The oxygen A band is used for numerous atmospheric experiments, but spectral line parameters that sufficiently describe the spectrum to the level required by OCO2 and other high precision/accuracy experiments are lacking. Fourier transform spectra from the Jet Propulsion Laboratory and cavity ring down spectra from the National Institute of Standards and Technology were fitted simultaneously using the William and Mary multispectrum nonlinear least squares fitting technique into a single solution including the entire band. In addition, photoacoustic spectra already available from the California Institute of Technology will be added to the solution. The three types of spectrometers are complementary allowing the strengths of each to fill in the weaknesses of the others. With this technique line positions, intensities, widths, shifts, line mixing, Dicke narrowing, temperature dependences and collision induced absorption have been obtained in a single physically consistent fit.


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