ELECTRONIC SPECTROSCOPY OF THE A^1A''-X^1A' SYSTEM OF CHCl AND CDCl

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We report a comprehensive new study of the electronic spectroscopy of the A^1A''-X^1A' system of $CH^{35}Cl$, $CH^{37}Cl$, $CD^{35}Cl$ and $CD^{37}Cl$ in the region 450-750 nm. For each isotopomer, cold bands in the progressions 2_0^n, $2_0^n3_0^m$ (m=1-2), $1_0^12_0^n$, and $1_0^12_0^n3_0^m$ (m=1-2) were observed. The spectra were measured under jet-cooled conditions using a pulsed discharge source, and rotationally analyzed to yield precise values for the band origins and rotational constants. The derived A^1A'' state vibrational intervals are combined in Dixon plots with previous experimental results[a,b,c,d] to derive barriers to linearity for the 2^n progression. The A^1A'' C-H (C-D) stretching frequency was determined for the first time, and the observed ν_2 and ν_3 dependence of the $CH(D)^{35}Cl$-$CH(D)^{37}Cl$ isotope splitting in the A^1A'' state is investigated.

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