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**Paschen-Back effects and Rydberg-state diamagnetism in vapor-cell electromagnetically induced transparency** LU MA, University of Michigan, DAVID ANDERSON, Rydberg Technologies LLC, GEORG RAITHEL, University of Michigan — We report on a rubidium vapor-cell Rydberg electromagnetically induced transparency (EIT) experiment in a 0.7 T magnetic field where all involved levels are in the hyperfine Paschen-Back regime, and the Rydberg state exhibits a strong diamagnetic interaction with the magnetic field. Signals from both  $^{85}\text{Rb}$  and  $^{87}\text{Rb}$  are present in the EIT spectra. This feature of isotope-mixed Rb cells allows us to measure the strength of strong magnetic fields to within a 0.2% relative uncertainty. The measured spectra are in excellent agreement with the results of a Monte Carlo calculation. Line shifts and broadenings due to small inhomogeneities of the magnetic field are included in the model. The method can be extended to even higher fields.

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