The American Association for Laboratory Accreditation

World Class Accreditation

Accredited Laboratory

A2LA has accredited

ACME TESTING CO.

Acme, WA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 12th day of February 2010.

President & CEO
For the Accreditation Council
Certificate Number 0829.01
Valid to November 30, 2011

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ACME TESTING CO.
Site # 2
2002 Valley Highway
Acme, WA 98220-0003
Harry H. Hodes Phone: 1 360 595 2785

ELECTRICAL (EMC)

Valid to: November 30, 2011 Certificate Number: 0829.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following Electromagnetic Compatibility (EMC) tests:

Test Technology	**Test Method(s)**
Basic Test Method Standards (Emissions):	
Conducted & Radiated	ANSI C63.4-2003; ANSI C63.4-2009; FCC OST MP-5:1986; EIA/TIA-603:1993 & TIA/EIA-603:2001; CISPR 11:1990; EN 55011:1991; CISPR 11:1997 + A1:1999 + A2:2002; CISPR 11:2003 + A1:2004 + A2:2006; CISPR 11:2007*;* EN 55011:1998 + A1:1999 + A2:2002; EN 55011:2007 + A2:2007 CISPR 12:2001 + A1:2005 *(excluding tests on Boats, and excluding the Insertion Loss Test Methods detailed in Informative Annex E of CISPR 12)*; EN 55012:2002 + A1:2005 *(excluding tests on Boats, and excluding the Insertion Loss Test Methods detailed in Informative Annex E of EN 55012)*; CISPR 14-1:1993 + A1:1996 + A2:1998; EN 55014-1:1993 + A1:1997 + A2:1999; CISPR 14-1:2000 + A1:2001; EN 55014-1:2000 + A1:2001; CISPR 14-1:2000 + A1:2001 + A2:2002; EN 55014-1:2000 + A1:2001+A2:2002; CISPR 14-1:2005; EN 55014-1:2006; CISPR 22:1993 + A1:1995+ A2:1996; EN 55022:1994 + A1:1995 + A2:1997; CISPR 22:1997 + A1:2000+ A2:2002; EN 55022:1998 + A1:2000 + A2:2003; CISPR 22:2005 + A1:2005 + A2:2006; EN 55022:2006 + C1:2006; CISPR 22:2008
Conducted Disturbance at Mains Ports	VCCI V-3/2009.04, Annex 1 Clauses 4.1, 5.2, 6.3
Conducted Disturbance at Telecom Ports	VCCI V-3/2009.04, Annex 1 Clauses 4.2, 5.2, 6.4, Appendix IV
Radiated Disturbances (<1 GHz)	VCCI V-3/2009.04 Annex 1 Clauses 4.3.1, 5.3, 6.5.1
Radiated Disturbances (1 to 6) GHz	VCCI V-3/2009.04 Annex 1 Clauses 4.3.2, 5.3, 6.5.2, Appendix VI

5301 Buckeystown Pike, Suite 350 | Frederick, Maryland 21704-8373 | Phone: 301 644 3248 | Fax: 301 662 2974 | www.A2LA.org

