# A Compilation of Energy Levels and Wavelengths for the Spectrum of Singly-Ionized Oxygen (O II)

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We have assembled a complete list of the most accurately measured wavelengths for all classified lines of O II. The data are based mainly on recent extensions of the observations and analysis of this spectrum carried out at the University of Lund, Sweden. We derived new optimal values for the energy levels using a computer code and the observed wavelengths for all classified lines. Relevant astrophysical wavelength measurements, appropriately weighted, were included in the level-optimization calculation. The tabulated data include about 1000 observed lines (376–11 663 Å) classified as transitions between 125 odd-parity and 133 even-parity levels. In addition to the observed wavelength values, wavelengths calculated from wavenumber differences of the levels are given for all observed lines and for more than 200 predicted lines that have not yet been observed. The calculated wavelengths are generally more accurate than the observed values, the most accurate calculated values (uncertainties 0.0005 to 0.0020 Å) being in some cases more accurate than the observed wavelengths by up to an order of magnitude. Vacuum wavelengths are given for all lines, and wavelengths in air are also included for the region above 2000 Å.

## Contents

## 1. Introduction

In 1927 H. N. Russell extended the energy level analysis of the spectrum of singly-ionized oxygen and found the connection between the doublet and quartet multiplet systems [Russell, 1928]. On the basis of this connection, which had also been found by Croze and Mihul [1927], Russell was able to confirm I. S. Bowen's suggestion that two strong lines observed near 3727 Å in the spectra of gaseous nebulae were due to the forbidden $2s^2 2p^3$ $^4S° - {}^2D°$ transitions in O II. Forbidden lines of O II are now used for electron density determinations in such nebulae, and the O II spectrum is also important for the

diagnostics of a wide variety of other astrophysical, planetary, and laboratory plasmas. Thus, for example, lines of O II are dominant in the optical spectra of early B stars; bright extreme-ultraviolet emission lines of O II have been observed in the vicinity of the Jovian satellite Io; and the O II emission spectrum dominates the day airglow spectrum in the extreme ultraviolet below 835 Å.

The earlier analyses of O II were summarized and extended by B. Edlén in 1934 and 1935. The results as presented in Moore's *Atomic Energy Levels* [1949] included values for about 150 levels. Some fifty years after Edlén's work, Eriksson and Wenåker [1984] published the first of several papers giving the results of new observations and extensions of the O II analysis carried out at the University of Lund, Sweden. Eriksson [1987] also made new wavelength measurements for the most important transitions to the ground-configuration levels (575 – 834 Å) and for the region 3945 – 4676 Å.

Pettersson and Wenåker [1990] measured about 150 lines in the region 1075 – 2133 Å and extended the analysis somewhat. Wenåker [1990] gave wavelengths for about 740 lines in the 2148 – 11 663 Å range, almost half of which had not been previously reported. His addition of some fifty new levels gave a total of more than 250 levels for this spectrum.

Eriksson [1987] used his new measurements, together with data from observations of forbidden nebular lines [Bowen, 1955; De Robertis *et al.*, 1985], to revaluate the $2s^2 2p^3$ ground-configuration levels and levels of the $2s 2p^4$ and $2s^2 2p^2 3s$, $3p$, $3d$, and $4f$ configurations. Wenåker [1990] adopted Eriksson's values for the $2s^2 2p^3$ $^2D°$, $^2P°$ and $2s 2p^4$ $^4P$, $^2D$ levels and took the values for several other levels from Pettersson and Wenåker [1990]; otherwise, he carried out an independent evaluation for most of the levels. Although Wenåker's table of levels is more complete, the Ritz-principle consistency of Eriksson's level values is superior. The level evaluations by Eriksson and Wenåker also differ in that they adopted different values for the connection between the ground-configuration levels and the system of excited-configuration levels.

The results of the new observations and analysis of O II at Lund were communicated to the late C. E. Moore, but unfortunately she was unable to complete a compilation of these data for her series of *Selected Tables of Atomic Spectra*. The present compilation was thus undertaken to provide a source of complete and optimal energy-level and wavelength data for O II. Table 1 is a list of the spectral lines given in order of increasing wavelength. A tabulation of these lines arranged into multiplets is being included in a separate volume that mainly comprises a reprinting of the *Selected Tables of Atomic Spectra* for hydrogen, carbon, nitrogen, and oxygen [Moore, 1993].

## 2. Sources of the Wavelength Data

We assembled a complete list of the observed wavelengths, using what appeared to be the most accurate available value for each line. These wavelengths are listed under "Observed" in Table 1. The reference for each line is indicated in the last column by symbols, the corresponding full references being given in Sec. 8. In a few cases we have given averages of suitably weighted wavelength values from different observers. The references in the table are only to the source(s) of the observed wavelengths, and may not be the appropriate citations for the original classifications of the lines.

Edlén's [1934] observations in the region below 520 Å have not been superseded, and his wavelengths for the three $2s 2p^4$ $^4P - 2s 2p^3 3s$ $^4S°$ lines near 740 Å are also quoted [Edlén, 1935]. Edlén used a vacuum-spark source with a 1-m grazing-incidence spectrograph. The wavelengths for two unresolved multiplets in the 400 Å region, and also for another at 910 Å , are taken from beam-foil observations by Sobatka *et al.* [1987]. The instrumental linewidth was about 1.5 Å, and the experimental uncer-

tainties for these lines are between about 0.3 and 0.8 Å. These authors also suggested classifications of weak features near 822 and 955 Å in their spectra as transitions from the O II $2p^5$ $^2P°$ levels to the $2s 2p^4$ $^2S$ and $^2P$ levels, respectively. We have omitted these features here, pending higher-resolution experiments and possible observation of the $2s 2p^4$ $^2D - 2p^5$ $^2P°$ lines.

All of the Lund observations for the region below 2140 Å were made with a 3-m normal-incidence vacuum spectrograph. Pettersson and Wenåker used a theta-pinch discharge source with a filling pressure of 5 Pa. They estimated a wavelength error of about 0.01 Å and state that "the accuracy is limited mainly by the Doppler widths of the lines." Eriksson used a pulsed electrodeless discharge and derived most of his vacuum-ultraviolet wavelengths from observations in the second and third diffraction orders. He estimated a standard error of 0.001 or 0.002 Å for his measurements, depending on whether the values are given to four or three decimal places.

Eriksson gives these same wavelength error estimates for his observations in the 3945 – 4676 Å range, which were made with a similar pulsed source (total pressure of 26 Pa) and a 5.5-m Czerny-Turner spectrograph. Eriksson and Wenåker [1984] and Wenåker [1990] used a spark-generated electrodeless discharge (pressures of 1 – 3 Pa) and a 3-m Czerny-Turner spectrograph. They give estimated errors of about 0.01Å, except that Wenåker estimated errors of 0.02 Å for the 5700 – 8500 Å range and 0.03 Å for wavelengths longer than 8500 Å.

Reader [1992] and Yoshino [1992] have made unpublished measurements of the three $2s^2 2p^3$ $^4S° - 2s 2p^4$ $^4P$ resonance lines near 833 Å. Reader measured the two stronger lines on each of two plates obtained with a copper hollow-cathode discharge in flowing helium and the NIST 10.7-m normal-incidence vacuum spectrograph. The Cu II wavelengths used for calibration are accurate to 0.0001 Å. Yoshino measured all three O II lines on each of three plates obtained with a condensed discharge in helium ( ~5 kPa) and a 6.65-m normal-incidence vacuum spectrograph used in the second order. Wavelength calibration was provided by lines of the CO spectrum that had been measured against accurate atomic wavelengths in this region. Reader's values for the two stronger O II lines are 834.4657(10) and 833.3311(10) Å, in good agreement with Yoshino's values of 834.4653(15) and 833.3313(15) Å. Eriksson's value of 834.4655(10) Å also agrees very well with these measurements, and his value of 833.3294(10) Å is within the combined estimated errors. Reader measured the weaker $^4S°_{3/2} - {}^4P_{1/2}$ line on a single plate and obtained a wavelength of 832.7608(20) Å, in agreement with Yoshino's value 832.7600(15) Å. Eriksson's value for this line was 832.7572(10) Å. We have adopted observed values of 834.4655(8), 833.3302(10), and 832.7587(15) Å for this compilation.

Bowen [1955] estimated the errors of his wavelength determinations for the $2s^2 2p^3$ $^4S° - {}^2D°$ and $^2D° - {}^2P°$ forbidden nebular lines as 0.02 and 0.10 Å, respectively, and

De Robertis *et al.* [1985] measured separations between lines of the $^2D^o - ^2P^o$ multiplet with estimated errors of 0.015 to 0.035 Å.

## 3. Optimization of the Level Values

We derived the level values in Table 2 by using a level-optimization computer code [Radziemski *et al.*, 1970] and the observed wavelengths and energy-level classifications for all wavelength regions in a single calculation. The calculation also included the $2s^22p^3$ $^2D^o$ and $^2P^o$ fine-structure determinations by De Robertis *et al.*, appropriately weighted. We first examined the results of a calculation made with relative weights appropriate for the wavelength errors estimated by the various observers. Comparisons of the Ritz-principle predicted wavelengths with observed wavelengths in the different wavelength regions revealed no systematic differences such as might result from shifts in the different sources, etc. Although the statistical behavior of the differences between the observed and Ritz-principle calculated wavelengths supported fairly well our assumption of a constant confidence level for the assigned errors in the different regions, we did in the final calculation make some adjustments in the relative weights to improve this constancy. Most of these adjustments involved smoothly varying increases in the estimated errors in parts of the 1000 − 2133 Å range.

Seven of the vacuum-ultraviolet lines measured by Eriksson are classified as possible blends of the two transitions from an upper level to the unresolved $2s^22p^3$ $^2P^o_{3/2, 1/2}$ doublet. We assigned uncertainties of 0.002 Å to the three such lines given to four decimals to take into account the unknown effects of the possible blending. We also either doubled the nominal errors for, or omitted entirely, a number of other blended lines in Table 1. Other adjustments included our following Eriksson and Wenåker in assigning greater relative weights to the observed wavelengths for the strongest lines of the $2s^22p^24f - 2s^22p^25g$, $6g$ arrays, as compared to the weaker lines of these arrays. We entirely omitted from the calculation some, though not all, of the observed wavelengths in Table 1 having Ritz-principle wavelength discrepancies larger than the estimated experimental uncertainties by factors greater than about three. As expected, the final level values were not much affected by this procedure.

The $2s^22p^3$ $^2D^o$ levels in Table 2 are probably accurate to about ±0.10 cm$^{-1}$. The $2s^22p^3$ $^2P^o_{3/2} - ^2P^o_{1/2}$ interval is determined to about ±0.03 cm$^{-1}$ by the nebular observations of De Robertis *et al.*, but we estimate the uncertainty of the $^2P^o$ term position relative to the $2s^22p^3$ $^4S^o$ and $^2D^o$ levels to be about 0.25 cm$^{-1}$. The wavelengths of important allowed (vacuum-ultraviolet) and forbidden (7320, 7330 Å) transitions involving these close $^2P^o$ levels are subject to uncertainties arising from definite or possible blending. A more accurate wavelength for the $2s^22p^3$ $^2P^o_{3/2} - 2s2p^4$ $^2D_{5/2}$ line at 796.68 Å would have been useful, since a transition from the upper $^2D_{5/2}$ level to the $^2P^o_{1/2}$ level is forbidden; this line was, however, blended with

S III in Eriksson's spectra. De Robertis *et al.* evaluated the $2s^22p^3$ levels using only the nebular data [De Robertis *et al.*, 1985; Bowen, 1955] and obtained values of 40 468.1 and 40 470.1 cm$^{-1}$ for the $^2P^o_{3/2}$ and $^2P^o_{1/2}$ levels, respectively. Eriksson apparently omitted Bowen's measurements of the $2s^22p^3$ $^2D^o - ^2P^o$ lines in his evaluations and derived values of 40 467.69(13) and 40 469.69(13) cm$^{-1}$ for the $^2P^o$ levels. Our values for the $^2P^o$ levels lie between those of De Robertis *et al.* and Eriksson, because we have used all the available measurements with appropriate weighting. Our calculated wavelengths for the most important allowed and forbidden transitions involving the $2s^22p^3$ $^2P^o$ levels are generally in acceptable agreement with the observed values.

Our uncertainty estimates of 0.0008 to 0.0015 Å for the $2s^22p^3$ $^4S^o - 2s2p^4$ $^4P$ wavelengths correspond to wavenumber uncertainties of 0.12 to 0.22 cm$^{-1}$ for the $^4P$ levels. We estimate uncertainties of 0.25 to 0.35 cm$^{-1}$ for the other best-determined levels of the $2s2p^4$ and $2s^22p^23s$, $3p$, $3d$, $4s$, $4p$, $4d$, $4f$, $5s$, $5g$, and $6g$ configurations relative to the ground level. The separations within the group of excited-configuration levels given to two decimals have uncertainties mainly in the range 0.025 to 0.15 cm$^{-1}$. Most of the level separations within the group of levels given to three decimals should be accurate within errors from less than 0.010 cm$^{-1}$ to about 0.025 cm$^{-1}$.

The odd-parity levels given to one decimal place, and also the one-place levels belonging to the $(^3P)4d$, $(^3P)6s$ and $(^1D)6s$ even configurations, have estimated uncertainties from about 0.4 to 1.0 cm$^{-1}$. The $(^3P)5d$ and $(^1D)4d$ levels are from Edlén's measurements of transitions to $2s^22p^3$ ground-configuration levels in the region below 520 Å. Based on comparisons of his measurements with more accurate calculated values available for some other lines in this region, we assigned an uncertainty of 0.005 Å to Edlén's determinations. A more precise estimate is not important for the levels optimization, since Edlén's wavelengths have almost negligible weights except for the $(^3P)5d$ and $(^1D)4d$ levels. Most of these latter levels are probably accurate within errors of 2 to 5 cm$^{-1}$; we have given them to the nearest decimal to obtain calculated wavelengths agreeing with the observed values to three places.

A few high even-parity doublet levels given as tentative in Table 2 were so designated by Edlén, each being based on a single, not very strong line. We give several other high levels as tentative, mostly assigned to the $(^1D)5f$ or $(^1S)4p$ odd-parity configurations. The term designations of the $2s^22p^2nf$ and $ng$ levels are discussed in Sec. 6.

No intercombination lines connecting the sextet levels with the other O II levels have been classified. Edlén estimated the position of the sextet system by making the difference between the quantum defects of the $2s2p^3(^5S^o)3s$ $^6S^o$ and $(^5S^o)4s$ $^6S^o$ terms equal to the corresponding difference for the $2s^22p^2(^3P)3s$ $^4P$ and $(^3P)4s$ $^4P$ terms. The change in this estimate obtained by adjustment to the more accurate ionization limits now available is small compared to the uncertainty of

the method. We have retained Edlén's estimated connection, to the nearest few $cm^{-1}$, by fixing the $(^5S°)3s$ $^6S°$ position at $245\ 400.00 + x\ cm^{-1}$. The quantity "$x$" represents the unknown error of this connection.

The values for 125 odd-parity and 133 even-parity levels are listed in Table 2. The levels belonging to the doublet and quartet systems of the excited configurations have values systematically higher than those of Wenåker and of Eriksson by about 0.05 and 0.08 $cm^{-1}$, respectively. The value for the principal ionization energy that Wenåker derived by fitting the $2s^22p^24f$, $5f$, $5g$ and $6g$ levels to core-polarization theory, $283\ 270.9 \pm 0.5\ cm^{-1}$, is not affected significantly by this difference.

## 4. Further Explanation of the Data in Table 1

The values of the two levels for each transition in Table 1 are given under "Levels." A question mark following the upper level indicates a tentative classification. The configurations, terms, and $J$ values given for the two levels in successive columns of Table 1 are taken from Table 2 (see next section). A blank $J$ value indicates that the level value represents two unresolved levels (Table 2).

The sources of the observed wavelengths were described in Sec. 2 above. The multiplet numbers in the first column are in accordance with the scheme adopted by Moore [1945, 1950, 1993].

The relative intensities in the second column are based on visual estimates related to plate blackening and are useful for comparisons within small wavelength ranges. Both Eriksson and Wenåker gave estimated relative intensities on a logarithmic scale to the base $\sqrt{2}$, and Pettersson and Wenåker used such a scale to the base 2. Edlén also adopted a rather compressed intensity scale. The relative intensities in Table 1 for wavelengths longer than 2140 Å are on the same relative scale as Wenåker's, except that we increased his values by unity to avoid zero intensities. For the $1074 - 2133$ Å region, we expanded the intensity scale of Pettersson and Wenåker somewhat to avoid non-integral values, and our intensities for the $376 - 835$ Å region are increased values based on those of Eriksson and/or of Edlén. We have used the following symbols to characterize the lines:

| | |
|---|---|
| $bl$ | blended with another line that may affect the wavelength and intensity |
| $w$ | wide, diffuse, hazy, etc. |
| $m$ | masked by another line |
| M1 | magnetic-dipole transition |
| E2 | electric-quadrupole transition |

In addition to the observed wavelength values for about 1000 lines, Table 1 includes wavelengths calculated from the differences of the energy levels in Table 2 for all lines. The calculated wavelength is given for each transition contributing to a multiply classified line, multiple classifications being indicated by braces. Almost 1100 transitions are involved in the classifications of the ob-

served lines. We also give calculated wavelengths for more than 200 selected transitions that have not been observed. These include a number of predicted multiplets in the extreme ultraviolet as well as many weaker transitions in multiplets for which stronger lines have been observed. Calculated wavelengths are also listed for all ten forbidden transitions between levels of the $2s^22p^3$ ground configuration, the dominant radiation type (M1 or E2) being indicated for each transition.

Observed and calculated wavelengths in air, and also wavelengths in vacuum, are tabulated for the region above 2000 Å. The vacuum wavelengths in this region are calculated from the levels, with a few exceptions: if the vacuum wavelength for a tentatively classified line is not followed by a question mark, the value was calculated from the observed wavelength. All conversions between vacuum wavelengths or wavenumbers and wavelengths in air were made with the five-parameter formula of Peck and Reeder [1972].

## 5. Accuracy of the Calculated Wavelengths

The calculated wavelengths should in general be more accurate than the observed values. Eriksson's list of calculated O II wavelengths suitable for use as standards in the region below 835 Å is extended to values below 500 Å in Table 1. The calculated wavelengths shorter than 500 Å that are given to four decimal places are probably accurate to about 0.0005 Å, and the four-place calculated wavelengths in the $500 - 835$ Å region are probably accurate to about 0.0010 Å. In practice, of course, any lines observed as probable blends should to the extent possible be omitted in the selection of standards.

The four-place calculated wavelengths in the $1275 - 1565$ Å range have estimated uncertainties mainly between 0.0010 and 0.0020 Å, and thus are more accurate than the observed wavelengths by up to an order of magnitude. We also give some four-place calculated wavelengths in the $1632 - 2028$ Å range, with estimated uncertainties mostly between 0.0015 and 0.0025 Å. The more accurate of the three-place calculated wavelengths in the region above 1080 Å have uncertainties of 0.005 Å or less. The observed wavelengths below 1320 Å agree rather well with the calculated values, but the differences between the calculated and observed wavelengths for some of the lines above 1320 Å are several times the estimated experimental error of 0.01 Å. The calculated wavelengths correspond more accurately to the true energy separations of the levels in such cases, but it is possible (or, in some cases, known) that some of the observed lines are blends.

The most accurate calculated wavelengths in the region above 2000 Å are based on Eriksson's measurements in the $3945 - 4676$ Å range, which had standard errors smaller than 0.0010 Å (observed value given to four places) or 0.002 Å (observed value given to three places). We have given four-place values for all calculated wavelengths having accuracies based on combinations of

Eriksson's measurements. This yields about eighty additional four-place wavelengths for lines observed in the $3833-4322$ Å region, with most estimated errors in the range smaller than 0.003 Å.

In principle the least accurate of the calculated wavelengths should have uncertainties corresponding to Wenåker's estimated experimental uncertainties of 0.010, 0.02, and 0.03 Å for the ranges $2148-5700$, $5700-8500$, and $8500-11663$Å, respectively. It should be noted that the differences between Wenåker's observed wavelengths for the stronger lines and more accurate calculated values available for many of them are usually well within these uncertainties. Thus, for example, Wenåker's measurements for the three lines of Multiplet 3 $(2s^22p^23s\ ^4P-2s^22p^23p\ ^4S°, 3712-3749\text{ Å})$ agree with the calculated values within $\pm0.003$ Å, which happens to be the estimated error of the calculated values.

# 6. Coupling Schemes and Term Designations; Theoretical Calculations for O II

The level designations in the tables are in accordance with one of three different coupling schemes: $LS$, $J_1 l$, or $LS_1$ coupling, the configuration and term notations being standard for NIST compilations [Martin *et al*., 1978]. Eriksson [1961] calculated the $2s^22p^24f$ and $5f$ levels and showed that these configurations are close to $LS_1$ pair coupling. Eriksson and Wenåker [1984] calculated the levels of the $2s^22p^24f$, $5g$, and $6g$ configurations. The $2s^22p^2ng$ levels have high $J_1 l$-coupling purities, the lowest purity of any $5g$ level being 97.4% in this scheme.

Most of the published calculations for O II have been carried out to obtain oscillator strengths. Considering two of the more recent papers only, we note that Bell *et al*. [1991] give calculated strengths for the most important allowed multiplets involving the $2s^22p^3\ ^4S°$, $^2D°$, and $^2P°$ ground-configuration terms and compare their results with other theoretical values and with experimental values. Zeippen [1987] has refined earlier calculations of the magnetic-dipole and electric-quadrupole radiative probabilities for the transitions between levels of the ground configuration.

# 7. Acknowledgments

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Table 1. Wavelengths and Energy-Level Classifications for O II

