s) or range	220 - 240 V ac	P
	c) Max. RATED power (W or VA) or input current.....	9A (SA-252F) , 11.9 A (SA-300H,SA-302H) ,13.5 A (SA-300VF), 10A (SA-300VL, SA-300VLA)	P
	The marked value not less than 90 % of the maximum value	(see Form A.2)	N/A
	If more than one voltage range:	One range	—
	Separate values marked; or		N/A
	Values differ by less than 20 %	(see Form A.2)	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:	Not used	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		N/A
	Operator replaceable fuse marking (see also 5.4.5)	Two 15A (SA-252F , SA-300H, SA-302H, SA-300VL, SA-300VLA) or 20A(SA-300VF,) non-self-resetting circuit breakers are used.	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	Markings are legible and durable close to the terminals	P
	If insufficient space, symbol 14 used		N/A
	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
5.1.5.2	TERMINALS		P

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Clause	Requirement + Test	Result - Remark	Verdict
	MAINS supply TERMINAL identified	Non-detachable mains power cord is used. Cord connected directly to circuit breakers inside.	N/A
	Other TERMINAL marking:		N/A
	a) FUNCTIONAL EARTH TERMINALS (symbol 5 used)		N/A
	b) PROTECTIVE CONDUCTOR TERMINALS:		P
	Symbol 6 is placed close to or on the TERMINAL; or	Marked close to the PE terminal.	P
	Part of appliance inlet	See above.	N/A
	c) TERMINALS of control circuits (symbol 7 used)	No such terminal is provided.	N/A
	d) HAZARDOUS LIVE TERMINALS supplied from the interior	No hazardous voltage from inside.	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	symbols are marked near the power On/Off switch lever	P
	If disconnecting device, off position clearly marked	See above	P
	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		P
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	Not provided	N/A
	If TERMINAL or ENCLOSURE exceeds 60 °C:	(see Form A.26A)	N/A
	Cable temperature RATING marked.....		N/A
	Marking visible before and during connection or beside TERMINAL		N/A
5.2	Warning markings		P
	Visible when ready for NORMAL USE	Visible	P
	Are near or on applicable parts		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Symbols and text correct dimensions and colour:	Printed in black on silver background paper.	P
	a) symbols min 2,75 mm and text 1,5 mm high and contrasting in colour with background		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		P
	Statement to isolate or disconnect if access by using a tool to HAZARDOUS LIVE parts is permitted		N/A
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		P
	Documentation necessary for safe operation is provided in printed media or		P
	in electronic media if available at any time		N/A
	Documentation includes:		—
	a) intended use		P
	b) technical specification		P
	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)		P
	f) accessories for safe operation of the equipment specified		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	h) instructions for lifting and carrying	For table top models SA-252F, SA-300H, SA-302H	P
	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	220 – 240 V	P
	Frequency or frequency range	50 / 60 Hz	P
	Power or current rating	9A (SA-252F) , 11.9 A (SA-300H,SA-302H) ,13.5 A (SA-300VF), 10A (SA-300VL, SA-300VLA)	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)		N/A
	d) Statement of the range of environmental conditions (see 1.4)		P
	e) Degree of protection (IEC 60529)	Ordinary protection	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
	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		P
	c) connections to supply		P
	d) PERMANENTLY CONNECTED EQUIPMENT:		N/A
	1) Supply wiring requirements		N/A
	2) If external switch or circuit-breaker, requirements and location recommendation		N/A
	e) ventilation requirements		P
	f) special services (e. g. air, cooling liquid)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	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		P
	g) cleaning and decontamination		P
	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
	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		P
	Instructions for RESPONSIBLE BODY include:		—
	Instructions sufficient in detail permitting safe maintenance and inspection and continued safety:		P
	Instruction against the use of detachable MAINS supply cord with inadequate rating	Non-detachable cord used	N/A
	Specific battery type of user replaceable batteries	No battery used	N/A
	Any manufacturer specified parts		P
	Rating and characteristics of fuses		P
	Instructions include following subjects permitting safe servicing and continued safety:		P
	a) product specific RISKS may affect service personnel		P

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Clause	Requirement + Test	Result - Remark	Verdict
	b) protective measures for these RISKS		P
	c) verification of the safe state after repair		P
5.4.6	Integration into systems or effects resulting from special conditions	No such condition	N/A
	Aspects described in documentation		N/A
6	PROTECTION AGAINST ELECTRIC SHOCK		P
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
	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		N/A
	Conformity is checked by the determination of 6.2 and 6.3 followed by the tests of 6.4 to 6.11		P
6.1.2	Exceptions		P
	Following HAZARDOUS LIVE parts may be ACCESSIBLE to an OPERATOR:		N/A
	a) parts of lamps and lamp sockets after lamp removal	No such parts	N/A
	b) parts to be replaced by OPERATOR only by the use of tool and warning marking	No such parts	N/A
	Those parts not HAZARDOUS LIVE 10 s after interruption of supply	(see Form A.5)	P
	Capacitance test if charge is received from internal capacitor	(see Form A.4 and A.5)	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	No top openings	N/A
	- test pin with length of 100 mm and 4 mm in diameter applied		N/A
6.2.4	Openings for pre-set controls	No opening for pre-set controls.	N/A
	- test pin with length of 100 mm and 3 mm in diameter applied		N/A
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
	70 mA r.m.s. when measured with circuit A.3 for higher frequencies		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:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Current less than 3,5 mA r.m.s. for sinusoidal, 5 mA peak non sinusoidal or mixed frequencies or 15 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
	500 mA r.m.s. when measured with circuit A.3 for higher frequencies		N/A
	or		N/A
	c) Levels of capacitive charge or energy less line B of Figure 3		N/A
6.4	Primary means of protection		P
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 and A.16)	P
	- meet rigidity requirements of 8.1		P
	- meet requirements for BASIC INSULATION, if protection is provided by insulation		P
	- meet requirements of 6.7 for CREEPAGE and CLEARANCES between ACCESSIBLE parts and HAZARDOUS live parts, if protection is provided by limited access		P
6.4.3	BASIC INSULATION	(see Form A.15 and A.16)	P
	- meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		P
6.4.4	Impedance	(see Form A.12 and A.15)	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	(see Form A.6)	N/A
	b) RATED for maximum WORKING VOLTAGE and the amount of power it will dissipate		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of BASIC INSULATION of 6.7	(see Form A.15)	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)		P
	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:		P
	e) REINFORCED INSULATION (see 6.5.3)		P
	f) PROTECTIVE IMPEDANCE (see 6.5.4)		N/A
6.5.2	PROTECTIVE BONDING	(see Forms A.7, A.8, A.9, A.10 or A.11)	P
6.5.2.1	ACCESSIBLE conductive parts, may become HAZARDOUS LIVE in SINGLE FAULT CONDITION:		P
	Bonded to the PROTECTIVE CONDUCTOR TERMINAL; or		P
	Separated by conductive screen or barrier bonded to PROTECTIVE CONDUCTOR TERMINAL		N/A
6.5.2.2	Integrity of PROTECTIVE BONDING		P
	a) PROTECTIVE BONDING consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses		P
	b) Soldered connections:		N/A
	Independently secured against loosening		P
	Not used for other purposes		P
	c) Screw connections are secured		P
	d) PROTECTIVE BONDING not interrupted; or		P
	exempted as removable part carries MAINS SUPPLY input connection		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	e) Any movable 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)		P
	g) IF MAINS SUPPLY passes through:		P
	Means provided for passing protective conductor;		N/A
	Impedance meets 6.5.2.4		P
	h) Protective conductors bare or insulated, if insulated, green/yellow		P
	Exceptions:		N/A
	1) earthing braids;		N/A
	2) internal protective conductors etc.;		N/A
	Green/yellow not used for other purposes		P
	TERMINAL suitable for connection of a PROTECTIVE CONDUCTOR, and meets 6.5.2.3		N/A
6.5.2.3	PROTECTIVE CONDUCTOR TERMINAL		P
	a) Contact surfaces are metal		P
	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		P
	External if other terminals external		N/A
	e) Equivalent current-carrying capacity to MAINS supply TERMINALS	(see Form A.7)	P
	f) If plug-in, makes first and breaks last		P
	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
	h) PROTECTIVE CONDUCTOR of measuring circuit:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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:		--
	Suitable size for bond wire	1.5 mm^2 wire used	P
	Not smaller than M 4	M5 used	P
	At least 3 turns of screw engaged		P
	Passes tightening torque test	(see Form A.8)	P
	k) Contact pressure not capable being reduced by deformation of materials		P
6.5.2.4	Impedance of PROTECTIVE BONDING of plug-connected equipment	(see Form A.9)	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		P
6.5.2.5	Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT	(see Form A.10)	N/A
6.5.2.6	Transformer PROTECTIVE BONDING screen	(see Form A.11)	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
	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

