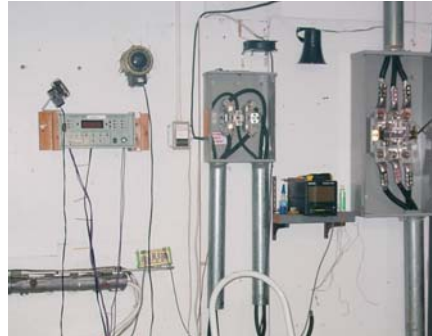


# Field Support & In-House Laboratory Facility Testing



**Lab Control Console**



**UL 414 Meter Socket Test Center**



**ECAT Control & Data Acquisition Center**



**ECAT Surge Generator**



**High Energy Test Lab**



**Lab Power Distribution Center**



**Abnormal/Limited Current Testing Equipment**

## Testing Services

- ◆ UL 1449 SPD Testing
- ◆ UL 414 Meter Testing
- ◆ RF Performance Testing
- ◆ Surge Protection Device Performance Evaluation and Testing

*Independent Testing Laboratory Certification in progress*

## Lab & Test Equipment Inventory

UL414 Heat Rise Test Lab	Up to 400 amp continuous 200a and 320a UL414 test jumpers. Automatic timer and current control via motor controlled variac.
High Energy Surge Lab	10kA and 20kA calibrated 8x20µs impulse waves (UL1449 3rd) Surge currents up to 100kA. AC mains voltage available <1 second following surge.
ECAT Surge Test Lab	100kHz ring wave, 500A and 3kA 8x20µs combination wave (UL1449 2nd and 3rd) E503, E501B, E504A, E4554 modules.
Abnormal Voltage Limited Current Lab	0.5A to 10A at 120vac to 480vac (UL1449 2nd 3rd)
Symmetrical Fault Lab	7ka Sym fault at 240vac
Lab Power Distribution Center	(2) 19.6kVA, 0-550V single phase variable Autotransformers, a 30kVA, 480V Transformer with a Control & Distribution Panel.

**Current Shunts**

Empro 100mV : 1A	
Empro 100mV : 1A	
Empro 100mV : 5A	
Empro 100mV : 10A	
Empro 100mV : 10A	Calibrated
Empro 100mV : 20A	Calibrated
Empro 100mV : 20A	
Empro 100mV : 50A	Calibrated
Empro 100mV : 50A	Calibrated
Empro 100mV : 100A	Calibrated
Empro 100mV : 100A	Calibrated

**Variacs/Autotransformers**

TDGC Variac	2kVA, 120V single phase
Superior Electric variable Autotransformer (2)	19.6kVA, 0-550V single phase
Variac	3kVA, 480V single phase

**Current Transformers**

ABB CT (2)	400:5A
Astra CT (3)	300:5A
Pearson 1423 CT	1000 V/A
Pearson 1080 CT	0.005 V/A

**Capacitance & Inductance**

Genrad 1657 RLC Digibridge
Secure Z-Meter

**Ground Testers**

AEMC Clamp-on Ground Tester (2)	Calibrated
Megger DET3/2 Soil Resistance Meter	Earth tester

**Radio Frequency Performance Testers**

GPS-827 Spectrum Analyzer	1kHz to 2.5GHz
Dynascan 3010 Function Generator	0-1MHz
Wiltron 640 RF Analyzer	1-1500MHz
Wavetek 136 VCG/VCA Generator	

**Voltage Probes**

Tektronix P6015A High Voltage Probes	Calibrated. 20kVDC / 40kV pulse 1000:1
Tektronix P6015 High Voltage Probes	1000:1
Ross Engineering VMP 30-GH-KW-AL High Voltage Probes	30kV, 1000:1
Ross Engineering VMP 30-GJ-KW-CA	30kV 1000:1
Tektronix standard scope probes	1:1 and 10:1
Pearson VD305A	Air Core Voltage Divider. 50kV. 5012:1

