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TESTING
CNAS L0095

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No: RZCE2016-0597LVD

TEST REPORT

NAME OF SAMPLE: _____ Polysher

CLIENT: _____ JF Polymers (Suzhou) Co. Ltd.

CLASSIFICATION OF TEST: _____ Commission Test

Guangzhou Vkan Certification & Testing Co., Ltd.




Test Report

No.: RZCE2016-0597LVD(XG1)

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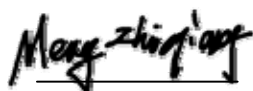
Name of product: Polysher	Trade mark: Polymaker
Type/model: P001	Sample status: -
Manufacturer: Polymaker LLC USA	Commissioned by: JF Polymers (Suzhou) Co. Ltd.
Manufacturer address: 5 Shadow Ln., Great Neck, NY 11021, U.S.A.	Commissioner address: Haicheng Industrial Park, Bldg 7, Changshu Economic and Technological Zone, Changshu, Jiangsu, China
Quantity of sample: 1 pcs	Sampled by: -
Sample identification: 1-1	Sampling at (place): -
Means of receiving: Submitted by Manufacturer	Means of sampling: -
Classification of test: Commission Test	Sampling date: -
Receiving date: 2016-09-27	Completing date: 2017-02-10
Tested according to: EN 61010-1:2010 Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements	Test item: Full items
Test conclusion: The Polysher submitted by JF Polymers (Suzhou) Co. Ltd. are tested according to: EN 61010-1 :2010. All the items tested comply with the requirements of standard. Test result: pass.	

Seal of CVC
Date of issue: 2017.1.9


Approved by: Meng Zhiqiang

Reviewed by: Zhang Chuihu

Tested by: Chen Yunhua







Description and illustration of the sample:**Description of unit:**

The instrument is Polysher, using aerosol (mist) of 70-91% Isopropyl Alcohol (IPA) suspended in air for to desired time to smooth the surface of 3D-printed objects made from Polylactic Acid (PLA).

The product consists of a sealed chamber inside which the alcohol suspension is created using a vibrating nebulizer of the type commonly used in small humidifiers. Inside the sealed chamber during operation is the part to be smoothed, resting on a turntable which rotates, and a brushless DC fan to circulate the mist. All other electronics, motors, and controls are located outside the sealed chamber. A clear window surrounds the polishing chamber so that the user can observe the process. A motorized mechanism raises and lowers the platform for loading and unloading. The chamber is sealed in both its fully open and fully down positions. The turntable motor (brushless) and lift motor are located outside the chamber. When the lift is up, the clear window can be removed for maintenance. A functional interlock switch and microcontroller program prevents the system from operating if the cover is not in place or if the lift mechanism is not fully closed.

The instrument operates off of DC 5V external source. Power is supplied by a certified plug-in AC/DC power supply with an output rated for 2A (10W). The power input jack is housed in a screw-secured compartment to prevent accidental disconnection during operation.

This product is a Class III instrument, which is not directly connected to Mains supply. This instrument is powered by external AC/DC power supply which is supplying a single 5Vd.c. output. The power supply is separately certified to IEC/EN 60950-1 (2nd Edition) with limited power source output (LPS), which also conforms with the requirements limited energy source as described in clause 9.4.

The instrument is made of a plastic enclosure with bottom ventilation openings.

The nebulizer cartridge is where liquid isopropyl alcohol from the reservoir is turned into mist that polishes your printed part. Inside the cartridge is a micro-machined metal disc that vibrates hundreds of thousands of times per second. A sponge wick conducts the liquid solvent to the disc. The cartridge will over time become clogged with material and need to be replaced by simply pulling out the old cartridge and inserting a new one.

The platform turntable has a 5Vd.c. stepper motor, constructed with full metal housing, and supplied by limited energy.

The lift mechanism has a 5Vd.c. brushless motor, constructed with full metal housing, and supplied by limited energy.

Description of controls and indicators:

The front panel of the instrument provides power button and all the controls to operate the instrument.

Control knob - primary function is to start and stop the smoothing cycle, and to set the cycle timer.

When the knob is rotated clockwise, confirmation tones are generated and the smoothing cycle starts.

The duration of the smoothing cycle is indicated by the segmented Time Display – each illuminated segment represents five minutes of time. The timer can be adjusted at any time during polishing to extend or reduce the cycle. Rotating the knob counterclockwise past “zero time” will stop the smoothing cycle.

After smoothing stops, whether by manual control, automatically when the timer expires, or on detection of an error condition, the internal chamber fan will run at high speed for approximately thirty seconds in a “clearing cycle” to disperse the solvent mist. For safety reasons, the Polysher cannot be opened during this time.

When Idle, the fan can also be turned on or off manually by pressing the knob. This can be useful in helping to speed the drying of polished prints.

The control knob also has a “button” feature. During smoothing, pressing the control knob allows you to select the color of the mist illumination. Fifteen unchanging colors are available, and the sixteenth (maximum clockwise) color setting gives an automatically changing color cycle. By default the color cycle is selected when power is first connected to the Polysher, but your selection will be remembered after turning the unit off and on again via the power button. The display and knob will revert to cycle time control after a few seconds, or you can press the button again to revert immediately.

Open/Close button - controls the Polysher’s lift mechanism. When the unit is idle, it can be opened by pressing this button once briefly – the lift mechanism will open fully and stop automatically.

Pressing and releasing the button again will close the chamber. The button can also be pressed at any time during the lift mechanism’s travel if it’s necessary to stop it for any reason, such as a print toppling from the platform. The lift will stop immediately, and on the next press it will reverse direction.

Chamber Open Warning Light - if the lift mechanism is not fully closed, or if the chamber window is not correctly in place, this red indicator icon will light up and polishing cannot be started. Warning tones will sound if the control knob is turned in an attempt to start smoothing. If the chamber window somehow becomes dislodged from its position during polishing, warning tones will sound, the indicator will illuminate, smoothing will stop immediately, and the chamber clearing cycle will begin.

Power Button - turn the Polysher on/off. The blue ring around the button will illuminate when pressed on. To turn the instrument off, press and hold this button for two seconds.

Chamber Lighting Button - by default, the white chamber illumination lights will turn on to full brightness when the Polysher is turned on. Pressing this button briefly will cause the lights to fade to off, and pressing the button when they’re off will cause them to brighten fully again. The button can also be pressed during fade-in or fade-out to stop at intermediate brightness levels.

Nebulizer Fault Warning Light – in addition to illuminating and warning tones, operation is halted any time a fault is detected in the nebulizer.

Description of the sampling procedure:

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Description of deviation from the standard, if any:


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Remarks:

- 1) The equipment has been type-tested for the compliance with the standard requirements and passed all applicable tests.
- 2) Throughout this report "SELV" refers to secondary low voltages less or equal to the limits of clause 6.3.1a); the reduced limits for equipment intended for use in wet locations are not applied since equipment is not intended for wet locations.
- 3) The equipment is powered by an external AC/DC power supply, which provides DC 5V (SELV). The power supply is separately certified to IEC/EN 60950-1 (2nd Edition) with limited power source output (LPS), which also conforms with the requirements limited energy source as described in clause 9.4.
- 4) Double/Reinforced Insulations provided between Mains/Primary and Secondary circuits (SELV 5V-output) on external certified power supply. All primary bridging components are within certified power supply. No additional testing deemed necessary.
- 5) Testing was conducted with the equipment operating per the instructions stated in manual.
- 6) This equipment was tested in the normal horizontal position on test bench at room ambient.
- 7) Equipment is intended for desktop (bench table-top) usage
- 8) Maximum rated ambient temperature of equipment is 32°C. Equipment evaluated for test ambient of 40°C as per the requirements of clause 10 ($t_c = t_m - t_a + 40^\circ\text{C}$).

Remark:

This original test report Ref. No. RZCE2016-0597LVD, issued date 2017-01-09 and was modified on 2017-02-10 to include the following change and/or additions:

-- change trademark : change from  to Polymaker.

Copy of marking plate:



Rear identification marking label



Top warning label

Photo:



Photo 1 Front View



Photo 2 Side View

Photo:



Photo 3 Back View



Photo 4 Top View

Photo:



Photo 5 Bottom View



Photo 6 External View

Photo:

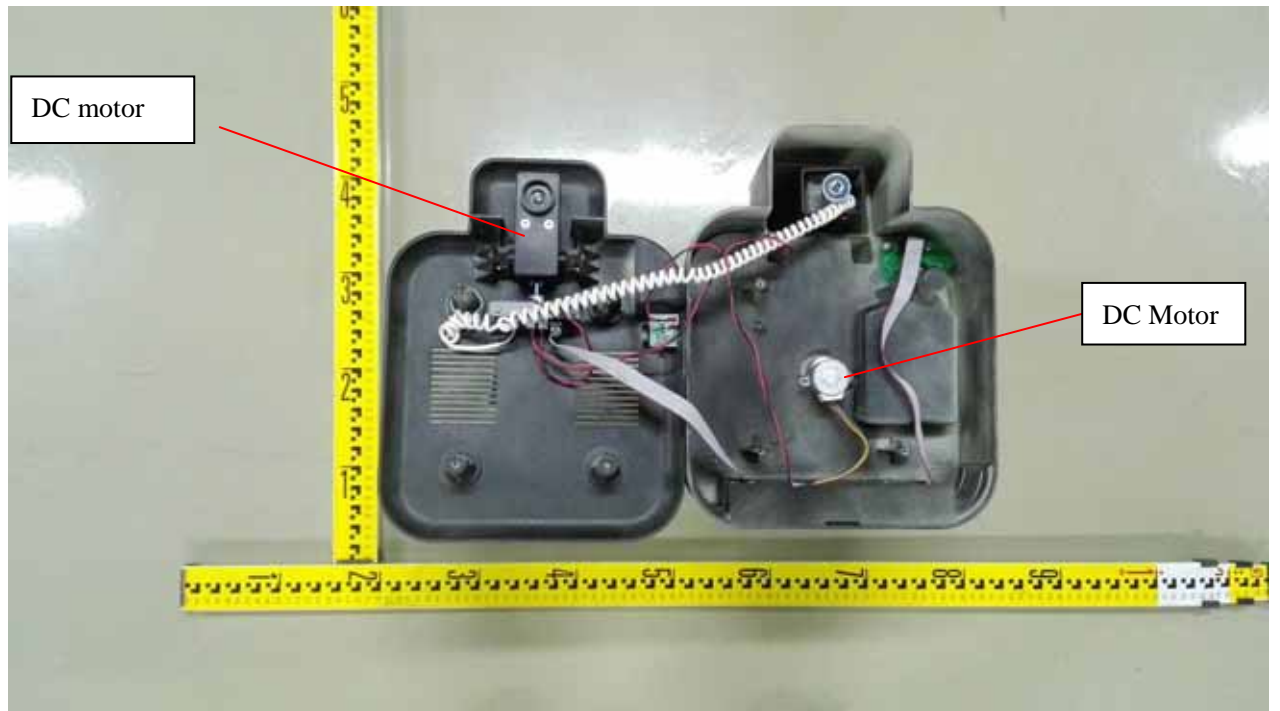


Photo 7 Internal View (Bottom Cover)

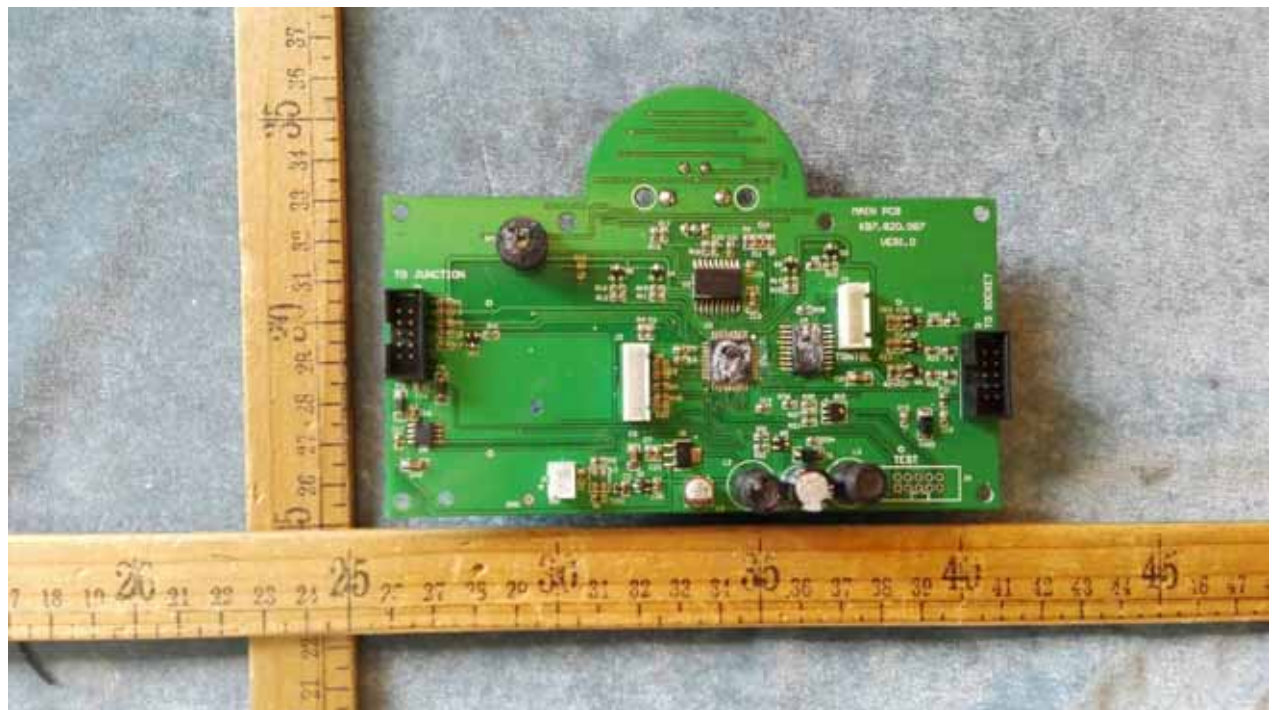


Photo 8 Mainboard View

Photo:

