SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

NATIONAL TECHNICAL SYSTEMS (NTS)
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ELECTRICAL (EMC)

Valid to: December 31, 2019 Certificate Number: 0214.19

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility/interference (EMC/EMI), NEBS, wireless, telecom tests:

Test Technology:	**Test Capabilities:**	**Test Method(s)[1]:**
Emissions		
Radiated Emissions *(3 m Semi Anechoic Chamber, 10 m Semi Anechoic Chamber)*	60 Hz to 40 GHz (CISPR limited to 6GHz)	Code of Federal Regulation (CFR) 47, FCC Part 15 (Subpart B) using ANSI C63.4:2014; FCC Part 15 (Subpart C) using ANSI C63.10:2013; FCC Part 15 (Subpart E) using ANSI C63.10:2013; FCC Part 18 (using MP5:1986); FCC Parts 22, 24, 25, 27, 22, 90, 95, 97, and 101 (using ANSI/TIA-603-D, TIA-102.CAAA-D, ANSI/TIA-603-E, or TIA-102.CAAA-E); CISPR 22; EN 55022; KN 22; AS/NZS CISPR 22:2009+A1:2010; CISPR 32; EN 55032; CISPR 11; EN 55011; AS/NZS CISPR 11:2011; KN 11; VCCI V-3 (*up to 6 GHz*); CNS 13438 (*up to 6 GHz*); TCVN 7189 (2009); CISPR 25; CISPR 12; ICES-003; EN 13309; ISO 13766; ISO 11451-2; KN 32; ANSI C63.4:2003; ANSI C63.4:2009; MIL-PRF-28800F; MIL-STD-461 B-F (Methods RE101, RE102, RE103); MIL-STD-462; RTCA/DO-160 C-G (Sections 15, 21)
Conducted Emissions	30 Hz to 100 MHz	Code of Federal Regulation (CFR) 47, FCC Part 15 (Subpart B) using ANSI C63.4:2014; FCC Part 15 (Subpart C) using ANSI C63.10:2013; FCC Part 15 (Subpart E) using ANSI C63.10:2013; ANSI C63.4:2003; ANSI C63.4:2009; FCC Part 18 (using MP5:1986); CISPR 22; EN 55022; AS/NZS CISPR 22; KN 22; CISPR 32; EN 55032; CISPR 11; EN 55011; AS/NZS CISPR 11; KN 11; VCCI V-3; CNS 13438;

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Test Technology:	Test Capabilities:	Test Method(s)[1]:
Emissions (cont'd)		
Conducted Emissions	30 Hz to 100 MHz	TCVN 7189 (2009); CISPR 25; ICES-003; ISO 13766; ANSI C63.4:2003; ANSI C63.4:2009; MIL-STD-461 B-F (Methods CE101, CE102); MIL-STD-462; MIL-PRF-28800F; RTCA/DO-160 C-G (Section 21)
Current Harmonics		IEC/EN 61000-3-2; AS/NZS 61000.3.2
Flicker		IEC/EN 61000-3-3; AS/NZS 61000.3.3
Immunity		
Electrostatic Discharge (ESD)	15 kV air, 8 kV contact	EN/IEC/KN 61000-4-2; MIL-PRF-28800F; RTCA/DO-160 C-G (Section 25); ISO 10605; ISO 13766
Radiated Immunity	10 kHz to 40 GHz	EN/IEC/KN 61000-4-3; MIL-STD-461 B-F (Methods RS101, RS103); MIL-STD-462; MIL-PRF-28800F; DoD-STD-1399, Section 300A and B; IEEE P1613; MIL-STD 1275; IEC/EN 55104; ISO 13766; EN 13309; ISO 11451-2; GR-1089-CORE; ISO 11452-2; RTCA/DO-160 C-G (Section 20)
Electrical Fast Transient/Burst		EN/IEC/KN 61000-4-4; MIL-PRF-28800F; IEEE P1613
Surge		EN/IEC/KN 61000-4-5; IEEE P1613; IEEE 37.90.1; K20; K21; RTCA/DO-160 C-G (Section 22)
Conducted Immunity	10 kHz to 400 MHz	EN/IEC/KN 61000-4-6; MIL-STD-1399; MIL-STD-461 B-F (Methods CS101, CS102, CS103, CS104, CS105, CS109, CS114, CS115, CS116); MIL-STD-462; MIL-PRF-28800F; RTCA/DO-160C-G (Sections 16, 17, 18,19, 20, 22)
Power Frequency Magnetic Field Immunity		EN/IEC/KN 61000-4-8
Voltage Dips, Short Interruptions and Line Voltage Variations		EN/IEC/KN 61000-4-11
DC Power Transients		MIL-STD-704 A-F; EN 300 132; ANSI T1.315; ATT-TP-76200; ATT-TP-76450
Lightning		GR-1089-CORE; MIL-STD-704 A-F
Steady State Power Induction		GR-1089-CORE; ETSI EN 300 386; AT&T-TP76200

