



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

NEBRASKA CENTER FOR EXCELLENCE IN ELECTRONICS

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ELECTRICAL

Valid to: May 31, 2022

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) <sup>1,2</sup>:**

***Emissions***

*Unintentional Radiators  
Radiated and Conducted  
(up to 220 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

**Test Technology:****Test Method(s) <sup>1,2</sup>:*****Immunity (cont.)***

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
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 220 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)	47 CFR, FCC Part 15, Subpart F; ANSI C63.10-2013
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) <sup>1,2</sup>:**

***Transmitters and Receivers  
(up to 220 GHz) (cont.)***

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

47 CFR FCC Parts 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  
(excluding DFS)**

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

**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 300 113-1;

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***

Immunity, Household Appliances,  
and Electric Tools

EN 55014-2; CISPR 14-2

Sound and Television Broadcast  
Receivers and Associated  
Equipment, Immunity

EN 55020; CISPR 20

Emissions, Information  
Technology Equipment

EN 55022; CISPR 22; KN 22; AS/NZS CISPR 22

**Test Technology:****Test Method(s) <sup>1,2</sup>:*****Product Standards (cont.)***

Immunity, Information Technology Equipment	EN 55024; CISPR 24; KN 24; AS/NZS CISPR 24
Immunity, Multimedia Equipment	EN 55035; CISPR 35; KN 35
Emissions, Multimedia Equipment	EN 55032; CISPR 32; KN 32; AS/NZS CISPR 32
Electrical and Electronic Installation in Ships – EMC	IEC 60533; KN 60533
Agriculture and Forestry Machinery	EN 14982; ISO 14982 ( <i>excluding power transients</i> )
Earth-Moving Machinery	EN 13766; ISO 13766 ( <i>emissions and ESD only</i> )
Immunity Requirements for Components of Fire, Intruder, and Social Alarms	EN 50130-4
Medical Electrical Equipment	IEC 60601-1-2; EN 60601-1-2
Electrical Equipment for Measurement, Control, and Laboratory Use	IEC 61326-1; EN 61326-1
Requirement for EMC Unprotected Area	IEC 61326-2-1; EN 61326-2-1
Requirements for Transducers with Integrated or Remote Signal Conditioning	IEC 61326-2-3; EN 61326-2-3
Generic Immunity for Residential, Commercial, and Light Industrial	IEC 61000-6-1; EN 61000-6-1; AS/NZS 61000.6.1; KN 61000-6-1
Generic Immunity for Industrial Environments	IEC 61000-6-2; EN 61000-6-2; AS/NZS 61000.6.2; KN 61000-6-2
Generic Emissions for Residential, Commercial, and Light Industrial	IEC 61000-6-3; EN 61000-6-3; AS/NZS 61000.6.3; KN 61000-6-3
Generic Emissions for Industrial Environments	IEC 61000-6-4; EN 61000-6-4; AS/NZS 61000.6.4; KN 61000-6-4

**Test Technology:**

**Test Method(s) <sup>1,2</sup>:**

***Product Standards (cont.)***

Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results

IEC 60945; KN 60945

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 300 413

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 300 441

EMC Standard for SRD Operating on Frequencies Between 9 kHz and 25 GHz

ETSI EN 300 683 (*excluding section 9.6*)

EMC Standard for Radio Equipment and Services; Part 1 – Common Technical Requirements

ETSI EN 301 489-1; KN 301 489-1; ETSI EN 301 489-17; KN 301 489-17; EAC Voluntary Voting System Guidelines (2015), Vol. 1 Section 4.1.2.4-12; Vol. 2 Section 8

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

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



**Test Technology:**

**Test Method(s) <sup>1,2</sup>:**

***Product Standards (cont.)***

Particular Requirements for  
Electrical Equipment for the  
Heating of Materials

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

*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*

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

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

Information Technology  
Equipment – Safety

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

*Exclusions:*

*4.3.13 – Ionizing Radiation,  
4.7.3 – Materials Tests*

Safety of machinery - Electrical  
equipment of machines

IEC 60204-1

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

IEC 62368-1; AS/NZS 62368-1

*Household and Similar Electrical  
Appliances – Safety*

EN 60335-1; IEC 60335-1; UL60335-1;  
CAN/CSA C22.2 No. 60335-1

*Exclusions:*

*Clause 21.1 – Spring Hammer Test  
Clause 23.3 – Wire Flexing Test  
Clause 25.14 – Supply Cord Flexing  
Test  
Clause 30 – Material Tests*

Ingress Protection, up to IP67

IEC 60529

<sup>1</sup> When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA R101 - *General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.

<sup>2</sup> The 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 Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 <sup>3</sup>:

<b>Rule Subpart/Technology</b>	<b>Test Method</b>	<b>Maximum Frequency (MHz)</b>
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4-2014	220000
<u>Industrial, Scientific, and Medical Equipment</u> Part 18	FCC MP-5 (February 1986)	220000
<u>Intentional Radiators</u> Part 15C	ANSI C63.10-2013	220000
<u>U-NII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10-2013	220000
<u>UWB Intentional Radiators</u> Part 15F	ANSI C63.10-2013	220000
<u>Commercial Mobile Services</u> <u>(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	220000
<u>General Mobile Radio Services</u> <u>(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	220000
<u>Maritime and Aviation Radio Services</u> Part 80, Part 87	ANSI C63.26-2015; ANSI/TIA-603-D/E	220000

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 <sup>3</sup>:

<b>Rule Subpart/Technology</b>	<b>Test Method</b>	<b>Maximum Frequency (MHz)</b>
<u>Microwave and Millimeter Bands Radio Services</u> Parts 25, 30, 74, 90 (above 3 GHz), 95 (above 3 GHz), 97 (above 3 GHz), and 101	ANSI C63.26-2015; ANSI/TIA-603-D/E; FCC Guidance KDB Publication 653005	220000

<sup>3</sup>Accreditation 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 17025:2017 *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 April 2017).



Presented this 14<sup>th</sup> day of September 2020.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 1953.01  
Valid to May 31, 2022

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