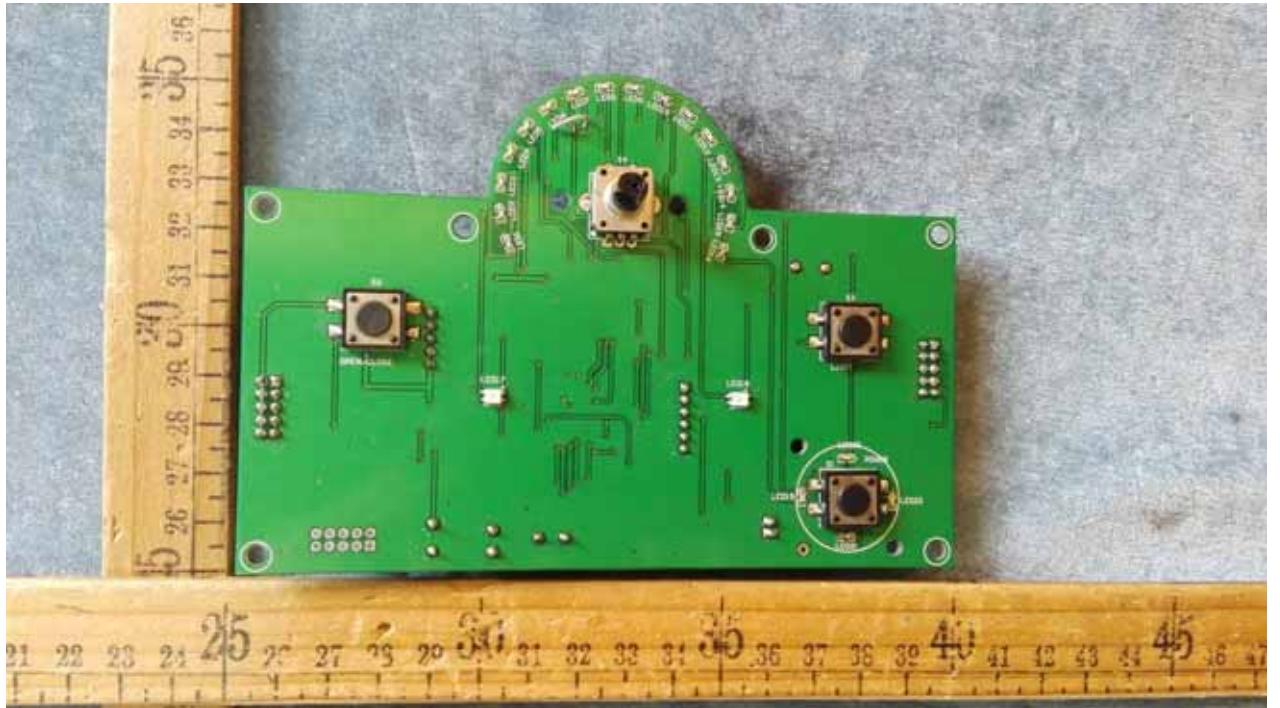


Photo 9 Mainboard View



Photo 10 DC Motor

Photo:



Photo 11 Internal view (TOP cover)

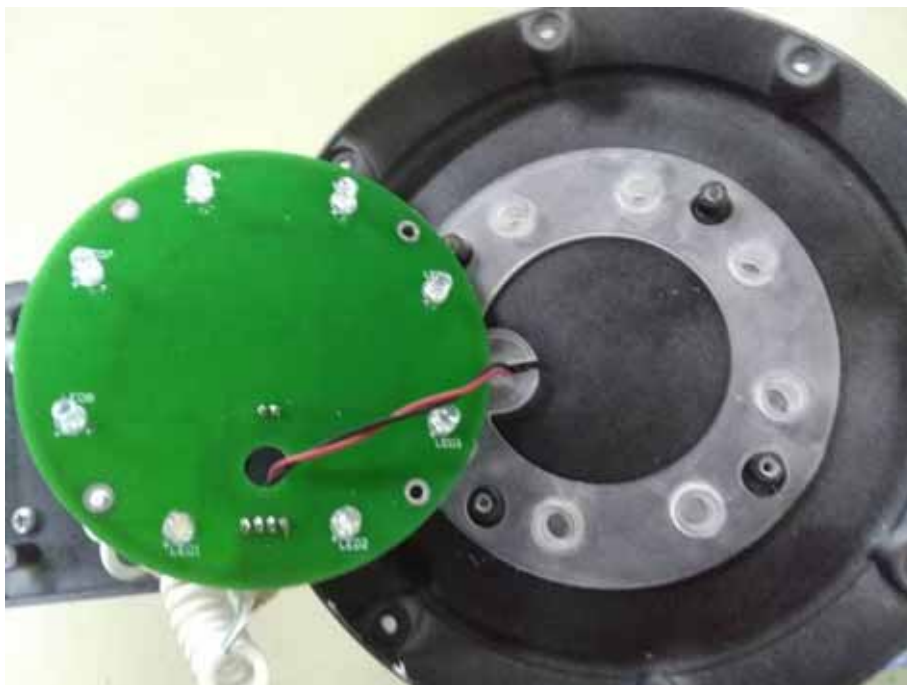


Photo 12 Internal view (TOP cover)

Photo:

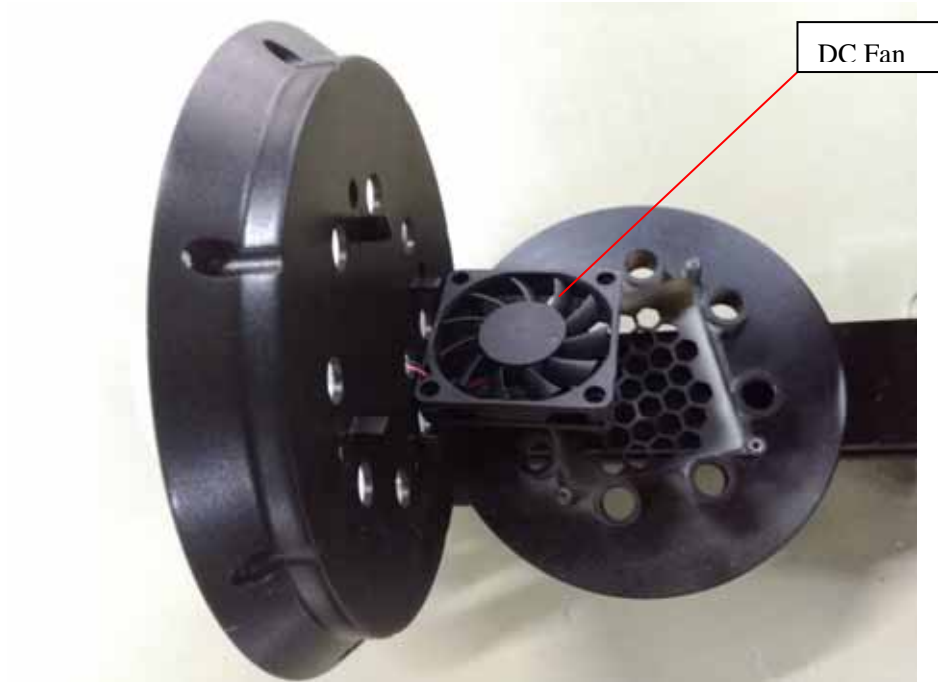


Photo 13 Internal view (TOP cover)



Photo 14 Switching power supply

Photo:



Photo 15 Marking of switching power supply

EN 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 4.4.2.1 to 4.4.2.14	(see Form A.1)	P
4.4.2.2	Protective impedance	Not relied upon for protection. Refer to clauses 6.4.4 & 6.5.4 in this test report.	N
4.4.2.3	Protective conductor	No protective conductor.	N
4.4.2.4	Equipment or parts for short-term or intermittent operation	Equipment and parts are designed for continuous operation.	N
4.4.2.5	Motors	Not applied; temperatures of motor windings not deemed to create a hazard. Motors are constructed with full metal housing, and supplied by limited energy from controller board. Turntable motor is a stepper motor; normally under locked-rotor condition. In event the lift mechanism motor was to be stalled or windings shorted, the thermal protection of IC-driver 'U5' or fuses 'F3, F4' would shut down motor output circuit immediately.	-
	– stopped while fully energized		N
	– prevented from starting		N
	– one phase interrupted (multi-phase)		N
4.4.2.6	Capacitors	No such motor capacitors	N
4.4.2.7	Mains transformers	No mains transformers	N
4.4.2.7.2	Short circuit		N
4.4.2.7.3	Overload		N
4.4.2.8	Outputs	No outputs	N
4.4.2.9	Equipment for more than one supply		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.4.2.10	Cooling		P
	– air holes closed	No air holes	N
	– fans stopped	Chamber ceiling fan is used to circulate mist within sealed chamber, was stalled	P
	– coolant stopped	No coolant	N
4.4.2.11	Heating devices		N
	– timer overridden		N
	– temperature controller overridden		N
4.4.2.12	Insulation between circuits and parts	(see Form A.1) SELV circuitry/SELV components (including PCBs) are supplied a single 5Vd.c. output. All circuits & parts have less than Basic insulation. The external power supply 5V-output has Functional insulation as per approval to 60950-1. Functional insulation is not defined in 61010-1, and is deemed to be below Basic insulation level; therefore power supply output was shorted (per clause 4.4.2.8 & 4.4.2.12). Short-circuit of DC output of power supply immediately resulted in the power supply cycling (hiccup mode). Refer to clause 4.4.2.8 above for other short-circuits applied.	P
4.4.2.13	Interlocks	Interlock for chamber window was short-circuited and/or open-circuit	P
4.4.2.14	Voltage selectors	No voltage selector used	N
4.4.3	Duration of tests	(see Form A.1)	--
4.4.4	Conformity after application of fault conditions	(see Form A.1; A.6, A.18)	P
5	MARKING AND DOCUMENTATION		P
5.1.1	General		P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Required equipment markings are:	Marking and symbols are visible	P
	– visible from the exterior; or	Markings on label adhered to the rear-side of equipment	P
	– visible after removing cover or opening door	See above	N
	– visible after removal from a rack or panel	Equipment is not intended to be installed into rack or panel	N
	Not put on parts which can be removed by an operator	Markings not placed on parts that can be removed	P
	Letter symbols (IEC 60027) used	No such symbols used	N
	Graphic symbols (IEC 61010-1: Table 1) used	Symbol 1 (IEC 60417-5031) is located on marking label.	P
5.1.2	Identification	Refer to “Copy of Marking Plate” section of this test report	P
	Equipment is identified by:	See below	P
	a) Manufacturer's or supplier's name or trademark	Marked with manufacturer's name & trademark provided	P
	b) Model number, name or other means	Marked with model number and serial number	P
	Manufacturing location identified	Single manufacturing location	N
5.1.3	MAINS supply		P
	Equipment is marked as follows:		P
	a) Nature of supply:		N
	1) a.c. RATED MAINS frequency or range of frequencies		N
	2) d.c. with symbol 1	See marking plate	P
	b) RATED supply voltage(s) or range.....	5V	P
	c) Max. RATED power (W or VA) or input current ...	2A	P
	The marked value not less than 90 % of the maximum value		N
	If more than one voltage range:		N
	Separate values marked; or		N
	Values differ by less than 20 %		N
	d) OPERATOR-set for different RATED supply voltages:		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Indicates the equipment set voltage		N
	Portable equipment indication is visible from the exterior		N
	Changing the setting changes the indication		N
	e) Accessory MAINS socket-outlets accepting standard MAINS plugs are marked:		N
	With the voltage if it is different from the MAINS supply voltage..... :		N
	For use only with specific equipment		N
	If not marked for specific equipment it is marked with:		N
	The maximum rated current or power; or		N
	Symbol 14 with full details in the documentation		N
5.1.4	Fuses	No operator replaceable fuses; part of certified power supply.	N
	Operator replaceable fuse marking (see also 5.4.5)..... :		N
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	Controls and indicators are marked to indicate their function	P
	If insufficient space, symbol 14 used		N
	Push-buttons and actuators of emergency stop devices and indicators:		N
	used only to indicate a warning of danger or		N
	the need for urgent action		N
	coloured red		N
	coded as specified in IEC 60073		N
	Supplementary means of coding provided, if meaning of colour relates (see IEC 60073):		N
	to safety of persons; or		N
	safety of the environment		N
5.1.5.2	TERMINALS		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	MAINS supply TERMINAL identified	No such terminals; not directly connected to mains supply	N
	Other TERMINAL marking:	See below	N
	a) FUNCTIONAL EARTH TERMINALS (symbol 5 used)	No such terminal	N
	b) PROTECTIVE CONDUCTOR TERMINALS:	No such terminal; external AC/DC power supply is Class II.	N
	Symbol 6 is placed close to or on the TERMINAL; or		N
	Part of appliance inlet		N
	c) TERMINALS of control circuits (symbol 7 used)		N
	d) HAZARDOUS LIVE TERMINALS supplied from the interior		N
	Standard MAINS socket outlet; or		N
	RATINGS marked; or		N
	Symbol 14 used		N
5.1.6	Switches and circuit breakers	Front-panel stand-by switch is not used as disconnecting device	N
	If disconnecting device, off position clearly marked		N
	If push-button used as power supply switch:		N
	Symbol 9 and 15 used for on-position		N
	Symbol 10 and 16 used for off-position		N
	Pair of symbols 9, 15 and 10, 16 close together		N
5.1.7	Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION	No such insulations required; Class III operating at voltages below 6.3.1 a).	N
	Protected throughout (symbol 11 used)		N
	Only partially protected (symbol 11 not used)		N
5.1.8	Field-wiring TERMINAL boxes	No field-wiring TERMINAL boxes	N
	If TERMINAL or ENCLOSURE exceeds 60 °C:		N
	Cable temperature RATING marked		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Marking visible before and during connection or beside TERMINAL		N
5.2	Warning markings		P
	Visible when ready for NORMAL USE		P
	Are near or on applicable parts		P
	Symbols and text correct dimensions and colour:		P
	a) symbols min 2,75 mm and text 1,5 mm high and contrasting in colour with background	Symbols are greater than 2.75mm and text high is 1.5mm or greater. Both symbols and text are contrasting in colour with background.	P
	b) symbols and text moulded, stamped or engraved in material min. 2,0 mm high and	Not used; see above	N
	0.5 mm depth or raised if not contrasting in colour		N
	If necessary marked with symbol 14	Provided on top (ceiling) warning label a and rear warning label	P
	Statement to isolate or disconnect if access by using a tool to HAZARDOUS LIVE parts is permitted	Operator is not permitted to gain access to internal side of the equipment	N
5.3	Durability of markings	Marking plate & symbols were tested. Markings & symbols remained legible; adhesive didn't work loose or curled after treatment.	P
	The required markings remain clear and legible in NORMAL USE	(see Form A.3)	P
5.4	Documentation		P
5.4.1	General	Equipment is provided with adequate operation instructions.	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

