INFRARED DIODE LASER SPECTROSCOPY OF FUNDAMENTAL AND HOT BANDS OF BBr ($\chi^1\Sigma^+$)

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Infrared absorption spectra of $^{11}\text{B}^{79}\text{Br}$, $^{11}\text{B}^{81}\text{Br}$, $^{10}\text{B}^{79}\text{Br}$ and $^{10}\text{B}^{81}\text{Br}$ have been observed between 650 and 720 cm$^{-1}$ in a BBr$_3$/He ac discharge using diode laser spectroscopy. Over 200 lines consisting of both fundamental and hot bands up to $\nu'' = 5$ have been fitted to Dunham expansions. The fitted parameters are used to derive the vibrational constants of $^{11}\text{B}^{79}\text{Br}$, $\omega_e = 685.1844(17)$ cm$^{-1}$ and $\omega_e\xi_e = 3.7347(11)$ cm$^{-1}$. The equilibrium dissociation energy is also obtained from expanded Dunham-Morse potential, $D_e = 32647(49)$ cm$^{-1}$. 