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) | | Levels (cm⁻¹) | | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| | | Observed | Calculated | Lower | Upper | | | | |
| UV3.08 | | | 374.5722 | 0.00 – 266 971.23 | | $2s^22p^3-2s^22p^2(^3P)6s$ | $^4S^o-^4P$ | $^3/_2-^5/_2$ | |
| UV3.08 | | | 374.8098 | 0.00 – 266 802.0 | | $2s^22p^3-2s^22p^2(^3P)6s$ | $^4S^o-^4P$ | $^3/_2-^3/_2$ | |
| UV3.08 | | | 374.9559 | 0.00 – 266 698.0 | | $2s^22p^3-2s^22p^2(^3P)6s$ | $^4S^o-^4P$ | $^3/_2-^1/_2$ | |
| UV3.07 | 1 | 376.693 | 376.693 | 0.00 – 265 468.2 | | $2s^22p^3-2s^22p^2(^3P)5d$ | $^4S^o-^4P$ | $^3/_2-^3/_2$ | E1 |
| UV3.07 | 1 | 376.745 | 376.745 | 0.00 – 265 431.5 | | $2s^22p^3-2s^22p^2(^3P)5d$ | $^4S^o-^4P$ | $^3/_2-^5/_2$ | E1 |
| UV3.06 | 1 | 377.045 | 377.045 | 0.00 – 265 220.3 | | $2s^22p^3-2s^22p^2(^3P)5d$ | $^4S^o-^4D$ | $^3/_2-$ | E1 |
| UV10.18 | | | 384.2658 | 26 810.55 – 287 047.1 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | |
| UV10.18 | | | 384.2680 | 26 810.55 – 287 045.6 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | |
| UV10.18 | | | 384.2953 | 26 830.57 – 287 047.1 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | |
| UV10.18 | | | 384.2976 | 26 830.57 – 287 045.6 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | |
| UV3.05 | 5 | 391.912 | 391.9062 | 0.00 – 255 163.08 | | $2s^22p^3-2s^22p^2(^3P)4d$ | $^4S^o-^4P$ | $^3/_2-^1/_2$ | E1 |
| UV3.05 | 10 | 391.943 | 391.9380 | 0.00 – 255 142.41 | | $2s^22p^3-2s^22p^2(^3P)4d$ | $^4S^o-^4P$ | $^3/_2-^3/_2$ | E1 |
| UV3.05 | 15 | 392.002 | 391.9954 | 0.00 – 255 105.01 | | $2s^22p^3-2s^22p^2(^3P)4d$ | $^4S^o-^4P$ | $^3/_2-^5/_2$ | E1 |
| UV3.04 | 15 | 392.322 | ⌠392.3162 | 0.00 – 254 896.42 | | $2s^22p^3-2s^22p^2(^3P)4d$ | $^4S^o-^4D$ | $^3/_2-^5/_2$ | E1 |
| UV3.04 | | | ⌡392.3394 | 0.00 – 254 881.37 | | $2s^22p^3-2s^22p^2(^3P)4d$ | $^4S^o-^4D$ | $^3/_2-^3/_2$ | |
| UV10.17 | | | 397.8768 | 26 810.55 – 278 144.62 | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | |
| UV10.17 | | | 397.8773? | 26 810.55 – 278 144.33? | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | |
| UV10.17 | | | 397.9085 | 26 830.57 – 278 144.62 | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | |
| UV10.17 | | | 397.9090? | 26 830.57 – 278 144.33? | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | |
| UV10.16 | | 401.0 | ⌠401.1798 | 26 810.55 – 276 075.32 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | S |
| UV10.16 | | | ⎮401.2121 | 26 830.57 – 276 075.32 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | |
| UV10.16 | | | ⎮401.3269 | 26 810.55 – 275 983.95 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | |
| UV10.16 | | | ⌡401.3592 | 26 830.57 – 275 983.95 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | |
| UV10.15 | | | 401.928? | 26 810.55 – 275 611.1? | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2P$ | $^5/_2-^3/_2$ | |
| UV10.15 | | | 401.961? | 26 830.57 – 275 611.1? | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV10.14 | 1 | 403.035 | 403.035 | 26 810.55 – 274 928.0 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | |
| UV10.14 | | | 403.054 | 26 810.55 – 274 916.0 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | |
| UV10.14 | | | 403.067 | 26 830.57 – 274 928.0 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV10.14 | 1 | 403.087 | 403.087 | 26 830.57 – 274 916.0 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | E1 |
| UV10.13 | 1 | 403.273 | 403.273 | 26 810.55 – 274 781.5 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2F$ | $^5/_2-^7/_2$ | |
| UV10.13 | | | 403.339 | 26 810.55 – 274 740.7 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2F$ | $^5/_2-^5/_2$ | E1 |
| UV10.13 | 1 | 403.372 | 403.372 | 26 830.57 – 274 740.7 | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2D^o-^2F$ | $^3/_2-^5/_2$ | |
| UV17.17 | | | 405.5494 | 40 468.01 – 287 047.1 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2P^o-^2D$ | $^3/_2-^5/_2$ | |
| UV17.17 | | | 405.5519 | 40 468.01 – 287 045.6 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2P^o-^2D$ | $^3/_2-^3/_2$ | |
| UV17.17 | | | 405.5551 | 40 470.00 – 287 045.6 | | $2s^22p^3-2s^22p^2(^1D)6s$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ | |
| UV17.16 | | | 413.6472 | 40 468.01 – 282 219.90 | | $2s^22p^3-2s^22p^2(^1S)4s$ | $^2P^o-^2S$ | $^3/_2-^1/_2$ | |
| UV17.16 | | | 413.6506 | 40 470.00 – 282 219.90 | | $2s^22p^3-2s^22p^2(^1S)4s$ | $^2P^o-^2S$ | $^1/_2-^1/_2$ | |
| UV10.12 | | | 415.8217 | 26 810.55 – 267 298.23 | | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2D^o-^2P$ | $^5/_2-^3/_2$ | |
| UV10.12 | | | 415.8563 | 26 830.57 – 267 298.23 | | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2D^o-^2P$ | $^3/_2-^3/_2$ | |
| UV10.12 | | | 416.1975? | 26 830.57 – 267 101.1? | | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2D^o-^2P$ | $^3/_2-^1/_2$ | |
| UV10.11 | | | 418.332 | 26 810.55 – 265 855.2 | | $2s^22p^3-2s^22p^2(^3P)5d$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | |
| UV10.11 | | | 418.367 | 26 830.57 – 265 855.2 | | $2s^22p^3-2s^22p^2(^3P)5d$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | |
| UV3.03 | 5 | 418.598 | 418.5958 | 0.00 – 238 893.96 | | $2s^22p^3-2s^22p^2(^3P)4s$ | $^4S^o-^4P$ | $^3/_2-^5/_2$ | E1 |
| UV10.10 | 1 | 418.812 | 418.812? | 26 810.55 – 265 581.2? | | $2s^22p^3-2s^22p^2(^3P)5d$ | $^2D^o-^2F$ | $^5/_2-^7/_2$ | E1 |
| UV3.03 | | | 418.8786 | 0.00 – 238 732.65 | | $2s^22p^3-2s^22p^2(^3P)4s$ | $^4S^o-^4P$ | $^3/_2-^3/_2$ | |
| UV3.03 | | | 419.0633 | 0.00 – 238 627.46 | | $2s^22p^3-2s^22p^2(^3P)4s$ | $^4S^o-^4P$ | $^3/_2-^1/_2$ | |
| UV17.15 | | 420.2 | ⌠420.7398 | 40 468.01 – 278 144.62 | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2P^o-^2D$ | $^3/_2-^5/_2$ | S |
| UV17.15 | | | ⎮420.7403? | 40 468.01 – 278 144.33? | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2P^o-^2D$ | $^3/_2-^3/_2$ | |
| UV17.15 | | | ⌡420.7438? | 40 470.00 – 278 144.33? | | $2s^22p^3-2s^22p^2(^1D)5s$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ | |
| UV17.13 | | | 424.4350 | 40 468.01 – 276 075.32 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2P^o-^2D$ | $^3/_2-^5/_2$ | |
| UV17.14 | 1 | 424.577 | ⌠424.577 | 40 468.01 – 275 996.5? | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^o-^2S$ | $^3/_2-^1/_2$ | E1 |
| UV17.14 | | | ⌡424.581 | 40 470.00 – 275 996.5? | | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^o-^2S$ | $^1/_2-^1/_2$ | |
| UV17.13 | | | 424.5997 | 40 468.01 – 275 983.95 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2P^o-^2D$ | $^3/_2-^3/_2$ | |
| UV17.13 | | | 424.6033 | 40 470.00 – 275 983.95 | | $2s^22p^3-2s^22p^2(^1S)3d$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ | |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) Observed | Calculated | Levels (cm⁻¹) Lower | Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| UV17.12 | 1 | 425.273 | 425.273? | 40 468.01 − | 275 611.1? | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^°-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV17.12 | | | 425.277? | 40 470.00 − | 275 611.1? | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^°-^2P$ | $^1/_2-^3/_2$ | |
| UV17.11 | 5w | 426.526 | 426.512 | 40 468.01 − | 274 928.0 | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^°-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV17.11 | | | 426.534 | 40 468.01 − | 274 916.0 | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^°-^2D$ | $^3/_2-^3/_2$ | |
| UV17.11 | | | 426.537 | 40 470.00 − | 274 916.0 | $2s^22p^3-2s^22p^2(^1D)4d$ | $^2P^°-^2D$ | $^1/_2-^3/_2$ | |
| | | | | | | | | | |
| UV3.02 | 10 | 429.557 | 429.5601 | 0.00 − | 232 796.298 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^2F$ | $^3/_2-^5/_2$ | E1 |
| UV3.01 | 30 | 429.647 | 429.6500 | 0.00 − | 232 747.562 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^4D$ | $^3/_2-^5/_2$ | E1 |
| UV3.01 | | | 429.6530 | 0.00 − | 232 745.981 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^4D$ | $^3/_2-^3/_2$ | |
| UV3.01 | 20 | 429.716 | 429.7164 | 0.00 − | 232 711.642 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^4D$ | $^3/_2-^1/_2$ | E1 |
| UV3 | 30 | 429.918 | 429.9180 | 0.00 − | 232 602.492 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^4P$ | $^3/_2-^1/_2$ | E1 |
| | | | | | | | | | |
| UV3 | 40 | 430.041 | 430.0410 | 0.00 − | 232 535.949 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^4P$ | $^3/_2-^3/_2$ | E1 |
| UV10.09 | | | 430.1491 | 26 810.55 − | 259 288.07 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2D^°-^2D$ | $^5/_2-^3/_2$ | |
| UV10.09 | | | 430.1500 | 26 810.55 − | 259 287.61 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2D^°-^2D$ | $^5/_2-^5/_2$ | |
| UV3 | 50 | 430.177 | 430.1765 | 0.00 − | 232 462.724 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^4S^°-^4P$ | $^3/_2-^5/_2$ | E1 |
| UV10.09 | | | 430.1862 | 26 830.57 − | 259 288.07 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2D^°-^2D$ | $^3/_2-^3/_2$ | |
| | | | | | | | | | |
| UV10.09 | | | 430.1870 | 26 830.57 − | 259 287.61 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2D^°-^2D$ | $^3/_2-^5/_2$ | |
| UV10.08 | | | 431.4142 | 26 810.55 − | 258 606.35 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2D^°-^2P$ | $^5/_2-^3/_2$ | |
| UV10.08 | | | 431.4515 | 26 830.57 − | 258 606.35 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2D^°-^2P$ | $^3/_2-^3/_2$ | |
| UV10.08 | | | 431.8149 | 26 830.57 − | 258 411.26 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2D^°-^2P$ | $^3/_2-^1/_2$ | |
| UV10.07 | 5 | 436.510 | 436.5153 | 26 810.55 − | 255 897.59 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2D$ | $^5/_2-^5/_2$ | E1 |
| | | | | | | | | | |
| UV10.07 | | | 436.5535 | 26 830.57 − | 255 897.59 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2D$ | $^3/_2-^5/_2$ | |
| UV10.07 | | | 436.6195 | 26 810.55 − | 255 842.91 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2D$ | $^5/_2-^3/_2$ | |
| UV10.07 | 1 | 436.649 | 436.6577 | 26 830.57 − | 255 842.91 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2D$ | $^3/_2-^3/_2$ | E1 |
| UV10.06 | 20 | 437.332 | 437.3390 | 26 810.55 − | 255 466.10 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2F$ | $^5/_2-^7/_2$ | E1 |
| UV10.06 | | | 437.6529 | 26 810.55 − | 255 302.11 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2F$ | $^5/_2-^5/_2$ | |
| | | | | | | | | | |
| UV10.06 | 15 | 437.683 | 437.6913 | 26 830.57 − | 255 302.11 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2F$ | $^3/_2-^5/_2$ | E1 |
| UV10.05 | | | 437.7299 | 26 830.57 − | 255 281.93 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2P$ | $^3/_2-^1/_2$ | |
| UV10.05 | | | 437.8993 | 26 810.55 − | 255 173.58 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2P$ | $^5/_2-^3/_2$ | |
| UV10.05 | | | 437.9376 | 26 830.57 − | 255 173.58 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2D^°-^2P$ | $^3/_2-^3/_2$ | |
| UV10.04 | 15 | 440.552 | 440.5639 | 26 810.55 − | 253 792.40 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2P$ | $^5/_2-^3/_2$ | E1 |
| | | | | | | | | | |
| UV10.04 | 10 | 440.598 | 440.6027 | 26 830.57 − | 253 792.40 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV10.04 | | | 440.6074 | 26 830.57 − | 253 789.99 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2P$ | $^3/_2-^1/_2$ | |
| UV17.10 | | | 440.8584 | 40 468.01 − | 267 298.23 | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2P^°-^2P$ | $^3/_2-^3/_2$ | |
| UV17.10 | | | 440.8622 | 40 470.00 − | 267 298.23 | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2P^°-^2P$ | $^1/_2-^3/_2$ | |
| UV17.10 | | | 441.2418? | 40 468.01 − | 267 101.1? | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2P^°-^2P$ | $^3/_2-^1/_2$ | |
| | | | | | | | | | |
| UV17.10 | | | 441.2457? | 40 470.00 − | 267 101.1? | $2s^22p^3-2s^22p^2(^3P)6s$ | $^2P^°-^2P$ | $^1/_2-^1/_2$ | |
| UV10.03 | 25 | 442.001 | 442.0119 | 26 810.55 − | 253 048.82 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2D$ | $^5/_2-^5/_2$ | E1 |
| UV10.03 | | | 442.0159 | 26 810.55 − | 253 046.74 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2D$ | $^5/_2-^3/_2$ | |
| UV10.03 | 20 | 442.048 | 442.0510 | 26 830.57 − | 253 048.82 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV10.03 | | | 442.0550 | 26 830.57 − | 253 046.74 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2D$ | $^3/_2-^3/_2$ | |
| | | | | | | | | | |
| UV17.09 | 1 | 443.681 | 443.681 | 40 468.01 − | 265 855.2 | $2s^22p^3-2s^22p^2(^3P)5d$ | $^2P^°-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV10.02 | 25 | 445.601 | 445.6045 | 26 810.55 − | 251 224.79 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2F$ | $^5/_2-^5/_2$ | E1 |
| UV10.02 | | | 445.6097 | 26 810.55 − | 251 222.19 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2F$ | $^5/_2-^7/_2$ | |
| UV10.02 | 20 | 445.638 | 445.6443 | 26 830.57 − | 251 224.79 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2D^°-^2F$ | $^3/_2-^5/_2$ | E1 |
| UV17.08 | 5 | 456.997 | 456.9965 | 40 468.01 − | 259 288.07 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2P^°-^2D$ | $^3/_2-^3/_2$ | E1 |
| UV17.08 | | | 456.9975 | 40 468.01 − | 259 287.61 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2P^°-^2D$ | $^3/_2-^5/_2$ | |
| UV17.08 | | | 457.0006 | 40 470.00 − | 259 288.07 | $2s^22p^3-2s^22p^2(^1D)4s$ | $^2P^°-^2D$ | $^1/_2-^3/_2$ | |
| | | | | | | | | | |
| UV17.07 | 1 | 458.422 | 458.4247 | 40 468.01 − | 258 606.35 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2P^°-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV17.07 | | | 458.4289 | 40 470.00 − | 258 606.35 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2P^°-^2P$ | $^1/_2-^3/_2$ | |
| UV17.07 | | | 458.8350 | 40 468.01 − | 258 411.26 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2P^°-^2P$ | $^3/_2-^1/_2$ | |
| UV17.07 | | | 458.8392 | 40 470.00 − | 258 411.26 | $2s^22p^3-2s^22p^2(^3P)5s$ | $^2P^°-^2P$ | $^1/_2-^1/_2$ | |
| UV17.06 | 10 | 464.194 | 464.1888 | 40 468.01 − | 255 897.59 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^°-^2D$ | $^3/_2-^5/_2$ | E1 |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) Observed | Vac. Wavelength (Å) Calculated | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| UV17.06 | 5 | 464.310 | 464.3067 | 40 468.01 − | 255 842.91 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^o-^2D$ | $^3/_2-^3/_2$ | E1 |
| UV17.06 |  |  | 464.3109 | 40 470.00 − | 255 842.91 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ |  |
| UV17.05 | 15 | 464.785 | 464.7817 | 40 468.01 − | 255 622.80 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2S$ | $^3/_2-^1/_2$ | E1 |
| UV17.05 |  |  | 464.7860 | 40 470.00 − | 255 622.80 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2S$ | $^1/_2-^1/_2$ |  |
| UV17.04 | 5 | 465.529 | 465.5192 | 40 468.01 − | 255 281.93 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^o-^2P$ | $^3/_2-^1/_2$ | E1 |
| UV17.04 |  |  | 465.5235 | 40 470.00 − | 255 281.93 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^o-^2P$ | $^1/_2-^1/_2$ |  |
| UV17.04 | 10 | 465.760 | 465.7541 | 40 468.01 − | 255 173.58 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^o-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV17.04 |  |  | 465.7584 | 40 470.00 − | 255 173.58 | $2s^22p^3-2s^22p^2(^3P)4d$ | $^2P^o-^2P$ | $^1/_2-^3/_2$ |  |
| UV10.01 | 1 | 467.926 | 467.9308 | 26 810.55 − | 240 517.35 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2D^o-^2P$ | $^5/_2-^3/_2$ | E1 |
| UV10.01 |  |  | 467.9747 | 26 830.57 − | 240 517.35 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2D^o-^2P$ | $^3/_2-^3/_2$ |  |
| UV10.01 |  |  | 468.3853 | 26 830.57 − | 240 330.01 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2D^o-^2P$ | $^3/_2-^1/_2$ |  |
| UV17.03 | 10 | 468.766 | 468.7697 | 40 468.01 − | 253 792.40 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV17.03 |  |  | 468.7740 | 40 470.00 − | 253 792.40 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2P$ | $^1/_2-^3/_2$ |  |
| UV17.03 |  |  | 468.7749 | 40 468.01 − | 253 789.99 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2P$ | $^3/_2-^1/_2$ |  |
| UV17.03 |  |  | 468.7793 | 40 470.00 − | 253 789.99 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2P$ | $^1/_2-^1/_2$ |  |
| UV17.02 | 20 | 470.408 | 470.4094 | 40 468.01 − | 253 048.82 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV17.02 |  |  | 470.4139 | 40 468.01 − | 253 046.74 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2D$ | $^3/_2-^3/_2$ |  |
| UV17.02 |  |  | 470.4183 | 40 470.00 − | 253 046.74 | $2s^22p^3-2s^22p^2(^1D)3d$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ |  |
| UV10 | 20 | 481.587 | 481.5933 | 26 810.55 − | 234 454.634 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | E1 |
| UV10 | 1 | 481.635 | 481.6397 | 26 830.57 − | 234 454.634 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV10 | 5 | 481.704 | 481.7136 | 26 810.55 − | 234 402.797 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | E1 |
| UV10 | 15 | 481.755 | 481.7600 | 26 830.57 − | 234 402.797 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | E1 |
| UV9 | 20 | 483.752 | 483.7601 | 26 830.57 − | 233 544.59 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2P$ | $^3/_2-^1/_2$ | E1 |
| UV9 | 25 | 483.976 | 483.9803 | 26 810.55 − | 233 430.53 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2P$ | $^5/_2-^3/_2$ | E1 |
| UV9 | 10 | 484.025 | 484.0272 | 26 830.57 − | 233 430.53 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV8 | 30 | 485.086 | 485.0868 | 26 810.55 − | 232 959.210 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2F$ | $^5/_2-^7/_2$ | E1 |
| UV8 | 1 | 485.465 | 485.4705 | 26 810.55 − | 232 796.298 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2F$ | $^5/_2-^5/_2$ | E1 |
| UV8 | 25 | 485.515 | 485.5177 | 26 830.57 − | 232 796.298 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^2F$ | $^3/_2-^5/_2$ | E1 |
| UV7.01 | 5 | 485.572 | 485.5706 | 26 810.55 − | 232 753.816 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^4D$ | $^5/_2-^7/_2$ | E1 |
| UV7.01 |  |  | 485.5854 | 26 810.55 − | 232 747.562 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^4D$ | $^5/_2-^5/_2$ |  |
| UV7.01 |  |  | 485.5891 | 26 810.55 − | 232 745.981 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^4D$ | $^5/_2-^3/_2$ |  |
| UV7.01 | 20 | 485.631 | 485.6326 | 26 830.57 − | 232 747.562 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^4D$ | $^3/_2-^5/_2$ | E1 |
| UV7.01 |  |  | 485.6363 | 26 830.57 − | 232 745.981 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2D^o-^4D$ | $^3/_2-^3/_2$ |  |
| UV17.01 | 10 | 499.871 | 499.8767 | 40 468.01 − | 240 517.35 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2P^o-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV17.01 |  |  | 499.8817 | 40 470.00 − | 240 517.35 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2P^o-^2P$ | $^1/_2-^3/_2$ |  |
| UV17.01 | 5 | 500.343 | 500.3452 | 40 468.01 − | 240 330.01 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2P^o-^2P$ | $^3/_2-^1/_2$ | E1 |
| UV17.01 |  |  | 500.3502 | 40 470.00 − | 240 330.01 | $2s^22p^3-2s^22p^2(^3P)4s$ | $^2P^o-^2P$ | $^1/_2-^1/_2$ |  |
| UV17 | 25 | 515.498 | 515.4995 | 40 468.01 − | 234 454.634 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2D$ | $^3/_2-^5/_2$ | E1 |
| UV17 | 20 | 515.640 | 515.6372 | 40 468.01 − | 234 402.797 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2D$ | $^3/_2-^3/_2$ | E1 |
| UV17 |  |  | 515.6425 | 40 470.00 − | 234 402.797 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ |  |
| UV16 | 20 | 517.937 | 517.9292 | 40 468.01 − | 233 544.59 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2P$ | $^3/_2-^1/_2$ | E1 |
| UV16 |  |  | 517.9345 | 40 470.00 − | 233 544.59 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2P$ | $^1/_2-^1/_2$ |  |
| UV16 | 25 | 518.242 | 518.2354 | 40 468.01 − | 233 430.53 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2P$ | $^3/_2-^3/_2$ | E1 |
| UV16 |  |  | 518.2407 | 40 470.00 − | 233 430.53 | $2s^22p^3-2s^22p^2(^3P)3d$ | $^2P^o-^2P$ | $^1/_2-^3/_2$ |  |
| UV15.01 | 15 | 525.9267 | 525.9243 | 40 468.01 − | 230 609.45 | $2s^22p^3-2s^22p^2(^1S)3s$ | $^2P^o-^2S$ | $^3/_2-^1/_2$ | E3 |
| UV15.01 |  |  | 525.9298 | 40 470.00 − | 230 609.45 | $2s^22p^3-2s^22p^2(^1S)3s$ | $^2P^o-^2S$ | $^1/_2-^1/_2$ |  |
| UV7 | 45 | 537.8319 | 537.8320 | 26 830.57 − | 212 762.25 | $2s^22p^3-2s2p^4$ | $^2D^o-^2P$ | $^3/_2-^1/_2$ | E3 |
| UV7 | 50 | 538.2636 | 538.2616 | 26 810.55 − | 212 593.82 | $2s^22p^3-2s2p^4$ | $^2D^o-^2P$ | $^5/_2-^3/_2$ | E3 |
| UV7 | 35bl | 538.318 | 538.3196 | 26 830.57 − | 212 593.82 | $2s^22p^3-2s2p^4$ | $^2D^o-^2P$ | $^3/_2-^3/_2$ | E3 |
| UV2 | 60 | 539.0855 | 539.0861 | 0.00 − | 185 499.124 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^4S^o-^4P$ | $^3/_2-^5/_2$ | E3 |
| UV2 | 50 | 539.5489 | 539.5473 | 0.00 − | 185 340.577 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^4S^o-^4P$ | $^3/_2-^3/_2$ | E3 |
| UV2 | 45 | 539.8544 | 539.8540 | 0.00 − | 185 235.281 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^4S^o-^4P$ | $^3/_2-^1/_2$ | E3 |
| UV6 | 25 | 555.059 | 555.0555 | 26 810.55 − | 206 972.72 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | E1,E3 |
| UV6 |  |  | 555.0587 | 26 810.55 − | 206 971.68 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ |  |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) Observed | Vac. Wavelength (Å) Calculated | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | $J$ Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| UV6 | 20 | 555.118 | 555.1172 | 26 830.57 – | 206 972.72 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2D^\circ-^2D$ | 3/2–3/2 | E1,E3 |
| UV6 |  |  | 555.1204 | 26 830.57 – | 206 971.68 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2D^\circ-^2D$ | 3/2–5/2 |  |
| UV15 | 20 | 580.4058 | 580.4025 | 40 468.01 – | 212 762.25 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2P$ | 3/2–1/2 | E3 |
| UV15 |  |  | 580.4092 | 40 470.00 – | 212 762.25 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2P$ | 1/2–1/2 |  |
| UV15 | 25 | 580.9707 | 580.9704 | 40 468.01 – | 212 593.82 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2P$ | 3/2–3/2 | E3 |
| UV15 |  |  | 580.9771 | 40 470.00 – | 212 593.82 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2P$ | 1/2–3/2 |  |
| UV14 | 25 | 600.586 | 600.5836 | 40 468.01 – | 206 972.72 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2P^\circ-^2D$ | 3/2–3/2 | E3 |
| UV14 |  |  | 600.5874 | 40 468.01 – | 206 971.68 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2P^\circ-^2D$ | 3/2–5/2 |  |
| UV14 |  |  | 600.5908 | 40 470.00 – | 206 972.72 | $2s^22p^3-2s^22p^2(^1D)3s$ | $^2P^\circ-^2D$ | 1/2–3/2 |  |
| UV5 | 35 | 616.3029 | 616.3026 | 26 810.55 – | 189 068.514 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2D^\circ-^2P$ | 5/2–3/2 | E3 |
| UV5 | 20 | 616.378 | 616.3786 | 26 830.57 – | 189 068.514 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2D^\circ-^2P$ | 3/2–3/2 | E3 |
| UV5 | 30 | 617.0632 | 617.0631 | 26 830.57 – | 188 888.543 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2D^\circ-^2P$ | 3/2–1/2 | E3 |
| UV13 | 60 | 644.157 | 644.1537 | 40 468.01 – | 195 710.47 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2S$ | 3/2–1/2 | E3 |
| UV13 |  |  | 644.1619 | 40 470.00 – | 195 710.47 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2S$ | 1/2–1/2 |  |
| UV12 | 40 | 672.946 | 672.9452 | 40 468.01 – | 189 068.514 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2P^\circ-^2P$ | 3/2–3/2 | E3 |
| UV12 |  |  | 672.9542 | 40 470.00 – | 189 068.514 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2P^\circ-^2P$ | 1/2–3/2 |  |
| UV12 | 35 | 673.768 | 673.7612 | 40 468.01 – | 188 888.543 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2P^\circ-^2P$ | 3/2–1/2 | E3 |
| UV12 |  |  | 673.7703 | 40 470.00 – | 188 888.543 | $2s^22p^3-2s^22p^2(^3P)3s$ | $^2P^\circ-^2P$ | 1/2–1/2 |  |
| UV4 |  |  | 718.4633 | 26 810.55 – | 165 996.50 | $2s^22p^3-2s2p^4$ | $^2D^\circ-^2D$ | 5/2–3/2 |  |
| UV4 | 85 | 718.5036 | 718.5048 | 26 810.55 – | 165 988.46 | $2s^22p^3-2s2p^4$ | $^2D^\circ-^2D$ | 5/2–5/2 | E3 |
| UV4 | 80 | 718.5663 | 718.5667 | 26 830.57 – | 165 996.50 | $2s^22p^3-2s2p^4$ | $^2D^\circ-^2D$ | 3/2–3/2 | E3 |
| UV4 |  |  | 718.6082 | 26 830.57 – | 165 988.46 | $2s^22p^3-2s2p^4$ | $^2D^\circ-^2D$ | 3/2–5/2 |  |
| UV17.21 | 15 | 739.949 | 739.9496 | 119 837.21 – | 254 981.55 | $2s2p^4-2s2p^3(^5S^\circ)3s$ | $^4P-^4S^\circ$ | 5/2–3/2 | E2 |
| UV17.21 | 4 | 740.838 | 740.8443 | 120 000.43 – | 254 981.55 | $2s2p^4-2s2p^3(^5S^\circ)3s$ | $^4P-^4S^\circ$ | 3/2–3/2 | E2 |
| UV17.21 | 1 | 741.293 | 741.2970 | 120 082.86 – | 254 981.55 | $2s2p^4-2s2p^3(^5S^\circ)3s$ | $^4P-^4S^\circ$ | 1/2–3/2 | E2 |
| UV11 |  |  | 796.6319 | 40 468.01 – | 165 996.50 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2D$ | 3/2–3/2 |  |
| UV11 | 40 | 796.644 | 796.6445 | 40 470.00 – | 165 996.50 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2D$ | 1/2–3/2 | E3 |
| UV11 | 50bl | 796.682 | 796.6829 | 40 468.01 – | 165 988.46 | $2s^22p^3-2s2p^4$ | $^2P^\circ-^2D$ | 3/2–5/2 | E3 |
| UV1 | 100 | 832.7587 | 832.7583 | 0.00 – | 120 082.86 | $2s^22p^3-2s2p^4$ | $^4S^\circ-^4P$ | 3/2–1/2 | E3,R,Y |
| UV1 | 150 | 833.3302 | 833.3303 | 0.00 – | 120 000.43 | $2s^22p^3-2s2p^4$ | $^4S^\circ-^4P$ | 3/2–3/2 | E3,R,Y |
| UV1 | 200 | 834.4655 | 834.4654 | 0.00 – | 119 837.21 | $2s^22p^3-2s2p^4$ | $^4S^\circ-^4P$ | 3/2–5/2 | E3,R,Y |
| UV17.26 |  | 909.7 | 909.974 | 165 988.46 – | 275 881.65 | $2s2p^4-2s^22p^2(^1D)4fF$ | $^2D-^2[3]^\circ$ | 5/2– | S |
| UV17.26 |  |  | 910.041 | 165 996.50 – | 275 881.05 | $2s2p^4-2s^22p^2(^1D)4fF$ | $^2D-^2[3]^\circ$ | 3/2– |  |
| UV3.09 | 8 | 1074.962 | 1074.961 | 26 810.55 – | 119 837.21 | $2s^22p^3-2s2p^4$ | $^2D^\circ-^4P$ | 5/2–5/2 | PW |
| UV17.20 | 25 | 1083.139 | 1083.134 | 119 837.21 – | 212 161.881 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4S^\circ$ | 5/2–3/2 | PW |
| UV17.20 | 20 | 1085.056 | 1085.052 | 120 000.43 – | 212 161.881 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4S^\circ$ | 3/2–3/2 | PW |
| UV17.20 | 18 | 1086.022 | 1086.024 | 120 082.86 – | 212 161.881 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4S^\circ$ | 1/2–3/2 | PW |
| UV17.19 | 50 | 1128.081 | 1128.070 | 119 837.21 – | 208 484.202 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 5/2–5/2 | PW |
| UV17.19 | 40 | 1129.251 | 1129.241 | 119 837.21 – | 208 392.258 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 5/2–3/2 | PW |
| UV17.19 | 40 | 1130.147 | 1130.151 | 120 000.43 – | 208 484.202 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 3/2–5/2 | PW |
| UV17.19 | 20 | 1131.325 | 1131.326 | 120 000.43 – | 208 392.258 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 3/2–3/2 | PW |
| UV17.19 | 35 | 1131.914 | 1131.917 | 120 000.43 – | 208 346.104 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 3/2–1/2 | PW |
| UV17.19 | 35 | 1132.389 | 1132.382 | 120 082.86 – | 208 392.258 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 1/2–3/2 | PW |
| UV17.19 | 18 | 1132.975 | 1132.974 | 120 082.86 – | 208 346.104 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4P^\circ$ | 1/2–1/2 | PW |
| UV17.37 | 8 | 1142.601 | 1142.602 | 185 499.124 – | 273 018.7 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)7p$ | $^4P-^4P^\circ$ | 5/2–5/2 | PW |
| UV17.36 | 7 | 1142.947 | 1142.947 | 185 235.281 – | 272 728.4 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)7p$ | $^4P-^4D^\circ$ | 1/2–3/2 | PW |
| UV17.36 | 10 | 1143.258 | 1143.259 | 185 499.124 – | 272 968.4 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)7p$ | $^4P-^4D^\circ$ | 5/2–7/2 | PW |
| UV17.36 | 9 | 1143.548 | 1143.548 | 185 340.577 – | 272 787.7 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)7p$ | $^4P-^4D^\circ$ | 3/2–5/2 | PW |
| UV17.18 | 10 | 1147.246 | 1147.246 | 119 837.21 – | 207 002.482 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D^\circ$ | 5/2–7/2 | PW |
| UV17.18 | 10 | 1148.895 | 1148.888 | 119 837.21 – | 206 877.865 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D^\circ$ | 5/2–5/2 | PW |
| UV17.18 |  |  | 1150.098 | 119 837.21 – | 206 786.286 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D^\circ$ | 5/2–3/2 |  |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) Observed | Calculated | Levels (cm⁻¹) Lower | Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| UV17.18 | | | 1151.047 | 120 000.43 – | 206 877.865 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^3/_2-^5/_2$ | |
| UV17.18 | | | 1152.261 | 120 000.43 – | 206 786.286 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^3/_2-^3/_2$ | |
| UV17.18 | | | 1152.999 | 120 000.43 – | 206 730.762 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^3/_2-^1/_2$ | |
| UV17.18 | 15 | 1153.368 | 1153.357 | 120 082.86 – | 206 786.286 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^1/_2-^3/_2$ | PW |
| UV17.18 | 15 | 1154.102 | 1154.096 | 120 082.86 – | 206 730.762 | $2s2p^4-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^1/_2-^1/_2$ | PW |
| UV17.35 | 12 | 1200.720 | 1200.720? | 185 499.124 – | 268 782.5? | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4P°$ | $^5/_2-^5/_2$ | PW |
| UV17.34 | 8 | 1201.485 | 1201.485 | 185 235.281 – | 268 465.6 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4D°$ | $^1/_2-^3/_2$ | PW |
| UV17.34 | 12 | 1201.822 | 1201.823 | 185 340.577 – | 268 547.50 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4D°$ | $^3/_2-^5/_2$ | PW |
| UV17.34 | 12 | 1202.025 | 1202.025 | 185 499.124 – | 268 692.1 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4D°$ | $^5/_2-^7/_2$ | PW |
| UV17.34 | 4bl? | 1203.004 | 1203.007 | 185 340.577 – | 268 465.6 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4D°$ | $^3/_2-^3/_2$ | PW |
| UV17.34 | | | 1204.117 | 185 499.124 – | 268 547.50 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4D°$ | $^5/_2-^5/_2$ | |
| UV17.34 | | | 1205.306 | 185 499.124 – | 268 465.6 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^4P-^4D°$ | $^5/_2-^3/_2$ | |
| UV10.19 | | | 1256.047 | 40 468.01 – | 120 082.86 | $2s^22p^3-2s2p^4$ | $^2P°-^4P$ | $^3/_2-^1/_2$ | |
| UV10.19 | 6 | 1256.074 | 1256.078 | 40 470.00 – | 120 082.86 | $2s^22p^3-2s2p^4$ | $^2P°-^4P$ | $^1/_2-^1/_2$ | PW |
| UV10.19 | 10 | 1257.345 | 1257.349 | 40 468.01 – | 120 000.43 | $2s^22p^3-2s2p^4$ | $^2P°-^4P$ | $^3/_2-^3/_2$ | PW |
