



TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING
Household and similar electrical appliances – General requirements
IEC60335-1 4. Edition (2001) + Am.1 (2004)

R=Required by Lab

S=May be subcontracted

{Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
2	Normative References	Access to copies of listed standards	R
4	General requirement	None	
5	General conditions for the tests	None	
6	Classification	None	
7	Marking and instructions	Spirit, Water	R
8	Protection against access to live parts	Test probe B, 13 and 41 of IEC61032, voltmeter mill ammeter, force gauges, 2000ohm non-inductive resistor	R
9	Starting of motor-operated appliances	None	
10	Power input and current	Voltmeter, ammeter, wattmeter	R
11	Heating	Temperature controlled room, Temperature Recorder, fine wire thermocouples, test corners, Winding resistance measurement system, Loading as required by part 2's	R
12	Void		
13	Leakage current and electric strength at operating temperature	Leakage current meter, isolation transformer, HV test supply, Network(Fig.4 of IEC60990)	
14	Transient overvoltage	Impulse voltage test generator and monitor	R
15	Moisture resistance	Oscillating hoop IP test equipment, measurement beaker, spray nozzle	R
16	Leakage current and electric strength	Environmental chamber capable of 93%RH at selected temp. with HV test facilities	R
17	Overload protection of transformers and associated circuits	Included above	
18	Endurance	As required by part 2's	R if assessed
19	Abnormal operation	As above with suitable protection against damage to equipment, personnel and property in event of abnormal failure Electrostatic discharge test apparatus (IEC 61000-4-2), Radiated field test apparatus (IEC 61000-4-3), Fast transient burst test apparatus (IEC 61000-4-4), Voltage surge test apparatus (IEC 61000-4-5), Injected current test apparatus	R S



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		(IEC 61000-4-6), Voltage dip and interruption test apparatus (IEC 61000-4-11), Mains signal test apparatus (IEC 61000-4-13)	
20	Stability and mechanical hazards	Inclined plains, masses, force gauges	R
21	Mechanical strength	Impact hammer, Hardened steel pin, Force gauges	R
22	Construction	Test rig for torque on pin supported appliance, Heating cabinet(70 ±2□) Test probe 11 of IEC61032, Test fingernail Force gauge, Test finger nail Oxygen bomb Methylated spirits and Pressure apparatus Water pressure test apparatus	R R R R S S R
23	Internal wiring	Flexing test apparatus	R
24	Components	Laboratory may or may not have facilities for testing to component standards. Certification by specialist laboratories is accepted for compliance	S
25	Supply connection and external flexible cords	Flexing test apparatus, Cord anchorage force & torque tester	R
26	Terminals for external conductors	Torque screwdriver	R
27	Provision for earthing	Earth continuity tester, access to ISO2178 and 1463 testing	R
28	Screws and connections	Torque gauge	R
29	Creepage distances, clearances and distance through insulation	Mechanical measurement tools, Rod and ball gauges Proof tracking test apparatus	R R
30	Resistance to heat and fire	Ball Pressure test apparatus, Glow wire & Needle flame test apparatus, Apparatus for low power circuit determination. Horizontal and vertical burning test apparatus	R
31	Resistance to rusting	Part2 requirements	
32	Radiation, toxicity and similar hazards	Part2 requirements	
Annex A	Routine tests	None	
Annex B	Appliances Powered by rechargeable batteries	Free fall test apparatus (IEC60068-2-32)	R
Annex C	Ageing Test on Motors	Nothing special	
Annex D	Alternative requirements for protected motors	Nothing special	
Annex E	Needle flame test	Needle flame test apparatus (IEC 60695-2-2)	R
Annex F	Capacitors	Impulse voltage test apparatus, Endurance test apparatus (IEC 60384-14)	S
Annex G	Safety isolating transformers Circuit for measuring leakage current	Nothing special	



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Annex H	Switches	Endurance test apparatus (61058-1)	S
Annex I	Motors having basic insulation that is inadequate for the rated voltage of the appliances	Nothing special	
Annex J	Coated printed circuit boards	Coated printed circuit boards test apparatus (IEC60664-3)	S
Annex K	Overvoltage categories	None	
Annex L	Guidance for the measurement of clearances and creepage distances	None	
Annex M	Pollution degree	None	
Annex N	Proof tracking test	Proof tracking test apparatus (IEC 60112)	R
Annex O	Selection and sequence of the test of clause 30	None	
Annex P	Guidance for the application of this standard to appliances used in warm damp equable climates	None	
Annex Q	Sequence of tests for the evaluation of electronic circuits	None	
Annex R	Software evaluation	Soft ware evaluation system (IEC 60730-1)	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 standardized tests.