


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> | York EMC Services (2007) Ltd Issue No: 052 Issue date: 17 June 2010 | |
| | University of York Heslington York EMC Services (2007) Ltd YO10 5DD | Contact: Mr N Wainwright Tel: +44 (0)1904 434440 Fax: +44 (0)1904 434434 E-Mail: nick.wainwright@yorkemc.co.uk Website: www.yorkemc.co.uk |
| Testing performed by the Organisation at the locations specified below | | |

Locations covered by the organisation and their relevant activities

Laboratory locations:

| Location details | Activity | Location code |
|---|---|---------------|
| Address Gladstone House Gladstone Drive Soundwell Bristol BS16 4RU Local contact Mr R Mulkerrin Tel: +44 (0)117 987 0044 Fax: +44 (0)117 987 0055 Email: bob.mulkerrin@yorkemc.co.uk Website: www.yorkemc.co.uk | EMC Testing Low Voltage Safety Testing | B |
| Address Three Lane Ends Business Centre Methley Road Castleford WF10 1PN Local contact Dr Mark Render Tel: +44 (0)1977 731173 Fax: +44 (0)1977 603181 Email: mark.render@yorkemc.co.uk Website: www.yorkemc.co.uk | EMC Testing Low Voltage Safety Testing | C |
| Address Fleming Building Donibristle Industrial Park Dunfermline Fife KY11 9HZ Local contact Mr Graham Whyte Tel: +44 (0)1383 825057 Fax: +44 (0)1383 825396 Email: graham.whyte@yorkemc.co.uk Website: www.yorkemc.co.uk | EMC Testing Low Voltage Safety Testing | D |



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DETAIL OF ACCREDITATION

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used | Location Code |
|---|--|---|---|
| Computers and Peripherals Domestic Appliances: Electrical Electrical/Electronic Components Electrical/Electronic Connectors Electrical/Electronic Products Electronic Products: Digital Electro-Mechanical Devices Equipment for Installation on Railway Rolling Stock IT Equipment Luminaires Micro-electronic Circuits and Components Office Equipment: Electrical Printed Circuit Boards | 1 EMC TESTS¹ | | |
| | 1.1 Conducted Emissions - AC and DC Power Ports Excluding Telecom Ports for C 9 kHz to 30 MHz | CISPR 11:1997 + A1 + A2 CISPR 14:2000 + A1 + A2 CISPR 22:1997 + A1 + A2 EN 55011:1998 + A1 EN 55011:1998 + A1 + A2 EN 55011:2007 EN 55014:2000 + A1 + A2 EN55014-1:2006 EN 55022:1998 + A1 + A2 EN 55022:2006 ANSI C63.4:2000 ANSI C63.4:2003 CFR 47:Part 15B (60 Hz single phase only) CFR 47:Part 18 (60 Hz single phase only) VCCI V-2006.04 excluding telecoms ports and kit modules | B, D B, C D C B, D C, D C C B, C, D B, C, D D B, C, D C, D C, D D |
| | 1.2 Radiated Emissions | | |
| | 1.2.1 E-field: 30 MHz to 18 GHz | CISPR 11:1997 + A1 + A2 excluding tests above 1 GHz CISPR 14:2000 + A1 CISPR 22:1997 + A1 + A2 EN 55011:1998 + A1 EN 55011:1998 + A1 + A2 excluding tests above 1 GHz EN 55011:2007 excluding tests above 1 GHz for D EN 55014:2000 + A1 + A2 E55014-1:2006 EN 55022:1998 + A1 + A2 EN 55022:2006 TRG 1068:1991 CFR 47:Part 15B CFR 47:Part 18 (60 Hz Single phase only) EN 55015:1996 RIA 18:1990 ANSI C63.4:2000 | D C C, D C D C, D C, D D C, D D C C C, D C, D D C, D D C C D |



