



TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING

IEC 60884-1:2002-06+A1:2006-05+A2:2013-02, Edition 3.0

Plugs and socket-outlets for household and similar purposes – Part 1: General requirements

“R”	Required
“S”	May be subcontracted, see OD2012
“SF”	Specialized Facility, see IECEE02-2
“W”	Witness testing in the categories “MED” and “MEAS”
“3PPS”	Three Phase Power Supply required

Clause	Measurement/testing	Testing / measuring equipment / material needed	LISUN Model	Subcontracting
8.8	Test of markings	Water, petroleum spirit		R
9	Checking of dimensions	Caliper, micrometer, gauges		R
10	Protection against electrical shock	Jointed test finger, unjointed test finger, electrical indicator Figures 9 and 10: Gauges for checking non-accessibility of live parts, through shutters, and of live parts of socket-outlets with increased protection Test plug	SMT-02T10 SMT-1175 SMT-CZ12	R
11.5	Measuring of contact resistance	AC source, measuring instruments	LSP-5KVAS	R
12.2	Tests on screw terminals	Screw driver and spanner with torque meter, weights Figure 11: Arrangement for checking damage to conductors		R
12.3	Tests on screwless terminals Weights	Figure 11: Arrangement for checking damage to conductors AC source, measuring instruments Figure 12: Deflection test apparatus	JCY-1 JCY-2	R
13.2		Figure 4a	GNGPL-3604	

Clause	Measurement/testing	Testing / measuring equipment / material needed	LISUN Model	Subcontracting
13.6		Apparatus for testing plug cover fixing screws(Figure 6) Test pin (Figure 1)	GNGPL-3606 SMT-BS01	
13.9		Apparatus for tests on plug pins (Figure 32a) Apparatus for torsion test on pins (Figure 33)	GNGPL-3632 GNGPL-3633	
13.11		Mounting plate (Figure 7)	GNGPL-3607	
13.12		Plug pin deflection test apparatus for resilient plugs (Figure 8)	GNGPL-3608	
13.14	Lateral strain of socket-outlets	Figure 13: Device for checking the resistance to lateral strain	BCL-1	R
13.17		Apparatus for abrasion test on insulating sleeves of plug pins (Figure 9) Apparatus for pressure test at high temperature (Figure 10)	LS-B10 GNGPL-3610	
13.22	Test on membranes	Heatingcabinet		R
13.23		Freezer		
14.2	Test of non-solid pins	Figure 14: Device for testing of non-solid pins	LS-B04	R
14.23.1	Temperature rise test on plugs of plug-in equipments	AC source, measuring instruments, temperature measuring device		R
14.23.2	Torque test on plugs of plug-in-equipment	Apparatus for the torque test	LSPTT-1	R
16.1	Ageingtest	Heatingcabinet, humiditychamber	GDJS-010A	R
16.2	Protectionprovidedbyenclosures	Figure 15: Test wall in accordance with the requirements of 16.2.1	LS-B05	R
		Test apparatus acc. IEC 60529: Jointed test finger Rigid sphere 50 mm diameter Rigid sphere 12,5 mm diameter Rigid steel rod 2,5 mm diameter Rigid steel rod 1,0 mm diameter	SMT-529T	R
		Dust chamber	SC-015	S
		Drip box Drip box -15° Oscillating tube/spray ± 60° or spray nozzle/spray ± 60° Oscillating tube/spray ± 180° or spray nozzle/spray ± 180°	JL-12 JL-34	R

