Abstract Submitted
for the OSS17 Meeting of
The American Physical Society

Vapor cell strong-field RF detection experiments ERIC PARADIS, Eastern Michigan University, GEORG RAITHEL, University of Michigan, DAVID ANDERSON, Rydberg Technologies — **Purpose** : Electromagnetically-induced transparency (EIT) in atomic vapors is used to measure RF fields. This work extends vapor cell RF field measurements up to strengths > 1000 V/m. Methods: We use a custom rubidium vapor cell with a pair of internal electrodes to create strong DC and AC (0-500 MHz) electric fields, ranging up to the strong atom-field interaction regime with field strengths >1000 V/m. The EIT signal from a probe laser is used to measure applied electric fields. **Results** : The EIT signal is highly sensitive to the incident field. We were able to directly measure the RF field frequency using particular characteristics of the atomic level structure. Comparison to calculations provided accurate measurements of the field intensity. **Conclusion** : Vapor cell EIT can be used as an effective field sensor. Further advantages of this atom-based technique are the large dynamic range and avoiding the need for sensor calibration.

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Date submitted: 17 Apr 2017 Electronic form version 1.4