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	in electronic media if available at any time		P
	Documentation includes:	Indicated in User Manual	P
	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	No readings are taken harmful or corrosive substances, or for Hazardous Live electrical quantities.	N
	h) instructions for lifting and carrying	No such instructions required; refer to clause 7.5 in this test report.	N
	Warning statements and a clear explanation of warning symbols:		N
	--Provided in the documentation; or		N
	--Information is marked on the equipment		N
5.4.2	Equipment ratings	See below	P
	Documentation includes:	Indicated in Specifications	P
	a) Supply voltage or voltage range		P
	Frequency or frequency range		N
	Power or current rating		P
	b) Description of all input and output connections in accordance to 6.6.1 a)	Indicated in Parts of the Polysher (DC Power Cable) section	P
	c) RATING of insulation of external circuits in accordance to 6.6.1 b)	Indicated in Parts of the Polysher (DC Power Cable) section	N
	d) Statement of the range of environmental conditions (see 1.4)		P
	e) Degree of protection (IEC 60529)		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	f) if impact rating less than 5 J:		N
	IK code in accordance to IEC 62262 marked or		N
	symbol 14 of table 1 marked, with		N
	RATED energy level and test method stated		N
5.4.3	Equipment installation		P
	Documentation includes instructions for:		P
	a) assembly, location and mounting requirements	Indicated in Important Safety Instructions	P
	b) protective earthing		N
	c) connections to supply		N
	d) permanently connected equipment:		N
	1) Supply wiring requirements		N
	2) If external switch or circuit-breaker, requirements and location recommendation		N
	e) ventilation requirements	Indicated in Important Safety Instructions	P
	f) special services (e. g. air, cooling liquid)		N
	g) Instructions relating to sound level	No excessive sound levels; refer to clause 12.5.1 in this test report	N
5.4.4	Equipment operation		P
	Instructions for use include:		P
	a) identification and description of operating controls	Indicated in Parts of the Polysher section	P
	b) positioning for disconnection		N
	c) instructions for interconnection		N
	d) specification of intermittent operation limits	Not indicated; design for continuous operation	N
	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	Indicated in Important Safety Instructions section	P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	i) RISK reduction procedures relating to flammable liquids (see 9.5)	Refer to clause 9.5 in this test report.	P
	j) RISK reduction procedures relating burn from surfaces permitted to exceed limits of 10.1		N
	Additional precautions for IEC 60950 conforming equipment in regard to moistures and liquids	No hazards from exposure to moistures and liquids.	P
	A statement about protection impairment if used in a manner not specified by the manufacturer		P
5.4.5	Equipment maintenance	Indicated in Maintenance and Troubleshooting section	P
	Instructions for RESPONSIBLE BODY include:		P
	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	Not directly connected to supply mains	N
	Specific battery type of user replaceable batteries	No user replaceable batteries provided.	N
	Any manufacturer specified parts		P
	Rating and characteristics of fuses	No internal fuses.	N
	Instructions include following subjects permitting safe servicing and continued safety:	Requirement deemed applicable for RESPONSIBLE BODY; see below	P
	a) product specific RISKS may affect service personnel	Indicated in Important Safety Instructions section	P
	b) protective measures for these RISKS	Indicated in Important Safety Instructions, and Maintenance and Troubleshooting sections	P
	c) verification of the safe state after repair		N
5.4.6	Integration into systems or effects resulting from special conditions	No such integration conditions indicated	N
	Aspects described in documentation		N
6	PROTECTION AGAINST ELECTRIC SHOCK		P
6.1	General	(see Form A.14 and A.15) Equipment is powered by external AC/DC power supply which is supplying a single 5Vd.c. output. All circuits & parts within the equipment are 5Vd.c. or less.	P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
6.1.1	Requirements		P
	Protection against electric shock maintained in NORMAL CONDITION and SINGLE FAULT CONDITION	No electric shock (voltage) hazards. Adequate protection provided by external AC/DC power supply, which is separately certified to IEC/EN 60950-1	P
	ACCESSIBLE parts not HAZARDOUS LIVE	No internal or external parts are Hazardous Live	N
	Voltage, current, charge or energy below the limits in NORMAL CONDITION and in SINGLE FAULT CONDITION between:	All accessible parts are supplied by external AC/DC power supply, which is certified to 60950-1, and its output does not exceed limits of clauses 6.3.1 & 6.3.2.	P
	ACCESSIBLE parts and earth	Refer to clause 6.4 in this test report	N
	two ACCESSIBLE parts on same piece of the equipment within a distance of 1,8 m		P
	Conformity is checked by the determination of 6.2 and 6.3 followed by the tests of 6.4 to 6.11		P
6.1.2	Exceptions	No exception applied; no accessible parts are Hazardous Live	N
	Following HAZARDOUS LIVE parts may be accessible to an OPERATOR:		N
	a) parts of lamps and lamp sockets after lamp removal		N
	b) parts to be replaced by operator only by the use of tool and warning marking		N
	Those parts not HAZARDOUS LIVE 10 s after interruption of supply		N
	Capacitance test if charge is received from internal capacitor		N
6.2	Determination of ACCESSIBLE parts	The plastic enclosure is the only accessible part	P
6.2.1	General examination		P
	Unless obviously determination of accessible parts as specified in 6.2.2 to 6.2.4		P
6.2.2	Examination	Test fingers only touch external plastic enclosure	P
	- with jointed test finger (as specified B.2)	Not applied; visual examination	N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	- with rigid test finger (as specified B.1) and a force of 10 N	Not applied; visual examination	N
6.2.3	Openings above parts that are HAZARDOUS LIVE	No openings; no Hazardous live parts.	N
	– test pin with length of 100 mm and 4 mm in diameter applied		N
6.2.4	Openings for pre-set controls		N
	- test pin with length of 100 mm and 4 mm in diameter applied		N
6.3	Limit values for ACCESSIBLE parts		N
6.3.1	Levels in NORMAL CONDITION	All accessible parts are supplied by external AC/DC power supply, which is certified to 60950-1, and its output does not exceed limits of clauses 6.3.1 & 6.3.2.	N
	a) Voltage limits less than 33 V r.m.s. and 46,7 V peak or 70 V d.c.		N
	for wet locations voltage limits less than 16 V r.m.s. and 22,6 V peak or 35 V d.c.	Equipment not intended for wet locations	N
	Voltages are not HAZARDOUS LIVE the levels of:		N
	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	Not applied; refer to remarks in clause 6.3.1 above	N
	for wet locations measuring circuit A.4 used		N
	or		N
	c) Levels of capacitive charge or energy less:	Not applied; refer to remarks in clause 6.3.1 above	N
	1) 45 μ C for voltages up to 15 kV peak or d.c. or line A of Figure 3		N
	2) 350 mJ stored energy for voltages above 15 kV peak or d.c.		N
6.3.2	Levels in SINGLE FAULT CONDITION	All accessible parts are supplied by external AC/DC power supply, which is certified to 60950-1, and its output does not exceed limits of clauses 6.3.1 & 6.3.2.	N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Voltage limits less than 33 V r.m.s. and 46,7 V peak or 70 V d.c.		N
	for wet locations voltage limits less than 16 V r.m.s. and 22,6 V peak or 35 V d.c.		N
	Voltages are not HAZARDOUS LIVE the levels of:		N
	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		N
	for wet locations measuring circuit A.4 used		N
	or		N
	c) Levels of capacitive charge or energy less:		N
	1) 45 μ C for voltages up to 15 kV peak or d.c. or line A of Figure 3		N
	2) 350 mJ stored energy for voltages above 15 kV peak or d.c.		N
6.4	Primary means of protection	No hazardous live (electric shock) circuits/parts; equipment is not directly connected to Mains supply. The external power supply 5V-output has Functional insulation as per approval to 60950-1. Functional insulation is not defined in 61010-1, and is deemed to be below Basic insulation level, therefore power supply output was shorted (per clause 4.4.2.8 & 4.4.2.12). Short-circuit of DC output of power supply immediately resulted in the power supply cycling (hiccup mode).	N
6.4.1	ACCESSIBLE parts prevented from being HAZARDOUS LIVE by one or more of following means:		N
	a) ENCLOSURES OR PROTECTIVE BARRIERS (see 6.4.2)		N
	b) BASIC INSULATION (see 6.4.3)		N

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Clause	Requirement – Test	Result – Remark	Verdict
	c) Impedance (see 6.4.4)		N
6.4.2	ENCLOSURES OR PROTECTIVE BARRIERS		N
	- meet rigidity requirements of 8.1		N
	- meet requirements for BASIC INSULATION, if protection is provided by insulation		N
	- meet requirements of 6.7 for CREEPAGE and CLEARANCES between ACCESSIBLE parts and HAZARDOUS live parts, if protection is provided by limited access		N
6.4.3	BASIC INSULATION		N
	- meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		N
6.4.4	Impedance		N
	Impedance used as primary means of protection meets all of following requirements:		N
	a) limits current or voltage to level of 6.3.2		N
	b) RATED for maximum WORKING VOLTAGE and the amount of power it will dissipate		N
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of BASIC INSULATION of 6.7		N
6.5	Additional means of protection in case of SINGLE FAULT CONDITION		N
6.5.1	ACCESSIBLE parts are prevented from becoming HAZARDOUS live by the primary means of protection and supplemented by one of:		N
	a) PROTECTIVE BONDING (see 6.5.2)		N
	b) SUPPLEMENTARY INSULATION (see 6.5.3)		N
	c) automatic disconnection of the supply (see 6.5.5)		N
	d) current- or voltage-limiting device (see 6.5.6)		N
	Alternatively one of the single means of protection is used:		N
	e) REINFORCED INSULATION (see 6.5.3)		N
	f) PROTECTIVE IMPEDANCE (see 6.5.4)		N
6.5.2	PROTECTIVE BONDING		N

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Clause	Requirement – Test	Result – Remark	Verdict
6.5.2.1	ACCESSIBLE conductive parts, may become HARZARDOUS LIVE in SINGLE FAULT CONDITION:		N
	Bonded to the PROTECTIVE CONDUCTOR TERMINAL; or		N
	Separated by conductive screen or barrier bonded to PROTECTIVE CONDUCTOR TERMINAL		N
6.5.2.2	Integrity of PROTECTIVE BONDING		N
	a) PROTECTIVE BONDING consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses		N
	b) Soldered connections:		N
	Independently secured against loosening		N
	Not used for other purposes		N
	c) Screw connections are secured		N
	d) PROTECTIVE BONDING not interrupted; or		N
	exempted as removable part carries MAINS SUPPLY INPUT connection		N
	e) Any moveable PROTECTIVE BONDING connection specifically designed, and meets 6.5.2.4		N
	f) No external metal braid of cables used (not regarded as PROTECTIVE BONDING)		N
	g) IF MAINS SUPPLY PASSES THROUGH:		N
	Means provided for passing protective conductor;		N
	Impedance meets 6.5.2.4		N
	h) Protective conductors bare or insulated, if insulated, green/yellow		N
	Exceptions:		N
	1) earthing braids;		N
	2) internal protective conductors etc.;		N
	Green/yellow not used for other purposes		N
	TERMINAL suitable for connection of a PROTECTIVE CONDUCTOR, and meets 6.5.2.3		N
6.5.2.3	PROTECTIVE CONDUCTOR TERMINAL		N
	a) Contact surfaces are metal		N