**Oscilloscopes**

Gould 1604 (2)	Calibrated 20Ms/sec 4-channel
Tektronix 11302	4-channel 11A34 Module
Tektronix 2230	2-channel 100MHz
Tektronix TDS420A	Calibrated 200MHz 4-channel
Tektronix TDS380	Calibrated 400MHz 2-channel
Protek P-3502	2-channel 20MHz
Tektronix 466	2-channel
Tektronix TM515	2-channel 80MHz

**Physical Measurement**

Mitutoyo Digital Caliper	Calibrated 6-inches
CDI 751LDIN Torque Wrench	Calibrated 0-75 inch-pounds
Sturtevant Richmunt Torque Wrench	Calibrated 150 foot pounds
Spi 98-900-4 Digital RPM Meter	
Imada FB Push-Pull Scale	Calibrated 0-100 pounds
Franklin 5065 Digital Scale	Calibrated 0-5 pounds
Toledo 8571 Scale	Calibrated 0-500 pounds
Detecto 845 Digital Scale	Calibrated
Ohaus B25P Digital Scale	Calibrated 0-50 pounds
50mm Steel Impact Ball	Calibrated IEC 60950
2-Inch Steel Impact Ball	Calibrated UL 1989,1418,1449,414
Pelouze 4040 Digital Scale	Calibrated 0-400 pounds

**Temperature Measurement**

Omega 4-channel Logging Thermometer	Calibrated. K-type
Monarch Datachart 3000 data logger	Calibrated. 6-channel. K-type
Atkins 31308-KF TC reader	1-channel. K-Type
Universal Enterprises MT012A TC Meter	1-channel. K-Type analog
RayTek 86484029 Non Contact Pyrometer	Laser sighting
Irisys Thermal Imager	Requires PC or PDA to view

**Volt-Ohm Meters**

Fluke189	Calibrated true rms
Square-D WMM-23	
TEK DMM247 (2)	
Centech DT-266 Clamp Meter (3)	Clamp-on ammeter and voltmeter

**Power Quality Testers**

Fluke 43 Power Quality Analyzer	Calibrated
PQR2020 Power Quality Recorder	up to 480V 3-phase. Record data for weeks

**DC Power Supplies**

High voltage DC supply	15kV, 450VA
Power Designs TP3010	3-DC volts supply. 0-32VDC 1A (2), 0-15V 5A

**Optics**

Metallux Stereoscope	5X, 10X, 20X, 32X, 50X
Pix Tronics Model 200 Optical Density Meter	

**HIPOTs**

Gamma High Voltage Research	600vac. 1mA
GW Type 12 Surge Arrestor Tester	
Mti SPD Type 4 tester (2)	300VDC. 12µA
Associated Research 3565D	Calibrated. 5kvac or 6kVDC. Programmable. (for 1mA MOV breakover testing)

**Equipment Electrical Safety Compliance Testers**

Quadcheck 45545A Electrical Safety Compliance Analyzer	Calibrated (UL 1449 2nd, 3rd)
Biddle 235303 Tool + Appliance Tester	15kV
Biddle Dielectric Tester	15kV
Slaughter Dielectric Breakdown Detector	10kV DC/AC

**Environmental**

Extech Humidity Meter/Stopwatch	Calibrated
Oatton Aneroid Barometer	Calibrated
Warming oven	6"x6"x6" 400°F
Associated Testing BK-1108	Programmable Environmental chamber/convection oven. 200°C

**Miscellaneous**

TimeMark 108B Phase Rotation Meter	
Fluke 1911A Multi-counter	
HP Telephone Oscillator	0-50kHz
Tektronix 1503 Time Delay Reflectometer	
KeyTek 801-Plus Surge Test System	0.5/700, 10/700, 8/20 waves
Decade Boxes (3)	
I^2T Fuse Tester	1-25A
Epoch-V Voltage Detecting Timer	
Various power transformers	120-220-240-480V. 1-6kVA
Various power resistors	0.5 to 20k. Up to 250W
Recording equipment	PC software for Tektronics TDS scopes. Export tools for Monarch datalogger. Video and still capture.
Wireless Internet	

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