



## TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING

### IEC 60384-4:2007-03. Edition 4.0

#### Fixed capacitors for use in electronic equipment- Part 4: Sectional specification- Aluminium electrolytic capacitors with solid (MnO<sub>2</sub>) and non-solid electrolyte

R=Required by Lab

S=May be subcontracted

3PPS=Three Phase Power Supply required

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
4.21	High surge current	High surge current test equipment	R
4.2	Visual examination and check of the dimension	Sliding gauge	R
4.3.1	Leakage current	DC power supply (max. 500V) Voltage measurement instrument Current measurement instrument	R
4.3.2	Capacitance	Capacitance measurement instrument 100Hz to 120Hz	R
4.3.3	Tangent of loss angle	Capacitance measurement instrument 100Hz to 120Hz	R
4.3.4 <sup>1)</sup>	Impedance	AC power supply Voltage measurement instrument Current measurement instrument	R
4.4	Robustness of terminations	Mechanical testing facilities	R
4.5	Resistance to soldering heat	Solder bath (230 °C to 350 °C)	R
4.6	Solderability	Solder bath (230 °C to 350 °C)	R
4.7	Rapid change of temperature	Temperature change test chamber	R
4.8	Vibration	Vibration test system	R



Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
4.9 or 4.10 <sup>1)</sup>	Bump or shock	Shock test machine	R
4.11	Climatic sequence	Climatic test chamber for simulation of temperature and humidity	R
4.12	Damp heat, steady state	Climatic chamber 40 °C ± 2 °C 93%±3% RH	R
4.13	Endurance	AC or DC power supply (max.1000V); Oven (max 150 °C)	R
4.14	Surge voltage	Charge and discharge test circuit	R
4.15 <sup>1)</sup>	Reverse voltage	DC power supply (max. 1000V); Oven (max 150 °C)	R
4.16 <sup>1)</sup>	Pressure relief	DC power supply (max. 1000V) 1-10A	R
4.17	Storage at high temperature	Oven (max 150 °C)	R
4.18 <sup>1)</sup>	Storage at low temperature	Cooling chamber -40 °C	R
4.19	Characteristics at high and low temperature	Temperature shock chamber	R
4.20	Charge and discharge	Charge and discharge test circuit	R
4.22 <sup>1)</sup>	Voltage transient overload	Voltage transient test circuit	R

<sup>1)</sup> If required in the detail specification.