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.4	PROTECTIVE IMPEDANCE	(see Form A.12)	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	(see Form A.15)	N/A
	The PROTECTIVE IMPEDANCE consists of one or more of the following:	(see Table 1 and Form A.12)	—
	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	Circuit breaker	P
	a) RATED to disconnect the load within time specified in Figure 2		P
	b) RATED for the maximum load conditions of the equipment	Two 15A (SA-252F , SA-300H, SA-302H, SA-300VL, SA-300VLA) or 20A(SA-300VF,) non-self-resetting circuit breakers are used.	P
6.5.6	Current- or voltage-limiting devices	(see Form A.12)	P
	Device complies with all of:		P
	a) RATED to limit the current or voltage to the level of 6.3.2	(see Form A.6)	P
	b) RATED for the maximum WORKING VOLTAGE; and		P
	RATED for the maximum operational current if applicable		P
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of SUPPLEMENTARY INSULATION of 6.7	(see Form A.14, A.15)	P
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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	(see Form A.5)	N/A
6.6.3	Circuits with terminals which are HAZARDOUS LIVE		N/A
	These circuits are:		N/A
	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
	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
6.7	Insulation requirements	(see Form A.14)	P
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Required CLEARANCES reflecting factors of 6.7.1.1	(see Form A.14, A.15)	P
	Equipment rated for operating altitude greater than 2000 m correction factor of Table 3 of 61010-1 applied	Under 1000 m	N/A
6.7.1.3	CREEPAGE DISTANCES		P
	Required CREEPAGE DISTANCES reflecting factors of 6.7.1.1 a) to d)	(see Form A.14, A.15)	P
	CTI material group reflected by requirements	Material Group IIIb considered if no other sufficient evidence provided	P
	CTI test performed		N/A
6.7.1.4	Solid insulation		P
	Required solid insulation reflecting factors of 6.7.1.1 a) to d)	(see Form A.14, A.15)	P
6.7.1.5	Requirements for insulation according to type of circuit	(see Form A.14, A.15)	P
	a) 6.7.2 MAINS circuits of OVERVOLTAGE CATEGORY II up to nominal supply voltage of 300 V	Provided on the power transformer TF1 after the EMI filter (SA-300VLA) or transformer in the switching power board (SA-252F)	P
	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		N/A
	d) K.2 secondary circuits separated from circuits defined in c) 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	On the certified switching power board (SA-252F)	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.7.2	Insulation for MAINS CIRCUITS of OVERVOLTAGE CATEGORY II with a nominal supply voltage up to 300 V		P
6.7.2.1	CLEARANCES and CREEPAGE DISTANCES	(see Form A.14, A.15)	P
	Values for MAINS CIRCUITS of table 4 are met		P
	Coatings to achieve reduction to POLLUTION DEGREE 1 comply with requirements of Annex H	Not used	N/A
6.7.2.2	Solid insulation		P
6.7.2.2.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		P
	Equipment passed voltage tests of 6.8.3 with values of Table 5	(see Form A.18)	P
	Complies as applicable:		P
	a) ENCLOSURE or PROTECTIVE BARRIER of Clause 8		P
	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
	d) thin-film insulation requirements of 6.7.2.2.4		P
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 insulating 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 of insulation is 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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 DISTANCE of 6.7.2.1		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N/A
	a) thickness through the insulation 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	(see Form A.18)	N/A
6.7.3	Insulation for secondary circuits derived from MAINS CIRCUITS of OVERVOLTAGE CATEGORY II up to 300 V	All secondary circuits are SELV. No insulation from the secondary circuits needed.	N/A
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:	(see Form A.18)	N/A
	1) values for REINFORCED INSULATION are 1,6 times the values for BASIC INSULATION		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	2) if operating altitude is greater than 2000 m values of CLEARANCES multiplied with factor of Table 3	Under 1000 m	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 1 comply with requirements of Annex H	Not used	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
	a) Equipment passed voltage test of 6.8.3.1 for 5 s with VALUES of Table 6 for BASIC and SUPPLEMENTARY INSULATION	(see Form A.18)	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	(see Form A.18)	N/A
	value for REINFORCED INSULATION are twice the WORKING VOLTAGE		N/A
	Complies as applicable:		N/A
	1) ENCLOSURE or PROTECTIVE BARRIER of 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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 DISTANCE of 6.7.3.2 and 6.7.3.3		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:	(see Form A.18)	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 Forms A.14 and A.18)	P
6.9	Constructional requirements for protection against electric shock		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.9.1	If a failure could cause a HAZARD:		P
	a) Security of wiring connections		P
	b) Screws securing removable covers	No such part	N/A
	c) Accidental loosening		P
	d) CLEARANCES and CREEPAGE DISTANCES not reduced below the values of basic insulation by loosening of parts or wires		P
6.9.2	Insulating materials		P
	Material not to be used for safety relevant insulation:		P
	a) Easily damaged materials not used		P
	b) Non-impregnated hygroscopic materials not used		P
6.9.3	Colour coding		P
	Green-and-yellow insulation shall not be used except:		P
	a) protective earth conductors;		P
	b) PROTECTIVE BONDING conductors;		P
	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		P
	RATED for maximum equipment current (see 5.1.3 c)		P
	Cable complies with IEC 60227 or IEC 60245		P
	Heat-resistant if likely to contact hot parts		P
	Temperature RATING (cord and inlet).....		P
	Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS		P
	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		P
6.10.2.1	Cord entry		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Inlet or bushing with a smoothly rounded opening; or		P
	b) Insulated cord guard protruding >5 D		P
6.10.2.2	Cord anchorage		P
	Protective earth conductor is the last to take the strain		P
	a) Cord is not clamped by direct pressure from a screw		P
	b) Knots are not used		P
	c) Cannot push the cord into the equipment to cause a HAZARD		P
	d) No failure of cord insulation in anchorage with metal parts		P
	e) Not to be loosened without a tool		P
	f) Cord replacement does not cause a HAZARD and method of strain relief is clear		P
	Push-pull and or torque test	(see Form A.19)	P
6.10.3	Plugs and connectors		P
	MAINS supply plugs, connectors etc., conform with relevant specifications		P
	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	(see Form A.5)	N/A
	Accessory MAINS socket outlets:		—
	a) Marking if accepts a standard MAINS supply 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
6.11.3	Requirements according to type of equipment		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.11.3.1	PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment		N/A
	Employs switch or circuit-breaker	Circuit breaker used	N/A
	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		P
	Equipment is provided with one of the following:		P
	a) Switch or circuit-breaker		P
	b) Appliance coupler (disconnectable without tool)		N/A
	c) Separable plug (without locking device)		N/A
6.11.4	Disconnecting devices		P
6.11.4.1	Disconnecting device part of equipment		P
	Electrically close to the SUPPLY		P
	Power-consuming components not electrically located between the supply source and the disconnecting device		P
	Except electromagnetic interference suppression circuits permitted to be located on the supply side of the disconnecting device		P
6.11.4.2	Switches and circuit-breakers		P
	When used as disconnection device:		—
	Meets IEC 60947-1 and IEC 60947-3		P
	Marked to indicate function.....		P
	Not incorporated in MAINS cord		P
	Does not interrupt PROTECTIVE EARTH CONDUCTOR		P
6.11.4.3	Appliance couplers and plugs		P
	Where an appliance coupler or separable plug is used as the disconnecting device (see 6.11.3.2):		P
	Readily identifiable and easily reached by the operator		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Single-phase portable equipment cord length not more than 3 m		P
	PROTECTIVE EARTH CONDUCTOR connected first and disconnected last		P
7	PROTECTION AGAINST MECHANICAL HAZARDS		P
7.1	Equipment does not cause a mechanical HAZARD in NORMAL nor in SINGLE FAULT CONDITION		P
	Conformity is checked by 7.2 to 7.7		P
7.2	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 external 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
	or symbol 14 with full details in documentation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	(see Form A.20)	N/A
	Following levels are met in NORMAL and SINGLE FAULT CONDITION:		N/A
	Continuous contact pressure below 50 N / cm² with force below 150 N		N/A
	Temporary force below 250 N for an area at least of 3 cm² for a maximum duration of 0,75 s		N/A
7.3.5	Gap limitations between moving parts	(see Form A.20)	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		P
	Equipment not secured to building structure is physical stable		P
	Stability maintained after opening of drawers etc. by automatic means, or	No such means provided	N/A
	warning marking requires the application of means		N/A
	Compliance checked by following tests as applicable:		—
	a) 10° tilt test for other than handheld equipment		P
	b) multi-directional force test for equipment exceeds height of 1 m and mass of 25 kg		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
7.5.1	Equipment more than 18 kg :		—
	Has means for lifting or carrying; or		N/A
	Directions in documentation	For SA-252F, SA-300H and SA-302H	P
7.5.2	Handles and 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		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

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

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Clause	Requirement + Test	Result - Remark	Verdict
	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 EQUIPMENT with mass over 100 kg		P
	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
	iv) insulation of internal wiring remains undamaged		P
	v) PROTECTIVE BARRIERS not damaged or loosened		P
	vi) No moving parts exposed, except permitted by 7.3		P
	vii) no damage which could cause spread of fire		P
8.2	ENCLOSURE rigidity test		P
8.2.1	Static test	(see Form A.21A)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	(see Form A.21A)	P
	Impact applied to any part of ENCLOSURE causing a HAZARD if damaged		P
	Impact energy level and corresponding IK code.....	5J (IK08)	P
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C		N/A
8.3	Drop test	(see Form A.21B)	P
8.3.1	Other than HAND-HELD and DIRECT-PLUG-IN EQUIPMENT		P
	Tests conducted with a drop height or angle of.....	Test with a height of 25 mm	P
8.3.2	HAND-HELD and DIRECT-PLUG-IN EQUIPMENT		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
9	PROTECTION AGAINST THE SPREAD OF FIRE		P
9.1	No spread of fire in NORMAL and SINGLE FAULT CONDITION		P
	MAINS supplied equipment meets requirements of 9.6 additionally		P
	Conformity is checked by minimum one or a combination of the following (see Figure 11):	(see Form A.22)	P
	a) SINGLE FAULT test of 4.4; or	(see Forms A.1)	P
	b) Application of 9.2 (eliminating or reducing the sources of ignition); or		N/A
	c) Application of 9.3 (containment of fire within the equipment)		P
9.2	Eliminating or reducing the sources of ignition within the equipment		P
	a) 1) Limited-energy circuit (see 9.4); or		N/A
	2) BASIC INSULATION provided for parts of different potential; or	(see Forms A.14 and A.18)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Bridging the insulation does not cause ignition	(see Form A.1)	N/A
	b) Surface temperature of liquids and parts (see 9.5)		N/A
	c) No ignition in circuits designed to produce heat	(see Form A.1)	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	All comply with UL 94V-2 or better (see Table: 1 or Form A.23)	P
	b) Insulated wires and cables are flame retardant (VW-1 or equivalent)	All comply with UL VW-1 (see Table: 1 or Form A.23)	P
	c) ENCLOSURE meets following requirements:	(see Form A.22)	P
	1) Bottom and sides in arc of 5 ° (see Figure 13) to non-limited circuits (9.4) meets:	numerous slots under the chamber each measuring 5.8 x 50mm .No fire source over the openings . Numerous slots on upper of both sides each measuring 2.8 x 50 mm. Not within the area of 5°	P
	i) no openings; or		N/A
	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		P
	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	(see Form A.24)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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) Overcurrent 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 nonadjustable electromechanical device is used		N/A
9.5	Requirements for equipment containing or using flammable liquids		N/A
	Flammable liquids contained in or specified for use with equipment do not cause spread of fire	(see Form A.25)	N/A
	RISK is reduced to a tolerable level :		N/A
	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	(see Forms A.14 and A.15)	P
	Devices not in the protective conductor		P
	Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase)		N/A
9.6.2	PERMANENTLY CONNECTED EQUIPMENT		N/A
	Overcurrent protection device:		N/A
	Fitted within the equipment; or		N/A
	Specified in manufacturer's instructions		N/A
9.6.3	Other equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Protection within the equipment		N/A
10	EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT		P
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
	Heated surfaces necessary for functional reasons exceeding specified values:		P
	Are recognizable as such by appearance or function; or		P
	Are marked with symbol 13	Warning symbol provided on heated surface	P
	Guards are not removable without tool	No such guards used	N/A
10.2	Temperatures of windings		P
	Limits not exceeded in:	(see Form A.26B)	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		P
	e) Terminals carrying a current more than 0,5 A		P
10.4	Conduct of temperature tests		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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Tests conducted in test corner	(see Form A.26A)	P
10.4.3	Equipment intended for installation in a cabinet or wall		N/A
	Equipment built in as specified in installation instructions	(see Form A.26A)	N/A
10.5	Resistance to heat		P
10.5.1	Integrity of CLEARANCE and CREEPAGE DISTANCES	(see Form A.16)	P
10.5.2	Non-metallic ENCLOSURES	Metal enclosure (see Form A.27) except the door is plastic	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		P
	a) Parts supporting parts connected to MAINS supply	Terminal boards	P
	b) TERMINALS carrying a current more than 0,5 A		P
	Examination of material data; or		N/A
	in case of doubt:		P
	1) Ball pressure test; or	(see Form A.28)	P
	2) Vicat softening test of ISO 306	(see Form A.29)	N/A
11	PROTECTION AGAINST HAZARDS FROM FLUIDS		P
11.1	Protection to OPERATORS and surrounding area provided by EQUIPMENT		P
	All fluids specified by manufacturer considered	Equipment containing water.	P
11.2	Cleaning	(see Form A.30)	P
11.3	Spillage	(see Form A.30)	P
11.4	Overflow	No insulation breakdown after the overflow of the chamber liquid (see Form A.30)	P
11.5	Battery electrolyte		N/A
	Battery electrolyte leakage presents no HAZARD		N/A
11.6	Specially protected equipment	(see Form A.30)	N/A
11.7	Fluid pressure and leakage		P
11.7.1	Maximum pressure.....	(see Form A.31)	P
	Maximum pressure of any part does not exceed P_{RATED}		P

