POSITIONS, INTENSITIES AND SELF-BROADENED LINE WIDTHS OF THE $3\nu_2$ - ν_2 AND $\nu_2 + \nu_4$ - ν_2 HOT BANDS of $^{14}NH_3$ IN THE 5 TO 8 μm REGION

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To complete our infrared analyses of $^{14}NH_3$ between 5 and 8 μm, a region dominated by the absorption of the $2\nu_2$ overtone and ν_4 fundamental bands, we have also modeled the $3\nu_2$ - ν_2 and $\nu_2 + \nu_4$ - ν_2 hot band line positions and intensities measured at 0.005 cm^{-1} resolution with the Fourier transform spectrometer located at the Kitt Peak National Observatory. Using the $3\nu_2$ and $\nu_2 + \nu_4$ upper states energy obtained previously, [a] several hundred line positions with J up to 10 have been assigned to $3\nu_2$ (s) - ν_2 (a), $3\nu_2$ (a) - ν_2 (s), $\nu_2 + \nu_4$ (s) - ν_2 (s) and $\nu_2 + \nu_4$ (a) - ν_2 (a) located at 1416., 1963., 1608. and 1618. cm^{-1} respectively. Selected intensity measurements have been modeled as well. Finally, comparisons of measured self-broadened line widths from these hot bands to corresponding values in the overtone and fundamental bands have revealed that the hot band line widths are smaller by factors of 0.8 to 0.4; these differences vary according to the quantum numbers. [b]

[a] I. Kleiner, G. Tarrago, and L. R. Brown, *J. Mol. Spectrosc.* **173**, 120-145 (1995).

[b] Part of the research reported in this paper was performed at the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.