| UV10.19 | | | 1257.380 | 40 470.00 – | 120 000.43 | $2s^22p^3-2s2p^4$ | $^2P°-^4P$ | $^1/_2-^3/_2$ | |
| UV19.08 | 6 | 1258.156 | 1258.158 | 188 888.543 – | 268 369.8 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^2P-^2S°$ | $^1/_2-^1/_2$ | PW |
| UV10.19 | 10 | 1259.931 | 1259.935 | 40 468.01 – | 119 837.21 | $2s^22p^3-2s2p^4$ | $^2P°-^4P$ | $^3/_2-^5/_2$ | PW |
| UV19.08 | 10 | 1261.016 | 1261.014 | 189 068.514 – | 268 369.8 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)6p$ | $^2P-^2S°$ | $^3/_2-^1/_2$ | PW |
| UV19.07 | | | 1272.2283 | 188 888.543 – | 267 490.79 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2P°$ | $^1/_2-^3/_2$ | |
| UV19.07 | | | 1272.7223 | 188 888.543 – | 267 460.28 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2P°$ | $^1/_2-^1/_2$ | |
| UV19.07 | 10 | 1275.143 | 1275.1479 | 189 068.514 – | 267 490.79 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2P°$ | $^3/_2-^3/_2$ | PW |
| UV19.07 | | | 1275.6442 | 189 068.514 – | 267 460.28 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2P°$ | $^3/_2-^1/_2$ | |
| UV19.06 | 10 | 1286.409 | 1286.4090 | 188 888.543 – | 266 624.32 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2D°$ | $^1/_2-^3/_2$ | PW |
| UV19.06 | 12 | 1289.127 | 1289.1238 | 189 068.514 – | 266 640.58 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2D°$ | $^3/_2-^5/_2$ | PW |
| UV19.06 | 6 | 1289.387 | 1289.3941 | 189 068.514 – | 266 624.32 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)4p$ | $^2P-^2D°$ | $^3/_2-^3/_2$ | PW |
| UV17.33 | 8 | 1315.338 | 1315.3393 | 185 235.281 – | 261 261.29 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^1/_2-^3/_2$ | PW |
| UV17.33 | 8 | 1315.518 | 1315.522 | 185 340.577 – | 261 356.02 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^3/_2-^5/_2$ | PW |
| UV17.33 | 5bl | 1316.150 | 1316.1499 | 185 235.281 – | 261 214.47 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^1/_2-^1/_2$ | PW |
| UV17.33 | 10 | 1317.162 | 1317.1636 | 185 340.577 – | 261 261.29 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^3/_2-^3/_2$ | PW |
| UV17.33 | | | 1317.9764 | 185 340.577 – | 261 214.47 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^3/_2-^1/_2$ | |
| UV17.33 | 12 | 1318.269 | 1318.272 | 185 499.124 – | 261 356.02 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^5/_2-^5/_2$ | PW |
| UV17.33 | 10 | 1319.918 | 1319.9200 | 185 499.124 – | 261 261.29 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4P°$ | $^5/_2-^3/_2$ | PW |
| UV17.32 | 10 | 1320.567 | 1320.5968 | 185 235.281 – | 260 958.62 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^1/_2-^3/_2$ | PW |
| UV17.32 | 12 | 1320.957 | 1320.9437 | 185 340.577 – | 261 044.03 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^3/_2-^5/_2$ | PW |
| UV17.32 | 15 | 1321.317 | 1321.3275 | 185 499.124 – | 261 180.59 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^5/_2-^7/_2$ | PW |
| UV17.32 | | | 1321.4111 | 185 235.281 – | 260 911.96 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^1/_2-^1/_2$ | |
| UV17.32 | 9 | 1322.402 | 1322.4357 | 185 340.577 – | 260 958.62 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^3/_2-^3/_2$ | PW |
| UV17.32 | | | 1323.2522 | 185 340.577 – | 260 911.96 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^3/_2-^1/_2$ | |
| UV17.32 | 8 | 1323.731 | 1323.7160 | 185 499.124 – | 261 044.03 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^5/_2-^5/_2$ | PW |
| UV17.32 | | | 1325.2143 | 185 499.124 – | 260 958.62 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^4P-^4D°$ | $^5/_2-^3/_2$ | |
| UV19.05 | 7 | 1373.437 | 1373.4338 | 188 888.543 – | 261 698.75 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^2P-^2D°$ | $^1/_2-^3/_2$ | PW |
| UV19.05 | 8 | 1373.595 | 1373.5995 | 189 068.514 – | 261 869.94 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^2P-^2D°$ | $^3/_2-^5/_2$ | PW |
| UV19.05 | 4 | 1376.826 | 1376.8371 | 189 068.514 – | 261 698.75 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^2P-^2D°$ | $^3/_2-^3/_2$ | PW |
| UV19.04 | 4 | 1392.806 | 1392.8018 | 188 888.543 – | 260 686.27 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^2P-^2S°$ | $^1/_2-^1/_2$ | PW |
| UV19.04 | 8 | 1396.304 | 1396.3018 | 189 068.514 – | 260 686.27 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)5p$ | $^2P-^2S°$ | $^3/_2-^1/_2$ | PW |
| UV17.31 | 6 | 1433.772 | 1433.7684 | 185 235.281 – | 254 981.55 | $2s^22p^2(^3P)3s-2s2p^3(^5S°)3s$ | $^4P-^4S°$ | $^1/_2-^3/_2$ | PW |
| UV17.31 | 8 | 1435.943 | 1435.9363 | 185 340.577 – | 254 981.55 | $2s^22p^2(^3P)3s-2s2p^3(^5S°)3s$ | $^4P-^4S°$ | $^3/_2-^3/_2$ | PW |
| UV17.31 | 8 | 1439.233 | 1439.2128 | 185 499.124 – | 254 981.55 | $2s^22p^2(^3P)3s-2s2p^3(^5S°)3s$ | $^4P-^4S°$ | $^5/_2-^3/_2$ | PW |
| UV17.25 | 15 | 1502.838 | 1502.886 | 165 988.46 – | 232 527.09 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2P°$ | $^5/_2-^3/_2$ | PW |
| UV17.25 | 10 | 1503.045 | 1503.068 | 165 996.50 – | 232 527.09 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2P°$ | $^3/_2-^3/_2$ | PW |
| UV17.25 | 12 | 1504.121 | 1504.123 | 165 996.50 – | 232 480.44 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2P°$ | $^3/_2-^1/_2$ | PW |
| UV19.03 | 6 | 1559.946 | 1559.9444 | 188 888.543 – | 252 993.39 | $2s^22p^2(^3P)3s-2s^22p^2(^1S)3p$ | $^2P-^2P°$ | $^1/_2-^3/_2$ | PW |
| UV19.03 | 8 | 1560.087 | 1560.0944 | 188 888.543 – | 252 987.23 | $2s^22p^2(^3P)3s-2s^22p^2(^1S)3p$ | $^2P-^2P°$ | $^1/_2-^1/_2$ | PW |
| UV17.24 | | | 1562.989 | 165 988.46 – | 229 968.44 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2D°$ | $^5/_2-^3/_2$ | |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) | | Levels (cm⁻¹) | | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| | | Observed | Calculated | Lower | Upper | | | | |
| UV17.24 | 3 | 1563.150 | 1563.185 | 165 996.50 – | 229 968.44 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2D°$ | $^3/_2-^3/_2$ | PW |
| UV17.24 | 3 | 1563.485 | 1563.511 | 165 988.46 – | 229 947.07 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2D°$ | $^5/_2-^5/_2$ | PW |
| UV17.24 | | | 1563.708 | 165 996.50 – | 229 947.07 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2D°$ | $^3/_2-^5/_2$ | |
| UV19.03 | 10 | 1564.329 | 1564.3362 | 189 068.514 – | 252 993.39 | $2s^22p^2(^3P)3s-2s^22p^2(^1S)3p$ | $^2P-^2P°$ | $^3/_2-^3/_2$ | PW |
| UV19.03 | 5 | 1564.463 | 1564.4870 | 189 068.514 – | 252 987.23 | $2s^22p^2(^3P)3s-2s^22p^2(^1S)3p$ | $^2P-^2P°$ | $^3/_2-^1/_2$ | PW |
| UV20.02 | 5 | 1578.384 | 1578.384 | 203 942.288 – | 267 298.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2S°-^2P$ | $^1/_2-^3/_2$ | PW |
| UV20.02 | | | 1583.310? | 203 942.288 – | 267 101.1? | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2S°-^2P$ | $^1/_2-^1/_2$ | |
| UV17.23 | 20 | 1593.354 | 1593.397 | 165 988.46 – | 228 747.45 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2F°$ | $^5/_2-^7/_2$ | PW |
| UV17.23 | 10 | 1593.977 | 1593.997 | 165 988.46 – | 228 723.84 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2F°$ | $^5/_2-^5/_2$ | PW |
| UV17.23 | 18 | 1594.189 | 1594.201 | 165 996.50 – | 228 723.84 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2D-^2F°$ | $^3/_2-^5/_2$ | PW |
| UV30 | 8 | 1616.963 | 1616.929 | 214 229.671 – | 276 075.32 | $2s^22p^2(^3P)3p-2s^22p^2(^1S)3d$ | $^2P°-^2D$ | $^3/_2-^5/_2$ | PW |
| UV30 | | | 1617.756 | 214 169.920 – | 275 983.95 | $2s^22p^2(^3P)3p-2s^22p^2(^1S)3d$ | $^2P°-^2D$ | $^1/_2-^3/_2$ | |
| UV30 | | | 1619.321 | 214 229.671 – | 275 983.95 | $2s^22p^2(^3P)3p-2s^22p^2(^1S)3d$ | $^2P°-^2D$ | $^3/_2-^3/_2$ | |
| UV17.30 | 5 | 1632.681 | 1632.7054 | 185 235.281 – | 246 483.317 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^1/_2-^3/_2$ | PW |
| UV17.30 | | | 1635.5172 | 185 340.577 – | 246 483.317 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^3/_2-^3/_2$ | |
| UV17.30 | 8 | 1636.249 | 1636.2581 | 185 340.577 – | 246 455.629 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^3/_2-^5/_2$ | PW |
| UV17.30 | | | 1637.0683 | 185 235.281 – | 246 320.086 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^1/_2-^1/_2$ | |
| UV17.29 | 8 | 1637.824 | 1637.8262 | 185 235.281 – | 246 291.822 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4S°$ | $^1/_2-^3/_2$ | PW |
| UV17.30 | 10 | 1639.767 | 1639.7692 | 185 499.124 – | 246 483.317 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^5/_2-^3/_2$ | PW |
| UV17.30 | 10 | 1639.891 | 1639.8951 | 185 340.577 – | 246 320.086 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^3/_2-^1/_2$ | PW |
| UV17.30 | 12 | 1640.517 | 1640.5140 | 185 499.124 – | 246 455.629 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4P°$ | $^5/_2-^5/_2$ | PW |
| UV17.29 | | | 1640.6556 | 185 340.577 – | 246 291.822 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4S°$ | $^3/_2-^3/_2$ | |
| UV17.29 | 6 | 1644.924 | 1644.9344 | 185 499.124 – | 246 291.822 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4S°$ | $^5/_2-^3/_2$ | PW |
| UV17.28 | 10 | 1650.664 | 1650.6711 | 185 235.281 – | 245 816.70 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^1/_2-^3/_2$ | PW |
| UV17.28 | 12 | 1651.176 | 1651.1828 | 185 340.577 – | 245 903.224 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^3/_2-^5/_2$ | PW |
| UV17.28 | | | 1651.9890 | 185 235.281 – | 245 768.37 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^1/_2-^1/_2$ | |
| UV17.28 | 15 | 1652.045 | 1652.0687 | 185 499.124 – | 246 029.295 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^5/_2-^7/_2$ | PW |
| UV17.28 | 10 | 1653.540 | 1653.5452 | 185 340.577 – | 245 816.70 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^3/_2-^3/_2$ | PW |
| UV17.28 | | | 1654.8677 | 185 340.577 – | 245 768.37 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^3/_2-^1/_2$ | |
| UV17.28 | 10 | 1655.505 | 1655.5168 | 185 499.124 – | 245 903.224 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^5/_2-^5/_2$ | PW |
| UV17.28 | | | 1657.8916 | 185 499.124 – | 245 816.70 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^4P-^4D°$ | $^5/_2-^3/_2$ | |
| UV20.05 | | | 1661.545 | 206 786.286 – | 266 971.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^3/_2-^5/_2$ | |
| UV20.05 | 6 | 1664.060 | 1664.077 | 206 877.865 – | 266 971.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^5/_2-^5/_2$ | PW |
| UV20.05 | | | 1664.690 | 206 730.762 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^1/_2-^3/_2$ | |
| UV20.05 | | | 1666.230 | 206 786.286 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^3/_2-^3/_2$ | |
| UV20.05 | 10 | 1667.565 | 1667.535 | 207 002.482 – | 266 971.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^7/_2-^5/_2$ | PW |
| UV20.05 | | | 1667.577 | 206 730.762 – | 266 698.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^1/_2-^1/_2$ | |
| UV20.05 | 8 | 1668.794 | 1668.777 | 206 877.865 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^5/_2-^3/_2$ | PW |
| UV20.05 | 6 | 1669.138 | 1669.123 | 206 786.286 – | 266 698.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^3/_2-^1/_2$ | PW |
| UV20.11 | 9 | 1675.907 | 1675.915 | 206 971.68 – | 266 640.58 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2D°$ | $^5/_2-^5/_2$ | PW |
| UV20.11 | | | 1675.944 | 206 972.72 – | 266 640.58 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2D°$ | $^3/_2-^5/_2$ | |
| UV20.11 | | | 1676.372 | 206 971.68 – | 266 624.32 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2D°$ | $^5/_2-^3/_2$ | |
| UV20.11 | 8 | 1676.394 | 1676.401 | 206 972.72 – | 266 624.32 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2D°$ | $^3/_2-^3/_2$ | PW |
| UV20.10 | 10 | 1677.378 | 1677.384 | 206 971.68 – | 266 588.33 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2F°$ | $^5/_2-^7/_2$ | PW |
| UV20.10 | | | 1677.626 | 206 971.68 – | 266 579.73 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2F°$ | $^5/_2-^5/_2$ | |
| UV20.10 | 10 | 1677.647 | 1677.655 | 206 972.72 – | 266 579.73 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)4p$ | $^2D-^2F°$ | $^3/_2-^5/_2$ | PW |
| UV35 | 7 | 1683.762 | 1683.761? | 230 609.45 – | 290 000.3? | $2s^22p^2(^1S)3s-2s^22p^2(^1S)4p$ | $^2S-^2P°$ | $^1/_2-^3/_2$ | PW |
| UV35 | 8 | 1684.033 | 1684.033? | 230 609.45 – | 289 990.7? | $2s^22p^2(^1S)3s-2s^22p^2(^1S)4p$ | $^2S-^2P°$ | $^1/_2-^1/_2$ | PW |
| UV19.02 | 8 | 1691.477 | 1691.4267 | 188 888.543 – | 248 010.23 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^2P-^2D°$ | $^1/_2-^3/_2$ | PW |
| UV19.02 | | | 1691.5286 | 189 068.514 – | 248 186.64 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^2P-^2D°$ | $^3/_2-^5/_2$ | |
| UV19.02 | 4 | 1696.614 | 1696.5913 | 189 068.514 – | 248 010.23 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^2P-^2D°$ | $^3/_2-^3/_2$ | PW |
| UV20.14 | 8 | 1707.113 | 1707.097 | 208 392.258 – | 266 971.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P°-^4P$ | $^3/_2-^5/_2$ | PW |
| UV20.14 | 9 | 1709.790 | 1709.781 | 208 484.202 – | 266 971.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P°-^4P$ | $^5/_2-^5/_2$ | PW |
| UV20.14 | 6 | 1710.707 | 1710.691 | 208 346.104 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P°-^4P$ | $^1/_2-^3/_2$ | PW |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Vac. Wavelength (Å) Observed | Calculated | Levels (cm⁻¹) Lower | Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| UV20.14 | 6 | 1712.039 | 1712.043 | 208 392.258 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P^\circ-^4P$ | $^3/_2-^3/_2$ | PW |
| UV20.14 | 5 | 1713.730 | 1713.740 | 208 346.104 – | 266 698.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P^\circ-^4P$ | $^1/_2-^1/_2$ | PW |
| UV32 | | | 1714.582 | 228 723.84 – | 287 047.1 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2F^\circ-^2D$ | $^5/_2-^5/_2$ | |
| UV32 | 8 | 1714.640 | 1714.626 | 228 723.84 – | 287 045.6 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2F^\circ-^2D$ | $^5/_2-^3/_2$ | PW |
| UV20.14 | 8 | 1714.719 | 1714.742 | 208 484.202 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P^\circ-^4P$ | $^5/_2-^3/_2$ | PW |
| UV20.14 | 8 | 1715.094 | 1715.097 | 208 392.258 – | 266 698.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4P^\circ-^4P$ | $^3/_2-^1/_2$ | PW |
| UV32 | 8 | 1715.300 | 1715.276 | 228 747.45 – | 287 047.1 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2F^\circ-^2D$ | $^7/_2-^5/_2$ | PW |
| UV19.11 | 15 | 1745.726 | 1745.721 | 195 710.47 – | 252 993.39 | $2s2p^4-2s^22p^2(^1S)3p$ | $^2S-^2P^\circ$ | $^1/_2-^3/_2$ | PW |
| UV19.11 | 12 | 1745.897 | 1745.909 | 195 710.47 – | 252 987.23 | $2s2p^4-2s^22p^2(^1S)3p$ | $^2S-^2P^\circ$ | $^1/_2-^1/_2$ | PW |
| UV34 | 7 | 1751.289 | 1751.313 | 229 947.07 – | 287 047.1 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2D^\circ-^2D$ | $^5/_2-^5/_2$ | PW |
| UV34 | | | 1751.359 | 229 947.07 – | 287 045.6 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2D^\circ-^2D$ | $^5/_2-^3/_2$ | |
| UV34 | | | 1751.968 | 229 968.44 – | 287 047.1 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2D^\circ-^2D$ | $^3/_2-^5/_2$ | |
| UV34 | 7 | 1751.994 | 1752.014 | 229 968.44 – | 287 045.6 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)6s$ | $^2D^\circ-^2D$ | $^3/_2-^3/_2$ | PW |
| UV19.01 | 10bl | 1780.994 | 1780.9836 | 188 888.543 – | 245 037.29 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^2P-^2S^\circ$ | $^1/_2-^1/_2$ | PW |
| UV19.01 | 14 | 1786.708 | 1786.7105 | 189 068.514 – | 245 037.29 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)4p$ | $^2P-^2S^\circ$ | $^3/_2-^1/_2$ | PW |
| UV21.06 | | | 1792.882 | 211 522.117 – | 267 298.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2D^\circ-^2P$ | $^3/_2-^3/_2$ | |
| UV21.06 | 10 | 1799.025 | 1799.030 | 211 712.732 – | 267 298.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2D^\circ-^2P$ | $^5/_2-^3/_2$ | PW |
| UV21.06 | 10 | 1799.207 | 1799.241? | 211 522.117 – | 267 101.1? | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2D^\circ-^2P$ | $^3/_2-^1/_2$ | PW |
| UV20.09 | 8 | 1805.173 | 1805.172 | 206 971.68 – | 262 368.05 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2P^\circ$ | $^5/_2-^3/_2$ | PW |
| UV20.09 | | | 1805.206 | 206 972.72 – | 262 368.05 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2P^\circ$ | $^3/_2-^3/_2$ | |
| UV20.09 | 6 | 1807.896 | 1807.857 | 206 972.72 – | 262 286.82 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2P^\circ$ | $^3/_2-^1/_2$ | PW |
| UV20.08 | 10 | 1821.545 | 1821.551 | 206 971.68 – | 261 869.94 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^5/_2-^5/_2$ | PW |
| UV20.08 | | | 1821.586 | 206 972.72 – | 261 869.94 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^3/_2-^5/_2$ | |
| UV21.10 | 8 | 1824.503 | 1824.506 | 212 161.881 – | 266 971.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4S^\circ-^4P$ | $^3/_2-^5/_2$ | PW |
| UV20.08 | 8 | 1827.276 | ⎰1827.249 | 206 971.68 – | 261 698.75 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^5/_2-^3/_2$ | PW |
| UV20.08 | | | ⎱1827.284 | 206 972.72 – | 261 698.75 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^3/_2-^3/_2$ | |
| UV20.01 | 12 | 1829.362 | 1829.3555 | 203 942.288 – | 258 606.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2S^\circ-^2P$ | $^1/_2-^3/_2$ | PW |
| UV21.10 | 5bl | 1830.128 | 1830.157 | 212 161.881 – | 266 802.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4S^\circ-^4P$ | $^3/_2-^3/_2$ | PW |
| UV21.10 | 6 | 1833.649 | 1833.647 | 212 161.881 – | 266 698.0 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^4S^\circ-^4P$ | $^3/_2-^1/_2$ | PW |
| UV20.01 | 9 | 1835.906 | 1835.9076 | 203 942.288 – | 258 411.26 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2S^\circ-^2P$ | $^1/_2-^1/_2$ | PW |
| UV21.21 | 8 | 1882.159 | 1882.147 | 212 762.25 – | 265 893.06 | $2s2p^4-2s^22p^2(^3P)5f\,D$ | $^2P-^2[1]^\circ$ | $^1/_2-^1/_2$ | PW |
| UV29 | | | 1882.236 | 214 169.920 – | 267 298.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2P^\circ-^2P$ | $^1/_2-^3/_2$ | |
| UV21.20 | 9 | 1882.400 | 1882.365 | 212 593.82 – | 265 718.48 | $2s2p^4-2s^22p^2(^3P)5f\,G$ | $^2P-^2[3]^\circ$ | $^3/_2-^5/_2$ | PW |
| UV29 | 9 | 1884.350 | 1884.355 | 214 229.671 – | 267 298.23 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2P^\circ-^2P$ | $^3/_2-^3/_2$ | PW |
| UV21.19 | 8 | 1885.246 | 1885.253 | 212 593.82 – | 265 637.10 | $2s2p^4-2s^22p^2(^3P)5f\,D$ | $^2P-^2[3]^\circ$ | $^3/_2-^5/_2$ | PW |
| UV21.18 | 6 | 1886.652 | 1886.649 | 212 762.25 – | 265 766.28 | $2s2p^4-2s^22p^2(^3P)5f\,D$ | $^2P-^2[2]^\circ$ | $^1/_2-^3/_2$ | PW |
| UV29 | 5 | 1889.246 | 1889.246? | 214 169.920 – | 267 101.1? | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2P^\circ-^2P$ | $^1/_2-^1/_2$ | PW |
| UV29 | | | 1891.381? | 214 229.671 – | 267 101.1? | $2s^22p^2(^3P)3p-2s^22p^2(^3P)6s$ | $^2P^\circ-^2P$ | $^3/_2-^1/_2$ | |
| UV19.10 | 8 | 1893.789 | 1893.766 | 195 710.47 – | 248 515.30 | $2s2p^4-2s^22p^2(^3P)4p$ | $^2S-^2P^\circ$ | $^1/_2-^3/_2$ | PW |
| UV19.10 | | | 1896.959 | 195 710.47 – | 248 426.41 | $2s2p^4-2s^22p^2(^3P)4p$ | $^2S-^2P^\circ$ | $^1/_2-^1/_2$ | |
| UV20.04 | | | 1953.9331 | 206 786.286 – | 257 965.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^3/_2-^5/_2$ | |
| UV20.04 | 10 | 1957.441 | 1957.4358 | 206 877.865 – | 257 965.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^5/_2-^5/_2$ | PW |
| UV20.04 | 8 | 1958.122 | 1958.1286 | 206 730.762 – | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^1/_2-^3/_2$ | PW |
| UV20.04 | 10 | 1960.265 | 1960.2599 | 206 786.286 – | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^3/_2-^3/_2$ | PW |
| UV20.04 | | | 1962.1317 | 206 730.762 – | 257 695.74 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^1/_2-^1/_2$ | |
| UV20.04 | 15 | 1962.210 | 1962.2222 | 207 002.482 – | 257 965.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^7/_2-^5/_2$ | PW |
| UV20.04 | 12 | 1963.793 | 1963.7852 | 206 877.865 – | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^5/_2-^3/_2$ | PW |
| UV20.04 | 10 | 1964.269 | 1964.2717 | 206 786.286 – | 257 695.74 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^3/_2-^1/_2$ | PW |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| UV20.13 | 10 | 2016.589 | 2016.5822 | 2017.2331 | 208 392.258 | 257 965.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^3/_2-^5/_2$ | PW |
| UV20.13 | 12 | 2020.340 | 2020.3299 | 2020.9815 | 208 484.202 | 257 965.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^5/_2-^5/_2$ | PW |
| UV20.13 | 10 | 2021.445 | 2021.4364 | 2022.0882 | 208 346.104 | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^1/_2-^3/_2$ | PW |
| UV31 | | | 2022.788 | 2023.440 | 228 723.84 | 278 144.62 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2F^\circ-^2D$ | $^5/_2-^5/_2$ | |
| UV31 | 10 | 2022.768 | 2022.800? | 2023.420 | 228 723.84 | 278 144.33? | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2F^\circ-^2D$ | $^5/_2-^3/_2$ | PW |
| UV20.13 | 10 | 2023.332 | 2023.3250 | 2023.9772 | 208 392.258 | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^3/_2-^3/_2$ | PW |
| UV31 | 12bl | 2023.740 | 2023.755 | 2024.407 | 228 747.45 | 278 144.62 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2F^\circ-^2D$ | $^7/_2-^5/_2$ | PW |
| UV20.13 | 5 | 2025.694 | 2025.7048 | 2026.3574 | 208 346.104 | 257 695.74 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^1/_2-^1/_2$ | PW |
| UV20.13 | 10 | 2027.103 | 2027.0978 | 2027.7507 | 208 484.202 | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^5/_2-^3/_2$ | PW |
| UV20.13 | 10 | 2027.603 | 2027.6014 | 2028.2543 | 208 392.258 | 257 695.74 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^3/_2-^1/_2$ | PW |
| UV17.22 | 12bl | 2072.2 | 2072.255 | 2072.916 | 165 988.46 | 214 229.671 | $2s2p^4-2s^22p^2(^3P)3p$ | $^2D-^2P^\circ$ | $^5/_2-^3/_2$ | PW |
| UV17.22 | 5 | 2072.601 | 2072.601 | 2073.262 | 165 996.50 | 214 229.671 | $2s2p^4-2s^22p^2(^3P)3p$ | $^2D-^2P^\circ$ | $^3/_2-^3/_2$ | PW |
| UV33 | 8 | 2074.104 | 2074.133 | 2074.794 | 229 947.07 | 278 144.62 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2D^\circ-^2D$ | $^5/_2-^5/_2$ | PW |
| UV33 | | | 2074.145? | 2074.807? | 229 947.07 | 278 144.33? | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2D^\circ-^2D$ | $^5/_2-^3/_2$ | |
| UV33 | | | 2075.053 | 2075.715 | 229 968.44 | 278 144.62 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2D^\circ-^2D$ | $^3/_2-^5/_2$ | |
| UV33 | 8 | 2075.058 | 2075.065? | 2075.727 | 229 968.44 | 278 144.33? | $2s^22p^2(^1D)3p-2s^22p^2(^1D)5s$ | $^2D^\circ-^2D$ | $^3/_2-^3/_2$ | PW |
| UV17.22 | 12 | 2075.169 | 2075.172 | 2075.834 | 165 996.50 | 214 169.920 | $2s2p^4-2s^22p^2(^3P)3p$ | $^2D-^2P^\circ$ | $^3/_2-^1/_2$ | PW |
| UV21.05 | 10 | 2092.876 | 2092.876 | 2093.541 | 211 522.117 | 259 288.07 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^3/_2-^3/_2$ | PW |
| UV21.05 | | | 2092.896 | 2093.562 | 211 522.117 | 259 287.61 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^3/_2-^5/_2$ | |
| UV20.03 | 8 | 2099.880 | 2099.872 | 2100.538 | 206 730.762 | 254 337.61 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^1/_2-^3/_2$ | PW |
| UV20.03 | 7 | 2100.069 | 2100.071 | 2100.737 | 206 877.865 | 254 480.20 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^5/_2-^7/_2$ | PW |
| UV20.03 | | | 2100.080 | 2100.746 | 206 786.286 | 254 388.42 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^3/_2-^5/_2$ | |
| UV20.03 | 8 | 2100.664 | 2100.725 | 2101.391 | 207 002.482 | 254 590.00 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^7/_2-^9/_2$ | PW |
| UV21.05 | | | 2101.263 | 2101.929 | 211 712.732 | 259 288.07 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^5/_2-^3/_2$ | |
| UV21.05 | 12 | 2101.283 | 2101.283 | 2101.950 | 211 712.732 | 259 287.61 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^5/_2-^5/_2$ | PW |
| UV20.03 | 6 | 2102.325 | 2102.324 | 2102.991 | 206 786.286 | 254 337.61 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^3/_2-^3/_2$ | PW |
| UV20.03 | 6 | 2104.133 | 2104.128 | 2104.795 | 206 877.865 | 254 388.42 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^5/_2-^5/_2$ | PW |
| UV20.03 | | | 2105.584 | 2106.251 | 207 002.482 | 254 480.20 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^7/_2-^7/_2$ | |
| UV20.03 | | | 2106.381 | 2107.049 | 206 877.865 | 254 337.61 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^5/_2-^3/_2$ | |
| UV20.03 | | | 2109.662 | 2110.331 | 207 002.482 | 254 388.42 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4D^\circ-^4F$ | $^7/_2-^5/_2$ | |
| UV21.04 | 8 | 2123.202 | 2123.182 | 2123.853 | 211 522.117 | 258 606.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^2P$ | $^3/_2-^3/_2$ | PW |
| UV21.04 | 12 | 2131.818 | 2131.813 | 2132.486 | 211 712.732 | 258 606.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^2P$ | $^5/_2-^3/_2$ | PW |
| UV21.04 | 10 | 2131.997 | 2132.017 | 2132.690 | 211 522.117 | 258 411.26 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^2P$ | $^3/_2-^1/_2$ | PW |
| UV20.12 | 1 | 2148.222 | 2148.220 | 2148.896 | 208 484.202 | 255 019.73 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4P^\circ-^4D$ | $^5/_2-^7/_2$ | W |
| UV20.12 | | | 2148.232 | 2148.908 | 208 346.104 | 254 881.37 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4P^\circ-^4D$ | $^1/_2-^3/_2$ | |
| UV20.12 | | | 2149.669 | 2150.345 | 208 392.258 | 254 896.42 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4P^\circ-^4D$ | $^3/_2-^5/_2$ | |
| UV21.09 | 4 | 2182.580 | 2182.569 | 2183.252 | 212 161.881 | 257 965.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4S^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| UV21.09 | 4 | 2190.481 | 2190.469 | 2191.154 | 212 161.881 | 257 799.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4S^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| UV21.09 | 3 | 2195.464 | 2195.482 | 2196.168 | 212 161.881 | 257 695.74 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^4S^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| UV28 | 1 | 2215.701 | 2215.713 | 2216.403 | 214 169.920 | 259 288.07 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2P^\circ-^2D$ | $^1/_2-^3/_2$ | W |
| UV28 | | | 2218.651 | 2219.342 | 214 229.671 | 259 288.07 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2P^\circ-^2D$ | $^3/_2-^3/_2$ | |
| UV28 | 1 | 2218.679 | 2218.674 | 2219.365 | 214 229.671 | 259 287.61 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)4s$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| UV27 | 1 | 2249.719 | 2249.708 | 2250.406 | 214 169.920 | 258 606.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2P^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| UV27 | 7 | 2252.746 | 2252.738 | 2253.436 | 214 229.671 | 258 606.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2P^\circ-^2P$ | $^3/_2-^3/_2$ | W |
| UV27 | 3 | 2259.625 | 2259.630 | 2260.329 | 214 169.920 | 258 411.26 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2P^\circ-^2P$ | $^1/_2-^1/_2$ | W |
| UV27 | 1 | 2262.685 | 2262.686 | 2263.386 | 214 229.671 | 258 411.26 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)5s$ | $^2P^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| UV21.03 | 8 | 2283.447 | 2283.444 | 2284.148 | 211 522.117 | 255 302.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2F$ | $^3/_2-^5/_2$ | W |
| UV21.03 | 9 | 2284.836 | 2284.833 | 2285.538 | 211 712.732 | 255 466.10 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2F$ | $^5/_2-^7/_2$ | W |
| UV19 | 14 | 2290.839 | 2290.846 | 2291.552 | 188 888.543 | 232 527.09 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)3p$ | $^2P-^2P^\circ$ | $^1/_2-^3/_2$ | W |
| UV19 | 15 | 2293.301 | 2293.297 | 2294.004 | 188 888.543 | 232 480.44 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)3p$ | $^2P-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| UV21.03 | | | 2293.430 | 2294.137 | 211 712.732 | 255 302.11 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2F$ | $^5/_2-^5/_2$ | |
| UV19 | 17 | 2300.331 | 2300.333 | 2301.042 | 189 068.514 | 232 527.09 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)3p$ | $^2P-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| UV19 | 14 | 2302.808 | 2302.800 | 2303.514 | 189 068.514 | 232 480.44 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)3p$ | $^2P-^2P^\circ$ | $^3/_2-^1/_2$ | W |
| UV45 | | | 2307.645 | 2308.355 | 232 745.981 | 276 066.88 | $2s^22p^2(^3P)3d-2s^22p^2(^1D)4f$ D | $^4D-^2[2]^\circ$ | $^3/_2-^5/_2$ | |
| UV45 | | | 2307.648 | 2308.358 | 232 745.981 | 276 066.81 | $2s^22p^2(^3P)3d-2s^22p^2(^1D)4f$ D | $^4D-^2[2]^\circ$ | $^3/_2-^3/_2$ | |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| UV45 | 5 | 2307.721 | $\lceil$ 2307.729 | $\lceil$ 2308.439 | 232 747.562 | 276 066.88 | $2s^22p^2(^3P)3d-2s^22p^2(^1D)4f$ D | $^4D-^2[2]^\circ$ | $^5/_2-^5/_2$ | W |
| UV45 | | | $\lfloor$ 2307.733 | $\lfloor$ 2308.443 | 232 747.562 | 276 066.81 | $2s^22p^2(^3P)3d-2s^22p^2(^1D)4f$ D | $^4D-^2[2]^\circ$ | $^5/_2-^3/_2$ | |
| UV21.14 | 8 | 2313.077 | $\lceil$ 2313.051 | $\lceil$ 2313.762 | 212 593.82 | 255 813.472 | $2s2p^4-2s^22p^2(^3P)4f$ D | $^2P-^2[2]^\circ$ | $^3/_2-^3/_2$ | W |
| UV21.14 | | | $\lfloor$ 2313.091 | $\lfloor$ 2313.802 | 212 593.82 | 255 812.728 | $2s2p^4-2s^22p^2(^3P)4f$ D | $^2P-^2[2]^\circ$ | $^3/_2-^3/_2$ | |
| UV21.17 | 9 | 2316.139 | 2316.124 | 2316.836 | 212 593.82 | 255 756.131 | $2s2p^4-2s^22p^2(^3P)4f$ G | $^2P-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| UV21.16 | 9 | 2316.765 | $\lceil$ 2316.779 | $\lceil$ 2317.491 | 212 762.25 | 255 912.37 | $2s2p^4-2s^22p^2(^3P)4f$ D | $^2P-^2[1]^\circ$ | $^1/_2-^1/_2$ | W |
| UV21.16 | | | $\lfloor$ 2316.781 | $\lfloor$ 2317.493 | 212 762.25 | 255 912.32 | $2s2p^4-2s^22p^2(^3P)4f$ D | $^2P-^2[1]^\circ$ | $^1/_2-^3/_2$ | |
| UV21.15 | 11 | 2319.687 | 2319.682 | 2320.395 | 212 593.82 | 255 689.939 | $2s2p^4-2s^22p^2(^3P)4f$ D | $^2P-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| UV21.14 | 9 | 2322.142 | 2322.141 | 2322.855 | 212 762.25 | 255 812.728 | $2s2p^4-2s^22p^2(^3P)4f$ D | $^2P-^2[2]^\circ$ | $^1/_2-^3/_2$ | W |
| UV21.08 | 3 | 2324.797 | 2324.803 | 2325.517 | 212 161.881 | 255 163.08 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4S^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| UV21.08 | 6 | 2325.918 | 2325.921 | 2326.635 | 212 161.881 | 255 142.41 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4S^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| UV21.08 | 7 | 2327.938 | 2327.947 | 2328.661 | 212 161.881 | 255 105.01 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4S^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| UV21.07 | 6 | 2339.302 | 2339.311 | 2340.028 | 212 161.881 | 254 896.42 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^4S^\circ-^4D$ | $^3/_2-^5/_2$ | W |