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Clause	Requirement + Test	Result - Remark	Verdict
11.7.2	Leakage and rupture at high pressure		P
	Fluid-containing parts subjected to hydraulic test if:	Tests passed without leakage or rupture (see Form A.31)	P
	a) product of pressure and volume > 200 kPal; and	All over 200 kPal	P
	b) pressure > 50 kPa	Rated 200 kPa (about 2.1 kgf/cm^2)	P
	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	(see Form A.32)	N/A
11.7.4	Overpressure safety device	Pressure controller (PC) as electric protection and Pressure relief valve (in reservoir) as mechanical protection in pipe system	P
	Does not operate in NORMAL USE	Rated working pressure 2.1kgf/cm^2. Overpressure safety switch works at 2.2± 0.15 kgf/cm^2.	P
	a) Connected as close as possible to parts intended to be protected		P
	b) Easy access for inspection, maintenance and repair		P
	c) Adjustment only with TOOL		P
	d) No discharge towards person		P
	e) No HAZARD from deposit of discharged material		P
	f) Adequate discharge capacity		P
	No shut-off valve between overpressure safety device and protected parts		P
12	PROTECTION AGAINST RADIATION, INCLUDING LASER SOURCES, AND AGAINST SONIC AND ULTRASONIC PRESSURE		N/A
12.1	Equipment provides protection		N/A
12.2	Equipment producing ionizing radiation		N/A
12.2.1	Ionizing radiation	(see Form A.33)	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
	b) if only emits stray radiation meets requirements of 12.2.1.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	(see Form A.34)	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:		—
	- checked by inspection; and		N/A
	- evaluation of RISK assessment documentation		N/A
12.4	Microwave radiation		N/A
	Power density does not exceed 10 W/m^2 ..		N/A
12.5	Sonic and ultrasonic pressure		N/A
12.5.1	Sound level	(see Form A.35)	N/A
	No HAZARDOUS sound emission		P
	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	(see Form A.36)	N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	PROTECTION AGAINST LIBERATED GASES AND SUBSTANCES, EXPLOSION AND IMPLOSION		N/A
13.1	Poisonous and injurious gases and substances		N/A
	No poisonous or injurious gases or substances liberated in NORMAL CONDITION		N/A
	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
13.2.2	Batteries and battery charging	(see Form A.37)	N/A
	If explosion or fire HAZARD could occur:		—
	Protection incorporated in the equipment; or		N/A
	Instructions specify batteries with built-in protection		N/A
	In case of wrong type of battery used:		—
	No HAZARD; or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Warning by marking and within instructions		N/A
	Equipment with means to charge rechargeable batteries:		—
	Warning against the charging of non-rechargeable batteries; and		N/A
	Type of rechargeable battery indicated; or		N/A
	Symbol 14 used		N/A
	Battery compartment design		N/A
	Single component failure		N/A
	Polarity reversal test		N/A
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
14	COMPONENTS AND SUBASSEMBLIES		P
14.1	Where safety is involved, components and subassemblies meet relevant requirements	(see Table 1)	P
14.2	Motors	not used.	N/A
14.2.1	Motor temperatures		N/A
	Does not present a HAZARD when stopped or prevented from starting; or	(see Form A.1; A.26B)	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 overspeeding causes a HAZARD		N/A
14.3	Overtemperature protection devices	(see Form A.38)	P
	Devices operating in a SINGLE FAULT CONDITION	The power transformer provides overtemperature protection. It is IEC certified and work properly during the single fault conditions. (see Form A.37)	P
	a) Reliable function is ensured		P

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Clause	Requirement + Test	Result - Remark	Verdict
	b) RATED to interrupt maximum current and voltage		P
	c) Does not operate in NORMAL USE		P
	If self-resetting device used to prevent a HAZARD, protected part requires intervention before restarting	Self-resetting after the temperature drops. No hazard from restarting.	N/A
14.4	Fuse holders	No fuse is replaceable by operators	N/A
	No access to HAZARDOUS LIVE parts		N/A
14.5	MAINS voltage selecting devices	Not used	N/A
	Accidental change not possible		N/A
14.6	MAINS transformers tested outside equipment	Tested in the equipment(see Forms A.39 and A.40)	N/A
14.7	Printed circuit boards		P
	Data shows conformity with V-1 of IEC 60695-11-10 or better; or	Meets 94V-1 min. in UL796	P
	Test shows conformity with V-1 of IEC 60695-11-10 or better	(see Form A.23)	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	Not used	N/A
	Test conducted between each pair of MAINS SUPPLY TERMINALS	(see Form A.41)	N/A
	No HAZARD resulting from rupture or overheating of the component:		N/A
	- no bridging of safety relevant insulation		N/A
	- no heat to other parts above the self-ignition points		N/A

15	PROTECTION BY INTERLOCKS		P
15.1	Interlocks are designed to remove a HAZARD before OPERATOR exposed		P
15.2	Prevention of reactivation		P
15.3	Reliability	The door can not open if K9 fail	N/A
	Single fault unlikely to occur; or		N/A
	Cannot cause a HAZARD		N/A

16	HAZARDS RESULTING FROM APPLICATION		P
16.1	REASONABLY FORESEEABLE MISUSE		P

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Clause	Requirement + Test	Result - Remark	Verdict
	No HAZARDS arising from settings not intended and not described in the instructions		P
	Other cases of REASONABLY FORESEEABLE MISUSE addressed by RISK assessment		P
16.2	Ergonomic aspects		P
	Factors giving rise to a HAZARD the RISK assessment is reflecting those aspects:		P
	a) limitation of body dimensions		P
	b) displays and indicators		P
	c) accessibility and conventions of controls		P
	d) arrangement of TERMINALS		P
17	RISK ASSESSMENT		N/A
	RISK assessment conducted, if HAZARD might arise and not covered by Clauses 6 to 16	All hazards fully addressed in 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
ANNEX F	ROUTINE TESTS		P
	Manufacturer ´s declaration		P

ANNEX H	QUALIFICATION OF CONFORMAL COATINGS FOR PROTECTION AGAINST POLLUTION		N/A
H.1	General		N/A
	Conformal coatings meet the requirements of Clause H.2 and H.3.		N/A
H.2	Technical properties		N/A
	Technical properties of conformal coatings are suitable for the intended application. In particular:		—
	a) Manufacturer indicate that it is a coating for PWBs;		N/A
	b) RATED operating temperature include the temperature range of the indicated application;		N/A
	c) CTI, insulation resistance and dielectric strength are suitable for the intended application;		N/A
	d) Coating have adequate UV resistance, if it is exposed to sunlight;		N/A
	e) Flammability RATING of the coating is at least the required flammability RATING of the applied PWB.		N/A
H.3	Qualification of coatings	(see Form A.42)	N/A
	Coating complies with the conformity requirements.		N/A

ANNEX K	INSULATION REQUIREMENTS NOT COVERED BY CLAUSE 6.7	(see Form A.15 and A.18)	N/A

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Clause	Requirement — Test	Result — Remark	Verdict

4.4	**TABLE: Testing in SINGLE FAULT CONDITION – Results**			**Form A.1.**	P
Test subclause	Fault No.	Fault description	Td 4.4.3 (NOTE)	How was test terminated Comments	Meets 4.4.4
Model SA-252F					
4.4.2.3	1	Protective earth disconnected	0 hr 5 min	Normal operation until temperature becomes stability, no spread of fire. The values of clause 6.3.2 are not exceeded.	P
4.4.2.10	2	Openings blocked	3 hr 24 min	Normal operation. See appended Table 10 for measured temperatures.	P
4.4.2.11	3	Heating device temperature control TC1 open	3 hr 28 min	Normal operation until temperature becomes stability .	P
4.4.2.11	4	Heating device temperature control TC2 open	2 hr 28 min	Normal operation until temperature becomes stability .	P
4.4.2.101	5	Pressure control CN3 open	1 hr 29 min	Pressure valve works at 2.5 bar. The unit shut down after 50 minutes and the alarm works.	P
4.4.2.102	6	The equipment operates at 90% and 110% of the rated voltage (198Vac and 264Vac) for one cycle. The voltage then set to 90% of the rated voltage for 5 min. The voltage is reduced gradually at a rate of approximately 10V per min until the equipment fails to operate normally. The voltage then reset to the rated voltage with the equipment still switched on	15 min	The equipment shut down at 109V. It works normally after reset to rated voltage.	P
4.4.2.103	7	Failure of other supply (Heating without water)	0 hr 5 min	Unit shut down after 1 minute.	P
Model SA-300VLA					
4.4.2.3	8	Protective earth disconnected	0 hr 5 min	Normal operation until temperature becomes stability, no spread of fire. The values of clause 6.3.2 are not exceeded.	P
4.4.2.10	9	Openings blocked	1 hr 50 min	Normal operation. See appended Table 10 for measured temperatures.	P
4.4.2.11	10	Heating device temperature control TC1 open	1 hr 52 min	Normal operation until temperature becomes stability .	P

4.4	**TABLE: Testing in SINGLE FAULT CONDITION – Results**			**Form A.1.**	P
Test subclause	Fault No.	Fault description	Td 4.4.3 (NOTE)	How was test terminated Comments	Meets 4.4.4
4.4.2.11	11	Heating device SSR Pin 1 – pin 2 short-circuited	1 hr 34 min	Pressure protection works after 30 min. Over temperature alarm works. Unit shut down.	P
4.4.2.10	12	DC fan locked	1 hr 59 min	Normal operation until temperature becomes stability .	P
4.4.2.11	13	Pressure control (PC) open	2 hr 3 min	Unit operates normally	P
4.4.2.102	14	The equipment operates at 90% and 110% of the rated voltage (198Vac and 264Vac) for one cycle. The voltage then set to 90% of the rated voltage for 5 min. The voltage is reduced gradually at a rate of approximately 10V per min until the equipment fails to operate normally. The voltage then reset to the rated voltage with the equipment still switched on	15 min	The equipment shut down at 118V. It works normally after reset to rated voltage.	P
4.4.2.103	15	Failure of other supply (Heating without water)	1 hr	Unit stops heating and stays at “ add water” function	P
NOTE Td = Test duration in hh:mm:ss Record dielectric strength test on Form A.19 and temperature tests on Form A.27A and or A.27.B. Record in the comments column for each test whether carried out during or after SINGLE FAULT CONDITION.					
Supplementary information:					

EN / IEC 61010-1			
220 - 240Clause	Requirement — Test	Result — Remark	Verdict

5.1.3c)	**TABLE: MAINS supply**	**Form A.2**	P
	Marked rating	220 – 240 V	—
	Phase	single	—
	Frequency	50 / 60 Hz	—
	Current	9A (SA-252F) , 11.9 A (SA-300H,SA-302H) ,13.5 A (SA-300VF), 10A (SA-300VL, SA-300VLA)	—
	Power	W	—
	Power	VA	—

Test	Voltage	Frequency	Current	Power in	Power in	Comments
No.	V	Hz	A	W	VA	
SA-252F	198	50	7.82	1546		
	198	60	7.81	1542		
	220	50	8.68	1910		
	220	60	8.68	1908		
	240	50	9.47	2272		
	240	60	9.47	2272		
	264	50	10.41	2748		
	264	60	10.41	2744		
SA-300VLA	198	50	8.76	1732		
	198	60	8.75	1728		
	220	50	9.71	2133		
	220	60	9.70	2129		
	240	50	10.58	2536		
	240	60	10.56	2532		
	264	50	11.60	3061		
	264	60	11.58	3055		

NOTE – Measurements are only required for marked ratings.

Supplementary information:
Max load is set at 134℃ sterilization temperature

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

5.3	**TABLE: Durability of markings**	**Form A.3**	P

Marking method (see NOTE)	Agent
1) Adhesive label	A Water
2) Ink printed	B Isopropyl alcohol 70%
3) Laser marked	C (specify agent)
4) Filmcoated (plastic foil control panel)	D (specify agent)
5) Imprinted on plastic (moulded in)	E (specify agent)

NOTE – Where applicable include print method, label material, ink or paint type, fixing method, adhesive and surface to which marking is fixed.

