

Abstract Submitted
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Larger Size Planar Wire Arrays with a Modified Central Plane and Their Applications on Zebra with LCM A.S. SAFRONOVA, A.A. ESAULOV, V.L. KANTSYREV, UNR, A.S. CHUVATIN, Ecole Polytech., C.A. COVERDALE, B. JONES, SNL, V.V. SHLYAPTSEVA, M.E. WELLER, A. STAFFORD, I. SHRESTHA, G.C. OSBORNE, S.F. KEIM, UNR — The increase in current up to 1.7 MA on Zebra with a Load Current Multiplier (LCM) allows implosions of larger size wire arrays compared to loads at 1 MA. In the previous experiments without LCM, different planar wire arrays (PWA) were tested, all with distance between the outer planes of 6 mm or less. Recently, we collected and analyzed the results of implosions of complex PWAs with a larger distance of 9 mm between outer planes, allowing better diagnostic access to early-time plasma flows near the stagnation axis. In particular, Triple PWAs with outer planes from mid-Z material and with a modified central plane from Al, were investigated. Different designs of the central Al plane were used to exclude magnetic field from the central volume. Shadowgraphy images show formation of stationary shock waves which existed over tens of ns. Time-gated spectroscopy indicates for the first time emissions from both Al K- and Ni L-shell plasmas as early as 20 ns before the main x-ray burst. This work was supported by NNSA under DOE Coop. Agr. DE-FC52-06NA27588, 06NA27586, and in part by DE-FC52-06NA27616. Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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