

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

C-2W Magnetic Measurement Suite T. ROCHE, M.C. THOMPSON, M. GRISWOLD, K. KNAPP, B. KOOP, A. OTTAVIANO, M. TOBIN, Tri Alpha Energy, TAE, TRI ALPHA ENERGY, INC. TEAM¹ — Commissioning and early operations are underway on C-2W, Tri Alpha Energy's new FRC experiment. The increased complexity level of this machine requires an equally enhanced diagnostic capability. A fundamental component of any magnetically confined fusion experiment is a firm understanding of the magnetic field itself. C-2W is outfitted with over 700 magnetic field probes, ~550 internal and ~150 external. Innovative in-vacuum annular flux loop / B-dot combination probes will provide information about plasma shape, size, pressure, energy, total temperature, and trapped flux when coupled with establish theoretical interpretations. The massive Mirnov array, consisting of eight rings of eight 3D probes, will provide detailed information about plasma motion, stability, and MHD modal content with the aid of singular value decomposition (SVD) analysis. Internal Rogowski probes will detect the presence of axial currents flowing in the plasma jet in multiple axial locations. Initial data from this array of diagnostics will be presented along with some interpretation and discussion of the analysis techniques used.

1

T. Roche
Tri Alpha Energy

Date submitted: 24 Aug 2017

Electronic form version 1.4