Frequency Tunable Atomic Magnetometer based on an Atom Interferometer\textsuperscript{1} FRANK A. NARUCCI, Naval Air Systems Command, DANIELLE A. BRAJE, MIT Lincoln Laboratory, JON P. DAVIS, Naval Air Systems Command, CHARLES L. ADLER, St. Mary’s College of Maryland — We theoretically and experimentally study a magnetically sensitive atom interferometer. Using a stationary atom cloud, a time-domain interferometer is formed on magnetically sensitive states of $^{85}\text{Rb}$. We show that the temporal spacing of a Raman pulse sequence controls the frequency of the magnetic field detected by the interferometer, thereby potentially eliminating unwanted noise and optimizing detection in frequency bands of interest. We focus on a standard $\pi/2-\pi-\pi/2$ sequence and explore the utility of multiple $\pi$ pulses.

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