Test Technology	**Test Method(s)**
(Emissions cont.):	
Harmonic Current	IEC 61000-3-2:1995 + A1:1997 + A2:1998; IEC 61000-3-2:2000; IEC 61000-3-2:2000; EN 61000-3-2:1995 + A1, A2:1998 + A14:2000; IEC 61000-3-2:2000; EN 61000-3-2:2000; IEC 61000-3-2:2000 + A1:2001 + A2:2004; EN 61000-3-2:2000 + A2:2005; IEC 61000-3-2:2005 & EN 61000-3-2:2006; EN 61000-3-2:2006 + A1:2008-03 +A2:2009-02; IEC 61000-3-2:2006 + A1:2008-03 +A2:2009-02
Voltage Fluctuations & Flicker	IEC 61000-3-3:1994 + A1:2001; EN 61000-3-3:1995 + A1:2001; IEC 61000-3-3:2008-06
(Immunity):	
Audio Frequency Common Mode	IEC 61000-2-1:1990; IEC 61000-2-2:2002
Electrostatic Discharge (ESD)	IEC 1000-4-2:1995; IEC 61000-4-2:1995 + A1:1998 + A2:2001; EN 61000-4-2:1995 + A1:1998 + A2:2001; IEC 61000-4-2:2008-12
Radiated RF Fields	ENV 50140:1994; IEC 1000-4-3:1995; IEC 61000-4-3:1995; IEC 61000-4-3:2002; EN 61000-4-3:1996 + A1:1998; EN 61000-4-3:2002; ENV 50204:1995; IEC 61000-4-3:2006 + A1:2007 + IS1:2008; EN 61000-4-3:2006; IEC 61000-4-3:2006-02 +A1:2007-11 +IS H01:2008
Electrical Fast Transient/Burst	IEC 1000-4-4:1995; IEC 61000-4-4:1995; EN 61000-4-4:1995 + A1:2000 + A2:2001; IEC 61000-4-4:2004; EN 61000-4-4:2004 + Corrigendum 1:2006 + Corrigendum 2:2007
Surge	IEC 1000-4-5:1995 (*excluding 10/700 surge testing*); IEC 61000-4-5:1995 (*excluding 10/700 surge testing*); EN 61000-4-5:1995 + A1:2001 (*excluding 10/700 surge testing*); IEC 61000-4-5:2001 (*excluding 10/700 surge testing*); IEC 61000-4-5:2005 (*excluding 10/700 surge testing*)
RF Common Mode (Conducted)	IEC 1000-4-6:1996; IEC 61000-4-6:1996; EN 61000-4-6:1996; IEC 61000-4-6:2003; EN 61000-4-6:2003; IEC 61000-4-6:2003 + A1:2004 + A2:2006; EN 61000-4-6:2003 + A1:2004 + A2:2006; IEC 61000-4-6:2008-10
Power Frequency Magnetic Fields	IEC 1000-4-8:1993; IEC 61000-4-8:1993; EN 61000-4-8:1993; IEC 61000-4-8:1993 + A1:2000; EN 61000-4-8:1993 + A1:2001; IEC 61000-4-8:2009-10
Voltage Dips, Short Interruptions & Variations	IEC 1000-4-11:1994; IEC 61000-4-11:1994 + A1:2000; EN 61000-4-11:1994 + A1:2001; IEC 61000-4-11:2004-03; EN 61000-4-11:2004-03

Test Technology	**Test Method(s)**
(Generic & Product Family Standards):	47 U.S. Code of Federal Regulations (47 CFR) FCC Methods as follows: Part 15B (using ANSI C63.4-2003 and ANSI C63.4-2009); Part 18 (using FCC OST MP-5:1986); ICES-003 Issue 4; CNS 13438 (01 June 2006), CNS 13438:1997; CNS 13438:95; CNS 13439:1994; Bellcore [Telcordia] GR-1089-CORE Issue 2 Revision 1:1999, (*Sections 2, 3, 4.5.9, 4.5.10, 9.10.5, & 9.10.6 only*); Telcordia [Bellcore] GR-1089-CORE Issue 3:2002, *(Sections 2, 3, 4.6.7[1st Level Surge Pulse 4 only], 4.6.8, 4.6.9, 4.7, 9.12.5, & 9.12.6 Only*); Telcordia GR-1089-CORE Issue 4: June 2006, *(Sections 2, 3.2 [excluding Section 3.2.3.2], 3.3, 4.6.9.1 [per Table 4-6, only], 4.10.5, 4.11, 4.12, & 4.13 only*); Telcordia GR-1089-CORE Issue 5: August 2009, *(Sections 2, 3.2 [excluding Section 3.2.3.2], 3.3, 4.6.9.1 [per Table 4-6, only], 4.10.5, 4.11, 4.12, & 4.13 only*); AS/NZS 2064:1997; AS/NZS 3548:1995; AS/NZS 4251.1:1994; AS/NZS 4252.1:1994; AS/NZS 4268.2:1995; EN 12015:1998; EN 12016:1998; EN 12015:2004; EN 12016:2004; EN 50165:1997 + A1:2001 *(EMC Requirements only [per Clause 19.101])*; IEC 60255-25:2000-03; IEC 61000-6-1:1997; IEC 61000-6-1:2005; EN 61000-6-1:2001; EN 61000-6-1:2005; EN 61000-6-1:2007; IEC 61000-6-2:1999; EN 61000-6-2:1999; EN 61000-6-2:2001; IEC 61000-6-2:2005; EN 61000-6-2:2005; IEC 61000-6-3:1996; EN 61000-6-3:2001 + A11:2004; IEC 61000-6-3:2006; EN 61000-6-3:2007; IEC 61000-6-4:1997; EN 61000-6-4:2001; IEC 61000-6-4:2006; EN 61000-6-4:2007 EN 50083-2:1995 + A1:1997; EN 50083-2:2001 + A1:2005 ; EN 50083-2:2006; IEC 62040-2:2005; EN 62040-2:2006; EN 50130-4:1995 + A1:1998 + A2:2003; EN 50199:1995; EN 50270:1999; IEC 60974-10:2003; EN 60974-10:2003, EN 50293:2000; CISPR 11:1990 & EN 55011:1991; CISPR 11:1997 + A1:1998 + A2:2002; EN 55011:1998 + A1:1999 + A2:2002; CISPR 11:2003 + A1:2004 + A2:2006; CISPR 11:2007; EN 55011:2007 + A2:2007; CISPR 13:1996 + A1:1998; EN 55013:1990 + A12:1994 + A13:1996 + A14:1999; CISPR 13:2001 + A1:2003 + A2:2006; EN 55013:2001 + Corrigendum 1 +, A2:2006; CISPR 14-1:1993 + A1:1996 + A2:1998; EN 55014-1:1993 + A1:1997 +, A2:1999; CISPR 14-1:2000 + A1:2001 + A2:2002; EN 55014-1:2000 + A1:2001 +, A2:2002; EN 55014-2:1997 + A1:2001; CISPR 14-2:1997 + A1:2001; CISPR 22:1993 + A1:1995 + A2:1996; EN 55022:1994 + A1:1995 + A2:1997; CISPR 22:1997 + A1:2000 + A2:2002; EN 55022:1998 + A1:2000 + A2:2003; CISPR 22:2005 + A1:2005 + A2:2006; EN 55022:2006; CISPR 22:2008; CISPR 24:1997 + A1:2001 + A2:2002; EN 55024:1998 + A1:2001 + A2:2002; EN 55103-1:1996; EN 55103-2:1996; IEC 60521:1998; EN 60521:1995; EN 60601-1-2:1984 *(EMC Requirements Only)*; IEC 60601-1-2:2001 (2nd Edition) (*EMC Requirements only*); EN 60601-1-2:2001 (2nd Edition) (*EMC Requirements only*);

