


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>2360</p> <p>Accredited to ISO/IEC 17025:2005</p>	<p>RN Electronics Ltd</p> <p>Issue No: 013 Issue date: 18 May 2009</p>	
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<p>Testing performed at the above address only</p>		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>Computers and Peripherals Domestic Appliances: Electrical Electrical/Electronic Products Electronic Products: Digital Electro-Mechanical Devices ISM Equipment IT Equipment Laboratory Equipment Medical/Dental Equipment Office Equipment: Electrical Security Equipment Telecommunications Equipment Welding Equipment</p>	<p>1 CIVIL EMC TESTS</p> <p>1.1.1 Conducted Emissions 150 kHz to 30 MHz</p>	<p>EN 55016-2-1:2004 including Amendment A1:2005 EN 55011:1998 including Amendment A1:1999 and A2:2002 EN 55011:2007 including Amendment A2:2007 EN 55014-1:2000 including Amendment A1:2001 and A2:2002 EN 55014-1:2006 CISPR 22:1997 EN 55022:1998 including Amendment A1:2000 and A2:2003 EN 55022:2006 FCC CFR 47:Part 15B FCC CFR 47:Part 18 ANSI C63.4:2003</p>
	<p>1.1.2 Radiated Emissions 30 MHz to 18 GHz</p>	<p>EN 55016-2-3:2004 including Amendment A1:2005 & A2:2005 EN 55016-2-3:2006 EN 55011:1998 including Amendment A1:1999 and A2:2002 EN 55011:2007 including Amendment A2:2007 EN 55022:1998 including Amendment A1:2000 and A2:2003 EN 55022:2006 FCC CFR 47:Part 15B FCC CFR 47:Part 18 ANSI C63.4:2003</p>



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As listed on Page 2	1 CIVIL EMC TESTS (cont'd)	
	1.1.3 Conducted Current Harmonics (Emissions): Measurements up to 40 th Harmonic	EN 61000-3-2:2000 EN 61000-3-2:2006
	1.1.4 Conducted AC Mains Flicker (Emissions)	EN 61000-3-3:1995 including Amendment A1:2001 & A2:2006
	1.1.5 Signal Line Conducted Emissions 150 kHz to 30 MHz Signal lines/DC in and out	EN 55022:1998 including Amendment A1:2000 and A2:2003 (limited to where standard ISN's and CDN's can be used) EN 55022:2006
	1.1.6 Power Absorbing Emissions Measurements (Power Clamp) 30 MHz to 1 GHz	EN 55014-1:2000 including Amendment A1:2001 and A2:2002 EN 55014-1:2006
	1.1.7 Electrostatic Discharge Immunity (ESD): Up to 15 kV Direct and Indirect Air and Contact Discharge Positive and Negative Polarity	IEC 801-2:1991 EN 61000-4-2:1995 including Amendment 1:1998 and 2:2001
	1.1.8 Radiated Electromagnetic Field Immunity: 80 MHz to 3 GHz	EN 61000-4-3:1996 including Amendment A1:1998 and A2:2001 EN 61000-4-3:2002 including Amendment A1:2002 EN 61000-4-3:2006



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As listed on Page 2	1 CIVIL EMC TESTS (cont'd) 1.1.9 Fast Transient/Burst Immunity: 0.25 kV to 4.0 kV Positive and Negative Polarity 5 ns rise time, 10 ns duration 15 ms burst duration	IEC 801-4:1988 EN 61000-4-4:1995 including Amendment A1:2001 and A2:2001 EN 61000-4-4:2004
	1.1.10 Surge Immunity Waveforms: 0.2 kV to 4.4 kV 1.2/50 (8/20) μ s Common mode Differential mode	EN 61000-4-5:1995 including A1:2001 EN 61000-4-5:2006
	1.1.11 Conducted Radio Frequency Immunity: 150 kHz to 230 MHz RF voltage up to 10 V rms Injection via coupling networks, direct injection or bulk current injection	EN 61000-4-6:1996 including Amendment A1:2001 EN 61000-4-6:2007
	1.1.12 Power-Frequency Magnetic Fields (Immunity) Frequency: 16 Hz to 500 Hz Field strength: up to 100 A/m	EN 61000-4-8:1993 including Amendment A1:2001
	1.1.13 AC Power Ports Voltage Dips, Interruptions and Fluctuations (Immunity): Voltage Dips: up to 100% Voltage Reductions: up to 100% Voltage Fluctuations: up to 100% Frequency variations	EN 61000-4-11:1994 including Amendment A1:2001 EN 61000-4-11:2004 EN 60945:2002



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	<p>1.2 AUTOMOTIVE EMC TESTS</p> <p>1.2.1 Radiated Emissions 30 MHz to 1 GHz ESA / components</p>	<p>2004/104/EC, Annexes VII and VIII EN 55025:2003</p>



