PHILCO

A SUBSIDIARY OF Ford Motor Company

AERONUTRONIC DIVISION

DISCLAIMER NOTICE

THIS DOCUMENT IS THE BEST QUALITY AVAILABLE.

COPY FURNISHED CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

Publication No. U-3200

Under Contract: NOnr 3560(00)
ARPA Order No. 273/11-7-63

6 August 1965

SCIENTIFIC REPORT

ABSORPTION BY CO_2 BETWEEN 8000 AND 10,000 cm^{-1}
(1 - 1.25 Micron Region)

Prepared for: Advanced Research Projects Agency
Washington 25, D. C.

Prepared by: Darrell E. Burch
David A. Gryvnak
Richard R. Patty

Approved:

M. H. Johnson, Director
Physics Laboratory

AERONUTRONIC
DIVISION OF PHILCO CORPORATION
A SUBSIDIARY OF Ford Motor Company,
FORD ROAD/NEWPORT BEACH, CALIF.

ABSTRACT

The absorption by CO_2 in the 9300 to 9650 cm^{-1} region (1.0 μ) and 8000 to 8325 cm^{-1} region (1.2 μ) have been studied. Spectra were obtained for four samples of CO_2 in the 1.0 μ region at a pressure of 2.5 atmospheres and path legnths up to 933 meters. Spectra were obtained for ten samples of CO_2 in the 1.2 μ region at pressures as high as 15 atmospheres for path lengths up to 32.9 meters and pressures as high as 2.50 atmospheres for path lengths up to 933 meters. The strengths of the important bands and the half-widths of several lines have been measured. Tables of transmittance versus wavenumber are included for both regions as well as photographs of most of the spectra. Also presented are tables of the integrated absorptance $\int_{\nu'}^{\nu} A(\nu)d\nu$ versus ν for both regions.

TABLE OF CONTENTS

(This page is intentionally left blank.)

SECTION 1

INTRODUCTION AND SUMMARY

Most of the important absorption bands of CO_2 in the region between 8000 and 10,000 cm^{-1} have been observed by Herzberg and Herzberg.[1] These workers contained their samples in a multiple-pass absorption cell which was capable of very long paths and obtained their spectra photographically. They measured the positions of many of the lines and the centers of several of the bands with very good accuracy; but very little can be learned about the strengths or widths of the absorption lines from their data.

The present investigation was undertaken to obtain spectra of samples covering a wide range of pressures and path lengths. From the results included in this report, the strengths of nearly all of the lines of any importance and the widths of several of them can be determined. From this information, one can, at least in principle, calculate the transmission over an extremely wide variation of paths, including those in which the pressure, temperature and the mixing ratio of CO_2 with other gases might vary.

The band near 9500 cm^{-1} is of particular importance at the present time in the interpretation of spectra of the atmospheres of Mars and Venus. It occurs in a region free of absorption lines of other atmospheric gases; therefore, spectra of the planetary atmospheres can be obtained from the earth's surface. This band is so weak that its integrated absorptance in the Martian atmosphere should be very nearly independent of the pressure of the gas. Thus, by comparing the planetary spectra with laboratory spectra such as some of those presented below, one should be able to determine the amount of CO_2 in the Martian atmosphere.

Once the amount of CO_2 is known, the pressure can be determined by investigating other bands in which the absorption is a function of both the amount of CO_2 and the total pressure.

Spectra of several samples are shown in Section 3 with a discussion of the various features of the bands. The strengths, or absolute intensities, of the important bands have been determined, and the half-widths of several of the lines have been measured. Section 4 includes a table of transmittance versus wavenumber for 14 different samples studied. Section 5 contains tables of the integrated absorptance $\int A(\nu)d\nu$ for the same samples; from this table the integrated absorptance over virtually any region of interest in the bands can be determined.

SECTION 2

EXPERIMENTAL METHODS AND NOTATION

2.1 APPARATUS AND PROCEDURE

Samples of CO_2 were contained in two different absorption cells which have been described previously.[2] The longer cell has a base length of approximately 30 meters and was used at as many as 32 passes, giving a total path length of 933 meters. It is approximately 0.9 meters in diameter and can be evacuated to less than one micron of Hg or pressurized to as much as 2.5 atmospheres. The shorter cell has a base length of approximately 1 meter and was used at as many as 32 passes. It can be evacuated or pressurized to as much as 15 atmospheres.

The CO_2 was drawn from the vapor in a dewar which contained both liquid and vapor at a pressure of about 300 psig and a temperature of approximately -20°C. We found that samples obtained in this manner contained fewer impurities, particularly H_2O, than samples taken from commercial cylinders at room temperature. A spectrum published previously by us[3] shows a small amount of absorption in the region between approximately 9530 and 9560 cm^{-1} which is apparently due to an impurity since the absorption does not appear in more recent spectra of samples obtained in the manner described above.

The spectra were obtained with an Ebert type spectrometer whose main mirror has a 75 cm focal length. The region from 9000 to 10,000 cm^{-1} was scanned with a grating having 1200 lines/mm and blazed at 0.8 μ. It was used in the first order and a Tiffen glass filter eliminated overlapping orders of shorter wavelengths. The region between 8000 and 9000 cm^{-1} was studied with a grating having 300 lines/mm and blazed at 3.2 μ. Overlapping orders were eliminated in this region by the use of a silicon window. Both gratings have a ruled area of 64 x 64 mm.

A PbS cell cooled with liquid nitrogen was used as the detector. It was not necessary to cool the detector below dry ice temperature for operation in this wavelength region, but the dewar on the detector was designed to hold liquid nitrogen for use at longer wavelengths. Cooling by liquid nitrogen was, therefore, more convenient and was used since the signal-to-noise ratio was approximately the same at both temperatures. A considerably better signal-to-noise ratio (S/N) could probably be achieved in the region between 9000 and 10,000 cm^{-1} with a photomultiplier detector. However, the extra sensitivity of the photomultiplier was not required in order to obtain spectra from which the strengths of the bands in this region can be determined. The S/N in the 8000 - 9000 cm^{-1} region was enough higher than in the higher wavenumber region that we could conveniently work with a smaller spectral slitwidth. Most of the spectra in the lower wavenumber region were obtained with sufficiently good spectral resolution that many of the lines could be resolved. However, in the higher wavenumber region the slits were opened until a desirable S/N was obtained.

Wavenumber calibration was obtained for each spectrum from the positions of the absorption lines and band centers designated in Figures 3-1 and 3-2, most of which are from Herzberg and Herzberg.[1]

The raw spectra were replotted and digitized by the use of apparatus described in Appendix C of reference 2. A computer program was then used to calculate values of transmittance and integrated absorptance which are shown in Sections 4 and 5.

2.2 DEFINITIONS, SYMBOLS AND NOTATIONS

L is the geometrical path length of the radiation as it passes through a sample, p is the pressure of the CO_2 which is measured in atmospheres unless otherwise specified, and u is the absorber thickness given by

$$u = W\,p\,L\,\frac{273}{296}\ (\text{atm cm}_{STP}). \qquad (2\text{-}1)$$

W is a factor that accounts for the Van der Waals' forces which cause CO_2 to deviate from a perfect gas at some of the pressures used in this investigation. It is given adequately for our purposes by

$$W = 1.00 + 0.0047\,p. \qquad (2\text{-}2)$$

The quantity 273/296 accounts for the difference in density between standard temperature (273°K) and room temperature (296°K) at which all of the measurements were made. The absorber thickness given by Equation (2-1) is then equivalent to the thickness of a CO_2 sample at 1 atmosphere pressure and 273°K having the same number of molecules per unit area as the sample being described.

Although this investigation deals only with samples of pure CO_2, it is frequently desirable to relate the pressures to an equivalent pressure P_e of a dilute mixture of CO_2 in N_2. This is necessary when dealing with paths through the earth's atmosphere in which the partial pressure of CO_2 is small compared to that of N_2. Burch, Gryvnak and Williams[4] have found that throughout most of the spectrum an equivalent pressure given by

$$P_e = 1.3\ p + (P - p) \qquad (2\text{-}3)$$

can be used where P is the total pressure due to both gases. It is noted that the equivalent pressure approaches the total pressure for a very dilute mixture of CO_2 in N_2. The factor 1.3 relates the self-broadening ability of CO_2 to the broadening ability of CO_2 lines by N_2. It is valid in regions where most of the absorption is due to lines whose centers are within a few cm^{-1}; but it is not valid in regions such as on the high wavenumber side of the ν_3 and $3\nu_3$ bands where the absorption is due to the extreme wings of lines whose centers are several cm^{-1} away. Variations in the shapes of the extreme wings of CO_2 absorption lines give rise to the difference in the relative broadening abilities. The line shapes of different broadening gases will be discussed in a report[5] to be published by us in the near future.

Since the simple classifcal theory predicts that the half-width of a line is proportional to the density of molecules, Equation (2-3) should probably be modified to account for the non-linearity between pressure and density at higher pressures. The modification can be made in the following way:

$$P_e = 1.3\ W\ p + (P - p). \qquad (2\text{-}3')$$

$T(\nu)$ is the observed transmittance and $A(\nu) \equiv 1 - T(\nu)$ is the observed absorptance. $T'(\nu)$ and $A'(\nu)$ are the transmittance and absorptance, respectively, which would be observed with an instrument having infinite resolving power. $T'(\nu)$ is related to the absorption coefficient $K(\nu)$ by

$$T'(\nu) = \exp\left[-\ u\ K(\nu)\right] \quad \text{or} \quad -\ln T'(\nu) = u\ K(\nu). \qquad (2\text{-}4)$$

α is the half-width of an absorption line and is expressed in cm^{-1}. S_ν is the band strength, or band intensity, and is related to the absorption coefficient due to the band of interest by

$$S_\nu = \int K(\nu)d\nu. \qquad (2\text{-}5)$$

(This page is intentionally left blank.)

SECTION 3

DISCUSSION OF ABSORPTION BANDS

3.1 IDENTIFICATION AND FEATURES OF THE ABSORPTION BANDS

All of the CO_2 bands which one might expect to produce appreciable absorption in the region from 8000 to 10,000 cm^{-1} are listed in Table 3-1. The positions of the band centers measured by Herzberg and Herzberg[1] and by Courtoy[6] are listed. Centers of the other bands were calculated from energy levels tabulated by Stull, Wyatt and Plass.[7] In the notation for the transitions, the lower level is omitted when it is 00^00. The strengths of the different portions of the bands are described in Section 3.2.

The bands occur in two groups, one between 9300 and 9650 cm^{-1} and the other between 8000 and 8325 cm^{-1}. All of the bands arise from transitions in which there is a change of three (3) in v_3, the quantum number associated with v_3. Since, for CO_2, $v_1 = 2v_2$, the bands arising from transitions from the ground state to 20^03, 12^03, and 04^03 occur close to each other. These bands, along with their associated difference bands, occur in the region from 9300 to 9650 cm^{-1}. The changes in each of the quantum numbers are the same for the difference bands as for the combination bands, but the difference bands arise from transitions from the 01^10 state.

Because of anharmonicity, a difference band usually occurs at a slightly lower wavenumber than its associated combination or fundamental band. However, the displacement of the difference band varies from one band to another, depending on the Fermi resonance.

TABLE 3-1
POSITIONS AND STRENGTHS OF ABSORPTION BANDS

Band Center cm^{-1}		Transition[a]	Portion	Strength atm^{-1} cm^{-1} STP	cm^{-1}
9631.38	HH[b]	$20^{0}3$	R-Branch	1.4 ± 0.13	$\times 10^{-5}$
			P-Branch	1.25 ± 0.14	$\times 10^{-5}$
			Entire Band	2.6 ± 0.25	$\times 10^{-5}$
9629.6	SWP	$21^{1}3 \leftarrow 01^{1}0$	Entire Band[c]	2.0	$\times 10^{-6}$
9517.00	HH	$12^{0}3$	R-Branch	3.40 ± 0.2	$\times 10^{-5}$
			P-Branch	3.23 ± 0.5	$\times 10^{-5}$
			Entire Band	6.63 ± 0.7	$\times 10^{-5}$
9478.2	SWP	$13^{1}3 \leftarrow 01^{1}0$	Entire Band[c]	5.2	$\times 10^{-6}$
9389.02	HH	$04^{0}3$	R-Branch	6.5 ± 0.7	$\times 10^{-6}$
			P-Branch	5.5 ± 1	$\times 10^{-6}$
			Entire Band	12.5 ± 1.5	$\times 10^{-6}$
9320.1	SWP	$05^{1}3 \leftarrow 01^{1}0$		Not measurable	
8294.01	HH	$10^{0}3$	R-Branch	8.4 ± 0.6	$\times 10^{-4}$
			P-Branch	8.6 ± 0.6	$\times 10^{-4}$
			Entire Band	17.0 ± 1.0	$\times 10^{-4}$
8276.83	HH	$11^{1}3 \leftarrow 01^{1}0$	Entire Band[c]	1.5	$\times 10^{-4}$
8243.2	SWP	$20^{0}3 \leftarrow 10^{0}0$		Not observable	
8231.6	SWP	$12^{0}3 \leftarrow 02^{0}0$		Not observable	
8220.0	SWP	$10^{0}3$ $(C^{12}O^{16}O^{18})$		Not observable	
8192.62	HH	$02^{0}3$	R-Branch	6.0 ± 0.5	$\times 10^{-4}$
			P-Branch	5.8 ± 0.5	$\times 10^{-4}$
			Entire Band	11.8 ± 0.9	$\times 10^{-4}$
8135.95	HH	$13^{1}3 \leftarrow 01^{1}0$	Entire Band	1.0 ± 0.2	$\times 10^{-4}$
8128.8	SWP	$12^{0}3 \leftarrow 10^{0}0$		Not observable	
8119.7	SWP	$02^{0}3$ $(C^{12}O^{16}O^{18})$		Not observable	
8103.7	SWP	$04^{0}3 \leftarrow 02^{0}0$		Not observable	
8089.01	C	$10^{0}3$ $(C^{13}O_2^{16})$	Entire Band	2.5 ± 1	$\times 10^{-5}$

[a] Transitions for isotope $C^{12}O_2^{16}$ unless otherwise specified.

[b] Authority for position of band center. HH and C refer to Herzberg and Herzberg[1] and to Courtoy,[6] respectively SWP denotes that band centers were calculated from energy levels tabulated by Stull, Wyatt and Plass.[7]

[c] Strengths of difference bands were calculated from combined strengths of difference band and associated combination band by use of Equation (3-3).

Spectra of the 9300 - 9650 cm^{-1} region are shown in Figure 3-1 with the positions of the band centers indicated in the lower panel. The curve in the lower panel is a replot of the original spectrum of the largest sample studied in this investigation; it was obtained with the spectral slitwidth sufficiently wide that the structure of the band was lost. The upper panel shows a photograph of an original spectrum of a different sample obtained with considerably narrower slits. This spectrum is rather noisy, but the structure in the P-branch of the three stronger bands is apparent. The magnitude of the noise in the spectrum can be seen in the region above about 9650 cm^{-1}, as well as in the regions just above the heads of the other bands. All the spectra used in the analysis were obtained with wider slits in order to reduce the noise to less than 2 or 3% of the signal.

The 20^03 and $21^13 \leftarrow 01^10$ bands are not resolved and appear as a single band since their centers are separated by only about 1.8 cm^{-1}. The $13^13 \leftarrow 01^10$ band overlaps the P-branch of the 12^03 band, with evidence of the head of the former at about 9495 cm^{-1}. The 04^03 band is weaker than the other two; its associated difference band ($05^13 \leftarrow 01^10$ band) is very weak and is not included in the spectrum shown. Only a hint of absorption could be observed on the spectrum of our largest sample in the region where this band should occur.

The 10^03 and 02^03 bands are separated by approximately 100 cm^{-1} and occur in the region between 8000 and 8325 cm^{-1} along with their associated difference bands. Figures 3-2 and 3-3 show spectra of several different samples obtained in this region. The numbers enclosed in rectangles are the sample numbers listed in Table 3-2. The positions of the centers of the more important bands are indicated in the lower panel of Figure 3-2. The center of the $11^13 \leftarrow 01^10$ band occurs in the P-branch of the 10^03 band with the head of the difference band near the center of the 10^03 band. The effect of the difference band on the absorption near 8280 cm^{-1} can be seen easily in the spectrum of Sample 8. The $03^13 \leftarrow 01^10$ band also occurs in the P-branch of its associated combination band (02^03); its presence is more apparent since the band head occurs further from the center of the stronger band.

The difference bands due to transitions from the 02^00 and 10^00 states could probably be seen in the spectra of our largest samples if they were not overlapped by the lines of stronger bands. Resolution considerably better than that employed in this investigation would be required in order to observe the lines of these bands between the much stronger ones.

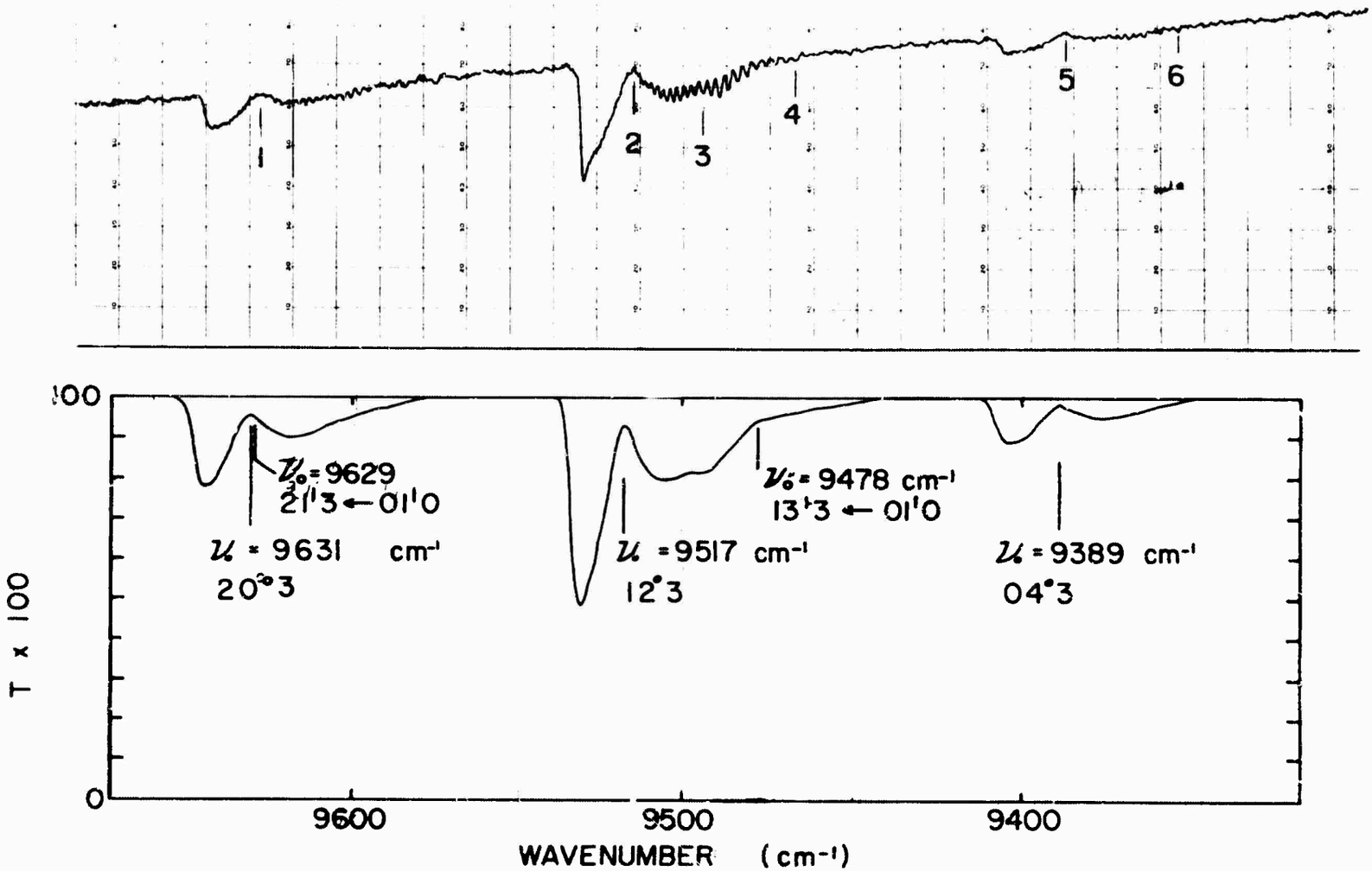

FIGURE 3-1 TRANSMISSION SPECTRA OF THE 9300 - 9650 cm^{-1} REGION.

