

**TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING  
IEC 61058-1:2000-07+A1:2001-08+A2:2007-11, Edition 3.0  
Switches for appliances – Part 1: General requirements**

“R” Required (RM = Required for electromechanical switches / RE = Required for electronic switches)  
 “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
8	Marking and documentation	Distilled water and petroleum spirit	RM / RE
9.1	Protection against electric shock	Jointed test finger of IEC 60529 Unjointed test finger of IEC 60529 Test pin according to figure 13	RM / RE
9.3	Protection against electric shock protective impedances	2 kΩ non-inductive resistor Oscilloscope	RM / RE
10.4	Provision for earthing	PE conductor tester, rated current not less than 25 A	RM / RE
11.1.2.2	Screw terminals	Torque screwdrivers Pull forces – 135 N	RM / RE
11.2.5.3	Tab terminals	Push forces – 120 N Pull forces – 110 N	RM / RE
11.2.7.1 11.2.7.2	Solder terminals	Solder bath 260 °C Soldering iron 350 °C	RM / RE

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
14.1 + 14.2	Protection against ingress of solid foreign objects, dust, water	According to IEC 60529	
		Sphere 50 mm diameter Jointed test finger Test rod 2.5 mm diameter Test wire 1.0 mm diameter Sphere 12.5 mm diameter	RM / RE
		Dust Chamber Drip box Drip box 15° Oscillating tube/ spray ± 60° or spray nozzle/spray ± 60° Oscillating tube/ spray ± 180° Oscillating tube/ spray ± 180° Water jet hose nozzle - nozzle 12.5 mm diameter Immersion tank	S
14.3	Protection against humid conditions	Humidity cabinet, with a relative humidity between 91% - 95%, temperature of the air 20-30°C	RM / RE
15.2	Insulation resistance	Insulation tester with DC 500 V, insulation resistance – 7 MΩ	RM / RE
15.3	Dielectric strength	High-voltage transformer AC 50/60 Hz, -3000 V Output current is at least 200 mA, not trip when the output current is less than 100 mA	RM / RE
16	Heating	Heating or refrigerating cabinet without forced convection Room temperature	RM RE
		Any convenient a.c. or d.c. voltage may be used, the temperature rise is measured with fine wire thermocouples	RM / RE
17	Endurance	Environmental chambers – heat, freeze, voltmeter, ammeter, power analyzer meter, oscilloscope, load units (resistive, inductive, capacitive, as requested) Activation source and cycling mechanism as required.	RM / RE

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18.2	Mechanical strength	Spring-operated impact-test apparatus of IEC 60068-2-75 Steel pressure plate, value of about 250 N up to 750 N For incorporated switches, test device as shown in figure 11 Freezing chamber for switches < 0 °C	RM / RE
18.4	Mechanical strength	Push forces – 30 N Pull forces – 30 N	RM / RE
19.2.4	Screwed connections	Torque screwdrivers	RM / RE
19.2.5	Screwed glands	Suitable torquespanner	RM / RE
20	Clearances, creepage distances, solid insulation and coating of rigid PCB`s	Suitable measurements e.g. slide-gauge, impulse withstand test apparatus	RM / RE
21	Fire hazard	Glow-wire test apparatus according to IEC 60695-2-11 Ball pressure test apparatus shown in figure 12	RM / RE
22	Resistance to rusting	Heating cabinet, 10% solution ammonium chloride in water, cleaning agent	RM / RE
23.1	Abnormal operation	Power source, load units, voltmeter, ammeter, soldering iron, temperature measurement with fine wire thermocouples, thermographie camera, IR-thermometer	RE
23.3	Abnormal operation, short-circuit test	For electronic cord switches and independently mounted switches: Load unit, current and I <sup>2</sup> t limiter to 1500 A r.m.s. and 15000 A <sup>2</sup> s, apparatus according to figure 17	RE
25	EMC requirements	Signal generator, compact generator, ESD generator, voltage dips and voltage interruption apparatus, Anechoic Chamber, radiated EM field test apparatus	S
Annex D	Proof tracking test	Proof tracking test apparatus according to IEC 60112	RM / RE