

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>Accredited to ISO/IEC 17025:2005</p>	<h3>Electronic Test and Calibration Ltd</h3> <p>Issue No: 017 Issue date: 21 October 2011</p>	
	<p>Caddsdwn Industrial Estate Clovelly Road Bideford Devon EX39 3DX</p>	<p>Contact: Mr B D Wragge-Morley Tel: +44 (0)1237 423388 Fax: +44 (0)1237 423434 E-Mail: info@etcal.co.uk Website: etcal.co.uk</p>
<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/Electronic components Electrical/Electronic products Telecommunications equipment IT equipment</p>	<p>1 CIVIL EMC Tests</p> <p>1.1 Conducted Emissions 9 kHz to 30 MHz</p>	<p>EN 55011:1998 + A1:1999 + A2:2002 EN 55011:2007 EN 55011:2007 + A2:2007 EN 55011:2009 EN 55011: 2009 + A1:2010 EN 55014-1:2000 EN 55014-1:2006 EN 55014-1:2006 + A1:2009 CISPR 14-1:2005 EN 55022:1998 EN 55022:1998 + A1:2000 + A2:2003 EN 55022:2006 EN 55022: 2006 + A1:2007 CISPR 22:1997 CISPR 22:2005 CISPR 16-2-1:2003 + A1:2005 CISPR 16-2-1:2008 CISPR 16-2-1:2008 + A1:2010 CISPR 16-1-2: 2003 + A1:2004 + A2:2006</p>



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As listed on Page 1	1 CIVIL EMC Tests (cont'd)	
	1.2 Radiated Emissions - Electric Field 30 MHz to 18 GHz	EN 55011:1998 + A1:1999 + A2:2002 EN 55011:2007 EN 55011:2007 + A2:2007 EN 55011:2009 EN 55011: 2009 + A1:2010 EN 55014-1:2000 EN 55014-1:2006 EN 55014-1:2006 + A1:2009 CISPR 14-1:2005 EN 55022:1998 EN 55022:1998 + A1:2000 + A2:2003 EN 55022:2006 EN 55022: 2006 + A1:2007 CISPR 22:1997 CISPR 22:2005 CISPR 16-2-3:2006 CISPR 16-2-3: 2010
	1.3 Electrostatic Discharge Up to 30 kV	IEC 801-2:1991 IEC 1000-4-2:1995, A1 and A2 EN 61000-4-2:1995, A1 and A2 EN 61000-4-2:2009
	1.4 Radiated Immunity 80 MHz to 1000 MHz up to 20 V/m and 2700 MHz up to 10 V/m	IEC 1000-4-3:2002 EN 61000-4-3:1996 EN 61000-4-3:1996 + A1:1998 + A2:2001 EN 61000-4-3:2002 EN 61000-4-3:2002 + A1:2002 + IS1:2004 EN 61000-4-3:2006 EN 61000-4-3:2006 + A1:2008 EN 61000-4-3:2006 + A2:2010



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	1.5 Fast Transient and Burst Immunity	IEC 801-4:1988 IEC 1000-4-4:1995 + A1:2001 + A2:2001 EN 61000-4-4:1995 EN 61000-4-4:1995, A1:2001 and A2:2001 EN 61000-4-4:2004 EN 61000-4-4:2004 + A1:2010
	1.6 Surge Immunity	IEC 1000-4-5:1995 + A12001 EN 61000-4-5:1995, + A1:2001 EN 61000-4-5:2006
	1.7 Conducted Radio Frequency Disturbance 150 kHz to 80 MHz	IEC 61000-4-6:1996 + A1:2001 + A2:2004 EN 61000-4-6:1996 EN 61000-4-6:1996 + A1:2001 + A2:2004 EN 61000-4-6:2007 EN 61000-4-6:2009
	1.8 Power Frequency Magnetic Field Immunity	EN 61000-4-8:1994 A1 EN 61000-4-8: 2010
	1.9 Mains Dips and Interruptions (5 seconds Maximum)	IEC 1000-4-11:1994 EN 61000-4-11:1994 EN 61000-4-11:2004
	1.10 Conducted Voltage Harmonics (Emissions) Up to 40th Harmonic	EN 61000-3-2:1995 EN 61000-3-2:2000, Ed2 EN 61000-3-2:2006 EN 61000-3-2:2006 + A2:2009
	1.11 Conducted AC Mains Flicker/Emissions	EN 61000-3-3:1995 EN 61000-3-3:1995 + A1:2001 + A2:2005 EN 61000-3-3:2008



