THE ROTATIONAL SPECTRA OF 1-NONENE AND 1-DECENE

S. A. COOKE, C. T. DEWBERRY, K. C. ETCHISON, G. S. GRUBBS II, and T. CUNDARI, *The Department of Chemistry, University of North Texas, P.O. Box 305070, Denton, TX, 76203-5070*; R. D. SUENRAM, *Department of Chemistry, University of Virginia, McCormick Road, P.O. Box 400319, Charlottesville, VA, 22904-4319*; G. T. FRASER, *Optical Technology Division, National Institute of Standards and Technology, Gaithersburg, Maryland, 20899-8441*.

Fourier transform rotational spectroscopy has been used to record the pure rotational spectra of 1-nonene and 1-decene. Spectra have been measured up to 26 GHz. For both molecules one conformer dominates the observed spectra. For the 1-nonene extended conformer B+C = 733.637 (20) MHz. For 1-decene the extended conformer has B+C = 535.162 (29) MHz. Our new low frequency spectrometer has been used to measure low lying $\Delta J = +1$ transitions. Molecular dynamics calculations have been used to examine the conformational space of these molecules and results will be presented.