INFRARED DIODE LASER ABSORPTION SPECTROSCOPY OF ^{1}A$'$ HC^{35}Cl

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The C-Cl stretching fundamental of HC^{35}Cl in its ground, ^{1}A$'$, state has been detected by transient diode laser absorption spectroscopy. The radical was formed by the excimer laser photolysis of $CHBr_2Cl$ at 193 nm in a continuous flow system. The band has a-type character and the fundamental vibrational frequency is 811.596 cm^{-1} . No evidence was found for perturbations in either the ground or vibrationally excited levels, implying that the excited $\tilde{a}\ ^3A''$ state lies above the CCl stretching level in HCCl. The observed vibration-rotation transitions were well fit by a standard asymmetric rotor Hamiltonian model. There is a decrease in the A rotational constant on vibrational excitation, suggesting some bend-stretch coupling is present.

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