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Overview of the C-2W Experimental Diagnostic Systems T ROCHE, H GOTA, S PUTVINSKI, A SMIRNOV, MW BINDERBAUER, AND THE TAE TEAM, TAE Technologies, Inc. — In TAE Technologies current experimental device, C-2W (also called Norman),[1] record breaking, advanced beam-driven field reversed configuration (FRC) plasmas are produced and sustained in steady state utilizing variable energy neutral beams (15 40 keV, total power up to 20 MW), advanced divertors, end bias electrodes, and an active plasma control system. Combining unmatched operating capabilities with a unique diagnostic suite,[2] the C-2W machine represents the worlds premier venue for studying fast ion-dominated FRC plasmas. The C-2W diagnostic suite has been fully leveraged to quantify and explore a newly emerged high-performance plasma regime. The suite consists of 20 separate categories of diagnostics with a total of 50+ individual systems all producing data for every plasma shot. The synthesis of the data produced by these systems coupled with sophisticated analysis and advanced reconstruction techniques lead to a comprehensive understanding of C-2W plasmas.

[1]H. Gota et al., Nucl. Fusion **59**, 112009 (2019).
[2]M.C. Thompson et al., Rev. Sci. Instrum. **89**, 10K114 (2018).

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