

Abstract Submitted  
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**Electron Beam Focusing Dynamics in Gas-filled Transport Cells for Radiography**<sup>1</sup> KELLY HAHN, B.V. OLIVER, S. PORTILLO, Sandia National Laboratories, D.R. WELCH, N. BRUNER, Voss Scientific, G. COOPER, J. MCLEAN, Atomic Weapons Establishment — At Sandia National Laboratories, investigations of intense electron beam-driven diodes for flash x-ray radiography are being conducted on the RITS-6 accelerator, 9-12 MV. One of several diodes under investigation is the paraxial diode, which employs a gas-filled transport cell to focus the beam onto a high atomic number target to generate x-rays. LSP simulations have shown that the primary limitation in spot size is attributed to the finite decay of the plasma return current which causes the beam focal position to shift axially during the timescale of the pulse, hence leading to an increased radiation spot. Time-resolved measurements of the radiation spot are reported which convey this trend.

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