



## TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING IEC 61010-1:2010

“R”	Required
“S”	May be subcontracted, see OD 2012
“SF”	Specialized Facility, see IECEE 02-2
“W”	Witness testing in the categories “MED” and “MEAS”
“3PPS”	Three Phase Power Supply required

Clause	Measurement / testing	Testing / measuring equipment / material needed	Subcontracting
4.3.1	Temperature Humidity Air pressure	Temp indicator / recorder Humidity indicator / recorder Air pressure indicator / recorder	<a href="#">GDJS-015B</a>
4.3.2.5 / 5.1.3	Input Voltage Input Current / Power Input frequency	Suitable voltmeter Current / power meter Frequency measuring device	<a href="#">LS2012</a>
4.4.2.7.2 / 4.4.2.7.3	Short circuit / Overload	Multimeter; Current meter; Power meter Temperature recorder with thermocouples or a suitable resistance Measuring device Suitable variable resistor(s) Stopwatch	R
4.4.4.2 / 10.4	Temperature measurements	Temperature recorder with thermocouple	R
4.4.4.3	Spread of fire	White Tissue-paper Soft wood Cheesecloth	R
5.3	Durability of markings	Cloth Specified agent or 70% Isopropyl alcohol Suitable timer / stopwatch	R



## IEC System for Conformity Testing and Certification of Electrotechnical Equipment and Components

Clause	Measurement / testing	Testing / measuring equipment / material needed	Subcontracting
6.1.1 / 6.3 / 6.10.3	Residual Energy	Suitable oscilloscope recorder / set-up RCL meter Length measurement scale	R
6.2	Accessibility	Test fingers as per annex B (with suitable means to evaluate the application force), 100mm long test pin (Ø4mm) and Ø3mm test pin. Force gauge	<a href="#">SMT-1175</a> <a href="#">SMT-PB</a> <a href="#">SMT-4001C</a> <a href="#">SMT-3001C</a>
6.3.1 / 6.3.2	Accessible voltage / current / capacitance / stored energy	Measuring circuits / filter networks of annex A Multimeters RCL meter Oscilloscope Timer	R
6.5.2.3 / 6.5.2.4 / 6.5.2.5 / 6.5.2.6 /  6.5.4	Bonding impedance / earth continuity test	Current source Multimeter Current meter Timer Torque gauge for screw assemblies Caliper	R
6.6.2 / 6.10.3	Terminals for external circuits (capacitive discharge test)	Multimeter Oscilloscope Suitable Probe (100 M Ohm input impedance, max. input cap. 25 pF) Isolation transformer Suitable Switch Off Unit Timer Measuring circuits / filter networks of annex A	<a href="#">OSP1102</a> <a href="#">ITEU-SP4K</a>



## IEC System for Conformity Testing and Certification of Electrotechnical Equipment and Components

Clause	Measurement / testing	Testing / measuring equipment / material needed	Subcontracting
6.7 / 10.5.1	Clearance & creepage distances	Micrometer / caliper Force gauge Multimeter Oven	<a href="#">CK-1</a>
6.7.1.3	Test equipment for tracking index	CTI Tester Test solution A	S
6.8.1	Distances between Terminal and foil	Length measurement scale	R
6.8.2	Humidity chamber	T: 0 – 100°C, RH: 0 – 99% Chronometer	<a href="#">GDJS-015B</a>
6.8.3	Dielectric strength tests	High Voltage ac / dc tester or Impulse tester	<a href="#">LSP-500VARC</a> <a href="#">DC3005S</a> <a href="#">SUG255</a>
6.10.2.1	Cord entry test	Micrometer / Caliper	R
6.10.2.2	Cord anchorage test	Suitable Force gauge Torque gauge	R
7.3.4	Limitation of force and pressure	Force gauge	R
7.3.5	Gap limitations between moving parts	Length measurement scale	R
7.4	Stability tests	Tape measure Suitable weight scale Force gauge Length measurement scale Torque gauge 10° inclinometer [0-45°] (trigonometry to measure the angle can also be acceptable)	R



