The CW-CRDS spectra of non homogeneous ^{18}O enriched isopotologues of ozone in the 6340-6900 cm^{-1} spectral range: analyses of two new bands.

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This work is a continuation of our systematic studies of high resolution near infrared spectra of ozone in the ground electronic state using the CW-CRDS technique. The analyses of the spectra of $^{16}O^{16}O^{18}O$ [1], $^{16}O^{18}O^{16}O$ [2], $^{16}O^{18}O^{18}O$ and $^{18}O^{16}O^{18}O$ [3] in the 5930-6340 cm^{-1} region, have been recently published. All these results are included in a recent review of ozone spectroscopy [4].

The CRDS spectra were recorded up to 6900 cm^{-1} [1]. The analysis at higher energy brings important information for a validation or an improvement of the potential energy surface through observations of isotopologues approaching the dissociation threshold. About 15 very weak A-type bands exhibiting a very compressed *R*-branch were observed for the various non-homogeneous $^{16}O/^{18}O$ isopotologues. Here we present the results of the analysis of two bands located above 6400 cm^{-1}: a band of $^{18}O^{16}O^{18}O$ (C_{2V} symmetry) centred at 6457 cm^{-1} and a band of $^{16}O^{18}O^{18}O$ (C_S symmetry) centred at 6628 cm^{-1}.

For the $^{18}O^{16}O^{18}O$ band, more than 450 transitions were assigned, with J_{max} = 33 and $K_{a\ max}$ = 11, the *rms* of the (obs-calc) differences of the line positions being 5.6×10^{-3} cm^{-1}. For the $^{16}O^{18}O^{18}O$ band, 632 rovibrational transitions were assigned with J_{max} = 24 and $K_{a\ max}$ = 12, the final *rms* being 4.0×10^{-3} cm^{-1}. The analyses included 2 and 3 dark upper states consequently.

For both bands, we present the effective Hamiltonian and dipole transition moment parameters, statistics of the fits, both for positions and intensities, and comparisons of derived band centres and rotational constants with theoretical predictions [5]. We also present examples of agreements between the CW-CRDS spectra and synthetic spectra using the derived spectroscopic parameters.

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[2] E. Starikova, A. Barbe, D. Mondelain, S. Kassi, A. Campargue, M.-R. De-Backer-Barilly, Vl.G. Tyuterev, *J. Quant. Spectrosc. Radiat. Transfer* **2013**, 119, 104-113.

[3] M.-R. De-Backer-Barilly, A. Barbe, E. Starikova, Vl.G. Tyuterev, D. Mondelain, S. Kassi, A. Campargue , *J. Quant. Spectrosc. Radiat. Transfer* **2013**, doi.org/10.1016/j. jqsrt.2013.04.005

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