



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

CASCADE ENGINEERING SERVICES, INCORPORATED
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ELECTRICAL

Valid To: November 30, 2019

Certificate Number: 3521.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on: Automotive, Aerospace, Medical, Military and Electrical, Electronic and Mechanical components, assemblies and packaging:

Test Technology:

Test Method(s):

EMC¹

Immunity

Power Input (AC/DC)	RTCA DO-160G Sec 16.0
Voltage Dips and Interruptions	IEC 61000-4-11
Harmonics/Interharmonics	IEC 61000-4-13
Voltage Fluctuations	IEC 61000-4-14

Product Safety

Medical Electrical Equipment

IEC 60601-1 (*Sections:8.4.2, 8.6.4, 8.7, 8.8, 8.8.3, 8.8.3 (c), and 16.6 Only*)

¹ Including only,
Electrical Power Input (AC)

- Normal Operating Conditions
 - Voltage and Frequency
 - Voltage Modulation
 - Frequency Modulation
 - Momentary Power Interruption
 - Normal Transients
 - Normal Surge Voltage
 - Normal Frequency Transients
 - Normal Frequency Variations
 - Voltage DC Content
 - Voltage Distortion

- Abnormal Operating Conditions
 - Abnormal Voltage and Frequency Limits in Steady State
 - Momentary Under-Voltage Operation
 - Abnormal Transients
 - Abnormal Surge Voltage
 - Abnormal Frequency Transients
 - Abnormal Frequency Variations
 - Loss of Phase Input (3-Phase AC Input Only)

Electrical Power Input (DC)

- Normal operating Conditions
 - Voltage (Average Value)
 - Ripple Voltage
 - Momentary Power Interruptions
 - Normal Surge Voltage
 - Engine Starting Under Voltage Operation
 - Exposed Voltage Decay Time (DC, Category D Equipment only)
- Abnormal Operating Conditions
 - Voltage Steady State
 - Low Voltage Conditions
 - Momentary Under-Voltage Operation
 - Abnormal Surge Voltage

Load Equipment Influence on Electrical Power System (AC/DC)

- Current Harmonics Emissions from Loads (AC).
- Allowable Phase Unbalance (3-Phase AC Input Only)
- DC Current Content I Steady-State Operation (All AC Equipment)
- Regenerated Energy (DC)
- Inrush Current (AC/DC)
- Current Modulation in Steady-State Operation (AC)
- DC Current Ripple (DC)
- Power Factor (All AC Equipment)



Accredited Laboratory

A2LA has accredited

CASCADE ENGINEERING SERVICES, INCORPORATED

Redmond, WA

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 4th day of December 2018.

A handwritten signature in black ink, appearing to read "L. Sen", written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 3521.02
Valid to November 30, 2019

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