REANALYSIS OF THE NEAR INFRARED ELECTRONIC TRANSITIONS OF NiCl

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Three near infrared electronic transitions of NiCl have been reanalyzed. Hougen's recent (2011) theoretical investigation of low-lying states of metal halides with a d^9 electronic configuration indicated that the signs of the experimental spin-rotation and lambda-doubling signs for the low-lying Ω=1/2 states of NiCl were not correct. This problem is corrected by assuming an excited state with $^2\Sigma^-$ symmetry instead of $^2\Sigma^+$ symmetry. Line positions for the $[12.3]^2\Sigma^-$ - $X^2\Pi_{3/2}$, $[12.3]^2\Sigma^-$ - $X^2\Pi_{1/2}$, and $[12.3]^2\Sigma^-$ - $B^2\Sigma^+$ electronic transitions have been refitted, and the new spin-rotation and lambda-doubling signs agree with the Hougen theory. The results of the analysis will be presented.