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| As listed on Page 2 | 1 EMC TESTS¹ (cont'd) | | |
| | 1.2 Radiated Emissions (cont'd) | | |
| | 1.2.1 E-field: 30 MHz to 18 GHz (cont'd) | ANSI C63.4:2003 ANSI C63.4:2003 excluding tests above 1 GHz VCCI V- 2006.04 | C D D |
| | 1.2.2 H-field: 9 kHz to 30 MHz | CISPR 11:1997 + A1 + A2 mod (excluding induction cookers) EN 55011:1998 + A1 + A2 (excluding induction cookers) ANSI C63.4:2003 RIA18:1990 | D D D C |
| | 1.3 Discontinuous Emissions (Clicks): 10 kHz to 30 MHz | CISPR 14:2000 + A1 + A2 EN 55014:2000 + A1 + A2 EN55014-1:2006 | C C C |
| | 1.4 Harmonics Harmonic measurements to 40 th harmonic, 13A max | EN 61000-3-2:1995 + A1 + A2 + A14 EN 61000-3-2:2000 EN 61000-3-2:2006 EN 61000-3-2: 2006 + A1 + A2 | D B C, D B |
| | 1.5 Flicker measurements 230V, 13A Pst, Plt, dT, dmax, dc | EN 61000-3-3:1995 + A1 + A2 EN 61000-3-3: 2008 | B, C, D B |
| | 1.6 Insertion Loss 150 kHz to 1605 kHz | EN 55015:1996 EN 55015:2006 + A1 | C C |
| 1.7 Conducted RF Immunity 150 kHz to 230 MHz Up to 10 Vrms | EN 61000-4-6:1996 + A1 IEC 61000-4-6:1996 + A1 EN 61000-4-6:2007 IEC61000-4-6:2007 Lloyds Reg TS No 1, Sec 21:1990 | B, C, D B, C, D C, D C, D D | |



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| As listed on Page 2 | 1 EMC TESTS¹ (cont'd) | | |
| | 1.8 Radiated Immunity 26MHz to 80MHz Up to 10 V/m (C) 80MHz to 1GHz Up to 20 V/m (C, D) 80MHz to 1GHz Up to 10V/m (B) 1GHz to 2.7GHz Up to 10V/m (B, C, D) | IEC 61000-4-3:1995 + A1 + A2 EN 61000-4-3:1996 + A1 + A2 IEC 61000-4-3:1995 + A2 EN 61000-4-3:1996 + A2 IEC 61000-4-3:1995 + A2 EN 61000-4-3:2002 + A1 EN 61000-4-3:2006 RIA 18:1990 Lloyds Reg TS No 1, Sec 21:1990 | C, D C, D C C C B, C, D B, C, D C D |
| | 1.9 Fast Transients/Bursts Up to 4.4 kV | EN 61000-4-4:1995 + A1 + A2 IEC 61000-4-4:1995 + A1 + A2 IEC 61000-4-4:2004 EN 61000-4-4:2004 RIA 18:1990 Lloyds Reg TS No 1 - Sec 21:1990 | B, C, D B, C, D B, C, D B, C, D C D |
| | 1.10 Surge 1.2/50 us up to 6.6 kV 8/20 us up to 3.3 kA 5/50 us up to 1.8 kV | EN 61000-4-5:1995 + A1 IEC 61000-4-5:1995 + A1 EN 61000-4-5:2006 Lloyds Reg TS No 1 - Sec 21:1990 | B, C, D B, C, D C, D D |
| | 1.11 Voltage Dips and Interruptions AC 230V up to 16A, 250A inrush 40 %, 70 % and 100 % dip | EN 61000-4-11:1994 + A1 IEC 61000-4-11:1994 + A1 EN 61000-4-11:2004 (excluding 80 % dip for B & C) IEC 61000-4-11:2004 (excluding 80 % dip for B & C) | B, C, D B, C, D B, C, D B, C, D |
| | 1.12 ESD Up to 15 kV air Up to 8kV contact | IEC 61000-4-2:1995 + A1 + A2 EN 61000-4-2:1995 + A1 + A2 | B, C, D B, C, D |
| | 1.13 Power Frequency Magnetic Field Immunity Up to 100 A/m | EN 61000-4-8:1993 + A1 IEC 1000-4-8:1993 + A1 | D D |