The upper curve is a photograph of an original spectrum obtained with a slitwidth of about 1.3 cm^{-1} for a sample of pure CO_2 with p = 2.50 atm and u = 10.9 x 10^4 atm cm_{STP}. The lower curve was replotted from a spectrum of Sample 4 (p = 2.50 atm, u = 21.7 x 10^4 atm cm_{STP}) with a spectral slitwidth of 3.8 cm^{-1}. The wavenumbers of the centers of the bands are indicated. Note that the wavenumber scales are not the sam in both panels. Wavenumbers of the points indicated in the upper pane. are: 1, 9631.4 cm^{-1}; 2, 9517.00 cm^{-1}; 3, 9495.33 cm^{-1}; 4, 9467.50 c: $^{-1}$; 5, 9389.02 cm^{-1}; 6, 9356.23 cm^{-1}. These points were use.l for wavenumber calibration.

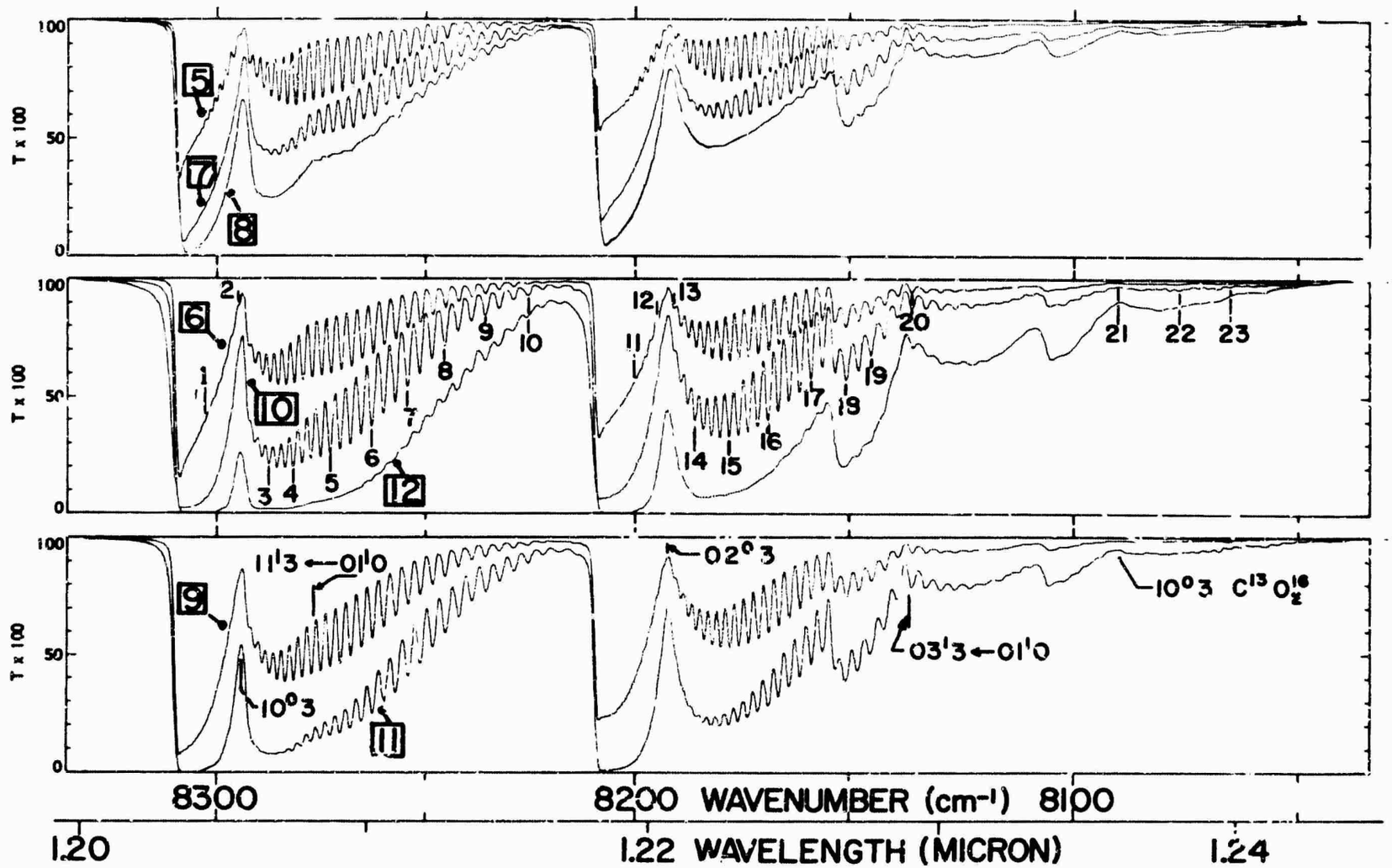

FIGURE 3-2 TRANSMISSION SPECTRA OF THE 8000 - 8350 cm^{-1} REGION.

The wavenumbers of the centers of the bands are indicated in the lower panel. Numbers enclosed in rectangles are sample numbers (See Table 3-2). Wavenumbers of the points indicated in the middle panel are: 1, 8302.4 cm^{-1}; 2, 8294.8 cm^{-1}; 3, 8287.2 cm^{-1}; 4, 8281.4 cm^{-1}; 5, 8272.5 cm^{-1}; 6, 8262.4 cm^{-1}; 7, 8254.1 cm^{-1}; 8, 8245.1 cm^{-1}; 9, 8235.5 cm^{-1}; 10, 8225.2 cm^{-1}; 11, 8200.0 cm^{-1}; 12, 8194.8 cm^{-1}; 13, 8191.0 cm^{-1}; 14, 8185.9 cm^{-1}; 15, 8178.0 cm^{-1}; 16, 8169.1 cm^{-1}; 17, 8159.0 cm^{-1}; 18, 8150.7 cm^{-1}; 19, 8144.9 cm^{-1}; 20, 8135.6 cm^{-1}; 21, 8089.6 cm^{-1}; 22, 8076.4 cm^{-1}; 23, 8065.2 cm^{-1}. These points were used for wavenumber calibration.

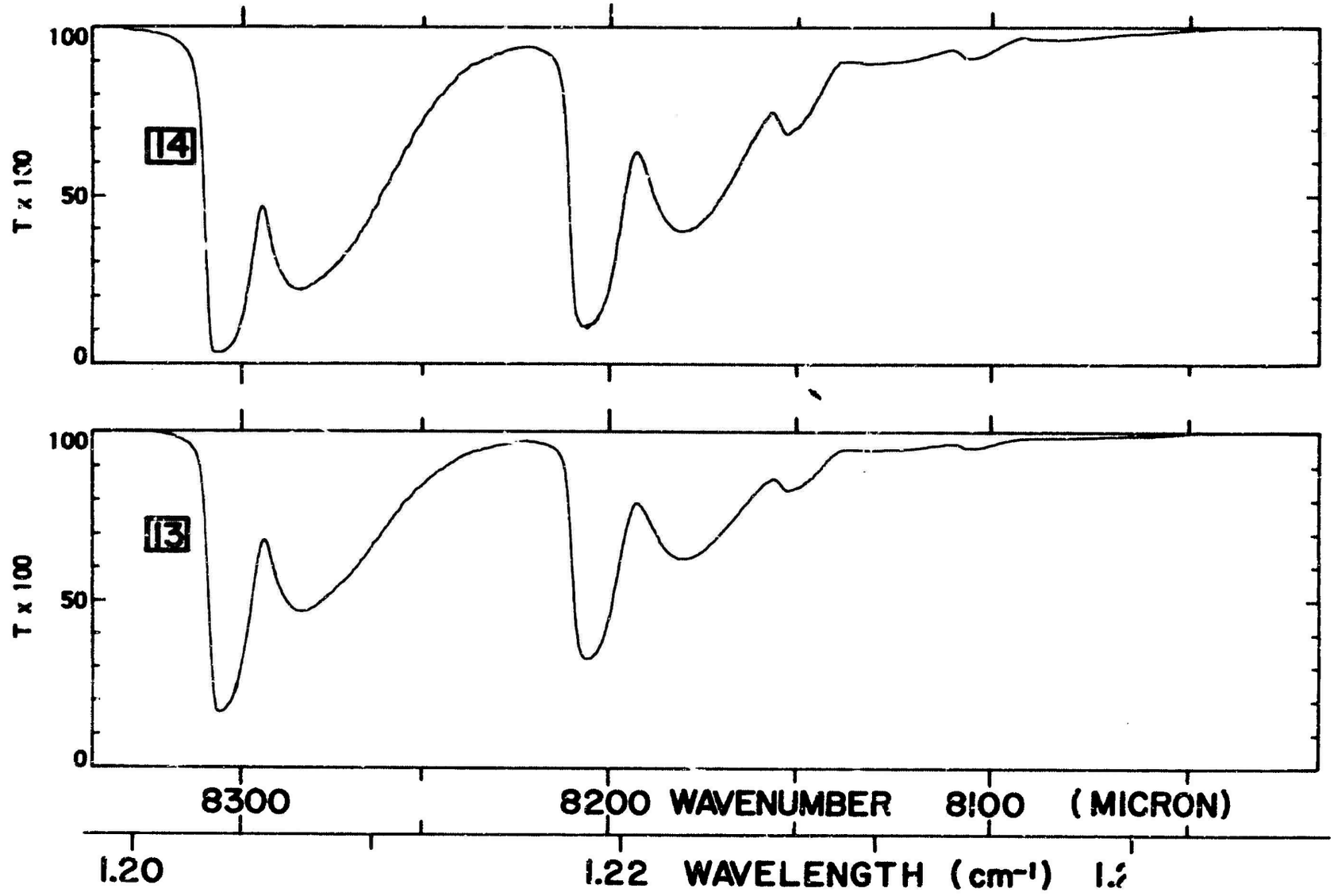

FIGURE 3-3 TRANSMISSION SPECTRA OF THE 8000 - 8350 cm^{-1} REGION.

The curves show spectra of samples 13 and 14 obtained at a pressure of 14.6 atm in order to smooth out the structure. These points were used for wavenumber calibration.

TABLE 3-2

SAMPLE PARAMETERS

Sample No.	p torr	p atm	u atm cm$_{STP}$	L Path Meters	Spectral Slitwidth (cm^{-1})	Figure in which spectrum is shown
1	1900	2.50	5.51×10^4	237	2.5	Not shown
2	1900	2.50	10.9×10^4	469	2.5	Not shown
3	1900	2.50	16.3×10^4	701	3.8	Not shown
4	1900	2.50	21.7×10^4	933	3.8	3-1
5	758	0.997	1.11×10^4	121	1.2	3-2
6	758	0.997	2.18×10^4	237	1.5	3-2
7	758	0.997	4.32×10^4	469	1.9	3-2
8	758	0.997	8.60×10^4	933	2.8	3-2
9	1920	2.53	2.83×10^4	121	1.5	3-2
10	1920	2.53	5.57×10^4	237	1.5	3-2
11	1920	2.53	11.0×10^4	469	1.9	3-2
12	1920	2.53	21.9×10^4	933	2.8	3-2
13	11,100	14.6	2.38×10^4	16.5	1.1	3-3
14	11,100	14.6	4.73×10^4	32.9	1.1	3-3

The 10^03 band of $C^{13}O_2^{16}$ can be seen with its center at 8089.0 cm^{-1}. It was identified as 02^03 by Herzberg and Herzberg[1] and later identified as 10^03 by Courtoy.[7] Stull, Wyatt and Plass[7] give 8089.0 cm^{-1} for the band center of 10^03 and 7981.1 cm^{-1} for 02^03. The latter band is very weak and will be discussed in a future report covering the region between 7100 and 8000 cm^{-1}. The 10^03 and 02^03 bands of $C^{12}O^{16}O^{18}$ should be sufficiently strong to be observed in the spectrum of our largest samples if they were not overlapped by lines of the stronger bands. Like the difference bands mentioned above, lines of these isotopic bands could probably be seen with better resolution. No attempt was made to change the relative abundances of the isotopes in our samples. It is probably safe to assume that they occur in their natural abundances.

It is noted that all of the bands in this region have a rather sharp band head on the high wavenumber side of the R-branch, a feature which is typical of CO_2 bands having a change in the quantum number v_3 associated with v_3. The heads of the bands included in this report occur near J = 44 in the R-branch.

3.2 BAND STRENGTHS

The strength, or intensity, of an absorption band is given by

$$S_\nu = \int K(\nu) d\nu, \tag{2-5}$$

where the integration is performed over all ν for which there is appreciable absorption. $K(\nu)$, the absorption coefficient, is defined by Equation (2-4).

Of course, if more than one band contributes to the absorption at a given wavenumber, $K(\nu)$ used in Equation (2-5) must include only the portion due to the band whose strength is being determined. The methods used to estimate the contributions of each band in overlapping regions are described below.

The strengths of the bands included in this report are essentially independent of pressure over the range of pressures used. However, as the pressure is increased, the lines are broadened until at 14.6 atm, the maximum pressure used, the half-widths are of the order of 1.3 cm^{-1}. This is less than the spectral slitwidth used in obtaining spectra of Samples 13 and 14 (Figure 3-3). Consequently, the observed transmittance $T(\nu)$ is very nearly the true transmittance $T'(\nu)$. By combining Equations (2-4) and (2-5), we see that we can determine the band strengths from the spectra by use of the following equation.

$$S_\nu = -\frac{1}{u} \int \ln T(\nu) d\nu. \tag{3-1}$$

Equation (3-1) was used to determine the strengths of all the bands in the 8000 - 8325 cm^{-1} region from Samples 13 and 14, except for the 10^03 band of $C^{13}O_2^{16}$. It was not possible to use samples in the shorter absorption cell with sufficiently large absorber thickness to produce more than a few percent absorptance by this band or by the bands in the 9300 - 9650 cm^{-1} region. Therefore, the strengths of these bands were determined from spectra of samples contained in the longer absorption cell whose maximum pressure is 2.5 atmospheres. At this pressure $T'(\nu)$ may be quite different from $T(\nu)$; but Equation (3-1) can still be used, provided $A(\nu) \equiv 1 - T(\nu)$ is not too large. A more detailed discussion of the limitations on (3-1) when dealing with samples at relatively low pressures is given in Reference 8.

For $\Sigma \leftarrow \Sigma$ bands (quantum number $\ell = 0$) of CO_2, the strength S_m of a given line within a band is related to the band strength S_ν by

$$S_m = S_\nu \, |m| \, \exp\left[-\frac{B'' \, m(m-1)}{k\theta}\right] \Big/ Q_r. \tag{3-2}$$

m = J + 1 for the R-branch and -J for the P-branch. B" is the rotational constant of the lower state, k is Boltzmann's constant, θ is the temperature, and Q_r is the rotational partition function. The Q-branch is missing in $\Sigma \leftarrow \Sigma$ bands, and contains only about one percent of the strength of $\Pi \leftarrow \Pi$ bands ($\ell = 1$ as in $21^13 \leftarrow 01^10$). Equation (3-2) also gives the strengths of lines in the P- and R-branches of $\Pi \leftarrow \Pi$ bands. Gray and Selvidge[9] have tabulated values of partition functions and relative line strengths for different types of CO_2 bands at several temperatures.

According to quantum theory,[10] the relative strength of the difference band $21^13 \leftarrow 01^10$ to its associated summation band 20^03 is given by

$$\frac{S_v\ (21^13 \leftarrow 01^10)}{S_v\ (20^03)} = 2 \exp\ (-\ hc\ 667.4/k\theta) \qquad (3\text{-}3)$$

$$= 0.078 \text{ for } \theta = 296^\circ K.$$

h is Planck's constant, c is the speed of light and the factor 2 arises from the double degeneracy of the 01^10 state. 667.4 cm^{-1} is the difference between the energy levels 01^10 and 00^00.

Equation (3-3) also relates the strength of any difference band to its associated summation or fundamental band if the proper degeneracy factor is used and 667.4 is replaced by the difference between the energy level 00^00 and the lower level for the difference band.

The strengths of all the bands of significance in the region are given in Table 3-1. From Equations (3-1) and (2-1), we see that the units of band strength are $atm^{-1}\ cm^{-1}_{STP}\ cm^{-1}$, with the STP referring to the absorber thickness and not to the temperature at which the measurement was made.

Since the 20^03 and $21^13 \leftarrow 01^10$ bands are not separated in our spectra, their strengths were calculated from their combined strengths by the use of Equation (3-3). The R- and P-branches could be measured separately, and their relative strengths are in good agreement with what we obtain by summing the strengths of the lines in each branch as given by (3-2). The summation gives 52% for the R-branch and 48% for the P-branch.

The R-branch of the 12^03 band is isolated from other bands and could be measured separately. But the P-branch is overlapped by the $13^13 \leftarrow 01^10$ band, making it necessary to use Equation (3-3) to determine their strengths.

