

Abstract Submitted  
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**Flow profile measurement with a Mach probe in the open-field line region of C-2W** TADAFUMI MATSUMOTO, University of California, Irvine, THOMAS ROCHE, LUIS FRAUSTO, 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, advanced divertors, end bias electrodes, and an active plasma control system. The end biasing plays an important role by heating the FRC plasma, stabilizing global MHD modes, and suppressing turbulence with an ExB sheared flow in the open-field line region. To study this biasing effect, a combo probe (Mach and Triple Langmuir probes) has been installed in the open-field line region of the C-2W confinement vessel to measure the ion flow outside the FRC separatrix. This probe has the capability to measure parallel and perpendicular flows as well as electron temperature and density at the same location. In addition, radial electric field can be estimated by scanning the floating potential in a radial direction. Experimental setup and results will be presented. [1] H. Gota *et al.*, Nucl. Fusion **59** 112009 (2019).

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