


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to <b>ISO/IEC 17025:2005</b></p>	<h3>Cranage EMC Testing Ltd</h3> <p><b>Issue No:</b> 018    <b>Issue date:</b> 07 December 2011</p>	
	<p><b>Stable Court</b> <b>Oakley</b> <b>Nr Market Drayton</b> <b>Shropshire</b> <b>TF9 4AG</b></p>	<p><b>Contact: Mark Richens</b> <b>Tel: +44 (0)1630 658568</b> <b>Fax: +44 (0)1630 658921</b> <b>E-Mail: mark@cranage.co.uk</b> <b>Website: www.cranage.co.uk</b></p>
<p><b>Testing performed at the above address only</b></p>		

### DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>Industrial, Scientific, Medical, and Information Technology Equipment Household Appliances, Electric Tools and Toys Uninterruptible Power Systems and Components Fire, Intruder and Social Alarm Systems and Components Electrically Powered Wheelchairs, Scooters and their Chargers Residual Current-Operated Protective Devices (RCD's) for Household and Similar Use Electrical Lighting and similar Equipment Electrical Equipment for Measurement, Control, and Laboratory Use Road Traffic Control Systems Low Voltage Power Supplies Electronic Equipment used in the National Grid System for Monitoring, Protection and Control Arc Welding Equipment Industrial, Scientific, Medical, and Electrically Powered Industrial Trucks and their Chargers</p>	<p><b>1 EMC Tests</b></p> <p>1.1 Conducted Emissions: Continuous disturbances 9 kHz to 30 MHz (dB<math>\mu</math>V) 150 kHz to 30 MHz (dB<math>\mu</math>A)</p>	<p>EN 55011:1998 including Amendment A1:1999 and A2:2002 EN 55011-1:2007 including A2:2007 EN 55014-1:2001 including Amendment A1:2001 and A2:2002 EN 55014-1:2006 EN 55015:2001 including Amendment A1:2001 and A2:2002 EN 55015:2006 including A1:2007 EN 55022:1998 including Amendment A1:2001 and A2:2003 EN 55022:2006 FCC CFR 47:Part 15B/C FCC CFR 47 Part 18 ANSI C63.4:2003</p>
	<p>1.2 Conducted Emissions: Discontinuous (click) disturbances 150 kHz to 30 MHz (dB<math>\mu</math>V)</p>	<p>EN 55014-1:2001 including Amendment A1:2001 and A2:2002 EN 55014-1:2006</p>



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As listed on Page 1	<b>1 EMC Tests (cont'd)</b>	
	1.3 Radiated Emissions: Disturbance Power 30 MHz to 300 MHz (dBpW) And	EN 55014-1:2001 A1 + A2 including Amendment A1:2001 and A2:2002 EN 55014-1:2006
	1.4 Radiated Emissions: Magnetic Field 9 kHz - 30 MHz (dBuA)	EN 55015:2000 including Amendment A1:2001 and A2:2002 EN 55015:2006 including A1:2007
	1.5 Radiated Emissions Electric Field  30 MHz to 1 GHz	EN 55011:1998 including Amendment A1:1999 and A2:2002 EN 55011-1:2007 EN 55014-1:2001 including Amendment A1:2001 and A2:2002 EN 55014-1:2006 EN 55022:1998 including Amendment A1:2001 and A2:2003 EN 55022:2006 FCC CFR 47:Part 15B/C FCC CFR 47 Part 18 ANSI C63.4:2003 EN 55015:2006 including A1:2007
	1.6 Electrostatic Discharge up to 15 kV	EN 61000-4-2:1995 including Amendment A1:1999 and A2:2001
	1.7 Radiated RF Immunity $10 \text{ Vm}^{-1}$ 80 MHz to 2.7 GHz	EN 61000-4-3:1996 including Amendment A1:1998 EN 61000-4-3:2002 including Amendment A1:2002 EN 61000-4-3:2006 including Amendment A1:2008
	1.8 Immunity to Fast Transients/ Bursts up to 4 kV	EN 61000-4-4:1995 including Amendment A1:2001 & A2:2001 EN 61000-4-4:2004
1.9 Surge test 1.2/50 $\mu\text{s}$ to 8/20 $\mu\text{s}$ waveform up to 6 kV maximum	EN 61000-4-5:1995 including Amendment A1:2001 EN 61000-4-5:2006	



