

Square D™ Surgelogic™ XDSE Performance Testing Summary

Schneider Electric is committed to providing industry leading surge protective devices (SPDs) to the marketplace. A key parameter of this commitment is to perform detailed and verifiable testing of the products offered to provide full transparency of the capabilities. Proper testing provides documented proof that the units are able to perform according to their specified design parameters.

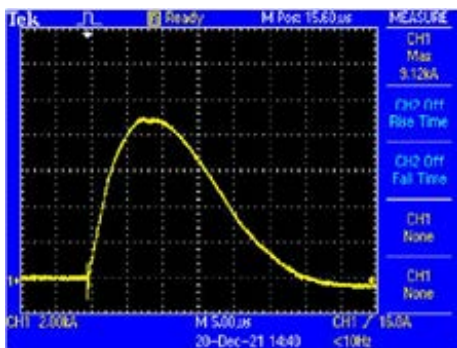
The tests outlined in this performance summary include Single & Repetitive Impulse Tests, Insertion Loss (EMI/RFI Noise Attenuation) Filter Test and IEEE Waveform Let Through Voltage Test. Each of these tests are described in greater detail below.



Single Impulse Test (Peak Current Rating I_{max})

The single impulse rating, also known as Surge Current, kA Rating or I_{max} , is the maximum single surge capability of the tested device. Each product listed below was tested to withstand the 8/20 μ s waveform pulse at the Mersen USA testing facility in Newburyport MA. For each product tested a pre-test benchmark and a post-test comparison was performed. To meet the highest testing levels as specified by ANSI/IEEE Std. C62.72-2016 (Clause 13:2) and NEMA SPD 1.1-2019 Section 3.3.8, a unit must pass with no damage to the SPD without the operation of an internal or external SPD [safety] disconnecter.

50kA/mode (100kA/phase)		
480Y/277V	SSP04XDSE10A	PASSED
208Y120V	SSP02XDSE10A	PASSED
100kA/mode (200kA/phase)		
480Y/277V	SSP04XDSE20A	PASSED
208Y120V	SSP02XDSE20A	PASSED



Repetitive Impulse Test

Endurance testing for the Surgelogic™ XDSE was performed at the Monterrey Development & Innovation Center in Apadaca MX using the industry standard 20kV, 10kA category C high (formerly C3) waveform (Figures 1 and 2). The device was subjected to repetitive surge in a single mode and the measured degradation from the initial impulse to the final impulse was less than 5%.

Figure 1: Voltage

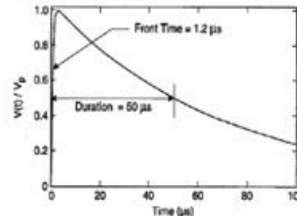
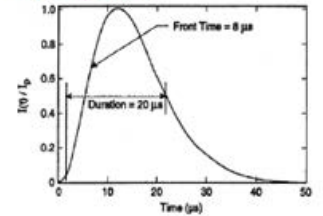


Figure 2: Current



XDSE

5,000 repetitive	20kV	10kA
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Standard 1.2/50 μ S – 8/20 μ S Combination Wave

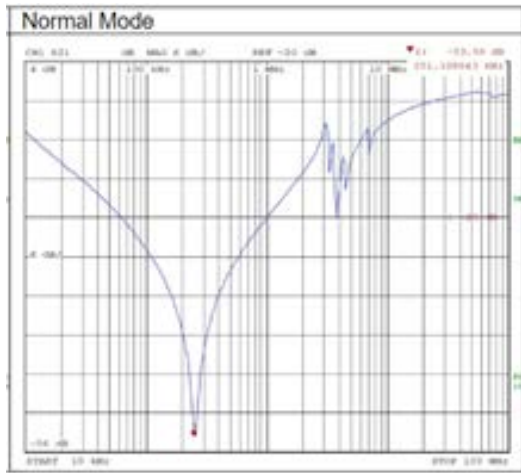
Category	Peak Voltage	Peak Current
C (high)	20 kV	10 kA

Square D™ Surgelagic™ XDSE Performance Summary

Insertion Loss Test (EMI/RFI Noise Attenuation)

