

Abstract Submitted
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Magnetic Field Measurements in the TCSU RMF Current Drive Experiment K.M. VELAS, K.E. MILLER, R.D. MILROY, University of Washington, Redmond Plasma Physics Laboratory — Detailed magnetic measurements from the Translation Confinement Sustainment Upgrade (TCSU) experiment will be presented. A two-axis probe inserted transversely at the axial midplane provides 24 independent measurements of B_z and B_x as a function of radius and two single-axis 29 channel probes provide axial profiles at the plasma edge. The $B_x(r)$ field profiles provide details about penetration of the Rotating Magnetic Field (RMF) Current Drive. The $B_z(r)$ profiles, when combined with the high beta nature of the FRC, interferometric density measurements, and the assumption of uniform temperature, yield radial density and pressure profiles. Time evolution of these profiles gives plasma dynamics during formation, quiescence, and decay as well as new insight into wobble and $n = 2$ instabilities. The $B_z(z)$ data, combined with external field measurements, allow the separatrix radius to be inferred as a function of axial position. Magnetic measurements have been crucial in evaluating the impact of the recently installed inner flux rings.

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