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Radiative Losses from C-2W's High-Performance FRC TIMOTHY DEHAAS, AMI DUBOIS, AND THE TAE TEAM, TAE Technologies — 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, expander divertors, end bias electrodes, and an active plasma control system. As energy confinement times and temperatures continue to improve, radiation and ionization losses due to impurities could lead to significant power loss. To monitor these losses, an array of over 600 channels of XUV and soft x-ray sensing diodes has been implemented. The diagnostic achieves both good spatial resolution and wide-angle collection of plasma emission. Additionally, the diagnostic is fitted with differing thin, metallic, optical filters for coarse spectral resolution. Multi-dimensional reconstruction of plasma emission is performed to infer the total power losses. In the C-2W's high performance regime, which relies on extensive titanium gettering of the confinement vessel walls, the total impurity radiation power loss is estimated to be less than 200 kW. [1] H. Gota *et al*, Nucl. Fusion **59**, 112009 (2019).

Timothy DeHaas
TAE Technologies

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