CW-CRDS OF THE OZONE MOLECULE IN THE 5905-5960 $cm^{-1}$ REGION : FIRST OBSERVATION AND ANALYSES OF THE $\nu_1$+3$\nu_2$+3$\nu_3$ AND $4\nu_1$+$\nu_2$+$\nu_3$ BANDS

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This work continues the systematic study of the rovibrational spectra of ozone in the infrared[a], newly using the high sensitivity CW-cavity ring down spectroscopy ($\alpha_{min} \approx 3 \times 10^{-10}\ cm^{-1}$)[b c d e]. Here, we observe two new A type bands, where the main contributers are $\nu_1$+3$\nu_2$+3$\nu_3$ and $4\nu_1$+$\nu_2$+$\nu_3$ centered at 5919.154 and 5947.071 $cm^{-1}$ respectively. We report for each of them the Hamiltonian parameters, the transition moment parameters, the range of observed quantum numbers, the statistics for line position and intensities, the list of "observed energy levels", with the comparison with their calculations and we show various examples of agreements between observed and calculated spectra. In addition, a comparison between observed and predicted band center[f] will also be discussed.

[a] http://ozone.univ-reims.fr and http://ozone.iao.ru

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[d] A. Barbe, M.-R. De Backer-Barilly, Vl.G. Tyuterev, A. Campargue, D. Romanini, S. Kassi, *J. Mol. Spectrosc.*, under press, (2007).

[e] A. Barbe, M.-R. De Backer-Barilly, Vl.G. Tyuterev, A. Campargue, D. Romanini, S. Kassi, *J. Mol. Spectrosc.*, submitted, (2007).

[f] Vl.G. Tyuterev, S.A. Tashkun, H. Seghir, A. Barbe, $19^{th}$ *International Conference on High Resolution Molecular Spectroscopy*, Praha, (2006), to be published.