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| As listed on Page 2 | <p>1 EMC TESTS¹ (cont'd)</p> <p>1.14 Generic Standards</p> <p>These Generic standards are included in this Schedule, but limited to those referred basic standards that explicitly listed in Sections 1.1 to 1.13</p> | EN 61000-6-1:2001 IEC 61000-6-1:2001 EN 61000-6-1:2007 IEC 61000-6-1:2007 EN 61000-6-2:1999 IEC 61000-6-2:1999 EN 61000-6-2:2001 IEC 61000-6-2:2001 EN 61000-6-2:2005 IEC 61000-6-2:2005 EN 61000-6-3:2001 + A11 IEC 61000-6-3:2001 + A11 EN 61000-6-3:2007 IEC61000-6-4:2007 EN 61000-6-4:2001 IEC 61000-6-4:2001 EN 61000-6-4:2007 IEC61000-6-4:2007 | B, C, D B, C, D B, C, D B, C, D B, C, D B, C, D B, C, D B, C, D B, C, D B, C, D B, C, D C, D C, D B, C, D B, C, D C, D C, D |
| | <p>1.15 Product Specific Standards</p> <p>These Product Specific standards are included in this Schedule, but limited to those referred basic standards that are explicitly listed in Sections 1.1 to 1.13</p> | EN 50121-3-2:2000 excluding traction power ports EN 50121-4:2000 excluding Annex A EN50121-3-2:2006 EN50121-4:2006 EN 50121-5:2000 EN 50130-4:1995 + A1 + A2 EN 50091-2:1996 ENV 50204:1995 EN 55014-2:1997 + A1 EN 55024:1998 + A1 + A2 EN 60945:2002 IEC 60945:2002 Excluding radiated emission above 1 GHz EN 61547:1995 + A1 EN 60601-1-2:2001 IEC 60601-1-2:2001 EN60601-1-2 :2007 ETS 300 342-3:1999 (Ancillary equipment only) EN 50270:1999 EN 61326:1997 + A1 + A2 + A3 IEC 61326:1997 + A1 + A2 + A3 | B, C, D B, C, D C C D B, C, D C C B, C, D B, C, D D D B, C B, C, D B, C, D D C B, C, D B, C, D B, C, D |



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| As listed on Page 2 | <p>1 EMC TESTS¹ (cont'd)</p> <p>1.15 Product Specific Standards (cont'd)</p> <p>Note: International Standards, EN, ENV and IEC, listed in this Schedule, that have been adopted nationally as BS EN DD ENV and BS IEC and are technically identical, can be considered as being included in this Schedule</p> | <p>EN 61326-1:2006 IEC61326-1: 2005 EN61326-2-6:2006 IEC61326-2-6:2005 EN 61800-3:1996 + A11 IEC 1800-3:1996 modified EN 62040-2: 2006 IEC 62040: 2005 Excluding harmonics, interharmonics and three phase voltage imbalance tests EN 300 386-2:V1.1.3, excluding Clauses 5.1.2.4, 5.1.2.5, 5.1.2.6, 5.2.2.4, 5.2.2.5, 5.2.2.6 EN301 489-1 V1.4.1 EN301 489-1 V1.5.1 EN301 489-1 V1.6.1 EN301 489-3 V1.4.1</p> | <p>B, C, D B, C, D D D D D D D D C B B B B</p> |

Facilities: Three Lane Ends Business Centre, Methley Road, Castleford, WF10 1PN

18 GHz ferrite/foam lined anechoic chamber: 7.6m x 3.6m x 3.6m (Unit 9)
18 GHz ferrite/foam lined anechoic chamber: 7m x 4m x 2.5m (Unit 7)
1 GHz ferrite lined anechoic chamber: 6.8 x 3 m x 3 m (Unit 5)

