

Abstract Submitted
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Electron-Beam Produced Air Plasma: Optical Measurement of Beam Current¹ ROBERT VIDMAR, University of Nevada, Reno, KENNETH STALDER, Stalder Technologies and Research, MEGAN SEELEY, University of Nevada, Reno — Experiments to quantify the electron beam current and distribution of beam current in air plasma are discussed. The air plasma is produced by a 100-keV 10-mA electron beam source that traverses a transmission window into a chamber with air as a target gas. Air pressure is between 1 mTorr and 760 Torr. Strong optical emissions due to electron impact ionization are observed for the N₂ 2nd positive line at 337.1 nm and the N₂⁺ 1st negative line at 391.4 nm. Calibration of optical emissions using signals from the isolated transmission window and a Faraday plate are discussed. The calibrated optical system is then used to quantify the electron distribution in the air plasma.

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