



## **Eureka! – Surge Standard Interrelationships (How different industry standards will fit together – How this affects you and your Surge Specification)**

Surge Standards seem disjointed? Help is here! UL 1449 was revised into UL 1449 Second Edition *Revision* (Rev 2.5) to include Intermediate Fault Current Testing. This became effective Feb 2007. This was a transitional change before UL 1449 Third Edition (Rev 3), which was published in October 2006 and went into effect September 29<sup>th</sup>, 2009.

UL 1449 Rev 3 includes vast new nomenclature and testing. Rev 3 introduces Types, 1, 2, 3 & 4 SPDs, which are presently known respectively as Secondary Surge Arrestors (SSAs), hardwired TVSS, plug connected TVSS and surge suppression components. UL 1449 Rev 3 also introduces I nominal testing, which is essentially more intensive duty cycle testing. Suppressed Voltage Ratings (SVRs) derived from 0.5kA impulses will be replaced by Voltage Protection Ratings (VPRs) derived from more rigorous 3kA impulses. UL will require a complete file review, meaning *everything* gets tested, as if starting from scratch (See Section 4 for more information).

For some time, SSAs have had issues involving SCCR, NEC Art 280, appropriate IEEE Standards, UL 96A Master Label, NFPA 780, safety, etc. UL accepted a Herculean challenge to sort this out. This took time, but UL 1449 Rev 3 corrects those deficiencies. (Job well done!)

In the 2007/2008 timeframe, the 2008 NEC will was revised, NFPA 780 is revised and UL 96A accommodates Type 1 SPDs. Type 1 SPDs are allowed for UL 96A Master Label applications, which eliminates existing confusion over the need for an SSA or TVSS in Lightning Protection applications.

NEMA LS-1 was rescinded on August 19<sup>th</sup> 2009. This was the result of a NEMA Task Force convened in 2001, charged with correcting numerous cases of misuse and updating it based on current knowledge and experience. Ultimately, they voted to rescind the document completely.

IEEE C62.41.1-2002, C62.41.2-2002 & C62.45-2002 were released in May 2003 and are essentially current. Revisions are not expected anytime soon. Note that IEEE relinquished its ANSI secretariat role and UL assumed it, i.e. UL 1449 Third Edition (Rev 3) is ANSI's surge standard. (At an international level, North America is fending off European IEC style SPDs on the premise of their chasing questionable surge currents, clamping voltages that don't protect, and disputed safety controls. Meanwhile, IEC regulators are looking harder at UL's safety advantages.)

In a nutshell, IEEE Standards have been good for a couple years. UL Rev 2.5 improved safety until Rev 3 became effective. With Rev 3, the 2008 NEC changes, NFPA 780 is revised, and UL 96A improves. A new ArCom MasterSpec is being written. Confusing now, but a huge improvement in the long haul.

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