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Evaluation of the Effects of Long-Wavelength Perturbations in OMEGA 80-Gbar Cryogenic Implosions P.W. MCKENTY, D. CAO, T.J.B. COLLINS, A. SHVYDKY, K.S. ANDERSON, Laboratory for Laser Energetics, U. of Rochester — The Laboratory for Laser Energetics, as part of the National Laser Direct Drive Program, has identified the goal of producing 100-Gbar neutron-averaged, hot-spot pressures (P^*) by the year 2020. An intermediate goal of 80 Gbar is currently being pursued. This work first analyzes the behavior of P^* as a function of the target convergence ratio. From this a critical converge ratio can be defined at which point the implosion achieves the $P^* = 80$-Gbar goal. Further capsule convergence then maps out a target region in design space that details the acceptable degradation from 1-D performance an implosion could suffer while still achieving the 80-Gbar goal. Two-dimensional simulation results will be presented, indicating the maximum-allowed levels for long-wavelength perturbations (offset, power imbalance, and inner-surface ice roughness) while still completing this goal. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DENA0001944.

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