Test Technology	**Test Method(s)**
Generic & Product Family Standards: (cont'd)	IEC 60601-1-2:2007 (3rd Edition) *(EMC Requirements only);* EN 60601-1-2:2007 (3rd Edition) *(EMC Requirements only);* IEC 60601-2-37:2007-08; IEC 60687:1992; IEC 60687:1992; IEC 60870-2-1:1995; EN 60870-2-1:1996; IEC 945:1996 (*Clauses 9, 10, 11.2, 12.2, & 12.3 only*); EN 60945:1997 (*Clauses 9, 10, 11.2, 12.2, & 12.3 only*); IEC 60945:2002 + C1:2008 (*Clauses 9, 10, 11.2, 12.2, & 12.3 only*); EN 60945:2002 + C1:2008 (*Clauses 9, 10, 11.2, 12.2, & 12.3 only*); IEC 61000-3-2:1995 + A1:1997 + A2:1998; IEC 61000-3-2:2000; IEC 61000-3-2:2001; EN 61000-3-2:1995 + A1, A2:1998 + A14:2000; IEC 61000-3-2:2000; EN 61000-3-2:2000; IEC 61000-3-2:2000 + A1: 2001 + A2:2004; EN 61000-3-2:2000 + A2:2005; IEC 61000-3-2:2005; EN 61000-3-2:2006; IEC 61000-3-3:1994 + A1:2001; EN 61000-3-3:1995 + A1:2001; IEC 61036:1996 + A1:2000; EN 61036:1996 + A1:2000; IEC 61131-2:1992; EN 61131-2:1994 + A11:1996 + A12:2000; IEC 61131-2:2003; EN 61131-2:2003; IEC 61204-3:2000; EN 61204-3:2000; IEC 61268:1995; EN 61268:1996; IEC 61326:1997 + A1:1998 + A2:2000 + A3:2003; EN 61326:1997 + A1:1998 + A2:2000 + A3:2003; IEC 61326-1:2006; EN 61326-1:2006; IEC 61800-3:1996; EN 61800-3:1996 + A11:2000; IEC 61800-3:2004; EN 61800-3:2004; EN 12895:2000; ISO 7637-2:2004; IEEE STD C37.90.1-2002; IEEE STD C37.90.2-2004; EN 300 339:1998; EN 300 386 V1.3.3; EN 300 386-2 V1.1.3; EN 300 386 V1.4.1; EN 301 489-01 V1.8.1; EN 301 489-01 V1.8.1; EN 301 489-03 V1.4.1; EN 300 385:1999; EN 301 489-04 V1.3.1; EN 300 279:1999; EN 301 489-05 V1.3.1; EN 301 489-09 V1.3.1; ETS 300 684:1997; EN 301 489-15 V1.2.1; EN 301 489-22 V1.3.1

Republic of Korean: Korean Communications Commission (KCC) List of Technical Regulations and Radio Research Agency (RRA) List of Conformity Assessment Procedures:

