

Abstract Submitted  
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**Electrical and Optical Diagnostics of an Electron-Beam Generated Air Plasma** ROBERT VIDMAR, University of Nevada, Reno, KENNETH STALDER, Stalder Technologies and Research — A pulsed 1-ms 100-keV 20-mA electron beam injected through a transmission window produces air plasma in a 400-liter test cell filled with laboratory air. The beam current is monitored by a current sensor up-stream to a transmission window and supported against air pressures in the test cell from 1 mTorr to 640 Torr. RF amplitude and phase measurements at 10 GHz quantify electron density. Optical emissions from the plasma are monitored by a diode array spectrometer and quantify nitrogen emissions. Ozone concentration is monitored with a UV absorption system. Concentrations of other species are monitored by tunable diode laser absorption spectroscopy. Representative single-shot data from these diagnostic systems will be discussed. This work is supported by the Air Force Research Laboratory under grant numbers FA9550-04-1-0015 and FA9550-04-1-0444; and State of Nevada matching funds.

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