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KCs molecular bands in the visible region*

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We measured light absorption of potassium and cesium mixed vapors at temperatures 360−660° in the visible spectral region 380−780 nm. By comparison with the absorption of pure potassium or cesium vapors, we concluded that the spectral phenomena observed in the mixture peaking at 539 nm, 562 nm (and 700 nm) are new KCs molecular bands. Quantum mechanical calculations of the KCs molecular bands in the visible and near-infrared spectral region were performed using available theoretical potential curves for the KCs molecule. Using these calculations, we identified the three observed molecular bands as $3^1\Pi-X$, $4^1\Sigma^+-X$ and $1^1\Pi-X$ electronic transitions of KCs molecule respectively.

Key words: potassium and cesium mixed vapors, absorption spectra, KCs molecular bands, quantum mechanical calculations.

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