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Clause	Requirement – Test	Result – Remark	Verdict
	b) Appliance inlet used		N
	c) For rewirable cords and PERMANENTLY CONNECTED EQUIPMENT, PROTECTIVE CONDUCTOR TERMINAL is close to MAINS supply TERMINALS		N
	d) If no MAINS supply is required, any PROTECTIVE CONDUCTOR TERMINAL:		N
	Is near terminals of circuit for which protective earthing is necessary		N
	External if other terminals external		N
	e) Equivalent current-carrying capacity to MAINS supply TERMINALS		N
	f) If plug-in, makes first and breaks last		N
	g) If also used for other bonding purposes, protective conductor:		N
	Applied first;		N
	Secured independently;		N
	Unlikely to be removed by servicing		N
	h) PROTECTIVE CONDUCTOR of measuring circuit:		N
	1) Current RATING equivalent to measuring circuit TERMINAL;		N
	2) PROTECTIVE BONDING:		N
	Not interrupted; or		N
	i) FUNCTIONAL EARTH TERMINALS allow independent connection		N
	j) If a binding screw used for PROTECTIVE CONDUCTOR TERMINAL:		N
	Suitable size for bond wire		N
	Not smaller than M 4 (No. 6)		N
	At least 3 turns of screw engaged		N
	Passes tightening torque test		N
	k) Contact pressure not capable being reduced by deformation of materials		N
6.5.2.4	Impedance of PROTECTIVE BONDING of plug-connected equipment		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Impedance between PROTECTIVE CONDUCTOR TERMINAL and each ACCESSIBLE part where PROTECTIVE BONDING is specified, is:		N
	less than 0,1 Ohm; or		N
	less than 0,2 Ohm if equipment is provided with non detachable cord		N
6.5.2.5	Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT		N
6.5.2.6	Transformer PROTECTIVE BONDING screen		N
	Transformer provided with screen for protective bonding:		N
	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
	screen bonding with soldered connection (see 6.5.2.2 b) is:		N
	- Independently secured against loosening		N
	- Not used for other purposes		N
6.5.3	SUPPLEMENTARY and REINFORCED INSULATION		N
	- meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		N
6.5.4	PROTECTIVE IMPEDANCE		N
	Limits current or voltage to level of 6.3.1 in NORMAL and to level of 6.3.2 in SINGLE FAULT CONDITION		N
	CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of DOUBLE or REINFORCED INSULATION of 6.7		N
	The protective impedance consists of one or more of the following:		N
	a) appropriate single component suitable for safety and reliability for protection, it is:		N
	1) RATED twice the maximum WORKING VOLTAGE		N
	2) resistor RATED for twice the power dissipation for maximum WORKING VOLTAGE		N
	b) combination of components		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Single electronic device not used as PROTECTIVE IMPEDANCE		N
6.5.5	Automatic disconnection of the supply	Not directly connected to Mains supply. Equipment is powered by external AC/DC power supply which is supplying a single 5Vd.c. output. All circuits & parts within the equipment are 5Vd.c. or less.	N
	a) RATED to disconnect the load within time specified in Figure 2		N
	b) RATED for the maximum load conditions of the equipment		N
6.5.6	Current- or voltage limiting devices		N
	Device complies with all of:		N
	a) RATED to limit the current or voltage to the level of 6.3.2		N
	b) RATED for the maximum working voltage; and		N
	RATED for the maximum operational current if applicable		N
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of SUPPLEMENTARY INSULATION of 6.7		N
6.6	Connections to external circuits	No connection to external circuits other the 5Vd.c. input. No hazardous live circuits within equipment.	P

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Clause	Requirement – Test	Result – Remark	Verdict
6.6.1	Connections do not cause ACCESSIBLE parts of the following to become HAZARDOUS LIVE in NORMAL CONDITION or SINGLE FAULT CONDITION:	All accessible parts are supplied by external AC/DC power supply, which is certified to 60950-1, and its output does not exceed limits of clause 6.3.2. The external power supply output is not Hazardous Live (electric burn). The power supply is separately certified to IEC/EN 60950-1 (2nd Edition) with limited power source output (LPS), which also conforms with the requirements limited energy source as described in clause 9.4.	P
	- the external circuits	Accessible parts are not hazardous live	P
	- the equipment	Accessible parts are not hazardous live	P
	Protection achieved by separation of circuits; or		P
	short circuit of separation does not cause a HAZARD	Shorting of circuits will not result in hazard. Refer to clause 4.4.2.8 and Form A.1 in this test report.	P
	Instructions or markings for each terminal include:	Not required; accessible parts are not hazardous live, and complies with the requirements of clause 9.1	N
	a) RATED conditions for TERMINAL		N
	b) Required RATING of external circuit INSULATION		N
6.6.2	TERMINALS for external circuits	Terminals for DC plug (power supply output) and DC input receptacle on equipment are not hazardous live; no hazardous live circuits within equipment.	N
	TERMINALS which receive a charge from an internal capacitor are not HAZARDOUS LIVE after 10 s of interrupting supply connection		N

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Clause	Requirement – Test	Result – Remark	Verdict
6.6.3	Circuits with terminals which are HAZARDOUS LIVE	Terminals for DC plug (power supply output) and DC input receptacle on equipment are not hazardous live; no hazardous live circuits within equipment.	N
	These circuits are:		N
	Not connected to ACCESSIBLE conductive parts; or		N
	Connected to ACCESSIBLE conductive parts, but are not MAINS circuits and have one TERMINAL contact at earth potential		N
	No ACCESSIBLE conductive parts are HAZARDOUS LIVE		N
6.6.4	ACCESSIBLE terminals for stranded conductors		N
	No RISK of accidental contact because:		N
	Located or shielded		N
	Self-evident or marked whether or not connected to ACCESSIBLE conductive parts		N
	ACCESSIBLE TERMINALS will not work loose		N
6.7	Insulation requirements	Equipment is not directly connected to Mains supply. It also is not subjected to overvoltages; all covered under the external power supply certification. All circuits & parts within the equipment are 5Vdc or less. The external power supply 5V-output has Functional insulation as per approval to 60950-1. Functional insulation is not defined in 61010-1, and is deemed to be below Basic insulation level, therefore power supply output was shorted (per clauses 4.4.2.8 & 4.4.2.12).	N
6.7.1	The nature of insulation		N

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Clause	Requirement – Test	Result – Remark	Verdict
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		N
6.7.1.2	CLEARANCES		N
	Required CLEARANCES reflecting factors of 6.7.1.1		N
	Equipment rated for operating altitude greater than 2000 m correction factor of Table 3 of 61010-1 applied		N
6.7.1.3	CREEPAGE DISTANCES		N
	Required CLEARANCES reflecting factors of 6.7.1.1		N
	CTI material group reflected by requirements		N
	CTI test performed		N
6.7.1.4	Solid insulation		N
	Required CLEARANCES reflecting factors of 6.7.1.1		N
6.7.1.5	Requirements for insulation according to type of circuit		N
	a) 6.7.2 MAINS circuits of OVERVOLTAGE CATEGORY II up to nominal supply voltage of 300 V		N
	b) 6.7.3 Secondary circuits separated from circuits defined in a) by transformer		N
	c) K.1 MAINS circuits of OVERVOLTAGE CATEGORY III and IV or OVERVOLTAGE CATEGORY II over 300 V		N
	d) K.2 Secondary circuits separated from circuits defined in a) by transformer		N
	e) K.3 Circuits having one or more of:		N
	1) maximum TRANSIENT OVERVOLTAGE is limited to known level below the level of MAINS CIRCUIT		N
	2) maximum TRANSIENT OVERVOLTAGE above the level of MAINS CIRCUIT		N
	3) WORKING VOLTAGE is the sum of more than one circuit or a mixed voltage		N
	4) WORKING VOLTAGE includes recurring peak voltage, may include non-sinusoidal or non-periodic waveform		N
	5) WORKING VOLTAGE with a frequency above 30 kHz		N

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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		N
6.7.2.1	CLEARANCES and CREEPAGE DISTANCES		N
	Values for MAINS CIRCUITS of table 4 are met		N
	Coatings to achieve reduction to POLLUTION DEGREE I comply with requirements of Annex H		N
6.7.2.2	Solid insulation		N
6.7.2.2.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		N
	Equipment passed voltage tests of 6.8.3 with values of Table 5		N
	Complies as applicable:		N
	a) ENCLOSURE or PROTECTIVE BARRIER Clause 8		N
	b) moulded and potted parts requirements of 6.7.2.2.2		N
	c) inner layers of printed wiring boards requirements of 6.7.2.2.3		N
	d) thin-film insulation requirements of 6.7.2.2.4		N
6.7.2.2.2	Moulded and potted parts		N
	Conductors between same two layers are separated by at least 0,4 mm after moulding is completed		N
6.7.2.2.3	Inner insulation layers of printed wiring boards		N
	Separated by at least 0,4 mm between same two layers		N
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N
	a) thickness at least 0,4 mm		N
	b) insulation is assembled of minimum two separate layers, each RATED for test voltage of Table 5 for BASIC INSULATION		N
	c) insulation is assembled of minimum two separate layers, where the combination is rated for test voltage of Table 5 for REINFORCED INSULATION		N
6.7.2.2.4	Thin-film insulation		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Conductors between same two layers are separated by applicable CLEARANCES and CREEPAGE DISTANCES		N
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N
	a) thickness at least 0,4 mm		N
	b) insulation is assembled of min two separate layers, each RATED for test voltage of Table 5 for BASIC INSULATION		N
	c) insulation is assembled of min three separate layers, where the combination of two layers passed voltage tests of 6.8.3 with values of Table 5 for REINFORCED INSULATION		N
6.7.3	Insulation for secondary circuits derived from MAINS of OVERVOLTAGE CATEGORY II up to 300 V		N
6.7.3.1	Secondary circuits where separation from MAINS CIRCUITS is achieved by a transformer providing:		N
	- REINFORCED INSULATION		N
	- DOUBLE INSULATION		N
	- screen connected to the PROTECTIVE CONDUCTOR TERMINAL		N
6.7.3.2	CLEARANCES		N
	a) meet the values of Table 6 for BASIC INSULATION and SUPPLEMENTARY INSULATION; or		N
	twice the values of Table 6 for REINFORCED INSULATION		N
	or		N
	b) pass the voltage tests of 6.8 with values of Table 6; with following adjustments:		N
	1) values for REINFORCED INSULATION are 1,6 times the values for BASIC INSULATION		N
	2) if operating altitude is greater than 2000 m values of CLEARANCES multiplied with factor of Table 3		N
	3) minimum CLEARANCE is 0,2 mm for POLLUTION DEGREE 2 and 0,8 mm for POLLUTION DEGREE 3		N
6.7.3.3	CREEPAGE DISTANCES		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Based on WORKING VOLTAGE meets the values of Table 7 for BASIC and SUPPLEMENTARY INSULATION		N
	Values for REINFORCED INSULATION are twice the values of BASIC INSULATION		N
	Coatings to achieve reduction to POLLUTION DEGREE I comply with requirements of Annex H		N
6.7.3.4	Solid insulation		N
6.7.3.4.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		N
	a) Equipment passed voltage test of 6.8.3.1 for 5 s with VALUES of Table 6 for BASIC and SUPPLEMENTARY INSULATION		N
	values for REINFORCED INSULATION are 1,6 times the values of BASIC INSULATION		N
	b) if WORKING VOLTAGE exceeds 300 V, equipment passed voltage test of 6.8.3.1 for 1 min with a test voltage of 1,5 times working voltage for BASIC OR SUPPLEMENTARY INSULATION		N
	value for REINFORCED INSULATION are twice the WORKING VOLTAGE		N
	Complies as applicable:		N
	1) ENCLOSURE or protective barrier Clause 8		N
	2) moulded and potted parts requirements of 6.7.3.4.2		N
	3) inner layers of printed wiring boards requirements of 6.7.3.4.3		N
	4) thin-film insulation requirements of 6.7.3.4.4		N
6.7.3.4.2	Moulded and potted parts		N
	Conductors between same two layers are separated by applicable distances of Table 8		N
6.7.3.4.3	Inner insulation layers of printed wiring boards		N
	Separated by at least by applicable distances of Table 8 between same two layers		N
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N
	a) thickness at least applicable distance of Table 8		N

