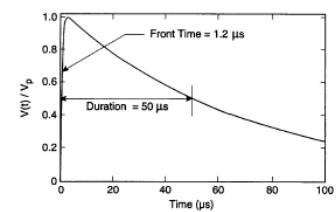
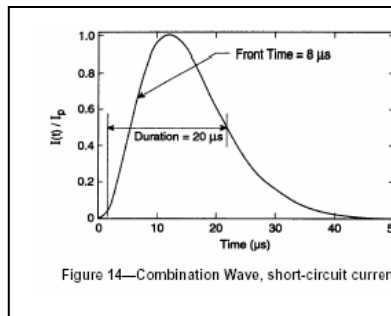
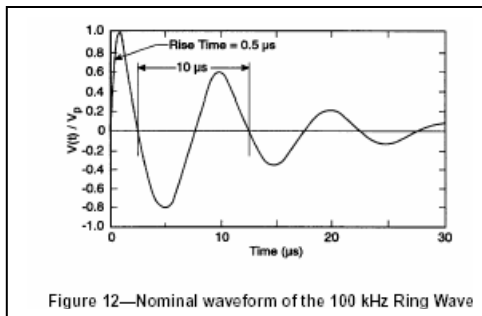




Standard Surge Testing Waveforms

The two most popular surge testing waveforms are described in IEEE C62.41.1-2002, C62.41.2-2002 and C62.45-2002.

1. Standard 0.5 μ s-100 kHz Ring Wave
2. Standard 1.2/50 μ s-8/20 μ s Combination Wave
(commonly known as 8x20)



These waveforms constitute the most commonly and widely adopted means of characterizing transient voltage surge suppressor performance. Testing is performed by mode and, by convention, is conducted at the 90 degree phase angle position with power frequency voltage applied. Positive polarity clamping voltages measured from zero voltage reference for waveforms applicable to the transient voltage surge suppressor are a required specification minimum. Voltage and current characteristics of these waveforms are dictated by IEEE Location Category. Typical industry convention is to perform testing and results to the most severe of the Category listings for each particular waveform; Cat B for ring wave and C High for combination wave (formerly Cat B3 and Cat C3 in IEEE C62.41-1991 standard).

More than any other parameter set, clamping voltage provides the basis of comparison between similar products. The clamping voltage is the voltage measured at the output terminals of the transient voltage surge suppressor. For this reason, it is imperative that the proper procedures are followed and calibration of the test equipment is maintained. A number of commercially available generators produce the waveforms described in the IEEE C62.41 & C62.45-2002 standards. Testing and procedures should be in accordance with C62.45. Be aware that C62.45 testing offers a range of acceptable testing parameters. For example, impulse shape can vary a little, lead lengths are not defined, and oscilloscope sample rates can vary, etc. For these reasons, UL 1449 testing methodology may offer additional value because of more rigid testing controls.

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