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First Thomson Scattering Measurements of C-2 Electron Density Profiles KAN ZHAI, BIHE DENG, JOHN KINLEY, JON SCHROEDER, Tri Alpha Energy, Inc., P.O. Box 7010, Rancho Santa Margarita, CA 92688, USA, THE TAE TEAM — The C-2 [1, 2] Thomson scattering system has been recently upgraded for electron density profile measurements at nine radial locations. The polychromators of the C-2 Thomson scattering system have been modified with an additional spectral channel at the Thomson scattering laser wavelength of 694.3nm. The absolute intensity response of the system is calibrated with Rayleigh scattering of argon gas from 0.2 to 5 torr, where the Rayleigh scattering signal is comparable to the Thomson scattering signal at electron density from 1.6e13 to 4e14 cm^{-3}. A maximum likelihood algorithm is used to process the electron temperature and density profile data with different noise contributions in the system analyzed in detail. The system setup, data analysis, and the initial results of C-2 electron density profile measurement will be presented.

[1] M. Tuszewski et al., Phys. Rev. Lett. 108, 255008 (2012).
[2] M. Binderbauer et al., Phys. Rev. Lett. 105, 045003 (2010).

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