



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

NEBRASKA CENTER FOR EXCELLENCE IN ELECTRONICS

4740 Discovery Drive
Lincoln, NE 68521-5376
Nic Johnson njohnson@nceelabs.com

ELECTRICAL

Valid to: July 31, 2018

Certificate Number 1953.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility tests:

Test Technology:

Test Method(s):

Emissions

Radiated and Conducted
(up to 40 GHz)

CFR 47 FCC, Parts 15B (using ANSI C63.4:2003, ANSI C63.4:2009 and ANSI C63.4:2014), 15C (using ANSI C63.10:2009 and ANSI C63.10:2013), 15E, 18 (using FCC/OST MP-5:1986), and Parts 25, 87, and 90 (using TIA/EIA 603-D); ICES-001; ICES-002; ICES-003; RSS-GEN; RSS-119; RSS-123; RSS-170; RSS-210; CISPR 11; EN 55011; AS/NZS CISPR 11; KN 11; CISPR 12; EN 55012; CAN/CSA C108.2-06; CISPR 14-1; EN 55014-1 (excluding clicks); CISPR 22; EN 55022; AS/NZS CISPR 22 (2002); KN 22; SANS 222; CISPR 32; EN 55032; KN 32 (excluding equipment within the scope of CISPR 13); AS/NZS 4771; AS/NZS 4268; CNS 13438 (up to 6 GHz); GB 9254 (1998); GB 17625.1 (2003); VCCI V-3-2011 (up to 6 GHz); ETSI EN 300 328; ETSI EN 300 683 (excluding DFS); ETSI EN 300 220-1; ETSI EN 300 440-1; RTCA/DO-160F, Section 21; FCC KDB 558074

Current Harmonics

IEC 61000-3-2; EN 61000-3-2; AS/NZS 61000.3.2

Voltage Fluctuations and Flicker

IEC 61000-3-3; EN 61000-3-3; AS/NZS 61000.3.3

Magnetic Fields

IATA DGR Section 3.9.2.2 and PI953;
RTCA/DO-160F, Section 15

Test Technology:

Test Method(s):

Immunity

Electrostatic Discharge (ESD)	IEC 61000-4-2; EN 61000-4-2; KN 61000-4-2; AS/NZS 61000.4.2; SANS 61000-4-2; ISO 10605
Radio Frequency, Radiated (80 MHz to 6 GHz, 10 V/m)	IEC 61000-4-3; EN 61000-4-3; KN 61000-4-3; AS/NZS 61000.4.3; SANS 61000-4-3; ISO 11452-1
Electrical Fast Transient / Burst	IEC 61000-4-4; EN 61000-4-4; KN 61000-4-4; AS/NZS 61000.4.4; SANS 61000-4-4
Surge Immunity	IEC 61000-4-5; EN 61000-4-5; KN 61000-4-5; AS/NZS 61000.4.5; SANS 61000-4-5
Radio Frequency, Conducted	IEC 61000-4-6; EN 61000-4-6; KN 61000-4-6; AS/NZS 61000.4.6; SANS 61000-4-6; ISO 11452-2
Power Line Magnetic Field	IEC 61000-4-8; EN 61000-4-8; KN 61000-4-8; AS/NZS 61000.4.8; SANS 61000-4-8
Voltage Dips and Fluctuations	IEC 61000-4-11; EN 61000-4-11; KN 61000-4-11; AS/NZS 61000.4.11
Pulse Magnetic Field	IEC 61000-4-9; SANS 61000-4-9
Radio Frequency Conducted (0 Hz to 150 kHz, 10Vrms)	IEC 61000-4-16
Radio Frequency, Radiated with Stripline (80 MHz to 400 MHz, 200V/m)	ISO 11452-5

Product Standards

EN 55014-2; CISPR 14-2	Immunity, Household Appliances and Electric Tools
EN 55020; CISPR 20	Sound and Television Broadcast Receivers and Associated Equipment, Immunity
EN 55022; CISPR 22; KN 22; AS/NZS CISPR 22	Emissions, Information Technology Equipment
EN 55024; CISPR 24; KN 24; AS/NZS CISPR 24	Immunity, Information Technology Equipment
KN 35	Immunity, Multimedia Equipment
EN 55032; CISPR 32; KN 32; AS/NZS CISPR 32	Emissions, Multimedia Equipment



