Characterization of a partially-stabilized frequency comb$^1$ M.E. GOLD DAHL, ALEX ERIKSON, DANIEL WOODBURY, SCOTT BERGESON, Brigham Young University — We present measurements of well-known frequency intervals in Cs, Rb, and Ca. These measurements are used to determine the accuracy of a partially-stabilized Ti:sapphire frequency comb. One mode of our frequency comb is offset-locked to a Rb-stabilized diode laser. The comb’s repetition rate is counted but not locked. A second laser is used to probe well-known atomic transitions in Cs, Rb, and Ca. We describe our offset locking and scanning techniques and demonstrate a frequency precision of 10 kHz in a 30 second measurement time. The accuracy of our laser frequency interval measurements is approximately 40 kHz. However, cell-based frequency references can be off by several hundred kHz.

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