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Clause	Requirement – Test	Result – Remark	Verdict
	b) insulation is assembled of minimum two separate layers, each RATED for test voltage of Table 6 for BASIC INSULATION		N
	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
6.7.3.4.4	Thin-film insulation		N
	Conductors between same two layers are separated by applicable CLEARANCES and CREEPAGE DISTANCES		N
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		N
	a) thickness at least applicable distance of Table 8		N
	b) insulation is assembled of min two separate layers, each RATED for test voltage of Table 6 for BASIC INSULATION		N
	c) insulation is assembled of min three separate layers, where the combination of two layers passed voltage tests with 1,6 time values of Table 6:		N
	a.c. test of 6.8.3.1; or		N
	d.c. test of 6.8.3.2 for circuits stressed only by d.c. voltages		N
6.8	Procedure for dielectric strength tests	Equipment is not directly connected to mains supply. Referring to the remarks in clause 6.7 above. Functional insulation is deemed to be below Basic insulation level, and therefore power supply output was shorted (per clauses 4.4.2.8 & 4.4.2.12).	N
6.9	Constructional requirements for protection against electric shock		N
6.9.1	If a failure could cause a HAZARD:		N
	a) Security of wiring connections		N
	b) Screws securing removable covers		N
	c) Accidental loosening		N

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Clause	Requirement – Test	Result – Remark	Verdict
	d) CREEPAGE and CLEARANCES not reduced below the values of basic insulation by loosening		N
6.9.2	Material not to be used for safety relevant insulation:		N
	Easily damaged materials not used		N
	Non-impregnated hydroscopic materials not used		N
6.9.3	Colour coding		N
	Green-and-yellow insulation shall not be used except:		N
	a) protective earth conductors;		N
	b) protective bonding conductors;		N
	c) potential equilization conductors;		N
	d) functional earth conductors		N
6.10	Connection to MAINS supply source and connections between parts of equipment		N
6.10.1	MAINS supply cords	Equipment is not directly connected to Mains supply. Equipment is powered by external AC/DC power supply which is supplying 5Vd.c.. All circuits & parts of the equipment are 5Vd.c. or less.	N
	RATED for maximum equipment current (see 5.1.3c)		N
	Cable complies with IEC 60227 or IEC 60245		N
	Heat-resistant if likely to contact hot parts		N
	Temperature RATING (cord and inlet)..... :		N
	Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS		N
	Detachable cords with IEC 60320 MAINS connectors:		N
	Conform to IEC 60799; or		N
	Have the current RATING of the MAINS connector		N
6.10.2	Fitting of non-detachable MAINS supply cords		N
6.10.2.1	Cord entry		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Inlet or bushing smoothly rounded; or		N
	Insulated cord guard protruding >5D		N
6.10.2.2	Cord anchorage		N
	Protective earth conductor is the last to take the strain		N
	a) Cord is not clamped by direct pressure from a screw		N
	b) Knots are not used		N
	c) Cannot push the cord into the equipment to cause a HAZARD		N
	d) No failure of cord insulation in anchorage with metal parts		N
	e) Not to be loosened without a tool		N
	f) Cord replacement does not cause a HAZARD and method of strain relief is clear		N
	Push-pull and or torque test		N
6.10.3	Plugs and connectors		N
	MAINS supply plugs, connectors etc., conform with relevant specifications		N
	If equipment supplied at voltages below 6.3.2.a) or from a sole source:		N
	Plugs of supply cords do not fit MAINS sockets above rated SUPPLY voltage		N
	MAINS type plugs used only for connection to MAINS supply		N
	Plug pins which receive a charge from an internal capacitor		N
	Accessory MAINS socket outlets:		N
	a) Marking if accepts a standard MAINS plug (see 5.1.3e)		N
	b) Input has a protective earth conductor if outlet has EARTH TERMINAL CONTACT		N
6.11	Disconnection from supply source		P
6.11.1	Disconnects all current carrying conductors	Exception of 6.11.2 applied; see below	N

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Clause	Requirement – Test	Result – Remark	Verdict
6.11.2	Exceptions	Instrument is powered by external AC/DC power supply which is supplying a single 5Vd.c. output. The power supply is separately certified to IEC/EN 60950-1 (2nd Edition) with limited power source output (LPS), which also conforms with the requirements for limited energy source as described in clause 9.4.	P
6.11.3	Requirements according to type of equipment	Equipment is not directly connected to Mains supply	N
6.11.3.1	PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment:	Instrument is not permanently connected and not multi-phase; not directly connected to mains supply	N
	Employs switch or circuit-breaker		N
	If switch or circuit-breaker is not part of the equipment, documentation requires:		N
	a) Switch or circuit-breaker to be included in building installation		N
	b) Suitable location easily reached		N
	c) Marking as disconnecting for the equipment		N
6.11.3.2	Single-phase cord-connected equipment		N
	Equipment is provided with one of the following:		N
	a) Switch or circuit-breaker		N
	b) Appliance coupler (disconnectable without tool)		N
	c) Separable plug (without locking device)		N
6.11.4	Disconnecting devices		N
	Electrically close to the SUPPLY		N
6.11.4.1	Switches and circuit-breakers		N
	When used as disconnection device:		N
	Meets IEC 60947-1 and IEC 60947-3		N
	Marked to indicate function		N
	Not incorporated in MAINS cord		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Does not interrupt PROTECTIVE EARTH CONDUCTOR		N
6.11.4.2	Appliance couplers and plugs		N
	Where an appliance coupler or separable plug is used as the disconnecting device (see 6.11.3.2):		N
	Readily identifiable and easily reached by the operator		N
	Single-phase portable equipment cord length not more than 3 m		N
	PROTECTIVE EARTH CONDUCTOR connected first and disconnected last		N
7	PROTECTION AGAINST MECHANICAL HAZARDS		P
7.1	Equipment does not cause a mechanical HAZARD in NORMAL nor in SINGLE FAULT CONDITION	No mechanical hazards in NORMAL nor in SINGLE FAULT CONDITION	P
	Conformity is checked by 7.2 to 7.7		P
7.2	Sharp edges	No sharp edges	P
	Easily touched parts are smooth and rounded	Parts are smooth & well-rounded	P
	Do not cause injury during NORMAL USE and		P
	Do not cause injury during SINGLE FAULT CONDITION		P
7.3	Moving parts	<p>Lift mechanism is accessible, but does not create a moving hazard; refer to clause 7.3.3 below.</p> <p>The turntable is not accessible in normal use (chamber cover in-place). Turntable is round and presents no hazard.</p> <p>Lift mechanism motor and turntable motor, are both located within enclosure; not accessible.</p> <p>Operator is not instructed to remove any covers. Covers to be removed only for servicing purposes by manufacturer or their service agent</p>	P

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Clause	Requirement – Test	Result – Remark	Verdict
7.3.1	HAZARDS from moving parts limited to a tolerable level with the conditions specified in 7.3.2 and 7.3.5	The requirements of clauses 7.3.2, 7.3.4, and 7.3.5 not applied. See below	P
	Risk assessment in accordance with 7.3.3 carried out	Refer to clause 7.3.3 in this test report	P
7.3.2	Exceptions		N
	Access to HAZARDOUS moving parts permitted under following circumstances:		N
	a) obviously intended to operate on parts or materials outside of the equipment		N
	inadvertent touching of moving parts minimized by equipment design (e .g. guards or handles)		N
	b) If operator access is unavoidable outside normal use following precautions have been taken:		N
	1) Access requires TOOL		N
	2) Statement about training in the instructions		N
	3) Warning markings on covers prohibiting access by untrained operators		N
	or symbol 14 with full details in documentation		N
7.3.3	RISK assessment for mechanical HAZARDS to body parts		N
	Risk is reduced to a tolerable level by protective measures as specified in Table 12		N
	Minimum protective measures:		N
	A. Low level measures		N
	B. Moderate measures		N
	C. Stringent measures		N
7.3.4	Limitation of force and pressure		N
	Following levels are met in normal and single fault condition:		N
	Continuous contact pressure below 50 N / cm ² with force below 150 N		N
	Temporary force below 250 N for an area at least of 3 cm ² for a maximum duration of 0,75 s		N
7.3.5	Gap limitations between moving parts		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.3.5.1	Access normally allowed		N
	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
7.3.5.2	Access normally prevented		N
	Maximum gap as specified in Table 14 assured in NORMAL and in SINGLE FAULT CONDITION		N
7.4	Stability	Equipment is intended for desktop (bench table-top) usage. Equipment did not overbalance.	P
	Equipment not secured to building structure is physical stable		N
	Stability maintained after opening of drawers etc. by automatic means, or		N
	warning marking requires the application of means		N
	Compliance checked by following tests as applicable:		P
	a) 10° tilt test for other than handheld equipment	Tilted in each direction; angle of 10°	P
	b) multi-directional force test for equipment exceeds height of 1 m and mass of 25 kg		N
	c) downward force test for floor-standing equipment		N
	d) overload test with 4 times maximum load for castor or support that supports greatest load		N
	e) castor or support that supports greatest load removed from equipment		N
7.5	Provisions for lifting and carrying	No such provisions required	N
7.5.1	Equipment more than 18 kg :		N
	Has means for lifting or carrying; or		N
	Directions in documentation		N
7.5.2	Handles or grips		N
	Handles or grips withstand four times weight		N
7.5.3	Lifting devices and supporting parts		N
	Rated for maximum load; or		N

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Clause	Requirement – Test	Result – Remark	Verdict
	tested with four times maximum static load		N
7.6	Wall mounting	Equipment is not provided with means for wall-mounting; equipment is intended for desktop (bench table-top) usage.	N
	Mounting brackets withstand four times weight		N
7.7	Expelled parts	External enclosure provides adequate protection.	P
	Equipment contains or limits the energy		P
	Protection not removable without the aid of a tool	Tools required. Operator is not instructed to remove any covers. Covers to be removed only for servicing purposes by manufacturer or their service agent In addition, the chamber window has an interlock that will stop operation if opened.	P

