Abstract Submitted
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Measurements of x-ray radiation generated during hohlraum window burnthrough[1] DAVID BRADLEY, SHON PRISBREY, DAVID BRAUN, GILBERT COLLINS, RALPH PAGE, JOHN EDWARDS, OTTO LANDEN, RUSSELL WALLACE, Lawrence Livermore National Lab — Current designs for the NIF ignition hohlraum include a low density fill-gas contained by polyimide windows positioned over the laser entrance holes. The windows, which are typically 0.5 μm thickness are designed to burn through during the first few hundred ps of the foot of the ignition pulse. The laser intensity on the window can approach 1 x 10^{15} W/cm^2 and it is possible that the x-rays produced during burn-through could preheat the capsule and act as a seed for Rayleigh Taylor growth, or induce a low-mode asymmetry. We have made measurements of the absolute x-ray spectrum produced during polyimide window burn-through for different window thicknesses, laser intensities and beam overlap conditions spanning those expected during window burn-through during a NIF implosion. The Dante spectral channel signals compare favorably with similar channel spectra produced by Lasnex simulations and imply that, for current NIF designs, window burn-through should not be a problem.

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