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As listed on Page 1	<p>1 CIVIL EMC Tests (cont'd)</p> <p>1.12 EMC Tests</p> <p>These generic and product specific tests are included in this Schedule, but limited to those basic standards that are explicitly listed in Sections 1.1 to 1.11.</p>	<p>Generic and Product Standards</p> <p>EN 50081-1:1992 EN 50081-2:1994 EN 50082-1:1996 EN 50082-2:1996 EN 61000-6-1:2001 EN 61000-6-1:2007 EN 61000-6-2:2001 EN 61000-6-2:2005 EN 61000-6-3:2001 EN 61000-6-3:2007 EN 61000-6-4:2001 EN 61000-6-4:2007 EN 61326:1997 EN 61326:1997 + A1:1998 + A2:2001 + A3:2003 EN 61326-1:2006 EN 61326-2-2:2006 EN 55024:1998 EN 55024:1998, A1:2001 + A2:2003 EN 55024:2010 EN 60945:2002 Sections 9 & 10 EN 60601-1-2:1993 EN 60601-1-2:2001 + A1:2006 EN 60601-1-2:2007</p>
	<p>2 MILITARY EMC Tests</p> <p>2.1 Conducted Emissions:</p> <p>Power, Control and Signal Leads: 20 Hz to 150 MHz</p> <p>Antenna Terminals 10 kHz to 18 GHz</p>	<p>MIL STD 461E MIL STD 461F CE101, CE102 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DCE01, DCE02</p> <p>DEF STAN 59-411 Am 1 DCE01, DCE02 AECTP-500 Ed 4 NCE01, NCE02 NCE05 MIL STD 461E and F CE106</p>



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	<p>2 MILITARY EMC Tests (cont'd)</p> <p>2.2 Radiated Emissions: Electric Field: 10 kHz to 18 GHz</p>	<p>MIL STD 461D, E, and F RE102, RE103 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DRE01 DEF STAN 59-411 Am 1 DRE01 AECTP-500 Ed 4 NRE02, NRE03</p>
	<p>2.3 Radiated Emissions: Magnetic Field: 20 Hz to 250 kHz</p>	<p>MIL STD 461E and F RE101 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DRE02 DEF STAN 59-411 Am 1 DRE02 AECTP-500 Ed 4 NCS12, NRE01</p>
	<p>2.4 Exported Transients Power Lines</p>	<p>DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DCE03 DEF STAN 59-411 Am 1 DCE03 AECTP-500 Ed 4 NCE04</p>
	<p>2.5 Radiated Susceptibility: Electric Field: 10 kHz to 18 GHz Maximum Field Strength: 200 V/m (<1 GHz) 50 V/m (> 1 GHz)</p>	<p>MIL STD 461E and F RS103 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DRS02 DEF STAN 59-411 Am 1 DRS02 AECTP-500 Ed 4 NRS02</p>



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	2 MILITARY EMC Tests (cont'd)	
	2.6 Radiated Susceptibility: Magnetic Field: 0 Hz to 100 kHz Maximum Field Strength: 196 dBpT	MIL STD 461E and F RS101 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DRS01, DRS03 DEF STAN 59-411 Am 1 DRS01, DRS03 AECTP-500 Ed 4 NRS01, NRS04
	2.7 Conducted Susceptibility: Inter and Cross Modulation and Rejection of Unwanted Signals: 30 Hz to 18 GHz	MIL STD 461E and F CS103, CS104 and CS105 AECTP-500 Ed 4 NCS03, NCS04, NCS05
	2.8 Conducted Susceptibility: Power, Control and Signal Lines including Bulk Current Injection 20 Hz to 400 MHz	MIL STD 461D,E, and F CS114 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DCS02 and DCS03 DEF STAN 59-411 Am 1 DCS02, DCS03 AECTP-500 Ed 4 NCS02, NCS07
	2.9 Conducted Susceptibility: Primary Power Lines, 20 Hz - 150 kHz	MIL STD 461E and F CS101 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DCS01 DEF STAN 59-411 Am 1 DCS01 AECTP-500 Ed 4 NCS01