Marking location	Marking method (see above)
Identification (5.1.2)	1
MAINS supply (5.1.3)	1
Fuses (5.1.4)	1
terminals and operating devices (5.1.5.2)	--
Switches and circuit breakers (5.1.6)	--
Double/reinforced equipment (5.1.7)	--
Field wiring Terminal boxes (5.1.8)	--
Warning marking (5.2)	1
Battery charging (13.2.2)	--

Method	Test agent	Remains legible	Label loose	Curled edges	Comments
		Verdict	Verdict	Verdict	
1	B	P	P	P	Pass

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.2	**TABLE: List of ACCESSIBLE parts** **Form A.4**	P
6.1.2	Exceptions	—
6.2	Determination of ACCESSIBLE parts	—

Item	Description	Determination method (NOTE 5)	Exception under 6.1.2 (NOTE 4)
1	Enclosure (SA-252F)	Test finger	no
2	Door Knob (SA-252F)	Test finger	no
3	Enclosure (SA-300VLA)	Test finger	no
4	Panel surface (SA-300VLA)	Test finger	no

NOTE 1 – Test fingers and pins are to be applied without force unless a force is specified (see 6.2.2)
NOTE 2 – Special consideration should be given to inadequate insulation and high voltage parts (see 6.2)
NOTE 3 – Parts are considered to be ACCESSIBLE if they could be touched in the absence of any covering which is not considered to provide suitable insulation (see 6.4).
NOTE 4 – Capacitor test may be required (see Form A.5).
NOTE 5 – The determination methods are:
V = visual; R = rigid test finger; J = jointed test finger; P3 = pin 3 mm diameter; P4 = pin 4 mm diameter.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6	**TABLE: Values in NORMAL CONDITION**	**Form A.5**	P
6.1.2	Exceptions	11.2 Cleaning and decontamination	—
6.3.1	Values in NORMAL CONDITION (see NOTE 1)	11.3 Spillage	—
6.6.2	Terminals for external circuit	11.4 Overflow	—
6.10.3	Plugs and connections		—

Item	Voltage			Current				Capacitance		10 s / 5 s test (NOTE)			Comments
(see Form A.4)	V r.m.s.	V peak	V d.c.	Test circuit A1/A2/A3	mA r.m.s.	mA peak	mA d.c.	μC	mJ	V	μC	mJ	
1	--	2.1	--	--	---	--	---	--	--	--	--	--	
2	--	1.7	--	--	---	--	---	--	--	--	--	--	
3	--	2.6	--	--	---	--	---	--	--	--	--	--	
4	--	3.1	--	--	---	--	---	--	--	--	--	--	

NOTE – A 10 s test is specified in 6.1.2 a) b). A. 5 s test is specified in 6.10.3. The capacitance level versus voltage below the limits given from figure 3 of IEC 61010-1.

Supplementary information:
Voltages on mains plug 5 s after disconnection of the supply are
Mains switch OFF / ON

	Model SA-252F	Model SA-300VLA
L to N	12 Vp / 12 Vp	8 Vp / 4 Vp
L to G	10 Vp / 8 Vp	8 Vp / 4 Vp
N to G	12 Vp / 12 Vp	12 Vp / 12 Vp

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.3.2	**TABLE: Values in SINGLE FAULT CONDITION**										**Form A.6**	P
Item	Subclause and	Voltage			Transient (see NOTE)		Current				Capacitance	
(see Form A.4)	fault No. (see Form A.1)	V r.m.s.	V peak	V d.c.	V	s	Test circuit A1/A2/A3	mA r.m.s.	mA peak	mA d.c.	µF (see NOTE)	Comments
1	1	125	196		--	---	A2	0.23	2.9	--	---	
2	1	7.81	15.8		--	---	A2	0.12	1.6	--	---	
1	2	--	2.3		--	---	--	--	--	--	---	
2	2	--	1.9		--	---	--	--	--	--	---	
1	3	--	2.6		--	--	--	--	--	--	--	
2	3	--	2.1		--	--	--	--	--	--	--	
1	4	--	2.4		--	--	--	--	--	--	--	
2	4	--	2.5		--	--	--	--	--	--	--	
1	5	--	2.0		--	--	--	--	--	--	--	
2	5	--	2.2		--	--	--	--	--	--	--	
1	6	--	1.9		--	--	--	--	--	--	--	
2	6	--	2.0		--	--	--	--	--	--	--	
1	7	--	2.2		--	--	--	--	--	--	--	
2	7	--	1.6		--	--	--	--	--	--	--	
3	8	106	160		--	--	A2	0.4	4.0	--	--	
4	8	25.8	43		--	--	A2	0.32	3.5	--	--	
3	9	--	2.8		--	--	--	--	--	--	--	

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.3.2	**TABLE: Values in SINGLE FAULT CONDITION**										**Form A.6**	P
Item	Subclause and	Voltage			Transient (see NOTE)		Current				Capacitance	
(see Form A.4)	fault No. (see Form A.1)	V r.m.s.	V peak	V d.c.	V	s	Test circuit A1/A2/A3	mA r.m.s.	mA peak	mA d.c.	µF (see NOTE)	Comments
4	9	--	2.9		--	--	--	--	--	--	--	
3	10	--	2.9		--	--	--	--	--	--	--	
4	10	--	3.4		--	--	--	--	--	--	--	
3	11	--	3.2		--	--	--	--	--	--	--	
4	11	--	3.5		--	--	--	--	--	--	--	
3	12	--	2.6		--	--	--	--	--	--	--	
4	12	--	3.1		--	--	--	--	--	--	--	
3	13	--	2.7		--	--	--	--	--	--	--	
4	13	--	3.1		--	--	--	--	--	--	--	
3	14	--	2.5		--	--	--	--	--	--	--	
4	14	--	3.3		--	--	--	--	--	--	--	
3	15	--	2.9		--	--	--	--	--	--	--	
4	15	--	3.2		--	--	--	--	--	--	--	

NOTE – Transient voltages must be below the limits given from Figure 2 and the capacitance below the limits from figure 3 of IEC 61010-1.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.5.2.2	**TABLE: Cross-sectional area of bonding conductors**	**Form A.7**	P

Conductor location	CROSS-SECTIONAL AREA mm²	VERDICT
Protective earth conductor	1.5 mm 2	P

Supplementary information:

6.5.2.3	**TABLE: Tighting torque test**	**Form A.8**	P

Conductor location	Size of screw	Tighting torque Nm	Verdict
Earth Screw (SA-252F)	5.0 mm	2.0	P
Earth Screw (SA-300VLA)	5.0 mm	2.0	P

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.5.2.4	**TABLE: Bonding impedance of plug connected equipment** **Form A.9**			P
ACCESSIBLE part under test	Test current A	Voltage attained after 1 min V	Calculated resistance (Maximum 0,1 or 0,2 Ω) Ω (NOTE 1)	Verdict
Power cord earth conductor end – enclosure screw near door (SA-252F)	25	1.374	0.055	Passed
Power cord earth conductor end – enclosure screw near door (SA-300VLA)	25	1.016	0.041	Passed

NOTE 1 – For none-detachable power cord the impedance between protective conductor plug pin of MAINS cord and each ACCESSIBLE part shall not exeed 0,2 Ohm.

Supplementary information:

6.5.2.5	**TABLE: Bonding impedance of permanently connected equipment** **Form A.10**			N/A
ACCESSIBLE part under test		Test current A	Voltage attained after 1 min (maximum 10 V) V	Verdict

Supplementary information:

6.5.2.6	**TABLE: Transformer PROTECIVE BONDING screen** **Form A.11**			N/A
ACCESSIBLE part under test	Test current (see NOTE) A	Voltage attained after 1 min (maximum 10 V) V	Calculated resistance (maximum 0,1 Ω) Ω	Verdict

NOTE – Test current must be twice the value of the over current protection means of the winding. Test is specified in 6.5.2.6 a) or b).

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.5.4	**TABLE: protective impedance**	**Form A.12**	N/A

A single component

Component	Location	Measured		Calculated	Rated		Verdict	Comments
		Working voltage V	Current A	Power dissipation W	Working voltage V	Power dissipation W		

A combination of components

Component	Location	Comments

NOTE – A PROTECTIVE IMPEDANCE shall not be a single electronic device that employs electron conduction in a vacuum, gas or semiconductor.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

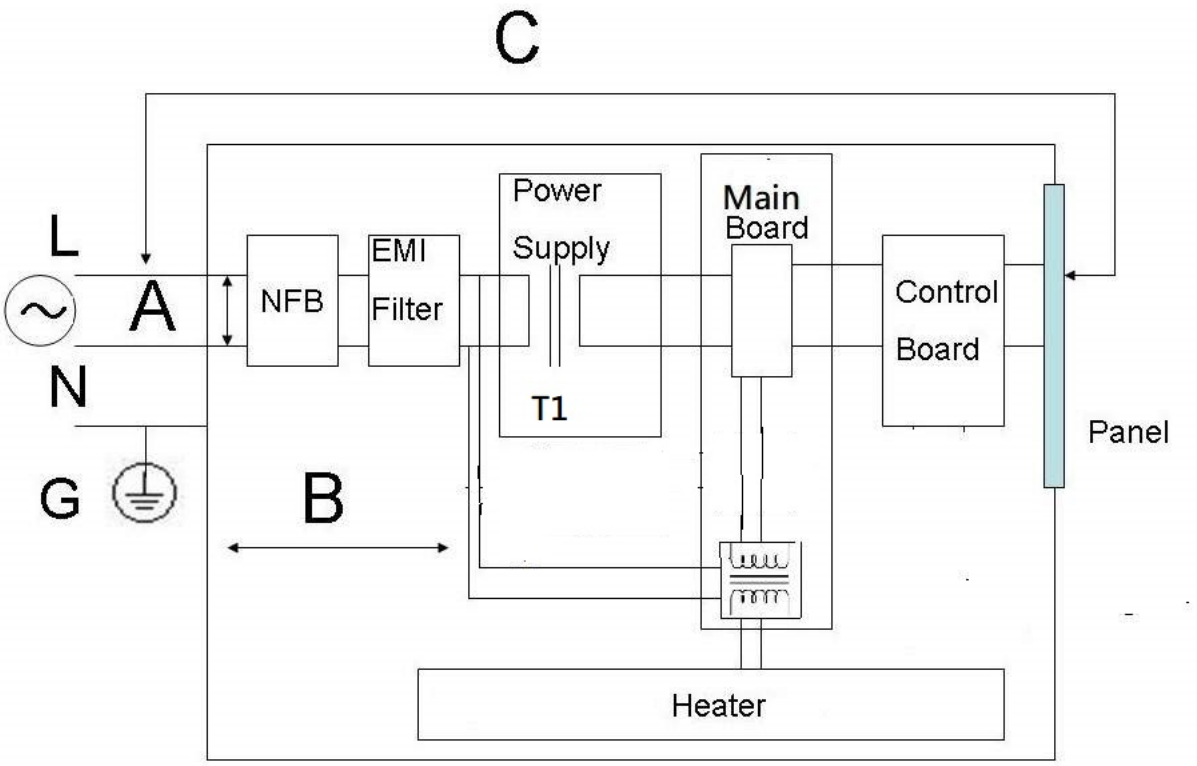
6.5.6	**TABLE: Current- or voltage-limiting device**	**Form A.13**	N/A

Component	Location	Measured		Rated		Verdict	Comments
		Working voltage V	Current A	Working voltage V	Current A		

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Block diagram of system**	**Form A.14**	P



Pollution degree ..... : 2 | Overvoltage category .....: II

Area	Location	Insulation type	WORKING VOLTAGE			Test voltage	Comments (NOTE 3)
		(NOTE 1)	RMS V	Peak V	Frequency Hz	(NOTE 2) V	
A	Line to Neutral before NFB	BI	240		60	1500Vac	P
B	Pri – Earth	BI	240		60	1500Vac	P
C	Pri – Sec. (switching power board)	RI	240		60	3000Vac	P
C	Pri – Sec. (T1 transformer)	RI	240		60	3000Vac	P

NOTE 1 – Type of insulation:
BI = BASIC INSULATION
DI = DOUBLE INSULATION
PI = PROTECTIVE IMPEDANCE
RI = Reinforced INSULATION
SI = Supplementary INSULATION
see also Form A.15 for further details

NOTE 2 - Types of voltage
Peak impulse test voltage (pulse)
r.m.s.
d.c.
peak

NOTE 3 - OVERVOLTAGE CATEGORIES or POLLUTION DEGREES which differ should be shown under "Comments"

