19654 Eighth Street East
P.O. Box 517
Sonoma, CA 95476
(707) 996.5201
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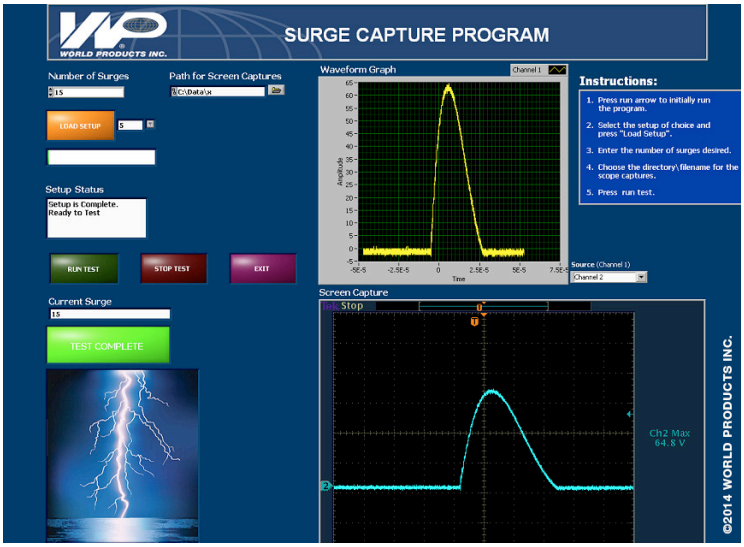
Surge Generator



A2LAAll of the components used in the measuring of 8/20 surge current and voltage are calibrated at laboratories using ISO/IEC 17025, A2LA requirements and ANSI/NCLS Z540-1-1-1994 procedures. (November 21, 2011)

Our Surge Generator, located in Sonoma, CA, meets the levels and requirements in accordance with the following national and international standards:

- IEC 61000 4-5 -- Combination Waveform
- UL 1449 3rd edition
- IEEE/ANSI 62.41 Categories B and C

Features:

- I(n) sequence up to 40,000 amps 8/20µs at 600VAC and VPR at 6kV/3kA- 600VAC in accordance with UL 1449 3rd edition.
- Applies the surge with respect to the AC sinewave from 0 to 360 degrees.
- Includes a back filter that protects the input 220VAC from surges going upstream and damaging other equipment.
- Programmable to surge as many times as needed with time duration between surges.
- Test data can be measured, stored and queried at any time. Test reports can also be printed out.

Test Capabilities:

- DC Breakdown Voltage
- Leakage Current
- Clamping Voltage and Surge Current
- UL Testing
- (UL1414) Discharge Test
- (UL1449 3rd edition) Surge Test to 40kA
- VPR Testing at 6kV/3kA with up to 600VAC applied
- Abnormal Overvoltage/Limited Current testing to 10 amps
- I(n) testing up to 40kA at 600VAC
- (UL 60691) thermal ageing, dielectric and IR testing and functional temperature T(f)
- Dielectric and IR testing to 5kV
- Impedance Measurement
- Capacitance up to 1MHz
- Insulation Resistance up to 2000 Gohms
- Surge Combination C62.41.1 and C62.41.2 up to 20kV/10kA waveform
- Endurance Test IEC 384-14, CECC32 400, EN132400
- HP Infinium 54825A DSO

WORLD PRODUCTS INC. has a complete applications and component testing laboratory in Sonoma, CA for use by our customers. At our facility we can offer you technical assistance with circuit protection, international testing specifications and electromagnetic compatibility. Our expertise and equipment are available for customer projects and to find answers to your critical design considerations. World Products is an active IEEE contributing member, USA Delegate (IEEE Liason) to IEC and UL Standard Technical Panel member.

We are also able to characterize the performance of components under both normal operational and harsh environmental conditions. Surge testing waveforms can be saved with our HP 54825A Digital Storage Oscilliscope and reports can be sent to customers via email.