The 04^03 band is displaced from its associated difference band ($05^13 \leftarrow 01^10$) and could be measured directly. There was only a hint of absorption in our original spectra in the region where $05^13 \leftarrow 01^10$ should appear. Therefore,

its strength could not be measured; it could, of course, be calculated from the strength of the $04^{0}3$ band.

No values of uncertainty are presented for the strengths of the difference bands since they would depend on the uncertainties of the associated combination bands and on the error in the theoretical relationship given by Equation (3-2). In some cases the uncertainty of an entire band is slightly less than the sum of the two branches since it is not possible to divide the spectrum exactly to determine the contributions of each branch.

The R-branches of the $10^{0}3$ and $02^{0}3$ bands of $C^{12}O_2^{16}$ are relatively free of overlapping lines and were measured separately. Strengths of the $11^{1}3 \leftarrow 01^{1}0$ band and the P-branch of the $10^{0}3$ band were determined from Equation (3-3) in the same manner as the bands discussed above.

Although a portion of the P-branch of the $02^{0}3$ band is overlapped by the $03^{1}3 \leftarrow 01^{1}0$ band, lines P2 to P34 are isolated. By summing the strengths of lines P2 to P34 as given by Equation (3-2), we found that these lines comprise 90.7% of the strength of the entire P-branch. Therefore, the strength of the P-branch was determined from $\int K(\nu)d\nu/.907$ over the region from the band center to a point midway between P34 and P36. Allowance was made for the contribution of the wings of these lines which would occur outside the interval. The correction was calculated by assuming the lines have a Lorentz line shape and a half-width of 1.3 cm^{-1}. (This value of half-width is based on results shown in Section 3.3.) It was not necessary to calculate the correction very accurately since it amounted to only a couple percent of the strength of the P-branch.

The strength of the $03^{1}3 \leftarrow 01^{1}0$ band was then determined from $\int K(\nu)d\nu$ over the interval covered by the band and subtracting the portion due to the P-branch of the $02^{0}3$ band. It was also necessary to account for the overlapping $10^{0}3$ band of $C^{13}O_2^{16}$. By this method we were able to obtain values for the strengths of a combination band and its associated difference band with only a rather small correction based on a theoretical relationship. We see that the relative strengths are $1.0 \times 10^{-4}/11.8 \times 10^{-4} = 0.085$, which agrees, within experimental error, with 0.078 given by Equation (3-3).

The percent of uncertainty for the strength of the $10^{0}3$ band of $C^{13}O_2^{16}$ is large because of the sizeable corrections which had to be made for the overlapping bands. The strength given for this band is based on samples in which the relative abundances of the various isotopes were not intentionally altered. If we assume that the sample contains 98.9% C^{12} and 1.1% C^{13}, we would expect that, at least in the first approximation, the strengths of the bands of the two isotopes would be in the same ratio. This is seen to be true within experimental error. The ratio of strengths is $2.5 \times 10^{-5}/17.0 \times 10^{-4} = 0.015$, with approximately 40% uncertainty; and the ratio of abundances = 0.011.

3.3 HALF-WIDTHS OF ABSORPTION LINES

The shape of a collision-broadened CO_2 absorption line within a few cm^{-1} of its center, can usually be represented by the Lorentz line shape equation,[5,11]

$$k(\nu) = \frac{S_m}{\pi} \frac{\alpha}{(\nu - \nu_o)^2 + \alpha^2} . \qquad (3\text{-}4)$$

$k(\nu)$ is the absorption coefficient of the single line; S_m is its strength, ν_o is the line center, and α is the half-width. α is proportional to pressure while S_m and ν_o are constant.

Ladenberg and Reiche[12] have shown that the integrated absorptance $\int A(\nu)d\nu$ of a single line having the Lorentz shape is given by

$$\int A(\nu)d\nu = 2\pi\alpha \mathcal{F}(x), \qquad (3\text{-}5)$$

where $x = Su/2\pi\alpha$, and

$$\mathcal{F}(x) = x e^{-x} \left[J_0(ix) - i J_1(ix) \right] . \qquad (3\text{-}6)$$

$J_0(ix)$ and $J_1(ix)$ are the Bessel functions of order 0 and 1, respectively.

Although Equation (3-6) is a rather involved expression, two well-known approximations can be readily used for single lines under certain conditions:

$$\int A(\nu)d\nu = S_m u, \qquad \text{for small } x \quad \text{(weak lines)} \qquad (3\text{-}7)$$

and

$$\int A(\nu)d\nu = 2 (S_m u \alpha)^{1/2} \qquad \text{for large } x \quad \text{(strong lines).} \qquad (3\text{-}8)$$

It is noted that Equations (3-7) and (3-1) are equivalent for small $A(\nu)$. Values of $\mathcal{F}(x)$ for intermediate (x) have been tabulated by Kaplan and Eggers.[13]

It is apparent from Equation (3-8) that α can be determined from a measurement of $\int A(\nu)d\nu$ under the proper conditions if S_m is known. $\int A(\nu)d\nu$ is seen to be independent of α for small x and proportional to $\alpha^{1/2}$ for large x. The dependence is less than square root for intermediate x; and even if the conditions for Equation (3-8) are not fulfilled, α can still be determined by use of the exact expression given by Equation (3-5), provided x is sufficiently large that there is a sizeable dependence on α.

Lines P2 to P32 of the $02^{o}3$ band are isolated from other lines of any significance; therefore, it was possible to measure $\int A(\nu)d\nu$ for them. Values of S_m were obtained from the band strength given in Table 3-1 by the use of Equation (3-2); and values of $\int A(\nu)d\nu$ were taken from Table 5-2 for each line. The absorber thickness u for Samples 6, 7 and 8 is great enough that x is sufficiently large for a near square-root dependence of $\int A(\nu)d\nu$ on α.

We assumed α^{o} (α at a pressure of 1 atm) to be 0.09 cm^{-1} and used Equation (3-5) along with the tabulated values of $\mathcal{F}(x)$ to calculate $\int A(\nu)d\nu$ for these samples. The calculated values of $\int A(\nu)d\nu$ were then compared with the observed values; and, by a reiterative process, more accurate values of α^{o} were obtained.

In making the calculations, we accounted for slight overlapping of the lines which causes the integrated absorptance of a region containing several lines to be less than the sum of the individual contributions we would expect without overlapping. The maximum correction to the calculated $\int A(\nu)d\nu$ for overlapping was only about 5 percent. Results of a recent theoretical article by Plass[14] were used to calculate the overlapping correction factor.

The results of the α^{o} measurements are shown by the plotted points in Fig. 3-4; the various geometrical figures correspond to different samples from which the measurement was made. Much of the variation between values for adjacent lines is due to the lines being close together and not completely resolved in the spectra because of the slitwidth of the spectrometer. $\int A(\nu)d\nu$ was calculated between points midway, to the nearest 0.1 cm^{-1}, between line centers. Because of the "rounding-off" of the position of the midpoint and because of slight calibration errors, part of the integral which should be attributed to one line might be attributed to its neighbor.

The solid line represents a mean value of α^{o} for lines P6 to P20 in the $00^{o}3$ band which was determined by us.[8] The dotted curve was obtained from an empirical equation relating α^{o} to J which is given by Winters, Silverman and Benedict.[11] The equation is based on data in the 15 μ region by Madden.[15]

We see that there is reasonably good agreement among the sets of data for J between about 10 and 22. But beyond J = 22, the curve based on Winters, Silverman and Benedict drops off quickly while there is only a hint of drop-off in our data. The uncertainty for an average of our points is probably less than 0.01 cm^{-1}.

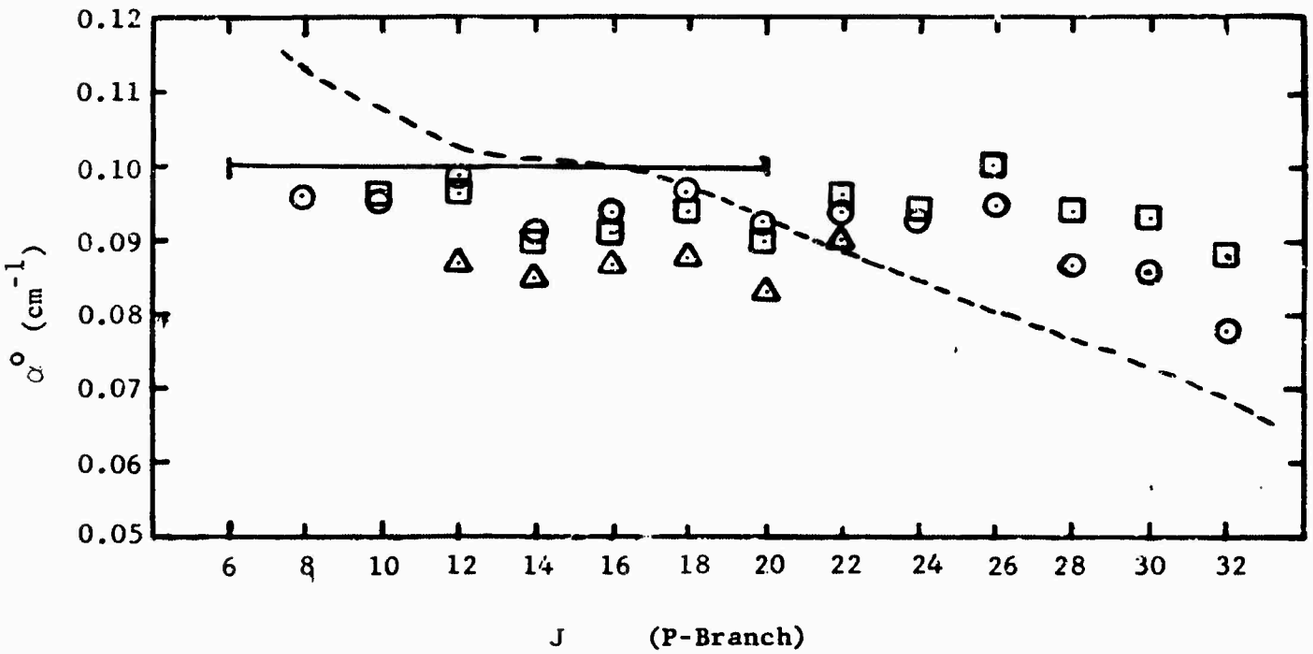

Fig. 3-4. HALF-WIDTHS OF SELF-BROADENED CO_2 LINES AT 1 ATM PRESSURE

The various geometrical figures correspond to measurements based on different samples: △, 6; ⊙, 7, and ⊡, 9. Solid curve represents mean value for 00^03 band.[8] Broken curve represents empirical equation by Winters, Silverman and Benedict[11] based on 01^10 band.

(This page is intentionally left blank.)

SECTION 4

TABLES OF TRANSMITTANCE

Tables 4-1 and 4-2 consist of values of transmittance, in percent, in the regions 9340 to 9660 cm^{-1} and 8030 to 8340 cm^{-1}, respectively. Values are recorded at intervals of 1 cm^{-1} in Table 4-1 and at intervals of 0.2 cm^{-1} in Table 4-2. In both cases the interval is sufficiently small that the original spectra could be approximated very closely by plotting the tabulated values and joining the points with straight lines. The first and second columns give the wavenumber in vacuum in cm^{-1} and the wavelength in microns.

The sample pressure p and absorber thickness u for each sample are shown at the top of the corresponding column. Each sample is designated by the same number as in Table 3-2 and in the spectra shown in Section 3.

Values are not tabulated over some portions of the spectra of the smaller samples where the absorptance is very small. $T(\nu)$ can be considered as 1 $(A(\nu) \cong 0)$, for even the largest samples, from 9415 to 9430 cm^{-1} and from 9530 to 9570 cm^{-1}. Several of the spectra from which the tables were obtained, particularly those between 9340 and 9660 cm^{-1}, represent the average of two or three original spectra which were scanned for the same sample. The wavenumber scale was calibrated by using the known positions of the lines indicated in Figures 3-1 and 3-2.

Table 4-1

Run No.	3	4
p(atm)	$3.30_0 \times 10^0$	$2.20_0 \times 10^0$
u(atm cm) STP	$1.63_5 \times 10^3$	$3.17_5 \times 10^3$

ν (cm^{-1})	λ (microns)	T x 100	T x 100
9340.0	1.07089	100.0	100.0
9341.0	1.07075	100.0	100.0
9342.0	1.07063	100.0	100.0
9343.0	1.07052	100.0	100.0
9344.0	1.07041	100.0	100.0
9345.0	1.07029	100.0	100.0
9346.0	1.07018	100.0	100.0
9347.0	1.07006	100.0	100.0
9348.0	1.06995	100.0	100.0
9349.0	1.06983	100.0	100.0
9350.0	1.06972	99.8	100.0
9351.0	1.06960	99.7	100.0
9352.0	1.06949	99.8	100.0
9353.0	1.06938	99.8	99.7
9354.0	1.06926	99.8	99.8
9355.0	1.06915	99.3	99.5
9356.0	1.06903	99.2	99.3
9357.0	1.06892	99.1	99.0
9358.0	1.06880	99.2	99.7
9359.0	1.06869	98.8	98.6
9360.0	1.06858	98.7	98.5
9361.0	1.06846	98.6	98.3
9362.0	1.06835	98.8	97.9
9363.0	1.06823	98.4	98.7
9364.0	1.06812	98.2	97.4
9365.0	1.06801	98.1	97.1
9366.0	1.06789	97.9	96.7
9367.0	1.06778	97.8	96.4
9368.0	1.06767	97.8	96.3
9370.0	1.06744	97.5	96.2
9371.0	1.06732	97.9	96.0
9372.0	1.06721	97.1	95.9
9373.0	1.06709	97.1	95.9
9374.0	1.06698	97.1	95.5
9375.0	1.06687	97.0	95.3
9376.0	1.06675	96.9	95.2
9377.0	1.06664	96.9	95.2
9378.0	1.06653	96.9	95.2
9379.0	1.06641	98.9	95.3
9380.0	1.06630	97.0	95.5
9381.0	1.06618	97.2	95.7
9382.0	1.06607	97.2	96.1
9383.0	1.06596	97.3	96.4
9384.0	1.06584	97.6	96.6
9385.0	1.06573	97.8	96.8
9386.0	1.06562	98.2	97.2
9387.0	1.06550	98.5	97.6
9388.0	1.06539	98.7	97.9
9389.0	1.06528	98.9	98.5
9390.0	1.06516	98.5	98.5
9391.0	1.06505	98.6	97.9
9392.0	1.06494	98.1	97.2
9393.0	1.06482	97.8	96.5
9394.0	1.06471	96.6	95.6
9395.0	1.06460	95.8	94.6
9396.0	1.06448	95.1	93.5
9397.0	1.06437	94.4	92.3
9398.0	1.06426	93.6	91.8
9399.0	1.06414	93.1	90.7
9400.0	1.06403	92.7	90.1
9401.0	1.06392	92.5	89.4
9402.0	1.06380	92.1	89.2
9403.0	1.06369	92.0	89.1
9404.0	1.06358	92.0	89.1
9405.0	1.06346	92.2	89.4
9406.0	1.06335	92.8	90.4
9407.0	1.06324	93.4	92.4
9408.0	1.06312	95.4	94.1
9409.0	1.06301	97.2	96.1
9410.0	1.06290	98.6	98.3
9411.0	1.06278	99.8	99.8
9412.0	1.06267	100.0	100.0
9413.0	1.06256	100.0	100.0
9414.0	1.06245	100.0	100.0
9415.0	1.06233	100.0	100.0

Run No.	1	2	3	4
p(atm)	$3.50_0 \times 10^0$	$2.30_0 \times 10^0$	$3.30_0 \times 10^0$	$2.30_0 \times 10^0$
u(atm cm) STP	$5.51_4 \times 10^4$	$1.09_3 \times 10^5$	$1.63_5 \times 10^3$	$3.17_5 \times 10^3$

