EXPERIMENTAL TESTS OF THE INJECTION Y ON THE UNIVERSITY OF MARYLAND ELECTRON RING*

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The injection Y has been designed and built for the University of Maryland Electron Ring (UMER). The design incorporates a combination of two unique printed circuit magnet designs. The dipole component of an offset quadrupole and a pulsed dipole are used to achieve the 10 degree bend required from the injection line. The current for each magnet is supplied by its own pulse-forming network (PFN). The dipole PFN is designed as a long pulse (300 V, 15 A, 20 μs duration) for multiple beam passes with a short pulse (2 kV, -30 A, 100 ns flat top duration) superimposed for beam extraction. To accommodate field penetration a glass gap covers the area near the pulsed dipole. The glass gap has a thin conductive coating on the inner surface to minimize perturbations on the beam due to changing boundary conditions. The completed Y assembly has been installed on the downstream end of the beam line to facilitate experimental tests before closure of the ring. Initial experimental results of the testing of this design will be presented.

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