



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

KEYSTONE COMPLIANCE  
131 Columbus Inner Belt  
New Castle, PA 16101  
Joey Sullivan, Phone: 724 657 9940  
Email: joey@keystonecompliance.com

ELECTRICAL (EMC)

Valid To: May 31, 2020

Certificate Number: 3293.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on telecommunications terminal equipment (TTE), network equipment, information technology equipment (ITE), medical electrical equipment, aerospace components, military equipment, nuclear equipment and commercial and automotive components:

**Test:**

**Test Method:**

***Emissions***

Radiated and Conducted  
(up to 40 GHz)

FCC CFR 47 Part 15B (using ANSI C63.4:2014), Part 15C;  
FCC CFR 47 Part 18 (using MP-5:1986);  
ANSI C63.4:2003;  
EN 55011; EN 55022;  
ICES-001; ICES-003;  
CNS 13438 (up to 6GHz);  
VCCI V-3 (up to 6 GHz);  
MIL-STD-461D-G, Methods RE101, RE102, CE101, CE102;  
CISPR 32; EN 55032; KN 35;  
TCVN 7189:2009

Current Harmonics

IEC/KN/EN 61000-3-2

Voltage Fluctuations & Flicker

IEC/KN/EN 61000-3-3

Conducted Emissions

150 kHz to 30 MHz (Power Lines)  
150 kHz to 100 MHz (Interconnecting Cables)

RTCA/DO-160F-G, Section 21

Radiated Emissions

150 kHz to 6 GHz

RTCA/DO-160F-G, Section 21

Generic or Product Specific Standards

ETSI EN 301 489-1 V2.1.1 (2016-11)

**Test:****Test Method:*****Immunity***

ESD	IEC/EN/KN 61000-4-2
Radiated, Radio-frequency, Electromagnetic Field Immunity Test	IEC/EN/KN 61000-4-3
Electrical Fast Transient/Burst Immunity Test	IEC/EN/KN 61000-4-4
Surge Immunity Test	IEC/EN/KN 61000-4-5
Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields	IEC/EN/KN 61000-4-6
Power Frequency Magnetic Field Immunity Test	IEC/EN/KN 61000-4-8
Pulse Magnetic Field Immunity Test	IEC/EN 61000-4-9
Damped Oscillatory Magnetic Field Immunity Test	IEC/EN 61000-4-10
Voltage Dips, Short Interruptions and Voltage Variations Immunity Test	IEC/EN/KN 61000-4-11
Ring Wave Immunity Test	IEC/EN/KN 61000-4-12
Harmonics and Inter-Harmonics Including Mains Signaling at A.C. Power Port, Low Frequency Immunity Tests	IEC/EN 61000-4-13
Test for Immunity to Conducted, Common Mode Disturbances in the Frequency Range 0 Hz to 150 kHz	IEC/EN 61000-4-16; IEC 61000-4-18; IEC 60255-27
Radiated Susceptibility	MIL-STD-461D-G, Methods RS101, RS103
Conducted Susceptibility	MIL-STD-461D-G, Methods CS101, CS106, CS114, CS115, CS116, CS104, CS105, CS109; MIL-STD-461D-G, Method CS117
Magnetic Effect	RTCA/DO-160F-G, Section 15
Power Input	RTCA/DO-160F-G, Section 16
Voltage Spike	RTCA/DO-160F-G, Section 17

**Test:**

**Test Method:**

***Immunity (cont.)***

ESD	MIL-STD-461G, Method CS118
Induced Susceptibility	RTCA/DO-160F-G, Section 19
RF Conducted Susceptibility, 10 kHz to 400 MHz	RTCA/DO-160F-G, Section 20
RF Radiated Susceptibility 100 MHz to 18 GHz up to 200 V/m (rms)	RTCA/DO-160F-G, Section 20
Electrostatic Discharge (ESD) 15 kV	RTCA/DO-160F-G, Section 25
Lightning	RTCA/DO-160F-G, Section 22
Generic or Product Specific Standards	ETSI EN 301 489-17 V3.1.1 (2016-11)

***Product Family Standards***

Medical Equipment	IEC/EN 60601-1-2 (excluding Risk Assessment); KN 60601-1-2 (excluding Risk Assessment)
Laboratory Equipment	IEC/EN 61326-1
Information Technology Equipment	IEC/EN 55024; KN 24
Railway Equipment	IEC/EN 50121-4
Radio Equipment and Services	EN/KN 301-489-01
Radio Equipment and Services: Broadband Data Transmission Systems	EN/KN 301-489-17

***US NRC EMC Tests***

Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety- Related Instrumentation and Control Systems	US NRC Regulatory Guide 1.180, Revision 1
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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<sup>1</sup>:

<b>Rule Subpart/Technology</b>	<b>Test Method</b>	<b>Maximum Frequency</b>
Unintentional Radiators Part 15B	ANSI C63.4:2014	40000 MHz
Industrial, Scientific, and Medical Equipment Part 18	FCC MP-5 (February 1986)	40000 MHz

<sup>1</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.