ν (cm^{-1})	λ (microns)	T x 100	T x 100	T x 100	T x 100
9430.0	1.09764	100.0	100.0	100.0	100.0
9431.0	1.09753	100.0	100.0	100.0	100.0
9432.0	1.09742	100.0	100.0	100.0	100.0
9433.0	1.09731	100.0	100.0	100.0	100.0
9434.0	1.09720	100.0	100.0	100.0	100.0
9435.0	1.09708	100.0	100.0	100.0	100.0
9436.0	1.09697	100.0	100.0	100.0	100.0
9437.0	1.09686	100.0	100.0	100.0	100.0
9438.0	1.09675	100.0	100.0	99.9	100.0
9439.0	1.09663	100.0	99.9	99.8	100.0
9440.0	1.09652	100.0	99.8	99.7	99.8
9441.0	1.09641	100.0	99.8	99.5	99.7
9442.0	1.09630	100.0	99.8	99.4	99.6
9443.0	1.09618	100.0	99.8	99.3	99.5
9444.0	1.09607	100.0	99.8	99.2	99.3
9445.0	1.09596	99.8	99.8	99.1	99.0
9446.0	1.09585	99.8	99.7	98.9	99.0
9447.0	1.09574	99.7	99.5	98.8	98.8
9448.0	1.09563	99.6	99.5	98.7	98.6
9449.0	1.09551	99.5	99.5	98.6	98.5
9450.0	1.09540	99.4	99.4	98.5	98.3
9451.0	1.09529	99.4	99.3	98.4	98.2
9452.0	1.09518	99.4	99.3	98.2	98.1
9453.0	1.09507	99.3	99.3	98.1	98.0
9454.0	1.09495	99.3	99.3	98.0	97.9
9455.0	1.09484	99.2	99.1	97.9	97.7
9456.0	1.09473	99.2	99.2	97.9	97.7
9457.0	1.09462	99.2	99.1	97.7	97.6
9458.0	1.09451	99.1	99.0	97.6	97.6
9459.0	1.09439	99.1	99.0	97.4	97.4
9460.0	1.09428	99.1	98.8	97.3	97.0
9461.0	1.09417	99.1	98.9	97.3	96.8
9462.0	1.09406	99.2	98.7	97.2	96.8
9463.0	1.09394	99.2	98.7	97.1	96.7
9464.0	1.09383	99.0	98.6	97.0	96.1
9465.0	1.09372	98.9	98.6	96.9	96.0
9466.0	1.09361	98.8	98.5	96.9	95.8
9467.0	1.09350	98.7	98.4	96.7	95.6
9468.0	1.09339	98.7	98.3	96.8	95.9
9469.0	1.09328	98.8	98.1	96.5	95.5
9470.0	1.09317	98.6	98.0	96.4	95.3
9471.0	1.09306	98.5	97.7	96.4	95.0
9472.0	1.09295	98.4	97.6	96.3	94.9
9473.0	1.09284	98.3	97.5	96.2	94.7
9474.0	1.09273	98.2	97.4	96.1	94.7
9475.0	1.09262	98.2	97.3	96.0	94.7
9476.0	1.09251	98.2	97.3	95.9	94.7
9477.0	1.09240	98.3	97.2	95.7	94.6
9478.0	1.09229	98.3	97.1	95.5	94.5
9479.0	1.09218	97.9	97.0	95.5	93.9
9480.0	1.09207	97.8	96.8	94.9	93.2
9481.0	1.09196	97.4	96.1	94.3	92.7
9482.0	1.09185	97.3	96.1	93.6	91.9
9483.0	1.09174	97.0	95.6	92.8	90.9
9484.0	1.09163	96.7	95.1	91.8	89.8
9485.0	1.09152	96.3	94.6	91.0	89.0
9486.0	1.09141	96.3	93.8	89.6	87.9
9487.0	1.09130	96.0	93.2	89.0	86.9
9488.0	1.09119	95.8	92.6	88.2	86.2
9489.0	1.09108	95.8	92.3	87.2	85.1
9490.0	1.09097	95.3	91.7	86.8	84.2
9491.0	1.09086	94.9	91.1	85.5	83.3
9492.	1.09075	94.4	90.6	85.0	82.1
9493.0	1.09064	94.2	90.2	84.5	81.5
9494.0	1.09053	94.1	89.4	84.1	81.3
9495.0	1.09042	94.3	90.0	84.2	81.3
9496.0	1.09031	94.4	90.4	84.4	81.2
9497.0	1.09020	94.5	90.9	84.8	81.4
9498.0	1.09009	94.5	90.4	85.1	81.3
9499.0	1.08998	94.4	90.1	84.9	81.2
9500.0	1.08987	94.3	89.4	84.8	80.8
9501.0	1.08976	94.1	89.4	84.4	80.2
9502.0	1.08965	94.0	88.8	83.9	79.9
9503.0	1.08954	93.9	88.4	83.6	79.7
9504.0	1.08943	93.7	88.7	83.4	79.5
9505.0	1.08932	93.8	88.5	83.2	79.5
9506.0	1.08921	93.6	88.8	83.2	79.4
9507.0	1.08910	93.4	88.7	83.4	79.5
9508.0	1.08899	94.0	89.0	84.2	80.2
9509.0	1.08888	94.4	89.4	84.3	80.5
9510.0	1.08877	94.8	89.8	85.0	81.1
9511.0	1.08866	95.3	90.3	85.6	82.4
9512.0	1.08855	95.7	91.1	86.9	84.0
9513.0	1.08844	96.2	92.3	88.2	85.6
9514.0	1.08833	96.9	93.7	89.9	87.4
9515.0	1.08822	97.7	95.5	91.6	90.2
9516.0	1.08811	98.2	96.7	93.2	92.2
9517.0	1.08800	98.4	97.2	94.0	92.7
9518.0	1.08789	98.2	96.6	93.5	92.9
9519.0	1.08778	97.5	96.0	91.9	90.4
9520.0	1.08767	95.8	93.0	88.4	86.2
9521.0	1.08756	94.3	91.0	85.7	83.5
9522.0	1.08745	92.6	88.4	83.0	79.6
9523.0	1.08734	93.4	89.3	84.1	81.5
9524.0	1.08723	93.4	90.4	84.2	82.4
9525.0	1.08712	87.7	77.2	70.6	61.6
9526.0	1.08701	85.0	74.5	66.7	59.4
9527.0	1.08690	84.4	72.1	67.7	56.3
9528.0	1.08679	84.	70.1	65.7	57.2
9529.0	1.08668	81..	67.8	59.0	49.6
9530.0	1.08657	80.0	63.5	56.1	46.0
9531.0	1.08646	77..	64.1	57.8	51.4
9532.0	1.08635	84.7	72.7	64.5	57.1
9533.0	1.08624	91.3	80.3	73.0	70.6
9534.0	1.08613	96.1	96.5	87.7	89.8
9535.0	1.08602	99.3	1.0	95.7	93.9
9536.0	1.08591	99.3	97.2	96.7	97.7
9537.0	1.08580	100.0	99.6	98.5	98.5
9538.0	1.08569	100.0	100.0	100.0	100.0
9539.0	1.08558	100.0	100.0	100.0	100.0

Run No.	3	3	4
p(atm)	$3.30_0 \times 10^0$	$2.30_0 \times 10^0$	$3.30_0 \times 10^0$
u(atm cm) STP	$1.63_5 \times 10^3$	$1.63_3 \times 10^3$	$2.17_5 \times 10^3$

ν (cm^{-1})	λ (microns)	T x 100	T x 100	T x 100
9530.0	1.04493	100.0	100.0	100.0
9531.0	1.04482	100.0	100.0	100.0
9532.0	1.04471	100.0	100.0	100.0
9533.0	1.04460	100.0	100.0	100.0
9534.0	1.04450	100.0	100.0	100.0
9535.0	1.04439	100.0	100.0	100.0
9536.0	1.04428	100.0	100.0	100.0
9537.0	1.04417	100.0	100.0	100.0
9538.0	1.04406	100.0	100.0	99.9
9539.0	1.04395	100.0	99.9	99.8
9540.0	1.04384	100.0	99.8	99.7
9541.0	1.04373	100.0	99.7	99.7
9542.0	1.04362	100.0	99.6	99.6
9543.0	1.04351	100.0	99.5	99.4
9544.0	1.04341	100.0	99.4	99.5
9545.0	1.04330	100.0	99.3	99.4
9546.0	1.04319	99.9	99.2	99.2
9547.0	1.04308	99.7	97.1	97.8
9548.0	1.04297	99.8	98.5	97.6
9549.0	1.04286	99.7	98.7	97.4
9550.0	1.04275	99.6	99.8	97.5
9551.0	1.04264	99.5	98.6	97.5
9552.0	1.04254	99.3	98.2	97.1
9553.0	1.04243	99.2	97.8	96.8
9554.0	1.04232	99.0	97.5	96.8
9555.0	1.04221	98.9	97.7	96.5
9556.0	1.04210	98.8	97.5	96.3
9557.0	1.04199	98.7	97.2	96.0
9558.0	1.04188	98.6	96.9	95.8
9559.0	1.04178	98.5	96.7	95.6
9560.0	1.04167	98.4	96.4	95.3
9561.0	1.04156	98.2	99.[illegible]	94.7
9562.0	1.04145	98.1	96.3	94.4
9563.0	1.04134	97.9	96.2	94.1
9564.0	1.04123	97.8	96.2	93.9
9565.0	1.04112	97.6	96.1	93.6
9566.0	1.04101	97.5	95.9	93.[illegible]
9567.0	1.04091	97.3	95.6	93.1
9568.0	1.04080	97.1	95.3	92.8
9569.0	1.04069	97.0	95.[illegible]	92.5
9570.0	1.04058	96.8	94.9	91.7
9571.0	1.04047	96.6	94.1	90.9
9572.0	1.04037	96.4	93.[illegible]	91.7
9573.0	1.04026	96.3	93.7	92.7
9574.0	1.04015	96.1	91.3	90.4
9575.0	1.04004	96.0	93.2	90.5
9576.0	1.03993	95.9	92.9	90.6
9577.0	1.03982	95.8	92.7	90.4
9578.0	1.03972	95.7	92.6	90.4
9579.0	1.03961	95.8	92.6	90.4
9580.0	1.03950	95.6	92.7	90.3
9581.0	1.03939	95.6	92.7	90.0
9582.0	1.03928	95.6	92.7	89.9
9583.0	1.03919	95.6	92.9	90.0
9584.0	1.03907	95.8	93.1	90.3
9585.0	1.03896	96.2	93.4	91.1
9586.0	1.03885	96.6	93.7	91.7
9587.0	1.03875	96.9	94.1	92.5
9588.0	1.03864	97.3	94.8	93.2
9589.0	1.03853	97.7	95.5	93.7
9590.0	1.03842	98.1	96.2	94.5
9591.0	1.03831	98.5	96.7	95.2
9592.0	1.03821	99.1	97.2	95.7
9593.0	1.03810	99.2	97.5	96.1
9594.0	1.03799	99.3	97.6	96.4
9595.0	1.03788	97.1	94.9	92.7
9596.0	1.03778	95.9	93.1	91.0
9597.0	1.03767	94.8	93.5	88.9
9598.0	1.03756	93.5	90.8	86.9
9599.0	1.03745	92.6	89.0	85.4
9600.0	1.03734	91.5	86.7	83.4
9601.0	1.03724	90.4	85.4	82.0
9602.0	1.03713	89.5	84.1	80.9
9603.0	1.03702	88.9	82.9	78.6
9604.0	1.03691	88.2	82.1	78.4
9605.0	1.03681	87.7	81.7	77.6
9606.0	1.03670	87.7	81.6	77.8
9607.0	1.03659	87.9	82.7	78.6
9608.0	1.03648	89.0	83.2	82.0
9609.0	1.03638	91.9	86.8	86.5
9610.0	1.03627	96.0	93.4	91.7
9611.0	1.03616	99.2	96.9	95.3
9612.0	1.03605	99.9	99.0	97.1
9613.0	1.03595	100.0	99.2	98.7
9614.0	1.03584	100.0	99.8	99.3
9615.0	1.03573	100.0	100.0	100.0
9616.0	1.03563	100.0	100.0	100.0
9617.0	1.03552	100.0	100.0	100.0
9618.0	1.03541	100.0	100.0	100.0
9619.0	1.03530	100.0	100.0	100.0
9620.0	1.03520	100.0	100.0	100.0

Table 4-2

Run No		5	6	7	8	9	10	11	12	13	14
p(atm)		9.87×10^{-1}	9.87×10^{-1}	9.87×10^{-1}	9.87×10^{-1}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	1.46×10^{1}	1.46×10^{1}
w(atm cm) STP		1.11 × 10^[illegible]	2.18 × 10^[illegible]	4.32 × 10^[illegible]	8.60 × 10^[illegible]	2.63 × 10^[illegible]	5.57 × 10^[illegible]	1.10×10^{1}	2.13×10^{1}	2.16 × 10^[illegible]	4.73 × 10^[illegible]
ν (cm⁻¹)	λ (microns)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8030.0	1.24533	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8030.2	1.24530	100.0	100.0	100.0	100.0	100.0	100.0	100.2	100.0	100.0	100.0
8030.4	1.24527	100.0	100.0	100.0	100.0	100.0	100.2	100.0	100.0	100.0	100.0
8030.6	1.24524	100.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8030.8	1.24521	100.0	100.0	100.0	100.0	100.0	100.0	100.5	100.0	100.0	100.0
8031.0	1.24518	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8031.2	1.24514	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8031.4	1.24511	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8031.6	1.24508	100.0	100.0	100.0	100.0	100.0	100.0	100.5	100.0	100.0	100.5
8031.8	1.24505	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8032.0	1.24502	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8032.2	1.24499	100.0	100.0	100.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8032.4	1.24496	100.0	100.0	100.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8032.6	1.24493	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8032.8	1.24490	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8033.0	1.24486	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8033.2	1.24483	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8033.4	1.24480	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8033.6	1.24477	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8033.8	1.24474	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8034.0	1.24471	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8034.2	1.24468	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8034.4	1.24465	100.0	100.0	100.0	100.0	100.0	100.5	100.0	100.0	100.0	100.0
8034.6	1.24462	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8034.8	1.24459	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8035.0	1.24456	100.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8035.2	1.24452	100.0	100.0	100.5	100.0	100.5	100.0	100.0	100.0	100.0	100.0
8035.4	1.24449	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8035.6	1.24446	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8035.8	1.24443	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8036.0	1.24440	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8036.2	1.24437	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8036.4	1.24434	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8036.6	1.24431	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8036.8	1.24428	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8037.0	1.24425	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8037.2	1.24421	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8037.4	1.24418	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8037.6	1.24415	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8037.8	1.24412	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8038.0	1.24409	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8038.2	1.24406	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8038.4	1.24403	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8038.6	1.24400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8038.8	1.24397	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8039.0	1.24394	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8039.2	1.24390	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8039.4	1.24387	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8039.6	1.24384	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8039.8	1.24381	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8040.0	1.24378	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8040.2	1.24375	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8040.4	1.24372	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8040.6	1.24369	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8040.8	1.24366	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8041.0	1.24363	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8041.2	1.24360	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8041.4	1.24356	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8041.6	1.24353	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8041.8	1.24350	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8042.0	1.24347	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8042.2	1.24344	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8042.4	1.24341	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8042.6	1.24338	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8042.8	1.24335	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8043.0	1.24332	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8043.2	1.24329	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8043.4	1.24326	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8043.6	1.24322	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8043.8	1.24319	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8044.0	1.24316	100.0	100.0	100.0	99.6	100.0	99.3	99.0	98.4	100.0	99.3
8044.2	1.24313	100.0	100.0	100.5	99.5	100.3	99.5	99.1	98.9	100.0	99.3
8044.4	1.24310	100.0	100.0	100.0	99.3	100.0	99.4	99.1	98.9	100.0	99.3
8044.6	1.24307	100.0	100.0	100.0	99.5	100.0	99.7	99.6	98.8	100.0	99.3
8044.8	1.24304	100.0	100.0	100.2	99.5	100.0	99.7	98.7	98.8	100.0	99.3
8045.0	1.24301	100.0	100.0	100.0	99.4	100.0	99.4	99.4	99.4	100.0	99.3
8045.2	1.24298	100.0	100.0	100.0	99.4	100.0	99.4	99.5	98.7	100.0	99.3
8045.4	1.24295	100.0	100.0	100.0	99.4	100.0	99.3	99.4	98.7	100.0	99.2
8045.6	1.24292	100.0	100.0	99.9	99.4	100.0	99.2	[illegible]	98.7	100.0	99.2
8045.8	1.24288	100.0	100.0	99.8	99.3	100.0	99.1	99.2	98.6	100.0	99.2
8046.0	1.24285	100.0	100.0	99.6	99.3	100.0	99.1	99.1	98.9	100.0	99.1
8046.2	1.24282	100.0	100.0	99.5	99.3	100.0	99.1	98.9	98.6	100.0	99.1
8046.4	1.24279	100.0	100.0	99.6	99.3	100.0	99.1	99.0	98.5	100.0	99.1
8046.6	1.24276	100.0	100.0	99.8	99.2	100.0	99.5	99.2	98.5	100.0	99.1
8046.8	1.24273	100.0	100.0	99.9	99.2	100.0	99.0	99.1	98.5	100.0	99.1
8047.0	1.24270	100.0	100.0	100.5	99.2	100.0	98.3	99.6	98.4	100.0	99.1
8047.2	1.24267	100.0	100.0	100.0	93.2	100.0	99.3	99.0	98.4	99.9	99.1
8047.4	1.24264	100.0	100.0	100.0	99.1	100.0	99.5	98.9	98.4	99.9	99.1
8047.6	1.24261	100.0	100.0	100.0	99.1	100.0	99.4	99.0	99.3	99.8	99.1
8047.8	1.24258	100.0	100.0	100.0	99.1	100.0	99.7	99.2	98.3	98.7	99.0
8048.0	1.24254	100.0	100.0	99.8	99.0	100.0	99.7	99.2	98.5	99.7	99.0
8048.2	1.24251	100.0	100.0	99.7	99.0	100.0	99.7	99.2	98.2	99.8	99.0
8048.4	1.24248	100.0	100.0	99.8	99.0	100.0	99.7	99.1	98.7	99.8	99.0
8048.6	1.24245	100.0	100.0	99.6	99.0	100.0	99.7	99.0	98.2	99.6	99.0
8048.8	1.24242	100.0	100.0	98.5	98.9	100.0	99.7	98.9	99.1	99.6	98.9
8049.0	1.24239	100.0	100.0	99.4	98.9	100.0	99.7	99.7	98.1	99.8	98.9
8049.2	1.24236	100.0	100.0	99.3	98.9	100.0	99.7	98.8	98.3	99.8	98.8
8049.4	1.24233	100.0	100.0	99.2	98.9	100.0	99.7	98.8	98.0	99.6	98.8
8049.6	1.24230	100.0	99.9	99.1	98.9	100.0	99.4	98.8	98.0	99.6	98.8
8049.8	1.24227	100.0	99.9	99.1	98.4	100.0	99.6	98.8	98.0	99.5	98.8
8050.0	1.24224	100.0	99.6	99.2	98.9	100.0	99.8	99.4	97.9	99.5	98.8
8050.2	1.24221	100.0	99.9	99.4	99.9	100.0	99.9	99.0	97.9	99.5	98.8
8050.4	1.24217	100.0	99.9	96.5	98.9	100.0	99.9	99.1	97.9	99.4	98.8
8050.6	1.24214	100.0	100.0	99.6	98.4	100.0	99.4	99.2	97.8	99.4	98.8
8050.8	1.24211	100.0	100.0	99.7	99.0	100.0	99.8	99.3	97.4	99.4	98.8

