Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Correspondence between laser coupling and x-ray flux measurements in a NIF hohlraum[1] J.D. MOODY, L. DIVOL, O. LANDEN, S. LEPAPE, P. MICHEL, J. RALPH, R.P.J. TOWN, K. WIDMANN, LLNL, A. MOORE, AWE — We describe a simple model relating measurements of the hohlraum x-ray emission (DANTE) to the coupled (incident less backscattered) laser power in NIF indirect drive hohlraum experiments. The model was motivated by observing that the measured x-ray emission showed a lag in rise corresponding to a measured reduction in laser coupling due to backscatter. Two adjustable scalar parameters (a coupling efficiency and a time-scale) in the model are determined for each experiment. Comparing these parameters for different hohlraum gas-fill, ablator, pulse-length, and laser power conditions provides insight into the hohlraum behavior and performance. In some cases, the model can be inverted to estimate the backscatter loss using the measured hohlraum x-ray emission time-history and delivered laser power. We will describe the model and compare the adjustable parameters between different hohlraum platforms.

[1]This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

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Date submitted: 11 Jul 2014 Electronic form version 1.4