Supplementary Information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Clearances and Creepages**		**Form A.15**	P
6.2.2	Examination	6.5.4	Protective impedance	—
6.4.2	ENCLOSURES and protective barriers	6.5.6	Current- or voltage-limiting device	—
6.4.4	Impedance	9.6.1	BASIC INSULATION between opposite polarity	—

Area	Location	Insulation type	WORKING VOLTAGE (NOTE 2)			Clearance		Creepage		CTI	Verdict	Comments
	(See Form A.14)	(NOTE 1)	RMS V	Peak V	Frequency kHz	Required mm	Measured mm	Required mm	Measured mm			
A	Between Line to Neutral before NFB	BI	240		60 Hz	1.5	--	3.0	--	IIIb	P	Certified NFB used
B	Between Primary to earthed metal	BI	240		60 Hz	1.5	3.0	3.0	3.0	IIIb	P	
B	Between traces of heater live parts to earth on main board	BI	240		60 Hz	1.5	4.0	3.0	4.0	IIIb	P	
C	Between Primary to secondary on Transformer T1	RI/DI	240		60 Hz	3.0	17.0	6.0	17.0	IIIb	P	
C	Between Primary to secondary on Transformer T1,photo coupler, coupling capacitor on switching power board	RI/DI	240		Above 30K Hz	3.0	8.0	6.0	8.0	IIIb	P	
C	Between Primary to secondary on Main Board relay	RI/DI	240		60 Hz	3.0	7.5	6.0	7.5	IIIb	P	

NOTE 1 – refer to Form A.14 for type of insulation shown in the insulation diagram NOTE 2 – to be used for definition of required insulation (see Form A.14)

Input supply voltage…….:	240 V	60 Hz

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Clearances and Creepages**		**Form A.16**	P
6.4.2	ENCLOSURES or PROTECTIVE BARRIERS	9.6.1	Overcurrent protection basic insulation between MAINS parts	—
8	Mechanical resistance to shock and impact	10.5.1	Integrity of CLEARANCES and CREEPAGE distances	—

Area	Location	Insulation type	Mechanical tests (NOTE)					Test at max.	Measured after Test (if required)		Verdict	Comments
	(See Form A.14)		Applied force	Rigidity (8.2)		Drop (8.3)		RATED ambient	CREEPAGE DISTANCE	CLEARANCE		
			N	Static (8.2.1)	Impact (8.2.2)	Normal (8.3.1)	Hand-held/ Plug-in	(10.5.1)	mm	mm		
A	Between Line to Neutral before NFB	BI		30N	5J	--	--	40 ℃	--	--	P	
B	Between Primary to earthed metal	BI		30N	5J	--	--	40 ℃	3.0	3.0	P	
B	Between traces of heater live parts to earth on main board	BI		30N	5J	--	--	40 ℃	4.0	4.0	P	
C	Between Primary to secondary on Transformer T1	RI/DI		30N	5J	--	--	40 ℃	17.0	17.0	P	
C	Between Primary to secondary on Transformer T1,photo coupler , coupling capacitor on switching power board	RI/DI		30N	5J	--	--	40 ℃	8.0	8.0	P	
C	Between Primary to secondary on Main Board relay	RI/DI		30N	5J	--	--	40 ℃	7.5	7.5	P	

NOTE – Refer to Form A.19 for dielectric strength tests following the above tests.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement – Test	Result — Remark	Verdict

6.7.2.2.2	**TABLE: Reliability of potted components**	**Form A.17 (optional)**	N/A
14.1 b)	**Components and subassemblies**		

Temperature Cycling Test	
Manufacturer..... :	
Type ..... :	
Construction..... :	
Potting compound..... :	
CREEPAGE distances measured..... :	
CLEARANCES measured..... :	
Thickness through insulation ..... :	
Adhesive test Pass/Fail ..... :	
Test temperature T °C ..... :	

Cycles at U= AC 500 V				Leakage current (500 V) mA			
Number of cycles	Date			68 h / 125 °C	1 h / 25 °C	2 h / 0 °C	1 h / 25 °C
1. Cycle from		to					
2. Cycle from		to					
3. Cycle from		to					
4. Cycle from		to					
5. Cycle from		to					
6. Cycle from		to					
7. Cycle from		to					
8. Cycle from		to					
9. Cycle from		to					
10. Cycle from		to					

After Cycling Test :		
Humidity conditioning	48 h	
Requirements for dielectric strength (s. insulation diagram)	Test voltage V r.m.s	Verdict
Basic insulation _____ V r.m.s.		
Additional insulation _____ V r.m.s.		
Reinforced insulation _____ V r.m.s.		

NOTE – to be used for evaluation of components containing insulation through solid insulation, when the component standard require thermal cycling test. Ref Clause 14.1 and Figure 15, option b)

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.8	**TABLE: Dielectric strength tests**	**Form A.18**	P
4.4.4.1 b)	Conformity after application of SINGLE FAULT CONDITIONS[1]		P
6.4	Primary means of protection[2]		P
6.6	Connections to external circuits		N/A
6.7.	Insulation requirements[2] (see Annnex K)		P
6.10.2	Fitting of non-detachable MAINS supply cords[1]		P
9.2 a) 2)	Eliminating or reducing the sources of ignition within the equipment		N/A
9.4 c)	Limited-energy circuit		N/A
9.6.1	Overcurrent protection basic insulation between MAINS – parts		P
	Test site altitude .....:	0 m (1013 hPa)	—
	Test voltage correction factor (see Table 10) .....:		—

Location or references from Forms A.1 and A.14	Clause or sub-clause	Humidity Yes/No	Working voltage V	Test voltage r.m.s./peak/ d.c.	Before humidity/ after humidity / after 6.10.2.2/ after 8.2.1/ after 8.2.2 heating / after 10.5.2 / after 11.2 / Comments	Verdict
SA-252F , SA-300VLA						
L to N before fuse	6.8/6.10.2.2 /8.2.1/8.2.2/ 10.5.2/11.2	Yes	240V	1500Vac	P/P/P/P/P/P/P	P
L/N to earthed enclosure	6.8/6.10.2.2 /8.2.1/8.2.2/ 10.5.2/11.2	Yes	240V	1500Vac	P/P/P/P/P/P/P	P
L/N to door knob	6.8/6.10.2.2 /8.2.1/8.2.2/ 10.5.2/11.2	Yes	240V	3000Vac	P/P/P/P/P/P/P	P

[1] Record the fault, test or treatment applied before the dielectric strength test. [2] Humidity preconditioning required.
NOTE: Test duration may be recorded.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.10.2	**TABLE: Cord anchorage**				**Form A.19**	P
Location	Mass kg	Pull N	Verdict	Torque Nm	Verdict	Comment
Power cord (SA-252F)	23.5	100 N	P (0.8mm)	0.35	P (0.7 mm)	
Power cord (SA-300VLA)	31.0	100 N	P (1.9 mm)	0.35	P (1.0 mm)	

Dielectric strength test for 1 min. (6.8.3.1)..... :		V r.m.s.	

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

7.	**TABLE: Protection against mechanical HAZARDS** **Form A.20**	N/A
7.3.4	Limitation of force and presure	—
7.3.5	Gap limitations between moving parts	—

	Clause 7.3.4		Clause 7.3.5.1								Clause 7.3.5.2				
	Continuous	Temporary	Minimum gaps (mm)								Maximum gaps (mm)				
Part / Location	Contact ressure max. 50 N /cm² @ max. 150 N	max. 250 N / 3 cm² @ max. 0,75 s	Torso 500	Head 300	Leg 180	Foot 120	Toes 50	Arm 120	Hand 100	Finger 25	Head 120	Foot 35	Finger 4	Verdict	Comments

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
8.2	**ENCLOSURE rigidity test**	**Form A.21A**	P
8.2.1	Static test	30N	
	Material of enclosure .....:	Metal	—
	Preparation for the test:		—
	Operated at ambient temperature .....:	40 ° C 1 h	—
Location		Comments	Verdict
1) power switch		No split. No deform.	P
2) metal enclosure		No split. No deform.	P
Supplementary information: Tests done to both SA-252F & SA-300VLA			
8.2.2	**Dynamic test**		P
	Material of enclosure .....:	Metal & plastic	—
	Corresponding IK-code .....:	(IK08) 5 J	—
	Preparation for the test:		—
	Cooled to (temperature) .....:	° C	—
Location		Comments	Verdict
1) Top		No split. No deform.	P
2) Side left / right		No split. No deform.	P
3) Front		No split. No deform.	P
Supplementary information: Tests done to both SA-252F & SA-300VLA			

EN / IEC 61010-1				
Clause	Requirement – Test		Result – Remark	Verdict
8.3	**Drop test**		**Form A.21B**	P
8.3.1	Other equipment			
Location	Raised up to		Comments	—
	mm	30 °		—
1) front	25	--	No split. No deform.	P
2) back	25	--	No split. No deform.	P
3) left	25	--	No split. No deform.	P
4) right	25	--	No split. No deform.	P
Supplementary information: Tests done to to both SA-252F & SA-300VLA				
8.3.2	Hand-held EQUIPMENT and direct plug-in equipment			N/A
	Material of enclosure .....:		Metal / non-metallic	—
	Preparation for the test:			—
	Cooled to (temperature) .....:		° C	—
Location			Comments	Verdict
1) Side				
2) Edge				
3) Corner				
Supplementary information:				

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

9	**TABLE: Protection against the spread of fire**			**Form A.22**	P
Item	Source of HAZARD or area of the equipment considered (circuit, component, liquid etc.)	Protection Method (9.1 a, b or c)	Protection details		Verdict
	All electrical components	9.1 c	1) fire enclosure provided 2) Protective device works or no fire hazard during the test		P
Supplementary information:					

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

9.3.2	**TABLE: Constructional requirements**	**Form A.23**	N/A
14.7	Printed circuit boards		

Material tested ..... :		—
Generic name ..... :		—
Material manufacturer..... :		—
Type ..... :		—
Colour ..... :		—
Conditioning details ..... :		—

		Sample					
		1	2	3	4	5	6
Thickness of specimen	mm						
Duration of flaming after first Application	s						
Duration of flaming plus glowing After second application	s						
Specimen burns to holding clamp	Yes/No						
Cotton ignited	Yes/No						
Sample result	Pass/Fail						

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

9.4	**TABLE: Limited-energy circuit**				**Form A.24**	N/A
Item	9.4 a)	9.4 b) Current limitation (NOTE)		9.4 c)	Decision	
or Location (see Form A.22)	Maximum potential in circuit voltage r.m.s./d.c. V	Maximum available current A	Overload protection after 120 s A	Circuit separation	Yes/No	Comments

NOTE – Maximum values see Tables 17 and 18.of 61010-1

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

9.5	**TABLE: Requirements for equipment containing or using flammable liquids**		**Form A.25**	N/A
Type of liquid	9.5 Flammable liquids			Verdict
	b) Quantity	c) Containment		

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.	**TABLE : Temperature Measurements – Model SA-252F Form A.26A**	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.2	Temperature of windings- NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.3	Other temperature measurements	

Operating conditions:	Normal operation		
Frequency.....:	60 Hz	Test room ambient temperature (ta)...:	24.4℃
Voltage .....:	264V	Test duration .....:	3 hr 36 min

Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments
Circuit breaker body	44.7	60.3	105	P	
T1 primary coil (power board)	45.0	60.6	105	P	
T1 secondary coil (power board)	45.4	61.0	105	P	
C2 body (power board)	42.4	58.0	105	P	
Relay (OMRON, near top)	48.8	64.4	105	P	
Relay (Song Chuan, near top)	62.5	78.1	105	P	
Timer T3	39.3	54.9	105	P	
Timer T1	55.2	70.8	105	P	
Terminal block	48.3	63.9	105	P	
Internal wire near power switch	43.1	58.7	105	P	
Internal wire near chamber	51.1	66.7	105	P	
Pressure control relay	46.0	61.6	105	P	
Solenoid valve body	84.4	100.0	105	P	
TC1 body	47.8	63.4	105	P	
TC2 body	54.3	69.9	105	P	
Metal enclosure (top)	56.0	71.6	80	--	
Power switch	46.1	61.7	70	P	
Start switch	33.4	49.0	70	P	
Door knob	37.4	53.0	70	P	
ambient	24.4	40.0	--	--	