| UV21.02 | | | 2365.005 | 2365.728 | 211 522.117 | 253 792.40 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2P$ | $^3/_2-^3/_2$ | |
| UV21.02 | 9 | 2365.138 | 2365.140 | 2365.863 | 211 522.117 | 253 789.99 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| UV21.02 | 11 | 2375.731 | 2375.719 | 2376.445 | 211 712.732 | 253 792.40 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2P$ | $^5/_2-^3/_2$ | W |
| UV26 | 2 | 2398.902 | 2398.905 | 2399.636 | 214 169.920 | 255 842.91 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2D$ | $^1/_2-^3/_2$ | W |
| UV26 | 7 | 2399.189 | 2399.197 | 2399.928 | 214 229.671 | 255 897.59 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| UV26 | 3 | 2402.356 | 2402.350 | 2403.081 | 214 229.671 | 255 842.91 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2D$ | $^3/_2-^3/_2$ | W |
| UV20.07 | 14 | 2406.391 | 2406.376 | 2407.108 | 206 971.68 | 248 515.30 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2P^\circ$ | $^5/_2-^3/_2$ | W |
| UV20.07 | | | 2406.437 | 2407.169 | 206 972.72 | 248 515.30 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2P^\circ$ | $^3/_2-^3/_2$ | |
| UV21.01 | | | 2407.357 | 2408.089 | 211 522.117 | 253 048.82 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2D$ | $^3/_2-^5/_2$ | |
| UV21.01 | 13 | 2407.470 | 2407.477 | 2408.210 | 211 522.117 | 253 046.74 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2D$ | $^3/_2-^3/_2$ | W |
| UV20.07 | 7 | 2411.622 | $\lceil$ 2411.597 | $\lceil$ 2412.330 | 206 972.72 | 248 426.41 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2P^\circ$ | $^3/_2-^1/_2$ | W |
| UV25 | | | $\lfloor$ 2411.644 | $\lfloor$ 2412.378 | 214 169.920 | 255 622.80 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2S$ | $^1/_2-^1/_2$ | |
| UV25 | 6 | 2415.121 | 2415.126 | 2415.860 | 214 229.671 | 255 622.80 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2S$ | $^3/_2-^1/_2$ | W |
| UV21.01 | 14 | 2418.459 | 2418.459 | 2419.194 | 211 712.732 | 253 048.82 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2D$ | $^5/_2-^5/_2$ | W |
| UV21.01 | | | 2418.580 | 2419.315 | 211 712.732 | 253 046.74 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2D$ | $^5/_2-^3/_2$ | |
| UV20.06 | 15 | 2425.564 | 2425.567 | 2426.303 | 206 971.68 | 248 186.64 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| UV20.06 | | | 2425.628 | 2426.365 | 206 972.72 | 248 186.64 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2D^\circ$ | $^3/_2-^5/_2$ | |
| UV24 | 5 | 2431.652 | 2431.641 | 2432.379 | 214 169.920 | 255 281.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2P$ | $^1/_2-^1/_2$ | W |
| UV18 | 20 | 2433.534 | 2433.542 | 2434.281 | 188 888.543 | 229 968.44 | $2s^22p^3(^3P)3s-2s^22p^3(^1D)3p$ | $^2P-^2D^\circ$ | $^1/_2-^3/_2$ | W |
| UV24 | 2 | 2435.189 | 2435.181 | 2435.920 | 214 229.671 | 255 281.93 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| UV20.06 | | | 2435.994 | 2436.733 | 206 971.68 | 248 010.23 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2D^\circ$ | $^5/_2-^3/_2$ | |
| UV20.06 | 14 | 2436.051 | 2436.056 | 2436.795 | 206 972.72 | 248 010.23 | $2s^22p^2(^1D)3s-2s^22p^2(^3P)4p$ | $^2D-^2D^\circ$ | $^3/_2-^3/_2$ | W |
| UV24 | 2 | 2438.066 | 2438.067 | 2438.807 | 214 169.920 | 255 173.58 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| UV24 | 8 | 2441.626 | 2441.626 | 2442.366 | 214 229.671 | 255 173.58 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2P$ | $^3/_2-^3/_2$ | W |
| UV18 | 16 | 2444.248 | 2444.251 | 2444.992 | 189 068.514 | 229 968.44 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)3p$ | $^2P-^2D^\circ$ | $^3/_2-^3/_2$ | W |
| UV18 | 22 | 2445.538 | 2445.529 | 2446.270 | 189 068.514 | 229 947.07 | $2s^22p^2(^3P)3s-2s^22p^2(^1D)3p$ | $^2P-^2D^\circ$ | $^3/_2-^5/_2$ | W |
| 1.01F | M1 | | 2470.219 | 2470.966 | 0.00 | 40 470.00 | $2s^22p^3-2s^22p^3$ | $^4S^\circ-^2P^\circ$ | $^3/_2-^1/_2$ | |
| 1.01F | M1 | | 2470.341 | 2471.088 | 0.00 | 40 468.01 | $2s^22p^3-2s^22p^3$ | $^4S^\circ-^2P^\circ$ | $^3/_2-^3/_2$ | |
| UV21 | 12 | 2517.974 | 2517.964 | 2518.722 | 211 522.117 | 251 224.79 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2F$ | $^3/_2-^5/_2$ | W |
| UV23 | | | 2523.061 | 2523.820 | 214 169.920 | 253 792.40 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2P$ | $^1/_2-^3/_2$ | |
| UV23 | 7 | 2523.212 | 2523.214 | 2523.973 | 214 169.920 | 253 789.99 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2P$ | $^1/_2-^1/_2$ | W |
| UV23 | 11 | 2526.869 | 2526.872 | 2527.631 | 214 229.671 | 253 792.40 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2P$ | $^3/_2-^3/_2$ | W |
| UV23 | | | 2527.026 | 2527.785 | 214 229.671 | 253 789.99 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2P$ | $^3/_2-^1/_2$ | |
| UV21 | | | 2530.112 | 2530.873 | 211 712.732 | 251 224.79 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2F$ | $^5/_2-^5/_2$ | |
| UV21 | 13 | 2530.274 | 2530.279 | 2531.040 | 211 712.732 | 251 222.19 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2D^\circ-^2F$ | $^5/_2-^7/_2$ | W |
| UV22 | 11 | 2571.454 | 2571.457 | 2572.227 | 214 169.920 | 253 046.74 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2D$ | $^1/_2-^3/_2$ | W |
| UV22 | 13 | 2575.271 | 2575.277 | 2576.048 | 214 229.671 | 253 048.82 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| UV22 | | | 2575.415 | 2576.186 | 214 229.671 | 253 046.74 | $2s^22p^2(^3P)3p-2s^22p^2(^1D)3d$ | $^2P^\circ-^2D$ | $^3/_2-^3/_2$ | |
| UV19.09 | 8 | 2715.365 | 2715.360 | 2716.165 | 195 710.47 | 232 527.09 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2S-^2P^\circ$ | $^1/_2-^3/_2$ | W |
| UV19.09 | 6 | 2718.828 | 2718.805 | 2719.611 | 195 710.47 | 232 480.44 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2S-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| UV20 | 17 | 2733.289 | 2733.294 | 2734.103 | 203 942.288 | 240 517.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2S^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| UV20 | 15 | 2747.367 | 2747.367 | 2748.180 | 203 942.288 | 240 330.01 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2S^\circ-^2P$ | $^1/_2-^1/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wave-length (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| UV21.13 | 6 | 2783.026 | 2783.029 | 2783.850 | 212 593.82 | − 248 515.30 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^2P°$ | $^3/_2–^3/_2$ | W |
| UV21.13 | 2 | 2789.934 | 2789.933 | 2790.756 | 212 593.82 | − 248 426.41 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^2P°$ | $^3/_2–^1/_2$ | W |
| UV47 | 3 | 2796.644 | 2796.655 | 2797.480 | 240 517.35 | − 276 263.81 | $2s^22p^2(^3P)4s–2s^22p^2(^1D)4f\,P$ | $^2P–^2[1]°$ | $^3/_2–$ | W |
| UV21.13 | 1 | 2803.101 | 2803.109 | 2803.935 | 212 762.25 | − 248 426.41 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^2P°$ | $^1/_2–^1/_2$ | W |
| UV21.12 | 8 | 2808.729 | 2808.728 | 2809.555 | 212 593.82 | − 248 186.64 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^2D°$ | $^3/_2–^5/_2$ | W |
| UV21.12 | | | 2822.719 | 2823.550 | 212 593.82 | − 248 010.23 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^2D°$ | $^3/_2–^3/_2$ | |
| UV21.12 | 7 | 2836.220 | 2836.208 | 2837.042 | 212 762.25 | − 248 010.23 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^2D°$ | $^1/_2–^3/_2$ | W |
| UV42 | 9 | 2884.214 | 2884.221 | 2885.067 | 231 296.126 | − 265 957.37 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[2]°$ | $^3/_2–^3/_2$ | W |
| UV40 | 4 | 2884.778 | 2884.756 | 2885.602 | 231 350.087 | − 266 004.90 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[4]°$ | $^5/_2–^7/_2$ | W |
| UV41 | | | 2885.799 | 2886.646 | 231 350.087 | − 265 992.37 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[3]°$ | $^5/_2–^5/_2$ | |
| UV49 | 5w | 2887.964 | 2887.964? | 2888.811 | 251 222.19 | − 285 838.51? | $2s^22p^2(^1D)3d–2s^22p^2(^1D)5f\,G$ | $^2F–^2[4]°$ | $^7/_2–^9/_2$ | W |
| UV42 | | | 2888.203 | 2889.050 | 231 350.087 | − 265 963.54 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[2]°$ | $^5/_2–^5/_2$ | |
| UV40 | 6 | 2891.289 | 2891.254 | 2892.102 | 231 427.970 | − 266 004.90 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[4]°$ | $^7/_2–^7/_2$ | W |
| UV40 | 7 | 2891.684 | 2891.685 | 2892.533 | 231 427.970 | − 265 999.75 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[4]°$ | $^7/_2–^9/_2$ | W |
| UV41 | 3 | 2892.306 | 2892.302 | 2893.150 | 231 427.970 | − 265 992.37 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[3]°$ | $^7/_2–^5/_2$ | W |
| UV41 | | | 2892.307 | 2893.155 | 231 427.970 | − 265 992.31 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[3]°$ | $^7/_2–^7/_2$ | |
| UV39 | 8 | 2897.510 | 2897.505 | 2898.354 | 231 427.970 | − 265 930.31 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[5]°$ | $^7/_2–^9/_2$ | W |
| UV40 | | | 2899.832 | 2900.682 | 231 530.246 | − 266 004.90 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[4]°$ | $^9/_2–^7/_2$ | |
| UV40 | 7 | 2900.267 | 2900.265 | 2901.115 | 231 530.246 | − 265 999.75 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[4]°$ | $^9/_2–^9/_2$ | W |
| UV41 | | | 2900.891 | 2901.741 | 231 530.246 | − 265 992.31 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4F–^2[3]°$ | $^9/_2–^7/_2$ | |
| UV37 | 8 | 2904.245 | 2904.238 | 2905.089 | 231 296.126 | − 265 718.48 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[3]°$ | $^3/_2–^5/_2$ | W |
| UV38 | 8 | 2905.010 | 2905.004 | 2905.856 | 231 350.087 | − 265 763.36 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[4]°$ | $^5/_2–^7/_2$ | W |
| UV39 | | | 2906.120 | 2906.971 | 231 530.246 | − 265 930.31 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[5]°$ | $^9/_2–^9/_2$ | |
| UV39 | 13 | 2906.553 | 2906.553 | 2907.404 | 231 530.246 | − 265 925.19 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[5]°$ | $^9/_2–^{11}/_2$ | W |
| UV37 | 6 | 2908.643 | 2908.637 | 2909.489 | 231 350.087 | − 265 720.38 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[3]°$ | $^5/_2–^7/_2$ | W |
| UV37 | 3 | 2908.781 | 2908.798 | 2909.650 | 231 350.087 | − 265 718.48 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[3]°$ | $^5/_2–^5/_2$ | W |
| UV36 | 8 | 2911.130 | 2911.121 | 2911.973 | 231 296.126 | − 265 637.10 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,D$ | $^4F–^2[3]°$ | $^3/_2–^5/_2$ | W |
| UV38 | | | 2911.594 | 2912.447 | 231 427.970 | − 265 763.36 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[4]°$ | $^7/_2–^7/_2$ | |
| UV38 | 11 | 2911.769 | 2911.770 | 2912.622 | 231 427.970 | − 265 761.29 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[4]°$ | $^7/_2–^9/_2$ | W |
| UV37 | 2 | 2915.243 | 2915.244 | 2916.097 | 231 427.970 | − 265 720.38 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[3]°$ | $^7/_2–^7/_2$ | W |
| UV36 | 8 | 2915.578 | 2915.576 | 2916.429 | 231 350.087 | − 265 638.59 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,D$ | $^4F–^2[3]°$ | $^5/_2–^7/_2$ | W |
| UV36 | | | 2915.702 | 2916.556 | 231 350.087 | − 265 637.10 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,D$ | $^4F–^2[3]°$ | $^5/_2–^5/_2$ | |
| UV38 | | | 2920.470 | 2921.325 | 231 530.246 | − 265 761.29 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4F–^2[4]°$ | $^9/_2–^9/_2$ | |
| UV21.11 | 3 | 2964.169 | 2964.182 | 2965.048 | 212 593.82 | − 246 320.086 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^4P°$ | $^3/_2–^1/_2$ | W |
| UV48 | 4 | 2966.098 | 2966.088 | 2966.954 | 248 515.30 | − 282 219.90 | $2s^22p^2(^3P)4p–2s^22p^2(^1S)4s$ | $^2P°–^2S$ | $^3/_2–^1/_2$ | W |
| UV46 | 4 | 2972.769 | 2972.745 | 2973.613 | 232 959.210 | − 266 588.33 | $2s^22p^2(^3P)3d–2s^22p^2(^1D)4p$ | $^2F–^2F°$ | $^7/_2–^7/_2$ | W |
| UV21.11 | 5 | 2979.049 | 2979.061 | 2979.930 | 212 762.25 | − 246 320.086 | $2s2p^4–2s^22p^2(^3P)4p$ | $^2P–^4P°$ | $^1/_2–^1/_2$ | W |
| UV44 | 3 | 2980.449 | 2980.451 | 2981.321 | 232 462.724 | − 266 004.90 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4P–^2[4]°$ | $^5/_2–^7/_2$ | W |
| UV43 | 4 | 2990.673 | 2990.668 | 2991.541 | 232 535.949 | − 265 963.54 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4P–^2[2]°$ | $^3/_2–^5/_2$ | W |
| UV43 | | | 2991.221 | 2992.093 | 232 535.949 | − 265 957.37 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4P–^2[2]°$ | $^3/_2–^3/_2$ | |
| UV50 | 7w | 2995.871 | 2995.810? | 2996.745 | 252 608.28 | − 285 978.5? | $2s^22p^2(^1D)3d–2s^22p^2(^1D)5f\,H$ | $^2G–^2[5]°$ | $^9/_2–$ | W |
| UV50 | | | 2995.916? | 2996.745 | 252 609.46 | − 285 978.5? | $2s^22p^2(^1D)3d–2s^22p^2(^1D)5f\,H$ | $^2G–^2[5]°$ | $^7/_2–^9/_2$ | |
| 56.03 | | | 2996.937 | 2997.811 | 232 535.949 | − 265 893.62 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,D$ | $^4P–^2[1]°$ | $^3/_2–^3/_2$ | |
| UV43 | | | 2997.188 | 2998.062 | 232 602.492 | − 265 957.37 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4P–^2[2]°$ | $^1/_2–^3/_2$ | |
| 56.01 | 5 | 3001.696 | 3001.693 | 3002.568 | 232 462.724 | − 265 767.55 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,D$ | $^4P–^2[2]°$ | $^5/_2–^5/_2$ | W |
| 56.03 | 8 | 3002.977 | 3002.978 | 3003.854 | 232 602.492 | − 265 893.06 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,D$ | $^4P–^2[1]°$ | $^1/_2–^1/_2$ | W |
| 56.02 | 10 | 3005.958 | 3005.950 | 3006.826 | 232 462.724 | − 265 720.38 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4P–^2[3]°$ | $^5/_2–^7/_2$ | W |
| 74.01 | 10 | 3005.958 | 3005.979 | 3006.855 | 232 747.562 | − 266 004.90 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4D–^2[4]°$ | $^5/_2–^7/_2$ | W |
| 56.02 | | | 3006.122 | 3006.998 | 232 462.724 | − 265 718.48 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,G$ | $^4P–^2[3]°$ | $^5/_2–^5/_2$ | |
| 74.01 | 5 | 3006.565 | 3006.544 | 3007.421 | 232 753.816 | − 266 004.90 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4D–^2[4]°$ | $^7/_2–^7/_2$ | W |
| 74.01 | 14bl | 3007.035 | 3007.010 | 3007.887 | 232 753.816 | − 265 999.75 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4D–^2[4]°$ | $^7/_2–^9/_2$ | W |
| 73.03 | | | 3007.029 | 3007.905 | 232 711.642 | − 265 957.37 | $2s^22p^2(^3P)3d–2s^22p^2(^3P)5f\,F$ | $^4D–^2[2]°$ | $^1/_2–^3/_2$ | |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 74 | | | 3007.112 | 3007.988 | 232 747.562 | 265 992.37 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^5/_2-^5/_2$ | |
| 74 | | | 3007.118 | 3007.994 | 232 747.562 | 265 992.31 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^5/_2-^7/_2$ | |
| 74 | 7 | 3007.681 | 3007.678 | 3008.554 | 232 753.816 | 265 992.37 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^7/_2-^5/_2$ | W |
| 74 | | | 3007.683 | 3008.560 | 232 753.816 | 265 992.31 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^7/_2-^7/_2$ | |
| 56.01 | 9 | 3008.318 | 3008.307 | 3009.184 | 232 535.949 | 265 767.55 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4P-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 56.01 | '' | | 3008.422 | 3009.299 | 232 535.949 | 265 766.28 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4P-^2[2]°$ | $^3/_2-^3/_2$ | |
| 73.03 | 7 | 3009.570 | 3009.579 | 3010.456 | 232 745.981 | 265 963.54 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 73.03 | | | 3009.722 | 3010.599 | 232 747.562 | 265 963.54 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[2]°$ | $^5/_2-^5/_2$ | |
| 73.03 | | | 3010.138 | 3011.015 | 232 745.981 | 265 957.37 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^4D-^2[2]°$ | $^3/_2-^3/_2$ | |
| 83.01 | 9 | 3011.534 | 3011.527 | 3012.405 | 232 796.298 | 265 992.37 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[3]°$ | $^5/_2-^5/_2$ | W |
| 83.01 | | | 3011.533 | 3012.410 | 232 796.298 | 265 992.31 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[3]°$ | $^5/_2-^7/_2$ | |
| 56.02 | | | 3012.756 | 3013.634 | 232 535.949 | 265 718.48 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4P-^2[3]°$ | $^3/_2-^5/_2$ | |
| 73.02 | 8 | 3012.825 | 3012.806 | 3013.684 | 232 711.642 | 265 893.62 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[1]°$ | $^1/_2-^3/_2$ | W |
| 73.02 | | | 3012.857 | 3013.735 | 232 711.642 | 265 893.06 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[1]°$ | $^1/_2-^1/_2$ | |
| 56 | 11 | 3013.357 | 3013.361 | 3014.239 | 232 462.724 | 265 638.59 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4P-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 56 | | | 3013.497 | 3014.375 | 232 462.724 | 265 637.10 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4P-^2[3]°$ | $^5/_2-^5/_2$ | |
| 84.01 | 7 | 3014.158 | 3014.145 | 3015.023 | 232 796.298 | 265 963.54 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[2]°$ | $^5/_2-^5/_2$ | W |
| 56.01 | 8 | 3014.469 | 3014.459 | 3015.337 | 232 602.492 | 265 766.28 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4P-^2[2]°$ | $^1/_2-^3/_2$ | W |
| 73.02 | | | 3015.928 | 3016.806 | 232 745.981 | 265 893.62 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[1]°$ | $^3/_2-^3/_2$ | |
| 73.02 | 7 | 3015.974 | 3015.978 | 3016.857 | 232 745.981 | 265 893.06 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[1]°$ | $^3/_2-^1/_2$ | W |
| 56 | 5 | 3020.173 | 3020.163 | 3021.043 | 232 535.949 | 265 637.10 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4P-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 84 | 7 | 3025.218 | 3025.232 | 3026.113 | 232 959.210 | 266 004.90 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[4]°$ | $^7/_2-^7/_2$ | W |
| 84 | 9 | 3025.705 | 3025.704 | 3026.585 | 232 959.210 | 265 999.75 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[4]°$ | $^7/_2-^9/_2$ | W |
| 83.01 | 1w | 3026.383 | 3026.380 | 3027.261 | 232 959.210 | 265 992.37 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[3]°$ | $^7/_2-^5/_2$ | W |
| 83.01 | | | 3026.385 | 3027.267 | 232 959.210 | 265 992.31 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ F | $^2F-^2[3]°$ | $^7/_2-^7/_2$ | |
| 73.01 | 1 | 3027.577 | 3027.559 | 3028.440 | 232 745.981 | 265 766.28 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[2]°$ | $^3/_2-^3/_2$ | W |
| 73.01 | | | 3027.587 | 3028.469 | 232 747.562 | 265 767.55 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[2]°$ | $^5/_2-^5/_2$ | |
| 73 | 7 | 3027.976 | 3027.971 | 3028.853 | 232 747.562 | 265 763.36 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 73 | | | 3028.545 | 3029.427 | 232 753.816 | 265 763.36 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[4]°$ | $^7/_2-^7/_2$ | |
| 73 | 9 | 3028.736 | 3028.735 | 3029.617 | 232 753.816 | 265 761.29 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[4]°$ | $^7/_2-^9/_2$ | W |
| 72.01 | 3 | 3031.929 | 3031.919 | 3032.801 | 232 747.562 | 265 720.38 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 72.01 | | | 3031.948 | 3032.830 | 232 745.981 | 265 718.48 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[3]°$ | $^3/_2-^5/_2$ | |
| 81.02 | | | 3032.063 | 3032.945 | 232 796.298 | 265 767.55 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2F-^2[2]°$ | $^5/_2-^5/_2$ | |
| 83 | 12 | 3032.084 | 3032.077 | 3032.959 | 232 959.210 | 265 930.31 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^2F-^2[5]°$ | $^7/_2-^9/_2$ | W |
| 72.01 | | | 3032.093 | 3032.976 | 232 747.562 | 265 718.48 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[3]°$ | $^5/_2-^5/_2$ | |
| 82 | 9 | 3032.458 | 3032.448 | 3033.331 | 232 796.298 | 265 763.36 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^2F-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 72.01 | | | 3032.494 | 3033.376 | 232 753.816 | 265 720.38 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^4D-^2[3]°$ | $^7/_2-^7/_2$ | |
| 81.03 | 7 | 3036.402 | 3036.407 | 3037.290 | 232 796.298 | 265 720.38 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ G | $^2F-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 72 | 8 | 3039.461 | 3039.450 | 3040.334 | 232 745.981 | 265 637.10 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[9]°$ | $^3/_2-^5/_2$ | W |
| 72 | | | 3039.458 | 3040.343 | 232 747.562 | 265 638.59 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[3]°$ | $^5/_2-^7/_2$ | |
| 72 | | | 3039.596 | 3040.481 | 232 747.562 | 265 637.10 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[3]°$ | $^5/_2-^5/_2$ | |
| 72 | | | 3040.036 | 3040.921 | 232 753.816 | 265 638.59 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^4D-^2[3]°$ | $^7/_2-^7/_2$ | |
| 81.01 | 2 | 3043.991 | 3043.969 | 3044.854 | 232 796.298 | 265 638.59 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2F-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 103.02 | 4w | 3046.693 | 3046.694? | 3047.580 | 253 048.82 | 285 861.74? | $2s^2 2p^2(^1D)3d-2s^2 2p^2(^1D)5f$ F | $^2D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 81.02 | 13bl | 3047.115 | 3047.119 | 3048.005 | 232 959.210 | 265 767.55 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2F-^2[2]°$ | $^7/_2-^5/_2$ | W |
| 81.01 | 10bl | 3059.293 | 3059.284 | 3060.173 | 232 959.210 | 265 637.10 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2F-^2[3]°$ | $^7/_2-^7/_2$ | W |
| 31.04 | 9 | 3081.391 | 3081.389 | 3082.284 | 212 593.82 | 245 037.29 | $2s2p^4-2s^2 2p^2(^3P)4p$ | $^2P-^2S°$ | $^3/_2-^1/_2$ | W |
| 88.10 | 10 | 3090.376 | 3090.386 | 3091.283 | 233 544.59 | 265 893.62 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2P-^2[1]°$ | $^1/_2-^3/_2$ | W |
| 88.09 | 8 | 3091.536 | 3091.533 | 3092.431 | 233 430.53 | 265 767.55 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2P-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 31.04 | 9 | 3097.477 | 3097.471 | 3098.370 | 212 762.25 | 245 037.29 | $2s2p^4-2s^2 2p^2(^3P)4p$ | $^2P-^2S°$ | $^1/_2-^1/_2$ | W |
| 88.09 | 3 | 3102.588 | 3102.599 | 3103.500 | 233 544.59 | 265 766.28 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2P-^2[2]°$ | $^1/_2-^3/_2$ | W |
| 88.08 | 8 | 3104.049 | 3104.056 | 3104.957 | 233 430.53 | 265 637.10 | $2s^2 2p^2(^3P)3d-2s^2 2p^2(^3P)5f$ D | $^2P-^2[3]°$ | $^3/_2-^5/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 104.01 | 3w | 3107.846 | 3107.846? | 3108.748 | 253 792.40 | − 285 959.69? | $2s^22p^2(^1D)3d-2s^22p^2(^1D)5f$ D | $^2P-^2[2]^\circ$ | $^3/_2-^5/_2$ | W |
| 14 | 11 | 3113.611 | 3113.617 | 3114.520 | 206 786.286 | − 238 893.96 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| 14 | 17 | 3122.521 | 3122.524 | 3123.429 | 206 877.865 | − 238 893.96 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^5/_2-^5/_2$ | W |
| 14 | 13 | 3123.921 | 3123.910 | 3124.816 | 206 730.762 | − 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^1/_2-^3/_2$ | W |
| 14 | 17 | 3129.334 | 3129.340 | 3130.247 | 206 786.286 | − 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| 14 | 17 | 3134.218 | 3134.213 | 3135.121 | 206 730.762 | − 238 627.46 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^1/_2-^1/_2$ | W |
| 14 | 22 | 3134.720 | 3134.726 | 3135.634 | 207 002.482 | − 238 893.96 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^7/_2-^5/_2$ | W |
| 14 | 19 | 3138.335 | 3138.337 | 3139.246 | 206 877.865 | − 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^5/_2-^3/_2$ | W |
| 14 | 17 | 3139.680 | 3139.678 | 3140.588 | 206 786.286 | − 238 627.46 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4D^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| 44.03 | 3 | 3147.827 | 3147.842 | 3148.753 | 230 609.45 | − 262 368.05 | $2s^22p^2(^1S)3s-2s^22p^2(^3P)5p$ | $^2S-^2P^\circ$ | $^1/_2-^3/_2$ | W |
| 44.03 | 1w | 3155.906 | 3155.914 | 3156.828 | 230 609.45 | − 262 286.82 | $2s^22p^2(^1S)3s-2s^22p^2(^3P)5p$ | $^2S-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| 93.10 | 9 | 3167.571 | 3167.577 | 3168.493 | 234 402.797 | − 265 963.54 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ F | $^2D-^2[2]^\circ$ | $^3/_2-^5/_2$ | W |
| 93.09 | 13 | 3168.634 | 3168.628 | 3169.545 | 234 454.634 | − 266 004.90 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ F | $^2D-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 93.08 | 7 | 3169.865 | 3169.887 | 3170.805 | 234 454.634 | − 265 992.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ F | $^2D-^2[3]^\circ$ | $^5/_2-^5/_2$ | W |
| 93.08 | | | 3169.893 | 3170.811 | 234 454.634 | − 265 992.31 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ F | $^2D-^2[3]^\circ$ | $^5/_2-^7/_2$ | |
| 93.07 | 4w | 3187.369 | 3187.371 | 3188.292 | 234 402.797 | − 265 767.55 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ D | $^2D-^2[2]^\circ$ | $^3/_2-^5/_2$ | W |
| 93.05 | 3 | 3192.358 | 3192.365 | 3193.288 | 234 402.797 | − 265 718.48 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ G | $^2D-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| 93.06 | 3 | 3193.061 | 3193.075 | 3193.998 | 234 454.634 | − 265 763.36 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ G | $^2D-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 93.05 | 1w | 3197.646 | 3197.659 | 3198.583 | 234 454.634 | − 265 718.48 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ G | $^2D-^2[3]^\circ$ | $^5/_2-^5/_2$ | W |
| 93.04 | 3 | 3200.688 | 3200.683 | 3201.608 | 234 402.797 | − 265 637.10 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5f$ D | $^2D-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| 107 | 10 | 3215.877 | 3215.866 | 3216.795 | 267 768.20+x − | 298 855.04+x | $2s2p^3(^5S^\circ)3p-2s2p^3(^5S^\circ)4s$ | $^6P-^6S^\circ$ | $^3/_2-^5/_2$ | W |
| 107 | 11 | 3216.618 | 3216.620 | 3217.549 | 267 775.48+x − | 298 855.04+x | $2s2p^3(^5S^\circ)3p-2s2p^3(^5S^\circ)4s$ | $^6P-^6S^\circ$ | $^5/_2-^5/_2$ | W |
| 107 | 12 | 3217.915 | 3217.925 | 3218.855 | 267 788.09+x − | 298 855.04+x | $2s2p^3(^5S^\circ)3p-2s2p^3(^5S^\circ)4s$ | $^6P-^6S^\circ$ | $^7/_2-^5/_2$ | W |
| 39 | 16 | 3270.855 | 3270.856 | 3271.798 | 228 723.84 | − 259 288.07 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2F^\circ-^2D$ | $^5/_2-^3/_2$ | W |
| 39 | | | 3270.905 | 3271.848 | 228 723.84 | − 259 287.61 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2F^\circ-^2D$ | $^5/_2-^5/_2$ | |
| 39 | 17 | 3273.437 | 3273.434 | 3274.377 | 228 747.45 | − 259 287.61 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2F^\circ-^2D$ | $^7/_2-^5/_2$ | W |
| 52.01 | 1 | 3275.622 | 3275.612 | 3276.556 | 231 350.087 | − 261 869.94 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 23 | 17 | 3277.566 | 3277.561 | 3278.506 | 208 392.258 | − 238 893.96 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| 105.01 | 3w | 3285.016 | 3285.016? | 3285.963 | 255 622.80 | − 286 055.28? | $2s^22p^2(^1D)3d-2s^22p^2(^1D)5f$ P | $^2S-^2[1]^\circ$ | $^1/_2-^3/_2$ | W |
| 23 | 21 | 3287.472 | 3287.471 | 3288.418 | 208 484.202 | − 238 893.96 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^5/_2-^5/_2$ | W |
| 23 | 17 | 3289.981 | 3289.982 | 3290.930 | 208 346.104 | − 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^1/_2-^3/_2$ | W |
| 23 | 14 | 3294.992 | 3294.987 | 3295.936 | 208 392.258 | − 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| 23 | 10 | 3301.407 | 3301.411 | 3302.362 | 208 346.104 | − 238 627.46 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^1/_2-^1/_2$ | W |
| 23 | 17 | 3305.005 | 3305.003 | 3305.955 | 208 484.202 | − 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^5/_2-^3/_2$ | W |
| 23 | 17 | 3306.449 | 3306.451 | 3307.403 | 208 392.258 | − 238 627.46 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4P^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| 52 | | | 3351.310 | 3352.273 | 231 350.087 | − 261 180.59 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^5/_2-^7/_2$ | |
| 52 | 3 | 3360.105 | 3360.083 | 3361.049 | 231 427.970 | − 261 180.59 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^7/_2-^7/_2$ | W |
| 55.08 | 2 | 3360.279 | 3360.281 | 3361.246 | 232 535.949 | − 262 286.82 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^2P^\circ$ | $^3/_2-^1/_2$ | W |
| 52 | | | 3360.616 | 3361.581 | 231 296.126 | − 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^3/_2-^5/_2$ | |
| 52 | 1w | 3366.706 | 3366.723 | 3367.690 | 231 350.087 | − 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^5/_2-^5/_2$ | W |
| 52 | 6 | 3370.279 | 3370.293 | 3371.261 | 231 296.126 | − 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^3/_2-^3/_2$ | W |
| 52 | 9 | 3371.683 | 3371.674 | 3372.642 | 231 530.246 | − 261 180.59 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^9/_2-^7/_2$ | W |
| 96 | 1 | 3374.077 | 3374.066 | 3375.035 | 248 515.30 | − 278 144.62 | $2s^22p^2(^3P)4p-2s^22p^2(^1D)5s$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| 71.01 | 1 | 3374.899 | 3374.892 | 3375.861 | 232 745.981 | − 262 368.05 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| 52 | 3 | 3375.582 | 3375.577 | 3376.546 | 231 427.970 | − 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^7/_2-^5/_2$ | W |
| 52 | 2 | 3375.606 | 3375.603 | 3376.572 | 231 296.126 | − 260 911.96 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^3/_2-^1/_2$ | W |
| 52 | 3 | 3376.436 | 3376.435 | 3377.405 | 231 350.087 | − 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4F-^4D^\circ$ | $^5/_2-^3/_2$ | W |
| 9 | 21 | 3377.146 | 3377.146 | 3378.116 | 203 942.288 | − 233 544.59 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2S^\circ-^2P$ | $^1/_2-^1/_2$ | W |
| 9 | 23 | 3390.209 | 3390.209 | 3391.182 | 203 942.288 | − 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2S^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| 44 | | | 3407.223 | 3408.200 | 229 947.07 | − 259 288.07 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^5/_2-^3/_2$ | |
| 44 | 17 | 3407.273 | 3407.276 | 3408.254 | 229 947.07 | − 259 287.61 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^5/_2-^5/_2$ | W |
| 44 | 16 | 3409.710 | 3409.706 | 3410.684 | 229 968.44 | − 259 288.07 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^3/_2-^3/_2$ | W |
| 44 | | | 3409.760 | 3410.738 | 229 968.44 | − 259 287.61 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2D^\circ-^2D$ | $^3/_2-^5/_2$ | |
| 101.03 | 6 | 3419.841 | 3419.849 | 3420.830 | 252 987.23 | − 282 219.90 | $2s^22p^2(^1S)3p-2s^22p^2(^1S)4s$ | $^2P^\circ-^2S$ | $^1/_2-^1/_2$ | W |
| 101.03 | 7 | 3420.571 | 3420.570 | 3421.551 | 252 993.39 | − 282 219.90 | $2s^22p^2(^1S)3p-2s^22p^2(^1S)4s$ | $^2P^\circ-^2S$ | $^3/_2-^1/_2$ | W |

### Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 55.07 | 2 | 3428.509 | 3428.509 | 3429.492 | 232 462.724 | 261 621.56 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4S^\circ$ | $^5/_2-^3/_2$ | W |
| 55.07 | 8 | 3437.144 | 3437.141 | 3438.126 | 232 535.949 | 261 621.56 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4S^\circ$ | $^3/_2-^3/_2$ | W |
| 55.07 | | | 3445.023 | 3446.010 | 232 602.492 | 261 621.56 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4S^\circ$ | $^1/_2-^3/_2$ | |
| 27 | 15bl | 3447.861 | 3447.855 | 3448.843 | 211 522.117 | 240 517.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2D^\circ-^2P$ | $^3/_2-^3/_2$ | W |
| 71 | 4 | 3453.094 | 3453.100 | 3454.090 | 232 747.562 | 261 698.75 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^2D^\circ$ | $^5/_2-^3/_2$ | W |
| 88.07 | 6 | 3454.736 | 3454.731 | 3455.721 | 233 430.53 | 262 368.05 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| 3.01 | 9bl | 3455.085 | 3455.0754 | 3456.0652 | 185 235.281 | 214 169.920 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| 81 | 10 | 3457.920 | 3457.933 | 3458.923 | 232 959.210 | 261 869.94 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2F-^2D^\circ$ | $^7/_2-^5/_2$ | W |
| 81 | 8 | 3458.936 | 3458.923 | 3459.914 | 232 796.298 | 261 698.75 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2F-^2D^\circ$ | $^5/_2-^3/_2$ | W |
| 55.06 | 8 | 3459.988 | 3460.019 | 3461.010 | 232 462.724 | 261 356.02 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^5/_2-^5/_2$ | W |
| 88.07 | 4 | 3468.421 | 3468.403 | 3469.396 | 233 544.59 | 262 368.05 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^2P^\circ$ | $^1/_2-^3/_2$ | W |
| 55.06 | | | 3468.811 | 3469.804 | 232 535.949 | 261 356.02 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^3/_2-^5/_2$ | |
| 27 | 20 | 3470.281 | 3470.277 | 3471.271 | 211 522.117 | 240 330.01 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2D^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| 27 | 21 | 3470.676 | 3470.672 | 3471.666 | 211 712.732 | 240 517.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2D^\circ-^2P$ | $^5/_2-^3/_2$ | W |
| 55.06 | 6 | 3471.402 | 3471.401 | 3472.395 | 232 462.724 | 261 261.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^5/_2-^3/_2$ | W |
| 8 | 5 | 3474.926 | 3474.926 | 3475.921 | 203 942.288 | 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2S^\circ-^4D$ | $^1/_2-^1/_2$ | W |
| 88.07 | 3 | 3478.219 | 3478.205 | 3479.201 | 233 544.59 | 262 286.82 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| 55.06 | | | 3480.250 | 3481.247 | 232 535.949 | 261 261.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^3/_2-^3/_2$ | |
| 55.05 | | | 3481.156 | 3482.153 | 232 462.724 | 261 180.59 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^5/_2-^7/_2$ | |
| 55.06 | | | 3485.932 | 3486.930 | 232 535.949 | 261 214.47 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^3/_2-^1/_2$ | |
| 7 | 4 | 3488.173 | 3488.160 | 3489.159 | 203 942.288 | 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2S^\circ-^4P$ | $^1/_2-^1/_2$ | W |
| 43.02 | 6 | 3488.258 | 3488.273 | 3489.271 | 229 947.07 | 258 606.35 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^2P$ | $^5/_2-^3/_2$ | W |
| 55.06 | | | 3488.332 | 3489.330 | 232 602.492 | 261 261.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^1/_2-^3/_2$ | |
| 43.02 | | | 3490.876 | 3491.875 | 229 968.44 | 258 606.35 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^2P$ | $^3/_2-^3/_2$ | |
| 55.06 | | | 3494.040 | 3495.040 | 232 602.492 | 261 214.47 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4P^\circ$ | $^1/_2-^1/_2$ | |
| 70 | | | 3494.277 | 3495.277 | 232 745.981 | 261 356.02 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^3/_2-^5/_2$ | |
| 70 | 6 | 3494.490 | 3494.470 | 3495.470 | 232 747.562 | 261 356.02 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^5/_2-^5/_2$ | W |
| 70 | 8 | 3495.235 | 3495.234 | 3496.234 | 232 753.816 | 261 356.02 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^7/_2-^5/_2$ | W |
| 7 | 8 | 3496.276 | 3496.278 | 3497.279 | 203 942.288 | 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2S^\circ-^4P$ | $^1/_2-^3/_2$ | W |
| 55.05 | 3 | 3497.771 | 3497.790 | 3498.790 | 232 462.724 | 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^5/_2-^5/_2$ | W |
| 70 | 4 | 3501.669 | 3501.668 | 3502.670 | 232 711.642 | 261 261.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^1/_2-^3/_2$ | W |
| 70 | 6 | 3505.839 | 3505.885 | 3506.888 | 232 745.981 | 261 261.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^3/_2-^3/_2$ | W |
| 70 | | | 3506.080 | 3507.083 | 232 747.562 | 261 261.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^5/_2-^3/_2$ | |
| 55.05 | | | 3506.774 | 3507.777 | 232 535.949 | 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^3/_2-^5/_2$ | |
| 70 | 3 | 3507.416 | 3507.421 | 3508.424 | 232 711.642 | 261 214.47 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^1/_2-^1/_2$ | W |
| 55.05 | | | 3508.274 | 3509.277 | 232 462.724 | 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^5/_2-^3/_2$ | |
| 70 | 5 | 3511.655 | 3511.651 | 3512.656 | 232 745.981 | 261 214.47 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4P^\circ$ | $^3/_2-^1/_2$ | W |
| 43.02 | 2 | 3514.823 | 3514.821 | 3515.826 | 229 968.44 | 258 411.26 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| 69 | 3 | 3516.027 | 3516.031 | 3517.037 | 232 747.562 | 261 180.59 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^5/_2-^7/_2$ | W |
| 69 | 4 | 3516.794 | 3516.805 | 3517.810 | 232 753.816 | 261 180.59 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^7/_2-^7/_2$ | W |
| 55.05 | 1 | 3517.307 | 3517.312 | 3518.318 | 232 535.949 | 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^3/_2-^3/_2$ | W |
| 55.05 | | | 3523.096 | 3524.104 | 232 535.949 | 260 911.96 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^3/_2-^1/_2$ | |
| 55.05 | | | 3525.567 | 3526.575 | 232 602.492 | 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^1/_2-^3/_2$ | |
| 55.05 | | | 3531.378 | 3532.387 | 232 602.492 | 260 911.96 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4P-^4D^\circ$ | $^1/_2-^1/_2$ | |
| 69 | | | 3532.803 | 3533.813 | 232 745.981 | 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^3/_2-^5/_2$ | |
| 69 | 2 | 3533.004 | 3533.000 | 3534.010 | 232 747.562 | 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^5/_2-^5/_2$ | W |
| 69 | | | 3533.781 | 3534.791 | 232 753.816 | 261 044.03 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^7/_2-^5/_2$ | |
| 69 | 1 | 3539.200 | 3539.190 | 3540.202 | 232 711.642 | 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^1/_2-^3/_2$ | W |
| 69 | 2 | 3543.499 | 3543.498 | 3544.511 | 232 745.981 | 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^3/_2-^3/_2$ | W |
| 69 | | | 3543.697 | 3544.709 | 232 747.562 | 260 958.62 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^5/_2-^3/_2$ | |
| 69 | 1 | 3545.044 | 3545.046 | 3546.059 | 232 711.642 | 260 911.96 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^1/_2-^1/_2$ | W |
| 88.06 | 1bl | 3546.212 | 3546.214 | 3547.228 | 233 430.53 | 261 621.56 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^4S^\circ$ | $^3/_2-^3/_2$ | W |
| 31.01 | 3 | 3549.091 | 3549.098 | 3550.112 | 212 161.881 | 240 330.01 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4S^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| 69 | | | 3549.368 | 3550.383 | 232 745.981 | 260 911.96 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^4D-^4D^\circ$ | $^3/_2-^1/_2$ | |
| 88.05 | 1 | 3550.857 | 3550.859 | 3551.873 | 233 544.59 | 261 698.75 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^2D^\circ$ | $^1/_2-^3/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 93.20 | 2 | 3566.568 | 3566.569 | 3567.587 | 240 517.35 | 268 547.50 | $2s^22p^2(^3P)4s-2s^22p^2(^3P)6p$ | $^2P-^4D^\circ$ | $^3/_2-^5/_2$ | W |
| 93.03 | 3 | 3574.838 | 3574.845 | 3575.866 | 234 402.797 | 262 368.05 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2D-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| 93.03 | 4 | 3581.487 | 3581.484 | 3582.507 | 234 454.634 | 262 368.05 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2D-^2P^\circ$ | $^5/_2-^3/_2$ | W |
| 93.14 | 3 | 3605.124 | 3605.127 | 3606.156 | 238 893.96 | 266 624.32 | $2s^22p^2(^3P)4s-2s^22p^2(^1D)4p$ | $^4P-^2D^\circ$ | $^5/_2-^3/_2$ | W |
| 43.01 | 2 | 3605.530 | 3605.525 | 3606.554 | 229 968.44 | 257 695.74 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)5s$ | $^2D^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| 93.02 | 3 | 3646.560 | 3646.558 | 3647.597 | 234 454.634 | 261 869.94 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 93.02 | 1 | 3662.502 | 3662.504 | 3663.547 | 234 402.797 | 261 698.75 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^3/_2-^3/_2$ | W |
| 88.04 | 3 | 3667.903 | 3667.907 | 3668.952 | 233 430.53 | 260 686.27 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^2S^\circ$ | $^3/_2-^1/_2$ | W |
| 93.02 | 3 | 3669.472 | 3669.472 | 3670.517 | 234 454.634 | 261 698.75 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2D-^2D^\circ$ | $^5/_2-^3/_2$ | W |
| 88.04 | 1 | 3683.326 | 3683.322 | 3684.370 | 233 544.59 | 260 686.27 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)5p$ | $^2P-^2S^\circ$ | $^1/_2-^1/_2$ | W |
| 3 | 25 | 3712.741 | 3712.744 | 3713.800 | 185 235.281 | 212 161.881 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4S^\circ$ | $^1/_2-^3/_2$ | W |
| 1F | M1 | 3726.04 | 3726.032 | 3727.092 | 0.00 | 26 830.57 | $2s^22p^3-2s^22p^3$ | $^4S^\circ-^2D^\circ$ | $^3/_2-^3/_2$ | B2 |
| 3 | 27 | 3727.320 | 3727.319 | 3728.380 | 185 340.577 | 212 161.881 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4S^\circ$ | $^3/_2-^3/_2$ | W |
| 1F | E2 | 3728.80 | 3728.815 | 3729.875 | 0.00 | 26 810.55 | $2s^22p^3-2s^22p^3$ | $^4S^\circ-^2D^\circ$ | $^3/_2-^5/_2$ | B2 |
| 62 | 14 | 3729.225 | 3729.221 | 3730.281 | 232 480.44 | 259 288.07 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2P^\circ-^2D$ | $^1/_2-^3/_2$ | W |
| 62 | | | 3735.722 | 3736.784 | 232 527.09 | 259 288.07 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2P^\circ-^2D$ | $^3/_2-^3/_2$ | |
| 62 | 15 | 3735.784 | 3735.786 | 3736.848 | 232 527.09 | 259 287.61 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)4s$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| 38 | | | 3738.337 | 3739.400 | 228 723.84 | 255 466.10 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2F^\circ-^2F$ | $^5/_2-^7/_2$ | |
| 31 | 20 | 3739.762 | 3739.761 | 3740.824 | 212 161.881 | 238 893.96 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4S^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| 38 | 11 | 3741.639 | 3741.640 | 3742.704 | 228 747.45 | 255 466.10 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2F^\circ-^2F$ | $^7/_2-^7/_2$ | W |
| 6.02 | 6 | 3748.880 | 3748.865 | 3749.930 | 203 942.288 | 230 609.45 | $2s^22p^2(^3P)3p-2s^22p^2(^1S)3s$ | $^2S^\circ-^2S$ | $^1/_2-^1/_2$ | W |
| 3 | 30 | 3749.486 | 3749.484 | 3750.550 | 185 499.124 | 212 161.881 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4S^\circ$ | $^5/_2-^3/_2$ | W |
| 38 | 9 | 3761.400 | 3761.403 | 3762.472 | 228 723.84 | 255 302.11 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2F^\circ-^2F$ | $^5/_2-^5/_2$ | W |
| 31 | 19 | 3762.465 | 3762.465 | 3763.534 | 212 161.881 | 238 732.65 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4S^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| 38 | | | 3764.748 | 3765.817 | 228 747.45 | 255 302.11 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2F^\circ-^2F$ | $^7/_2-^5/_2$ | |
| 31 | 16 | 3777.421 | 3777.420 | 3778.493 | 212 161.881 | 238 627.46 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^4S^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| 34 | 14 | 3794.361 | 3794.359 | 3795.437 | 214 169.920 | 240 517.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2P^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| 93.19 | 4 | 3802.032 | 3802.025 | 3803.104 | 240 330.01 | 266 624.32 | $2s^22p^2(^3P)4s-2s^22p^2(^1D)4p$ | $^2P-^2D^\circ$ | $^1/_2-^3/_2$ | W |
| 34 | 19 | 3802.985 | 3802.984 | 3804.063 | 214 229.671 | 240 517.35 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2P^\circ-^2P$ | $^3/_2-^3/_2$ | W |
| 2.01 | 6 | 3813.706 | 3813.730 | 3814.813 | 185 499.124 | 211 712.732 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 34 | 15 | 3821.538 | 3821.532 | 3822.617 | 214 169.920 | 240 330.01 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2P^\circ-^2P$ | $^1/_2-^1/_2$ | W |
| 34 | 13 | 3830.290 | 3830.281 | 3831.368 | 214 229.671 | 240 330.01 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)4s$ | $^2P^\circ-^2P$ | $^3/_2-^1/_2$ | W |
| 13 | 12 | 3833.074 | 3833.0706 | 3834.1581 | 206 877.865 | 232 959.210 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^2F$ | $^5/_2-^7/_2$ | W |
| 22.01 | 4 | 3835.855 | 3835.861 | 3836.949 | 208 392.258 | 234 454.634 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| 12 | 15 | 3842.815 | 3842.8138 | 3843.9038 | 206 730.762 | 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^1/_2-^3/_2$ | W |
| 13 | 14 | 3843.587 | 3843.5832 | 3844.6734 | 206 786.286 | 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^2F$ | $^3/_2-^5/_2$ | W |
| 12 | 14 | 3847.892 | 3847.8930 | 3848.9843 | 206 730.762 | 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^1/_2-^1/_2$ | W |
| 12 | 14 | 3850.797 | 3850.7987 | 3851.8908 | 206 786.286 | 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^3/_2-^5/_2$ | W |
| 12 | 17 | 3851.032 | 3851.0332 | 3852.1254 | 206 786.286 | 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^3/_2-^3/_2$ | W |
| 13 | 15 | 3851.471 | 3851.4735 | 3852.5657 | 207 002.482 | 232 959.210 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^2F$ | $^7/_2-^7/_2$ | W |
| 43 | 9 | 3852.383 | 3852.395 | 3853.487 | 229 947.07 | 255 897.59 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2D$ | $^5/_2-^5/_2$ | W |
| 43 | | | 3855.570 | 3856.663 | 229 968.44 | 255 897.59 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2D$ | $^3/_2-^5/_2$ | |
| 12 | 16 | 3856.134 | 3856.1342 | 3857.2276 | 206 786.286 | 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^3/_2-^1/_2$ | W |
| 13 | 17 | 3857.166 | 3857.1642 | 3858.2579 | 206 877.865 | 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^2F$ | $^5/_2-^5/_2$ | W |
| 43 | | | 3860.530 | 3861.624 | 229 947.07 | 255 842.91 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2D$ | $^5/_2-^3/_2$ | |
| 12 | 17 | 3863.502 | 3863.4969 | 3864.5923 | 206 877.865 | 232 753.816 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^5/_2-^7/_2$ | W |
| 43 | | | 3863.718 | 3864.813 | 229 968.44 | 255 842.91 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2D$ | $^3/_2-^3/_2$ | |
| 11 | 11 | 3864.125 | 3864.1272 | 3865.2227 | 206 730.762 | 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^1/_2-^1/_2$ | W |
| 12 | 17 | 3864.426 | 3864.4309 | 3865.5265 | 206 877.865 | 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^5/_2-^5/_2$ | W |
| 12 | 16 | 3864.667 | 3864.6671 | 3865.7628 | 206 877.865 | 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^5/_2-^3/_2$ | W |
| 11 | 10 | 3872.439 | 3872.4382 | 3873.5359 | 206 786.286 | 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| 11 | 12 | 3874.092 | 3874.0918 | 3875.1899 | 206 730.762 | 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^1/_2-^3/_2$ | W |
| 13 | 13 | 3875.796 | 3875.7997 | 3876.8982 | 207 002.482 | 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^2F$ | $^7/_2-^5/_2$ | W |
| 12 | 20 | 3882.192 | 3882.1937 | 3883.2940 | 207 002.482 | 232 753.816 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^7/_2-^7/_2$ | W |
| 11 | 13 | 3882.446 | 3882.4457 | 3883.5460 | 206 786.286 | 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^3/_2-^3/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 14 | 3883.130 | 3883.1368 | 3884.2373 | 207 002.482 | − 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4D$ | $^7/_2-^5/_2$ | W |
| 11 | 11 | 3893.516 | 3893.5180 | 3894.6212 | 206 786.286 | − 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| 11 | 10 | 3896.304 | 3896.3032 | 3897.4071 | 206 877.865 | − 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^5/_2-^3/_2$ | W |
| 11 | 15 | 3907.455 | 3907.4549 | 3908.5617 | 206 877.865 | − 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^5/_2-^5/_2$ | W |
| 17 | 20 | 3911.957 | 3911.958 | 3913.066 | 206 971.68 | − 232 527.09 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2P^\circ$ | $^5/_2-^3/_2$ | W |
| 17 | 16 | 3912.107 | 3912.117 | 3913.225 | 206 972.72 | − 232 527.09 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| 42.01 | 7 | 3917.537 | 3917.535 | 3918.644 | 229 947.07 | − 255 466.10 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2F$ | $^5/_2-^7/_2$ | W |
| 17 | 18 | 3919.285 | 3919.272 | 3920.382 | 206 972.72 | − 232 480.44 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2P^\circ$ | $^3/_2-^1/_2$ | W |
| 11 | 5 | 3926.584 | 3926.5806 | 3927.6924 | 207 002.482 | − 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4P$ | $^7/_2-^5/_2$ | W |
| 42.01 | | | 3942.873 | 3943.989 | 229 947.07 | − 255 302.11 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2F$ | $^5/_2-^5/_2$ | |
| 6 | 19 | 3945.0375 | 3945.0376 | 3946.1543 | 188 888.543 | − 214 229.671 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2P^\circ$ | $^1/_2-^5/_2$ | E3 |
| 42.01 | | | 3946.199 | 3947.316 | 229 968.44 | − 255 302.11 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2D^\circ-^2F$ | $^3/_2-^5/_2$ | |
| 6 | 20 | 3954.3619 | 3954.3617 | 3955.4807 | 188 888.543 | − 214 169.920 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2P^\circ$ | $^1/_2-^1/_2$ | E3 |
| 61.02 | 8 | 3972.065 | 3972.073 | 3973.197 | 232 527.09 | − 257 695.74 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)5s$ | $^2P^\circ-^4P$ | $^3/_2-^1/_2$ | W |
| 6 | 24 | 3973.2562 | 3973.2560 | 3974.3800 | 189 068.514 | − 214 229.671 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2P^\circ$ | $^3/_2-^5/_2$ | E3 |
| 101.02 | 6 | 3974.821 | 3974.824 | 3975.949 | 252 993.39 | − 278 144.62 | $2s^22p^2(^1S)3p-2s^22p^2(^1D)5s$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| 6 | 18 | 3982.7140 | 3982.7141 | 3983.8406 | 189 068.514 | − 214 169.920 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2P^\circ$ | $^3/_2-^1/_2$ | E3 |
| 22 | 7 | 3985.418 | 3985.410 | 3986.537 | 208 346.104 | − 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| 22 | 5 | 3992.757 | 3992.757 | 3993.886 | 208 392.258 | − 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P^\circ-^2P$ | $^3/_2-^3/_2$ | W |
| 22 | 7 | 4007.462 | 4007.473 | 4008.606 | 208 484.202 | − 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P^\circ-^2P$ | $^5/_2-^3/_2$ | W |
| 99 | 5 | 4023.858 | 4023.868 | 4025.005 | 251 222.19 | − 276 066.88 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ D | $^2F-^2[2]^\circ$ | $^7/_2-^5/_2$ | W |
| 49.02 | 5 | 4026.312 | 4026.304 | 4027.442 | 231 296.126 | − 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| 50 | 7 | 4032.248 | 4032.241 | 4033.380 | 231 350.087 | − 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 51 | 5 | 4032.483 | 4032.4816 | 4033.6210 | 231 296.126 | − 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[2]^\circ$ | $^3/_2-^5/_2$ | W |
| 51 | 8 | 4033.155 | 4033.155 | 4034.295 | 231 296.126 | − 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[2]^\circ$ | $^3/_2-^3/_2$ | W |
| 49.02 | 9 | 4035.068 | 4035.073 | 4036.213 | 231 350.087 | − 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[3]^\circ$ | $^5/_2-^5/_2$ | W |
| 49.02 | 6bl | 4035.461 | 4035.4891 | 4036.6293 | 231 350.087 | − 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[3]^\circ$ | $^5/_2-^7/_2$ | W |
| 51 | 9 | 4041.289 | 4041.2779 | 4042.4197 | 231 350.087 | − 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[2]^\circ$ | $^5/_2-^5/_2$ | W |
| 51 | 7 | 4041.951 | 4041.955 | 4043.097 | 231 350.087 | − 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[2]^\circ$ | $^5/_2-^3/_2$ | W |
| 50 | 8 | 4044.942 | 4044.948 | 4046.090 | 231 427.970 | − 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[4]^\circ$ | $^7/_2-^7/_2$ | W |
| 50 | 7 | 4046.113 | 4046.1183 | 4047.2613 | 231 427.970 | − 256 136.036 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[4]^\circ$ | $^7/_2-^9/_2$ | W |
| 49.02 | 6 | 4047.799 | 4047.798 | 4048.941 | 231 427.970 | − 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[3]^\circ$ | $^7/_2-^5/_2$ | W |
| 49.02 | 11 | 4048.214 | 4048.2163 | 4049.3599 | 231 427.970 | − 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[3]^\circ$ | $^7/_2-^7/_2$ | W |
| 51 | 9 | 4054.081 | { 4054.0418 | { 4055.1869 | 231 427.970 | − 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[2]^\circ$ | $^7/_2-^5/_2$ | W |
| 98 | | | 4054.094 | 4055.239 | 251 222.19 | − 275 881.65 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ F | $^2F-^2[3]^\circ$ | $^7/_2-$ | |
| 98 | 8 | 4054.528 | 4054.521 | 4055.666 | 251 224.79 | − 275 881.65 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ F | $^2F-^2[3]^\circ$ | $^5/_2-$ | W |
| 97 | 13 | 4060.599 | 4060.600 | 4061.747 | 251 222.19 | − 275 842.14 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ G | $^2F-^2[4]^\circ$ | $^7/_2-$ | W |
| 97 | 12 | 4061.028 | 4061.029 | 4062.176 | 251 224.79 | − 275 842.14 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ G | $^2F-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 50 | | | 4061.756 | 4062.903 | 231 530.246 | − 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[4]^\circ$ | $^9/_2-^7/_2$ | |
| 50 | 14 | 4062.936 | 4062.9367 | 4064.0841 | 231 530.246 | − 256 136.036 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[4]^\circ$ | $^9/_2-^9/_2$ | W |
| 49.02 | 7 | 4065.044 | 4065.0522 | 4066.2002 | 231 530.246 | − 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4F-^2[3]^\circ$ | $^9/_2-^7/_2$ | W |
| 10 | 20 | 4069.623 | 4069.6230 | 4070.7722 | 206 730.762 | − 231 296.126 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4F$ | $^1/_2-^3/_2$ | W |
| 10 | 21 | 4069.886 | 4069.8819 | 4071.0312 | 206 786.286 | − 231 350.087 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4F$ | $^3/_2-^5/_2$ | W |
| 49 | 14 | 4071.233 | 4071.2389 | 4072.3885 | 231 427.970 | − 255 983.584 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[5]^\circ$ | $^7/_2-^9/_2$ | W |
| 10 | 23 | 4072.157 | 4072.1525 | 4073.3023 | 206 877.865 | − 231 427.970 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4F$ | $^5/_2-^7/_2$ | W |
| 10 | 24 | 4075.862 | 4075.8617 | 4077.0125 | 207 002.482 | − 231 530.246 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4F$ | $^7/_2-^9/_2$ | W |
| 49.01 | 6 | 4077.715 | 4077.7174 | 4078.8687 | 231 296.126 | − 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4F-^2[2]^\circ$ | $^3/_2-^3/_2$ | W |
| 10 | 17 | 4078.842 | 4078.8424 | 4079.9940 | 206 786.286 | − 231 296.126 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4F$ | $^3/_2-^3/_2$ | W |
| 47 | 15 | 4083.895 | 4083.899 | 4085.052 | 231 350.087 | − 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 21 | 13 | 4084.652 | 4084.6474 | 4085.8005 | 208 484.202 | − 232 959.210 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P^\circ-^2F$ | $^5/_2-^7/_2$ | W |
| 10 | 19 | 4085.1125 | 4085.1124 | 4086.2656 | 206 877.865 | − 231 350.087 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D^\circ-^4F$ | $^5/_2-^5/_2$ | E3 |
| 49.01 | | | 4086.5881 | 4087.7417 | 231 350.087 | − 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4F-^2[2]^\circ$ | $^5/_2-^5/_2$ | |
| 48 | 15 | 4087.152 | 4087.1528 | 4088.3066 | 231 296.126 | − 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[3]^\circ$ | $^3/_2-^5/_2$ | E3 |
| 49 | 9 | 4088.268 | 4088.2672 | 4089.4212 | 231 530.246 | − 255 983.584 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[5]^\circ$ | $^9/_2-^9/_2$ | W |
| 49 | 19 | 4089.288 | 4089.2878 | 4090.4421 | 231 530.246 | − 255 977.481 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[5]^\circ$ | $^9/_2-^{11}/_2$ | E3 |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Calculated | Vacuum Wave-length (Å) | Levels (cm⁻¹) Lower | Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 17 | 4092.9289 | 4092.9287 | 4094.0840 | 207 002.482 | − 231 427.970 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D°-^4F$ | $^7/_2-^7/_2$ | E3 |
| 10 | 11 | 4094.140 | 4094.1401 | 4095.2957 | 206 877.865 | − 231 296.126 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D°-^4F$ | $^5/_2-^3/_2$ | W |
| 48 | 15 | 4095.644 | 4095.6437 | 4096.7997 | 231 350.087 | − 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[3]°$ | $^5/_2-^7/_2$ | E3 |
| 48 | 11 | 4096.188 | 4096.1896 | 4097.3457 | 231 350.087 | − 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[3]°$ | $^5/_2-^5/_2$ | W |
| 21 | 15 | 4096.525 | 4096.5260 | 4097.6822 | 208 392.258 | − 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^2F$ | $^3/_2-^5/_2$ | E3 |
| | | | | | | | | | | |
| 47 | 9 | 4096.929 | 4096.934 | 4098.090 | 231 427.970 | − 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[4]°$ | $^7/_2-^7/_2$ | W |
| 20 | 17 | 4097.258 | 4097.2249 | 4098.3813 | 208 346.104 | − 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^1/_2-^3/_2$ | E3 |
| 47 | | | 4097.2568 | 4098.4132 | 231 427.970 | − 255 827.657 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[4]°$ | $^7/_2-^9/_2$ | |
| 48.01 | 14 | 4098.243 | 4098.2435 | 4099.4001 | 231 296.126 | − 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4F-^2[3]°$ | $^3/_2-^5/_2$ | E3 |
| 20 | 14 | 4103.001 | 4102.9994 | 4104.1573 | 208 346.104 | − 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^1/_2-^1/_2$ | E3 |
| | | | | | | | | | | |
| 20 | 16 | 4104.7231 | 4104.7235 | 4105.8818 | 208 392.258 | − 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^3/_2-^5/_2$ | E3 |
| 20 | 18 | 4104.993 | 4104.9899 | 4106.1484 | 208 392.258 | − 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^3/_2-^3/_2$ | E3 |
| 10 | 9 | 4106.019 | 4106.0215 | 4107.1802 | 207 002.482 | − 231 350.087 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4D°-^4F$ | $^7/_2-^7/_2$ | W |
| 48.01 | 13 | 4107.091 | 4107.0919 | 4108.2509 | 231 350.087 | − 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4F-^2[3]°$ | $^5/_2-^7/_2$ | E3 |
| 48.01 | 6 | 4107.333 | 4107.3294 | 4108.4884 | 231 350.087 | − 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4F-^2[3]°$ | $^5/_2-^5/_2$ | W |
| | | | | | | | | | | |
| 48 | 9 | 4108.753 | 4108.7538 | 4109.9132 | 231 427.970 | − 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[3]°$ | $^7/_2-^7/_2$ | W |
| 48 | 6 | 4109.287 | 4109.3032 | 4110.4628 | 231 427.970 | − 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[3]°$ | $^7/_2-^5/_2$ | W |
| 37 | 6 | 4109.839 | 4109.841 | 4111.000 | 228 723.84 | − 253 048.82 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2D$ | $^5/_2-^5/_2$ | W |
| 37 | 10 | 4110.198 | 4110.192 | 4111.352 | 228 723.84 | − 253 046.74 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2D$ | $^5/_2-^3/_2$ | W |
| 20 | 15 | 4110.7858 | 4110.7863 | 4111.9463 | 208 392.258 | − 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^3/_2-^1/_2$ | E3 |
| | | | | | | | | | | |
| 21 | 15 | 4112.022 | 4112.0186 | 4113.1789 | 208 484.202 | − 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^2F$ | $^5/_2-^5/_2$ | W |
| 37 | 12 | 4113.835 | 4113.834 | 4114.994 | 228 747.45 | − 253 048.82 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2D$ | $^7/_2-^5/_2$ | W |
| 47 | | | 4114.178 | 4115.339 | 231 530.246 | − 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[4]°$ | $^9/_2-^7/_2$ | |
| 47 | 8 | 4114.502 | 4114.5039 | 4115.6648 | 231 530.246 | − 255 827.657 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[4]°$ | $^9/_2-^9/_2$ | W |
| 20 | 22 | 4119.215 | 4119.2165 | 4120.3787 | 208 484.202 | − 232 753.816 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^5/_2-^7/_2$ | E3 |
| | | | | | | | | | | |
| 48.01 | | | 4120.2756 | 4121.4380 | 231 427.970 | − 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4F-^2[3]°$ | $^7/_2-^7/_2$ | |
| 20 | 17 | 4120.280 | 4120.2783 | 4121.4407 | 208 484.202 | − 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^5/_2-^5/_2$ | E3 |
| 20 | 14 | 4120.544 | 4120.5468 | 4121.7093 | 208 484.202 | − 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4D$ | $^5/_2-^3/_2$ | E3 |
| 19 | 14 | 4121.4619 | 4121.4626 | 4122.6253 | 208 346.104 | − 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^1/_2-^1/_2$ | E3 |
| 48 | | | 4126.0980 | 4127.2620 | 231 530.246 | − 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4F-^2[3]°$ | $^9/_2-^7/_2$ | |
| | | | | | | | | | | |
| 19 | 11 | 4129.321 | 4129.3198 | 4130.4847 | 208 392.258 | − 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^3/_2-^1/_2$ | W |
| 19 | 17 | 4132.8004 | 4132.8004 | 4133.9661 | 208 346.104 | − 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^1/_2-^3/_2$ | E3 |
| 19 | 8 | 4140.703 | 4140.7010 | 4141.8688 | 208 392.258 | − 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^3/_2-^3/_2$ | W |
| 106 | 12 | 4141.933 | 4141.933 | 4143.101 | 267 768.20+x − | 291 904.71+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^3/_2-^1/_2$ | W |
| 106 | 12 | 4142.065 | 4142.070 | 4143.238 | 267 768.20+x − | 291 903.91+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^3/_2-^3/_2$ | W |
| | | | | | | | | | | |
| 106 | 10 | 4142.268 | 4142.273 | 4143.441 | 267 768.20+x − | 291 902.73+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^3/_2-^5/_2$ | W |
| 106 | 9 | 4143.324 | 4143.320 | 4144.488 | 267 775.48+x − | 291 903.91+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^5/_2-^3/_2$ | W |
| 106 | 12 | 4143.516 | 4143.523 | 4144.691 | 267 775.48+x − | 291 902.73+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^5/_2-^5/_2$ | W |
| 106 | 12 | 4143.736 | 4143.739 | 4144.908 | 267 775.48+x − | 291 901.47+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^5/_2-^7/_2$ | W |
| 106 | 6 | 4145.699 | 4145.689 | 4146.859 | 267 788.09+x − | 291 902.73+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^7/_2-^5/_2$ | W |
| | | | | | | | | | | |
| 106 | 10 | 4145.907 | 4145.906 | 4147.075 | 267 788.09+x − | 291 901.47+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^7/_2-^7/_2$ | W |
| 106 | 13 | 4146.076 | 4146.076 | 4147.245 | 267 788.09+x − | 291 900.48+x | $2s2p^3(^5S°)3p-2s2p^3(^5S°)3d$ | $^6P-^6D°$ | $^7/_2-^9/_2$ | E3 |
| 19 | 18 | 4153.2980 | 4153.2977 | 4154.4688 | 208 392.258 | − 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^3/_2-^5/_2$ | E3 |
| 19 | 13 | 4156.530 | 4156.5302 | 4157.7021 | 208 484.202 | − 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^5/_2-^3/_2$ | W |
| 19 | 15 | 4169.225 | 4169.2236 | 4170.3988 | 208 484.202 | − 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P°-^4P$ | $^5/_2-^5/_2$ | W,B1 |
| | | | | | | | | | | |
| 36 | 19 | 4185.449 | 4185.440 | 4186.619 | 228 723.84 | − 252 609.46 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2G$ | $^5/_2-^7/_2$ | W |
| 36 | | | 4189.581 | 4190.762 | 228 747.45 | − 252 609.46 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2G$ | $^7/_2-^7/_2$ | |
| 36 | 20 | 4189.789 | 4189.788 | 4190.969 | 228 747.45 | − 252 608.28 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2G$ | $^7/_2-^9/_2$ | W,B1 |
| 42 | 12 | 4192.518 | 4192.512 | 4193.693 | 229 947.07 | − 253 792.40 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D°-^2P$ | $^5/_2-^3/_2$ | W |
| 42 | 6 | 4196.260 | 4196.273 | 4197.455 | 229 968.44 | − 253 792.40 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D°-^2P$ | $^3/_2-^3/_2$ | W |
| | | | | | | | | | | |
| 42 | 10 | 4196.701 | 4196.697 | 4197.880 | 229 968.44 | − 253 789.99 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D°-^2P$ | $^3/_2-^1/_2$ | W |
| 55.04 | 7 | 4221.703 | 4221.701 | 4222.890 | 232 462.724 | − 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 55.03 | 6 | 4224.796 | 4224.806 | 4225.996 | 232 462.724 | − 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[3]°$ | $^5/_2-^5/_2$ | W |
| 55.03 | | | 4225.262 | 4226.452 | 232 462.724 | − 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[3]°$ | $^5/_2-^7/_2$ | |
| 55.03 | 9 | 4237.930 | 4237.921 | 4239.114 | 232 535.949 | − 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[3]°$ | $^3/_2-^5/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 55.02 | | | 4244.765 | 4245.961 | 232 535.949 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[2]^\circ$ | $^3/_2-^5/_2$ | |
| 55.02 | 6 | 4245.519 | 4245.512 | 4246.707 | 232 535.949 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[2]^\circ$ | $^3/_2-^3/_2$ | W |
| 101 | 15 | 4253.895 | 4253.894 | 4255.091 | 252 608.28 | 276 109.54 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ H | $^2G-^2[5]^\circ$ | $^9/_2-^{11}/_2$ | E3 |
| 101 | | | 4253.908 | 4255.105 | 252 608.28 | 276 109.46 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ H | $^2G-^2[5]^\circ$ | $^9/_2-^9/_2$ | |
| 101 | 15 | 4254.121 | 4254.122 | 4255.319 | 252 609.46 | 276 109.46 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ H | $^2G-^2[5]^\circ$ | $^7/_2-^9/_2$ | E3 |
| 55.02 | 9 | 4257.549 | 4257.544 | 4258.742 | 232 602.492 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4P-^2[2]^\circ$ | $^1/_2-^3/_2$ | W |
| 68 | 11 | 4273.104 | 4273.101 | 4274.303 | 232 747.562 | 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 68 | 10 | 4274.240 | 4274.243 | 4275.446 | 232 753.816 | 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[4]^\circ$ | $^7/_2-^7/_2$ | W |
| 68 | 16 | 4275.551 | 4275.5507 | 4276.7539 | 232 753.816 | 256 136.036 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[4]^\circ$ | $^7/_2-^7/_2$ | E3 |
| 67 | 11 | 4275.994 | 4275.993 | 4277.196 | 232 745.981 | 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| 67 | 11 | 4276.281 | 4276.282 | 4277.485 | 232 747.562 | 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[3]^\circ$ | $^5/_2-^5/_2$ | W |
| 55.01 | | | 4276.620 | 4277.824 | 232 535.949 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[1]^\circ$ | $^3/_2-^3/_2$ | |
| 67 | 15 | 4276.748 | 4276.7489 | 4277.9524 | 232 747.562 | 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[3]^\circ$ | $^5/_2-^7/_2$ | E3 |
| 67 | 14 | 4277.427 | ⌠ 4277.426 | ⌠ 4278.630 | 232 753.816 | 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[3]^\circ$ | $^7/_2-^5/_2$ | E3 |
| 66.01 | | | ⌡ 4277.427 | ⌡ 4278.631 | 232 711.642 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[2]^\circ$ | $^1/_2-^3/_2$ | |
| 61.01 | 6 | 4277.706 | 4277.695 | 4278.899 | 232 527.09 | 255 897.59 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2D$ | $^3/_2-^5/_2$ | W |
| 67 | 12 | 4277.892 | 4277.8935 | 4279.0973 | 232 753.816 | 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[3]^\circ$ | $^7/_2-^7/_2$ | E3 |
| 61.01 | 7 | 4279.156 | 4279.165 | 4280.369 | 232 480.44 | 255 842.91 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2D$ | $^1/_2-^3/_2$ | W |
| 54 | 11 | 4281.318 | 4281.3134 | 4282.5181 | 232 462.724 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[2]^\circ$ | $^5/_2-^5/_2$ | W |
| 80 | | | 4282.021 | 4283.226 | 232 796.298 | 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[4]^\circ$ | $^5/_2-^7/_2$ | |
| 66.01 | 14 | 4282.964 | 4282.9610 | 4284.1662 | 232 745.981 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[2]^\circ$ | $^3/_2-^5/_2$ | E3 |
| 66.01 | 9 | 4283.249 | 4283.2512 | 4284.4564 | 232 747.562 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[2]^\circ$ | $^5/_2-^5/_2$ | W |
| 66.01 | 12 | 4283.727 | 4283.721 | 4284.927 | 232 745.981 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[2]^\circ$ | $^3/_2-^3/_2$ | W |
| 66.01 | 6 | 4284.002 | 4284.011 | 4285.217 | 232 747.562 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[2]^\circ$ | $^5/_2-^3/_2$ | W |
| 66.01 | 7 | 4284.393 | 4284.3992 | 4285.6047 | 232 753.816 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^4D-^2[2]^\circ$ | $^7/_2-^5/_2$ | W |
| 79 | 15 | 4285.687 | 4285.684 | 4286.890 | 232 796.298 | 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[3]^\circ$ | $^5/_2-^7/_2$ | E3 |
| 61.01 | 5 | 4287.734 | 4287.727 | 4288.933 | 232 527.09 | 255 842.91 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4d$ | $^2P^\circ-^2D$ | $^3/_2-^3/_2$ | W |
| 55.01 | 13 | 4288.820 | ⌠ 4288.820 | ⌠ 4290.027 | 232 602.492 | 255 912.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[1]^\circ$ | $^1/_2-^1/_2$ | E3 |
| 55.01 | | | ⌡ 4288.829 | ⌡ 4290.036 | 232 602.492 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[1]^\circ$ | $^1/_2-^3/_2$ | |
| 55 | 14 | 4291.254 | 4291.2535 | 4292.4608 | 232 462.724 | 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4P-^2[3]^\circ$ | $^5/_2-^7/_2$ | E3 |
| 55 | 7 | 4291.857 | 4291.8528 | 4293.0603 | 232 462.724 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4P-^2[3]^\circ$ | $^5/_2-^5/_2$ | W |
| 78 | 13 | 4292.211 | 4292.2138 | 4293.4213 | 232 796.298 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[2]^\circ$ | $^5/_2-^5/_2$ | E3 |
| 78 | 2 | 4292.954 | 4292.977 | 4294.185 | 232 796.298 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[2]^\circ$ | $^5/_2-^3/_2$ | W |
| 54 | 15 | 4294.781 | 4294.7815 | 4295.9897 | 232 535.949 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[2]^\circ$ | $^3/_2-^5/_2$ | E3 |
| 54 | | | 4294.9188 | 4296.1271 | 232 535.949 | 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[2]^\circ$ | $^3/_2-^3/_2$ | |
| 100 | 9 | 4302.858 | 4302.853 | 4304.063 | 252 608.28 | 275 842.14 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ G | $^2G-^2[4]^\circ$ | $^9/_2-$ | W |
| 100 | 8 | 4303.070 | 4303.071 | 4304.282 | 252 609.46 | 275 842.14 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ G | $^2G-^2[4]^\circ$ | $^7/_2-^7/_2$ | W |
| 66 | 11 | 4303.609 | 4303.6107 | 4304.8213 | 232 753.816 | 255 983.584 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[5]^\circ$ | $^7/_2-^9/_2$ | E3 |
| 53 | 15 | 4303.825 | 4303.8231 | 4305.0337 | 232 462.724 | 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[3]^\circ$ | $^5/_2-^7/_2$ | E3 |
| 53 | | | 4304.0838 | 4305.2945 | 232 462.724 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[3]^\circ$ | $^5/_2-^5/_2$ | |
| 55 | 10 | 4305.390 | 4305.3874 | 4306.5985 | 232 535.949 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4P-^2[3]^\circ$ | $^3/_2-^5/_2$ | W |
| 103.01 | 4 | 4305.965 | 4305.965 | 4307.176 | 253 046.74 | 276 263.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ P | $^2D-^2[1]^\circ$ | $^3/_2-$ | W |
| 103.01 | 5 | 4306.354 | 4306.350 | 4307.562 | 253 048.82 | 276 263.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ P | $^2D-^2[1]^\circ$ | $^5/_2-^3/_2$ | W |
| 54 | 12 | 4307.233 | 4307.2324 | 4308.4439 | 232 602.492 | 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[2]^\circ$ | $^1/_2-^3/_2$ | E3 |
| 65.01 | 11 | 4308.999 | ⌠ 4308.998 | ⌠ 4310.210 | 232 711.642 | 255 912.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[1]^\circ$ | $^1/_2-^1/_2$ | W |
| 65.01 | | | ⌡ 4309.007 | ⌡ 4310.219 | 232 711.642 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[1]^\circ$ | $^1/_2-^3/_2$ | |
| 80 | 11 | 4312.107 | 4312.111 | 4313.324 | 232 959.210 | 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[4]^\circ$ | $^7/_2-^7/_2$ | W |
| 80 | 12 | 4313.442 | 4313.4415 | 4314.6547 | 232 959.210 | 256 136.036 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[4]^\circ$ | $^7/_2-^9/_2$ | W |
| 65.01 | 8 | 4315.303 | ⌠ 4315.385 | ⌠ 4316.598 | 232 745.981 | 255 912.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[1]^\circ$ | $^3/_2-^1/_2$ | W |
| 65.01 | | | ⌡ 4315.394 | ⌡ 4316.608 | 232 745.981 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[1]^\circ$ | $^3/_2-^3/_2$ | |
| 79 | 7 | 4315.828 | 4315.8260 | 4317.0398 | 232 959.210 | 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[3]^\circ$ | $^7/_2-^7/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wave-length (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 19 | 4317.138 | 4317.139 | 4318.353 | 185 235.281 | 208 392.258 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^1/_2-^3/_2$ | W,B1 |
| 53 | 11 | 4317.700 | 4317.6958 | 4318.9100 | 232 535.949 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4P-^2[3]^o$ | $^3/_2-^5/_2$ | W |
| 2 | 19 | 4319.629 | 4319.630 | 4320.844 | 185 340.577 | 208 484.202 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^3/_2-^5/_2$ | W,B1 |
| 61 | | | 4319.866 | 4321.080 | 232 480.44 | 255 622.80 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P^o-^2S$ | $^1/_2-^1/_2$ | |
| 78 | 5 | 4322.445 | 4322.4477 | 4323.6632 | 232 959.210 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ F | $^2F-^2[2]^o$ | $^7/_2-^5/_2$ | W |
| 77.01 | 6 | 4324.790 | 4324.788 | 4326.004 | 232 796.298 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2F-^2[1]^o$ | $^5/_2-^3/_2$ | W |
| 2 | 15 | 4325.758 | 4325.761 | 4326.977 | 185 235.281 | 208 346.104 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^1/_2-^1/_2$ | W |
| 41 | 12 | 4327.465 | 4327.460 | 4328.676 | 229 947.07 | 253 048.82 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D^o-^2D$ | $^5/_2-^5/_2$ | W |
| 41 | 6 | 4327.851 | 4327.849 | 4329.066 | 229 947.07 | 253 046.74 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D^o-^2D$ | $^5/_2-^3/_2$ | W |
| 61 | 11 | 4328.586 | 4328.591 | 4329.808 | 232 527.09 | 255 622.80 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P^o-^2S$ | $^3/_2-^1/_2$ | W |
| 65 | | | 4331.159 | 4332.377 | 232 747.562 | 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[4]^o$ | $^5/_2-^7/_2$ | |
| 101.01 | 12 | 4331.176 | 4331.176 | 4332.393 | 252 993.39 | 276 075.32 | $2s^22p^2(^1S)3p-2s^22p^2(^1S)3d$ | $^2P^o-^2D$ | $^3/_2-^5/_2$ | W |
| 41 | 6 | 4331.468 | 4331.466 | 4332.684 | 229 968.44 | 253 048.82 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | W |
| 41 | 11 | 4331.862 | 4331.857 | 4333.075 | 229 968.44 | 253 046.74 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | W |
| 65 | | | 4332.333 | 4333.551 | 232 753.816 | 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[4]^o$ | $^7/_2-^7/_2$ | |
| 65 | 11 | 4332.707 | 4332.694 | 4333.912 | 232 753.816 | 255 827.657 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[4]^o$ | $^7/_2-^9/_2$ | W |
| 64 | 6 | 4334.029 | 4334.026 | 4335.245 | 232 745.981 | 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[2]^o$ | $^3/_2-^3/_2$ | W |
| 64 | 9 | 4334.186 | 4334.184 | 4335.402 | 232 747.562 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[2]^o$ | $^5/_2-^5/_2$ | W |
| 64 | | | 4334.324 | 4335.542 | 232 747.562 | 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[2]^o$ | $^5/_2-^3/_2$ | |
| 64 | 6 | 4335.362 | 4335.359 | 4336.578 | 232 753.816 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[2]^o$ | $^7/_2-^5/_2$ | W |
| 2 | 17 | 4336.862 | 4336.859 | 4338.078 | 185 340.577 | 208 392.258 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^3/_2-^3/_2$ | W,B1 |
| 76 | 12 | 4340.328 | 4340.323 | 4341.544 | 232 796.298 | 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[4]^o$ | $^5/_2-^7/_2$ | W |
| 77 | 15 | 4342.004 | 4342.003 | 4343.223 | 232 959.210 | 255 983.584 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[5]^o$ | $^7/_2-^9/_2$ | W |
| 103 | 6 | 4342.813 | 4342.801 | 4344.022 | 253 046.74 | 276 066.88 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ D | $^2D-^2[2]^o$ | $^3/_2-^5/_2$ | W |
| 103 | | | 4342.815 | 4344.035 | 253 046.74 | 276 066.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ D | $^2D-^2[2]^o$ | $^3/_2-^3/_2$ | |
| 103 | 7w | 4343.202 | 4343.194 | 4344.415 | 253 048.82 | 276 066.88 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ D | $^2D-^2[2]^o$ | $^5/_2-^5/_2$ | W |
| 103 | | | 4343.207 | 4344.428 | 253 048.82 | 276 066.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ D | $^2D-^2[2]^o$ | $^5/_2-^3/_2$ | |
| 63.01 | 12 | 4344.375 | 4344.371 | 4345.592 | 232 747.562 | 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[3]^o$ | $^5/_2-^7/_2$ | W |
| 63.01 | 6 | 4344.958 | 4344.985 | 4346.207 | 232 747.562 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[3]^o$ | $^5/_2-^5/_2$ | W |
