



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

NEBRASKA CENTER FOR EXCELLENCE IN ELECTRONICS
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ELECTRICAL

Valid to: May 31, 2020

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

*Unintentional Radiators
Radiated and Conducted
(up to 40 GHz)*

47 CFR, FCC Part 15, Subpart B (using ANSI C63.4-2014);
47 CFR, FCC Part 18 (using MP-5:1986);
CISPR 11; EN 55011; AS/NZS CISPR 11; KN 11;
CISPR 12; EN 55012; CAN/CSA-CISPR 12-10;
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;
AS/NZS 4771; AS/NZS 4268; AS/NZS CISPR 32
CNS 13438 (*up to 6 GHz*);
GB 9254 (1998); GB 17625.1 (2003);
VCCI V-3-2011 (*up to 6 GHz*); VCCI V-32

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

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

Test Technology:

Test Method(s):

Immunity (cont.)

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
Ring Wave	IEC 61000-4-12
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

***Transmitters and Receivers
(up to 40 GHz)***

Unlicensed Transmitters	47 CFR, FCC Part 15, Subpart C; ANSI C63.10-2013
U-NII without DFS Intentional Radiators	47 CFR, FCC Part 15, Subpart E; FCC Guidance KDB Publication 789033; ANSI C63.10-2013
Licensed Transmitters (up to 40 GHz)	
Commercial Mobile Services (FCC Licensed Radio Service Equipment)	47 CFR FCC Part 22, 24, 25, 27 (below 3 GHz); FCC Guidance KDB Publication 971168; ANSI C63.26-2015; ANSI/TIA-603-D/E-2016
General Mobile Radio Services (FCC Licensed Radio Service Equipment)	47 CFR FCC Part 22, 90, 95, 97, 101 (below 3 GHz); ANSI C63.26-2015; ANSI/TIA-603-D/E-2016
Maritime and Aviation Radio Services (FCC Licensed Radio Service Equipment)	47 CFR FCC Part 80 and Part 87; ANSI C63.26-2015; ANSI/TIA-603-D/E-2016



Test Technology:

Test Method(s):

***Transmitters and Receivers (cont.)
(up to 40 GHz)***

Microwave and Millimeter Wave
Bands Radio Services (FCC
Licensed Radio Service
Equipment)

47 CFR FCC Part 25, 30, 74, 90, 95, 101; ANSI C63.26-2015;
ANSI/TIA-603-D/E-2016

**Military Standards
MIL-STD**

MIL-STD 461F/G;
RE101, RE102, CE102; CS101; CS116, RS101;
RTCA/DO-160F, Section 21; RTCA/DO-160F, Section 15

Canada

ICES-001, ICES-002, ICES-003;
RSS-GEN; RSS-111, RSS-117, RSS-125, RSS-127, RSS-131,
RSS-135, RSS-137, RSS-141, RSS-142, RSS-181, RSS-182,
RSS-192, RSS-194, RSS-197, RSS-213, RSS-216, RSS-220,
RSS-222, RSS-236, RSS-244, RSS-247, RSS-119, RSS-123,
RSS-170, RSS-210, RSS-247; SPR-002

Japan

Japan Radio Tests Radio Law No. 131, Ordinance of MPT No. 37,
1981, MIC Notification No. 88:2004, Table No. 22-11; ARIB
STD-T66, Regulation 18

Radio Communication

ETSI EN 300 328; ETSI EN 300 683 (*excluding DFS*);
ETSI EN 300 220-1;
ETSI EN 300 440-1;

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

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



Test Technology:

Test Method(s):

Product Standards (cont.)

EN 55024; CISPR 24; KN 24;
AS/NZS CISPR 24

Immunity, Information Technology Equipment

EN 55035; CISPR 35; KN 35

Immunity, Multimedia Equipment

EN 55032; CISPR 32; KN 32;
AS/NZS CISPR 32

Emissions, Multimedia Equipment

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



Test Technology:

Test Method(s):

Product Standards (cont.)

ETSI EN 300 413

EMC Standard for Satellite Earth Stations and Systems (SES); Global Navigation Satellite System (GNSS) receivers; Radio equipment operating in the 1 164 MHz to 1 300 MHz and 1 559 MHz to 1 610 MHz frequency bands

ETSI EN 300 441

EMC standard for Satellite Earth Stations and Systems (SES); Harmonised Standard for Mobile Earth Stations (MES), including handheld earth stations, for Satellite Personal Communications Networks (S-PCN) operating in the 1,6 GHz/2,4 GHz frequency band under the Mobile Satellite Service (MSS)

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

EAC Voluntary Voting System
Guidelines (2015), Vol. 1 Section
4.1.2.4-12; Vol. 2 Section 8

Electrical 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:

*Section 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



Test Technology:

Test Method(s):

Electrical Product Safety (cont.)

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 60204-1

Safety of machinery - Electrical equipment of machines

IEC 62368-1

Audio/video, information and communication technology equipment
- Part 1: Safety requirements

IEC 60529

Ingress Protection, Up To IP67

¹The laboratory is only accredited for testing activities outlined within the test methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory’s accredited capabilities

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.1²

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4-2014	40000
<u>Industrial, Scientific, and Medical Equipment</u> Part 18	FCC MP-5 (February 1986)	40000
<u>Intentional Radiators</u> Part 15C	ANSI C63.10-2013	40000
<u>U-NIII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10-2013	40000
<u>Commercial Mobile Services (FCC Licensed Radio Service Equipment)</u> Part 22 (cellular), Part 24, Part 25 (below 3 GHz), Part 27	FCC Guidance KDB Publication 971168; ANSI C63.26-2015; ANSI/TIA-603-D/E-2016	40000



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.1²

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>General Mobile Radio Services (FCC Licensed Radio Service Equipment)</u> Part 22 (non-cellular), Part 90 (below 3 GHz), Part 95, Part 97 (below 3 GHz), Part 101 (below 3 GHz)	ANSI C63.26-2015; ANSI/TIA-603-D/E-2016	40000
<u>Maritime and Aviation Radio Services</u> Part 80, Part 87	ANSI C63.26-2015; ANSI/TIA-603-D/E-2016	40000
<u>Microwave and Millimeter Bands Radio Services</u> Parts 25, 30, 74, 90 (M, DSRC, Y, Z), Part 95 (M and L), and 101	ANSI C63.26-2015; ANSI/TIA-603-D/E-2016; FCC Guidance KDB Publication 653005	70000

²Accreditation 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 (NCEE LABS)

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 April 2017*).



Presented this 2nd day of July 2018.

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

President and CEO
For the Accreditation Council
Certificate Number 1953.01
Valid to May 31, 2020

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