

TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING IEC 62752 Edition 1.0

In-cable control and protection device for mode 2 charging of electric road vehicles (IC-CPD)

“R”	Required
“S”	May be subcontracted, see OD 2012
“SPTL”	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
6	Marking and other product information	Not required	R
8.1	Mechanical design	Length measurement scale, test wire acc. to figure 9, test probe type B acc. to IEC 61032	R
8.2	Pluggable electrical connections of pluggable IC-CPDs	Plug endurance test device acc. to IEC 60309-1 clause 21, IP test equipment according to IEC 60529	R
8.3	Construction	Pendulum hammer acc. IEC 60068-2-75, steel rod diameter 3mm and 1.5mm acc. to IEC 60884-1, test probe type B acc. to IEC 61032	R
8.4.3	Clearances and creepage distances	Caliper, tolerances gauges	R
8.5.3	Degree of protection	IP X5 and IP 5X test equipment according to IEC 60529, RCD test device	S
9.1	General	PWM simulation device according to IEC TS 62763	R 3PPS
9.3	Indelibility of marking	Water, hexane, piece of cotton cloth	R

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9.4	Protection against electric shock	Electrical indicator, standard test wire according to figure 9, heater, timer, arrangement for compression test according to figure 13, weights or force gauge	R
9.5	Dielectric properties	Humidity chamber, DC source (500V) and instruments (or combination), adjustable high voltage test equipment (AC) up to 2500V, surge generator: min. 3 kV peak (1,2/50 μ s) with a max. surge impedance of 500 Ω , oscilloscope, high voltage probe	R 3PPS
9.6	Temperature rise test	AC source, electrical loads, temperature-, current- and voltage-measuring instruments, test plug	R 3PPS
9.7	Operating characteristic	AC source, resistive loads, thyristor switch, waveform generator (50/60Hz and 1kHz combination), DC source, heating cabinet, refrigerator, temperature-, current-, voltage- and time-measuring instruments	R 3PPS
9.8	Mechanical and electrical endurance	AC source, components for the test circuit according to figure 31, current-, voltage- and time-measuring instruments	R 3PPS
9.9	Behaviour of IC-CPDs under overcurrent conditions	Short-circuit testing up to 2kA with 6kA ² s (3 x 2kA for 3-phase with 6kA ² s each), measuring devices for voltage, current, cos ϕ , time, I ² t-values	R 3PPS
9.10	Resistance to mechanical shock and impact	Length measurement scale, torque gauge, concrete ground	R
9.11	Resistance to heat	Heating cabinet, test finger according to figure 34, force gauge, ball-pressure test apparatus according to figure 14, sliding gauge	R
9.12	Resistance of insulating material to abnormal heat and to fire	Test apparatus according to IEC 60695-2-10	R
9.13	Verification of the residual current function by self test	AC source, resistive loads, current-, voltage- and time-measuring instruments	R 3PPS
9.14	Behaviour of IC-CPDs in case of loss of the supply voltage	AC source, resistive loads, current-, voltage- and time-measuring instruments	R 3PPS

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9.15	Limiting values of the non-operating current under overcurrent conditions	AC source, resistive loads, current-, voltage- and time-measuring instruments	R 3PPS
9.16	Resistance against unwanted tripping due to surge currents to earth resulting from impulse voltages	Surge generator: 25 A peak (0,5µs/100 kHz – ring wave)	R 3PPS
9.17	Reliability	Climatic chamber according to IEC 60068-3-4, recording system for temperature, humidity, pH and resistivity, heating cabinet, AC source, resistive loads, current-, voltage- and time-measuring instruments	R 3PPS
9.18	Resistance to ageing	Heating cabinet, piece of rough cloth, force gauge, AC source, electrical loads, temperature-, current- and voltage-measuring instruments	R 3PPS
9.19	Resistance to tracking	Tracking test apparatus according to IEC 60112	R
9.20	Tests on pins provided with insulating sleeves	Testing according to clause 30 of IEC 60884-1:2002, IEC 60884-1:2002/AMD1:2006 and IEC 60884-1:2002/AMD2:2013	R
9.21	Mechanical strength of non-solid pins of plugs	Testing according to clause 14.2 of IEC 60884-1:2002	R
9.22	Effects of strain on the conductors	Sliding gauge	R
9.23	Torque exerted by IC-CPDs on fixed socket-outlets	Torque gauge	R
9.24	Tests of cord anchorage	Apparatus for testing the cord retention according to figure 17, weights, torque gauge, sliding gauge	R
9.25	Flexing test of non-rewirable IC-CPDs	Apparatus for flexing test according to figure 18, weights, AC source, resistive loads, current-, voltage -measuring instruments	R 3PPS
9.26	Electromagnetic compatibility (EMC)	Test equipment according IEC 61543	S, SPTL

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9.27	Tests replacing verifications of creepage distances and clearances	AC source, electrical loads, temperature-, current- and voltage-measuring instruments, test plug, electrical indicator, standard test wire according to figure 9, heater, timer, arrangement for compression test according to figure 13, force gauge	R 3PPS
9.28	Verifications for single electronic components used in IC-CPDs	Not required	R
9.29	Chemical loads	Testing for chemical loads according to ISO 16750-5:2010	S
9.30	Heat test under solar radiation	Testing according to IEC 60068-2-5, test Sa, procedure B	S
9.31	UV radiation	Testing according to ISO 4892-2	S
9.32	Damp and salt mist test for marine and coastal environments	Climatic chamber according to IEC 60068-2-30 (damp heat cycling test at +40 °C) Test chamber according to IEC 60068-2-11 (salt mist at +35 °C)	S
9.33	Hot damp test for tropical environments	Under consideration	---
9.34	Vehicle drive-over	Test tyre, speed recorder, required loads/forces, pressure gauge	R
9.35	Low storage temperature test	Refrigerator, AC source, resistive loads, current- and voltage measuring instruments	R 3PPS
9.36	Vibration and shock test	Testing according to IEC 60068-2-64, RCD test device, test equipment acc. 9.4	R