



IEC 60950-1, 1st ED. (2001-10)
TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING
(approved on 2007-05-24 by 44th CTL)

S=May be subcontracted

- 'RB' = 'Required Basic'; test and measurement equipment required for all equipment.

- 'RT' = 'Required for telecom'; in addition to 'RB', required for testing apparatus with connection(s) to a telecommunication network.

- 'RC' = 'Required for antenna'; in addition to 'RB', required for testing equipment with connection(s) to a cable distribution system

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
1.6.2	Input current	Amp-meter suitable for the current and waveform	RB
1.7.13	Durability	Petroleum spirit/water/piece of cloth.	RB
2.1.1.1	Access to energized parts	Test finger (joint /rigid 30N, fig. 2A)	RB
		Test pin (fig. 2B/ 4mm/3mm/15 mm long)	RB
		Test probe (Fig. 2C, 12mm/80mm)	RB
2.1.1.5	Energy Hazard	Variable resistive load	RB
2.3.1	Limits of TNV circuits	Resistor 5000Ω ± 2%	RT
2.3.4	Connection of TNV circuits to other circuits		
2.3.5	Test for operating voltages generated externally	Test generator (120V± 2V a.c., 50 or 60 Hz, 1200Ω ± 2%)	RT
2.4.2	Limited current circuits, limit values	Resistor 2 000 Ω ± 10%,	RB
2.6.3.3	Resistance of earthing conductors	High current source with a voltage not exceeding 12 V	RB
2.9.2	Humidity conditioning	Chamber (91% Rh...95% Rh, 20...30 ° C)	RB
2.10	Creepage/clearance/distance through insulation (determination of requirements; working voltage measurements)	Oscilloscope	RB
	Creepage/clearance/distance through insulation (measurements)	Dial gauge	RB
		Micrometer	RB
		Pins etc. with different diameters	RB
		Microscope	RB
2.10.3.4	Measurement of transient levels	Test-generator acc. Annex N, Table N1 reference 1(See also 7.3.3) and 2	S
2.10.4	Creepage distances	Test equipment for tracking index	S



2.10.6.3 and 2.10.6.4	Thermal cycling and thermal ageing	Full draught oven ($\pm 2^{\circ}\text{C}$) Cooling facility (0°C)	S
2.10.6.6	Abrasion resistance test	Scratch test device with steel pin	S
2.10.7	Enclosed and sealed parts	See 2.10.6.3 and 2.10.6.4	S*
3.2.5.1	AC Power Supply Cords	Test equipment according IEC 60227	S
3.2.6	Cord anchorage and strain relief	Appropriate weights	RB
3.2.8	Cord guards	See 3.2.6	RB
4.1.	Stability	Inclined plane 10°	RB
		Force 250N/ Test tool 800Nwith a flat surface 12,5cm by 20cm	RB
4.2.3	Steady force test 30 N	Test finger (rigid $30\text{N} \pm 3\text{N}$, fig. 2A)	RB
4.2.4	Steady state force, 250 N	Test tool $250\text{N} \pm 10\text{N}$ with a circular plan surface $\varnothing 30\text{mm}$.	RB
4.2.5	Impact test	$\varnothing 50\text{mm}/500\text{g} \pm 25\text{g}$ steel ball	RB
4.2.6	Drop test	Hard wood 13mm on 19mm to 20mm plywood, two layers.	RB
4.2.7	Stress relief	Oven 70K over normal temp.	RB
4.2.8	Cathode ray tube	Test equipment acc. IEC 60065	S
4.2.10	Wall or ceiling mounted equipment	Several weights	RB
4.3.2	Handles and manual controls	Force 15N/20N/30N/50N	RB
4.3.6	Direct plug-in equipment	Test equipment (see Fig. 11 of IEC 60065)	RB
4.3.12	Flammable liquids	Measuring equipment for concentration of flammable vapours	S
4.3.13.2	Ionizing radiation	Ionization meter (Annex H)	S
4.3.13.3	Effect of UV radiation on materials	Test equipment according to ISO 178, 179, 180, 527 and 8256 and according ISO 4892 series.	S
4.3.13.4	Human exposure to UV radiation	Measuring equipment according to IEC 60825-9	S
4.3.13.5	laser radiation	Several special equipment for laser classification(IEC 60825-1)	S
4.4	Protection against hazardous moving parts	Test finger (joint /rigid 30N , fig. 2A)	RB
4.5	Thermal requirements		RB
	Voltage supply	Single phase voltage supply systems/variability/adequacy	RB
		Three phase voltage supply systems	S
	Temperature (rise)	Temperature recorder (multi-channel)	RB
		Thermocouples	RB
		Winding resistance (normally $> 1,0 \Omega$ 2-wire, 4-wire $< 1,0 \Omega$).	RB
	Voltage	Voltmeters (ac/dc)	RB



		High voltage meter (probe)	RB
	Current	Currents (ac/dc)	RB
	Loading	Loads (resistive)	RB
4.5.2	Resistance to abnormal heat	Ball pressure test apparatus according to IEC 60695-10-2 Oven at least 125°C	RB
4.6.2	Bottoms of fire enclosure	Distillate fuel oil as described in Annex A.3.2	S*
4.6.5	Adhesives for constructional purposes	Oven up to 100 ° C	RB
4.7.3	Materials, Tests see Annex A	V-1, V-2, HF-2, 5V	RB
		Bunsen burner (9,5 ± 0,5 mm)	RB
		Gas for burner (~37 MJ/m ³)	RB
		Oven for preconditioning	RB
4.7.3.6	Materials used in high-voltage components	Test of Annex A or test of 14.4 of IEC 60065 or needle flame test according to IEC 60695-2-2	RB
5.1	Touch current and protective conductor current	Measuring instruments of Annex D	RB
5.2	Electric strength	Test equipment with the relevant voltage and dripping current.	RB
6.2	Protection of equipment users from overvoltages on telecommunication networks		RT
6.2.1		Test probe (Fig. 2C, 12mm/80mm)	RT
6.2.2.1	Impulse Test	Impulse test generator according to Annex N	RT
6.2.2.3		insulation resistance (500 V dc > 2 MΩ)	RT
7.3.2	Voltage surge test	Test generator reference 3 of table N.1	RC
7.3.3	Impulse test	Test generator reference 1 of table N.1	RC

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.

IEC 60950 equipment have been sub-grouped into:

- 1) Equipment with connection(s) to a telecommunication network (called RT)
- 2) Equipment with connection(s) to a cable distribution system (called RC)
- 3) Equipment with CRT Cathode ray Tubes
- 4) Other apparatus with none of the features mentioned under 1) to 3) including Plasma and LCD products. Will at least need RB

Items with * were changed in revised version because of errors in first version.