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	1.10 Conducted RF Immunity 150 kHz to 230 MHz up to 10 Vrms	EN 61000-4-6:1996 including Amendment A1:2001 EN 61000-4-6:2007
	1.11 Voltage Dips, Interruptions and Variations	EN 61000-4-11:1994 EN 61000-4-11:2004
	1.12 Oscillatory waves immunity	EN 61000-4-12:1995 including Amendment A1: 2002 EN 61000-4-12:2006 EN 61000-4-18:2007
	1.13 Generic and Product Standards  These Generic and Product specific tests are included in this schedule, but limited to those referred basic standards that are explicitly listed in Sections 1.1 to 1.12.	EN 61000-6-1: 2001 including A1:2006 EN 61000-6-1: 2007 EN 61000-6-2: 2001 EN 61000-6-2: 2005 EN 61000-6-3:2001 including Amendment 1:2004 EN 6100-6-3:2007 EN 61000-6-4:2001 EN 61000-6-4:2007 EN 61326:1998 including Amendment A1:1998, A2:2001 & A3:2003 EN 61326-1:2006 EN 61543:1996 including Amendment A1:2003 EN 50293:2001 ISO 7176-21:2003 EN 12184:1999 EN 50091-2:1996 EN 50199:1996 EN 61204-3:2001 EN 61547:1995 Inc A1 EN 50121-3-2:2000 EN 50121-4:2000 EN 50121-5:2000 EN 50130-4:1995 including Amendments A1:1998 & A2:2003 EN 12895:2000 EN 55014-2:1997 including A2:2008



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Section 2: Electrical Safety Testing  Low voltage surge protection devices	<b>2 Electrical Safety Tests</b>  2.1 Combination wave test  1.2/50 $\mu$ s to 8/20 $\mu$ s waveform U <sub>oc</sub> 2 kV up to 6 kV maximum	EN 61643-11:2002 For the following clause only Clause 7.5.4, Limiting voltage with the combination wave
Information Technology Equipment including electrical business equipment	2.2 Safety Tests	EN 60950-1:2001 inc Amd A11, excluding:- Clause 2.10.3.4: Transient voltage measurement Clause 2.10.6.6: Abrasion resistance test Clause 4.2.8: CRT implosion test Clause 4.3.12: Flammable liquids test Clause 4.3.13: Radiation tests Clause 7.3.2: Surge test Clause 7.3.3: Impulse test Annex A: Flammability tests EN 60950-1:2006, excluding:- 2.10.3.4: Transient voltage measurement 2.10.6.6: Abrasion resistance test 4.2.8: CRT implosion test 4.3.12: Flammable liquids test 4.3.13: Radiation tests Annex A: Flammability tests
Remote Power Feeding	2.3 Safety Tests	EN 60950-21:2003



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Section 2 (cont'd) Large Data Storage Equipment	<b>2 Electrical Safety Tests (cont'd)</b> 2.4 Safety Tests	EN 60950-23:2006
Measurement, Control and Laboratory Equipment	2.5 Safety Tests	EN 61010-1:2001 inc Amd A1 excluding:- 6.7.1.2: Tracking tests 9.2.1: Flammability tests 11.7: Pressure equipment tests 12: Radiation measurements 13.2.3: CRT implosion test 14.8: Flammability test on pcb's 16.2: Short circuit testing above 18 kVA EN 61010-1:2010 excluding:- 6.7.2.1: Tracking and coating tests 9.3.1: Flammability tests 11.7: Fluid pressure tests 12: Radiation measurements 13.2.3: CRT implosion test 14.8: Flammability test on pcb's EN.61010-2-10:2003 EN 61010-2-30:2010 Excluding:- Short circuit testing above 18kVA
Domestic Electronic Equipment	2.6 Safety Tests	EN 60065: 2002 inc Amd A1 excluding:- 6.1: Ionising radiation 6.2: Laser radiation 7.2: Heat resistance of insulation 8.1.8: Endurance test of wound components 10.3.2: Dielectric strength of sheet insulation 12.1.2: vibration test 13.4: Tracking test 14.2: RFI capacitor testing 16.3: Endurance test of flexible cords 18: CRT implosion test 20: Flammability tests



