Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Investigation of the LMJ ignition target sensitivity to the laser pulse shape with 2D integrated calculations CATHERINE CHERFILS, GUY MALINIE, CLAUDE BONIFACE, PASCAL GAUTHIER, STEPHANE LAFFITE, PASCAL LOISEAU, CEA-DIF, F-91297 Arpajon, France — The A943 cryogenic target in a Rugby hohlraum is our current nominal design for ignition with 160 beams on the Laser MegaJoule (Laffite et al 2007, 49th Annual Meeting of the Division of Plasma Physics, Loiseau et al 2010, 40th Annual Anomalous Absorption Conference). In this study we redesign the laser pulse of the target under the form of a sum of six supergaussians, which is more amenable to a sensitivity study : four supergaussians are used to launch the four main shocks in the capsule, and two additional supergaussians are used first to remove the LEH windows and then to control the acceleration of the first shock, respectively. We use our 2D FCI2 code to compare the radiation hydro of the capsule, obtained with this new pulse, to what was previously obtained. We investigate the sensitivity of the yield on some parameters, which are the maximum powers and respective timings of the different components of the laser pulse.

Jean Clerouin
CEA

Date submitted: 21 Jul 2010 Electronic form version 1.4