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Dispersion Tuned Spectroscopy of Te_2 JAMES COKER, NEIL SHAFER-RAY, TAO ZH. YANG, HAOQUAN FAN, University of Oklahoma — We present saturation absorption spectroscopy of the $X_1(^3\Sigma_g)$ - $B(^3\Sigma_u)$ transition in Te_2. This spectra was taken using a blue diode laser locked to a Fabry Perot cavity that is in turn locked to a Zeeman stabilized Helium Neon laser. Tuning of the diode laser frequency is accomplished by CO_2 pressure tuning the Fabry Perot cavity. The result is a tuning frequency that is proportional to the dispersion of the index of refraction between the Helium Neon and diode laser wavelengths. We discuss the stability of the laser frequency when the CO_2 pressure is tuned to the center of a Te_2 absorption line. This work is motivated by ongoing efforts to measure the electrons electric dipole moment and, more specifically, our desire to produce a frequency locked source of radiation for use in detection of the PbF molecule.

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