

MILLIMETER-WAVE SPECTROSCOPY OF ACETYL CHLORIDE AND ACETYL BROMIDE^a

PRAKASH GYAWALI, R. A. MOTIYENKO, L. MARGULÈS, *UMR 8523 - PhLAM - Physique des Lasers Atomes et Molécules, Univ. Lille, CNRS, F-59000 Lille, France.*

Millimeter-wave spectra of acetyl chloride (CH₃COCl) and acetyl bromide (CH₃COBr) were measured in the frequency range 50–330 GHz. From a spectroscopic point of view, these molecules are interesting cases for studying methyl top internal rotation with relatively strong nuclear quadrupole coupling. Due to nonzero quadrupole moment of Cl and Br, the quadrupole hyperfine splittings in CH₃COCl and CH₃COBr molecules are comparable with splittings due to internal rotation. To fit the observed rotational transitions we used the so-called Rho-Axis-Method and RAM36hf code^b that take nuclear quadrupole hyperfine structure into account. The analysis, which is in progress, includes the ground vibrational state as well as lowest excited torsional states. The latest results will be presented.

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^bV.V. Ilyushin, *J. Mol. Spec.* **345**, 64-69 (2018)