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N-resonance characterization for compact atomic clocks CINDY HANCOX, IRINA NOVIKOVA, YANHONG XIAO, DAVID PHILLIPS, RONALD WALSWORTH, Harvard-Smithsonian — There is great current interest in developing small atomic clocks with low power consumption and fractional frequency stability of $10^{-12}/\sqrt{\tau/s}$ or better. N-resonances, all-optical three-photon-absorption resonances, offer a promising alternative to CPT-based clocks due to their high resonance contrast and the potential to cancel first-order light shifts. We present measurements of the N-resonance contrast, width and light-shift for ^{87}Rb in a compact (1 mm long) buffer gas vapor cell and a 1 cm long paraffin-coated cell.

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