October 2014

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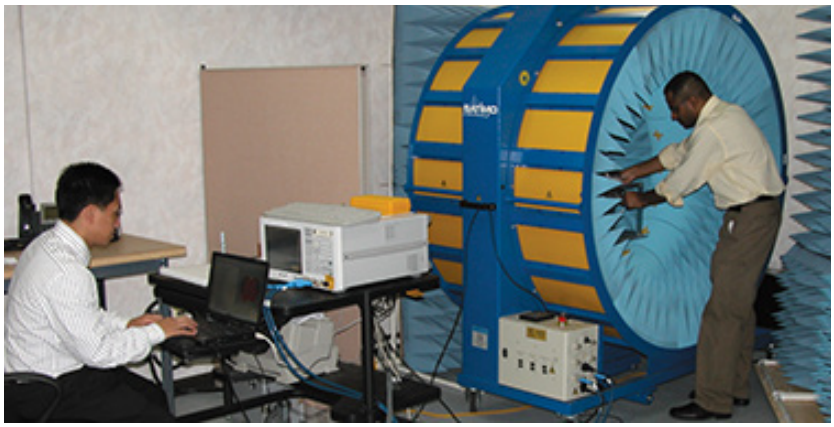
Antenna Research & Development Laboratory



Onsite Antenna Engineering Laboratory with technically advanced RF/Microwave Test & Measurement equipment.

3D & 2D Near-field & far-field, superfast & fully automated Antenna radiation characterization systems.

Experienced engineering staff that has designed Antennas for various applications ranging from military to consumer wireless.

Precise Mechanical tools that aid in designing & manufacturing Antennas in various manufacturing technologies, such as, Ceramics, Stamped Metals, Plastics, LTCC, Flex PCB & more.

Antennas & Antenna systems that operate in several frequency bands such as, GSM / GPRS / DCS / PCS / UMTS / WCDMA / CDMA / TDMA / AMPS / EDGE, WiFi, Bluetooth, WiMax, RFID, ISM Band, UWB can be designed & tested.

Regulatory testing capability that ensures that the Antennas designed comply with safety & performance standards set by FCC, PTCRB & others.

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On-Site Laboratory

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We are also able to characterize the performance of components under both normal operational and harsh environmental conditions. Photographs can be taken of all surge testing with a Tektronix C-5C Oscilloscope Camera and waveforms can be recorded either digitally or photographically with the Tektronix DocuWave TM Program. **We have testing capabilities for the following products:**

TVS Diode, MOV, Gas Tube

1. DC Breakdown Voltage
2. Leakage Current
3. Clamping Voltage and Surge Current
4. UL Testing
   a. (UL1414) Discharge Test
   b. (UL1449 3rd edition) Surge Test to 40ka
   c. VPR Testing at 6kv/3ka with up to 600VAC applied
   d. Abnormal Overvoltage/Limited Current testing to 10 amps
   e. I(n) testing up to 40ka at 600VAC
   f. (UL 60691) thermal ageing, dielectric and IR testing
5. Dielectric and IR testing to 5kv
6. Response Time Test
7. Impedance Measurement

Suppressors

1. Self Healing Voltage and Leakage Current
2. Capacitance
3. Dissipation Factor
4. Insulation Resistance up to 2000 Gohms
5. Surge Capability of 1.2 x 50µs, 5KV, IEC 384-14, VDE 565-1, SEV 1055
6. Surge Capability of Telcordia GR-1089, 2 x 10us.
7. Endurance Test IEC 384-14, CECC32 400, EN132400
8. Charge and Discharge Test IEC 384-14, CECC32 400, EN132400
9. ESR Measurement
10. UL 1414 (Discharge Test)

Relays

1. Fully Automated Parametric Characterization Testing
2. Surge Testing
3. Environmental Testing
4. Microscope Evaluation
5. Mechanical Life Testing
6. Contact Electrical Life Testing with Stick/Miss Detection
7. Endurance Test

Beads and Inductors

1. Impedance: 0.2 ohm to 3 Kohm at 1 MHz to 1 GHz
2. Inductance: 0.1 nHenry to 100µHenry at 100 MHz.
3. Q
4. SRF (Self Resonance Frequency) up to 5GHz

Antenna Products

1. SATIMO StarLab® 3D Near-Field Measurement System
2. RF Characterization capability from 50MHz to 13.5GHz of RF components.
3. S-Parameter Characterization.
4. Time-Domain Analysis.
5. Magnitude and Phase Analysis.
6. VSWR Measurements
7. WPI Wireless FCC certified test house services