Insertion loss testing for the Surgelagic™ XDSE with Sine Wave Tracking (SWT) technology was conducted at the ASCO Power Technologies certified surge laboratory in Clearwater FL. The testing followed the guidelines as outlined in the most recent revision of the Department of Defense test method standard, method of insertion loss measurement, MIL-STD 220C. Normal mode insertion loss is defined as the ratio of the source amplitude to the measured amplitude of the device at a given frequency. Each device was connected using #10AWG wire with measurements in the Line to Neutral (L-N) mode taken 6” outside the enclosure. Frequency sweep was performed from 10kHz to 100MHz. Model number listed below is a representative sample of the Type XDSE product family equipped with Sine Wave Tracking (SWT).

Model	Mode	Max Attenuation
SSP02XDSE20A	Normal (L-N)	-53.58 dB

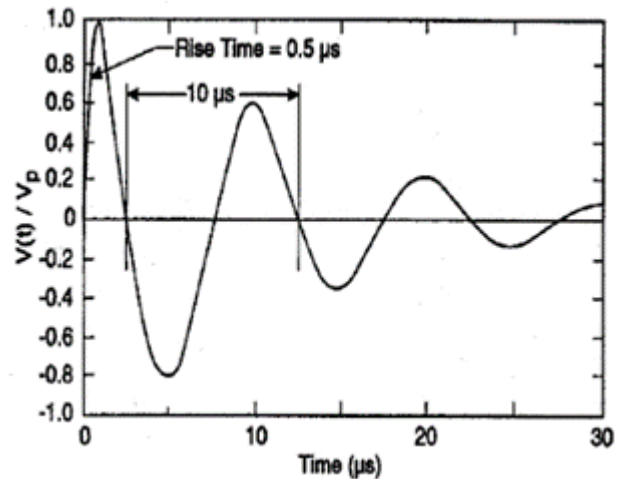


IEEE Waveform Let Through Voltage Test

Test performance values were obtained by testing in accordance with the waveforms defined in the ANSI/IEEE C62.41.2 standards. Testing was performed at the ASCO Power Technologies certified surge laboratory in Clearwater FL. Each device was connected using #10AWG wire with measurements taken 6” outside the enclosure. The surge injection phase angle was at the 90° point of the sine wave.

Standard 0.5µS - 100kHz Ring Wave		
Category	Peak Voltage	Peak Current
A3	6 kV	0.2 kA
B3	6 kV	0.5 kA

Standard 1.2/50µS - 8/20µS Combination Wave		
Category	Peak Voltage	Peak Current
B3 (high)/C1 (low)	6 kV	3 kA
C3	20 kV	10 kA
B (low)	6 kV	0.5 kA



Square D™ Surgeloc™ XDSE Performance Summary

120/240V and 208Y/120V, 100kA-200kA
IEEE C62.41.2 Waveform Let-Through Voltages
SSP02XDSE20A is representative sample

	200A Ringwave Cat A3	500A Ringwave Cat B3	500A Combo Wave Cat B3	3kA Combo Wave Cat B3 High/C1 Low	10kA Combo Wave Cat C3 High
L-N	367	560	435	611	1172
L-G	597	708	461	635	1280
N-G	616	712	440	608	1240
L-L	706	820	802	1016	1680

480Y/277V, 100kA-200kA
IEEE C62.41.2 Waveform Let-Through Voltages
SSP04XDSE20A is representative sample

	200A Ringwave Cat A3	500A Ringwave Cat B3	500A Combo Wave Cat B3	3kA Combo Wave Cat B3 High/C1 Low	10kA Combo Wave Cat C3 High
L-N	730	853	824	1027	1733
L-G	857	1000	837	1046	1786
N-G	859	980	816	1020	1759
L-L	1440	1633	1573	1833	2453

XDSE Testing Reports

- TR-80101 XDSE Single Impulse Test Report
- TR-80102 XDSE Repetitive Impulse Test Report
- TR-80103 XDSE Insertion Loss Test Report
- TR-80104 XDSE IEEE Waveform Let Through Test Report

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Life Is On



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