

Abstract Submitted
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Latest Electron Temperature and Density Measurement in C-2 High Performance Regimes KAN ZHAI, JOHN KINLEY, HELEN ZHANG, Tri Alpha Energy, Inc., P.O. Box 7010, Rancho Santa Margarita, CA 92688, BENOIT LEBLANC, Princeton Plasma Physics Laboratory, Princeton, NJ 08453, THE TAE TEAM — A new high performance regime of C-2 FRC Plasma was found and experimentally investigated during our latest campaigns. With the recently added capability of measuring electron density profiles with the Thomson scattering system, the electron temperature and density profiles and their temporal evolution are investigated for this new operational regime and are compared with the cases of our previously obtained high performance regime. It is found that for the new regime the electron temperature is higher, both in the FRC core and edge regions. In the period from 0.5ms to 1ms, both the core and the edge electron temperature increase. Analogously the excluded magnetic flux radius increases during this period as well, which suggests possible electron heating as well as the potential toward sustainment of the C-2 FRC plasma. The electron density measurement shows flat and hollow radial profiles and the core/edge density stays flat in time. Detailed experimental setup and results will be presented in the meeting.

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