NOTE 1 - t_m = measured temperature
t_c = t_m corrected (t_m–t_a+ **40 °C** or max. RATED ambient)
t_{max} = maximum permitted temperature
NOTE 2 – see also 14.1 with reference to component operating conditions
NOTE 3 – Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary
NOTE 4 – see Form A.21B for details of winding temperature measurements

Supplementary information:
Equipment running at 134℃ and at dry mode

10.	**TABLE : Temperature Measurements – Model SA-302E Form A.26A**	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.2	Temperature of windings- NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.3	Other temperature measurements	

Operating conditions:	Normal operation		
Frequency.....:	60 Hz	Test room ambient temperature (ta)...:	27.2℃
Voltage .....:	264V	Test duration .....:	7 hr 13 min

Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments
T1 primary coil	60.0	72.8	105	P	
T1 secondary coil	49.9	62.7	105	P	
T1 core	56.9	69.7	105	P	
EMI filter (Main board)	48.4	61.2	105	P	
Relay (OMRON)	60.7	73.5	105	P	
Relay (Song Chuan)	60.1	72.9	105	P	
SSR body	64.1	76.9	105	P	
Water level control	59.8	72.6	105	P	
Timer (near water level control)	52.4	65.2	105	P	
TC1 body	46.9	59.7	105	P	
Solenoid valve body	70.2	83.0	105	P	
Fan enclosure	54.9	67.7	105	P	
Power switch	47.0	59.8	70	P	
TC Temperature Control Unit	46.6	59.4	105	P	
Door handle	52.4	65.2	70	P	
Pressure control unit	55.5	68.3	105	P	
Digit timer panel	38.4	51.2	70	P	
Metal enclosure (top)	45.1	57.9	--	--	Heating is intended purpose
ambient	27.2	40.0	--	--	

NOTE 1 - t_m = measured temperature
t_c = t_m corrected (t_m–t_a+ **40 °C** or max. RATED ambient)
t_{max} = maximum permitted temperature
NOTE 2 – see also 14.1 with reference to component operating conditions
NOTE 3 – Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary
NOTE 4 – see Form A.21B for details of winding temperature measurements

Supplementary information:

Equipment running at 134℃ and at dry mode

10.	**TABLE : Temperature Measurements – Form A.26A**	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.2	Temperature of windings- NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.3	Other temperature measurements	

Operating conditions:	Abnormal operation . See below .		
Frequency.....:	60 Hz	Test room ambient temperature (ta)...:	See below
Voltage .....:	240 V	Test duration .....:	See below

Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments
Openings blocked (SA-252F) 3 hr 24 min					
T1 primary coil	53.8	69.1	150	P	
T1 secondary coil	54.1	69.4	150	P	
Metal enclosure (top)	67.0	82.3	105	--	Heating is intended purpose
Power switch	47.0	62.3	105	P	
Start switch	38.0	53.3	105	P	
Door knob	36.7	52.0	105	P	
ambient	24.7	40.0	--	--	
Heating device TC1 open (SA-252F) 3 hr 28 min					
T1 primary coil	43.2	59.1	150	P	
T1 secondary coil	43.7	59.6	150	P	
Metal enclosure (top)	54.1	70.0	105	--	Heating is intended purpose
Power switch	43.4	59.3	105	P	
Start switch	32.8	48.7	105	P	
Door knob	37.4	53.3	105	P	
ambient	24.1	40.0	--	--	
Heating device TC2 open (SA-252F) 3 hr 28 min					
T1 primary coil	42.0	58.7	150	P	
T1 secondary coil	42.5	59.2	150	P	
Metal enclosure (top)	54.3	71.0	105	--	Heating is intended purpose
Power switch	41.9	58.6	105	P	
Start switch	31.5	48.2	105	P	
Door knob	37.5	54.2	105	P	
ambient	23.3	40.0			
Pressure control CN3 open (SA-252F) 1 hr 29 min					
T1 primary coil	40.0	56.4	150	P	
T1 secondary coil	40.2	56.6	150	P	

10.	**TABLE : Temperature Measurements – Form A.26A**	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.2	Temperature of windings- NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.3	Other temperature measurements	

Operating conditions:	Abnormal operation . See below .		
Frequency.....:	60 Hz	Test room ambient temperature (ta)...:	See below
Voltage .....:	240 V	Test duration .....:	See below

Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments
Metal enclosure (top)	57.5	73.9	105	--	Heating is intended purpose
Power switch	40.4	56.8	105	P	
Start switch	29.9	46.3	105	P	
Door knob	27.8	44.2	105	P	
ambient	23.6	40.0	--	--	
Openings blocked (SA-300VLA) 1 hr 50 min					
TF1 primary coil	64.7	78.3	150	P	
TF1 secondary coil	61.3	74.9	150	P	
Power switch	51.7	65.3	105	P	
TC temperature control	52.3	65.9	105	P	
Door handle	48.3	61.9	105	P	
Digit timer panel	41.7	55.3	105	P	
Metal enclosure (top)	41.3	54.9	105	--	Heating is intended purpose
ambient	26.4	40.0	--	--	
DC fan locked (SA-300VLA) 1 hr 59 min					
TF1 primary coil	62.1	75.5	150	P	
TF1 secondary coil	54.2	67.2	150	P	
Power switch	47.9	61.3	150	P	
TC temperature control	50.6	64.0	150	P	
Door handle	47.2	60.6	105	P	
Digit timer panel	40.4	53.8	105	P	
Metal enclosure (top)	40.5	53.9	105	--	Heating is intended purpose
ambient	26.6	40.0	--	--	
Heating Device TC1 open (SA-300VLA) (1 hr 52 min)					
TF1 primary coil	56.8	69.9	150	P	
TF1 secondary coil	47.1	60.2	150	P	
Power switch	44.7	57.8	150	P	
TC temperature control	46.1	59.2	150	P	
Door handle	47.0	60.1	105	P	
Digit timer panel	37.2	50.3	105	P	

10.	**TABLE : Temperature Measurements – Form A.26A**	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.2	Temperature of windings- NORMAL CONDITION and / or SINGLE FAULT CONDITION	
10.3	Other temperature measurements	

Operating conditions:	Abnormal operation . See below .		
Frequency.....:	60 Hz	Test room ambient temperature (ta)...:	See below
Voltage .....:	240 V	Test duration .....:	See below

Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments
Metal enclosure (top)	40.9	54.0	105	--	Heating is intended purpose
ambient	26.9	40.0	--	--	
Heating Device SSR Pin 1 -2 short-circuited (SA-300VLA) (1 hr 34 min)					
TF1 primary coil	50.4	64.8	150	P	
TF1 secondary coil	42.2	56.6	150	P	
Power switch	41.4	55.8	150	P	
TC temperature control	41.4	55.8	150	P	
Door handle	41.4	55.8	105	P	
Digit timer panel	31.6	46.0	105	P	
Metal enclosure (top)	37.0	51.4	105	--	Heating is intended purpose
ambient	25.6	40.0	--	--	
Pressure control PC open (SA-300VLA) (2 hr 3 min)					
TF1 primary coil	55.0	69.9	150	P	
TF1 secondary coil	45.5	60.4	150	P	
Power switch	43.4	58.3	150	P	
TC temperature control	45.0	59.9	150	P	
Door handle	45.6	60.5	105	P	
Digit timer panel	35.8	50.7	105	P	
Metal enclosure (top)	39.5	54.4	105	--	Heating is intended purpose
ambient	25.1	40.0	--	--	

NOTE 1 - t_m = measured temperature
t_c = t_m corrected (t_m–t_a+ **40 °C** or max. RATED ambient)
t_{max} = maximum permitted temperature
NOTE 2 – see also 14.1 with reference to component operating conditions
NOTE 3 – Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary
NOTE 4 – see Form A.21B for details of winding temperature measurements

Supplementary information:

Equipment running at 134℃ and at dry mode

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.2	**TABLE: Temperature of windings** **Form A.26B** **Resistance method Temperature Measurements**	N/A
4.4.2.7	MAINS transformers	
14.2.1	Motor temperatures	

Operating conditions..:			
Frequency.....:	Hz	Test room ambient temperature (ta1/ta2).:	/ °C (initial / final)
Voltage.....:	V	Test duration.....:	h min

Part / Designation	Rcold Ω	Rwarm Ω	Current A	tr K	tc °C	tmax °C	Verdict	Comments

NOTE 1- R_{cold} = initial resistance
R_{warm} = final resistance
t_r = temperature rise
t_c = t_r corrected (t_c= t_r - { t_{a2} – t_{a1}} + [40 °C or max RATED ambient])
t_{max} = maximum permitted temperature
NOTE 2 – Indicate insulation class (IEC 60085) under comments (optional)
NOTE 3 – Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.5.2	**TABLE: Resistance to heat of non-metallic ENCLOSURES**				**Form A.27**	N/A
	Test method used:					—
	Non operative treatment.....:	[ ]				
	Empty ENCLOSURE .....:	[ ]				
	Operative treatment.....:	[ ]				
	Temperature during tests .....:	℃				—

Description	Material	Comments	Verdict

	Dielectric strength test (6.8)		V	r.m.s./peak/d.c.	

NOTE – Within 10 minutes of the end of treatment sutiable tests in acc. To 8.2 and 8.3 must be conducted and pass criteria of 8.1.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.5.3	**TABLE: Insulating Materials**	**Form A.28**	P
10.5.3 1)	Ballpressure test		
	Max. allowed impression diameter.....:	2 mm	—

Part	Test temperature °C	Impression Diameter (mm)	Verdict
Transformer bobbin	125	1.33	P
Terminal block (OMRON relay)	125	1.51	P

Supplementary information:

See Table 1 for material description

10.5.3 2)	Vicat softening test (ISO 306)	Form A.29	N/A

Part	Vicat softening temperature °C	Thickness of sample (mm)	Verdict

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

8	**TABLE: Mechanical resistance to shock and impact** **Form A.30**	P
11	**Protection against HAZARDS from fluids**	

Voltage tests can be carried out once after performing the tests of clause **8** and clause **11**. However, if voltage tests are carried out separately after each set of tests, two forms can be used.

	Clause 8 tests				Clause 11 tests							
Location (see form A.14)	Static (8.2.1) 30 N	Impact (8.2.2)	Normal (8.3.1)	Handheld Plug-in	Cleaning (11.2)	Spillage (11.3)	Overflow (11.4)	IEC 60529 (11.6)	Working voltage V	Test voltage V	Verdict	Comments
Enclosure (metal, earthed)	30N	5J	N/A	N/A	P	P	P	N/A	240V	1500Vac	passed	
Enclosure (plastic panel)	30N	5J	N/A	N/A	P	P	P	N/A	240V	3000Vac	passed	

NOTE – Use r.m.s., d.c. or peak to indicate the used test voltage.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

11.7.2	**TABLE: Leakage and rupture at high pressure**	**Form A.31**	P

Part	Maximum permissible working pressure Mpa	Test pressure Mpa	Leakage Yes / No	Deformation Yes / No	Burst Yes / No	Comments
Container 24L SA-252F	2.2 kg / cm ^{2}	4.4 kg /cm ^{2}	NO	NO	NO	Passed No leakage or rupture
Container 40L SA-300H	2.2 kg / cm ^{2}	4.4 kg /cm ^{2}	NO	NO	NO	Passed No leakage or rupture
Container 50L SA-302H, SA-300VL, SA-300VLA	2.2 kg / cm ^{2}	4.4 kg /cm ^{2}	NO	NO	NO	Passed No leakage or rupture

NOTE – see also Annex G with requirements for USA and Canada.

