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High-Frequency Magnetic Fluctuations in Field-Reversed Configuration Plasmas with Neutral Beam Injection MATTHEW THOMPSON, RYAN CLARY, SERGEY KOREPANOV, ANDREW LONGMAN, ANDY SIBLEY, ARTEM SMIRNOV, MICHEL TUSZEWSKI, Tri Alpha Energy, Inc., THE TAE TEAM — The C-2 experiment [1] seeks to study the properties of field-reversed configuration (FRC) plasmas with significant super-thermal ion populations generated by neutral beam injection. Magnetic field fluctuations near the C-2 fast-ion cyclotron frequency ($\sim$ 650 kHz) are of great experimental interest since they are strongly coupled to the fast-ion population. The data acquisition system of the C-2 experiment's magnetic diagnostic suite [2] was recently upgraded to a sampling rate of 60 MS/s in order to study high-frequency oscillations in the magnetic field outside the FRC. Preliminary observations show significant field fluctuation amplitude near the fast-ion cyclotron frequency that varies in time and appears correlated to other signals indicative of the fast-ion population.

[1] M. Tuszewski et al., Phys. Rev. Lett. 108, 255008 (2012)
[2] M. C. Thompson et al., Rev. Sci. Instrum. 83, 10D709 (2012)

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