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7.5	Strength of handles	Weight scale Timer Weights 70 mm wide strap Length measurement scale	R
7.6	Wall mounting	Timer Weight scale Weights Length measurement scale	R
8.2.1	Static test	12mm diameter hemispherical end rod Force gauge Oven Timer High Voltageac / dc tester or Impulse tester	R
8.2.2	Dynamic test	Ø50 mm hardened steel ball of 500 grams as specified	<a href="#">LS-B33</a>
8.3.1	Drop test	Weight scale Length measurement scale 30° inclinometer (trigonometry to measure the angle can also be acceptable) Smooth, hard, rigid surface 10 mm&20 mm wooden studs	R
8.3.2	Hand-held equipment	50mm thick hard wood, density > 700 kg / m <sup>3</sup> Length measurement scale Climatic chamber Timer	<a href="#">ZY-3</a> <a href="#">HVR-LS</a>
9.3.1 / 14.7	Flammability tests	Bunsen burner, gas Oven	



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9.3.2	Constructional requirements	Inclinometer Length measurement scale Caliper	R
9.4	Limited Energy Circuits	Multimeters Current meter Suitable variable resistors Stopwatch	R
10.4.2	Heating Equipment	Test Corner, Plywood 20mm thick, black	<a href="#">GDJS-015B</a>
10.4.3	Heating Equipment, Fixed Installation	Black 10mm, thick plywood walls	R
10.5.2	Enclosures	Oven 200°C Temperature recorder with Thermocouple Chronometer	<a href="#">GDJS-015B</a>
10.5.3	Insulating materials	Ball pressure apparatus (with suitable means to evaluate the application force), heating cabinet.	<a href="#">ZBP-T</a> <a href="#">GDJS-015B</a>
		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 manufacturers instructions	R
11.3	Spillage	Water 0.2 litre measure Tape Timer / stopwatch Length measurement scale	R



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11.4 (6.8.4)	Overflow	Water (or appropriate fluid), Volume indicator Inclinometer High Voltageac / dc tester or Impulse tester Timer / stopwatch	R
11.6	Specially protected equipment (IP rated)	See IEC 60529 for test equipment	<a href="#">JL-X&amp;SC-015</a>
11.7	Fluid pressure & leakage	Suitable pressure & volume measurement devices	S
12.2.1	Ionizing radiation	Suitable ionization meter (limit 5 $\mu$ Sv / h, indicative)	S
12.3	UV Radiation	UV meter (compliance / limit according IRPA guidelines)	<a href="#">UV-263LS</a>
12.4	Microwave Radiation	Suitable measuring device	S
12.5.1	Sound pressure level	Sound level meter	S
12.5.2	Ultrasonic pressure	Suitable indicator / ultrasonic level meter	S
12.6	Laser sources	As per IEC60825-1	S
13.2.3	High vacuum devices	As per IEC60065	S
14.2	Motors	Temperature recorder with thermocouple Multimeter	R
14.3	Over temperature protection devices	Multimeters Oscilloscope Temperature recorder with thermocouple High Voltageac / dc tester or Impulse tester	R
14.6	Mains transformers tested outside equipment	Measuring equipment, see clause 4.4.2.7.2 / 4.4.2.73	R
14.8	Transient over voltage	Impulse tester to IEC 61180-1	<a href="#">SUG255</a>



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4.4.2.7.2 / 4.4.2.7.3	Mains transformers (sc / overload)	Electronic loads (pu), or suitable resistors Multimeters Temperature recorder with thermocouples or a suitable resistance measuring device	R
15.3	Reliability (Interlocks)	Multimeters	R
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Annex A	Measurement Circuits	A.1 to A.4	R
Annex B	Standard test fingers	Test probe 11 of IEC 61032 Test probe B of IEC 61032	<a href="#">SMT-1175</a> <a href="#">SMT-PB</a>
Annex H	Qualification of conformal coating for protection against pollution	Climatic chamber Chronometer	<a href="#">GDJS-015B</a> <a href="#">HLST-500D</a>
Annex K	Insulation requirements not covered by 6.7	Suitable measuring equipment as noted for 6.7	R
General	3 phase power supply		W