

LINE INTENSITY MEASUREMENTS IN $^{14}\text{N}_2^{16}\text{O}$ AND THEIR TREATMENT USING THE EFFECTIVE OPERATOR APPROACH. II. THE 5200 TO 6400 cm^{-1} REGION

J. VANDER AUWERA, *Laboratoire de Chimie Physique Moléculaire C. P. 160/09, Université Libre de Bruxelles, 50 Avenue F. D. Roosevelt, B-1050 Brussels, Belgium*; L. DAUMONT, *Groupe de Spectrométrie Moléculaire et Atmosphérique, ESA CNRS 6089, Université de Reims, Faculté des Sciences, Moulin de la Housse, BP 1039, F-51687 Reims cedex 2, France*; V. I. PEREVALOV, S. A. TASHKUN, *Institute of Atmospheric Optics, Russian Academy of Sciences, Siberian Branch, 1 Akademicheskii Avenue, 634055 Tomsk, Russia*; J-L. TEFFO, *Laboratoire de Physique Moléculaire et Applications, CNRS, boîte 76, Université Pierre et Marie Curie, 4 Place Jussieu, F-75252 Paris, France*.

This work continues a series of publications devoted to the application of the effective operators approach to the analysis and prediction of vibration-rotation spectra of linear triatomic molecules. In that frame, the present work aims at describing line intensities of cold and hot bands of $^{14}\text{N}_2^{16}\text{O}$ in its ground electronic state in the spectral range above 3600 cm^{-1} . In N_2O , vibrational interacting levels group in polyads, identified by the so-called polyad number $P = 2V_1 + V_2 + 4V_3$, as a result of the relation $2\omega_1 \sim 4\omega_2 \sim \omega_3$ existing between the harmonic frequencies.

The absorption spectra of N_2O , at room temperature, have been recorded in Brussels over the whole range between 3600 and 11000 cm^{-1} using a Bruker IFS120HR Fourier transform spectrometer. The measurement and analysis of absolute line intensities in the region between 4300 and 5200 cm^{-1} , involving bands associated with transitions corresponding to $\Delta P = 7, 8$ and 9, was done recently.^a We are now measuring absolute line intensities for cold and hot bands associated with transitions corresponding to $\Delta P = 10$ and 11, observed in the range from 5200 to 6400 cm^{-1} . Using wavefunctions previously determined from a global fit of an effective hamiltonian to about 18000 line positions,^b parameters of a corresponding effective dipole moment are then fitted to these experimental intensities. Results will be presented and discussed.

^aL. Daumont, J. Vander Auwera, J-L. Teffo, V. I. Perevalov and S. A. Tashkun, *J. Mol. Spectrosc.* **208**, 281-291 (2001).

^bA. Camparque, G. Weirauch, S. A. Tashkun, V. I. Perevalov, and J-L. Teffo, *J. Mol. Spectrosc.* **209**, 198-206 (2001).