

Abstract Submitted
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Sub-Doppler Calibration of a DAVLL Signal using a Compact Design DAVID FRENCH, ANSEL FOXLEY, ANTHONY GORGES, JACOB ROBERTS, Colorado State University — We have developed a compact experimental design used to calibrate the error signal produced in a Dichroic Atomic Vapor Laser Lock (DAVLL)¹. While a DAVLL does not require frequency modulation and produces an error signal that spans a large frequency range, its lack of any sub-Doppler features in its error signal requires that it be periodically recalibrated in order to compensate for long term drifts. By adding beams in a saturated absorption spectrometer configuration through the DAVLL cell, this recalibration can be accomplished in an efficient way, despite the fact that the saturated absorption is measured in magnetic field of about 100G. Measurements of the long-term stability of this technique will be presented. This work was performed as part of an undergraduate research project.

¹K. L. Corwin, Z. T. Lu, C. F. Hand, R. J. Epstein, and C. E. Wieman, "Frequency-stabilized diode laser with the Zeeman shift in an atomic vapor," Appl. Opt. **37**, 3295 (1998).

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