Abstract Submitted for the DPP08 Meeting of The American Physical Society

Long-Duration Backlighting Experiments on the Omega Laser A.B. REIGHARD, P.E. YOUNG, M. SCHNEIDER, S.G. GLENDINNING, M. FOORD, K. LU, W.W. HSING, R. WALLACE, C. SORCE, S.A. MACLAREN, T. DITTRICH, LLNL — We have successfully demonstrated a 7.5 ns-duration pinhole-apertured backlighter at the Omega laser facility. Long-duration point-projection backlighting allows continuous imaging of evolving features in experiments planned for the National Ignition Facility. The backlighter consisted of a 20 $\mu \rm m$ diameter pinhole in a 75 $\mu \rm m$ thick Ta substrate separated from either a Zn emitter (8.9 keV) or a Ni emitter (7.9 keV) by a low-Z continuous substrate. The continuous substrate prevented the shock from the laser-driven surface from reaching the substrate before 8 ns and helped minimize x-ray ablation of the pinhole substrate. We have successfully imaged a resolution target on a streak camera for 8 ns, measured both integrated and streaked spectra, and tested models for pinhole closure. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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Date submitted: 17 Jul 2008 Electronic form version 1.4