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As listed on Page 2	1.2 AUTOMOTIVE EMC TESTS (cont'd) 1.2.2 Radiated Immunity Absorption Chamber 400 MHz - 2 GHz at 30 V/m ESA / components	2004/104/EC Annexes IX ISO 11452-2:2004
	1.2.3 Conducted Immunity BCI 20 MHz to 400 MHz, 60mA ESA / components	2004/104/EC Annexes IX ISO 11452-4:2005
	1.2.4 Vehicle Transient Testing 12 and 24 v Emissions and Immunity	ISO 7637-2:2004 Pulses 1, 2a, 2b, 3a, 3b & 4 2004/104/EC Annexes X
	EMC FACILITIES Screened Rooms 1 Semi-Anechoic Chamber: 4.8 m x 3.6 m x 4.8 m 2 Semi-Anechoic Chamber: 8.3 m x 5.4 m x 3.6 to 5.5 m 3 Screened Room: 3.6 m x 2.4 m x 3.0 m 4 Screened Room: 4.2 m x 3.6 m x 2.4 m 5 Control Room: 3.6 m x 2.4 m x 2.4 m 6 Control Room: 2.4 m x 2.4 m x 2.4 m Open Area Test Sites 1 3 m and 10 m Open Area Test Sites 2 3 m Semi-Anechoic Chamber OATS with increased uncertainty between 30 MHz to 50 MHz Single phase: 50 Hz 230V 30A supply Single phase: 50 Hz 115V 43A supply Single phase: 60 Hz 115V 17A supply Single phase: 400 Hz 115V 12A supply	



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	<p>2 RADIO TRANSMITTER AND RECEIVER TESTING</p> <p>2.1 PMR & Short Range Radio Testing</p> <p>2.1.1 Frequency Error and Stability: 9 kHz to 26.5 GHz</p> <p>2.1.2 Carrier Power: Hz to Hz Up to 2 W < 18 GHz Up to 100 W < 4 GHz</p> <p>2.1.3 Effective Radiated Power (ERP) & Equivalent Isotropic Radiated Power (EIRP): 30 MHz to 18 GHz</p> <p>2.1.4 Maximum Spectral Power Density: 1 GHz to 22 GHz</p> <p>2.1.5 Frequency Deviation: 150 kHz to 1.3 GHz</p> <p>2.1.6 Frequency Range: 9 kHz to 26.5 GHz</p> <p>2.1.7 Adjacent Channel Power: 150 kHz to 22.5 GHz</p> <p>2.1.8 Modulation Depth & Bandwidth: 150 kHz to 1.3 GHz</p> <p>2.1.9 Spurious Emissions: 9 kHz to 26.5 GHz</p> <p>2.1.10 Intermodulation Attenuation: 20 MHz to 18 GHz</p> <p>2.1.11 Transmitter Transient Behaviour: 150 kHz to 1.3 GHz</p>	<p>EN 300 086-1:V1.2.1:2001 EN 300 086-2:V1.1.1:2001 EN 300 113-1:V1.5.1:2003 EN 300 113-2:V1.3.1:2003 EN 300 220-1:V2.1.1:2006 EN 300 220-2:V2.1.1:2006 EN 300 220-3:V1.1.1:2000 EN 300 330-1:V1.4.1:2004 EN 300 330-2:V1.2.1:2004 EN 300 328:V1.6.1:2004 EN 300 328:V1.7.1:2006 EN 300 440-1:V1.3.1:2001 EN 300 440-2:V1.1.2:2004 EN 301 357-1:V1.2.1:2001 EN 301 357-2:V1.2.1:2001</p>



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	<p>2 RADIO TRANSMITTER AND RECEIVER TESTING (cont'd)</p> <p>2.1 PMR & Short Range Radio Testing (cont'd)</p> <p>2.1.12 Transmitter Attack and Release Time: 9 kHz to 26.5 GHz</p> <p>2.1.13 H-Field: 9 kHz to 30 MHz</p>	
Fixed Link Radio Equipment	<p>2.2 Microwave Radio Transmitter and Receiver Testing</p> <p>2.2.1 Output power up to 100 W < 4 GHz up to 2 W < 40 GHz</p> <p>2.2.2 Frequency Error & Stability 9 kHz to 40 GHz</p> <p>2.2.3 RF Spectrum Mask 9 kHz to 40 GHz</p> <p>2.2.4 Discrete CW Components exceeding the spectrum mask limit</p> <p>2.2.5 External Spurious Emissions 9 kHz to 40 GHz</p> <p>2.2.6 BER as a function of Receiver Input Signal Level</p> <p>2.2.7 Co-Channel Interference</p> <p>2.2.8 Adjacent Channel Interference</p> <p>2.2.9 CW Spurious Interference 30 MHz to 26.5 GHz</p>	<p>EN 302 217-2-2:V1.1.3:2004 EN 302 217-2-2:V1.2.3:2007</p>



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	NOTE: Microwave antenna performance measurements and analogue link equipment performance measurements are excluded from the scope of this schedule.	
	END	