SUPERSONIC FREE-JET QUANTUM CASCADE LASER MEASUREMENTS OF ν_4 FOR $CF_3^{35}Cl$ AND $CF_3^{37}Cl$ AND FTS MEASUREMENTS FROM 400 TO 1260 cm^{-1}

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A supersonic free-jet spectrum of the ν_4 band of CF_3Cl has been measured using a quantum cascade laser system. Those measurements were combined with a low temperature (-67 C) FTS spectrum of the region 1060 to 1260 cm^{-1} to give improved values for the rovibrational constants for the ν_1, $2\nu_5$, and ν_4 states of the $CF_3^{35}Cl$ AND $CF_3^{37}Cl$. The principal perturbation found by earlier investigators in the ν_1 band is treated as a very weak Coriolis interaction at several avoided crossings of the rotational levels of the ν_1 state and the $2\nu_5$ state with $kl < 0$. Room temperature FTS measurements were also made for the region 400 to 970 cm^{-1}. With these new measurements we now have high resolution data on the states ν_1, ν_2, ν_3, ν_4, and ν_5. Also included in this analysis are the overtones $2\nu_3$ and $2\nu_6$ and a few hot bands.