Clause	Measurement/testing	Testing / measuring equipment / material needed	LISUN Model	Subcontracting
		Water jet hose nozzle – nozzle 6,3 mm diameter Water jet hose nozzle – nozzle 12,5 mm diameter Immersion tank	JL-56	S
16.3	Humidity treatment	Humidity chamber	GDJS-010A	R
17.1	Insulation resistance	Insulation test equipment	WB2681A	R
17.2	Electric strength	High voltage test equipment	WB2673C	R
19	Temperature rise	AC source, measuring instruments, temperature measuring device, test block for flush-mounted accessories Clamping unit for the temperature rise test (Figure 44)	WS-1	R
20 21	Breaking capacity Normal operation	Figure 16: Apparatus for breaking capacity and normal operation, Solid link for test on fuse clips (Figure 19) AC source, adjustable load (resistors and inductors), measuring instruments Figure 9: Gauge for checking non-accessibility of live parts, through shutters, after normal operation test Figure 10: Gauge for checking non-accessibility of live parts, through shutters, and of live parts of socket-outlets with increased protection	GNGPL-3619 CZKS-3 DFX-20	R
22.1	Verification of the maximum withdrawal force	Figure 18: Apparatus for checking the withdrawal force, test-plug	BCL-1	R
22.2	Verification of the minimum withdrawal force	Figure 19: Gauge for the verification of the minimum withdrawal force	BCL-1	R
23.1.3		Apparatus for pressure test (Figure 23)	GNGPL-3623	
23.2	Test of the cord retention	Figure 20: Apparatus for testing the cord retention Apparatus for the torque test	LS-B07 LS-B47	R
23.4	Flexing test	Figure 21: Apparatus for flexing test	SW-6	R
24.1	Impact test	Figures 22, 23, 24, 25 and 26: Impact-test apparatus	IK01-06	R
24.2	Tumbling barrel test	Tumbling barrel according to IEC 60068-2-32	LS-DDT1-B	R
24.3	Test on ordinary surface-type socket-outlets	Cylinder of rigid steel sheet Flat steel sheet		R

Clause	Measurement/testing	Testing / measuring equipment / material needed	LISUN Model	Subcontracting
24.4	Impact test at low temperature	Figure 27: Apparatus for impact test at low temperature	DWC-1	R
10.1 24.5	Impact test at low temperature	Figure 8: Arrangement for compression test		R
24.6	Test on screwed glands	Metal rods Test-spanner with torque meter	LS-B08	R
24.7	Abrasion test	Figure 28: Apparatus for abrasion test on insulating sleeves of plug pins Torque test for cable glands	LS-B10 LWMF-1	R
24.8	Test on shutters	Test-pin, electrical indicator		R
24.9	Test on multiple portable socket-outlets	Figure 29: Arrangement for mechanical strength test on multiple portable socket-outlets	LS-B11	R
24.10	Test of the fixing of the pins	Figure 30: Example for test arrangement to verify the fixation of pins in the body of the plug	LS-B12	R
24.11 24.12 24.13	Test on portable socket-outlets with suspension means	Cylindrical steel rod	LS-B12 SMT-2126	R
24.14 upto 24.18	Removal of covers or cover-plates Weights	Figure 31: Arrangement for test on covers or cover-plates Figure 32: Gauge for the verification of the outline of covers or coverplates Figure 35: Gauge for verification of grooves, holes and reverse tapers	LS-B14 GNGPL-23507 SMT-1203	R
25	Resistance to heat	Heating cabinet Figure 37: Ball pressure test apparatus Figure 38: Apparatus for compression test for the verification of resistance to heat Compression test (Figure 41)	ZBP-T LS-TCT-1	R
26	Screws, current carrying parts and connections	Screw-driver and spanner with torque meter		R
27	Creepage distances, clearances	Caliper Tolerance gauges	CK-1	R
28.1.1	Glow-wire test	Test apparatus according to IEC 60695-2-10	ZRS-3H	R



IEC System for Conformity Testing and Certification of Electrotechnical equipment and Components

Clause	Measurement/testing	Testing / measuring equipment / material needed	LISUN Model	Subcontracting
28.1.2 28.1.3	Test of the resistance to heat of pins with insulating sleeves	Figure 40: Apparatus for testing resistance to abnormal heat of insulating sleeves of plug pins Test for pins with insulating sleeves (Figure 43)	LS-B17	R
28.2	Resistance to tracking	Test apparatus according to IEC 60112	TTC-1	R
29	Resistance to rusting	Chemicals Humidity cabinet Heating cabinet	YWX/Q-010	R
30.1	Pressure test at high temperature	Figure 41: Apparatus for pressure test at high temperature Heating cabinet	GNGPL-3610-2PA	R
30.2	Static damp heat test	Climatic chamber according to IEC 60068-2-30	GDJS-010B	R
30.3	Test at low temperature	Freezer		R
30.4	Impact test at low temperature	Figure 42: Impact test apparatus on pins provided with insulating sleeves	DWC-2	R
Annex C		Switches incorporated in portable socket-outlets	LS-B18	