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Measurements of Hard X-Ray Emission Suggest Absorption Along the Path of the Inner Beams in High Foot Implosion Experiments on the NIF JOSEPH RALPH, ARTHUR PAK, LANDEN OTTO, ANDREA KRITCHER, TAMMY MA, JARROTT CHARLES, DEBRA CALLAHAN, DENISE HINKEL, LAURA BERZAK HOPKINS, JOHN MOODY, SHAHAB KHAN, TILO DOEPPNER, RYAN RYGG, OMAR HURRICANE, Lawrence Livermore Natl Lab — The current high foot hohlraum design fielded on the National Ignition Facility is aimed at providing uniform x-ray drive to provide a spherical implosion by lowering the gas fill from 1.6 to 0.6 mg/cc and increasing the hohlraum width from 5.75 to 6.72 mm while maintaining the same 1.8 mm capsule diameter from previous designs. These changes are intended to improve beam propagation without the need for crossed beam energy transfer. Analysis of the measurements of hard x-ray emission from the gated x-ray detector (GXD) and the static x-ray imager (SXI) looking through the laser entrance hole indicate a significant fraction of the inner beam incident energy is absorbed in the high z blow-off region (either uranium or gold) before reaching the inner wall near the equator. Comparison of inner beam absorption in this region and its effect on the implosion symmetry measurements will be presented. Additionally, the sensitivity of this absorption feature and therefore the implosion symmetry to the pulse shape, hohlraum fill pressure and fraction of energy in beams depositing energy at the hohlraum equator will be discussed. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Joseph Ralph
Lawrence Livermore Natl Lab

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