KCC Public Notification 2008-39 (May 19, 2008),
RRA Announce 2009-9, Dec 21, 2009;

KCC Public Notification 2008-38 (May 19, 2008),
RRA Announce 2009-10, Dec 21, 2009

Korean Standard:	**Corresponding International Standard:**
KN22 (2008-5)	CISPR 22 (2005-04)
KN24 (2008-5)	CISPR 24 (2002-10)
KN61000-4-2 (2008-5)	IEC 61000-4-2 (2001-04)
KN61000-4-3 (2008-5)	IEC 61000-4-3 (2006-02)
KN61000-4-4 (2008-5)	IEC 61000-4-4 (2004-07)
KN61000-4-5 (2008-5)	IEC 61000-4-5 (2005-11)
KN61000-4-6 (2008-5)	IEC 61000-4-6 (2004-11)
KN61000-4-8 (2008-5)	IEC 61000-4-8 (2001-03)
KN61000-4-11 (2008-5)	IEC 61000-4-11 (2004-03)

MIL-STD-461 A/B/C Tests, per the following MIL-STD-462 [including Notice 1, Notice 2, Notice 3 (EL), Interim Notice 4, Interim Notice 5, and Notice 6 (USAF)] Test Methods:

CE01	CS01	RE01	RS01	UM03
CE03	CS02	RE02	RS02	UM04
CE06	CS06	RE03	RS03	UM05
CE07	CS09			
	CS10			
	CS11			

Note: RS03 Test Capability limited to a maximum of 10 V/m at 1 meter distance from 10 kHz to 18 GHz.

MIL-STD-461 D/E Tests, per the following MIL-STD-462D and MIL-STD-461E Test Methods:

CE101	CS101	RE101	RS101
CE102	CS109	RE102	RS103
CE106	CS114	RE103	
	CS115		
	CS116		

Note 1: CS114 test capability limited to a maximum of Curve 4 from 10 kHz to 400 MHz;
Note 2: RS103 test capability limited to a maximum of 10 V/m at 1 meter distance, from 10 kHz to 18 GHz.

***MIL-STD-461F Tests per the following MIL-STD-461F Test Methods**:*

CE101	CS101	RE101	RS101
CE102	CS106	RE102	RS103
CE106	CS109	RE103	
	CS114		
	CS115		
	CS116		

Note 1: CS106 Test Capability is provided using the Solar Type 8282-1 Transient Pulse Generator, which may, in some cases, result in over-testing;
Note 2: CS114 Test Capability is limited to a maximum of Curve 4 from 10 kHz to 400 MHz;
Note 3: RS103 Test Capability is limited to 10 V/m at 1 meter distance from 10 kHz to 18 GHz.

MIL-STD-704F (dated 12 March 2004) per the following Test Methods:

- 28 VDC Power Test Methods specified in MIL-HDBK-704-1 (dated 9 April 2004) and MIL-HDBK-704-8 (dated 9 April 2004), and;
- Single Phase 115 VAC 60 Hz Power Test Methods specified in MIL-HDBK-704-1 (dated 9 April 2004) and MIL-HDBK-704-6 (dated 9 April 2004).

DEF STAN 59-41 Part 3 Section 3 Issue 1 (dated 16 May 2003) Tests per the following DEF STAN 59-41 Part 3 Section 3 Tests Methods:

DCE01.3	DCS01.3	DRE01.3	DRS01.3
DCE02.3	DCS02.3	DRE02.3	DRS02.3 (Standard Method)
DCE03.3	DCS03.3		
	DCS05.3		
	DCS06.3		
	DCS10.3		
	DCS12.3		

Note 1: DCS05.3 Test Capability is limited to the frequencies and levels stated for "Switching Simulation – All Land and Sea Systems Equipment";

Note 2: DCS06.3 Test Capability is limited to the levels stated for 24 VDC powered equipment, and to the levels stated for equipment powered from either single phase 115 V/60 Hz, or, single phase 115 V/400 Hz, or, single phase 240 VAC /50 Hz;
Note 3: DCS12.3 Test Capability is limited to the levels stated for 24 VDC powered equipment, and to the levels stated for equipment powered from either single phase 115 V/60 Hz, or, single phase 115 V/400 Hz;
Note 4: DRS02.3 Test Capability is limited to 10 V/m at 1 meter distance from 10 kHz to 18 GHz.