Supplementary information:

Over pressure protection 2.2 kgf / cm ^{2}

11.7.3	**Leakage from low-pressure parts**	**Form A.32**	N/A

Part	Test pressure Mpa	Leakage Yes / No	Comments

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

12.2.1	**TABLE: Ionizing radiation**	**Form A 33**	N/A
12.2.1.2	Equipment intended to emit radiation		

Locations tested	Measured values µSv/h	Verdict	Comments

Supplementary information:

12.2.1.3	Equipment not intended to emit radiation	**Form A 34**	N/A
	Max. allowed effective dose rate at 100 mm……:	1 µSv/h	—

Locations tested	Measured values µSv/h	Verdict	Comments

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

12.5.1	**TABLE: Sound level**	**Form A.35**	N/A

Locations tested	Measured maximum sound pressure level dBA	Calculated maximum sound power level
At operator's normal position and at bystanders' positions		
a)		
b)		
c)		
d)		
e)		
f)		

Supplementary information:

12.5.2	**Ultrasonic pressure**	**Form A.36**	**N/A**

Locations tested	Measured values		Comments
	dB	kHz	
At operator's normal position			
At 1 m from the ENCLOSURE			
a)			
b)			
c)			
d)			
e)			

NOTE – No limit is specified at present, but a limit of 110 dB above the reference pressure value of 20 μPa is under consideration for applicable frequencies between 20 kHz and 100 kHz.

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

13.2.2	**TABLE: Batteries**	**Form A.37**	N/A
	Battery load and charging circuit diagram:		
	Battery type .....:		—
	Battery manufacturer/model/catalogue No. .....:		—
	Battery ratings .....:		—
	Reverse polarity instalment test		

Single component failures	Verdict	
Component	Open circuit	Short circuit

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

14.3	**TABLE: Overtemperature protection devices**	**Form A.38**	N/A

Reliability test

Component	Type (NOTE)	Verdict	Comments

NOTE:
NSR = non-self-resetting (10 times)
NR = non-resetting (1 time)
SR = self-resetting (200 times)

Supplementary information:

All over-temperature protection devices are IEC certified separately.

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

4.4.2.7	**TABLE: MAINS transformer** **Form A.39**	P
4.4.2.7.2	Short circuit	P
14.6	MAINS transformers tested outside equipment	N/A
Type .....:	004-05001 (SA-300VLA)	—
Manufacturer.....:	Dinghsins Co., Ltd.	—
Test in equipment		P
Test on bench		N/A
Test repeated inside equipment (see 14.6)		N/A
Optional – Insulation class (IEC 60085) of the lowest rated winding .....:		—

Winding identification		18V			
Type of Protector for winding (NOTE 1)		1 A			
Elapsed time		0 hr 40 min			
Current, A primary		--			
secondary					
Winding temperature, °C primary		123.0			
(see NOTE 2) secondary		147.9			
Tissue paper / cheesecloth OK ? (Pass / Fail)		passed			
Voltage tests (see NOTE 3)					
Primary to secondary	_____ V ____	2224 Vac			
Primary to core	_____ V ____	1390 Vac			
Secondary to secondary	_____ V ____				
Secondary to core	_____ V ____				
Verdict		P			

NOTE 1: Primary fuse - PF / ( ) A
Secondary fuse - SF / ( ) A
Overtemperature protection - OP / (250V 1A 115 ℃)
Impedance protection - Z
NOTE 2: Indicate method of measurement TC = with thermocouple
R = resistance method
If resistance method is used, record resistance in cold and warm condition in FormA.27B!
NOTE 3: Record the voltage applied and the type of voltage (r.m.s. / d.c. / peak) and for results use NB = no breakdown or B = breakdown

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

4.4.2.7	**TABLE: MAINS transformer**				**Form A.40**	P
4.4.2.7.3	Overload tests (for MAINS transformers)					P
14.6	MAINS transformers tested outside equipment					N/A
Type ..... :	004-05005 (SA-300VLA)					—
Manufacturer..... :	Dinghsins Co., Ltd.					—
Test in equipment						P
Test on bench						N/A
Test repeated inside equipment (see 14.6)						N/A
Optional – Insulation class (IEC 60085) of the lowest rated winding ..... :						—
Winding identification		9V				
Type of Protector for winding (NOTE 1)		1 A				
Elapsed time		5 hr 16 min				
Current, A primary						
secondary		3.0 A				
Winding temperature, °C primary		135.6				
(see NOTE 2) secondary		139.4				
Tissue paper / cheesecloth OK ? (Pass / Fail)		passed				
Voltage tests (see NOTE 3)						
Primary to secondary	_____ V ____	2224 Vac				
Primary to core	_____ V ____	1390 Vac				
Secondary to secondary	_____ V ____					
Secondary to core	_____ V ____					
Verdict		P	P			

NOTE 1: Primary fuse - PF / ( ) A
Secondary fuse - SF / ( ) A
Overtemperature protection - OP / (250V 1A °C 115 ℃)
Impedance protection - Z

NOTE 2: Indicate method of measurement TC = with thermocouple
R = resistance method
If resistance method is used, record resistance in cold and warm condition in FormA.27B!

NOTE 3: Record the voltage applied and the type of voltage (r.m.s. / d.c. / peak) and for results use NB = no breakdown or B = breakdown

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

14.8	**TABLE: Transient overvoltage limiting devices**	**Form A.41**	N/A

Component / Designation	Overvoltage Category	MAINS voltage V rms	Test voltage V	t_m °C	t_c °C	t_{max} °C	Rupture Yes / No	Circuit breaker tripped	Verdict	Comments

Test room ambient temperature ….: °C

NOTE - t_m = measured temperature

t_c = t_m corrected (t_m–t_a+ **40 °C** or max. RATED ambient)

t_{max} = maximum permitted temperature

Conformity is checked by applying 5 positive and 5 negative impulses with the applicable impulse withstand voltage, spaced up to 1 min apart, from a hybrid impulse generator (see IEC 61180-1).

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement – Test	Result — Remark	Verdict

Annex H	**TABLE: Qualification of conformal coating for protection against pollution**	**Form A.42**	N/A

Technical properties		
Manufacturer		—
Type		—
Meet requirements of ANSI / UL 746E	[yes / no]	
Manufacturer declaration of coating material	[yes / no]	
Operating temperature of coating	[ ] °C	
Comparative tracking index (CTI)	[ ]	
Insulation resistance	[ ] Ω	
Dielectric strength	[ ] V	
UV resistance (if required)	[yes / no]	
Flammability rating		
Preparation of the test specimens conducted	[yes / no]	

Item	Test conditioning	Parameter	Td	Samples						Verdict	Comments
			h	1	2	3	4	5	6		
1	Scratch resistance										
	Visual inspection										
2	Cold		24								
3	Dry heat		48								
4	Rapid temp. change										
5	Damp heat		24								
6	Adhesion of coating	5 N									
	Visual inspection										
7	Humidity		48								
8	Insulation resistance	>= 100 Ω									
	Visual inspection										

NOTE Td = Test duration time

Supplementary information:

EN / IEC 61010-1			
Clause	Requirement – Test	Result — Remark	Verdict

	TABLE: Additional or special tests conducted	**Form A.43**	N/A
Clause and name of test	Test type and condition	Observed results	—
Supplementary information:			

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

	TABLE: 1 – List of components and circuits relied on for safety		P

Unique component reference or location	Application/function	Manufacturer / trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)
Enclosure		Various	Various	Metal, thickness 1.0 mm min.	--	Enclosure
Chamber		Various	SUS 304	t.：1.5mm		Chamber
Door		Chi Mei Corporation	PA-765A	94HB, 50 ℃, thickness 1.6 mm min.	UL	Door
Power Cord Anchorage		Kai Suh Suh Enterprise Co., Ltd.	SR-7R1 or SR-6R1	--	UL, CSA	Power Cord Anchorage
Power Cord	--	--	--	--	--	Power Cord
- plug		various	Euro or NEMA plug	10A, 250V	VDE, OVE, D, N, S, FI	- plug
- cord		various	H05VV-F or SJT	3G/2.0 mm^2 or 1.5 mm^2	VDE, OVE, D, N, S, FI	- cord
Circuit Breaker		Kuoyuh	98 series	15A, 250V, manual reset	TUV, UL,VDE	Circuit Breaker
- alternate		TOPSTONE	L1 series	3-50A/250VAC	UL,TUV	- alternate
Power Switch		Transmit	TR26-2 series	16A, 250V	VDE, D, N, S, FI	Power Switch
- alternate		MOLVENO OEM S.L.R	A8-series	1 A, 250V	VDE	- alternate
- alternate		DECA SWITCHAB	P16LAR1-1ab	5A/250VAC	UL, VDE	- alternate
- alternate		Light Country CO., LTD	R19A-series	6 A, 250V	UL, VDE	- alternate

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

	TABLE: 1 – List of components and circuits relied on for safety		P

Unique component reference or location	Application/function	Manufacturer / trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)
- alternate		Canal electronic CO., LTD	MR-series	10A/250VAC	UL,VDE	- alternate
EMI Filter		Powertek Group Co.,Ltd.	CP5-3044B	30A/250V with X capacitors 0.22 uF and 0.47 uF, Y capacitor 680PFx2	UL, CSA	EMI Filter
- alternate		Powertek Group Co.,Ltd.	CP2-1522D	15A 250V with X capacitors 0.22 uF and 0.47 uF, Y capacitor 680PFx2		- alternate
DC Fan		Dynaeon	DF2408BA	24V dc, 0.17A	TUV,UL	DC Fan
- alternate		Dynaeon	DF2412SM	24V dc, 0.32A	TUV,UL	- alternate
- alternate		Delta electronics	AFB1224SH	24V dc, 0.42A	UL ,VDE	- alternate
Solid State Relay (R1)		Cosmosonic	SS2440DE	40A, 240V	CE	Solid State Relay (R1)
Thermostat (TC1)		E.G.O Elektro-Geratebau GMBH	55.10 55.13	240V ac min. 16A, 250V	VDE, OVE, S, N, D	Thermostat (TC1)
- alternate		Rainbow	TS-320S	16A, 250V	VDE, UL, CSA	- alternate
- alternate		Ston Electronics Co., Ltd.	STC-400R	AC 250 V	CE	- alternate
- alternate		Wako electronics	CH-15	10A 250V	VDE	- alternate

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

	TABLE: 1 – List of components and circuits relied on for safety		P

Unique component reference or location	Application/function	Manufacturer / trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)
- alternate		Wako electronics	CS-7SA	6A / 250VAC	VDE	- alternate
- alternate		Alternate: YOKOGAWA Electric	UT-150	1A/240V AC	UL, CSA, CE	- alternate
- alternate		Alternate: RKC instrument	CB100	1A/240V AC	UL, CSA, CE	- alternate
Varistors (pcb) (ZNR1,2)		Marcon Electronics Co., Ltd.	TNR12G471K or TNR14V471K TNR15G471K	300V ac	UL, VDE	Varistors (pcb) (ZNR1,2)
Pressure Safety Switch		Hsing Lu company	TCX1X2X3 series	20A, cos phi 1.0	TUV: R 50004593	Pressure Safety Switch
Solenoid Valve		Chyannq Shyr Industry Co.,Ltd.	WP-A2-D	24/110/220/230/240 V 50/60 Hz	NEMKO	Solenoid Valve
- alternate		Fluid Power Co., Ltd.	SA-8B	DC 24V	FI	- alternate
- alternate		KSD Kaosun	JA series	AC 220V, DC 24V		- alternate
PCB		Various	Various	V-1, 105℃ min.	UL	PCB
Relay (PCB)		Song Chuan	832A-1A series	30A, 250V ac	VDE, UL	Relay (PCB)
alternate		Omron	MK-2P	5A,250VAC	TUV,UL	alternate
Power transformer (T1)- SA-300VLA		Dinghsins Co., Ltd.	004-05001	I/P: 230V, 50/60Hz O/P: 18V ac 2A Class E	Tested in equipment	Power transformer (T1)