8	RESISTANCE TO MECHANICAL STRESSES		P
8.1	Equipment does not cause a HAZARD when subjected to mechanical stresses in NORMAL USE	No hazards present when subjected to mechanical stresses in normal use.	P
	Normal protection level is 5 J	5 J applied.	P
	Levels below 5 J but not less than 1 J are acceptable if all of following criteria are met:	Not applied; subjected to 5 J test.	N
	a) lower level justified by RISK assessment of manufacturer		N
	b) equipment installed in its intended application is not easily touched		N
	c) only occasional access during NORMAL USE		N
	d) IK code in accordance to IEC 62262 marked or symbol 14 used with full information in the documentation		N
	For non-metallic ENCLOSURES rated below 2 °C ambient temperature value chosen for minimum rated temperature		N
	Impact energies between IK values, the IK code marked for nearest lower value		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Conformity is checked by performing following tests:	Tests applied to all enclosure sides	P
	1) static test of 8.2.1	Applied. See sub-clause 8.2.1 below.	P
	2) impact test of 8.2.2 with 5 J except for HAND-HELD EQUIPMENT	Impact test of 5 J applied. See sub-clause 8.2.2 below.	P
	if impact energy not selected to 5 J alternate method of IEC 62262 used		N
	3) drop test of 8.3.1 or 8.3.2 except for FIXED and EQUIPMENT with mass over 100 kg	Equipment mass is 3.3kg. See sub-clause 8.3 below.	P
	Equipment rated with an impact rating of IK 08 that obviously meets the criteria		N
	After the tests inspection with following results:		P
	- HAZARDOUS LIVE parts above the limits of 6.3.2 not ACCESSIBLE	No hazardous live parts	N
	- insulation pass the voltage tests of 6.8		P
	i) no leaks of corrosive and harmful substances	No leaks	P
	ii) ENCLOSURE shows no cracks resulting in a HAZARD	No cracks	P
	iii) CLEARANCES not less than their permitted values	No changes to Clearances	P
	iv) insulation of internal wiring remains undamaged	No damage to internal wiring	P
	v) PROTECTIVE BARRIERS not damaged or loosened	No damage or loosening of barriers.	P
	vi) No moving parts exposed, except permitted by 7.3	No exposed moving parts	P
	vii) no damage which could cause spread of fire	No such damage occurred.	P
8.2	ENCLOSURE rigidity test	Tests applied to all enclosure sides	N
8.2.1	Static test		P
	- 30 N with 12 mm rod to each part of ENCLOSURE		P
	- in case of doubt test conducted at maximum RATED ambient temperature		N
8.2.2	Impact test		P
	Impact applied to any part of ENCLOSURE causing a HAZARD if damaged		P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Impact energy level and corresponding IK code....	5 J applied at 1000 mm (IK08)	P
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C	Plastic enclosure. Minimum rated ambient temperature is 4°C (40°F).	N
8.3	Drop test		P
8.3.1	Other than HAND-HELD and DIRECT-PLUG-IN EQUIPMENT		P
	Tests conducted with a drop height or angle of.....	Tested at both 25mm & angle of 30°	P
8.3.2	HAND-HELD and DIRECT-PLUG-IN EQUIPMENT	Not this type of equipment.	N
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C		N
	Drop test conducted with an height of 1 m		N
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	Equipment is not directly connected to Mains supply	N
	Conformity is checked by minimum one or a combination of the following (see Figure 11):	(see Form A.22)	P
	a) Fault test of 4.4; or	(see Form A.1)	P
	b) Application of 9.2 (eliminating or reducing the sources of ignition); or	Refer to clause 9.2 in this test report	P
	c) Application of 9.2 (containment of fire within the equipment)	Methods 9.1 a-b) applied.	N
9.2	Eliminating or reducing the sources of ignition within the equipment		P
	a) 1) Limited-energy circuit (see 9.4); or	Refer to clause 9.4 in this test report	P
	2) BASIC INSULATION provided for parts of different potential; or	Refer to clause 9.4 in this test report	N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Bridging the insulation does not cause ignition	(see Form A.1) SELV circuitry/SELV components (including PCBs) are supplied a single 5Vdc output. All circuits & parts have less than Basic insulation. The external power supply 5V-output has Functional insulation as per approval to 60950-1. Functional insulation is not defined in 61010-1, and is deemed to be below Basic insulation level, therefore power supply output was shorted (per clause 4.4.2.8 & 4.4.2.12). Short-circuit of DC output of power supply immediately resulted in the power supply cycling (hiccup mode). Refer to clause 4.4.2.8 in this test report for other short-circuits applied.	P
	b) Surface temperature of liquids and parts (see 9.5)	No ignition hazard; refer to clause 9.5 below	P
	c) No ignition in circuits designed to produce heat	No such circuits	N
9.3	Containment of the fire within the equipment, should it occur	Not applied; methods 9.1 a-b) applied.	N
9.3.1	Constructional requirements		N
	a) Connectors and insulating material have flammability classification V-2 or better		N
	b) Insulated wires and cables are flame retardant (VW-1 or equivalent)		N
	c) ENCLOSURE meets following requirements:		N
	1) Bottom and sides in arc of 5 ° (see Figure 13) to non-limited circuits (9.4) meets:		N
	i) no openings; or		N
	ii) perforated as specified in Table 16; or		N
	iii) metal screen with a mesh; or		N
	iv) baffles as specified in Figure 12		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	2) Material of ENCLOSURE and any baffle or flame barrier is made of:		N
	Metal (except magnesium); or		N
	Non-metallic materials have flammability classification V-1 or better		N
	3) ENCLOSURE and any baffle or flame barrier have adequate rigidity		N
9.4	Limited-energy circuit	(see Form A.24) External AC/DC power supply is separately certified to IEC/EN 60950-1 (2nd Edition) with limited power source output (LPS), which also conforms with the requirements limited energy source as described below.	P
	a) Potential not more than 30 r.m.s. and 42.4 V peak, or 60 V dc	Open-circuit is less than 30V r.m.s., 42.4V peak, or 60V d.c.	P
	b) Current limited by one of following means:	External AC/DC power supply 5V-output provides limited-energy to all circuits within equipment; see below	P
	1) Inherently or by impedance (see Table 17); or		N
	2) Over current protective device (see Table 18); or		N
	3) A regulating network limits also in SINGLE FAULT CONDITION (see Table 17)	Applied for external power supply DC 5V-output	P
	c) Is separated by at least BASIC INSULATION		N
	Fuse or a nonadjustable electromechanical device is used		N
9.5	Requirements for equipment containing or using flammable liquids		N
	Flammable liquids contained in or specified for use with equipment do not cause spread of fire		N
	RISK is reduced to a tolerable level :		N
	a) The temperature of surface or parts in contact with flammable liquids is 25 °C below fire point		N
	b) The quantity of liquid is limited		N
	c) Flames are contained within the equipment		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Detailed instructions for RISK-reduction provided		N
9.6	Overcurrent protection	None; equipment is not directly connected to Mains supply.	N
9.6.1	MAINS supplied equipment protected		N
	BASIC INSULATION between MAINS parts of opposite polarity provided		N
	Devices not in the protective conductor		N
	Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase)		N
9.6.2	PERMANENTLY CONNECTED EQUIPMENT		N
	Overcurrent device:		N
	Fitted within the equipment; or		N
	Specified in manufacturer's instructions		N
9.6.3	Other equipment		N
	Protection within the equipment		N
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	Maximum rated ambient temperature of equipment is 35°C. Equipment evaluated for test ambient of 40°C (tc = tm-ta+ 40°C).	N
	Heated surfaces necessary for functional reasons exceeding specified values:	No heated surfaces	N
	Are recognizable as such by appearance or function; or		N
	Are marked with symbol 13		N
	Guards are not removable without tool		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.2	Temperatures of windings	Not applied; temperatures of motor windings not deemed to create a hazard. Motors are constructed with full metal housing, and supplied by limited energy from controller board. Turntable motor is a stepper motor; normally under locked-rotor condition.	N
	Limits not exceeded in:		N
	NORMAL CONDITION		N
	SINGLE FAULT CONDITION		N
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	No field-wiring terminal box used	N
	b) Surface of flammable liquids and parts in contact with this liquids	Internal surfaces of reservoir and chamber cover	P
	c) Surface of non-metallic ENCLOSURES	Plastic enclosure	P
	d) Parts made of insulating material supporting parts connected to MAINS supply	No such parts; equipment is not directly connected to Mains supply.	N
	e) Terminals carrying a current more than 0,5 A	Refer to clause 10.5.3 in this test report.	P
10.4	Conduct of temperature test		P
10.4.1	Tests conducted under reference test conditions and manufacturer's instructions	(see Form A.26A)	P
10.4.2	Temperature measurement of heating equipment	Not this type of equipment.	N
	Tests conducted in test corner		N
10.4.3	Equipment intended for installation in a cabinet or wall	This equipment is not intended to be mounted within a cabinet or wall.	N
	Equipment built in as specified in installation instructions		N
10.5	Resistance to heat		P
10.5.1	Integrity of CLEARANCE and CREEPAGE DISTANCES	Not relied upon for protection; refer to remarks in clause 6.7 in this test report.	N
10.5.2	Non-metallic ENCLOSURES	Plastic enclosure	P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Within 10 min after treatment:		P
	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	Equipment is not directly connected to Mains supply	N
	b) TERMINALS carrying a current more than 0.5 A	DC power jack	P
	Examination of material data; or		P
	in case of doubt:	Test not applied; see above	P
	1) Ball pressure test; or		P
	2) Vicat softening test of ISO 306		N
11	PROTECTION AGAINST HAZARDS FROM FLUIDS		P
11.1	Protection to OPERATORS and surrounding area provided by EQUIPMENT	The reservoir is intended to be filled to approx. 100ml of 70-91% isopropyl alcohol. However, the nebulizer creates a high concentration vapor that fills the chamber during the polishing process.	P
	All fluids specified by manufacturer considered	70-91% Isopropyl Alcohol (household grade) is the only be used for polishing process, as stated in multiple section of the user manual.	P
11.2	Cleaning		P
11.3	Spillage	200ml of 70-91% isopropyl alcohol, will be steady poured to each of the following parts below: -nebulizer (including connector), -multi-color LED, -lift mechanism support, -turntable, and -front panel (including controls) Passing criteria for clauses 6.3.1, 6.7, and 6.8 do not apply. Instead no wetting of components and wiring.	P

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Clause	Requirement – Test	Result – Remark	Verdict
11.4	Overflow	The reservoir is intended to be filled to approx. 100ml of 70-91% isopropyl alcohol (IPA). An additional 250ml of IPA will be poured, and the instrument will be tilted 15°. Passing criteria for clauses 6.3.1, 6.7, and 6.8 do not apply. Instead no wetting of components and wiring.	P
11.5	Battery electrolyte	No batteries used	N
	Battery electrolyte leakage presents no HAZARD		N
11.6	Specially protected equipment	Not stated; ordinary (IPX0)	N
11.7	Fluid pressure and leakage	No fluid or gases under high pressure	N
11.7.1	Maximum pressure.....:		N
	Maximum pressure of any part does not exceed P_{RATED}		N
11.7.2	Leakage and rupture at high pressure		N
	Fluid containing parts subjected to hydraulic test if:		N
	a) product of pressure and volume > 200 kPa; and		N
	b) pressure > 50 kPa		N
	Parts of refrigerating systems meets pressure-related requirements of IEC 60335-24 or IEC 60335-24		N
11.7.3	Leakage from low-pressure parts		N
11.7.4	Overpressure safety device	No such devices; see above	N
	Does not operate in NORMAL USE		N
	a) Connected as close as possible to parts intended to be protected		N
	b) Easy access for inspection, maintenance and repair		N
	c) Adjustment only with TOOL		N
	d) No discharge towards person		N
	e) No HAZARD from deposit of discharged material		N

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Clause	Requirement – Test	Result – Remark	Verdict
	f) Adequate discharge capacity		N
	No shut-off valve between overpressure safety device and protected parts		N
12	PROTECTION AGAINST RADIATION, INCLUDING LASER SOURCES, AND AGAINST SONIC AND ULTRASONIC PRESSURE		P
12.1	Equipment provides protection		P
12.2	Equipment producing ionizing radiation	Equipment does not produce such radiation	N
12.2.1	Ionizing radiation		N
12.2.1.1	Equipment meets the following requirements:		N
	a) if intended to emit radiation meets requirements of 12.2.1.2; or		N
	tested, classified and marked in accordance to IEC 60405		N
	b) if only emits stray radiation meets requirements of 12.2.1.3		N
12.2.1.2	Equipment intended to emit radiation		N
	Effective dose rate of radiation measured..... :		N
	If dose rate exceeds 5 µSv/h marked with the following:		N
	a) Symbol 17 (ISO 361)		N
	b) Abbreviations of the radionuclides..... :		N
	c) With maximum dose at 1 m; or..... :		N
	with dose rate value between 1 µSv/h and 5 µSv/h in m		N
12.2.1.3	Equipment not intended to emit radiation		N
	Limit for unintended stray radiation of 1 µSv/h at any easily reached point kept		N
12.2.2	Accelerated electrons		N
	Compartments opened only by the use of a TOOL		N
12.3	Ultraviolet (UV) radiation	No ultra-violet (UV) radiation	N
	No unintentional HAZARDOUS escape of UV radiation:		N
	- checked by inspection; and		N
	- evaluation of RISK assessment documentation		N

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Clause	Requirement – Test	Result – Remark	Verdict
12.4	Micro-wave radiation	No microwave radiation	N
	Power density does not exceed 10 W/m ²		N
12.5	Sonic and ultrasonic pressure		P
12.5.1	Sound level	(see Form A.35)	P
	No HAZARDOUS sound emission	Equipment does not produce noise which could cause a hazard	P
	Maximum sound pressure level measured and calculated for maximum sound power level as specified in ISO 3746 or ISO 9614-1		P
	Instruction describes measures for protection		N
12.5.2	Ultrasonic pressure	Equipment does not produce ultrasound which could cause a hazard	N
	Equipment not intended to emit ultrasound does not exceed limit of 110 dB between 20 kHz and 100 kHz		N
	Equipment intended to emit ultrasound:		N
	Outside useful beam does not exceed limit of 110 dB between 20 kHz and 100 kHz		N
	If inside useful beam above values exceeded:		N
	Marked with Symbol 14 of Table 1		N
	and following information in the documentation:		N
	a) dimensions of useful beam		N
	b) area where ultrasonic pressure exceed 110 dB		N
	c) maximum sound pressure inside beam area		N
12.6	Laser sources	No laser sources.	N
	Equipment meets requirements of IEC 60825-1		N
13	PROTECTION AGAINST LIBERATED GASES, EXPLOSION AND IMPLOSION		P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
13.1	Poisonous and injurious gases	Extensive/prolonged inhalation of isopropanol vapor or extended skin contact with liquid isopropanol can cause mild irritation and users are expressly warned of this danger by warning labels on the instrument and by the Important Safety Instructions section in User Manual.	P
	No poisonous or injurious gases or substances liberated in NORMAL CONDITION	Neither significant inhalation nor skin contact in normal condition.	P
	Attached data/test reports demonstrate conformity	70-91% isopropyl alcohol (IPA), is in fact commonly sold in drugstores and supermarkets as “rubbing alcohol” for the express purpose of topical application for “treatment of minor cuts and scrapes”. The risks of usage of IPA by the general public in those applications have historically been deemed acceptable.	P
13.2	Explosion and implosion		N
13.2.1	Components	No such components or devices	N
	Components liable to explode:		N
	Pressure release device provided; or		N
	Apparatus incorporates operator protection (see also 7.7)		N
	Pressure release device:		N
	Discharge without danger		N
	Cannot be obstructed		N
13.2.2	Batteries and battery charging	No batteries or battery charging circuitry.	N
	If explosion or fire HAZARD could occur:		N
	Protection incorporated in the equipment; or		N
	Instructions specify batteries with built-in protection		N
	In case of wrong type of battery used:		N