Run No		5	6	7	8	9	10	11	12	13	14
p(atm)		9.87×10^{-1}	9.87×10^{-1}	9.87×10^{-1}	9.87×10^{-1}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	1.46×10^{1}	1.46×10^{1}
w(atm cm) STP		1.11 × 10^[illegible]	2.18 × 10^[illegible]	4.32 × 10^[illegible]	8.60 × 10^[illegible]	2.63 × 10^[illegible]	5.57 × 10^[illegible]	1.10 × 10^[illegible]	2.11 × 10^[illegible]	2.16 × 10^[illegible]	4.73 × 10^[illegible]
ν (cm⁻¹)	λ (microns)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8051.0	1.24208	100.0	99.9	99.6	99.6	100.0	99.7	99.1	97.9	98.4	98.6
8051.2	1.24205	100.0	99.5	99.8	98.5	100.0	98.4	99.2	97.8	99.4	98.6
8051.4	1.24202	100.0	99.4	99.8	99.0	100.0	96.5	98.7	97.8	98.4	98.8
8051.6	1.24199	100.0	99.7	99.7	99.0	100.0	99.2	99.4	97.7	99.4	98.9
8051.8	1.24195	100.0	99.6	99.6	99.0	100.0	99.1	98.2	97.7	99.4	98.7
8052.0	1.24193	100.0	99.4	99.5	99.0	100.0	99.8	98.1	97.7	99.4	98.7
8052.2	1.24190	100.0	99.3	99.5	99.0	100.0	99.0	98.1	97.7	98.3	98.6
8052.4	1.24187	100.0	99.3	99.4	99.0	100.0	99.0	98.1	97.6	99.3	98.6
8052.6	1.24184	100.0	99.6	99.3	98.9	100.0	98.2	98.1	97.5	98.3	98.5
8052.8	1.24180	100.0	99.8	99.3	98.9	100.0	99.5	98.2	97.5	99.3	98.5
8053.0	1.24177	100.0	99.9	99.3	98.9	100.0	99.8	98.3	97.4	98.3	98.5
8053.2	1.24174	100.0	99.9	99.3	98.8	100.0	99.7	98.4	97.4	99.2	98.5
8053.4	1.24171	100.0	100.0	99.5	99.7	100.0	99.7	98.4	97.4	98.2	98.5
8053.6	1.24168	100.0	100.0	99.4	98.4	100.0	99.8	98.3	97.3	98.2	98.5
8053.8	1.24165	100.0	99.4	99.5	99.3	99.9	99.7	98.3	97.3	99.2	98.3
8054.0	1.24162	100.0	99.8	99.3	99.4	99.6	99.6	98.3	97.3	99.2	98.5
8054.2	1.24159	100.0	99.1	99.3	93.3	99.9	99.1	98.1	97.2	99.2	98.3
8054.4	1.24156	100.0	99.7	99.5	99.1	98.9	93.1	98.0	97.2	99.2	98.4
8054.6	1.24153	100.0	99.6	99.4	98.2	99.9	93.9	97.7	97.1	99.2	98.4
8054.8	1.24150	100.0	99.6	99.4	98.1	99.8	98.9	97.5	97.3	99.3	98.4
8055.0	1.24146	100.0	99.5	99.3	98.1	99.8	98.7	97.4	96.8	99.2	98.4
8055.2	1.24143	100.0	91.5	99.4	99.1	99.8	98.7	97.1	96.4	99.3	98.3
8055.4	1.24140	100.0	99.3	99.5	98.1	99.8	98.9	97.4	96.5	99.1	99.3
8055.6	1.24137	100.0	99.3	99.2	98.0	99.8	98.0	97.5	96.7	99.0	98.2
8055.8	1.24134	100.0	99.3	99.3	98.0	99.7	99.1	97.4	96.5	99.0	98.3
8056.0	1.24131	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8056.2	1.24128	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8056.4	1.24125	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8056.6	1.24122	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8056.8	1.24119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8057.0	1.24116	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8057.2	1.24113	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8057.4	1.24110	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8057.6	1.24106	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8057.8	1.24103	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8058.0	1.24100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8058.2	1.24097	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8058.4	1.24094	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8058.6	1.24091	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8058.8	1.24088	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8059.0	1.24085	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8059.2	1.24082	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8059.4	1.24079	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8059.6	1.24076	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8059.8	1.24073	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8060.0	1.24069	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8060.2	1.24066	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8060.4	1.24063	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8060.6	1.24060	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8060.8	1.24057	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8061.0	1.24054	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8061.2	1.24051	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8061.4	1.24048	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8061.6	1.24045	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8061.8	1.24042	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8062.0	1.24039	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8062.2	1.24036	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8062.4	1.24033	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8062.6	1.24029	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8062.8	1.24026	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8063.0	1.24023	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8063.2	1.24020	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8063.4	1.24017	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8063.6	1.24014	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8063.8	1.24011	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8064.0	1.24008	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8064.2	1.24005	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8064.4	1.24002	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8064.6	1.23999	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8064.8	1.23996	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8065.0	1.23993	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8065.2	1.23989	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8065.4	1.23986	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8065.6	1.23983	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8065.8	1.23980	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8066.0	1.23977	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8066.2	1.23974	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8066.4	1.23971	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8066.6	1.23968	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8066.8	1.23965	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8067.0	1.23962	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8067.2	1.23959	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8067.4	1.23955	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8067.6	1.23952	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8067.8	1.23949	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8068.0	1.23946	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8068.2	1.23943	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8068.4	1.23940	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8068.6	1.23937	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8068.8	1.23934	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8069.0	1.23931	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8069.2	1.23928	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8069.4	1.23925	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8069.6	1.23922	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8069.8	1.23919	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8070.0	1.23916	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8070.2	1.23913	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8070.4	1.23910	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8070.6	1.23907	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8070.8	1.23903	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8071.0	1.23900	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8071.2	1.23897	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8071.4	1.23894	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8071.6	1.23891	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8071.8	1.23888	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 4-2 (continued)

Sam. No		3	4	7	8	9	10	11	12	13	14
p(mm)		9.42×10^{-1}	3.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	2.93×10^{0}	1.88×10^{1}	1.88×10^{1}
w(atm cm) STP		1.11×10^{3}	2.14×10^{3}	4.32×10^{3}	5.60×10^{3}	2.83×10^{4}	5.57×10^{4}	1.10×10^{5}	2.19×10^{5}	2.16×10^{5}	4.73×10^{5}
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8072.0	1.23885	100.0	99.8	96.5	96.0	98.4	91.9	94.8	90.4	98.5	81.0
8072.2	1.23882	100.0	99.1	98.3	96.0	98.8	97.6	94.5	90.6	98.5	81.0
8072.4	1.23878	100.0	99.5	98.0	96.0	98.6	97.3	94.1	90.6	98.5	87.0
8072.6	1.23876	99.7	99.3	97.9	95.9	98.6	97.3	84.1	90.5	96.5	78.9
8072.8	1.23873	99.4	99.2	97.8	95.9	98.7	97.3	94.7	93.5	98.5	96.9
8073.0	1.23870	98.5	99.2	97.9	95.8	98.7	97.8	94.3	90.4	98.5	96.9
8073.2	1.23867	99.5	99.5	87.9	98.8	98.7	91.8	94.6	90.4	98.5	96.9
8073.4	1.23864	99.7	99.4	98.0	95.8	98.8	98.1	94.6	90.1	96.5	96.9
8073.6	1.23860	99.9	99.7	98.1	95.7	98.8	98.3	94.7	90.3	98.5	96.9
8073.8	1.23851	99.4	99.9	98.2	99.7	98.8	88.2	94.7	90.2	94.5	96.8
8074.0	1.23859	99.0	99.0	96.2	95.6	98.8	98.0	94.6	90.1	98.5	96.8
8074.2	1.23851	96.9	99.0	98.1	95.6	98.7	97.7	94.4	90.1	98.5	96.8
8074.4	1.23848	99.8	99.8	98.0	95.5	98.6	97.1	94.2	90.0	98.5	95.5
8074.6	1.23845	99.6	99.5	97.6	95.4	98.6	97.3	93.8	89.5	38.3	96.6
8074.8	1.23842	96.4	99.1	81.5	93.5	98.6	98.0	93.7	89.7	98.5	96.1
8075.0	1.23838	99.3	98.9	97.5	95.4	98.5	97.0	93.8	89.6	98.5	98.7
8075.2	1.23836	99.3	99.9	91.8	95.4	98.5	97.1	93.9	89.5	98.5	98.7
8075.4	1.23833	99.4	98.9	97.9	95.4	98.4	97.3	94.0	89.5	98.3	96.7
8075.6	1.23830	99.1	98.9	98.0	85.4	98.4	87.2	94.2	89.4	98.3	96.7
8075.8	1.23827	99.2	98.4	98.1	95.4	98.4	97.1	94.5	89.3	96.3	96.6
8076.0	1.23824	99.7	98.8	98.1	98.4	98.4	95.9	94.1	89.2	98.3	96.6
8076.2	1.23821	98.9	99.8	98.1	95.3	98.4	95.6	91.1	89.1	98.3	98.6
8076.4	1.23818	99.3	98.7	98.1	95.3	98.5	96.4	93.2	89.5	98.5	96.6
8076.6	1.23814	99.4	98.7	98.0	89.2	98.4	99.2	93.5	89.0	98.3	96.6
8076.8	1.23811	99.8	98.7	97.8	95.2	98.4	96.4	93.6	88.9	98.5	96.6
8077.0	1.23808	99.8	99.7	97.7	95.1	98.4	90.0	94.1	88.8	98.4	96.5
8077.2	1.23805	99.9	99.1	97.9	95.1	98.5	96.2	93.8	88.7	98.4	96.5
8077.4	1.23802	100.0	98.8	91.9	95.0	98.6	97.0	93.9	88.7	78.4	96.5
8077.6	1.23799	100.0	98.9	98.0	95.0	98.7	97.2	93.9	98.6	98.4	99.5
8077.8	1.23796	100.0	99.1	98.8	94.9	98.7	97.1	93.9	88.6	98.4	96.5
8078.0	1.23793	100.0	99.3	91.9	94.9	98.6	97.1	91.6	88.5	98.4	96.5
8078.2	1.23790	100.0	99.2	91.8	94.8	98.6	97.2	93.7	88.4	98.4	96.3
8078.4	1.23787	99.4	99.2	97.4	94.8	98.5	96.8	93.5	88.4	98.4	96.3
8078.6	1.23784	99.9	99.2	97.5	98.7	98.4	98.3	93.4	84.9	71.4	99.5
8078.8	1.23781	98.3	99.2	97.4	99.6	60.3	96.3	93.3	69.2	96.4	96.5
8079.0	1.23778	99.1	99.0	97.3	94.6	96.5	96.2	93.	88.2	98.3	98.4
8079.2	1.23775	99.7	99.6	91.5	94.5	96.4	96.6	93.5	98.1	98.3	99.4
8079.4	1.23772	99.7	99.4	91.0	94.6	98.4	91.1	93.6	88.1	98.1	99.4
8079.6	1.23769	99.7	99.0	97.7	96.5	96.5	91.4	93.7	88.0	98.3	98.4
8079.8	1.23765	99.7	99.3	91.9	94.5	98.6	97.7	91.6	87.9	98.3	94.4
8080.0	1.23762	99.8	99.6	97.7	94.5	96.5	91.9	93.9	81.7	98.3	99.4
8080.2	1.23759	99.9	99.5	97.9	94.4	99.4	97.9	93.9	87.8	98.4	94.4
8080.4	1.23756	99.2	99.5	97.4	94.4	98.3	97.7	93.6	87.7	98.4	94.
8080.6	1.23753	99.8	99.3	97.2	98.4	98.2	97.4	93.8	87.8	98.4	94.4
8080.8	1.23750	99.6	99.1	97.0	94.3	98.2	97.0	93.5	87.5	98.4	96.4
8081.0	1.23747	99.3	99.9	96.9	94.5	78.2	96.7	93.4	87.4	98.8	90.4
8081.2	1.23744	98.6	99.8	96.8	94.5	78.3	96.8	93.5	87.5	98.4	96.5
8081.4	1.23741	99.7	99.9	96.8	94.3	98.6	97.0	93.5	97.9	98.4	96.5
8081.6	1.23738	99.8	99.0	96.7	94.1	98.4	97.2	93.9	81.7	98.4	98.5
8081.8	1.23735	99.8	99.1	96.7	94.3	98.4	97.3	94.0	87.8	98.4	95.3
8082.0	1.23732	99.4	99.2	96.2	94.3	96.3	91.4	93.7	87.9	98.4	96.5
8082.2	1.23729	100.0	99.5	96.9	94.4	96.3	97.3	93.6	88.1	98.4	99.5
8082.4	1.23726	100.0	99.4	97.0	98.5	96.3	91.0	93.7	99.2	98.4	96.5
8082.6	1.23723	99.4	99.3	97.0	94.6	98.3	96.3	93.7	88.4	98.4	96.5
8082.8	1.23720	99.7	99.2	97.0	94.7	96.2	96.8	93.8	88.6	98.4	96.5
8083.0	1.23716	99.6	99.0	97.1	94.9	98.3	96.0	94.0	88.7	99.4	96.5
8083.2	1.23713	99.5	97.0	97.2	95.0	98.4	97.0	94.2	88.9	98.4	96.5
8083.4	1.23710	99.6	99.1	97.4	95.2	98.6	97.2	99.3	88.9	98.4	96.6
8083.6	1.23707	99.8	99.1	97.5	95.4	96.7	97.5	94.3	89.0	98.4	96.6
8083.8	1.23704	99.9	99.1	97.6	95.5	96.7	97.5	94.3	89.1	98.4	96.6
8084.0	1.23701	100.0	99.1	97.7	95.6	96.6	97.4	94.4	89.1	98.6	96.6
8084.2	1.23698	100.0	99.2	97.9	95.5	98.5	97.2	94.2	89.0	99.4	96.6
8084.4	1.23693	100.0	99.2	98.0	95.5	98.6	98.0	93.9	89.0	98.3	96.6
8084.6	1.23692	99.9	99.2	97.9	95.4	98.3	95.7	93.7	89.0	98.3	96.6
8084.8	1.23689	98.7	99.2	97.9	95.4	98.3	96.5	93.5	88.8	98.3	96.6
8085.0	1.23686	99.6	99.1	97.5	95.3	95.3	96.4	93.5	86.9	98.3	96.6
8085.2	1.23683	99.5	99.1	97.8	93.2	96.4	98.5	93.4	89.0	98.3	96.6
8085.4	1.23680	99.5	99.1	97.6	95.1	98.4	96.6	93.5	89.1	98.3	96.6
8085.6	1.23677	99.5	99.1	97.9	95.0	96.4	96.7	93.7	89.1	96.4	96.6
8085.8	1.23674	99.5	99.0	97.9	94.9	99.4	98.4	93.8	89.2	98.4	96.6
8086.0	1.23671	99.6	99.0	95.0	94.9	95.6	96.9	85.8	89.2	99.4	96.6
8086.2	1.23667	99.6	99.7	98.0	94.8	98.6	97.0	93.7	89.3	98.4	96.6
8086.4	1.23664	99.7	99.9	98.1	94.8	98.7	97.2	93.6	89.4	98.4	96.9
8086.6	1.23661	99.7	98.9	98.1	96.7	98.1	91.2	93.7	89.4	98.3	96.6
8086.8	1.23658	99.7	98.9	98.7	94.7	98.8	97.0	93.9	89.5	99.3	96.6
8087.0	1.23655	99.7	98.9	98.2	94.7	99.2	97.6	93.9	89.6	98.3	96.6
8087.2	1.23652	99.7	98.9	98.2	92.8	98.7	97.5	93.8	89.7	98.3	96.6
8087.4	1.23649	99.7	99.0	98.2	94.4	99.1	97.5	93.9	89.8	98.1	96.9
8087.6	1.23646	99.7	99.0	98.1	94.4	96.6	97.6	93.9	89.9	98.3	96.5
8087.8	1.23643	99.1	99.1	98.1	95.0	98.8	97.5	93.9	90.0	98.3	96.5
8088.0	1.23640	99.6	99.1	99.0	95.1	98.8	97.4	93.9	90.1	98.3	96.3
8088.2	1.23637	99.6	99.1	98.0	95.2	99.9	97.4	93.9	90.2	98.3	96.5
8088.4	1.23634	99.6	99.1	98.0	95.3	99.0	97.5	94.0	90.1	98.3	96.5
8088.6	1.23631	99.7	99.1	97.9	95.4	99.0	97.9	94.2	90.4	98.3	96.5
8088.8	1.23628	99.9	99.2	91.8	93.9	99.0	97.7	94.4	90.5	98.2	96.5
8089.0	1.23625	99.9	99.3	97.6	95.6	99.0	97.7	94.5	90.6	98.2	96.5
8089.2	1.23622	99.9	99.4	91.9	95.7	98.9	97.8	94.9	90.8	98.2	96.5
8089.4	1.23619	99.9	99.5	95.0	95.1	98.9	98.0	94.8	90.9	98.2	96.5
8089.6	1.23616	99.6	99.6	98.1	95.9	88.9	98.2	95.1	91.1	99.2	96.5
8089.8	1.23612	99.8	99.7	98.3	93.9	96.6	97.3	95.4	91.2	96.2	96.6
8090.0	1.23609	98.8	99.7	96.4	93.9	99.8	.9	95.6	91.1	98.2	96.8
8090.2	1.23606	98.8	99.7	98.4	95.9	98.8	9.1	95.6	90.4	98.2	96.8
8090.4	1.23603	99.8	99.7	98.4	96.0	98.8	98.2	95.6	90.8	98.2	96.6
8090.6	1.23600	99.8	99.7	98.4	96.0	98.7	91.0	95.3	90.7	98.2	96.6
8090.8	1.23597	99.4	99.7	96.4	96.0	98.7	97.1	95.2	90.5	96.2	96.6
8091.0	1.23594	98.8	99.7	99.1	95.9	98.6	91.6	95.1	90.4	98.1	96.6
8091.2	1.23591	99.2	99.7	98.3	95.8	96.4	91.5	95.0	90.3	98.1	98.6
8091.4	1.23588	99.8	99.7	98.3	95.7	98.7	97.4	99.7	90.0	98.1	96.6
8091.6	1.23585	99.7	99.6	96.2	95.6	98.8	97.3	99.7	89.9	99.0	99.3
8091.8	1.23582	99.6	99.6	98.1	95.5	99.4	97.2	94.8	89.8	98.0	96.4
8092.0	1.23579	99.5	99.5	98.0	95.4	98.9	91.2	94.7	89.3	97.9	98.4
8092.2	1.23576	99.5	99.5	98.0	95.2	99.0	91.3	99.5	89.8	97.9	96.8
8092.4	1.23573	99.5	99.4	97.9	95.1	99.0	91.3	99.4	88.7	97.8	96.2
8092.6	1.23570	99.5	99.4	97.8	94.9	90.9	97.2	94.5	89.2	97.8	96.1
8092.8	1.23567	99.5	99.4	97.7	94.9	98.8	96.9	94.2	89.0	97.8	96.1