Screened Room: 6m x 3m x 3m (Unit 8)

Open Area Test Site: 3m and 10m ranges

Power Supplies:
230V, 50 Hz, 32A single phase (Units 5, 8, 9 and OATS)
230V, 50 Hz, 16A single phase (Unit 7)
415V, 50 Hz, 32A 3-phase (Units 8, 9 and OATS)
110V, 60 Hz, 5A single phase (mobile supply)

Compressed air up to 5 bar in Units 5, 8, 9 and OATS

Weight Limit for Test Items: 1.5 tonnes

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| <p>Facilities: Fleming Building, Donibristle Industrial Park, Dunfermline, Fife, KY11 9HZ</p> <p>Open Field Test Site: 3 m and 10 m range, Maximum EUT weight: 1 Tonne, Maximum EUT size: 3 m x 2.4 m x 2.4 m</p> <p>Screened Enclosures: (l x b x h)</p> <p>6.0 m x 4.87 m x 3.04 m (resonance damped), door size 1.2 m x 2.24 m 9.75 m x 4.87 m x 3.66 m (semi anechoic), door size 1.2 m x 2.24 m 4.28 m x 3.66 m x 2.44 m (resonance damped), door size 1 m x 2 m 4.9 m x 2.46 m x 3.04 m, door size 0.92 m x 2.14 m 4.9 m x 2.46 m x 2.5 m, door size 0.92 m x 2.14 m 3.66 m x 1.83 m x 2.44 m, door size 1 m x 2 m</p> <p>Maximum EUT size: 2.0 m x 1.2 m x 2.0 m</p> <p>Power supplies: up to 100 V dc 230V 13A 50 Hz Single Phase 415V 32A 50 Hz Three Phase 120V 18A 60 Hz Single Phase 135V 2.2 kVA 15 Hz – 1.5 kHz Single Phase up to 270V 2.2 kVA 15 Hz – 1.5 kHz Single Phase 415V 200A 50 Hz Three Phase</p> | | | |
| IT Equipment | 2 SAFETY TESTS² | EN 60950-1:2001 + A11 2004 Excluding: Clause 2.8 Interlocks Clause 2.9.2 Humidity conditioning Clause 2.10.3.4 transient voltage levels Clause 2.10.6.6, Abrasion resistance Clause 4.2.8, Cathode ray tubes Clause 4.3.12, Flammable liquids Clause 4.3.13.2, Ionizing radiation Clause 4.3.13.3, Effect of ultraviolet (UV) radiation on materials Clause 4.3.13.4, Human Exposure to ultraviolet (UV) radiation Clause 4.3.13.5, Lasers (including LEDs) | B |



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| IT Equipment (cont'd) | 2 SAFETY TESTS² (cont'd) | BS EN 60950-1:2006 + A11:2009 Excluding: Clause 2.10.6.6, Abrasion resistance Clause 4.2.8, Cathode ray tubes Clause 4.3.6, Direct plug-in equipment Clause 4.3.12, Flammable liquids Clause 4.3.13.2, Ionizing radiation Clause 4.3.13.3, Effect of ultraviolet (UV) radiation on materials Clause 4.3.13.4, Human Exposure to ultraviolet (UV) radiation Clause 4.3.13.5, Lasers (including LEDs) 7.3.2 Voltage surge test (limited to 6.6 kV) Annex A, Tests for resistance to fire Annex B4 and B6, Running overload Annex K, Thermal controls Annex U, Insulated winding wires for use without interleaved insulation Annex AA, Mandrel test | C |
| | | EN 60950-1:2001 + A11 2004 Excluding: Clause 2.3 TNV circuits Clause 2.8 Interlocks Clause 2.10.3.4 transient voltage levels Clause 2.10.6.6, Abrasion resistance Clause 4.2.8, Cathode ray tubes Clause 4.2.8, Cathode ray tubes Clause 4.3.12, Flammable liquids Clause 4.3.13.2, Ionizing radiation Clause 4.3.13.3, Effect of ultraviolet (UV) radiation on materials | D |