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	<p>2 MILITARY EMC Tests (cont'd)</p> <p>2.10 Electrostatic Discharge Up to 30 kV contact</p>	<p>DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DCS10 DEF STAN 59-411 Am 1 DCS10 AECTP-500 Ed 4 NCS12</p>																																																				
	<p>2.11 Conducted Susceptibility: Structure Current, 60 Hz - 100 kHz</p>	<p>MIL STD 461E and F CS109 AECTP-500 Ed 4 NCS06</p>																																																				
	<p>2.12 Radiated Susceptibility Alternative method Reverberation Chamber 80 MHz to 18 GHz Mode Tuning and Mode Stirring</p> <table border="0"> <tr> <td>MHz</td> <td>V/m</td> <td>dBuV/m</td> <td></td> </tr> <tr> <td>80</td> <td>200</td> <td>166</td> <td></td> </tr> <tr> <td>200</td> <td>400</td> <td>172</td> <td></td> </tr> <tr> <td>300</td> <td>500</td> <td>174</td> <td></td> </tr> <tr> <td>1000</td> <td>500</td> <td>174</td> <td></td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td>GHz</td> <td>V/m</td> <td>dBuV/m</td> <td></td> </tr> <tr> <td>1</td> <td>100</td> <td>160</td> <td></td> </tr> <tr> <td>2</td> <td>100</td> <td>160</td> <td></td> </tr> <tr> <td>4</td> <td>80</td> <td>158</td> <td></td> </tr> <tr> <td>6</td> <td>80</td> <td>158</td> <td></td> </tr> <tr> <td>12</td> <td>80</td> <td>158</td> <td></td> </tr> <tr> <td>18</td> <td>60</td> <td>158</td> <td></td> </tr> </table>	MHz	V/m	dBuV/m		80	200	166		200	400	172		300	500	174		1000	500	174						GHz	V/m	dBuV/m		1	100	160		2	100	160		4	80	158		6	80	158		12	80	158		18	60	158		<p>MIL STD 461E and F RS103 DEF STAN 59-41:Part 3, Section 3, Issue 1:2003 DRS02 DEF STAN 59-411 Am 1 DRS02 AECTP-500 Ed 4 NRS02 RTCA DO160 E, F and G Section 20 EN 61000-4-21:2003</p>
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Facilities and Resources	<p>Laboratory Facilities Main Building</p> <p>Fully Lined Anechoic Chamber ETC799 7.3 m x 4.3 m x 5 m Doors 2 m x 1.4 m Max load 250 kg / m²</p> <p>Supplies 32 A 230 V / 415 V 50 Hz 16 A 115 V 50 Hz : 60 Hz and 400 Hz @ 3 kVA</p> <p>Reverberation Chamber / Screened Room ETC800 7.3m x 4.3 m x 5 m Doors 2 m x 2 m Max load 1 tonne / m²</p> <p>Supplies 32 A 230 V / 415 V 50Hz 16 A 115 V 50 Hz : 60 Hz and 400 Hz @ 3 kVA</p> <p>EUT volume 3.2 m x 2.4 m x 2 m</p> <p>Laboratory Facilities Unit 14</p> <p>Semi Anechoic Chamber EMC054</p> <p>7.3 m x 4.2 m x 4.2 m Door 0.9 m x 2 m Turntable max load 250 kg</p> <p>Supplies 32 A 230 V / 415 V 50Hz 16 A 115 V 50 Hz : 60 Hz and 400 Hz @ 3 kVA</p> <p>Screened Room EMC</p> <p>3.6 m x 2.4 m x 2.4 m Door 0.86 m x 1.9 m</p> <p>Supplies 32 A 230 V / 415 V 50Hz 16 A 115 V 50 Hz : 60 Hz and 400 Hz @ 3 kVA</p>	



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Facilities and Resources (cont'd)	<p>Laboratory Facilities Unit 14 (cont'd)</p> <p>Dedicated Test areas for: ESD Dips, variation, flicker & harmonics EFT Surge Conducted RF immunity</p> <p>Open Area Test Site Unit 14</p> <p>10 m and 3 m Covered Turntable max load 250 kg</p> <p>Supplies 64 A 230 V / 415 V 50Hz 16 A 115 V 50 Hz : 60 Hz and 400 Hz @ 3 kVA</p>	
	END	