Sam. No		3	4	7	8	9	10	11	12	13	14
p(mm)		9.97×10^{-1}	7.97×10^{-1}	9.97×10^{-1}	7.97×10^{-1}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	2.33×10^{0}	1.88×10^{1}	1.88×10^{1}
w(atm cm) STP		1.11×10^{3}	2.15×10^{3}	4.32×10^{3}	5.60×10^{3}	2.83×10^{4}	5.57×10^{4}	1.10×10^{5}	2.19×10^{5}	2.16×10^{5}	4.71×10^{5}
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8093.0	1.23564	99.4	99.3	97.4	94.7	96.4	98.5	91.7	87.5	97.7	96.0
8093.2	1.23561	99.5	97.	97.4	94.5	99.4	96.4	91.4	87.0	97.7	95.9
8093.4	1.23557	99.5	99.4	97.2	94.4	98.4	94.2	91.9	86.6	97.1	95.4
8093.6	1.23554	99.4	93.9	97.1	94.3	98.0	95.9	92.7	88.1	97.7	95.4
8093.8	1.23551	99.4	98.8	97.1	94.2	98.0	95.7	92.4	85.1	97.8	95.8
8094.0	1.23548	98.4	96.9	97.0	94.6	97.9	95.7	92.2	85.4	97.6	95.5
8094.2	1.23545	99.4	96.7	96.9	93.9	97.8	95.7	92.0	77.0	97.3	95.3
8094.4	1.23542	99.1	96.4	96.9	91.8	97.9	95.6	92.0	84.7	97.4	95.2
8094.6	1.23539	99.1	96.6	96.9	93.7	97.8	95.9	92.0	84.1	97.4	95.1
8094.8	1.23536	99.2	96.6	96.9	91.5	97.9	95.7	91.8	84.0	91.4	95.0
8095.0	1.23533	98.2	98.5	96.9	93.4	98.0	95.7	91.6	81.7	97.3	94.9
8095.2	1.23530	99.1	94.5	96.9	93.1	98.0	95.9	91.3	81.4	97.3	94.7
8095.4	1.23527	99.0	96.6	96.5	93.0	97.1	95.9	91.1	83.1	97.2	96.6
8095.6	1.23524	99.9	98.6	96.7	92.7	97.6	95.9	90.8	82.6	97.2	94.5
8095.8	1.23521	98.9	99.7	96.5	92.4	97.8	93.1	90.5	81.8	97.2	94.4
8096.0	1.23518	98.0	94.1	96.4	92.1	97.7	95.2	90.2	81.0	97.1	94.3
8096.2	1.23515	98.9	98.6	96.1	91.8	97.6	95.1	89.8	80.2	97.1	94.1
8096.4	1.23512	98.9	98.5	96.0	91.5	97.4	95.1	89.5	79.5	97.1	94.0
8096.6	1.23509	98.9	99.4	95.8	91.3	97.4	94.7	99.0	79.1	97.0	93.9
8096.8	1.23506	99.3	98.3	95.6	91.1	97.7	94.5	88.0	78.7	97.0	93.7
8097.0	1.23503	98.9	98.2	95.4	90.7	97.7	94.2	89.4	79.4	96.9	93.6
8097.2	1.23497	98.9	98.1	95.3	90.8	97.3	94.2	89.2	79.1	96.8	93.5
8097.4	1.23496	98.9	97.9	95.2	90.1	97.4	94.1	85.1	77.8	96.7	93.4
8097.6	1.23493	98.9	97.9	93.2	90.5	97.4	94.1	88.1	77.4	96.6	93.2
8097.8	1.23490	98.9	97.9	93.2	90.3	77.5	94.2	87.9	77.1	96.5	93.1
8098.0	1.23487	98.9	97.8	95.2	90.1	91.4	94.3	87.8	76.7	96.4	93.0
8098.2	1.23484	98.8	91.7	95.2	59.9	97.6	94.2	87.5	76.4	96.4	92.8
8098.4	1.23481	98.9	97.6	95.2	89.7	97.5	94.1	87.1	76.0	96.3	92.7
8098.6	1.23478	98.8	91.6	95.1	89.9	91.3	93.9	86.6	75.5	96.3	92.6
8098.8	1.23475	98.9	91.5	94.9	89.2	97.0	91.6	86.0	75.0	96.3	92.4
8099.0	1.23472	98.8	97.5	94.5	89.0	96.7	91.1	84.4	74.6	94.2	92.1
8099.2	1.23469	98.8	97.5	94.2	88.7	98.9	92.3	83.7	74.1	96.1	92.2
8099.4	1.23466	98.2	97.4	94.1	88.5	98.4	92.5	85.0	73.6	96.1	92.2
8099.6	1.23463	98.7	97.3	94.0	44.7	98.6	92.4	84.9	73.1	96.0	92.1
8099.8	1.23460	98.4	97.3	93.9	88.1	96.6	92.4	84.9	72.5	95.9	92.0
8100.0	1.23457	98.6	97.2	93.9	87.9	96.9	92.3	84.6	72.0	95.9	91.9
8100.2	1.23454	98.9	97.2	93.9	87.6	98.6	92.1	84.7	71.4	95.8	91.7
8100.4	1.23451	96.5	91.2	93.8	81.5	96.6	92.1	84.5	71.0	95.7	91.6
8100.6	1.23448	98.5	97.2	93.8	81.3	98.6	92.6	94.3	70.6	95.1	91.3
8100.8	1.23445	98.5	97.2	93.8	87.1	96.3	92.0	84.1	70.2	95.6	91.3
8101.0	1.23442	98.5	97.2	93.7	86.9	96.4	92.0	83.6	69.8	95.5	91.2
8101.2	1.23439	98.5	97.2	93.5	86.7	96.2	91.8	83.4	69.4	93.5	91.2
8101.4	1.23435	96.5	91.2	93.4	86.4	96.0	91.6	83.0	69.2	95.4	91.1
8101.6	1.23432	98.3	97.2	93.1	86.4	96.1	91.2	82.6	69.0	95.4	91.1
8101.8	1.23429	98.2	97.1	92.9	86.2	96.1	90.8	82.3	68.8	95.4	91.1
8102.0	1.23426	98.4	97.0	92.1	86.0	96.0	90.5	82.0	68.4	95.3	91.0
8102.2	1.23423	98.1	96.7	92.5	83.9	96.0	90.3	81.8	68.4	95.3	91.0
8102.4	1.23420	98.0	96.6	92.4	83.8	95.9	90.1	81.7	68.2	95.3	91.0
8102.6	1.23417	98.0	96.5	92.4	85.7	95.8	90.0	81.5	58.	93.1	91.0
8102.8	1.23414	98.1	96.5	92.5	85.6	95.8	90.0	81.7	68.0	95.3	90.9
8103.0	1.23411	99.1	96.4	92.8	83.9	95.8	90.1	81.6	67.9	95.3	90.9
8103.2	1.23408	98.1	96.3	92.7	83.4	95.8	90.3	81.9	67.7	95.3	90.9
8103.4	1.23405	98.2	96.6	92.1	85.3	93.7	90.5	81.9	61.6	95.3	90.9
8103.6	1.23402	75.3	98.6	92.8	85.2	95.6	90.8	91.8	67.4	95.3	90.9
8103.8	1.23399	98.3	96.6	92.8	85.2	95.5	90.6	81.7	67.3	95.4	90.9
8104.0	1.23396	98.3	96.9	92.1	85.1	95.2	90.6	81.6	67.1	95.4	90.9
8104.2	1.23393	98.3	96.6	92.6	85.1	95.1	90.4	81.4	67.0	95.4	90.9
8104.4	1.23390	98.3	96.5	92.5	85.1	95.0	90.2	81.1	68.2	95.4	91.0
8104.6	1.23387	98.3	99.4	92.4	83.0	94.9	90.1	80.7	66.9	95.4	91.0
8104.8	1.23384	98.3	96.3	92.2	85.0	94.8	89.9	80.1	66.5	89.3	91.1
8105.0	1.23381	98.3	96.1	92.0	85.0	94.7	89.8	80.1	66.3	95.3	91.2
8105.2	1.23378	98.3	96.0	91.8	85.2	94.6	89.8	79.9	66.9	95.1	91.3
8105.4	1.23375	98.3	96.0	91.7	85.4	94.2	89.6	75.9	67.3	95.4	91.4
8105.6	1.23372	98.3	95.9	91.7	85.6	94.7	89.5	86.0	64.1	95.5	91.6
8105.8	1.23368	98.7	95.9	91.9	85.8	95.0	89.6	80.3	68.8	93.6	91.8
8106.0	1.23365	98.3	95.7	91.9	86.1	95.3	89.7	80.6	59.5	95.1	92.0
8106.2	1.23362	98.2	95.7	92.2	86.6	95.6	90.	81.6	70.8	95.9	92.2
8106.4	1.23359	98.1	95.8	92.5	87.1	95.9	90.9	81.0	72.7	96.0	92.4
8106.6	1.23356	98.3	96.0	92.9	87.6	96.1	91.9	84.2	73.5	95.1	82.6
8106.8	1.23353	99.1	96.4	93.3	88.1	96.7	92.9	85.4	74.8	96.1	92.7
8107.0	1.23350	98.3	96.2	93.9	88.6	61.2	91.9	86.5	75.9	96.2	92.9
8107.2	1.23347	98.4	97.1	94.3	89.2	97.0	94.4	87.4	76.7	96.3	93.1
8107.4	1.23344	98.6	97.3	94.4	89.8	97.4	94.6	89.7	77.6	96.4	93.2
8107.6	1.23341	98.8	97.4	95.0	90.4	98.0	.4	89.2	78.4	96.4	93.3
8107.8	1.23338	98.9	97.4	95.2	91.0	97.9	.1	89.3	79.5	96.4	93.4
8108.0	1.23335	99.0	95.0	95.4	91.2	98.0	95.3	89.7	79.5	96.4	93.4
8108.2	1.23332	99.1	95.2	95.5	91.4	98.1	95.4	89.3	79.6	96.5	93.4
8108.4	1.23329	99.1	96.3	95.9	91.8	98.1	95.5	89.1	79.4	96.5	93.5
8108.6	1.23326	99.5	95.1	95.7	91.7	98.1	95.6	89.2	79.7	96.5	91.3
8108.8	1.23323	99.1	96.3	95.4	91.4	97.7	95.1	98.8	79.1	96.3	91.5
8109.0	1.23320	99.1	98.3	93.6	91.8	97.3	94.7	88.4	79.4	96.5	93.4
8109.2	1.23317	99.0	98.3	95.5	91.8	97.4	94.4	88.1	79.4	96.5	96.4
8109.4	1.23314	98.6	98.2	95.1	91.7	97.4	94.2	87.8	79.3	96.5	93.3
8109.6	1.23311	98.6	98.1	95.2	91.4	97.3	94.2	91.7	79.1	96.5	93.3
8109.8	1.23309	98.6	97.8	95.2	91.6	97.3	94.2	87.7	78.9	96.3	93.3
8110.0	1.23305	98.6	97.7	93.1	91.5	97.4	96.2	81.9	78.7	96.5	93.2
8110.2	1.23302	98.9	97.7	99.3	91.5	97.4	94.3	88.8	78.3	96.5	93.1
8110.4	1.23299	98.4	97.8	95.4	91.4	97.5	94.6	88.1	78.2	96.3	93.1
8110.6	1.23295	99.6	98.0	95.5	91.2	97.3	95.7	86.1	78.7	96.1	93.0
8110.8	1.23292	98.7	99.1	95.7	91.2	97.4	94.9	87.9	77.7	96.5	93.0
8111.0	1.23289	98.7	98.1	95.7	90.9	97.3	94.7	87.7	77.4	96.3	92.8
8111.2	1.23286	98.7	96.3	95.6	90.8	97.2	94.3	87.6	77.0	96.4	92.8
8111.4	1.23283	98.7	98.0	95.5	90.1	97.0	93.9	81.0	76.6	96.4	92.7
8111.6	1.23280	99.6	97.9	95.3	90.2	96.9	93.5	96.3	76.3	96.3	92.7
8111.8	1.23277	96.6	97.7	75.0	99.9	96.9	94.2	85.4	75.9	96.3	92.9
8112.0	1.23274	99.9	97.1	94.7	89.7	96.7	92.9	85.5	75.6	95.2	92.5
8112.2	1.23271	98.9	91.6	94.6	89.8	96.6	92.8	83.5	75.2	96.2	92.5
8112.4	1.23268	98.6	97.5	94.5	69.4	96.5	92.6	55.5	74.4	96.1	92.4
8112.6	1.23265	99.6	91.4	94.5	89.4	96.1	92.6	83.5	74.5	96.1	92.4
8112.8	1.23262	99.5	97.3	94.6	89.4	96.0	92.6	85.4	74.7	96.0	92.3
8113.0	1.23259	96.3	97.2	94.6	89.1	98.2	92.8	85.4	73.9	96.0	92.3
8113.2	1.23256	99.5	97.2	94.6	89.7	96.4	93.0	83.4	71.6	96.0	92.2
8113.4	1.23253	98.5	97.2	94.6	89.2	96.2	92.8	85.4	73.2	96.0	92.1
8113.6	1.23250	99.5	97.2	94.6	59.2	96.0	92.1	55.3	72.9	96.0	92.1
8113.8	1.23247	99.5	97.2	94.5	89.1	95.9	92.3	85.4	72.9	96.0	92.0

Table 4-2 (continued)

Sam. No.		5	6	7	8	9	10	11	12	13	14
p(atm)		9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	1.46×10^{1}	1.46×10^{1}
u(atm cm) STP		1.11×10^{4}	2.18×10^{4}	4.37×10^{4}	8.60×10^{4}	2.83×10^{4}	5.57×10^{4}	1.10×10^{5}	2.19×10^{5}	2.38×10^{4}	4.73×10^{4}
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8114.0	1.23244	[illegible]	97.3	94.6	89.0	95.9	92.3	84.5	72.1	96.0	97.0
8114.2	1.23241	96.5	97.3	94.1	88.4	95.8	92.0	84.3	71.5	95.9	91.8
8114.4	1.23238	98.5	97.2	94.0	88.9	95.7	91.4	89.2	71.7	93.9	91.7
8114.6	1.23235	96.4	97.2	93.9	88.7	95.9	91.7	84.2	70.9	95.9	91.6
8114.8	1.23232	99.4	97.2	93.4	88.4	95.6	91.6	84.1	70.6	95.8	91.5
8115.0	1.23229	99.4	97.2	94.0	88.5	95.7	91.5	83.9	70.3	95.8	91.4
8115.2	1.23226	96.4	97.2	93.9	88.6	95.7	91.4	93.4	70.0	95.8	91
8115.4	1.23223	98.1	97.2	93.7	88.3	95.6	91.7	83.2	69.7	95.7	91.4
8115.6	1.23219	99.3	97.1	93.5	88.0	95.4	91.5	82.5	59.4	95.7	91.3
8115.8	1.23216	98.3	97.1	93.3	87.5	95.2	91.1	82.4	69.2	95.7	91.3
8116.0	1.23213	98.3	97.0	93.2	87.1	95.1	90.9	82.2	68.9	93.6	91.3
8116.2	1.23210	96.2	96.9	93.0	86.6	94.9	90.7	82.1	68.7	95.6	91.3
8116.4	1.23207	98.2	96.8	93.0	86.2	94.8	90.9	82.1	68.4	95.5	91.2
8116.6	1.23204	92.1	96.7	92.9	86.2	94.6	60.7	82.0	68.1	55.5	91.1
8116.8	1.23201	98.1	96.7	93.0	86.1	94.9	90.9	82.1	68.2	95.5	91.0
8117.0	1.23198	[illegible]	96.7	93.1	86.1	95.2	91.0	82.2	68.1	94.6	91.0
8117.2	1.23195	98.1	96.7	93.1	86.0	93.1	91.1	92.6	68.0	95.4	90.9
8117.4	1.23192	98.1	96.7	93.1	86.0	95.1	91.1	82.6	67.8	95.4	90.8
8117.6	1.27164	98.1	96.7	93.2	85.4	95.0	91.2	82.7	67.6	95.4	90.8
8117.8	1.23186	95.1	96.7	93.2	85.9	95.0	91.2	82.6	67.6	95.3	90.7
8118.0	1.23183	99.1	96.7	93.1	85.8	94.9	91.1	82.3	67.2	95.3	[illegible]
8118.2	1.23180	98.1	96.5	93.0	83.7	93.8	91.0	82.1	67.0	55.3	90.5
8118.4	1.23177	98.1	99.6	52.9	85.7	94.9	90.9	81.7	66.6	95.3	90.6
8118.6	1.23174	98.1	96.6	92.7	85.6	94.8	50.6	81.4	66.5	98.3	90.5
8118.8	1.23171	95.1	96.5	92.6	85.3	94.7	90.5	91.1	66.2	99.7	90.5
8119.0	1.23168	98.1	96.4	92.4	85.4	94.6	90.3	80.6	65.9	95.2	90.5
8119.2	1.23165	98.0	99.6	92.3	85.3	94.7	90.1	80.4	13.6	95.2	90.4
8119.4	1.23162	97.5	96.3	92.5	95.2	94.7	90.1	80.3	65.5	95.2	90.4
8119.6	1.23159	97.7	96.3	92.2	85.2	94.7	53.2	80.2	65.4	95.1	[illegible]
8119.8	1.23156	97.1	96.2	92.3	85.1	94.7	90.2	80.3	[illegible]	95.1	90.3
8120.0	1.23153	97.7	96.1	92.4	85.0	94.7	90.2	80.5	65.3	95.1	90.2
8120.2	1.23150	97.7	96.0	92.5	54.9	94.7	90.3	80.6	65.3	95.0	90.2
8120.4–8125.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8125.2	1.23074	97.9	96.5	92.2	85.1	94.3	90.8	79.5	64.8	94.9	89.7
8125.4	1.23071	97.9	99.4	92.0	85.0	94.0	90.8	79.6	64.6	94.9	89.7
8125.6	1.23068	97.8	96.2	91.9	84.8	93.7	90.1	78.4	65.4	94.0	89.6
8125.8	1.23065	57.7	95.9	91.7	84.7	93.5	89.3	78.0	64.3	94.9	89.6
8126.0	1.23062	97.6	95.7	91.6	84.6	93.3	88.6	77.4	64.4	94.9	89.6
8126.2	1.23059	97.6	95.5	91.5	84.6	93.6	88.4	78.1	64.5	94.9	89.5
8126.4	1.23056	97.5	95.5	91.4	84.5	93.8	88.5	78.5	64.3	94.8	89.5
8126.6	1.23053	97.6	95.4	91.5	84.5	94.1	88.8	79.1	64.9	94.8	99.4
8126.8	1.23050	91.6	95.6	91.6	94.5	94.3	89.2	83.9	65.1	94.6	59.4
8127.0	1.23047	97.7	95.9	91.8	84.5	94.6	89.4	80.4	65.1	94.8	89.4
8127.2	1.23044	97.8	96.2	92.0	84.6	94.6	90.3	80.7	65.2	94.7	89.4
8127.4	1.23041	97.8	96.5	92.2	84.7	94.7	90.4	80.8	65.2	94.7	89.4
8127.6	1.23038	97.7	94.5	92.5	84.7	94.6	90.5	80.9	65.3	94.7	89.4
8127.8	1.23035	97.7	96.5	92.5	99.9	94.7	90.9	80.7	65.3	94.6	89.4
8128.0	1.23032	97.7	99.5	92.9	84.7	94.8	90.8	80.9	85.3	94.8	89.4
8128.2	1.23028	97.9	96.5	92.6	84.6	94.5	90.6	79.5	65.0	94.6	89.4
8128.4	1.23025	98.0	96.3	92.5	84.4	94.2	90.5	78.6	64.8	94.6	89.4
8128.6	1.23022	98.0	96.5	92.1	84.3	94.0	90.1	78.4	64.6	94.7	89.4
8128.8	1.23019	98.0	96.2	91.4	84.7	93.8	89.5	78.0	64.6	94.7	89.4
8129.0	1.23016	97.9	95.9	91.3	84.2	93.6	88.7	77.8	64.5	94.7	89.4
8129.2	1.23013	97.8	95.5	91.0	84.2	93.5	98.0	77.9	64.7	94.7	89.4
8129.4	1.23010	97.6	95.2	90.9	94.2	53.7	87.8	78.4	65.2	94.7	89.4
8129.6	1.23007	97.6	95.0	91.1	84.3	93.9	87.8	78.9	55.9	[illegible]	89.3
8129.8	1.23004	97.5	95.1	91.3	84.5	94.2	88.4	79.4	66.5	94.7	89.3
8130.0	1.23001	97.6	95.4	51.9	84.4	94.6	89.3	80.1	67.2	94.7	89.3
8130.2	1.22998	97.6	95.8	92.4	85.1	95.1	90.1	81.2	67.8	94.1	89.3
8130.4	1.22995	98.1	96.2	92.9	85.3	95.4	91.0	81.9	68.1	94.7	89.3
8130.6	1.22992	98.4	96.4	93.3	85.5	95.5	91.3	82.4	66.2	94.9	89.3
8130.8	1.22985	98.5	96.9	93.4	85.5	95.5	91.7	82.9	68.2	94.6	89.3
8131.0	1.22986	98.5	96.7	93.5	85.6	95.5	91.9	82.9	68.1	94.9	89.3
8131.2	1.22983	96.6	96.8	93.5	89.6	95.2	92.2	82.0	98.0	94.9	89.3
8131.4	1.22980	99.6	[illegible]	93.4	95.6	94.9	97.3	91.6	67.8	94.7	89.4
8131.6	1.22977	98.3	96.9	93.2	85.3	94.8	92.3	80.6	67.8	94.7	89.5
8131.8	1.22974	98.3	96.7	92.8	85.4	94.3	91.9	79.9	67.6	94.7	89.6
8132.0	1.22971	98.3	96.3	97.3	85.7	93.9	90.6	79.4	67.9	94.8	89.7
8132.2	1.22968	98.1	96.1	91.8	85.1	93.5	89.6	78.9	68.3	94.8	89.8
8132.4	1.22965	96.0	95.6	91.5	85.0	93.6	88.8	78.9	68.8	94.8	89.8
8132.6	1.22962	97.9	95.2	91.3	85.2	93.9	88.0	79.1	69.4	94.8	89.8
8132.8	1.22959	97.7	96.9	91.6	85.4	94.7	88.5	80.3	70.1	94.8	89.8
8133.0	1.22956	97.7	95.0	92.1	85.9	95.4	89.4	81.5	70.8	94.8	84.5
8133.2	1.22953	97.7	95.4	92.4	89.5	95.4	90.4	53.0	71.7	94.6	87.8
8133.4	1.22950	97.9	96.2	93.5	87.1	96.2	91.8	84.3	72.8	94.8	89.8
8133.6	1.22947	98.1	96.7	94.1	87.7	96.5	93.0	83.5	72.5	94.8	89.9
8133.8	1.22944	98.7	97.1	94.6	88.1	96.8	95.9	86.0	73.7	94.3	89.9
8134.0	1.22941	99.1	97.3	95.0	98.2	96.5	94.6	85.9	73.3	94.9	89.9
8134.2	1.22938	99.1	97.3	95.1	88.2	96.3	94.2	85.8	73.1	94.9	90.0
8134.4	1.22935	99.0	97.7	95.0	88.1	96.7	94.4	85.7	72.7	94.9	90.0
8134.6	1.22932	99.0	97.9	94.6	87.9	96.1	94.4	84.5	[illegible]	94.9	90.0
8134.8	1.22929	99.0	[illegible]	94.0	87.7	95.3	93.1	82.8	71.9	94.8	90.0

