Progress report on new results of the study of multi-planar and compact cylindrical wire arrays at 0.8-1.3 MA current at UNR Zebra generator

V.L. Kantsyrev, A.S. SafroNovA, A.A. EsAulov, R. Presura, K.M. WilliamSon, I. ShreStH, N.D. Ouart, M.F. Yilmaz, P.G. Wilcox, G.C. Osborne, M.E. Weller, V. Shlyaptseva, University of Nevada, Reno, L.I. Rudakov, Icarus Inc. — The studies that include the measurements of radiation yields, time-gated spectra and images, streak camera and laser probing images, spectral modeling, and magnetostatic and MHD simulations focus on Z-pinch plasma implosion and radiation features (including bright spots properties). The experiments with small size (3-10 mm) single-, double-, triple-, cross-planar, and compact cylindrical wire arrays from various materials at nominal as well as enhanced currents up to 1.3 MA were performed on the Zebra generator. The largest x-ray yields and powers were ranged for W and Mo. Observed multi-step precursor formation in multi-planar arrays may open new paths for radiation pulses shaping. Implosion and spectroscopic features specific for enhanced currents are discussed.

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