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Section 2 (cont'd)  Connectors	<b>2 Electrical Safety Tests (cont'd)</b>  2.7 Safety Tests	EN 60320-1: 2001, clause 23.7 only (pull and torque tests on connectors)
Fire hazard Testing : Glow wire Test	2.8 Safety Tests	EN 60695-2-11: 2001
Household and Similar Electrical Appliances  General requirements	2.9 Electrical safety Safety tests on Single Phase Equipment only	EN 60335-1:2002 inc Amds A1, A2 A11 and A12 excluding: 22.32: Oxygen bomb test 22.46: software class B and C 22.47: Back siphonage 24.5: Capacitors 29.2: Tracking test
Household and Similar Electrical Appliances  Vacuum cleaners and water suction cleaning devices Excluding:- Tests on motorised cleaning heads	2.10 Electrical safety	EN 60335-2-2:2003 inc Amds A1 and A2 excluding: non-SELV power hoses
Appliances for heating liquids	2.11 Electrical safety	EN 60335-2-15:2002, Amd 1
Particular requirements for appliances for skin or hair care	2.12 Electrical safety	EN.60335-2-23: 2003 excluding: helmet-type hairdryers
Commercial electric forced convection ovens, steam cookers and steam-convection ovens	2.13 Electrical safety	EN 60335-2-42:2003 excluding: 30.101: Horizontal burning test
Portable heating tools and similar appliances	2.14 Electrical safety	EN 60335-2-45:2002



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Section 2 (cont'd)  Surface-cleaning appliances employing liquids	<b>2 Electrical Safety Tests (cont'd)</b>  2.15 Electrical safety	EN 60335-2-54:2003 inc Amds A1, A2 and A11 excluding: 21.101 to 21.105: Current carrying hoses
Automatic machines for floor treatment for commercial and industrial use	2.16 Electrical safety	EN 60335-2-72:1998 inc Amd 1 excluding: Ride-on machines 22.35: Insulation tests
High pressure cleaners and steam cleaners	2.17 Electrical safety	EN 60335-2-79:2004 inc Amds 1 and 2 excluding: Non-electrical power source machines 22.35: Insulation tests
Fans	2.18 Electrical safety	EN 60335-2-80:2003, Amd 1
Fabric steamers	2.19 Electrical safety	EN 60335-2-85:2003
Enclosures for electrical equipment	3.0 Safety Tests	EN 60529:1992
	<b>INGRESS PROTECTION TESTS</b>  IP1X Protected against solid objects greater than 50 mm diameter IP2X Protected against solid objects greater than 12 mm diameter IP3X Protected against solid objects greater than 2.5 mm diameter IP4X Protected against solid objects greater than 1.0 mm diameter IP5X Dust Protected Excluding: Objects greater than 800 x 800 x 800mm	



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	<p><b>INGRESS PROTECTION TESTS</b> (cont'd)</p> <p>IP6X Dust Tight Excluding: Objects greater than 800 x 800 x 800mm</p> <p>IPX1 Protected against dripping water</p> <p>IPX2 Protected against dripping water when tilted up to 15°</p> <p>IPX3 Protected against spraying water</p> <p>IPX4 Protected against splashing water</p> <p>IPX5 Protected against water jets</p> <p>IPX6 Protected against heavy seas</p> <p>IPX7 Protected against the effects of immersion Excluding: Objects greater than Ø 400 x 950 mm</p> <p>IPX8 Protected against submersion Excluding: Objects greater than Ø 400 x 950 mm</p>	
Electrical equipment for connection to Unmetered Supplies	<p>Voltage Current Power Volt-amperes Resistance Efficiency</p> <p>Voltage Current Power Volt-amperes Resistance Efficiency</p>	<p>ELEXON testing procedure for issue of a charge code for new apparatus</p> <p>ELEXON testing procedure for issue of a charge code for new apparatus</p>
NOTE:- Where EN standards have exact equivalents in BS, BS EN or IEC Standards; these are also included in the accreditation.		



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	<p>EMC Facilities:-</p> <p>Semi-anechoic shielded chambers:            T3 capacity: 2 m (width) x 2.8 m (height) x 3.7 m (depth)            Working floor area is 3.2 m x 4.3 m            Loading bay door is 2 m (w) x 2.8 m (h)            Max EUT height is 2.8 m            EUT weight limit 2000 kg</p> <p>T1 capacity: 2 m (width) x 2 m (height) x 3.7 m (depth)</p> <p>OATS enclosed capacity: 3 m (width) x 3 m (height) x 10 m (depth)</p>	
	<p>Safety Facilities:-</p> <p>Environmental chamber capacity: 1.43 m x 0.78 m x 2.00 m high</p> <p>Dust chamber capacity: 1 m x 1 m x 1 m</p> <p>Power supplies: Mains Psc = 1800A            AC 230V 50 Hz 32A single phase            AC 415V 50 Hz 32A three phase            Variable DC: up to 3000 V 10 kW            Variable AC: up to 300 V 3 kVA 50/60/400 Hz</p>	
	END	