Sam. No.		5	6	7	8	9	10	11	12	13	14
p(atm)		9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	1.46×10^{1}	1.46×10^{1}
u(atm cm) STP		1.11×10^{4}	2.18×10^{4}	4.37×10^{4}	8.60×10^{4}	2.83×10^{4}	5.57×10^{4}	1.10×10^{5}	2.19×10^{5}	2.38×10^{4}	4.73×10^{4}
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8135.0	1.22926	99.0	97.3	93.1	87.4	96.6	92.5	91.2	71.5	94.9	89.9
8135.2	1.22923	99.0	97.0	92.2	87.2	93.9	91.0	79.7	71.2	94.9	89.8
8135.4	1.22920	98.4	99.6	91.7	87.0	93.9	89.1	79.1	71.7	94.9	89.9
8135.6	1.22917	97.0	95.9	91.3	96.2	93.9	86.2	79.1	72.2	94.9	89.9
8135.8	1.22914	96.7	95.2	91.5	87.3	94.2	88.0	79.8	73.3	94.9	85.9
8136.0	1.22911	96.6	95.3	91.9	87.8	94.9	88.2	81.8	74.3	94.9	85.9
8136.2	1.22907	96.6	95.3	92.6	88.6	96.0	89.2	83.8	75.6	94.9	89.6
8136.4	1.22904	97.0	96.2	93.3	89.4	91.0	90.8	86.4	79.8	94.9	90.4
8136.6	1.22901	97.9	[illegible]	94.7	89.7	97.4	93.1	88.7	77.1	94.9	85.9
8136.8	1.22898	98.7	98.1	95.9	89.9	97.8	95.0	89.6	77.3	94.9	89.9
8137.0	1.22895	99.0	99.0	96.9	90.1	97.8	96.1	89.9	76.3	94.8	89.9
8137.2	1.22892	99.2	99.2	97.5	90.2	97.8	96.2	89.3	75.3	94.8	89.8
8137.4	1.22889	99.2	99.3	97.1	89.9	97.3	96.3	86.0	74.4	94.8	89.8
8137.6	1.22886	99.7	99.0	96.3	89.4	96.8	95.9	85.8	73.3	94.8	89.8
8137.8	1.22883	97.2	98.8	95.0	88.4	95.8	95.2	83.4	71.2	94.7	89.8
8138.0	1.22880	99.0	94.5	93.7	87.3	94.7	94.0	80.6	69.2	94.6	89.6
8138.2	1.22877	98.6	98.0	92.6	86.1	93.4	92.2	77.4	67.6	94.6	89.3
8138.4	1.22874	98.1	96.9	91.3	85.0	92.3	89.7	74.8	66.0	94.5	89.1
8138.6	1.22871	97.2	95.8	90.4	84.0	92.0	87.6	74.1	64.7	94.4	85.9
8138.8	1.22868	[illegible]	94.7	89.5	83.2	91.8	85.6	74.0	63.4	94.3	86.7
8139.0–8155.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 4-2 (continued)

Sam. No		5	6	7	8	9	10	11	12	13	14
p(atm)		9.97 × 10^-1	9.97 × 10^-1	3.97 × 10^-1	9.97 × 10^-1	2.53 × 10^0	2.53 × 10^0	2.53 × 10^0	7.53 × 10^0	1.46 × 10^1	1.46 × 10^1
u(atm cm) STP		1.11 × 10^4	2.18 × 10^5	5.72 × 10^4	5.60 × 10^5	2.83 × 10^4	3.52 × 10^4	1.10 × 10^5	2.17 × 10^5	2.16 × 10^4	4.73 × 10^4
ν (cm⁻¹)	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8156.0	1.22609	92.1	97.1	79.6	75.0	78.2	70.7	51.7	43.4	86.5	75.0
8156.2	1.22606	89.4	81.9	77.6	74.9	78.1	65.5	52.1	43.4	86.5	75.7
8156.4	1.22603	87.4	82.9	76.2	74.9	80.4	63.5	55.2	43.4	86.4	74.5
8156.6	1.22600	88.5	83.5	79.9	75.0	83.2	64.2	58.5	43.3	86.2	74.1
8156.8	1.22597	90.8	86.5	81.7	75.1	87.1	67.1	64.2	43.3	86.1	74.1
8157.0	1.22594	96.4	93.6	84.7	75.2	90.2	72.9	67.6	43.2	85.9	73.8
8157.2	1.22591	95.8	94.2	85.1	75.3	62.1	78.1	66.4	43.1	83.8	73.6
8157.4	1.22588	97.7	96.0	86.7	75.3	63.7	83.3	63.6	42.5	85.5	73.4
8157.6	1.22585	94.0	95.8	89.7	75.5	61.0	86.6	60.2	41.9	85.5	71.1
8157.8	1.22582	98.3	97.2	58.7	75.0	86.1	86.8	62.5	51.3	[illegible]	32.9
8158.0	1.22576	98.0	95.9	66.6	74.7	66.4	85.4	59.5	40.7	85.3	72.5
8158.2	1.22576	[illegible]	93.5	87.6	74.0	82.6	81.5	54.3	39.8	85.1	72.1
8158.4	1.22573	95.9	90.8	79.5	73.4	77.5	76.0	50.0	16.1	85.6	71.9
8158.6	1.22570	91.5	67.4	76.6	72.4	75.6	67.5	46.6	78.1	85.7	71.6
8158.8	1.22567	87.8	62.4	74.6	71.4	73.6	62.4	45.9	37.2	84.5	71.2
8159.0	1.22564	85.4	80.4	74.6	71.5	75.8	58.3	48.4	16.9	84.3	70.8
8159.2	1.22561	86.2	60.4	76.5	71.1	73.5	58.2	51.7	36.5	84.1	70.4
8159.4	1.2255[illegible]	69.2	82.5	79.0	71.5	82.7	59.4	55.6	36.4	[illegible]	70.0
8159.6	1.22555	92.6	86.9	91.5	71.1	86.7	66.4	60.0	36.3	87.8	64.6
8159.8	1.22552	65.4	90.6	85.3	71.0	65.3	73.7	62.1	36.2	33.4	69.3
8160.0	1.22549	96.6	84.5	87.4	70.9	90.4	79.3	63.0	36.0	67.1	66.9
8160.2	1.22546	97.4	96.1	85.1	70.7	89.5	82.8	61.0	35.3	67.9	66.5
8160.4	1.22543	98.0	96.6	86.1	70.4	87.7	83.2	58.6	34.6	67.6	68.1
8160.6	1.22540	97.7	94.1	65.7	69.9	83.9	81.1	55.2	33.7	62.5	67.8
8160.8	[illegible]	96.1	97.4	80.4	68.3	80.0	76.5	48.1	32.8	62.2	87.5
8161.0	1.22535	95.6	85.7	76.2	66.6	35.8	71.8	54.2	31.9	62.0	67.1
8161.2	1.22531	61.5	85.7	72.4	67.6	74.1	54.5	41.1	31.1	61.8	66.6
8161.4	1.22528	63.3	81.6	71.6	67.4	70.3	58.3	40.4	30.7	61.6	66.5
8161.6	1.22525	84.3	76.2	71.6	67.1	71.5	51.5	42.0	10.5	61.3	66.1
8161.8	1.22522	61.6	78.2	74.1	67.0	75.2	52.8	46.1	30.0	61.0	65.7
8162.0 – 8176.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ν (cm⁻¹)	λ (micron)	5 T × 100	6 T × 100	7 T × 100	8 T × 100	9 T × 100	10 T × 100	11 T × 100	12 T × 100	13 T × 100	14 T × 100
8177.0	1.22294	92.1	66.1	67.1	49.7	68.1	51.4	26.9	9.2	63.3	40.7
8177.2	1.22291	89.1	81.2	65.2	47.0	66.3	54.6	25.2	9.1	63.7	40.5
8177.4	1.22288	85.0	73.3	62.7	49.3	58.5	52.1	23.3	9.1	61.2	40.4
8177.6	1.22285	79.4	75.0	59.9	49.7	57.4	48.7	21.1	9.0	61.1	40.1
8177.8	1.22282	75.0	69.3	58.3	44.5	54.2	47.7	20.5	9.1	61.0	40.2
8178.0	1.22279	74.1	75.4	59.1	47.6	53.8	38.2	20.5	8.7	62.7	43.1
8178.2	1.22276	78.4	65.5	62.0	48.2	37.9	37.3	21.6	8.6	62.8	41.0
8178.4	1.22273	51.4	71.1	63.5	48.1	53.8	33.4	21.3	8.4	62.8	40.
8178.6	1.22270	88.5	75.7	65.4	47.9	58.4	36.1	24.4	8.3	62.8	33.4
8178.8	1.22267	77	61.7	66.7	47.7	68.9	41.0	25.0	8.2	62.7	37.9
8179.0	1.22264	[illegible]	88.2	65.4	47.9	68.6	47.7	25.0	8.2	62.7	37.8
8179.2	1.22261	[illegible]	81.1	66.0	47.6	66.4	51.9	27.6	8.1	62.7	39.8
8179.4	1.22258	56.5	80.5	62.1	47.2	54.6	51.5	22.1	8.1	62.7	33.7
8179.6	1.22255	91.4	75.1	60.0	47.0	55.5	48.5	20.6	8.0	62.6	34.7
8179.8	1.22252	76.4	63.1	56.2	46.9	53.2	44.7	19.7	8.0	62.6	34.7
8180.0	1.22249	71.9	66.1	56.1	46.7	53.6	43.3	[illegible]	8.0	62.6	37.6
8180.2	1.22246	75.5	66.7	56.6	46.6	57.3	35.5	20.5	7.9	62.6	37.6
8180.4	1.22243	80.1	63.1	52.1	45.5	61.4	31.7	21.5	7.9	62.6	38.6
8180.6	1.22240	86.4	76.5	67.5	46.3	65.5	39.0	22.7	7.9	62.6	39.6
8180.8	1.22237	91.0	73.1	66.7	46.3	69.3	40.1	21.5	7.8	62.6	39.5
8181.0	1.22234	92.5	82.3	64.5	46.3	57.1	45.5	23.7	7.8	62.6	34.5
8181.2	1.22231	90.9	81.9	63.3	46.2	64.5	48.6	22.8	7.7	62.6	34.5
8181.4	1.22228	97.1	74.1	61.9	45.2	60.4	50.2	21.7	7.6	62.7	34.6
8181.6	1.22225	82.7	75.0	59.8	46.2	56.1	48.0	20.7	7.6	62.7	34.7
8181.8	1.22222	77.7	70.6	56.9	46.2	[illegible]	44.0	20.0	7.5	62.8	33.8
8182.0	1.22220	75.3	67.2	58.6	46.1	54.9	39.8	16.8	7.5	63.9	39.9
8182.2	1.22217	76.1	67.6	60.1	46.1	57.8	33.8	20.5	7.5	63.0	40.1
8182.4	1.22214	78.7	70.9	61.4	46.1	61.1	34.1	21.9	7.5	63.1	[illegible]
8182.6	1.22211	86.5	76.8	63.0	46.1	65.1	36.0	22.7	7.5	63.2	42.4
8182.8	1.22208	90.7	80.2	61.8	46.1	67.9	40.2	21.2	7.5	63.7	43.5
8183.0	1.22205	91.4	82.1	53.7	46.1	67.4	45.0	21.4	7.5	63.5	41.7
8183.2	1.22202	89.3	80.7	63.0	46.0	66.6	49.6	22.9	7.5	63.6	40.8
8183.4	1.22199	86.6	77.7	61.7	46.0	61.6	49.0	22.0	7.5	63.7	41.0
8183.6	1.22196	81.7	71.0	60.3	46.0	56.1	45.8	21.4	7.5	63.6	41.3
8183.8	1.22193	77.6	69.4	56.1	46.1	56.5	43.0	21.2	7.5	64.1	41.6
8184.0	1.22190	76.5	68.3	60.0	46.2	56.5	39.5	21.6	7.3	64.3	41.9
8184.2	1.22187	78.4	70.4	61.2	46.5	59.2	36.6	22.4	7.5	64.5	42.1
8184.4	1.22184	82.6	74.1	62.5	46.5	64.3	37.1	23.3	7.5	64.5	42.4
8184.6	1.22181	88.7	77.6	61.5	45.6	68.5	40.7	26.0	7.5	64.8	42.7
8184.8	1.22179	91.5	80.7	64.1	45.8	69.2	44.6	24.5	7.6	65.0	41.0
8185.0	1.22175	91.1	82.1	64.2	47.0	67.1	49.8	24.5	7.8	65.7	47.7
8185.2	1.22172	88.4	80.4	65.3	47.2	64.5	50.7	24.3	8.1	65.5	47.7
8185.4	1.22169	85.1	77.6	62.2	47.3	67.1	49.5	24.0	8.3	65.7	46.3
8185.6	1.22166	81.2	73.6	61.6	47.5	60.6	46.2	23.9	8.5	64.9	46.3
8185.8	1.22163	79.2	71.5	62.1	47.9	61.8	42.9	24.1	8.6	66.2	46.8
8186.0	1.22160	80.4	71.8	63.3	49.4	64.6	51.0	24.9	9.2	[illegible]	63.3
8186.2	1.22157	84.0	74.2	64.5	49.8	66.5	60.5	26.2	9.6	66.9	55.7
8186.4	1.22154	86.5	77.7	65.5	49.4	71.9	53.5	27.4	10.0	67.2	45.2
8186.6	1.22151	91.3	81.5	66.1	49.8	71.5	46.0	28.	10.4	67.5	46.6
8186.8	1.22148	91.3	82.7	56.1	50.4	70.1	51.7	28.4	10.8	57.6	47.1
8187.0	1.22145	89.6	81.2	65.9	50.8	66.6	54.3	26.6	11.6	55.4	47.6
8187.2	1.22142	86.6	79.4	65.5	51.2	67.0	55.8	26.5	12.0	[illegible]	45.1
8187.4	1.22139	83.3	76.4	63.7	51.7	56.4	51.5	28.9	12.5	69.1	48.6
8187.6	1.22136	82.3	74.6	56.2	52.1	66.8	46.0	29.7	13.1	69.6	49.2
8187.8	1.22133	83.5	75.2	67.1	52.6	69.4	47.3	31.1	13.7	70.3	49.7
8188.0	1.22130	86.5	79.1	66.1	53.9	72.4	47.9	33.0	14.5	70.7	50.4
8188.2	1.22127	89.7	81.1	69.2	54.0	74.7	50.7	33.9	15.2	71.1	51.1
8188.4	1.22124	92.8	87.6	70.0	54.7	76.2	55.3	34.9	16.0	71.4	51.8
8188.6	1.22121	92.7	94.8	70.6	55.4	76.1	59.1	35.9	16.7	71.7	52.5
8188.8	1.22118	90.2	94.0	71.2	56.2	75.4	60.3	36.9	17.3	72.1	53.2
8189.0	1.22115	87.4	92.2	71.6	57.4	74.6	59.5	38.1	18.6	72.5	53.9
8189.2	1.22112	86.4	90.7	71.6	58.7	74.1	57.9	38.3	19.6	73.0	54.5
8189.4	1.22109	86.5	90.2	72.9	59.6	74.7	57.0	40.9	20.7	73.5	55.1
8189.6	1.22106	88.7	91.4	74.0	61.2	76.7	57.1	42.6	21.6	73.9	55.6
8189.8	1.22103	91.7	93.9	75.7	63.5	78.9	59.0	45.0	23.0	74.4	56.4
8190.0	1.22100	93.9	95.7	77.	64.1	81.1	62.2	47.3	25.2	74.	57.0
8190.2	1.22097	94.7	[illegible]	74.6	65.7	82.0	66.0	49.6	27.4	75.3	57.
8190.4	1.22094	94.6	89.0	73.6	67.3	82.9	69.5	51.9	29.6	75.8	58.7
8190.6	1.22091	93.4	89.5	80.1	59.	83.1	70.5	56.4	31.7	76.3	59.3
8190.8	1.22088	92.7	87.9	80.8	70.5	83.3	70.3	57.0	34.	76.9	59.8
8191.0	1.22085	92.0	87.	82.4	72.6	84.6	70.2	59.8	36.5	77.2	60.6
8191.2	1.22082	93.2	93.1	83.9	74.7	85.8	71.0	62.7	39.3	77.7	61.0
8191.4	1.22079	94.6	90.2	86.1	76.5	87.9	72.4	65.3	41.5	77.	61.4
8191.6	1.22076	95.	92.7	88.2	77.4	90.0	77.1	67.6	42.7	79.0	61.8
8191.8	1.22073	97.1	94.2	89.7	78.1	90.5	81.8	68.9	43.4	78.3	62.1
8192.0	1.22070	97.4	95.5	90.2	78.4	91.7	86.0	69.7	44.0	78.5	62.5
8192.2	1.22067	98.1	95.4	90.3	78.4	91.7	88.9	68.1	44.0	78.6	62.8
8192.4	1.22064	99.4	96.6	89.6	78.3	91.7	85.1	69.1	43.9	78.8	62.9
8192.6	1.22061	98.1	95.9	86.1	77.5	90.6	84.5	66.3	41.0	78.8	63.0
8192.8	1.22058	97.2	95.0	87.4	76.9	89.7	83.2	64.0	41.7	76.6	62.6
8193.0	1.22055	96.1	94.2	94.7	74.8	86.6	82.0	51.6	39.	79.0	62.6
8193.2	1.22052	95.6	93.3	95.6	73.1	87.6	80.1	58.9	37.6	78.9	62.3
8193.4	1.22049	[illegible]	92.1	84.2	71.2	87.1	78.7	56.0	34.3	74.7	62.0
8193.6	1.22046	85.6	91.6	82.1	68.2	86.3	77.4	52.8	33.0	76.4	61.6
8193.8	1.22043	75.8	91.3	80.	67.1	85.1	76.0	49.4	30.5	74.0	61.1
8194.0	1.22041	94.3	93.5	74.0	64.4	82.9	74.6	46.0	[illegible]	77.5	60.4
8194.2	1.22038	83.1	89.4	75.8	61.4	80.7	72.4	43.7	37.6	76.5	59.5
8194.4	1.22035	91.2	87.5	74.8	58.1	78.5	70.2	45.3	22.5	76.2	59.6
8194.6	1.22032	89.2	85.2	72.	[illegible]	76.3	68.5	37.8	16.5	75.7	57.4
8194.8	1.22029	88.2	82.7	71.	55.	75.1	67.7	34.4	17.0	75.1	56.2
8195.0	1.22024	88.3	82.0	69.7	53.7	74.4	60.1	31.5	14.9	74.3	55.0
8195.2	1.22021	89.6	82.0	68.7	52.1	73.5	59.2	29.7	17.4	73.5	53.8
8195.4	1.22020	90.4	81.9	67.0	50.8	72.6	56.9	28.2	12.2	72.4	52.6
8195.6	1.22017	88.9	81.0	65.7	48.7	71.5	55.6	26.7	11.0	71.7	51.3
8195.8	1.22014	89.6	79	64.2	46.9	69.8	54.9	25.4	10.1	70.8	43.8
8196.0	1.2201[illegible]	84.1	78.6	[illegible]	45.1	68.0	53.4	24.1	9.7	66.6	45.3
8196.2	1.22[illegible]	82.2	76.5	61.5	43.4	66.2	51.0	22.5	8.2	66.7	46.8
8196.4	1.22[illegible]	82.6	73.8	50.4	42.5	66.4	48.1	20.8	7.3	67.7	45.6
8196.6	1.22005	84.9	73.2	56.3	41.2	67.0	45.3	16.2	6.5	66.7	[illegible]
8196.8	1.21999	85.0	77.3	58.	40.1	62.5	43.2	17.6	5.9	65.5	42.9
8197.0	1.21[illegible]	83.5	72.6	57.3	39.1	61.8	42.0	16.7	5.6	64.2	41.8
8197.2	1.219[illegible]	80.7	71.4	56.2	37.8	60.3	41.7	15.6	4.8	63.2	40.4
8197.4	1.21990	78.0	66.0	55.0	36.4	59.0	40.4	15.6	4.4	62.2	39.2
8197.6	1.21987	77.6	67.0	54.0	35.2	57.6	36.4	13.7	3.9	51.1	36.0
8197.8	1.2198[illegible]	79.1	67.0	53.1	34.7	56.1	36.9	12.9	3.5	60.0	36.5