DEF STAN 59-411 Part 3 Section 3 Issue 1 (dated 23 January 2007) incorporating Amendment 1 (dated 31 January 2008) Tests per the following DEF STAN 59-411 Part 3 Annex B Tests Methods:

DCE01.B	DCS01.B	DRE01.B	DRS01.B
DCE02.B	DCS02.B	DRE02.B	DRS02.B
DCE03.B	DCS03.B		DRS03.B
	DCS05.B		
	DCS06.B		
	DCS10.B		
	DCS12.B		

Note 1: DCS05.B Test Capability is limited to the frequencies and levels stated for "Switching Simulation – All Land and Sea Systems Equipment";
Note 2: DCS06.B Test Capability is limited to the levels stated for 28 VDC powered equipment, and to the levels stated for equipment powered from either single phase 115 V/60 Hz, or, single phase 115 V/400 Hz, or, single phase 240 VAC /50 Hz;
Note 3: DCS12.B Test Capability is limited to the levels stated for 24 VDC powered equipment, and to the levels stated for equipment powered from either single phase 115 V/60 Hz, or, single phase 115V/400 Hz;
Note 4: DRS02.B Test Capability is limited to 10 V/m at 1 meter distance from 10 kHz to 18 GHz.

Test Technology	**Test Method(s)**
RTCA/DO-160D (including Changes 1, 2, and 3):	Section 15: Magnetic Effect; Section 16: Power Input, *(excluding AC-Powered Equipment in Category A[W]);* Section 17: Voltage Spike; Section 18: Audio Frequency Conducted Susceptibility-Power Inputs; Section 19: Induced Signal Susceptibility; Section 20: Radio Frequency Susceptibility (Radiated & Conducted) (excluding all Reverberation Chamber Test procedures). Note: Radiated Susceptibility Test capability limited to Category S and Category T Equipment; Section 21: Emission of Radio Frequency Energy (Radiated & Conducted); Section 22: Lightning Induced Transients *Note 1: Pin Injection: Test Levels 1, 2, and 3 only;* *Note 2: Cable Bundle Injection: Single Stroke Tests only, at Test Levels 1, 2, & 3 only;* Section 25: ESD
RTCA/DO-160E:	Section 15: Magnetic Effect; Section 16: Power Input, *(excluding AC-Powered Equipment in Category A[W]);* Section 17: Voltage Spike;

Test Technology	Test Method(s)
RTCA/DO-160E: (cont'd)	Section 18: Audio Frequency Conducted Susceptibility-Power Inputs, *(excluding AC-Powered Equipment in Categories R[WF] and K[WF]);* Section 19: Induced Signal Susceptibility *(excluding AC-Powered, Equipment in Categories CW, ZW, AW, and, BW);* Section 20: Radio Frequency Susceptibility (Radiated & Conducted), (*excluding all Reverberation Chamber Test procedures),* *Note: Radiated Susceptibility Test capability limited to Category S and, Category T Equipment;* Section 21: Emission of Radio Frequency Energy (Radiated & Conducted); Section 22: Lightning Induced Transients, *Note 1: Pin Injection: Test Levels 1, 2, and 3 only;* *Note 2: Cable Bundle Injection: Single Stroke Tests only, at Test Levels , 1, 2, and 3 only;* Section 25: ESD
RTCA/DO-160F:	Section 15: Magnetic Effect; Section 16: Power Input, *[excluding all Three-Phase AC-Powered Equipment, and excluding AC-Powered Equipment in Category A(WF)];* Section 17: Voltage Spike; Section 18: Audio Frequency Conducted Susceptibility-Power Inputs *[excluding AC-Powered Equipment in Categories R(WF) and K(WF)];* Section 19: Induced Signal Susceptibility *[excluding AC-Powered Equipment in Categories CW, ZW, AW, and, BW];* Section 20: Radio Frequency Susceptibility [Radiated & Conducted] *[excluding all Reverberation Chamber Test procedures],* *Note: Radiated Susceptibility Test capability limited to Category S and Category T Equipment;* Section 21: Emission of Radio Frequency Energy [Radiated & Conducted]; Section 22: Lightning Induced Transient Susceptibility *Note 1: Pin Injection: Test Levels 1, 2, and 3 only,* *Note 2: Cable Bundle Injection: Single Stroke Tests only, at Test Levels 1, 2, and 3 only;* Section 25: ESD

On the following materials and products:
Electrical and electronic equipment for: information technology (ITE); industrial, scientific, and medical (ISM) applications; residential service; household appliances, small tools and similar apparatus; receivers; licensed and unlicensed transmitters/transceivers; UPS systems; alarm/security systems; central office telephone equipment; heavy industrial equipment; marine equipment; consumer audio/video equipment; professional audio/video equipment; arc welders; PLC controllers; lifts, escalators and passenger conveyers; land vehicles and electrical subassemblies/components for land vehicles; and scientific and laboratory apparatus.