Test Technology:

Test Method(s):

Product Standards (Cont'd)

IEC 60533	Electrical and Electronic Installation in Ships – EMC
EN 14982; ISO 14982 (excluding power transients)	Agriculture and Forestry Machinery
EN 13766; ISO 13766 (emissions and ESD only)	Earth-Moving Machinery
EN 50130-4	Immunity Requirements for Components of Fire, Intruder, and Social Alarms
IEC 60601-1-2; EN 60601-1-2	Medical Electrical Equipment
IEC 61326-1; EN 61326-1	Electrical Equipment for Measurement, Control, and Laboratory Use
IEC 61326-2-1; EN 61326-2-1	Requirement for EMC Unprotected Area
IEC 61326-2-3; EN 61326-2-3	Requirements for Transducers with Integrated or Remote Signal Conditioning
IEC 61000-6-1; EN 61000-6-1; AS/NZS 61000.6.1; KN 61000-6-1	Generic Immunity for Residential, Commercial, and Light Industrial
IEC 61000-6-2; EN 61000-6-2; AS/NZS 61000.6.2; KN 61000-6-2	Generic Immunity for Industrial Environments
IEC 61000-6-3; EN 61000-6-3; AS/NZS 61000.6.3; KN 61000-6-3	Generic Emissions for Residential, Commercial, and Light Industrial
IEC 61000-6-4; EN 61000-6-4; AS/NZS 61000.6.4; KN 61000-6-4	Generic Emissions for Industrial Environments
ETSI EN 300 220-1	EMC Standard for SRD Operating on Frequencies Between 25 MHz and 1 GHz, < 500 mW
ETSI EN 300 440-1	EMC Standard for SRD Operating on Frequencies Between 1 GHz and 40 GHz
ETSI EN 300 683 (excluding section 9.6)	EMC Standard for SRD Operating on Frequencies Between 9 kHz and 25 GHz
ETSI EN 301 489-1; ETSI EN 301 489-17	EMC Standard for Radio Equipment and Services; Part 1 – Common Technical Requirements



Test Technology:

Test Method(s):

Product Standards (Cont'd)

EAC Voluntary Voting System
Guidelines (Dec. 31, 2005), Vol. 1
Section 4.1.2.4-12; Vol. 2 Section 8

Product Safety

EN 61010-1; IEC 61010-1; UL61010-1;
CAN/CSA C22.2 No. 61010-1

Safety Requirements for Electrical Equipment for
Measurement, Control, and Laboratory Use

EN 61010-2-010; IEC 61010-2-010

Particular Requirements for Electrical Equipment for the
Heating of Materials

Exclusions:

*6.7.1.3 - Tracking Index Measurements,
9.3.1/14.7 – Flammability Testing,
10.5.3 – Vicat Testing,
11.7 – Fluid Pressure and Leakage,
12.2 – Ionizing Radiation,
12.3 – UV Radiation,
12.4 – Microwave Radiation,
12.5.2 – Ultrasonic Pressure*

EN 61010-2-081; IEC 61010-2-081

Particular Requirements for Automatic and
Semi-automatic Laboratory Equipment for Analysis
and Other Purposes

EN 60950-1; IEC 60950-1;
ANSI/UL 60950-1;
CAN/CSAC22.2 No. 60950-1-07

Information Technology Equipment – Safety

Exclusions:

*4.3.13 - Ionizing Radiation,
4.7.3 - Materials Tests*

IEC 60529

Ingress Protection, Up to IP67



Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1¹

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4:2014	40000 MHz
<u>Industrial, Scientific, and Medical Equipment</u> Part 18	FCC MP-5 (February 1986)	40000 MHz
<u>Intentional Radiators</u> Part 15C	ANSI C63.10:2013	40000 MHz
<u>U-NIII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10:2013	40000 MHz

¹Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (<https://apps.fcc.gov/oetcf/eas/>) for a listing of FCC approved laboratories.





Accredited Laboratory

A2LA has accredited

NEBRASKA CENTER FOR EXCELLENCE IN ELECTRONICS

Lincoln, NE

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 laboratory also meets the requirements of any additional program requirements in the Electrical field. 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 1st day of July 2016.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 1953.01
Valid to July 31, 2018
Revised May 18, 2018

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