| 63.01 | | | 4345.552 | 4346.774 | 232 753.816 | 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[3]^o$ | $^7/_2-^7/_2$ | |
| 2 | 19 | 4345.560 | 4345.560 | 4346.782 | 185 340.577 | 208 346.104 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^3/_2-^1/_2$ | W,B1 |
| 63.01 | 5 | 4346.159 | 4346.167 | 4347.389 | 232 753.816 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^4D-^2[3]^o$ | $^7/_2-^5/_2$ | W |
| 16 | 10 | 4347.223 | 4347.217 | 4348.439 | 206 971.68 | 229 968.44 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2D^o$ | $^5/_2-^3/_2$ | W |
| 101.01 | | | 4347.224 | 4348.446 | 252 987.23 | 275 983.95 | $2s^22p^2(^1S)3p-2s^22p^2(^1S)3d$ | $^2P^o-^2D$ | $^1/_2-^3/_2$ | |
| 16 | 19 | 4347.420 | 4347.413 | 4348.635 | 206 972.72 | 229 968.44 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2D^o$ | $^3/_2-^3/_2$ | W,B1 |
| 2 | 23 | 4349.426 | 4349.426 | 4350.649 | 185 499.124 | 208 484.202 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^5/_2-^5/_2$ | W,B1 |
| 16 | 21 | 4351.262 | 4351.260 | 4352.483 | 206 971.68 | 229 947.07 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2D^o$ | $^5/_2-^5/_2$ | W,B1 |
| 16 | | | 4351.457 | 4352.680 | 206 972.72 | 229 947.07 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2D^o$ | $^3/_2-^5/_2$ | |
| 76.01 | 12 | 4353.594 | 4353.592 | 4354.815 | 232 796.298 | 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[3]^o$ | $^5/_2-^7/_2$ | W |
| 76.01 | 4 | 4354.178 | 4354.208 | 4355.432 | 232 796.298 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[3]^o$ | $^5/_2-^5/_2$ | W |
| 63 | 10 | 4357.252 | 4357.221 | 4358.446 | 232 745.981 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[3]^o$ | $^3/_2-^5/_2$ | W |
| 63 | | | 4357.254 | 4358.479 | 232 747.562 | 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[3]^o$ | $^5/_2-^7/_2$ | |
| 18 | | | 4357.257 | 4358.482 | 208 484.202 | 231 427.970 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4P^o-^4F$ | $^5/_2-^7/_2$ | |
| 63 | | | 4357.522 | 4358.746 | 232 747.562 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[3]^o$ | $^5/_2-^5/_2$ | |
| 63 | 7 | 4358.451 | 4358.442 | 4359.667 | 232 753.816 | 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^4D-^2[3]^o$ | $^7/_2-^7/_2$ | W |
| 26 | 7 | 4359.392 | 4359.395 | 4360.620 | 211 522.117 | 234 454.634 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D^o-^2D$ | $^3/_2-^5/_2$ | W |
| 74.06 | 9 | 4366.530 | 4366.530 | 4367.757 | 232 796.298 | 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2F-^2[3]^o$ | $^5/_2-^7/_2$ | W |
| 2 | 20 | 4366.892 | 4366.895 | 4368.122 | 185 499.124 | 208 392.258 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4P^o$ | $^5/_2-^3/_2$ | W,B1 |
| 26 | 13 | 4369.275 | 4369.272 | 4370.499 | 211 522.117 | 234 402.797 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D^o-^2D$ | $^3/_2-^3/_2$ | W |
| 76 | 11 | 4371.618 | 4371.609 | 4372.837 | 232 959.210 | 255 827.657 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[4]^o$ | $^7/_2-^9/_2$ | W |
| 75 | 9 | 4374.295 | 4374.322 | 4375.551 | 232 959.210 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2F-^2[2]^o$ | $^7/_2-^5/_2$ | W |
| 102 | 8 | 4378.027 | 4378.029 | 4379.260 | 253 046.74 | 275 881.65 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ F | $^2D-^2[3]^o$ | $^3/_2-^5/_2$ | W |
| 102 | 9 | 4378.427 | 4378.428 | 4379.659 | 253 048.82 | 275 881.65 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ F | $^2D-^2[3]^o$ | $^5/_2-$ | W |
| 76.01 | | | 4384.700 | 4385.931 | 232 959.210 | 255 759.384 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[3]^o$ | $^7/_2-^7/_2$ | |
| 76.01 | | | 4385.325 | 4386.557 | 232 959.210 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2F-^2[3]^o$ | $^7/_2-^5/_2$ | |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 15 | 4395.942 | 4395.935 | 4397.170 | 211 712.732 | 234 454.634 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2D$ | $^5/_2-^5/_2$ | W |
| 74.06 | 4 | 4397.855 | 4397.823 | 4399.059 | 232 959.210 | 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2F-^2[3]°$ | $^7/_2-^7/_2$ | W |
| 88.03 | 7 | 4404.950 | 4404.970 | 4406.207 | 233 430.53 | 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2P-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 26 | 8 | 4405.987 | 4405.978 | 4407.215 | 211 712.732 | 234 402.797 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2D$ | $^5/_2-^3/_2$ | W |
| 5 | 27 | 4414.905 | 4414.899 | 4416.138 | 189 068.514 | 211 712.732 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2D°$ | $^3/_2-^5/_2$ | W,B1 |
| 5 | 25 | 4416.974 | 4416.975 | 4418.215 | 188 888.543 | 211 522.117 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2D°$ | $^1/_2-^3/_2$ | W,B1 |
| 88.02 | 7 | 4435.506 | 4435.506 | 4436.751 | 233 544.59 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2P-^2[2]°$ | $^1/_2-^3/_2$ | W |
| 35 | 15 | 4443.007 | 4443.010 | 4444.257 | 228 723.84 | 251 224.79 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2F$ | $^5/_2-^5/_2$ | W |
| 35 | 8 | 4443.516 | 4443.523 | 4444.770 | 228 723.84 | 251 222.19 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2F$ | $^5/_2-^7/_2$ | W |
| 88.01 | 6 | 4446.809 | 4446.786 | 4448.035 | 233 430.53 | 255 912.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2P-^2[1]°$ | $^3/_2-^1/_2$ | W |
| 88.01 | | | 4446.796 | 4448.044 | 233 430.53 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2P-^2[1]°$ | $^3/_2-^3/_2$ | |
| 35 | 5 | 4447.673 | 4447.676 | 4448.925 | 228 747.45 | 251 224.79 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2F$ | $^7/_2-^5/_2$ | W |
| 35 | 16 | 4448.186 | 4448.191 | 4449.440 | 228 747.45 | 251 222.19 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2F°-^2F$ | $^7/_2-^7/_2$ | W |
| 5 | 18 | 4452.375 | 4452.378 | 4453.628 | 189 068.514 | 211 522.117 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^2D°$ | $^3/_2-^3/_2$ | W,B1 |
| 94 | 17 | 4465.417 | 4465.407 | 4466.661 | 245 400.00+x | 267 788.09+x | $2s2p^3(^5S°)3s-2s2p^3(^5S°)3p$ | $^6S°-^6P$ | $^5/_2-^7/_2$ | W |
| 44.02 | 15 | 4466.241 | 4466.235 | 4467.489 | 230 609.45 | 252 993.39 | $2s^22p^2(^1S)3s-2s^22p^2(^1S)3p$ | $^2S-^2P°$ | $^1/_2-^3/_2$ | W |
| 87 | 7 | 4466.415 | 4466.434 | 4467.688 | 233 430.53 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2P-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 44.02 | 13 | 4467.475 | 4467.465 | 4468.719 | 230 609.45 | 252 987.23 | $2s^22p^2(^1S)3s-2s^22p^2(^1S)3p$ | $^2S-^2P°$ | $^1/_2-^1/_2$ | W |
| 94 | 15 | 4467.921 | 4467.924 | 4469.178 | 245 400.00+x | 267 775.48+x | $2s2p^3(^5S°)3s-2s2p^3(^5S°)3p$ | $^6S°-^6P$ | $^5/_2-^5/_2$ | W |
| 94 | 17 | 4469.373 | 4469.378 | 4470.632 | 245 400.00+x | 267 768.20+x | $2s2p^3(^5S°)3s-2s2p^3(^5S°)3p$ | $^6S°-^6P$ | $^5/_2-^3/_2$ | W |
| 88 | 12 | 4477.904 | 4477.906 | 4479.163 | 233 430.53 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,G$ | $^2P-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 104 | 7 | 4487.716 | 4487.712 | 4488.971 | 253 789.99 | 276 066.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f\,D$ | $^2P-^2[2]°$ | $^1/_2-^3/_2$ | W |
| 104 | 3 | 4488.196 | 4488.183 | 4489.443 | 253 792.40 | 276 066.88 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f\,D$ | $^2P-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 104 | | | 4488.198 | 4489.457 | 253 792.40 | 276 066.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f\,D$ | $^2P-^2[2]°$ | $^3/_2-^3/_2$ | |
| 87 | 11 | 4489.462 | 4489.462 | 4490.721 | 233 544.59 | 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2P-^2[2]°$ | $^1/_2-^3/_2$ | W |
| 86 | 13 | 4491.227 | 4491.222 | 4492.482 | 233 430.53 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2P-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 25.01 | | | 4539.543 | 4540.816 | 211 522.117 | 233 544.59 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2P$ | $^3/_2-^1/_2$ | |
| 25.01 | 4 | 4563.178 | 4563.178 | 4564.457 | 211 522.117 | 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2P$ | $^3/_2-^3/_2$ | W |
| 15 | 22 | 4590.972 | 4590.974 | 4592.260 | 206 971.68 | 228 747.45 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2F°$ | $^5/_2-^7/_2$ | W |
| 15 | 7 | 4595.960 | 4595.957 | 4597.245 | 206 971.68 | 228 723.84 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2F°$ | $^5/_2-^5/_2$ | W |
| 15 | 20 | 4596.175 | 4596.177 | 4597.464 | 206 972.72 | 228 723.84 | $2s^22p^2(^1D)3s-2s^22p^2(^1D)3p$ | $^2D-^2F°$ | $^3/_2-^5/_2$ | W,B1 |
| 93 | 12 | 4602.128 | 4602.129 | 4603.418 | 234 402.797 | 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 25.01 | 3 | 4603.228 | 4603.229 | 4604.518 | 211 712.732 | 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2P$ | $^5/_2-^3/_2$ | W |
| 93.01 | 14 | 4609.442 | 4609.436 | 4610.727 | 234 454.634 | 256 143.187 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 92 | 12 | 4610.203 | 4610.202 | 4611.493 | 234 402.797 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 92 | 3 | 4611.070 | 4611.083 | 4612.374 | 234 402.797 | 256 083.604 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[2]°$ | $^3/_2-^3/_2$ | W |
| 93 | 7 | 4613.137 | 4613.137 | 4614.430 | 234 454.634 | 256 125.785 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[3]°$ | $^5/_2-^5/_2$ | W |
| 93 | 8 | 4613.681 | 4613.681 | 4614.973 | 234 454.634 | 256 123.231 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 92 | 6 | 4621.272 | 4621.249 | 4622.543 | 234 454.634 | 256 087.746 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,F$ | $^2D-^2[2]°$ | $^5/_2-^5/_2$ | W |
| 1 | 20 | 4638.8550 | 4638.8558 | 4640.1548 | 185 235.281 | 206 786.286 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^1/_2-^3/_2$ | E3 |
| 1 | 22 | 4641.8104 | 4641.8103 | 4643.1101 | 185 340.577 | 206 877.865 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^3/_2-^5/_2$ | E3 |
| 94.05 | 3 | 4643.386 | 4643.412 | 4644.712 | 245 768.37 | 267 298.23 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)6s$ | $^4D°-^2P$ | $^1/_2-^3/_2$ | W |
| 91.01 | 4 | 4647.803 | 4647.791 | 4649.093 | 234 402.797 | 255 912.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2D-^2[1]°$ | $^3/_2-^1/_2$ | W |
| 91.01 | | | 4647.802 | 4649.104 | 234 402.797 | 255 912.32 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2D-^2[1]°$ | $^3/_2-^3/_2$ | |
| 1 | 24 | 4649.1348 | 4649.1347 | 4650.4365 | 185 499.124 | 207 002.482 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^5/_2-^7/_2$ | E3 |
| 1 | 20 | 4650.8394 | 4650.8384 | 4652.1406 | 185 235.281 | 206 730.762 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^1/_2-^1/_2$ | E3 |
| 1 | 21 | 4661.6332 | 4661.6324 | 4662.9375 | 185 340.577 | 206 786.286 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^3/_2-^3/_2$ | E3 |
| 90 | 5 | 4669.266 | 4669.260 | 4670.567 | 234 402.797 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2D-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 90 | 5 | 4669.427 | 4669.423 | 4670.730 | 234 402.797 | 255 812.728 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f\,D$ | $^2D-^2[2]°$ | $^3/_2-^3/_2$ | W |
| 1 | 14 | 4673.7322 | 4673.7331 | 4675.0414 | 185 340.577 | 206 730.762 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^3/_2-^1/_2$ | E3 |
| 1 | 20 | 4676.2350 | 4676.2350 | 4677.5439 | 185 499.124 | 206 877.865 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^5/_2-^5/_2$ | E3 |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 91 | 8 | 4677.068 | 4677.065 | 4678.374 | 234 454.634 | 255 829.58 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2D-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 90 | 2 | 4680.583 | 4680.593 | 4681.903 | 234 454.634 | 255 813.472 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2D-^2[2]°$ | $^5/_2-^5/_2$ | W |
| 58 | 6 | 4690.896 | 4690.888 | 4692.201 | 232 480.44 | 253 792.40 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2P$ | $^1/_2-^3/_2$ | W |
| 58 | 9 | 4691.416 | 4691.419 | 4692.732 | 232 480.44 | 253 789.99 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2P$ | $^1/_2-^1/_2$ | W |
| 89.01 | 4 | 4693.195 | 4693.192 | 4694.506 | 234 454.634 | 255 756.131 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ G | $^2D-^2[3]°$ | $^5/_2-^5/_2$ | W |
| 1 | 12 | 4696.347 | { 4696.3528 | { 4697.6671 | 185 499.124 | 206 786.286 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^4D°$ | $^5/_2-^3/_2$ | W |
| 89 | | | { 4696.357 | { 4697.671 | 234 402.797 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2D-^2[3]°$ | $^3/_2-^5/_2$ | |
| 40 | 6 | 4698.446 | 4698.437 | 4699.752 | 229 947.07 | 251 224.79 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D°-^2F$ | $^5/_2-^5/_2$ | W |
| 40 | 15 | 4699.003 | 4699.011 | 4700.326 | 229 947.07 | 251 222.19 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D°-^2F$ | $^5/_2-^7/_2$ | W |
| 25 | 17 | 4699.220 | 4699.218 | 4700.533 | 211 522.117 | 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2F$ | $^3/_2-^5/_2$ | W |
| 58 | 11 | 4701.184 | 4701.179 | 4702.494 | 232 527.09 | 253 792.40 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2P$ | $^3/_2-^3/_2$ | W |
| 58 | 5 | 4701.708 | 4701.712 | 4703.027 | 232 527.09 | 253 789.99 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2P$ | $^3/_2-^1/_2$ | W |
| 40 | 14 | 4703.163 | 4703.161 | 4704.477 | 229 968.44 | 251 224.79 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2D°-^2F$ | $^3/_2-^5/_2$ | W |
| 25 | 21 | 4705.352 | 4705.346 | 4706.662 | 211 712.732 | 232 959.210 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2F$ | $^5/_2-^7/_2$ | W,B1 |
| 89 | 3 | 4707.484 | 4707.510 | 4708.827 | 234 454.634 | 255 691.346 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 89 | 4 | 4707.811 | 4707.822 | 4709.139 | 234 454.634 | 255 689.939 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4f$ D | $^2D-^2[3]°$ | $^5/_2-^5/_2$ | W |
| 24 | 16 | 4710.012 | 4710.009 | 4711.326 | 211 522.117 | 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4D$ | $^3/_2-^5/_2$ | W |
| 25 | 10 | 4741.707 | 4741.704 | 4743.031 | 211 712.732 | 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^2F$ | $^5/_2-^5/_2$ | W |
| 24 | 14 | 4751.271 | 4751.278 | 4752.607 | 211 712.732 | 232 753.816 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4D$ | $^5/_2-^7/_2$ | W |
| 24 | 9 | 4752.681 | 4752.691 | 4754.020 | 211 712.732 | 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4D$ | $^5/_2-^5/_2$ | W |
| 94.04 | 4 | 4773.782 | 4773.773 | 4775.108 | 246 029.295 | 266 971.23 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)6s$ | $^4D°-^4P$ | $^7/_2-^5/_2$ | W |
| 23.02 | 3 | 4774.059 | 4774.076 | 4775.411 | 211 522.117 | 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4P$ | $^3/_2-^5/_2$ | W |
| 105 | 8 | 4843.366 | 4843.371 | 4844.724 | 255 622.80 | 276 263.81 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4f$ P | $^2S-^2[1]°$ | $^1/_2-^3/_2$ | W |
| 30 | 8 | 4844.913 | 4844.919 | 4846.272 | 212 161.881 | 232 796.298 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^2F$ | $^3/_2-^5/_2$ | W |
| 29 | 11 | 4856.395 | 4856.389 | 4857.746 | 212 161.881 | 232 747.562 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^4D$ | $^3/_2-^5/_2$ | W |
| 29 | 13 | 4856.758 | 4856.762 | 4858.119 | 212 161.881 | 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^4D$ | $^3/_2-^3/_2$ | W |
| 57 | 12 | 4860.968 | 4860.965 | 4862.323 | 232 480.44 | 253 046.74 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2D$ | $^1/_2-^3/_2$ | W |
| 29 | 11 | 4864.879 | 4864.878 | 4866.237 | 212 161.881 | 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^4D$ | $^3/_2-^1/_2$ | W |
| 57 | 15 | 4871.520 | 4871.523 | 4872.884 | 232 527.09 | 253 048.82 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2D$ | $^3/_2-^5/_2$ | W |
| 57 | 6 | 4872.005 | 4872.017 | 4873.377 | 232 527.09 | 253 046.74 | $2s^22p^2(^1D)3p-2s^22p^2(^1D)3d$ | $^2P°-^2D$ | $^3/_2-^3/_2$ | W |
| 28 | 15 | 4890.858 | 4890.856 | 4892.222 | 212 161.881 | 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^4P$ | $^3/_2-^1/_2$ | W |
| 28 | 19 | 4906.833 | 4906.830 | 4908.200 | 212 161.881 | 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^4P$ | $^3/_2-^3/_2$ | W |
| 28 | 21 | 4924.531 | 4924.529 | 4925.904 | 212 161.881 | 232 462.724 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^4S°-^4P$ | $^3/_2-^5/_2$ | W |
| 33 | 18 | 4941.069 | 4941.072 | 4942.451 | 214 169.920 | 234 402.797 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2D$ | $^1/_2-^3/_2$ | W |
| 33 | 20 | 4942.999 | 4943.005 | 4944.385 | 214 229.671 | 234 454.634 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2D$ | $^3/_2-^5/_2$ | W |
| 33 | 14 | 4955.705 | 4955.707 | 4957.090 | 214 229.671 | 234 402.797 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2D$ | $^3/_2-^3/_2$ | W |
| 23.01 | 2 | 5041.976 | 5041.975 | 5043.381 | 211 522.117 | 231 350.087 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4F$ | $^3/_2-^3/_2$ | W |
| 23.01 | 3 | 5070.800 | 5070.805 | 5072.219 | 211 712.732 | 231 427.970 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4F$ | $^5/_2-^7/_2$ | W |
| 23.01 | 2 | 5090.920 | 5090.917 | 5092.336 | 211 712.732 | 231 350.087 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2D°-^4F$ | $^5/_2-^5/_2$ | W |
| 85.01 | 6 | 5110.300 | 5110.303 | 5111.727 | 233 430.53 | 252 993.39 | $2s^22p^2(^3P)3d-2s^22p^2(^1S)3p$ | $^2P-^2P°$ | $^3/_2-^3/_2$ | W |
| 32 | 15 | 5159.942 | 5159.941 | 5161.378 | 214 169.920 | 233 544.59 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2P$ | $^1/_2-^1/_2$ | W |
| 32 | 12 | 5175.896 | 5175.903 | 5177.345 | 214 229.671 | 233 544.59 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2P$ | $^3/_2-^1/_2$ | W |
| 32 | 14 | 5190.496 | 5190.498 | 5191.944 | 214 169.920 | 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2P$ | $^1/_2-^3/_2$ | W |
| 32 | 20 | 5206.650 | 5206.651 | 5208.100 | 214 229.671 | 233 430.53 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^2P$ | $^3/_2-^3/_2$ | W |
| 95 | 2 | 5322.525 | 5322.502 | 5323.983 | 248 515.30 | 267 298.23 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)6s$ | $^2P°-^2P$ | $^3/_2-^3/_2$ | W |
| UV17.27 | 2 | 5344.104 | 5344.104 | 5345.591 | 185 235.281 | 203 942.288 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^2S°$ | $^1/_2-^1/_2$ | W |
| UV17.27 | 6 | 5374.351 | 5374.355 | 5375.850 | 185 340.577 | 203 942.288 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^4P-^2S°$ | $^3/_2-^1/_2$ | W |
| 88.13 | 5 | 5377.568 | 5377.569 | 5379.065 | 234 402.797 | 252 993.39 | $2s^22p^2(^3P)3d-2s^22p^2(^1S)3p$ | $^2D-^2P°$ | $^3/_2-^3/_2$ | W |
| 88.13 | 7 | 5379.352 | 5379.352 | 5380.848 | 234 402.797 | 252 987.23 | $2s^22p^2(^3P)3d-2s^22p^2(^1S)3p$ | $^2D-^2P°$ | $^3/_2-^1/_2$ | W |
| 31.07 | 1 | 5381.772 | 5381.776 | 5383.273 | 214 169.920 | 232 745.981 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^4D$ | $^1/_2-^3/_2$ | W |
| 88.13 | 10 | 5392.611 | 5392.606 | 5394.105 | 234 454.634 | 252 993.39 | $2s^22p^2(^3P)3d-2s^22p^2(^1S)3p$ | $^2D-^2P°$ | $^5/_2-^3/_2$ | W |
| 6.01 | | | 5398.300 | 5399.801 | 195 710.47 | 214 229.671 | $2s2p^4-2s^22p^2(^3P)3p$ | $^2S-^2P°$ | $^1/_2-^3/_2$ | |
| 31.07 | 1 | 5409.203 | 5409.175 | 5410.678 | 214 229.671 | 232 711.642 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^4D$ | $^3/_2-^1/_2$ | W |
| 6.01 | 5 | 5415.772 | 5415.774 | 5417.279 | 195 710.47 | 214 169.920 | $2s2p^4-2s^22p^2(^3P)3p$ | $^2S-^2P°$ | $^1/_2-^1/_2$ | W |
| 31.06 | 1 | 5423.639 | 5423.671 | 5425.179 | 214 169.920 | 232 602.492 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P°-^4P$ | $^1/_2-^1/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 31.06 | 2 | 5461.040 | 5461.089 | 5462.607 | 214 229.671 | 232 535.949 | $2s^22p^2(^3P)3p-2s^22p^2(^3P)3d$ | $^2P^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| 44.01 | 10 | 5583.232 | 5583.217 | 5584.767 | 230 609.45 | 248 515.30 | $2s^22p^2(^1S)3s-2s^22p^2(^3P)4p$ | $^2S-^2P^\circ$ | $^1/_2-^3/_2$ | W |
| 44.01 | 5 | 5611.061 | 5611.072 | 5612.630 | 230 609.45 | 248 426.41 | $2s^22p^2(^1S)3s-2s^22p^2(^3P)4p$ | $^2S-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| 4.01 | 6 | 5613.472 | 5613.469 | 5615.028 | 189 068.514 | 206 877.865 | $2s^22p^2(^3P)3s-2s^22p^2(^3P)3p$ | $^2P-^4D^\circ$ | $^3/_2-^5/_2$ | W |
| 31.03 | 5 | 5753.917 | 5753.926 | 5755.522 | 212 593.82 | 229 968.44 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2P-^2D^\circ$ | $^3/_2-^3/_2$ | W |
| 31.03 | 11 | 5761.008 | 5761.012 | 5762.609 | 212 593.82 | 229 947.07 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2P-^2D^\circ$ | $^3/_2-^5/_2$ | W |
| 93.13 | 3w | 5783.788 | 5783.789 | 5785.393 | 238 627.46 | 255 912.37 | $2s^22p^2(^3P)4s-2s^22p^2(^3P)4f$ D | $^4P-^2[1]^\circ$ | $^1/_2-^1/_2$ | W |
| 93.13 | | | 5783.806 | 5785.410 | 238 627.46 | 255 912.32 | $2s^22p^2(^3P)4s-2s^22p^2(^3P)4f$ D | $^4P-^2[1]^\circ$ | $^1/_2-^3/_2$ | |
| 31.03 | 9 | 5810.243 | 5810.251 | 5811.862 | 212 762.25 | 229 968.44 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2P-^2D^\circ$ | $^1/_2-^3/_2$ | W |
| 105.41 | 11 | 5846.232 | 5846.230? | 5847.851 | 261 044.03 | 278 144.33? | $2s^22p^2(^3P)5p-2s^22p^2(^1D)5s$ | $^4D^\circ-^2D$ | $^5/_2-^3/_2$ | W |
| 93.12 | 4 | 5903.078 | 5903.079 | 5904.714 | 238 893.96 | 255 829.58 | $2s^22p^2(^3P)4s-2s^22p^2(^3P)4f$ G | $^4P-^2[4]^\circ$ | $^5/_2-^7/_2$ | W |
| 31.05 | 4 | 6081.224 | 6081.215 | 6082.899 | 214 169.920 | 230 609.45 | $2s^22p^2(^3P)3p-2s^22p^2(^1S)3s$ | $^2P^\circ-^2S$ | $^1/_2-^1/_2$ | W |
| 31.05 | 7 | 6103.386 | 6103.399 | 6105.088 | 214 229.671 | 230 609.45 | $2s^22p^2(^3P)3p-2s^22p^2(^1S)3s$ | $^2P^\circ-^2S$ | $^3/_2-^1/_2$ | W |
| 93.11 | 7 | 6112.987 | 6112.986 | 6114.678 | 238 627.46 | 254 981.55 | $2s^22p^2(^3P)4s-2s2p^3(^5S^\circ)3s$ | $^4P-^4S^\circ$ | $^1/_2-^3/_2$ | W |
| 93.11 | 8 | 6152.566 | 6152.560 | 6154.263 | 238 732.65 | 254 981.55 | $2s^22p^2(^3P)4s-2s2p^3(^5S^\circ)3s$ | $^4P-^4S^\circ$ | $^3/_2-^3/_2$ | W |
| 31.02 | 1 | 6197.922 | 6197.905 | 6199.620 | 212 593.82 | 228 723.84 | $2s2p^4-2s^22p^2(^1D)3p$ | $^2P-^2F^\circ$ | $^3/_2-^5/_2$ | W |
| 93.11 | 9 | 6214.250 | 6214.252 | 6215.971 | 238 893.96 | 254 981.55 | $2s^22p^2(^3P)4s-2s2p^3(^5S^\circ)3s$ | $^4P-^4S^\circ$ | $^5/_2-^3/_2$ | W |
| 52.05 | 4 | 6357.961 | 6357.981 | 6359.739 | 232 462.724 | 248 186.64 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 93.18 | 2 | 6457.047 | 6457.030 | 6458.814 | 240 330.01 | 255 812.728 | $2s^22p^2(^3P)4s-2s^22p^2(^3P)4f$ D | $^2P-^2[2]^\circ$ | $^1/_2-^3/_2$ | W |
| 109 | 2 | 6457.806 | 6457.805 | 6459.589 | 275 842.14 | 291 323.00 | $2s^22p^2(^1D)4f$ G$-2s^22p^2(^1D_2)6g$ | $^2[4]^\circ-^2[5]$ | | EW |
| 105.20 | 6 | 6471.424 | 6471.420 | 6473.208 | 255 912.32 | 271 360.61 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_2)6g$ | $^2[1]^\circ-^2[2]$ | | EW |
| 111 | 1 | 6473.891 | 6473.893? | 6475.682 | 275 881.65 | 291 324.04? | $2s^22p^2(^1D)4f$ F$-2s^22p^2(^1D_2)6g$ | $^2[3]^\circ-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 62.04 | 6 | 6475.274 | 6475.281 | 6477.071 | 232 747.562 | 248 186.64 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 62.04 | 10 | 6477.910 | 6477.905 | 6479.695 | 232 753.816 | 248 186.64 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^2D^\circ$ | $^7/_2-^5/_2$ | W |
| 96.02 | 12 | 6483.979 | 6483.970 | 6485.761 | 251 222.19 | 266 640.58 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2F-^2D^\circ$ | $^7/_2-^5/_2$ | W |
| 96.02 | | | 6485.063 | 6486.855 | 251 224.79 | 266 640.58 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2F-^2D^\circ$ | $^5/_2-^5/_2$ | |
| 105.08 | 7 | 6485.093 | 6485.093 | 6486.885 | 255 756.131 | 271 171.85 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)6g$ | $^2[3]^\circ-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.08 | 7 | 6486.461 | 6486.462 | 6488.254 | 255 759.384 | 271 171.85 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)6g$ | $^2[3]^\circ-^2[4]$ | $^7/_2-^7/_2$ | EW |
| 96.02 | 11 | 6491.924 | 6491.911 | 6493.705 | 251 224.79 | 266 624.32 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2F-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 74.05 | 11bl | 6495.802 | 6495.787 | 6497.581 | 232 796.298 | 248 186.64 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^2D^\circ$ | $^5/_2-^5/_2$ | EW |
| 105.24 | | | 6495.800 | 6497.595 | 255 977.481 | 271 367.79 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)6g$ | $^2[5]^\circ-^2[6]$ | $^{11}/_2-^{13}/_2$ | |
| 105.24 | | | 6495.838 | 6497.633 | 255 977.481 | 271 367.70 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)6g$ | $^2[5]^\circ-^2[6]$ | $^{11}/_2-^{11}/_2$ | |
| 105.24 | 7 | 6498.416 | 6498.415 | 6500.211 | 255 983.584 | 271 367.70 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)6g$ | $^2[5]^\circ-^2[6]$ | $^9/_2-^{11}/_2$ | EW |
| 105.04 | 4 | 6500.828 | 6500.826 | 6502.622 | 255 689.939 | 271 068.35 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_0)6g$ | $^2[3]^\circ-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.04 | 7 | 6501.410 | 6501.404 | 6503.200 | 255 691.346 | 271 068.39 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_0)6g$ | $^2[3]^\circ-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 105.04 | | | 6501.421 | 6503.217 | 255 691.346 | 271 068.35 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_0)6g$ | $^2[3]^\circ-^2[4]$ | $^7/_2-^7/_2$ | |
| 105.11 | 4 | 6502.187 | 6502.187 | 6503.984 | 255 812.728 | 271 187.92 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_1)6g$ | $^2[2]^\circ-^2[3]$ | $^3/_2-^5/_2$ | EW |
| 105.11 | 5 | 6502.450 | 6502.451 | 6504.248 | 255 813.472 | 271 188.04 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_1)6g$ | $^2[2]^\circ-^2[3]$ | $^5/_2-^7/_2$ | EW |
| 96.01 | 7 | 6506.027 | 6506.018 | 6507.815 | 251 222.19 | 266 588.33 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2F-^2F^\circ$ | $^7/_2-^7/_2$ | W |
| 105.16 | 8 | 6509.711 | 6509.711 | 6511.509 | 255 827.657 | 271 185.08 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)6g$ | $^2[4]^\circ-^2[5]$ | $^9/_2-^{11}/_2$ | EW |
| 105.16 | 8bl | 6510.622 | 6510.615 | 6512.414 | 255 829.58 | 271 184.87 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)6g$ | $^2[4]^\circ-^2[5]$ | $^7/_2-^9/_2$ | EW |
| 96.01 | 13 | 6510.752 | 6510.763 | 6512.562 | 251 224.79 | 266 579.73 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2F-^2F^\circ$ | $^5/_2-^5/_2$ | W |
| 93.18 | 3 | 6535.828 | 6535.799 | 6537.605 | 240 517.35 | 255 813.472 | $2s^22p^2(^3P)4s-2s^22p^2(^3P)4f$ D | $^2P-^2[2]^\circ$ | $^3/_2-^5/_2$ | W |
| 105.28 | 3 | 6537.557 | 6537.558 | 6539.364 | 256 083.604 | 271 375.61 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[2]^\circ-^2[3]$ | $^5/_2-^5/_2$ | EW |
| 105.28 | | | 6539.330 | 6541.136 | 256 087.746 | 271 375.61 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[2]^\circ-^2[3]$ | $^5/_2-^5/_2$ | |
| 105.28 | 4 | 6539.369 | 6539.385 | 6541.192 | 256 087.746 | 271 375.48 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[2]^\circ-^2[3]$ | $^5/_2-^7/_2$ | EW |
| 62.04 | 16 | 6550.144 | 6550.125 | 6551.934 | 232 747.562 | 248 010.23 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^2D^\circ$ | $^5/_2-^3/_2$ | W |
| 105.34 | 4 | 6550.598 | 6550.597 | 6552.406 | 256 123.231 | 271 384.80 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[3]^\circ-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 105.34 | 4 | 6551.757 | 6551.757 | 6553.567 | 256 125.785 | 271 384.65 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[3]^\circ-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.33 | 3 | 6554.619 | 6554.599 | 6556.410 | 256 123.231 | 271 375.48 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[3]^\circ-^2[3]$ | $^7/_2-^7/_2$ | EW |
| 105.39 | 7 | 6555.845 | 6555.844 | 6557.655 | 256 136.036 | 271 385.39 | $2s^22p^2(^3P)4f$ F$-2s^22p^2(^3P_2)6g$ | $^2[4]^\circ-^2[5]$ | $^9/_2-^{11}/_2$ | EW |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 113 | 4 | 6556.068 | 6556.048 | 6557.859 | 276 109.46 | 291 358.34 | $2s^2 2p^2(^1D)4f\,H - 2s^2 2p^2(^1D_2)6g$ | $^2[5]^\circ - ^2[6]$ | 9/2–11/2 | EW |
| 113 | | | 6556.082 | 6557.893 | 276 109.54 | 291 358.34 | $2s^2 2p^2(^1D)4f\,H - 2s^2 2p^2(^1D_2)6g$ | $^2[5]^\circ - ^2[6]$ | 11/2–13/2 | |
| 105.40 | | | 6556.097 | 6557.909 | 256 136.036 | 271 384.80 | $2s^2 2p^2(^3P)4f\,F - 2s^2 2p^2(^3P_2)6g$ | $^2[4]^\circ - ^2[4]$ | 9/2–9/2 | |
| 105.39 | 7bl | 6559.060 | 6559.062 | 6560.873 | 256 143.187 | 271 385.06 | $2s^2 2p^2(^3P)4f\,F - 2s^2 2p^2(^3P_2)6g$ | $^2[4]^\circ - ^2[5]$ | 7/2–9/2 | EW |
| 105.15 | | | 6559.552 | 6561.364 | 255 827.657 | 271 068.39 | $2s^2 2p^2(^3P)4f\,G - 2s^2 2p^2(^3P_0)6g$ | $^2[4]^\circ - ^2[4]$ | 9/2–9/2 | |
| 105.15 | | | 6559.569 | 6561.381 | 255 827.657 | 271 068.35 | $2s^2 2p^2(^3P)4f\,G - 2s^2 2p^2(^3P_0)6g$ | $^2[4]^\circ - ^2[4]$ | 9/2–7/2 | |
| 105.15 | 7 | 6560.369 | 6560.380 | 6562.192 | 255 829.58 | 271 068.39 | $2s^2 2p^2(^3P)4f\,G - 2s^2 2p^2(^3P_0)6g$ | $^2[4]^\circ - ^2[4]$ | 7/2–9/2 | W |
| 93.17 | | | 6560.392 | 6562.205 | 240 517.35 | 255 756.131 | $2s^2 2p^2(^3P)4s - 2s^2 2p^2(^3P)4f\,G$ | $^2P - ^2[3]^\circ$ | 3/2–5/2 | |
| 105.15 | | | 6560.397 | 6562.209 | 255 829.58 | 271 068.35 | $2s^2 2p^2(^3P)4f\,G - 2s^2 2p^2(^3P_0)6g$ | $^2[4]^\circ - ^2[4]$ | 7/2–7/2 | |
| 74.05 | 20 | 6565.283 | 6565.283 | 6567.096 | 232 959.210 | 248 186.64 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2F - ^2D^\circ$ | 7/2–5/2 | W |
| 74.05 | 18 | 6571.100 | 6571.108 | 6572.923 | 232 796.298 | 248 010.23 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2F - ^2D^\circ$ | 5/2–3/2 | W |
| 93.16 | 6 | 6589.006 | 6589.013 | 6590.833 | 240 517.35 | 255 689.939 | $2s^2 2p^2(^3P)4s - 2s^2 2p^2(^3P)4f\,D$ | $^2P - ^2[3]^\circ$ | 3/2–5/2 | W |
| | | | 6627.357 | 6629.187 | 255 983.584 | 271 068.39 | $2s^2 2p^2(^3P)4f\,G - 2s^2 2p^2(^3P_0)6g$ | $^2[5]^\circ - ^2[4]$ | 9/2–9/2 | |
| 85 | 17 | 6627.385 | 6627.373 | 6629.203 | 233 430.53 | 248 515.30 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2P - ^2P^\circ$ | 3/2–3/2 | W |
| | | | 6627.374 | 6629.205 | 255 983.584 | 271 068.35 | $2s^2 2p^2(^3P)4f\,G - 2s^2 2p^2(^3P_0)6g$ | $^2[5]^\circ - ^2[4]$ | 9/2–7/2 | |
| 4 | 24 | 6641.054 | 6641.031 | 6642.865 | 188 888.543 | 203 942.288 | $2s^2 2p^2(^3P)3s - 2s^2 2p^2(^3P)3p$ | $^2P - ^2S^\circ$ | 1/2–1/2 | W |
| 105.38 | 4 | 6646.350 | 6646.357 | 6648.192 | 256 143.187 | 271 184.87 | $2s^2 2p^2(^3P)4f\,F - 2s^2 2p^2(^3P_1)6g$ | $^2[4]^\circ - ^2[5]$ | 7/2–9/2 | W |
| 46 | 4 | 6652.563 | 6652.559 | 6654.396 | 231 427.970 | 246 455.629 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4P^\circ$ | 7/2–5/2 | W |
| 85 | 13 | 6666.667 | 6666.657 | 6668.498 | 233 430.53 | 248 426.41 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2P - ^2P^\circ$ | 3/2–1/2 | W |
| 85 | 12 | 6677.862 | 6677.866 | 6679.710 | 233 544.59 | 248 515.30 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2P - ^2P^\circ$ | 1/2–3/2 | W |
| 85 | 15 | 6717.751 | 6717.754 | 6719.608 | 233 544.59 | 248 426.41 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2P - ^2P^\circ$ | 1/2–1/2 | W |
| 4 | 26 | 6721.398 | 6721.388 | 6723.243 | 189 068.514 | 203 942.288 | $2s^2 2p^2(^3P)3s - 2s^2 2p^2(^3P)3p$ | $^2P - ^2S^\circ$ | 3/2–1/2 | W |
| 84.03 | 9 | 6774.973 | 6774.984 | 6776.854 | 233 430.53 | 248 186.64 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2P - ^2D^\circ$ | 3/2–5/2 | W |
| 45 | | | 6810.477 | 6812.357 | 231 350.087 | 246 029.295 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 5/2–7/2 | |
| 45 | | | 6844.098 | 6845.987 | 231 296.126 | 245 903.224 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 3/2–5/2 | |
| 45 | 11 | 6846.813 | 6846.804 | 6848.694 | 231 427.970 | 246 029.295 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 7/2–7/2 | W |
| 45 | 11 | 6869.485 | 6869.475 | 6871.371 | 231 350.087 | 245 903.224 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 5/2–5/2 | W |
| 45 | 11 | 6884.911 | 6884.881 | 6886.780 | 231 296.126 | 245 816.70 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 3/2–3/2 | W |
| 45 | 22 | 6895.109 | 6895.102 | 6897.004 | 231 530.246 | 246 029.295 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 9/2–7/2 | W |
| 45 | 19 | 6906.443 | 6906.436 | 6908.342 | 231 427.970 | 245 903.224 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 7/2–5/2 | W |
| 45 | 15 | 6907.872 | 6907.873 | 6909.778 | 231 296.126 | 245 768.37 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 3/2–1/2 | W |
| 45 | 19 | 6910.562 | 6910.562 | 6912.468 | 231 350.087 | 245 816.70 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4F - ^4D^\circ$ | 5/2–3/2 | W |
| 101.06 | 6 | 6922.355 | 6922.353 | 6924.263 | 253 048.82 | 267 490.79 | $2s^2 2p^2(^1D)3d - 2s^2 2p^2(^1D)4p$ | $^2D - ^2P^\circ$ | 5/2–3/2 | W |
| 101.06 | 5 | 6936.019 | 6936.008 | 6937.921 | 253 046.74 | 267 460.28 | $2s^2 2p^2(^1D)3d - 2s^2 2p^2(^1D)4p$ | $^2D - ^2P^\circ$ | 3/2–1/2 | W |
| 88.12 | 11 | 7083.975 | 7083.962 | 7085.915 | 234 402.797 | 248 515.30 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2D - ^2P^\circ$ | 3/2–3/2 | W |
| 88.12 | 16 | 7110.083 | 7110.078 | 7112.039 | 234 454.634 | 248 515.30 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2D - ^2P^\circ$ | 5/2–3/2 | W |
| 88.12 | 13 | 7128.885 | 7128.865 | 7130.830 | 234 402.797 | 248 426.41 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2D - ^2P^\circ$ | 3/2–1/2 | W |
| 52.03 | | | 7130.400 | 7132.366 | 232 462.724 | 246 483.317 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 5/2–3/2 | |
| 52.03 | 12 | 7144.478 | 7144.509 | 7146.479 | 232 462.724 | 246 455.629 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 5/2–5/2 | W |
| 99.01 | 12 | 7151.087 | 7151.079 | 7153.050 | 252 608.28 | 266 588.33 | $2s^2 2p^2(^1D)3d - 2s^2 2p^2(^1D)4p$ | $^2G - ^2F^\circ$ | 9/2–7/2 | W |
| 99.01 | 11 | 7156.090 | 7156.085 | 7158.058 | 252 609.46 | 266 579.73 | $2s^2 2p^2(^1D)3d - 2s^2 2p^2(^1D)4p$ | $^2G - ^2F^\circ$ | 7/2–5/2 | EW |
| 52.03 | 7 | 7167.833 | 7167.836 | 7169.812 | 232 535.949 | 246 483.317 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 3/2–3/2 | W |
| 52.03 | 6 | 7182.091 | 7182.094 | 7184.073 | 232 535.949 | 246 455.629 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 3/2–5/2 | W |
| 52.03 | 9 | 7202.206 | 7202.198 | 7204.183 | 232 602.492 | 246 483.317 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 1/2–3/2 | W |
| 52.04 | 16 | 7229.142 | 7229.137 | 7231.130 | 232 462.724 | 246 291.822 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4S^\circ$ | 5/2–3/2 | W |
| 52.03 | 12 | 7252.717 | 7252.717 | 7254.716 | 232 535.949 | 246 320.086 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 3/2–1/2 | W |
| 62.03 | 10 | 7259.282 | 7259.280 | 7261.281 | 232 711.642 | 246 483.317 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4D - ^4P^\circ$ | 1/2–3/2 | W |
| 52.04 | 9 | 7267.630 | 7267.620 | 7269.622 | 232 535.949 | 246 291.822 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4S^\circ$ | 3/2–3/2 | W |
| 62.03 | 12 | 7277.438 | 7277.426 | 7279.432 | 232 745.981 | 246 483.317 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4D - ^4P^\circ$ | 3/2–3/2 | W |
| 62.03 | 10 | 7278.258 | 7278.264 | 7280.270 | 232 747.562 | 246 483.317 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4D - ^4P^\circ$ | 5/2–3/2 | W |
| 88.11 | 11 | 7280.257 | 7280.251 | 7282.257 | 234 454.634 | 248 186.64 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^2D - ^2D^\circ$ | 5/2–5/2 | W |
| 52.03 | 10 | 7287.894 | 7287.900 | 7289.908 | 232 602.492 | 246 320.086 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4P - ^4P^\circ$ | 1/2–1/2 | W |
| 62.03 | 9 | 7292.129 | 7292.124 | 7294.133 | 232 745.981 | 246 455.629 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4D - ^4P^\circ$ | 3/2–5/2 | W |
| 62.03 | 11 | 7292.962 | 7292.965 | 7294.975 | 232 747.562 | 246 455.629 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4D - ^4P^\circ$ | 5/2–5/2 | W |
| 62.03 | 14 | 7296.310 | 7296.294 | 7298.304 | 232 753.816 | 246 455.629 | $2s^2 2p^2(^3P)3d - 2s^2 2p^2(^3P)4p$ | $^4D - ^4P^\circ$ | 7/2–5/2 | W |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 103.03 | 5 | 7298.112 | 7298.117 | 7300.128 | 253 792.40 | 267 490.79 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2P-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| 52.04 | | | 7302.947 | 7304.959 | 232 602.492 | 246 291.822 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4S^\circ$ | $^1/_2-^3/_2$ | |
| 74.04 | 7 | 7304.170 | 7304.180 | 7306.193 | 232 706.298 | 246 483.317 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^4P^\circ$ | $^5/_2-^3/_2$ | W |
| 103.03 | 1 | 7313.114 | 7313.119 | 7315.134 | 253 789.99 | 267 460.28 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2P-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| 2F | E2 | | 7318.92 | 7320.94 | 26 810.55 | 40 470.00 | $2s^22p^3-2s^22p^3$ | $^2D^\circ-^2P^\circ$ | $^5/_2-^1/_2$ | |
| 74.04 | 10 | 7318.987 | 7318.986 | 7321.003 | 232 796.298 | 246 455.629 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^4P^\circ$ | $^5/_2-^5/_2$ | W |
| 2F | E2 | 7319.92 | 7319.99 | 7322.01 | 26 810.55 | 40 468.01 | $2s^22p^3-2s^22p^3$ | $^2D^\circ-^2P^\circ$ | $^5/_2-^1/_2$ | B2 |
| 2F | E2 | 7330.19 | 7329.66 | 7331.68 | 26 830.57 | 40 470.00 | $2s^22p^3-2s^22p^3$ | $^2D^\circ-^2P^\circ$ | $^3/_2-^1/_2$ | B2 |
| 2F | E2 | | 7330.73 | 7332.75 | 26 830.57 | 40 468.01 | $2s^22p^3-2s^22p^3$ | $^2D^\circ-^2P^\circ$ | $^3/_2-^1/_2$ | |
| 62.03 | 7 | 7346.367 | 7346.355 | 7348.379 | 232 711.642 | 246 320.086 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4P^\circ$ | $^1/_2-^1/_2$ | W |
| 88.11 | 9 | 7346.895 | 7346.901 | 7348.925 | 234 402.797 | 248 010.23 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2D-^2D^\circ$ | $^3/_2-^3/_2$ | W |
| 101.05 | 4 | 7355.362 | 7355.373 | 7357.399 | 253 048.82 | 266 640.58 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2D-^2D^\circ$ | $^5/_2-^5/_2$ | W |
| 62.02 | 3 | 7361.647 | 7361.645 | 7363.673 | 232 711.642 | 246 291.822 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4S^\circ$ | $^1/_2-^3/_2$ | W |
| 101.05 | 2 | 7363.046 | 7363.054 | 7365.083 | 253 046.74 | 266 624.32 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2D-^2D^\circ$ | $^3/_2-^3/_2$ | W |
| 62.03 | 3 | 7364.935 | 7364.939 | 7366.968 | 232 745.981 | 246 320.086 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4P^\circ$ | $^3/_2-^1/_2$ | W |
| 93.22 | 5 | 7367.694 | 7367.678 | 7369.707 | 245 037.29 | 258 606.35 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^2S^\circ-^2P$ | $^1/_2-^3/_2$ | W |
| 52.02 | 1 | 7369.017 | 7369.029 | 7371.059 | 232 462.724 | 246 029.295 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^5/_2-^7/_2$ | W |
| 88.11 | 3 | 7374.986 | 7374.996 | 7377.027 | 234 454.634 | 248 010.23 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2D-^2D^\circ$ | $^5/_2-^3/_2$ | W |
| 62.02 | | | 7380.307 | 7382.340 | 232 745.981 | 246 291.822 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4S^\circ$ | $^3/_2-^3/_2$ | |
| 62.02 | 1 | 7381.118 | 7381.168 | 7383.201 | 232 747.562 | 246 291.822 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4S^\circ$ | $^5/_2-^3/_2$ | W |
| 101.04 | 2 | 7383.744 | 7383.758 | 7385.792 | 253 048.82 | 266 588.33 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2D-^2F^\circ$ | $^5/_2-^7/_2$ | W |
| 101.04 | 3 | 7387.324 | 7387.315 | 7389.350 | 253 046.74 | 266 579.73 | $2s^22p^2(^1D)3d-2s^22p^2(^1D)4p$ | $^2D-^2F^\circ$ | $^3/_2-^5/_2$ | W |
| 74.04 | 3 | 7407.341 | 7407.333 | 7409.373 | 232 959.210 | 246 455.629 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^4P^\circ$ | $^7/_2-^5/_2$ | W |
| 74.03 | 2 | 7407.821 | 7407.824 | 7409.864 | 232 796.298 | 246 291.822 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^4S^\circ$ | $^5/_2-^3/_2$ | W |
| 52.02 | 2 | 7438.139 | 7438.151 | 7440.199 | 232 462.724 | 245 903.224 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^5/_2-^5/_2$ | W |
| 52.02 | | | 7478.897 | 7480.956 | 232 535.949 | 245 903.224 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^3/_2-^5/_2$ | |
| 52.02 | | | 7486.345 | 7488.406 | 232 462.724 | 245 816.70 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^5/_2-^3/_2$ | |
| 62.01 | 4 | 7527.011 | 7527.065 | 7529.138 | 232 747.562 | 246 029.295 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^5/_2-^7/_2$ | W |
| 52.02 | | | 7527.622 | 7529.695 | 232 535.949 | 245 816.70 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^3/_2-^3/_2$ | |
| 62.01 | 10 | 7530.020 | 7530.611 | 7532.685 | 232 753.816 | 246 029.295 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^7/_2-^7/_2$ | W |
| 74.02 | 3 | 7554.772 | 7554.787 | 7556.867 | 232 796.298 | 246 029.295 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^4D^\circ$ | $^5/_2-^7/_2$ | W |
| 52.02 | | | 7555.116 | 7557.196 | 232 535.949 | 245 768.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^3/_2-^1/_2$ | |
| 52.02 | 3 | 7565.482 | 7565.529 | 7567.612 | 232 602.492 | 245 816.70 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^1/_2-^3/_2$ | W |
| 52.02 | | | 7593.301 | 7595.392 | 232 602.492 | 245 768.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4P-^4D^\circ$ | $^1/_2-^1/_2$ | |
| 62.01 | 4 | 7598.254 | 7598.285 | 7600.376 | 232 745.981 | 245 903.224 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^3/_2-^5/_2$ | |
| 62.01 | 4 | 7599.215 | 7599.198 | 7601.290 | 232 747.562 | 245 903.224 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^5/_2-^5/_2$ | W |
| 62.01 | 5 | 7602.810 | 7602.812 | 7604.905 | 232 753.816 | 245 903.224 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^7/_2-^5/_2$ | W |
| 74.02 | 4 | 7627.460 | 7627.454 | 7629.554 | 232 796.298 | 245 903.224 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2F-^4D^\circ$ | $^5/_2-^5/_2$ | W |
| 62.01 | 4 | 7628.468 | 7628.542 | 7630.642 | 232 711.642 | 245 816.70 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^1/_2-^3/_2$ | W |
| 62.01 | 4 | 7648.605 | 7648.583 | 7650.689 | 232 745.981 | 245 816.70 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^3/_2-^3/_2$ | W |
| 62.01 | 4 | 7649.557 | 7649.508 | 7651.614 | 232 747.562 | 245 816.70 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^5/_2-^3/_2$ | W |
| 62.01 | | | 7656.779 | 7658.887 | 232 711.642 | 245 768.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^1/_2-^1/_2$ | |
| 62.01 | 4 | 7676.944 | 7676.970 | 7679.083 | 232 745.981 | 245 768.37 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^4D-^4D^\circ$ | $^3/_2-^1/_2$ | W |
| 93.15 | 5 | 7894.609 | 7894.614 | 7896.786 | 240 330.01 | 252 993.39 | $2s^22p^2(^3P)4s-2s^22p^2(^1S)3p$ | $^2P-^2P^\circ$ | $^1/_2-^3/_2$ | W |
| 93.15 | 6 | 7898.452 | 7898.456 | 7900.629 | 240 330.01 | 252 987.23 | $2s^22p^2(^3P)4s-2s^22p^2(^1S)3p$ | $^2P-^2P^\circ$ | $^1/_2-^1/_2$ | W |
| 93.15 | 8 | 8013.157 | 8013.160 | 8015.364 | 240 517.35 | 252 993.39 | $2s^22p^2(^3P)4s-2s^22p^2(^1S)3p$ | $^2P-^2P^\circ$ | $^3/_2-^3/_2$ | W |
| 94.03 | 8 | 8375.841 | 8375.844 | 8378.146 | 246 029.295 | 257 965.11 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^7/_2-^5/_2$ | W |
| 94.03 | 7 | 8403.370 | 8403.379 | 8405.688 | 245 903.224 | 257 799.93 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4D^\circ-^4P$ | $^5/_2-^5/_2$ | W |
| 84.02 | 7 | 8613.319 | 8613.303 | 8615.669 | 233 430.53 | 245 037.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2P-^2S^\circ$ | $^3/_2-^1/_2$ | W |
| 94.08 | 8 | 8686.088 | 8686.103 | 8688.489 | 246 455.629 | 257 965.11 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^5/_2-^5/_2$ | W |
| 94.06 | 6 | 8687.153 | 8687.140 | 8689.526 | 246 291.822 | 257 799.93 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4S^\circ-^4P$ | $^3/_2-^3/_2$ | W |
| 84.02 | 5 | 8698.786 | 8698.786 | 8701.176 | 233 544.59 | 245 037.29 | $2s^22p^2(^3P)3d-2s^22p^2(^3P)4p$ | $^2P-^2S^\circ$ | $^1/_2-^1/_2$ | W |
| 94.08 | 7 | 8707.048 | 8707.050 | 8709.441 | 246 483.317 | 257 965.11 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^3/_2-^5/_2$ | W |
| 94.08 | 5 | 8708.513 | 8708.528 | 8710.920 | 246 320.086 | 257 799.93 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4P^\circ-^4P$ | $^1/_2-^3/_2$ | W |
| 104.07 | 6 | 8762.028 | 8762.028 | 8764.434 | 254 590.00 | 265 999.75 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4F-^2[4]^\circ$ | $^9/_2-^9/_2$ | W |

