Measurements of x-ray radiation generated during hohlraum window burnthrough\textsuperscript{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 \( \mu \text{m} \) 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\textsuperscript{15} W/cm\textsuperscript{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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