Test Technology:	Test Capabilities:	Test Method(s)[1]:
Immunity (Cont'd)		
DC Potential		GR-1089-CORE; AT&T-TP76200
Electrical Safety		GR 1089-CORE; AT&T-TP76200
Bonding & Grounding		GR 1089-CORE; AT&T-TP76200
Insulation Resistance		GR-49-CORE; GR-937-CORE; GR-950-CORE; GR-2916-CORE
Energy Efficiency for Telecom Equipment		ATIS-0600015; VZ.TPR.9205; IEEE P1613
Heat Dissipation		GR-63-CORE; ATIS-0600010
DC Power Port		GR-1089-CORE (Section 10)
Wireless		
EU		ETSI 300 200-2; ETSI EN 300 328 V1.9.1 2015-02; ETSI EN 300 330-2; ETSI EN 300 440-2; ETSI EN 301 893
Industry Canada Radio Standards Specifications (RSS)		RSS-GEN; RSS-119; RSS-123; RSS-125; RSS-127; RSS-130; RSS-131; RSS-132; RSS-133; RSS-139; RSS-210; RSS-310
Generic/Product Family Standards and Industry Standards		IEC/EN 61000-6-1; IEC/EN/KN 61000-6-2; IEC/EN 61000-6-3; IEC/EN/KN 61000-6-4; CISPR 24; EN 55024; KN 24; EN 61326; ETSI EN 300 386; GR-1089-CORE; ATT-TP-76200; IEC/EN 60601-1-2; EN 50082; AS/NZS 61000.6.3; AS/NZS 61000.6.4; EN 61326; IEC 60601-1-2; CISPR 14-1; KN 14-1; CISPR 14-2; KN 14-2; EN 55014-2; KN 35

On the following types of products:
Telecommunications Terminal Equipment (TTE); Network Equipment; Information Technology Equipment (ITE); Industrial, Commercial, and Military Test Equipment.

[1]When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories are expected to be competent in the use of the current version within one year of the date of publication of the standard test method, per part C., Section 1 of A2LA *R101 - General Requirements - Accreditation of ISO-IEC 17025 Laboratories*.

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.1[2]:

Rule Subpart/Technology	**Test Method**	**Maximum Frequency (MHz)**
Unintentional Radiators Part 15B	ANSI C63.4:2014	40000
Industrial, Scientific, and Medical Equipment Part 18	FCC MP-5 (February 1986)	40000
Intentional Radiators Part 15C	ANSI C63.10:2013	40000
U-NIII without DFS Intentional Radiators Part 15E	ANSI C63.10:2013	40000
Commercial Mobile Services (FCC Licensed Radio Service Equipment) Parts 22 (cellular), 24, 25 (non-microwave), and 27	ANSI/TIA-603-D; TIA-102.CAAA-D; ANSI/TIA-603-E; TIA-102.CAAA-E	40000
General Mobile Radio Services (FCC Licensed Radio Service Equipment) Parts 22 (non-cellular), 90 (non-microwave), 95, 97, and 101 (non-microwave)	ANSI/TIA-603-D; TIA-102.CAAA-D; ANSI/TIA-603-E; TIA-102.CAAA-E	40000

[2]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

NATIONAL TECHNICAL SYSTEMS (NTS)

Plano, TX

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 April 2017*).

Presented this 22nd day of February 2018.

President and CEO
For the Accreditation Council
Certificate Number 0214.19
Valid to December 31, 2019

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