OBSERVATION AND ANALYSIS OF NEW HIGH-J INTER-SPECIES TRANSITIONS IN CH_2DOH

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We report the observation and assignments of several series of transitions in CH_2DOH, including a new and intense series of Q-branch c-type transitions between the e_1 and o_1 torsional sub-states through high values of the rotational quantum number J. Other transitions assigned are c-type R-branch and P-branch transitions between these two sub-states and a-type lines within the e_1 and o_1 sub-states. The assignments were facilitated by initial analysis of the strong Q-branch series, as recorded by the FAst Scan Sub-millimeter Spectroscopy Technique (FASSST). The assigned lines of CH_2DOH include the first in the sub-millimeter-wave and the first to possess high J-values. The completeness of the data generated by FASSST and the success of a simple power series analysis suggest that many parts of the spectrum of CH_2DOH may be far more tractable than previously believed. The data should be useful in the development of a full Hamiltonian and in the assignment of astronomical emission features.