



**IEC 61010-1 Edition 1(1993), incl. A2(1995)**  
**TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING**

R=Required by Lab

S=May be subcontracted

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
4.3.1	Temperature Humidity Air pressure	Temp indicator/recorder 0 - 50°C Humidity indicator/recorder 0 - 99% Air pressure indicator/recorder	R R R
4.3.6/5.1.3/ 5.1.5	Input Voltage Input Current/Power Input frequency	suitable devices for the voltage, current/power and frequency	R R R
4.4.4.2/ 9.2/9.3	Temperature measurements	Temperature indicator/recorder suitable for this function ( say 0°C – 400°C) and thermocouples	R
4.4.4.3	Single fault tests	White Tissue-paper, soft wood and cheesecloth	R
5.3	Durability of markings	Cloth, (specified agent or) water, Isopropyl alcohol & a suitable timer/stop watch	R
6.1.1/6.3/ 6.10.3	<b>Residual Energy</b>	<b>Suitable oscilloscope recorder /set-up &amp; RCL meter</b>	R
6.2	<b>Accessibility</b>	<b>Suitable Test fingers as per annex B (incorporating 10N force indicator), 100mm long test pin (4mm dia) and a 3mm dia test pin.</b>	R
6.3.1/6.3.2	<b>Accessible voltage/current/capacitance/stored energy</b>	<b>Measuring circuits/filter networks of annex A, Multimeters, RCL meter Oscilloscope &amp; Timer</b>	R
6.5.1.2/ 6.5.1.3/6.5.2/ 6.5.3	<b>Bonding impedance/earth continuity test</b>	<b>Current source ( 0 - 30A) , multimeter (0 - 10V 0 - 1W), Timer</b>	R
6.6.2 6.10.3b)	<b>Terminals for external circuits (capacitive discharge test)</b>	<b>Multimeter, Oscilloscope, Isolation transformer, timer, measuring circuits/filter networks of annex A</b>	R



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6.7/10.1	Clearance & creepage distances	Micrometer/ callipers, force gauge , multimeter, oven	R
6.8.2	Humidity chamber	T 0 - 100°C, RH 0 - 99%	R
6.8.4	Dielectric strength tests	Suitable ac/dc tester and or impulse tester	R
6.10.2.1	Cord entry test	Suitable Mass, Micrometer/Calliper	R
6.10.2.2	Cord anchorage test	Suitable Scale & Torque gauge	R
7.3	Stability tests	Tape measure, suitable weight scale, torque gauge & 10° inclinometer [0-45°] (trigonometry to measure the angle can also be acceptable)	R
7.4	Strength of handles	Weight scale, timer, weights	R
8.1	Rigidity test	12mm diameter hemispherical end rod, force gauge, oven, timer, high voltage tester	R
8.2	Impact hammer test	Impact hammer 0.5 J & 0.2 J	R
8.4.1	Drop test	Smooth, hard, rigid surface	R
8.4.2	Hand-held equipment	50mm thick hard wood, density > 700Kg/m <sup>3</sup>	R
9.2.1	Heating Equipment	Test Corner, Plywood 20mm thick, black	R
9.2.2	Heating Equipment, Fixed Installation	Black 10mm, thick plywood walls	R
10.2	Enclosures	Oven 200°C, temperature recorder, thermocouple	R
10.3	Insulating materials	Vicat (ISO 306 method A) [set-up consist of heating chamber, heat transfer liquid, weight, penetration indicator, needle, temperature recorder, calliper, dielectric tester ]	S
11.2	Cleaning/decontamination	As per instructions	R
11.3	Spillage	Water, 0.2 liter measure, tape & timer/stop watch	R
11.4 (6.8.4)	Overflow	Water (or appropriate fluid), volume indicator & ac/dc high voltage tester	R
11.6	Specially protected equipment (IP rated)	See IEC 529 for test equipment	R
11.7	Fluid pressure & leakage	Suitable pressure & volume measurement devices	R



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12.2.1	Ionizing radiation	Suitable ionization meter (limit 5 mSv/h, indicative)	R
12.3	UV Radiation	UV meter (compliance/limit under consideration)	-
12.4	Microwave Radiation	Suitable measuring device (compliance test/limit under consideration)	-
12.5.1	Sound pressure level	Sound level meter (0 - 100dBA)	S
12.5.2	Ultrasonic pressure	Suitable inductor/measuring device (limit under consideration)	-
12.6	Laser sources	As per IEC825	S
13.3	High vacuum devices	As per IEC65	S
14.2	Motors	Temperature recorder, suitable Multimeter,	R
14.3	Overtemperature protection devices	Multimeters, oscilloscope, temperature recorder, high voltage tester, Annex A filter network	R
14.7	Mains transformers (sc/overload)	Electronic loads, multimeters, temperature recorder with thermocouples or a suitable resistance measuring device	R
15.3	Reliability (Interlocks)	Suitable multimeters	R
16/16.1	Measuring circuits	Suitable current measuring device, timer	R
Annex A	Measurement Circuits	A1 to A3	R
Annex F	Protection against the spread of fire	Suitable multimeter, wattmeter and oscilloscope	R

Note: The presence of equipment alone does not indicate a satisfactory situation. Assessors must evaluate the equipment design, calibration, uncertainty and documentation to ensure compliance with the directions of the standard. The requirements of ISO Guide 25 regarding validation are applicable, as the tests of this standard are not standardised tests.