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Clause	Requirement – Test	Result – Remark	Verdict
	No HAZARD; or		N
	Warning by marking and within instructions		N
	Equipment with means to charge rechargeable batteries:		N
	Warning against the charging of non-rechargeable batteries; and		N
	Type of rechargeable battery indicated; or		N
	Symbol 14 used		N
	Battery compartment design		N
	Single component failure		N
	Polarity reversal test		N
13.2.3	Implosion of cathode ray tubes	No batteries or battery charging circuitry.	N
	If maximum face dimensions > 160 mm..... :		N
	Intrinsically protected and correctly mounted; or		N
	ENCLOSURE provides protection:		N
	If non-intrinsically protected:		N
	Screen not removable without TOOL		N
	If glass screen, not in contact with surface of tube		N
14	COMPONENTS AND SUBASSEMBLIES		P
14.1	Where safety is involved, components and subassemblies meet relevant requirements	(see Table 1)	P
14.2	Motors	The platform turntable has a 5Vd.c. stepper motor. The lift mechanism has a 5Vd.c. brushless motor.	N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
14.2.1	Motor temperatures	Temperatures of motor windings not deemed to create a hazard. Motors are constructed with full metal housing, and supplied by limited energy from controller board. Turntable motor is a stepper motor; normally under locked-rotor condition. In event the lift mechanism motor was to be stalled or windings shorted, the thermal protection of IC-driver 'U5' or fuses 'F3, F4' would shut down motor output circuit immediately.	N
	Does not present a HAZARD when stopped or prevented from starting; or		N
	Protected by over-temperature or thermal protection device conform with 14.3		N
14.2.2	Series excitation motors		N
	Connected direct to device, if over-speeding causes a HAZARD		N
14.3	Overtemperature protection devices	No such devices provided	N
	Devices operating in a SINGLE FAULT CONDITION		N
	a) Reliable function is ensured		N
	b) RATED to interrupt maximum current and voltage		N
	c) Does not operate in NORMAL USE		N
	If self-resetting device used to prevent a HAZARD, protected part requires intervention before restarting		N
14.4	Fuse holders	No fuse holders	N
	No access to HAZARDOUS LIVE parts		N
14.5	MAINS voltage selecting devices	No such devices used; equipment is not directly connected to Mains supply	N
	Accidental change not possible		N
14.6	MAINS transformers tested outside equipment	No mains transformers; equipment not directly connected to Mains supply.	N

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Clause	Requirement – Test	Result – Remark	Verdict
14.7	Printed circuit boards	PCB rated V-1 or better	P
	Data shows conformity with V-1 of IEC 60695-11-10 or better; or		P
	Test shows conformity with V-1 of IEC 60695-11-10 or better		N
	Not applicable for printed wiring boards with limited-energy circuits (9.4)		N
14.8	Circuits or components used as transient overvoltage limiting devices	No such circuits or components; not exposed transient overvoltages. Equipment is not directly connected to Mains supply, telecommunication network, or cable distribution system.	N
	Test conducted between each pair of MAINS SUPPLY TERMINALS		N
	No HAZARD resulting from rupture or overheating of the component:		N
	- no bridging of safety relevant insulation		N
	- no heat to other parts above the self-ignition points		N
15	PROTECTION BY INTERLOCKS		N
15.1	Interlocks are designed to remove a HAZARD before OPERATOR exposed		N
15.2	Prevention of reactivation		N
15.3	Reliability		N
	Single fault unlikely to occur; or		N
	Cannot cause a HAZARD		N
16	HAZARDS RESULTING FROM APPLICATION		P
16.1	REASONABLY FORESEEABLE MISUSE		P
	No HAZARDS arising from settings not intended and not described in the instructions	No such circuits or components; not exposed transient overvoltages. Equipment is not directly connected to Mains supply, telecommunication network, or cable distribution system.	P

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Other cases of REASONABLY FORESEEABLE MISUSE addressed by RISK assessment		N
16.2	Ergonomic aspects	No such aspects give rise to such hazards.	N
	Factors giving rise to a HAZARD the RISK assessment is reflecting those aspects:		N
	a) limitation of body dimensions		N
	b) displays and indicators		N
	c) accessibility and conventions of controls		N
	d) arrangement of TERMINALS		N
17	RISK assessment	Not evaluated	/
	RISK assessment conducted, if HAZARD might arise and not covered by Clauses 6 to 16		/
	TOLERABLE RISK achieved by iterative documented process covering the following:		/
	a) Risk analysis		/
	Identifies HAZARDS and estimates RISK		/
	b) Risk evaluation		/
	Plan to judge acceptability of resulting RISK level based on the estimated severity and likelihood of a RISK		/
	c) Risk reduction		/
	Initial RISK reduced by counter measures;		/
	Repeated RISK evaluation without new RISKS introduced		/
	RISKS remaining after RISK assessment addressed in instructions to RESPONSIBLE BODY:		/
	Information contained how to mitigate these RISKS		/
	Following principles in methods of RISK reduction applied by manufacturer in given order:		/
	1) RISKS eliminated or reduced as far as possible		/
	2) Protective measures taken for RISKS that cannot be eliminated		/
	3) User information about residual RISK due to any defect of the protective measures		/
	Indication of particular training is required		/

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Clause	Requirement – Test	Result – Remark	Verdict
	Specification of the need for personal protective equipment		/
	Conformity checked by evaluation of the RISK assessment documentation		/
Annex F	ROUTINE TESTS		N
	Manufacturer's declaration		N

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

4.4	TABLE: Summary of SINGLE FAULT CONDITIONS	Form A.1	P
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Subclause	Fault No.	Fault description	Td 4.4.3 (NOTE)	How was test terminated Comments	Meets 4.4.4
4.4.2.8, 4.4.2.12	01	Short Capacitor 'C1' (similar as to short external AC/DC power supply 5V-output)	0:05:00	Power supply output immediately cycled (hiccup). No hazards.	P
4.4.2	02	Reverse Polarity (at DC input)	0:00:01	Equipment did not power up. No hazards	P
4.4.2.10 b), 10.2	03	Stall Ceiling Fan	10:00:00	Temperatures increased and stabilized. Refer to Form A.26A-SFC. No hazards.	P
4.4.2.10 a), 10.2	04	Block bottom vent openings	10:00:00	Temperatures increased and stabilized. Refer to Form A.26A-SFC. No hazards.	P
4.4.2.5, 10.2	05	Stall Lift Mechanism Brushless Motor	10:00:00	Temperatures increased and stabilized. Refer to Form A.26A-SFC. No hazards.	P

NOTE Td = Test duration in hh:mm:ss

Record dielectric strength test on Form A.18 and temperature tests on Form A.26A and or A.26B. Record in the comments column for each test whether carried out during or after SINGLE FAULT CONDITION.

Supplementary information:

This equipment was tested in the normal horizontal position on test bench at room ambient. Unless otherwise stated above, the equipment was operated at maximum power configuration (Polish Mode): Lights On, Fan On, LED On (Y/G/R setting), Turntable On w/load of 11.2g mass, Nebulizer On. Equipment is powered by external AC/DC power supply which is supplying a single 5Vdc output. All circuits & parts within the equipment are 5Vdc or less.
No faults were applied to internal components of external power supply (separately certified).

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Clause	Requirement – Test	Result – Remark	Verdict

5.1.3c)	TABLE: Mains supply	Form A.2	P
	Marked rating :	5 V	—
	Phase..... :	/	—
	Frequency :	/ Hz	—
	Current :	2 A	—
	Power :	/ W	—
	Power :	/ VA	—

Test No.	Voltage V	Frequency Hz	Current A	Power in W	Power in VA	Comments
01	5.0V $\overline{\text{---}}$	/	1.33	6.32	/	Normal working

Note: Measurements are only required for marked ratings.

Supplementary information:

The measurements for 'Power in' above were calculated for reference purposes only.
Not directly connected to Mains supply. Equipment is powered by external AC/DC power supply which is supplying a single 5Vdc output.

The recorded measurements above were provided for informational purposes only to validate that the instrument itself does not draw more current than the rated output current of external power supply

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) Rear adhesive label	
Mains supply (5.1.3)		Not directly connected to Mains supply	
Fuses (5.1.4)		No operator replaceable fuses	
terminals and operating devices (5.1.5.2)		No such terminals; not directly connected to Mains	

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Clause	Requirement – Test	Result – Remark	Verdict

Switches and circuit breakers (5.1.6)		2) Silkscreen on front panel; stand-by switch is not used as disconnecting device			
Double/reinforced equipment (5.1.7)		No such insulations required; Class III.			
Field wiring Terminal boxes (5.1.8)		No field-wiring TERMINAL boxes			
Warning marking (5.2)		1) Top ceiling adhesive label and rear adhesive label			
Battery charging (13.2.2)		No batteries or battery charging circuitry			
Method	Test agent	Remains legible	Label loose	Curled edges	Comments
		Verdict	Verdict	Verdict	
1)	A	Yes - Pass	No-Pass	No-Pass	Identification & Warning labels
1)	B	Yes - Pass	No-Pass	No-Pass	Identification & Warning labels
2)	A	Yes - Pass	No-Pass	No-Pass	Front panel silkscreen
2)	B	Yes - Pass	No-Pass	No-Pass	Front panel silkscreen

Supplementary information:
 Identification & warning labels, and front panel silkscreen markings were tested. Tests were conducted with equipment operating & at thermal equilibrium state.

6.2	TABLE: List of ACCESSIBLE parts	Form A.4	P
6.1.2	Exceptions	No exception applied; no accessible parts are Hazardous Live	—
6.2	Determination of accessible parts	The following accessible parts are not HAZARDOUS LIVE (electric shock or burn)	—
Item	Description	Determination method (NOTE 5)	Exception under 6.1.2 (NOTE 4)
01	External plastic enclosure (top & bottom)	V	
02	External plastic enclosure (top & bottom)	V	
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).			

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

NOTE 4 – Capacitor test may be required (see Form A.7).

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:

The above-mentioned accessible parts are not HAZARDOUS LIVE (electric shock or burn).

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Clause	Requirement – Test							Result – Remark					Verdict
6	TABLE: Values in NORMAL CONDITION							Form A.5					N
6.1.1	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.6)	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	
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:													

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

6.3.2	TABLE: Values in SINGLE FAULT CONDITION										Form A.6	N
Item (See Form A.6)	Subclause and fault No. (see FormA.2)	Voltage			Transient (see NOTE)		Current				Capacitance	Comments
		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 (NOTE)	
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.												
<p>Supplementary information: All accessible parts (in Form A.4) are not HAZARDOUS LIVE (electric shock). All circuits & parts within the equipment are 5Vdc or less. Not directly connected to Mains supply. Equipment is powered by external AC/DC power supply which is supplying a single 5Vdc output. The power supply which is certified to IEC 60950-1, and its output does not exceed limits of clauses 6.3.1 & 6.3.2.</p>												

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

6.5.2.2	TABLE: Cross-sectional area of bonding conductors		Form A.7	N
	Conductor location	Cross-sectional area mm ²		Verdict
Supplementary information: No protective bonding required.				

6.5.2.3	TABLE: Tighting torque test		Form A.8	N
	Conductor location	Size of Screw	Tighting torque Nm	Verdict
Supplementary information: No protective bonding required				

6.5.2.4	TABLE: Bonding impedance of plug connected equipment			Form A.9	N
	ACCESSIBLE part under test	Test current A	Voltage attained after 1 min V (NOTE 2)	Calculated resistance (Maximum 0,1 or 0,2 Ω) Ω (NOTE 1)	Verdict
NOTE 1 – For none-detachable power cord the impedance between protective conductor plug pin of MAINS cord and each ACCESSIBLE part shall not exceed 0,2 Ohm.					
Supplementary information: No protective bonding required.					

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

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Clause	Requirement – Test	Result – Remark	Verdict

6.5.2.6	TABLE: Transformer PROTECTIVE BONDING screen			Form A.11	N
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 overcurrent protection means of the winding. Test is specified in 6.5.2.6 a) or b).					
Supplementary Information:					

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Clause	Requirement – Test	Result – Remark	Verdict

6.5.4	TABLE: protective impedance	Form A.12	N
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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:

6.5.6	TABLE: Current- or voltage-limiting device	Form A.13	N
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Component	Location	Measured		Rated		Verdict	Comments
		Working voltage V	Current A	Working voltage V	Current A		

Supplementary information:

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

6.7	TABLE: CLEARANCES and CREEPAGE DISTANCES										Form A.16	N	
6.4.2	ENCLOSURES and protective barriers			8	Mechanical resistance to shock and impact						—		
6.4.4	Impedance			9.6.1	Overcurrent protection basic insulation between MAINS parts						—		
6.5.4	Protective impedance			10.5.1	Integrity of CLEARANCES and CREEPAGE distances						—		
6.5.6	Current- or voltage-limiting device										—		
Location	Measured (initial – 6.7)		Verdict	Mechanical tests (note)				Test at max.	Measured after test (if required)		Verdict		
(see Form A.5)	CREEPAGE DISTANCE	CLEARANCE		Applied force	Rigidity (8.2)		Drop (8.3)		RATED ambient	CREEPAGE DISTANCE	CLEARANCE		Comments
	mm	mm		(6.7) N	Static (8.2.1)	Impact (8.2.2)	Normal (8.3.1)	Hand-held/ Plug-in	(10.5.1)	mm	mm		
NOTE – Refer to Form A.14 for dielectric strength tests following the above tests.													
Supplementary information:													

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Clause	Requirement – Test	Result – Remark	Verdict

6.8	TABLE: Dielectric strength tests	Form A.18	N
4.4.4.1 b)	Conformity after application of SINGLE FAULT CONDITIONS ¹		
6.4	Primary means of protection ²		
6.6	Connections to external circuits		
6.7.	Insulation requirements ² (see Annex K)		
6.10.2	Fitting of non-detachable MAINS supply cords ¹		
9.2 a) 2)	Eliminating or reducing the sources of ignition within the equipment		
9.4 c)	Limited-energy circuit		
9.6.1	Overcurrent protection basic insulation between MAINS - parts		

¹ Record the fault, test or treatment applied before the dielectric strength test. ² Humidity preconditioning required.

