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Demonstration of a Field-Deployable Ytterbium Cell Clock - a Robust Optical Atomic Clock for Real World Applications

We present an optical atomic clock based on spectroscopy of the relatively narrow $^1S_0$ $^3P_1$ intercombination line in neutral ytterbium. We show that this system is not only able to achieve short- and medium-term frequency instability better than 10-14 but is also compact and robust. We demonstrate the potential of this system by performing extensive field testing of the clock with an integrated optical frequency comb in a harsh maritime environment.

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