EN / IEC 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

	TABLE: 1 – List of components and circuits relied on for safety		P

Unique component reference or location	Application/function	Manufacturer / trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)
- Bobbin		EI Dupont	101F	94V-2, 85℃	UL	- Bobbin
- Thermal fuse		PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA	Model(s) F-115	250V/1A, 115℃	TUV, UL	- Thermal fuse
Interlock switch		Panasonic electric works co. LTD	AM51612C53N	16A, 250V ac	VDE, UL	Interlock switch
Timer		Ston electronics CO., LTD.	SH3- series	5A, 250VAC	**CE**	Timer
		ANLY electronics CO., LTD.	AH3- series	5A, 250VAC	**CE**	
Switching power board – SA-252F						

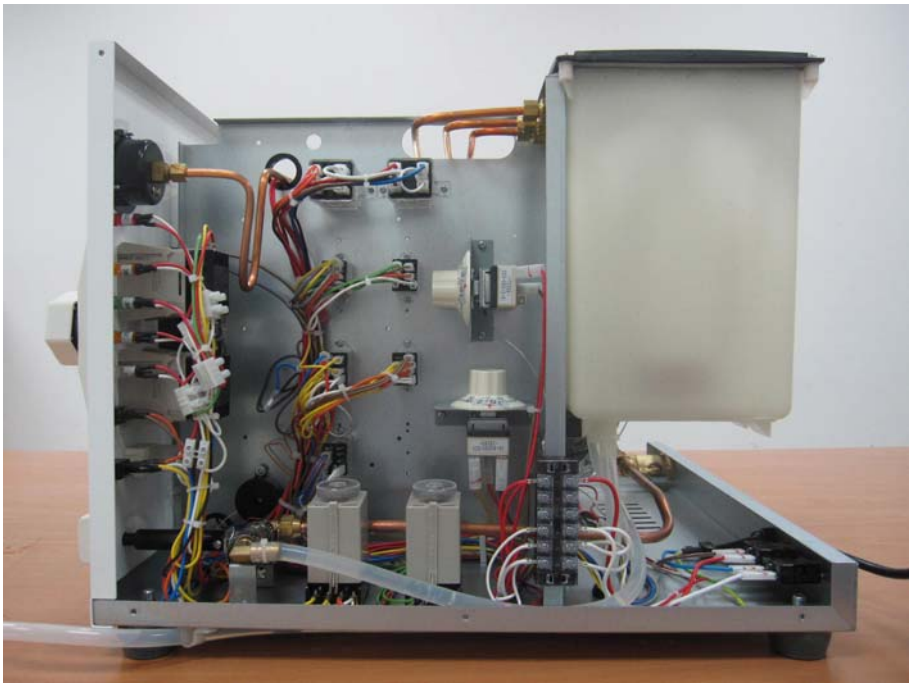
NOTE → 1 List all different manufacturers of the above components → 4 asterisk indicates mark assuring agreed level of surveillance
→ 2 May include electrical, mechanical values
→ 3 List licence no or method of acceptance

Attachment Photos

SA-252F Overall View (Front and Side)

SA-252F Overall View (Back and Side)

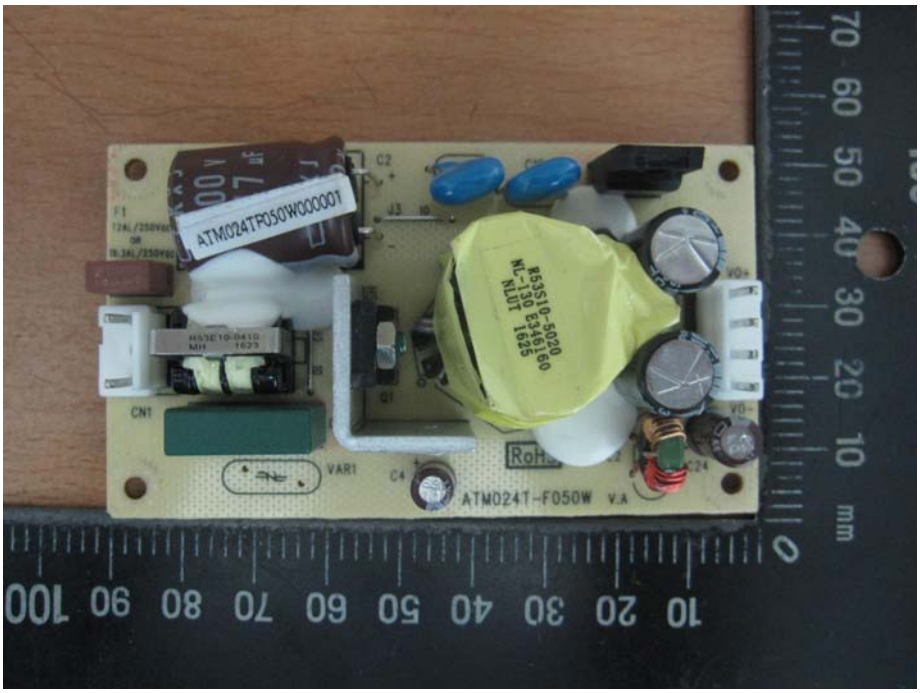
SA-252F (Behind the door)



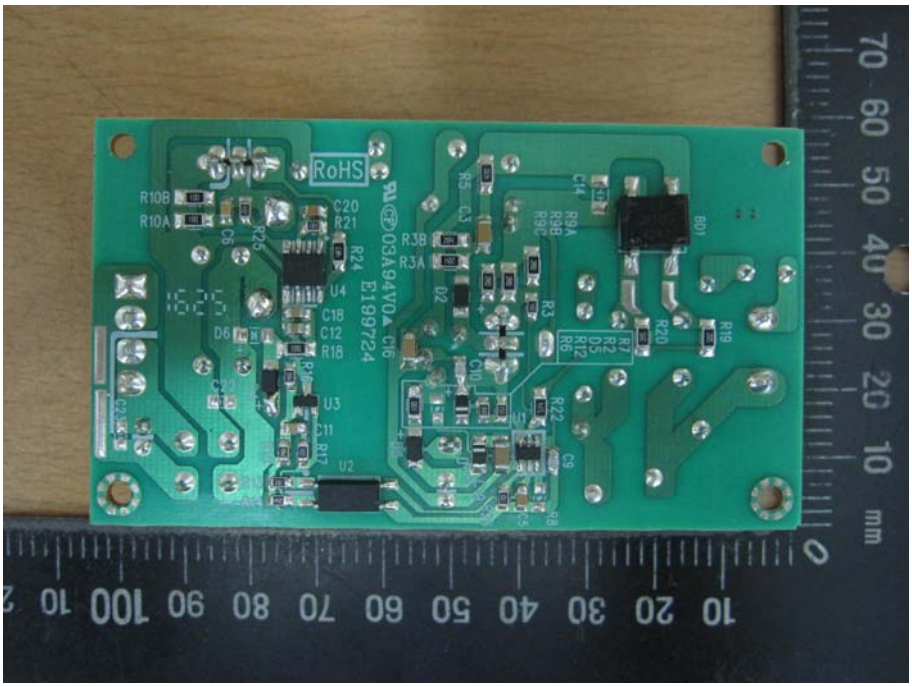
SA-252F (Internal – right)

SA-252F (Internal – left)

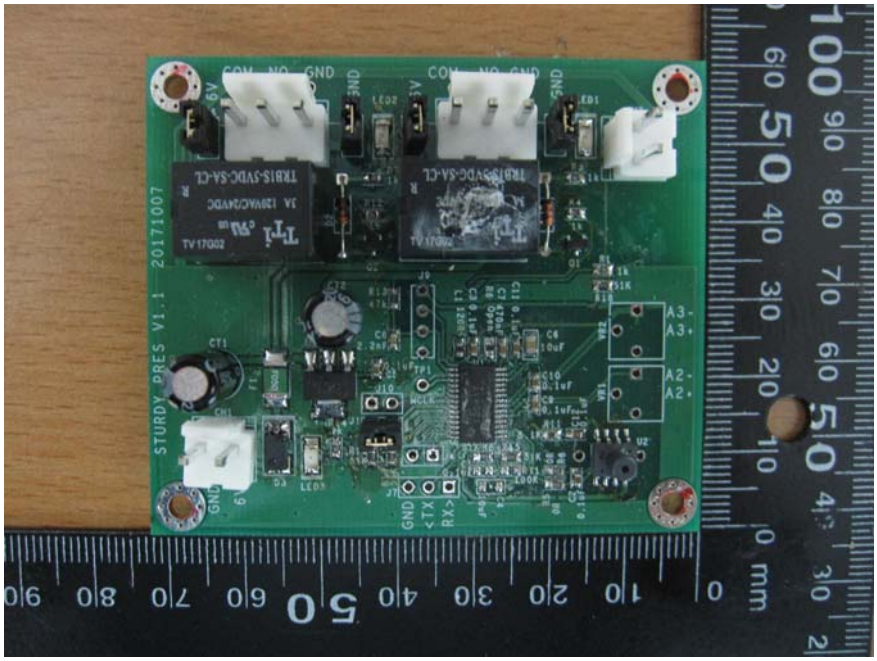
SA-252F (Internal – back)



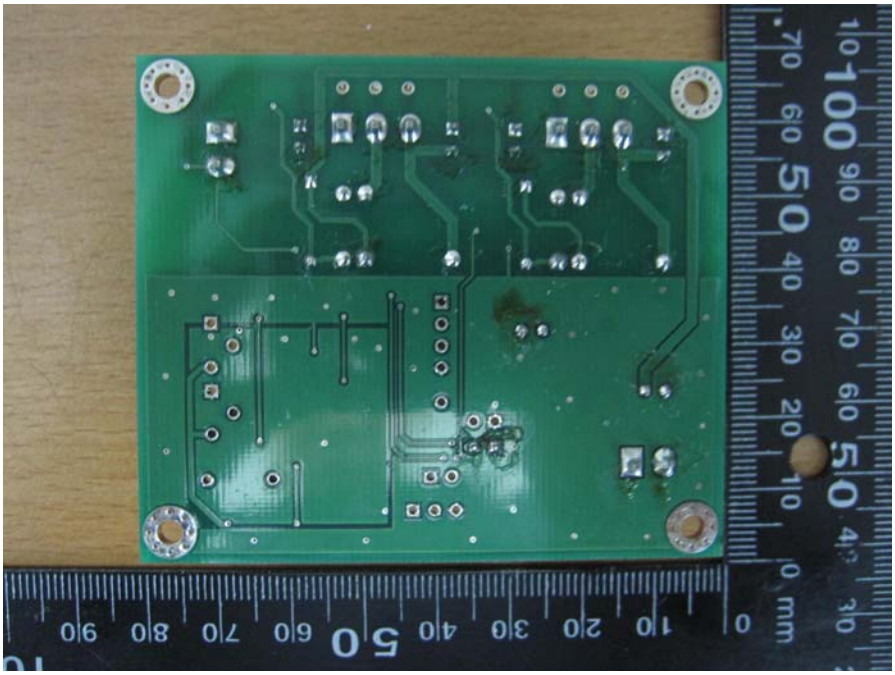
Power Board (1)



Power board (2)



Pressure Control board (1)



Pressure Control Board (2)

Overall View , Front and Side (Model SA-300VLA)

Overall View , Back and Side (Model SA-300VLA)

Control Panel & behind the door (Model SA-300VLA)

Internal , right (Model SA-300VLA)

Internal , left (Model SA-300VLA)

Internal , back (Model SA-300VLA)