Abstract Submitted for the DPP09 Meeting of The American Physical Society

The Effect of Hemispherical Target Diameter on Proton Focusing T. BARTAL¹, D.P. HIGGINSON, M.S. WEI, F.N. BEG, UCSD, D. HEY, S. LE PAPE, M.H. KEY, P.K. PATEL, A.J. MACKINNON, H.S. MCLEAN, LLNL, S.A. GAILLARD², K. FLIPPO, D.T. OFFERMANN, R.P. JOHNSON, D.S. MONT-GOMERY, T. SHIMADA, R. GONZALES, S. REID, F. ARCHULETA, S. LET-ZRING, T. HURRY, LANL, R.B. STEPHENS, GA - Proton focusing from hemispherical targets, to be used in the concept of proton fast ignition, was investigated using the 200TW Trident laser at LANL delivering 80J in 0.5ps with 45% of the energy focused to 7 microns fwhm. High-density carbon hemispherical segments, 0.35-2mm in diameter with 10 miron thick walls, were irradiated at normal incidence. On the rear side of the target, two Cu meshes were placed 1mm and 1.5mm from the opening of the hemispherical segment, one angled with respect to the other. Radiochromic film (RCF) was used to image the proton beam, which carried an imprint of each mesh. The mesh images were used to reconstruct the proton beam and determine the focal plane using a ray tracing technique. Experimental results will be discussed. *Performed for U.S. DOE under contracts FI-ACE, DE-FG-02-05ER54834, DE-AC52-07NA27344.

¹Also with LLNL and supported by the Lawrence Scholar Program ²Also with ForschungsZentrum Dresden-Rossendorf

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Date submitted: 18 Jul 2009

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