Table 1. Wavelengths and Energy-Level Classifications for O II  —  Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wavelength (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | J Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 94.06 | 5 | 8766.509 | 8766.509 | 8768.916 | 246 291.822 | 257 695.74 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^4S°-^4P$ | $^3/_2-^1/_2$ | W |
| 104.06 | 5 | 8784.288 | 8784.262 | 8786.674 | 254 337.61 | 265 718.48 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4F-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 104.03 | 5 | 8788.827 | 8788.842 | 8791.255 | 254 388.42 | 265 763.36 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4F-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 104.05 | m? | | 8819.66 | 8822.08 | 254 590.00 | 265 925.19 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4F-^2[5]°$ | $^9/_2-^{11}/_2$ | |
| 104.02 | 5 | 8847.509 | 8847.528 | 8849.957 | 254 337.61 | 265 637.10 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^4F-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 104.04 | 4 | 8857.046 | 8857.043 | 8859.475 | 254 480.20 | 265 767.55 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^4F-^2[2]°$ | $^7/_2-^5/_2$ | W |
| 104.03 | 5 | 8861.867 | 8861.958 | 8864.392 | 254 480.20 | 265 761.29 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4F-^2[4]°$ | $^7/_2-^7/_2$ | W |
| 104.02 | 5 | 8886.313 | 8886.315 | 8888.755 | 254 388.42 | 265 638.59 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^4F-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 104.11 | 5 | 8997.624 | 8997.620 | 9000.090 | 254 881.37 | 265 992.37 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^3/_2-^5/_2$ | W |
| 104.14 | 4 | 8997.880 | 8997.871 | 9000.341 | 254 846.68 | 265 957.37 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4D-^2[2]°$ | $^1/_2-^3/_2$ | W |
| 104.13 | 4 | 9050.25 | 9050.26 | 9052.74 | 254 846.68 | 265 893.06 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^4D-^2[1]°$ | $^1/_2-^1/_2$ | W |
| 104.13 | 5 | 9078.31 | 9078.30 | 9080.80 | 254 881.37 | 265 893.62 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^4D-^2[1]°$ | $^3/_2-^3/_2$ | W |
| 104.12 | 12 | 9104.95 | 9104.95 | 9107.45 | 255 019.73 | 265 999.75 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4D-^2[4]°$ | $^7/_2-^9/_2$ | W |
| 104.11 | 5 | 9111.13 | 9111.08 | 9113.58 | 255 019.73 | 265 992.37 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^7/_2-^5/_2$ | W |
| 104.11 | | | 9111.13 | 9113.63 | 255 019.73 | 265 992.31 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4D-^2[3]°$ | $^7/_2-^7/_2$ | |
| 104.10 | 5 | 9199.70 | 9199.70 | 9202.22 | 254 896.42 | 265 763.36 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4D-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 104.09 | 8 | 9236.23 | 9236.23 | 9238.76 | 254 896.42 | 265 720.38 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 104.17 | 5 | 9238.64 | 9238.64 | 9241.18 | 255 142.41 | 265 963.54 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^4P-^2[2]°$ | $^3/_2-^5/_2$ | W |
| 104.08 | 4 | 9306.55 | 9306.55 | 9309.11 | 254 896.42 | 265 638.59 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^4D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 104.16 | 6 | 9317.12 | 9317.13 | 9319.68 | 255 163.08 | 265 893.06 | $2s^22p^2(^3P)4d-2s^22p^3(^3P)5f$ D | $^4P-^2[1]°$ | $^1/_2-^1/_2$ | W |
| 104.15 | 4 | 9417.72 | 9417.72 | 9420.30 | 255 105.01 | 265 720.38 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^4P-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 104.18 | 6 | 9421.49 | 9421.48 | 9424.07 | 255 281.93 | 265 893.06 | $2s^22p^2(^1D)4d-2s^22p^2(^3P)5f$ D | $^2P-^2[1]°$ | $^1/_2-^1/_2$ | W |
| 39.01 | 9 | 9457.91 | 9457.89 | 9460.49 | 229 947.07 | 240 517.35 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4s$ | $^2D°-^2P$ | $^5/_2-^3/_2$ | W |
| 39.01 | | | 9477.05 | 9479.65 | 229 968.44 | 240 517.35 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4s$ | $^2D°-^2P$ | $^3/_2-^3/_2$ | |
| 104.22 | 5 | 9490.79 | 9490.78 | 9493.39 | 255 466.10 | 265 999.75 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^2F-^2[4]°$ | $^7/_2-^9/_2$ | W |
| 104.21 | 9 | 9553.75 | 9553.76 | 9556.38 | 255 466.10 | 265 930.31 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^2F-^2[5]°$ | $^7/_2-^9/_2$ | W |
| 104.20 | | | 9553.80 | 9556.42 | 255 302.11 | 265 766.28 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ D | $^2F-^2[2]°$ | $^5/_2-^3/_2$ | |
| 104.19 | 7 | 9556.46 | 9556.47 | 9559.09 | 255 302.11 | 265 763.36 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ G | $^2F-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 94.09 | 10 | 9594.54 | 9594.56 | 9597.20 | 248 186.64 | 258 606.35 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^2D°-^2P$ | $^5/_2-^3/_2$ | W |
| 94.09 | 9 | 9611.80 | 9611.80 | 9614.43 | 248 010.23 | 258 411.26 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)5s$ | $^2D°-^2P$ | $^3/_2-^1/_2$ | W |
| 39.01 | 7 | 9648.40 | 9648.40 | 9651.05 | 229 968.44 | 240 330.01 | $2s^22p^2(^1D)3p-2s^22p^2(^3P)4s$ | $^2D°-^2P$ | $^3/_2-^1/_2$ | W |
| 93.21 | 9 | 9758.53 | 9758.53 | 9761.20 | 245 037.29 | 255 281.93 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)4d$ | $^2S°-^2P$ | $^1/_2-^1/_2$ | W |
| 105.14 | 7 | 9804.61 | 9804.60 | 9807.28 | 255 827.657 | 266 024.16 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[4]°-^2[5]$ | $^9/_2-^{11}/_2$ | EW |
| 105.14 | 6 | 9806.36 | 9806.44 | 9809.13 | 255 829.58 | 266 024.16 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[4]°-^2[5]$ | $^7/_2-^9/_2$ | EW |
| 105.10 | 6 | 9806.73 | 9806.76 | 9809.45 | 255 813.472 | 266 007.72 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_2)5g$ | $^2[2]°-^2[3]$ | $^5/_2-^7/_2$ | EW |
| 105.17 | | | 9850.04 | 9852.74 | 255 842.91 | 265 992.37 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^2D-^2[3]°$ | $^3/_2-^5/_2$ | |
| 105.18 | 7 | 9891.12 | 9891.12 | 9893.83 | 255 897.59 | 266 004.90 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^2D-^2[4]°$ | $^5/_2-^7/_2$ | W |
| 105.03 | 4 | 9894.16 | 9894.22 | 9896.93 | 255 689.939 | 265 794.08 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_1)5g$ | $^2[3]°-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.03 | 4 | 9895.59 | 9895.54 | 9898.25 | 255 691.346 | 265 794.14 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_1)5g$ | $^2[3]°-^2[4]$ | $^7/_2-^7/_2$ | EW |
| 108 | 8 | 9901.30 | 9901.31 | 9904.02 | 275 842.14 | 285 939.05 | $2s^22p^2(^1D)4f$ G$-2s^22p^2(^1D_2)5g$ | $^2[4]°-^2[5]$ | | EW |
| 105.17 | | | 9903.39 | 9906.11 | 255 897.59 | 265 992.37 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^2D-^2[3]°$ | $^5/_2-^5/_2$ | |
| 105.17 | 10 | 9903.46 | 9903.45 | 9906.17 | 255 897.59 | 265 992.31 | $2s^22p^2(^3P)4d-2s^22p^2(^3P)5f$ F | $^2D-^2[3]°$ | $^5/_2-^7/_2$ | W |
| 105.19 | 12 | 9929.95 | 9929.94 | 9932.67 | 255 912.32 | 265 980.11 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_2)5g$ | $^2[1]°-^2[2]$ | $^3/_2-^5/_2$ | EW |
| 105.19 | | | 9929.99 | 9932.72 | 255 912.37 | 265 980.11 | $2s^22p^2(^3P)4f$ D$-2s^22p^2(^3P_2)5g$ | $^2[1]°-^2[2]$ | $^1/_2-^3/_2$ | |
| 105.07 | 4 | 9933.49 | 9933.55 | 9936.27 | 255 756.131 | 265 820.27 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)5g$ | $^2[3]°-^2[3]$ | $^5/_2-^5/_2$ | EW |
| 105.42 | | | 9936.27 | 9938.99 | 265 820.27 | 275 881.65 | $2s^22p^2(^3P_1)5g-2s^22p^2(^1D)4f$ F | $^2[3]-^2[3]°$ | $^5/_2-^7/_2$ | |
| 105.42 | 4 | 9936.46 | 9936.46 | 9939.18 | 265 820.46 | 275 881.65 | $2s^22p^2(^3P_1)5g-2s^22p^2(^1D)4f$ F | $^2[3]-^2[3]°$ | $^7/_2-^7/_2$ | EW |
| 110 | 6 | 9937.94 | 9937.94 | 9940.66 | 275 881.65 | 285 941.34 | $2s^22p^2(^1D)4f$ F$-2s^22p^2(^1D_2)5g$ | $^2[3]°-^2[4]$ | | EW |
| 105.23 | 5 | 9950.76 | 9950.81 | 9953.54 | 255 977.481 | 266 024.16 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[5]°-^2[5]$ | $^{11}/_2-^{11}/_2$ | EW |
| 105.23 | 5 | 9956.73 | 9956.86 | 9959.59 | 255 983.584 | 266 024.16 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[5]°-^2[5]$ | $^9/_2-^9/_2$ | EW |
| 105.06 | 11 | 9959.47 | 9959.46 | 9962.19 | 255 756.131 | 265 794.08 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)5g$ | $^2[3]°-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.06 | 12 | 9962.62 | 9962.63 | 9965.36 | 255 759.384 | 265 794.14 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_1)5g$ | $^2[3]°-^2[4]$ | $^7/_2-^7/_2$ | EW |
| 105.22 | 14 | 9982.43 | 9982.43 | 9985.16 | 255 977.481 | 265 992.34 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[5]°-^2[6]$ | $^{11}/_2-^{13}/_2$ | EW |
| 105.22 | | | 9982.46 | 9985.19 | 255 977.481 | 265 992.31 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[5]°-^2[6]$ | $^{11}/_2-^{11}/_2$ | |
| 105.22 | 13 | 9988.54 | 9988.54 | 9991.28 | 255 983.584 | 265 992.31 | $2s^22p^2(^3P)4f$ G$-2s^22p^2(^3P_2)5g$ | $^2[5]°-^2[6]$ | $^9/_2-^{11}/_2$ | EW |