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| IT Equipment (cont'd) | 2 SAFETY TESTS² (cont'd) | Clause 4.3.13.4, Human Exposure to ultraviolet (UV) radiation Clause 4.3.13.5, Lasers (including LEDs) 7.3.2 Voltage surge test (limited to 6.6 kV) Clause 7.3.3 Impulse testing Annex A1 and A2, Flammability Annex A3, Hot flaming oil Annex B4 and B6, Running overload Annex K, Thermal controls | D |
| | | BS EN.60950-1:2006 + A11:2009 Excluding: Clause 2.3 TNV circuits Clause 2.10.6.6, Abrasion resistance Clause 4.2.8, Cathode ray tubes Clause 4.3.6, Direct plug-in equipment Clause 4.3.12, Flammable liquids Clause 4.3.13.2, Ionizing radiation Clause 4.3.13.3, Effect of ultraviolet (UV) radiation on materials Clause 4.3.13.4, Human Exposure to ultraviolet (UV) radiation Clause 4.3.13.5, Lasers (including LEDs) 7.3.2 Voltage surge test (limited to 6.6 kV) Annex A, Tests for resistance to fire Annex B4 and B6, Running overload Annex K, Thermal controls Annex U, Insulated winding wires for use without interleaved insulation Annex AA, Mandrel test | D |



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| Electrical equipment for measurement, control and laboratory use | 2 SAFETY TESTS² (cont'd) | EN 61010-1: 2001 Excluding: Clause 6.8.4: Voltage impulse tests > 6.6 kV Clause 9.2.1: Construction re: protection against spread of fire Clause 11.7.2: Fluid leakage and rupture at high pressure Clause 12.2: Ionizing radiation Clause 12.3: Ultraviolet (UV) radiation Clause 12.4: Microwave radiation Clause 12.5: Sonic and ultrasonic pressure Clause 12.6: Laser sources Clause 13.2.3: Implosion of cathode ray tubes Clause 14.3: Overtemperature protection devices Clause 14.9 Voltage impulse tests >6.6kV | C |
| | | EN 61010-1: 2001 Excluding: Clause 6.8.4: Voltage impulse tests > 6.6 kV Clause 9.2.1: Construction re: protection against spread of fire Clause 11.7.2: Fluid leakage and rupture at high pressure Clause 12.2: Ionizing radiation Clause 12.3: Ultraviolet (UV) radiation Clause 12.4: Microwave radiation Clause 12.5: Sonic and ultrasonic pressure Clause 12.6: Laser sources Clause 13.2.3: Implosion of cathode ray tubes Clause 14.3: Overtemperature protection devices Clause 14.9 Voltage impulse tests >6.6kV | D |



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| Audio, Video and similar electronic apparatus | 2 SAFETY TESTS² (cont'd) | EN 60065:2002 + A1: 2006 + A11: 2008 Excluding Clause 6 Hazardous radiation Clause 8.18 Endurance test for wound components Clause 8.22 Non-separable thin sheet insulation Clause 12.1.1 Bump test Clause 12.1.2 Vibration test Clause 12.3 Cable connected remote control devices Clause 12.5 Co-axial sockets Clause 14.2 Capacitors and RC-units Clause 14.4 High voltage components Clause 14.5.1 Thermal releases Clause 14.6 Switches Clause 14.7 Safety interlocks Clause 14.12 Varistors Clause 15.4 Devices forming part of a mains plug Clause 18: Mechanical strength and implosion test of picture tubes Clause 20 Resistance to fire tests Clause 20.Z1 Resistance to Candle-flame ignition Clause A.10.2.1 Splash treatment Annex G Flammability test methods Annex H Insulated winding wire insulation | C |
| ¹ Development of additional test methods or test standards within the accredited types of tests allowed ² Unless stated otherwise all safety standards include the IEC and BS EN versions where they are technically identical | | | |
| END | | | |