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Visible Spectroscopy for Doppler Measurements on Alcator C-Mod using a Transmission Grating Spectrometer¹ ALEXANDER GRAF, University of California at Davis, MARK MAY, PETER BEIERSDORFER, Lawrence Livermore National Laboratory, WILLIAM ROWAN, Fusion Research Center, University of Texas — A high throughput (f/3) Doppler spectrometer has been installed on the Alcator C-Mod tokamak for the 2005 run campaign. This spectrometer will be used for ion rotation velocity and ion temperature measurements. The impurity rotation and temperature will be determined from the Doppler shifted and broadened spectral lines of ionized impurities in the plasma (e.g. B II, B V and Ar IX). We have measured first spectra using several fiber optic views both in the divertor and inside the separatrix at the midplane. We have been able to measure a spectral resolution ($\lambda/\Delta\lambda$) of 13000 (FWHM = 0.5 Å). Comparisons with the existing visible spectrometers, Chromex and Kaiser, will be given.

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