Table 1. Wavelengths and Energy-Level Classifications for O II — Continued

| Mult. No. | Rel. Int. | Air Wavelength (Å) Observed | Air Wavelength (Å) Calculated | Vacuum Wave-length (Å) | Levels (cm⁻¹) Lower | Levels (cm⁻¹) Upper | Configurations | Terms | $J$ Values | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| 105.09 | 10 | 9989.74 | 9989.72 | 9992.46 | 255 812.728 | − 265 820.27 | $2s^22p^2(^3P)4f\,D-2s^22p^2(^3P_1)5g$ | $^2[2]°-^2[3]$ | $^3/_2-^5/_2$ | EW |
| 105.02 | 13bl | 9990.27 | { 9990.08 | { 9992.81 | 255 689.939 | − 265 697.13 | $2s^22p^2(^3P)4f\,D-2s^22p^2(^3P_0)5g$ | $^2[3]°-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.09 | | | { 9990.28 | { 9993.02 | 255 813.472 | − 265 820.46 | $2s^22p^2(^3P)4f\,D-2s^22p^2(^3P_1)5g$ | $^2[2]°-^2[3]$ | $^5/_2-^7/_2$ | |
| 105.09 | | | 9990.47 | 9993.21 | 255 813.472 | − 265 820.27 | $2s^22p^2(^3P)4f\,D-2s^22p^2(^3P_1)5g$ | $^2[2]°-^2[3]$ | $^5/_2-^5/_2$ | |
| 105.02 | 12 | 9991.44 | 9991.48 | 9994.22 | 255 691.346 | − 265 697.13 | $2s^22p^2(^3P)4f\,D-2s^22p^2(^3P_0)5g$ | $^2[3]°-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 105.13 | 14 | 10008.89 | 10008.87 | 10011.61 | 255 827.657 | − 265 816.06 | $2s^22p^2(^3P)4f\,G-2s^22p^2(^3P_1)5g$ | $^2[4]°-^2[5]$ | $^9/_2-^{11}/_2$ | EW |
| 105.13 | 13 | 10010.87 | 10010.87 | 10013.62 | 255 829.58 | − 265 815.98 | $2s^22p^2(^3P)4f\,G-2s^22p^2(^3P_1)5g$ | $^2[4]°-^2[5]$ | $^7/_2-^9/_2$ | EW |
| 105.12 | 4 | 10032.89 | 10032.88 | 10035.63 | 255 829.58 | − 265 794.08 | $2s^22p^2(^3P)4f\,G-2s^22p^2(^3P_1)5g$ | $^2[4]°-^2[4]$ | $^7/_2-^7/_2$ | EW |
| 105.05 | 4 | 10056.54 | 10056.59 | 10059.35 | 255 756.131 | − 265 697.13 | $2s^22p^2(^3P)4f\,G-2s^22p^2(^3P_0)5g$ | $^2[3]°-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.05 | 4 | 10060.08 | 10059.89 | 10062.64 | 255 759.384 | − 265 697.13 | $2s^22p^2(^3P)4f\,G-2s^22p^2(^3P_0)5g$ | $^2[3]°-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 105.27 | 10 | 10073.80 | 10073.82 | 10076.59 | 256 083.604 | − 266 007.60 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[2]°-^2[3]$ | $^3/_2-^5/_2$ | EW |
| 105.27 | 11 | 10077.95 | 10077.91 | 10080.67 | 256 087.746 | − 266 007.72 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[2]°-^2[3]$ | $^5/_2-^7/_2$ | EW |
| 105.27 | | | 10078.03 | 10080.79 | 256 087.746 | − 266 007.60 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[2]°-^2[3]$ | $^5/_2-^5/_2$ | |
| 105.32 | 4 | 10097.48 | 10097.29 | 10100.06 | 256 123.231 | − 266 024.16 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[3]°-^2[5]$ | $^7/_2-^9/_2$ | EW |
| 105.31 | 11 | 10098.58 | 10098.58 | 10101.35 | 256 123.231 | − 266 022.90 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[3]°-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 105.31 | 11 | 10101.19 | 10101.19 | 10103.95 | 256 125.785 | − 266 022.90 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[3]°-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 105.26 | 3 | 10101.72 | 10101.81 | 10104.58 | 256 083.604 | − 265 980.11 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[2]°-^2[2]$ | $^3/_2-^5/_2$ | EW |
| 105.26 | 4 | 10106.10 | 10106.04 | 10108.81 | 256 087.746 | − 265 980.11 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[2]°-^2[2]$ | $^5/_2-^5/_2$ | EW |
| 112 | 10 | 10107.63 | { 10107.58 | { 10110.35 | 276 109.46 | − 286 000.31 | $2s^22p^3(^1D)4f\,H-2s^22p^2(^1D_2)5g$ | $^2[5]°-^2[6]$ | $^9/_2-$ | EW |
| 112 | | | { 10107.67 | { 10110.44 | 276 109.54 | − 286 000.31 | $2s^22p^2(^1D)4f\,H-2s^22p^2(^1D_2)5g$ | $^2[5]°-^2[6]$ | $^{11}/_2-$ | |
| 105.37 | 13 | 10110.37 | 10110.37 | 10113.14 | 256 136.036 | − 266 024.16 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[4]°-^2[5]$ | $^9/_2-^{11}/_2$ | EW |
| 105.30 | 4 | 10113.99 | 10114.09 | 10116.86 | 256 123.231 | − 266 007.72 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[3]°-^2[3]$ | $^7/_2-^7/_2$ | EW |
| 105.30 | 4 | 10116.90 | 10116.83 | 10119.60 | 256 125.785 | − 266 007.60 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[3]°-^2[3]$ | $^5/_2-^5/_2$ | EW |
| 105.37 | 11 | 10117.70 | 10117.69 | 10120.46 | 256 143.187 | − 266 024.16 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[4]°-^2[5]$ | $^7/_2-^9/_2$ | EW |
| 105.36 | 4 | 10118.95 | 10118.98 | 10121.75 | 256 143.187 | − 266 022.90 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_2)5g$ | $^2[4]°-^2[4]$ | $^7/_2-^7/_2$ | EW |
| 105.21 | 4 | 10167.56 | 10167.59 | 10170.38 | 255 983.584 | − 265 816.06 | $2s^22p^2(^3P)4f\,G-2s^22p^2(^3P_1)5g$ | $^2[5]°-^2[5]$ | $^9/_2-^{11}/_2$ | EW |
| 105.25 | 4 | 10267.60 | 10267.64 | 10270.46 | 256 083.604 | − 265 820.27 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_1)5g$ | $^2[2]°-^2[3]$ | $^3/_2-^5/_2$ | EW |
| 105.25 | 5 | 10271.85 | 10271.81 | 10274.63 | 256 087.746 | − 265 820.46 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_1)5g$ | $^2[2]°-^2[3]$ | $^5/_2-^7/_2$ | EW |
| 105.35 | 3 | 10327.66 | 10327.72 | 10330.55 | 256 136.036 | − 265 816.06 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_1)5g$ | $^2[4]°-^2[5]$ | $^9/_2-^{11}/_2$ | EW |
| 105.29 | 3 | 10442.22 | 10442.20 | 10445.07 | 256 123.231 | − 265 697.13 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_0)5g$ | $^2[3]°-^2[4]$ | $^7/_2-^9/_2$ | EW |
| 105.29 | 3 | 10445.07 | 10444.99 | 10447.85 | 256 125.785 | − 265 697.13 | $2s^22p^2(^3P)4f\,F-2s^22p^2(^3P_0)5g$ | $^2[3]°-^2[4]$ | $^5/_2-^7/_2$ | EW |
| 94.02 | 7 | 11119.86 | 11119.89 | 11122.93 | 246 029.295 | − 255 019.73 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)4d$ | $^4D°-^4D$ | $^7/_2-^7/_2$ | W |
| 94.07 | 10 | 11362.62 | 11362.32? | 11365.73 | 246 483.317 | − 255 281.93? | $2s^22p^2(^3P)4p-2s^22p^2(^3P)4d$ | $^4P°-^2P$ | $^3/_2-^1/_2$ | W |
| 94.01 | m | 11663.06 | 11663.08 | 11666.27 | 245 816.70 | − 254 388.42 | $2s^22p^2(^3P)4p-2s^22p^2(^3P)4d$ | $^4D°-^4F$ | $^3/_2-^5/_2$ | W |
| 1.02F | M1 | | | 499.5μm | 26 810.55 | − 26 830.57 | $2s^22p^3-2s^22p^3$ | $^2D°-^2D°$ | $^5/_2-^3/_2$ | |
| 3F | M1 | | | 5.03mm | 40 468.01 | − 40 470.00 | $2s^22p^3-2s^22p^3$ | $^2P°-^2P°$ | $^3/_2-^1/_2$ | |

Table 2. Energy Levels of O II

| Configuration | Term | $J$ | Level (cm$^{-1}$) | Configuration | Term | $J$ | Level (cm$^{-1}$) |
|---|---|---|---|---|---|---|---|
| $2s^2 2p^3$ | $^4S^\circ$ | $^3/_2$ | 0.00 | $2s^2 2p^2(^3P)3d$ | $^4F$ | $^3/_2$ | 231 296.126 |
| | | | | | | $^5/_2$ | 231 350.087 |
| $2s^2 2p^3$ | $^2D^\circ$ | $^5/_2$ | 26 810.55 | | | $^7/_2$ | 231 427.970 |
| | | $^3/_2$ | 26 830.57 | | | $^9/_2$ | 231 530.246 |
| $2s^2 2p^3$ | $^2P^\circ$ | $^3/_2$ | 40 468.01 | $2s^2 2p^2(^3P)3d$ | $^4P$ | $^5/_2$ | 232 462.724 |
| | | $^1/_2$ | 40 470.00 | | | $^3/_2$ | 232 535.949 |
| | | | | | | $^1/_2$ | 232 602.492 |
| $2s 2p^4$ | $^4P$ | $^5/_2$ | 119 837.21 | | | | |
| | | $^3/_2$ | 120 000.43 | $2s^2 2p^2(^1D)3p$ | $^2P^\circ$ | $^1/_2$ | 232 480.44 |
| | | $^1/_2$ | 120 082.86 | | | $^3/_2$ | 232 527.09 |
| $2s 2p^4$ | $^2D$ | $^5/_2$ | 165 988.46 | $2s^2 2p^2(^3P)3d$ | $^4D$ | $^1/_2$ | 232 711.642 |
| | | $^3/_2$ | 165 996.50 | | | $^3/_2$ | 232 745.981 |
| $2s^2 2p^2(^3P)3s$ | $^4P$ | $^1/_2$ | 185 235.281 | | | $^5/_2$ | 232 747.562 |
| | | $^3/_2$ | 185 340.577 | | | $^7/_2$ | 232 753.816 |
| | | $^5/_2$ | 185 499.124 | $2s^2 2p^2(^3P)3d$ | $^2F$ | $^5/_2$ | 232 796.298 |
| $2s^2 2p^2(^3P)3s$ | $^2P$ | $^1/_2$ | 188 888.543 | | | $^7/_2$ | 232 959.210 |
| | | $^3/_2$ | 189 068.514 | $2s^2 2p^2(^3P)3d$ | $^2P$ | $^3/_2$ | 233 430.53 |
| | | | | | | $^1/_2$ | 233 544.59 |
| $2s 2p^4$ | $^2S$ | $^1/_2$ | 195 710.47 | | | | |
| $2s^2 2p^2(^3P)3p$ | $^2S^\circ$ | $^1/_2$ | 203 942.288 | $2s^2 2p^2(^3P)3d$ | $^2D$ | $^3/_2$ | 234 402.797 |
| | | | | | | $^5/_2$ | 234 454.634 |
| $2s^2 2p^2(^3P)3p$ | $^4D^\circ$ | $^1/_2$ | 206 730.762 | $2s^2 2p^2(^3P)4s$ | $^4P$ | $^1/_2$ | 238 627.46 |
| | | $^3/_2$ | 206 786.286 | | | $^3/_2$ | 238 732.65 |
| | | $^5/_2$ | 206 877.865 | | | $^5/_2$ | 238 893.96 |
| | | $^7/_2$ | 207 002.482 | | | | |
| $2s^2 2p^2(^1D)3s$ | $^2D$ | $^5/_2$ | 206 971.68 | $2s^2 2p^2(^3P)4s$ | $^2P$ | $^1/_2$ | 240 330.01 |
| | | $^3/_2$ | 206 972.72 | | | $^3/_2$ | 240 517.35 |
| $2s^2 2p^2(^3P)3p$ | $^4P^\circ$ | $^1/_2$ | 208 346.104 | $2s^2 2p^2(^3P)4p$ | $^2S^\circ$ | $^1/_2$ | 245 037.29 |
| | | $^3/_2$ | 208 392.258 | | | | |
| | | $^5/_2$ | 208 484.202 | $2s 2p^3(^5S^\circ)3s$ | $^6S^\circ$ | $^5/_2$ | 245 400.00 + x |
| $2s^2 2p^2(^3P)3p$ | $^2D^\circ$ | $^3/_2$ | 211 522.117 | $2s^2 2p^2(^3P)4p$ | $^4D^\circ$ | $^1/_2$ | 245 768.37 |
| | | $^5/_2$ | 211 712.732 | | | $^3/_2$ | 245 816.70 |
| | | | | | | $^5/_2$ | 245 903.224 |
| $2s^2 2p^2(^3P)3p$ | $^4S^\circ$ | $^3/_2$ | 212 161.881 | | | $^7/_2$ | 246 029.295 |
| $2s 2p^4$ | $^2P$ | $^3/_2$ | 212 593.82 | $2s^2 2p^2(^3P)4p$ | $^4S^\circ$ | $^3/_2$ | 246 291.822 |
| | | $^1/_2$ | 212 762.25 | $2s^2 2p^2(^3P)4p$ | $^4P^\circ$ | $^1/_2$ | 246 320.086 |
| $2s^2 2p^2(^3P)3p$ | $^2P^\circ$ | $^1/_2$ | 214 169.920 | | | $^5/_2$ | 246 455.629 |
| | | $^3/_2$ | 214 229.671 | | | $^3/_2$ | 246 483.317 |
| $2s^2 2p^2(^1D)3p$ | $^2F^\circ$ | $^5/_2$ | 228 723.84 | $2s^2 2p^2(^3P)4p$ | $^2D^\circ$ | $^3/_2$ | 248 010.23 |
| | | $^7/_2$ | 228 747.45 | | | $^5/_2$ | 248 186.64 |
| $2s^2 2p^2(^1D)3p$ | $^2D^\circ$ | $^5/_2$ | 229 947.07 | $2s^2 2p^2(^3P)4p$ | $^2P^\circ$ | $^1/_2$ | 248 426.41 |
| | | $^3/_2$ | 229 968.44 | | | $^3/_2$ | 248 515.30 |
| $2s^2 2p^2(^1S)3s$ | $^2S$ | $^1/_2$ | 230 609.45 | $2s^2 2p^2(^1D)3d$ | $^2F$ | $^7/_2$ | 251 222.19 |
| | | | | | | $^5/_2$ | 251 224.79 |

Table 2. Energy Levels of O II — Continued

| Configuration | Term | $J$ | Level (cm⁻¹) | Configuration | Term | $J$ | Level (cm⁻¹) |
|---|---|---|---|---|---|---|---|
| $2s^22p^2(^1D)3d$ | $^2G$ | 9/2 | 252 608.28 | $2s^22p^2(^3P)4f$ F | $^2[3]°$ | 7/2 | 256 123.231 |
|  |  | 7/2 | 252 609.46 |  |  | 5/2 | 256 125.785 |
| $2s^22p^2(^1S)3p$ | $^2P°$ | 1/2 | 252 987.23 | $2s^22p^2(^3P)4f$ F | $^2[4]°$ | 9/2 | 256 136.036 |
|  |  | 3/2 | 252 993.39 |  |  | 7/2 | 256 143.187 |
| $2s^22p^2(^1D)3d$ | $^2D$ | 3/2 | 253 046.74 | $2s^22p^2(^3P)5s$ | $^4P$ | 1/2 | 257 695.74 |
|  |  | 5/2 | 253 048.82 |  |  | 3/2 | 257 799.93 |
| $2s^22p^2(^1D)3d$ | $^2P$ | 1/2 | 253 789.99 |  |  | 5/2 | 257 965.11 |
|  |  | 3/2 | 253 792.40 | $2s^22p^2(^3P)5s$ | $^2P$ | 1/2 | 258 411.26 |
| $2s^22p^2(^3P)4d$ | $^4F$ | 3/2 | 254 337.61 |  |  | 3/2 | 258 606.35 |
|  |  | 5/2 | 254 388.42 | $2s^22p^2(^1D)4s$ | $^2D$ | 5/2 | 259 287.61 |
|  |  | 7/2 | 254 480.20 |  |  | 3/2 | 259 288.07 |
|  |  | 9/2 | 254 590.00 | $2s^22p^2(^3P)5p$ | $^2S°$ | 1/2 | 260 686.27 |
| $2s^22p^2(^3P)4d$ | $^4D$ | 1/2 | 254 846.68 | $2s^22p^2(^3P)5p$ | $^4D°$ | 1/2 | 260 911.96 |
|  |  | 3/2 | 254 881.37 |  |  | 3/2 | 260 958.62 |
|  |  | 5/2 | 254 896.42 |  |  | 5/2 | 261 044.03 |
|  |  | 7/2 | 255 019.73 |  |  | 7/2 | 261 180.59 |
| $2s2p^3(^5S°)3s$ | $^4S°$ | 3/2 | 254 981.55 | $2s^22p^2(^3P)5p$ | $^4P°$ | 1/2 | 261 214.47 |
| $2s^22p^2(^3P)4d$ | $^4P$ | 5/2 | 255 105.01 |  |  | 3/2 | 261 261.29 |
|  |  | 3/2 | 255 142.41 |  |  | 5/2 | 261 356.02 |
|  |  | 1/2 | 255 163.08 | $2s^22p^2(^3P)5p$ | $^4S°$ | 3/2 | 261 621.56 |
| $2s^22p^2(^3P)4d$ | $^2P$ | 3/2 | 255 173.58 | $2s^22p^2(^3P)5p$ | $^2D°$ | 3/2 | 261 698.75 |
|  |  | 1/2 | 255 281.93 |  |  | 5/2 | 261 869.94 |
| $2s^22p^2(^3P)4d$ | $^2F$ | 5/2 | 255 302.11 | $2s^22p^2(^3P)5p$ | $^2P°$ | 1/2 | 262 286.82 |
|  |  | 7/2 | 255 466.10 |  |  | 3/2 | 262 368.05 |
| $2s^22p^2(^1D)3d$ | $^2S$ | 1/2 | 255 622.80 | $2s^22p^2(^3P)5d$ | $^4D$ | 5/2,3/2 | 265 220.3 |
| $2s^22p^2(^3P)4f$ D | $^2[3]°$ | 5/2 | 255 689.939 | $2s^22p^2(^3P)5d$ | $^4P$ | 5/2 | 265 431.5 |
|  |  | 7/2 | 255 691.346 |  |  | 3/2 | 265 468.2 |
| $2s^22p^2(^3P)4f$ G | $^2[3]°$ | 5/2 | 255 756.131 | $2s^22p^2(^3P)5d$ | $^2F$ | 7/2 | 265 581.2? |
|  |  | 7/2 | 255 759.384 | $2s^22p^2(^3P)5f$ D | $^2[3]°$ | 5/2 | 265 637.10 |
| $2s^22p^2(^3P)4f$ D | $^2[2]°$ | 3/2 | 255 812.728 |  |  | 7/2 | 265 638.59 |
|  |  | 5/2 | 255 813.472 | $2s^22p^2(^3P_0)5g$ | $^2[4]$ | 9/2,7/2 | 265 697.13 |
| $2s^22p^2(^3P)4f$ G | $^2[4]°$ | 9/2 | 255 827.657 | $2s^22p^2(^3P)5f$ G | $^2[3]°$ | 5/2 | 265 718.48 |
|  |  | 7/2 | 255 829.58 |  |  | 7/2 | 265 720.38 |
| $2s^22p^2(^3P)4d$ | $^2D$ | 3/2 | 255 842.91 | $2s^22p^2(^3P)5f$ G | $^2[4]°$ | 9/2 | 265 761.29 |
|  |  | 5/2 | 255 897.59 |  |  | 7/2 | 265 763.36 |
| $2s^22p^2(^3P)4f$ D | $^2[1]°$ | 3/2 | 255 912.32 | $2s^22p^2(^3P)5f$ D | $^2[2]°$ | 3/2 | 265 766.28 |
|  |  | 1/2 | 255 912.37 |  |  | 5/2 | 265 767.55 |
| $2s^22p^2(^3P)4f$ G | $^2[5]°$ | 11/2 | 255 977.481 | $2s^22p^2(^3P_1)5g$ | $^2[4]$ | 7/2 | 265 794.08 |
|  |  | 9/2 | 255 983.584 |  |  | 9/2 | 265 794.14 |
| $2s^22p^2(^3P)4f$ F | $^2[2]°$ | 3/2 | 256 083.604 |  |  |  |  |
|  |  | 5/2 | 256 087.746 |  |  |  |  |

Table 2. Energy Levels of O II — Continued

| Configuration | Term | $J$ | Level (cm$^{-1}$) | Configuration | Term | $J$ | Level (cm$^{-1}$) |
|---|---|---|---|---|---|---|---|
| $2s^2 2p^2(^3P_1)5g$ | $^2[5]$ | $9/2$ | 265 815.98 | $2s^2 2p^2(^3P)6p$ | $^4D^\circ$ | $1/2$ | |
| | | $11/2$ | 265 816.06 | | | $3/2$ | 268 465.6 |
| $2s^2 2p^2(^3P_1)5g$ | $^2[3]$ | $5/2$ | 265 820.27 | | | $5/2$ | 268 547.50 |
| | | $7/2$ | 265 820.46 | | | $7/2$ | 268 692.1 |
| $2s^2 2p^2(^3P)5d$ | $^2D$ | $5/2$ | 265 855.2 | $2s^2 2p^2(^3P)6p$ | $^4P^\circ$ | $1/2$ | |
| $2s^2 2p^2(^3P)5f\,D$ | $^2[1]^\circ$ | $1/2$ | 265 893.06 | | | $3/2$ | |
| | | $3/2$ | 265 893.62 | | | $5/2$ | 268 782.5? |
| $2s^2 2p^2(^3P)5f\,G$ | $^2[5]^\circ$ | $11/2$ | 265 925.19 | $2s^2 2p^2(^3P_0)6g$ | $^2[4]$ | $7/2$ | 271 068.35 |
| | | $9/2$ | 265 930.31 | | | $9/2$ | 271 068.39 |
| $2s^2 2p^2(^3P)5f\,F$ | $^2[2]^\circ$ | $3/2$ | 265 957.37 | $2s^2 2p^2(^3P_1)6g$ | $^2[4]$ | $9/2,7/2$ | 271 171.85 |
| | | $5/2$ | 265 963.54 | $2s^2 2p^2(^3P_1)6g$ | $^2[5]$ | $9/2$ | 271 184.87 |
| $2s^2 2p^2(^3P_2)5g$ | $^2[2]$ | $5/2,3/2$ | 265 980.11 | | | $11/2$ | 271 185.08 |
| $2s^2 2p^2(^3P)5f\,F$ | $^2[3]^\circ$ | $7/2$ | 265 992.31 | $2s^2 2p^2(^3P_1)6g$ | $^2[3]$ | $5/2$ | 271 187.92 |
| | | $5/2$ | 265 992.37 | | | $7/2$ | 271 188.04 |
| $2s^2 2p^2(^3P_2)5g$ | $^2[6]$ | $11/2$ | 265 992.31 | $2s^2 2p^2(^3P_2)6g$ | $^2[2]$ | $5/2,3/2$ | 271 360.61 |
| | | $13/2$ | 265 992.34 | $2s^2 2p^2(^3P_2)6g$ | $^2[6]$ | $11/2$ | 271 367.70 |
| $2s^2 2p^2(^3P)5f\,F$ | $^2[4]^\circ$ | $9/2$ | 265 999.75 | | | $13/2$ | 271 367.79 |
| | | $7/2$ | 266 004.90 | $2s^2 2p^2(^3P_2)6g$ | $^2[3]$ | $7/2$ | 271 375.48 |
| $2s^2 2p^2(^3P_2)5g$ | $^2[3]$ | $5/2$ | 266 007.60 | | | $5/2$ | 271 375.61 |
| | | $7/2$ | 266 007.72 | $2s^2 2p^2(^3P_2)6g$ | $^2[4]$ | $7/2$ | 271 384.65 |
| $2s^2 2p^2(^3P_2)5g$ | $^2[4]$ | $9/2,7/2$ | 266 022.90 | | | $9/2$ | 271 384.80 |
| $2s^2 2p^2(^3P_2)5g$ | $^2[5]$ | $11/2,9/2$ | 266 024.16 | $2s^2 2p^2(^3P_2)6g$ | $^2[5]$ | $9/2$ | 271 385.06 |
| $2s^2 2p^2(^1D)4p$ | $^2F^\circ$ | $5/2$ | 266 579.73 | | | $11/2$ | 271 385.39 |
| | | $7/2$ | 266 588.33 | $2s^2 2p^2(^3P)7p$ | $^4D^\circ$ | $1/2$ | |
| $2s^2 2p^2(^1D)4p$ | $^2D^\circ$ | $3/2$ | 266 624.32 | | | $3/2$ | 272 728.4 |
| | | $5/2$ | 266 640.58 | | | $5/2$ | 272 787.7 |
| $2s^2 2p^2(^3P)6s$ | $^4P$ | $1/2$ | 266 698.0 | | | $7/2$ | 272 968.4 |
| | | $3/2$ | 266 802.0 | $2s^2 2p^2(^3P)7p$ | $^4P^\circ$ | $1/2$ | |
| | | $5/2$ | 266 971.23 | | | $3/2$ | |
| $2s^2 2p^2(^3P)6s$ | $^2P$ | $1/2$ | 267 101.1? | | | $5/2$ | 273 018.7 |
| | | $3/2$ | 267 298.23 | $2s^2 2p^2(^1D)4d$ | $^2F$ | $5/2$ | 274 740.7 |
| $2s^2 2p^2(^1D)4p$ | $^2P^\circ$ | $1/2$ | 267 460.28 | | | $7/2$ | 274 781.5 |
| | | $3/2$ | 267 490.79 | $2s^2 2p^2(^1D)4d$ | $^2D$ | $3/2$ | 274 916.0 |
| $2s2p^3(^5S^\circ)3p$ | $^6P$ | $3/2$ | 267 768.20+$x$ | | | $5/2$ | 274 928.0 |
| | | $5/2$ | 267 775.48+$x$ | $2s^2 2p^2(^1D)4d$ | $^2P$ | $1/2$ | |
| | | $7/2$ | 267 788.09+$x$ | | | $3/2$ | 275 611.1? |
| $2s^2 2p^2(^3P)6p$ | $^2S^\circ$ | $1/2$ | 268 369.8 | $2s^2 2p^2(^1D)4f\,G$ | $^2[4]^\circ$ | $9/2,7/2$ | 275 842.14 |
| | | | | $2s^2 2p^2(^1D)4f\,F$ | $^2[3]^\circ$ | $7/2,5/2$ | 275 881.65 |
| | | | | $2s^2 2p^2(^1S)3d$ | $^2D$ | $3/2$ | 275 983.95 |
| | | | | | | $5/2$ | 276 075.32 |

Table 2. Energy Levels of O II — Continued

| Configuration | Term | $J$ | Level (cm⁻¹) | Configuration | Term | $J$ | Level (cm⁻¹) |
|---|---|---|---|---|---|---|---|
| $2s^2 2p^2(^1D)4d$ | $^2S$ | $^1/_2$ | 275 996.5? | $2s^2 2p^2(^1D)5f$ H | $^2[5]°$ | $^{11}/_2, ^9/_2$ | *285 978.5?* |
| $2s^2 2p^2(^1D)4f$ D | $^2[2]°$ | $^3/_2$ | *276 066.81* | $2s^2 2p^2(^1D_2)5g$ | $^2[6]$ | $^{13}/_2, ^{11}/_2$ | 286 000.31 |
|  |  | $^5/_2$ | *276 066.88* | $2s^2 2p^2(^1D)5f$ P | $^2[1]°$ | $^3/_2$ | *286 055.28?* |
| $2s^2 2p^2(^1D)4f$ H | $^2[5]°$ | $^9/_2$ | *276 109.46* | $2s^2 2p^2(^1D)6s$ | $^2D$ | $^3/_2$ | 287 045.6 |
|  |  | $^{11}/_2$ | *276 109.54* |  |  | $^5/_2$ | 287 047.1 |
| $2s^2 2p^2(^1D)4f$ P | $^2[1]°$ | $^3/_2, ^1/_2$ | *276 263.81* | $2s^2 2p^2(^1S)4p$ | $^2P°$ | $^1/_2$ | *289 990.7?* |
| $2s^2 2p^2(^1D)5s$ | $^2D$ | $^3/_2$ | 278 144.33? |  |  | $^3/_2$ | *290 000.3?* |
|  |  | $^5/_2$ | 278 144.62 | $2s^2 2p^2(^1D_2)6g$ | $^2[5]$ | $^{11}/_2, ^9/_2$ | 291 323.00 |
| $2s^2 2p^2(^1S)4s$ | $^2S$ | $^1/_2$ | 282 219.90 | $2s^2 2p^2(^1D_2)6g$ | $^2[4]$ | $^9/_2, ^7/_2$ | 291 324.04? |
| O III $(^3P_0)$ | *Limit* |  | **283 270.9** | $2s^2 2p^2(^1D_2)6g$ | $^2[6]$ | $^{13}/_2, ^{11}/_2$ | 291 358.34 |
| O III $(^3P_1)$ | *Limit* |  | 283 384.1 | $2s2p^3(^5S°)3d$ | $^6D°$ | $^9/_2$ | *291 900.48 + x* |
| O III $(^3P_2)$ | *Limit* |  | 283 577.1 |  |  | $^7/_2$ | *291 901.47 + x* |
| $2s^2 2p^2(^1D)5f$ G | $^2[4]°$ | $^9/_2$ | *285 838.51?* |  |  | $^5/_2$ | *291 902.73 + x* |
| $2s^2 2p^2(^1D)5f$ F | $^2[3]°$ | $^7/_2$ | *285 861.74?* |  |  | $^3/_2$ | *291 903.91 + x* |
| $2s^2 2p^2(^1D_2)5g$ | $^2[5]$ | $^{11}/_2, ^9/_2$ | 285 939.05 |  |  | $^1/_2$ | *291 904.71 + x* |
| $2s^2 2p^2(^1D_2)5g$ | $^2[4]$ | $^9/_2, ^7/_2$ | 285 941.34 | $2s2p^3(^5S°)4s$ | $^6S°$ | $^5/_2$ | *298 855.04 + x* |
| $2s^2 2p^2(^1D)5f$ D | $^2[2]°$ | $^5/_2$ | *285 959.69?* | O III $(^1D_2)$ | *Limit* |  | 303 544.2 |
|  |  |  |  | O III $(^1S_0)$ | *Limit* |  | 326 456.6 |