$^{12}C^{16}O_2$ LINE INTENSITIES AROUND 1.6 μm WITH A PRECISION BETTER THAN 0.5 PERCENT

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Using Fourier transform spectra (FTS) and a multispectrum fitting procedure, 395 absolute line intensities of $^{12}C^{16}O_2$ have been measured[a] between 6035 and 6950 cm^{-1}, for the 4 cold bands 30014-00001, 30013-00001, 30012-00001, and 30011-00001, and for the 3 hot bands 31113-01101, 31112-01101, and 01131-01101. Vibrational transition dipole moments and Herman-Wallis coefficients are reported for each band. Comparisons are made with previous experimental results and with data available in the HITRAN database and the Carbon Dioxide Spectroscopic Databank (CDSD).

Comparisons with experimental line intensities recently obtained[b] from FTS for the 2 bands 30013-00001 and 30012-00001 are also performed. They show a very good line by line agreement: (0.3 $\pm$ 0.6) % on the mean for a hundred of lines, with a maximum discrepancy 1.6 %. Thus, the accuracy of these sets of individual line intensities, which was originally estimated about 3 % on the average in both works, is likely better than 1%. This is close to what is needed by some atmospheric experiments, as OCO.

[a] D. Boudjaadar, J.-Y. Mandin, V. Dana, N. Picqué, G. Guelachvili, $^{12}C^{16}O_2$ line intensity measurements around 1.6 μm, Journal of Molecular Spectroscopy, in press (2006).

[b] L. Régalia-Jarlot, V. Zéninari, B. Parvitte, A. Grossel, X. Thomas, P. Von der Heyden, D. Décatoire, G. Durry, J. Quant. Spectrosc. Radiat. Transfer in press (2006).