Test site altitude		m	—			
Test voltage correction factor (see Table 10) .:			—			
Location or references from Forms A.2 and A.5	Clause or sub-clause	Humidity Yes/No	Working voltage V	Test voltage r.m.s/peak/d.cV	Comments	Verdict

Supplementary information:

6.10.2	TABLE: Cord anchorage	Form A.19	N			
Location	Mass kg	Pull N	Verdict	Torque Nm	Verdict	Comment

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

Supplementary information:

Equipment is not directly connected to Mains supply. It also is not subjected to overvoltages; all covered under the external power supply certification.

Equipment is powered by external AC/DC power supply which is supplying a single 5Vdc output. All circuits & parts within the equipment are 5Vdc or less.

The external power supply 5V-output has Functional insulation as per approval to 60950-1. Functional insulation is not defined in 61010-1, and is deemed to be below Basic insulation level, therefore power supply output was shorted (per clause 4.4.2.8 & 4.4.2.12). Short-circuit of DC output of power supply immediately resulted in the power supply cycling (hiccup mode).

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Clause	Requirement – Test	Result – Remark	Verdict

7.	TABLE: Protection against mechanical HAZARDS												Form A.20	N	
7.3.4	Limitation of force and pressure														
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 présure max. 50 N /cm ² @ max. 150 N	max. 250 N / 3 cm ² @ 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:
 Lift mechanism is accessible, but does not create a moving hazard; refer to clause 7.3.3 in this test report.
 The turntable is not accessible in normal use (chamber cover in-place). Turntable is round and presents no hazard.
 Lift mechanism motor and turntable motor, are both located within enclosure; not accessible.
 Operator is not instructed to remove any covers. Covers to be removed only for servicing purposes by manufacturer or their service agent

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 (9a, 9b or 9c)		Protection details						Verdict
DC 5V	DC input connector, components on Application processor board						9.1a, 9.1b		Refer to Form A.1. In addition, overcurrent protection provided by external power supply (see Form A.24)						P
Enclosure	Plastic housing						9.1a, 9.1b		Refer to Form A.1. In addition, all internal components are supplied from limited-energy source (see Form A.24).						P

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Clause	Requirement – Test	Result – Remark		Verdict
SELV components	Printed Circuit Boards (PCBs),	9.1a, 9.1b	V-1 or better	P
Supplementary information:				

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

9.3.2	TABLE: Constructional requirements	Form A.23	N
14.7	Printed circuit boards	V-1 or better (UL certified to UL 94 & UL 796); refer to Table 1 in this test report.	N

Material tested		—
Generic name		—
Material manufacturer		—

Type		
Colour		
Conditioning details		

		Sample 1	Sample 2	Sample 3
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:

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Clause	Requirement – Test	Result – Remark	Verdict

9.4	TABLE: Limited-energy circuit					Form A.24	p
Item	9.4 a)	9.4b) Current and power limitation			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	Maximum available power VA	Overload protection after 120 s A	Circuit separation	Yes/No	Comments
External power supply DC 5V-output	DC 5.08 (open-circuit)	4.0 (> 60 sec)	/	N/A - Regulating network	Basic	Yes	Limit of Table 17 applied; 8A. Rated continuous load = 2.2A, Hiccup-mode current = > 4.0A
Supplementary information:							

9.5	TABLE: Requirements for equipment containing or using flammable liquids				Form A.25	N
	Type of liquid	9.5 Flammable liquids				Verdict
		b) quantity	c) Containment			
Supplementary information:						
The reservoir is intended to be filled to approx. 100ml of 70-91% isopropyl alcohol. However, the nebulizer creates a high concentration vapor that fills the chamber during the polishing process.						
There is RISK of fire and/or explosion if operated in close proximity to an open flame. Therefore the requirements of clause 17 (RISK Assessment) are applied.						

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Clause	Requirement – Test	Result – Remark	Verdict

10.	TABLE : Temperature Measurements				Form A.26A	P
10.1	Surface temperature limits - NORMAL CONDITION and / or SINGLE FAULT CONDITION					P
10.2	Temperature of windings- NORMAL CONDITION and / or SINGLE FAULT CONDITION					N
10.3	Other temperature measurements					P
Operating conditions:						
Frequency		/	Hz	Test room ambient temperature (t _a)		25.3 °C
Voltage		DC5	V	Test duration		2 h 15 min
Part / Location		t _m °C	t _c °C	t _{max} °C	Verdict	Comments
DC fan		32.0	47.0	105	P	/
PCB near LED		36.5	51.5	130	P	/
DC moter(model: B07)		46.2	61.2	105	P	/
DC moter(model: 28BYJ-48)		44.3	59.3	105	P	/
Plastic enclosure		27.2	41.2	70	P	/
Ambient		25.0	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:						

10.2	TABLE: Temperature of windings Resistance method Temperature Measurements				Form A.26B	N
4.4.2.7	MAINS Transformers					
14.2.1	Motor temperatures					
Operating conditions:						
Frequency		/	Hz	Test room ambient temperature (t _a)		°C
Voltage		/	V	Test duration		h min
Part / Designation	R _{cold} Ω	R _{warm} Ω	Current A	tr K	tc °C	tmax °C

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Clause	Requirement – Test	Result – Remark	Verdict

NOTE 1- R_{cold} = initial resistance
 t_r = temperature rise
 t_{max} = maximum permitted temperature

R_{warm} = final resistance
 $t_c = t_r$ corrected ($t_c = t_r - \{ t_{a2} - t_{a1} \} + [40 \text{ °C or max RATED ambient}]$)

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:

10.5.2	TABLE: Resistance to heat of non-metallic enclosures		Form A.27	P
	Test method used:			—
	Non operative treatment	[x]		P
	Empty ENCLOSURE	[]		N
	Operative treatment	[]		N
	Temperature during tests	Treated for 70°C for 7 hours.		—
	ENCLOSURE samples tested were	1		—
	Description	Material	Comments	Verdict
	Base frame	ABS/PA-765A(+)	/	P
	Chamber window	PC/C110	/	P
	Buttom base	ABS/0215A	/	P
	Turntable platform	POM/500P	/	P
	Dielectric strength test (6.8) :	N	V	r.m.s./peak/d.c.
		N	V	r.m.s./peak/d.c.

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

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
	Power Jack Cover,	125	1.0	P
	Supplementary information:			
10.5.3 2)	Vicat softening test (ISO 306)		Form A.29	N
	Part	Vicat softening temperature °C	Thickness of sample (mm)	Verdict
	Supplementary information:			

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Clause	Requirement – Test	Result – Remark	Verdict

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

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.

Location (see form A.14)	Clause 8 tests				Clause 11 tests				Working voltage V	Test voltage V	Verdict	Comments
	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)				
Front enclosure	P	5J	30°	N	P	N	N	N	5	N	P	/
Left side enclosure	P	5J	30°	N	P	N	N	N	5	N	P	/
Right side enclosure	P	5J	30°	N	P	N	N	N	5	N	P	/
Rear side enclosure	P	5J	30°	N	P	N	N	N	5	N	P	/
Top enclosure	P	5J	30°	N	P	N	N	N	5	N	P	/
Bottom enclosure	P	5J	30°	N	P	N	N	N	5	N	P	/

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

Supplementary information:

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

11.7.2	TABLE: Leakage and rupture at high pressure			Form A.31	N
Part	Maximum permissible working pressure MPa	Test pressure MPa	Leakage YES / NO	Burst YES / NO	Comments

Supplementary information:

11.7.3	Leakage from low-pressure parts		Form A.32	N
Part	Test pressure MPa	Leakage YES / NO	Comments	

Supplementary information:

12.2.1	TABLE: Ionizing radiation			Form A 33	N
12.2.1.2	Equipment intended to emit radiation				N
Locations tested	Measured values μSv/h	Verdict	Comments		

Supplementary information:

12.2.1.3	Equipment not intended to emit radiation		Form A 34	N
	Max. allowed effective dose rate at 100 mm.....:		1 μSv/h	—
Locations tested	Measured values μSv/h	Verdict	Comments	

Supplementary information:

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

12.5.1	TABLE: Sound level	Form A.35	P
	Locations tested	Measured values dBA	Calculated maximum sound pressure level
	At operator's normal position and at bystanders' positions		
	a) Front side of instrument	10	Not required
	b) Top side of instrument	9	Not required
	c) Left side of instrument	9	Not required
	d) Right side of instrument	9	Not required
	e) Rear side of instrument	10	Not required
	f)		

Supplementary information:

12.5.2	Ultrasonic pressure	Form A.36	P
	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:

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Clause	Requirement – Test	Result – Remark	Verdict
13.2.2	TABLE: Batteries	Form A.37	N
	Battery load and charging circuit diagram:		N
No batteries or battery charging circuitry			
	Battery type		--
	Battery manufacturer/model/catalogue No.		--
	Battery ratings		--
	Reverse polarity instalment test		N
Single component failures		Verdict	
Component		Open circuit	Short circuit
Supplementary information			

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

EN 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

4.4.2.7		TABLE: Mains transformer		Form A.39			N	
4.4.2.7.2		Short circuit						N
14.6		MAINS transformers tested outside equipment						N
Type.....:								—
Manufacturer								—
Test in equipment								
Test on bench								
Test repeated inside equipment (see 14.6)								
Optional – Insulation class (IEC 60085) of the lowest RATED winding:								—
Winding identification								
Type of Protector for winding (Note 1)								
Elapsed time								
Current, A primary								
secondary								
Winding temperature, °C primary								
(see Note 2) secondary								
Tissue paper / cheesecloth OK ?								
(Pass / Fail)								
Voltage tests (see Note 3)								
primary to secondary			V					
primary to core			V					
secondary to secondary			V					
secondary to core			V					
Verdict								
Note 1:	Primary fuse		-	PF /	()	A		
	Secondary fuse		-	SF /	()	A		
	Overtemperature protection		-	OP /	()	°C		
	Impedance protection		-	Z				
Note 2:	Indicate method of measurement			TC =	with thermocouple			
				R =	resistance method			
Note 3:	If resistance method is used, record resistance in cold and warm condition in Form A.20B!							
	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 61010-1				
Clause	Requirement – Test	Result – Remark		Verdict
4.4.2.7	TABLE: Mains transformer	Form A.40		N
4.4.2.7.3	Overload tests (for MAINS transformers)			N
14.6	MAINS transformers tested outside equipment			N
Type.....:				—
Manufacturer.....:				—
Test in equipment				
Test on bench				
Test repeated inside equipment (see 14.6)				
Optional – Insulation class (IEC 60085) of the lowest RATED winding:				
Winding identification				
Type of Protector for winding (Note 1)				
Elapsed time				
Current, A primary				
secondary				
Winding temperature, °C primary				
(see Note 2) secondary				
Tissue paper / cheesecloth OK ? (Pass / Fail)				
Voltage tests (see Note 3)				
primary to secondary		V		
primary to core		V		
secondary to secondary		V		
secondary to core		V		
Verdict				
Note 1:	Primary fuse Secondary fuse Overtemperature protection Impedance protection	- PF / - SF / - OP / - Z	() () ()	A A °C
Note 2:	Indicate method of measurement	TC = with thermocouple R = resistance method		
Note 3:	If resistance method is used, record resistance in cold and warm condition in FormA.20B! 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 61010-1			
Clause	Requirement – Test	Result – Remark	Verdict

14.8	TABLE: Transient overvoltage limiting devices							Form A.41	N	
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 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	Manufacturer trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)	
External Power Supply	Shenzhen Rongweixin Technology Co., Ltd	R122-050200ID	Input:100-240V~, 50/60Hz, 0.4A Output:5V $\overline{\text{---}}$ 2000mA	IEC 60950-1: 05, EN 60950-1:06 +A11 +A1 +A12, UL 60950-1:07, CAN/CSA C22.2 No. 60950-1-07	cUL _{US} , TUV-GS CE	
Internal wire	Various	Various	VW-1, 24-28AWG, 300V, 80 min	UL758	UL	
DC Fan	Shenzhen Feng Zhi Yuan Electronics Co., Ltd	FD6010S1L-AP00	5Vd.c. 0.03A 8.20CFM	EN 61010-1	Tested with appliance	
DC motor	VIGOR PRECISION LTD	BO7	5Vd.c.	EN 61010-1	Tested with appliance	
DC motor	Changzhou Minsheng Electronics Co., Ltd	28BYJ48-T1	5Vd.c.	EN 61010-1	Tested with appliance	
Base frame	Chi Mei Corporation	PA-765A(+)	V-1, 85	UL94	UL E56070	
Chamber window	Ningbo Futian New Material Technology Co., Ltd	C110	V-0, 80	UL94	UL E152381	
Buttom base	Petrochina Co Ltd Jilin Petrochemical Co	0215A	HB, 60	UL94	UL E243093	
Turntable platform	E I DUPONT DE NEMOURS & CO INC	500P	HB, 85	UL94	UL E41938	
Note → 1 List all different manufacturers of the above components → 2 May include electrical, mechanical values → 3 List licence no, standard or method of acceptance 4 → asterisk indicates mark assuring agreed level of surveillance						

Important

1. The test report is invalid without the official stamp of CVC;
2. Any photocopies or part photocopies of the test report are forbidden without the written permission from CVC;
3. The test report is invalid without the signatures of Approval and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to CVC within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. “P” means “pass”, “F” means “fail”, “N” or “—” means “not applicable” and “ / ” means “not test”.

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