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Inferred UV Fluence Focal-Spot Profiles from Soft X-Ray Pinhole Camera Measurements on OMEGA W. THEOBALD, C. SORCE, R. EPSTEIN, R.L. KECK, C. KELLOGG, T.J. KESSLER, J. KWIATKOWSKI, F.J. MARSHALL, W. SEKA, A. SHVYDKY, C. STOECKL, Laboratory for Laser Energetics, U. of Rochester — The drive uniformity of OMEGA cryogenic implosions is affected by UV beamfluence variations on target, which require careful monitoring at full laser power. This is routinely performed with multiple pinhole cameras equipped with charge-injection devices (CID's) that record the x-ray emission in the ∼3- to 7-keV photon energy range from an Au-coated target. The technique relies on the knowledge of the relation between x-ray fluence F_x and UV fluence $F_{\rm UV}$, $F_x \sim F_{\rm UV}^{\gamma}$, with a measured $\gamma = 3.42$ for the CID-based diagnostic and 1-ns laser pulse.[1] It is demonstrated here that using a back-thinned charge-coupled–device camera with softer filtration for x-rays with photon energies <2 keV and well calibrated pinhole provides a lower $\gamma \sim 2$ and a larger dynamic range in the measured UV fluence. Inferred UV fluence profiles were measured for 100-ps and 1-ns laser pulses and were compared to directly measured profiles from a UV equivalent-target-plane diagnostic. Good agreement between both techniques is reported for selected beams. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

[1]F. J. Marshall *et al.*, Phys. Plasmas **11**, 251 (2004).

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