

Abstract Submitted
for the GEC07 Meeting of
The American Physical Society

RF Noise Generation in High-Pressure Short-Arc DC Xenon Lamps OLGA MINAYEVA, DOUGLAS DOUGHTY, PerkinElmer Optoelectronics — Continuous direct current xenon arcs will generate RF noise under certain circumstance, which can lead to excessive electro- magnetic interference in systems that use these arcs as light sources. Phenomenological observations are presented for xenon arcs having arc gaps ~ 1 mm, cold fill pressures of ~ 2.5 MPa, and currents up to 30 amps. Using a loop antenna in the vicinity of an operating lamp, it is observed that as the current to the arc is lowered there is a reproducible threshold at which the RF noise generation begins. This threshold is accompanied by a small abrupt drop in voltage (~ 0.2 volts). The RF emission appears in pulses ~ 150 nsec wide separated by ~ 300 nec - the pulse interval decreases with decreasing current. The properties of the RF emission as a function of arc parameters (such as pressure, arc gap, electrode design) will be discussed and a semi-quantitative model presented.

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Date submitted: 13 Jun 2007

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