For the 127I35Cl molecule, the following transitions are detected in the infrared. From this data, deduce the harmonic vibrational frequency () and the vibrational anharmonicity (), both in units of cm-1. Note that the following are the result of careful spectroscopic study that can detect weak, “forbidden” transitions (overtones like 2).

Transition Frequency (cm-1)

1 381.20

2 759.60

3 1135.00

4 1507.40

5 1877.00