



**IEC 61048 :1991 + A1:1995 + A2:1999**  
**TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING**  
**Auxiliaries for lamps – Capacitors for use in tubular fluorescent and other discharge lamp circuits**  
**General and safety requirements**

R=Required by Lab  
S=May be subcontracted

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
5	Marking	Petroleum spirit / Water / Cloth	R
6	Terminations	Earthing test equipment	R
7	Creepage distances and clearances	Slide caliper (or equivalent)	R
10	Discharge resistor	Oscilloscope / AC Source	R
12	Sealing and heating test	Ventilation oven 40-150 °C Vessel hermetically sealed under pressure	R
13.1	High-voltage test between terminals	AC source Voltage measurement instrument	R
13.2	High-voltage test between terminals and container	AC high voltage tester (0-3 kV) Voltage measurement instrument	R
14	Resistance to adverse operating conditions	Climatic chamber 40 °C ± 2 °C / 90...95 % RH AC source Capacitance and tangent of loss angle meter instrument at 1 kHz Test circuit for current (discharge) test Variable inductor Oscilloscope with current and voltage probe	R
15	Resistance to heat, fire and tracking	Ball pressure test apparatus; Heating cabinet Glow-wire test apparatus Needle flame test apparatus Tracking test device	R



Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
16	Self-healing test	AC source Voltage measurement instrument Apparatus for detection of breakdowns (e.g. acoustic)	R
17	Destruction test	AC source Voltage measurement instrument Temperature chamber (forced circulation) DC High voltage source Circuit to AC – DC conditioning Circuit for High RMS current test Variable inductor Oscilloscope with current and voltage probe	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.