Table 4-2 (continued)

Sam. No		5	6	7	8	9	10	11	12	13	14
p(atm)		4.97×10^{-1}	4.97×10^{-1}	4.97×10^{-1}	4.97×10^{-1}	2.51×10^{0}	2.51×10^{0}	2.51×10^{0}	2.51×10^{0}	1.66×10^{1}	1.66×10^{1}
u(atm cm) STP		1.11 × 10^[illegible]	2.18 × 10^[illegible]	4.32 × 10^[illegible]	8.60 × 10^[illegible]	2.81 × 10^[illegible]	5.57 × 10^[illegible]	1.10 × 10^[illegible]	2.19 × 10^[illegible]	2.38 × 10^[illegible]	4.73 × 10^[illegible]
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8198.0	1.21981	80.3	66.3	52.3	33.3	54.7	36.3	12.2	3.1	58.9	35.2
8198.2	1.21978	80.1	66.4	51.4	32.5	53.8	34.8	11.4	2.4	57.8	33.2
8198.4	1.21975	79.1	65.2	50.5	31.4	52.9	33.0	10.4	2.7	56.4	32.2
8198.6	1.21972	76.8	61.4	49.6	31.0	51.4	31.4	9.4	2.4	55.3	30.7
8198.8	1.21969	73.9	62.2	48.7	30.2	50.8	31.5	9.2	2.5	54.3	29.2
8199.0	1.21966	76.5	61.6	47.8	24.3	49.7	30.0	8.4	2.4	53.2	28.1
8199.2	1.21963	76.2	61.0	47.0	24.3	48.4	28.2	4.1	2.1	51.1	27.2
8199.4	1.21960	75.4	60.8	46.1	27.2	47.1	28.4	7.7	1.8	50.8	24.3
8199.6	1.21957	73.3	57.6	45.4	25.7	48.2	27.3	7.3	1.6	49.4	25.5
8199.8	1.21954	70.6	59.0	44.7	25.4	45.6	26.0	6.8	1.5	48.2	[illegible]
8200.0	1.21951	70.2	57.7	44.0	24.8	45.1	24.8	4.3	1.3	[illegible]	21.5
8200.2	1.21948	71.4	56.8	43.0	23.5	44.1	23.5	5.7	1.1	46.3	22.7
8200.4	1.21945	72.2	55.3	42.0	23.2	43.1	22.8	5.0	0.9	45.4	21.4
8200.6	1.21942	71.2	55.7	41.1	22.2	42.0	22.2	4.7	0.7	44.6	21.0
8200.8	1.21939	66.4	55.1	40.1	21.2	40.8	21.8	4.4	0.8	43.4	20.2
8201.0	1.21936	68.4	54.4	39.2	20.5	39.7	19.8	4.1	0.5	43.1	15.4
8201.2	1.21933	68.0	53.6	38.3	19.7	38.8	14.0	3.7	0.3	42.3	18.7
8201.4	1.21930	68.3	52.8	37.3	19.1	37.7	18.4	3.3	0.2	41.5	18.1
8201.6	1.21927	68.5	51.9	36.3	15.4	36.3	17.8	2.9	0.0	40.7	17.5
8201.8	1.21924	68.0	51.3	35.5	17.5	35.9	16.9	2.8	0.	40.1	14.4
8202.0	1.21921	66.6	50.7	34.7	16.8	34.9	16.3	2.6	0.	39.5	16.7
8202.2	1.21919	65.8	50.2	34.2	16.3	34.2	15.7	2.4	0.	38.6	15.7
8202.4	1.21916	65.4	49.8	33.6	15.9	33.4	13.0	2.1	0.	38.1	15.3
8202.6	1.21913	65.7	49.1	32.8	15.4	37.8	14.3	2.0	0.	37.8	15.0
8202.8	1.21910	65.3	45.5	31.9	14.8	32.2	13.7	1.9	0.	37.0	14.6
8203.0	1.21907	64.5	47.4	31.4	14.1	31.5	13.1	[illegible]	0.	36.5	14.3
8203.2	1.21904	63.7	47.3	30.8	13.4	30.7	12.4	1.3	0.	36.0	14.0
8203.4	1.21901	63.5	46.9	30.2	12.9	30.1	12.9	[illegible]	0.	35.6	13.7
8203.6	1.21898	63.3	46.1	29.6	12.1	29.5	11.5	1.3	0.	35.1	13.4
8203.8	1.21895	62.9	45.5	28.8	12.0	29.0	11.7	1.2	0.	34.7	13.1
8204.0	1.21892	62.7	45.2	27.9	11.6	28.5	10.6	1.1	0.	34.3	12.8
8204.2	1.21889	62.5	44.9	27.5	11.1	28.0	10.3	1.1	0.	34.3	12.5
8204.4	1.21886	62.2	44.5	27.0	10.6	27.4	9.6	1.0	0.	34.0	12.2
8204.6	1.21883	61.8	41.4	26.4	10.2	27.1	9.9	0.9	0.	33.7	12.1
8204.8	1.21880	61.2	41.3	25.8	9.4	26.7	9.2	0.8	0.	33.5	11.9
8205.0	1.21877	61.1	42.9	25.4	9.3	26.3	9.7	0.8	0.	33.3	11.8
8205.2	1.21874	60.7	42.5	24.9	8.7	25.9	8.7	0.7	0.	33.1	11.6
8205.4	1.21871	60.8	42.1	24.8	8.6	25.5	8.5	0.7	0.	32.9	11.5
8205.6	1.21868	60.5	41.7	24.2	8.4	25.0	8.0	0.6	0.	32.8	11.4
8205.8	1.21865	60.2	41.2	23.9	8.2	24.1	8.0	0.5	0.	32.8	11.4
8206.0	1.21862	59.8	40.9	23.5	7.9	24.4	8.0	0.4	0.	42.8	11.4
8206.2	1.21859	59.5	40.1	22.9	7.5	24.3	7.9	0.4	0.	32.7	11.3
8206.4	1.21856	59.2	39.2	22.2	7.1	24.1	7.6	0.3	0.	32.7	11.3
8206.6	1.21853	59.1	37.0	21.7	6.8	21.3	7.1	0.3	0.	32.7	11.3
8206.8	1.21850	58.6	38.7	21.2	6.1	23.6	6.8	0.3	0.	32.8	11.3
8207.0	1.21847	58.4	38.4	20.7	5.9	23.6	6.6	0.3	0.	32.9	11.3
8207.2	1.21844	58.2	39.1	20.2	5.7	23.5	6.6	0.3	0.	33.1	11.4
8207.4	1.21841	57.7	37.9	19.5	5.2	23.5	6.6	0.3	0.	33.3	11.4
8207.6	1.21838	57.4	37.5	18.8	4.7	23.5	6.7	0.3	0.	33.4	11.4
8207.8	1.21835	57.2	36.7	18.3	4.7	23.2	6.5	0.3	0.2	33.8	11.5
8208.0	1.21832	56.7	36.0	17.8	4.8	23.1	6.5	0.3	0.5	34.1	12.1
8208.2	1.21829	56.0	33.3	17.1	4.7	21.1	6.6	0.3	0.8	34.5	12.6
8208.4	1.21826	55.5	34.7	16.3	4.9	21.0	6.8	0.3	0.8	35.1	13.2
8208.6	1.21823	54.6	33.5	15.8	4.7	21.7	6.5	0.4	1.4	35.8	13.8
8208.8	1.21820	53.3	32.6	15.3	4.5	22.7	6.5	0.9	2.1	37.0	14.3
8209.0	1.21818	53.0	32.6	15.5	11.3	22.2	6.3	1.8	3.2	38.4	15.6
8209.2	1.21815	55.3	35.0	15.7	14.2	21.8	6.2	3.0	4.4	40.1	17.5
8209.4	1.21812	61.7	40.9	20.0	19.8	22.3	6.1	7.3	7.5	42.1	19.0
8209.6	1.21809	68.8	51.8	24.3	25.5	24.1	9.4	11.7	11.9	44.3	20.9
8209.8	1.21806	80.2	64.3	33.4	32.2	28.9	7.4	18.8	15.2	47.2	22.3
8210.0	1.21803	[illegible]	77.4	42.6	39.2	36.9	10.0	25.9	19.4	50.1	24.2
8210.2	1.21800	94.5	86.5	55.0	47.3	46.9	15.2	37.2	25.3	52.4	28.6
8210.4	1.21797	96.4	93.5	67.4	59.7	61.0	25.9	48.6	30.8	[illegible]	32.9
8210.6	1.21794	97.6	95.4	76.3	63.2	77.3	41.3	61.8	38.4	61.0	37.3
8210.8	1.21791	98.3	97.1	55.2	70.8	86.6	59.8	73.0	45.1	65.5	41.7
8211.0	1.21788	[illegible]	97.9	89.2	76.0	90.8	72.5	79.1	52.8	69.2	46.0
8211.2	1.21785	[illegible]	98.2	93.2	81.3	93.1	80.3	83.2	59.5	72.4	50.6
8211.4	1.21782	[illegible]	98.4	94.5	85.0	94.6	86.4	85.3	64.3	75.6	53.3
8211.6	1.21779	[illegible]	98.6	95.9	88.4	95.7	90.3	87.8	70.0	78.8	60.0
8211.8	1.21776	99.3	98.8	96.1	90.7	96.2	91.7	88.7	72.6	81.8	64.7
8212.0	1.21773	99.1	99.9	98.3	92.6	99.9	[illegible]	89.6	75.7	83.7	69.5
8212.2	1.21770	99.2	99.9	98.4	93.1	99.9	[illegible]	90.8	78.0	85.8	74.2
8212.4	1.21767	99.3	99.8	94.5	93.7	98.0	[illegible]	91.8	80.3	87.4	74.2
8212.6	1.21764	99.4	99.2	96.6	93.9	97.1	95.1	92.0	81.3	89.1	79.2
8212.8	1.21761	99.5	99.4	96.9	94.2	97.5	95.3	92.4	82.3	90.1	80.1
8213.0	1.21758	99.5	99.4	96.9	94.6	97.7	95.6	92.4	83.0	90.8	82.0
8213.2	1.21755	99.4	99.4	97.0	94.8	98.0	95.9	92.6	83.8	91.3	83.9
8213.4	1.21752	99.4	99.3	97.0	94.8	98.0	96.1	92.6	84.4	92.1	85.4
8213.6	1.21749	99.4	99.3	97.1	95.2	98.0	96.6	92.9	85.1	92.7	84.2
8213.8	1.21746	99.4	[illegible]	97.1	95.2	98.0	96.7	92.9	85.6	93.2	86.9
8214.0	1.21743	99.3	99.1	97.1	95.4	98.0	99.7	92.9	86.1	93.9	87.7
8214.2	1.21740	99.2	99.1	97.0	95.4	98.0	99.7	93.0	89.5	93.8	88.5
8214.4	1.21737	99.2	99.1	96.9	94.4	98.0	98.8	93.1	87.0	94.1	89.3
8214.6	1.21734	99.2	99.1	96.9	95.4	97.9	96.6	93.3	87.3	94.3	89.7
8214.8	1.21732	99.4	99.3	97.0	95.5	97.8	96.6	93.5	87.8	94.6	90.0
8215.0	1.21729	99.4	99.4	97.0	95.6	[illegible]	96.5	93.8	88.0	94.8	90.3
8215.2	1.21726	99.6	99.6	97.1	95.6	98.3	95.8	94.1	88.5	95.0	90.8
8215.4	1.21723	99.6	99.8	97.4	96.0	98.4	97.3	94.8	88.9	95.2	91.0
8215.6	1.21720	99.6	99.8	97.7	98.3	98.5	97.8	95.1	89.4	95.3	91.2
8215.8	1.21717	99.6	99.9	97.5	96.7	98.6	97.4	95.2	85.8	95.5	91.4
8216.0	1.21714	99.7	99.7	98.0	96.3	98.8	98.2	95.4	89.9	95.6	91.6
8216.2	1.21711	99.7	99.7	98.0	96.1	98.8	98.3	95.3	90.2	95.8	91.8
8216.4	1.21708	99.7	99.8	98.0	96.3	98.4	98.3	95.1	90.5	95.7	92.0
8216.6	1.21705	99.7	94.8	97.9	96.3	98.8	98.3	94.7	90.6	95.8	92.1
8216.8	1.21702	99.6	99.7	97.8	96.3	98.7	98.1	94.6	90.7	95.9	92.3
8217.0	1.21699	99.6	99.9	97.8	98.3	98.7	98.0	95.3	90.6	96.0	92.4
8217.2	1.21696	99.6	99.6	97.7	96.3	98.6	98.0	94.0	90.5	96.1	92.6
8217.4	1.21693	99.6	99.5	97.6	98.3	98.5	97.8	93.9	90.3	96.1	92.7
8217.6	1.21690	99.9	99.4	97.5	96.3	98.4	97.5	93.8	90.0	96.1	92.9
8217.8	1.21687	99.5	99.1	97.5	99.1	98.6	97.3	93.8	90.0	96.3	93.0
8218.0	1.21684	99.5	[illegible]	97.4	95.8	98.3	97.3	93.9	90.0	96.4	93.1
8218.2	1.21681	99.8	[illegible]	97.4	95.8	98.1	96.6	93.9	90.0	96.4	93.2
8218.4	1.21678	99.8	91.8	97.4	95.8	97.9	96.8	93.9	89.9	96.5	93.3
8218.6	1.21675	99.6	84.0	97.5	95.8	98.0	96.7	94.2	90.1	96.3	93.4
8218.8	1.21672	58.5	49.2	51.7	95.7	96.2	96.6	94.6	90.4	96.6	93.5
8219.0	1.21669	99.5	99.2	97.8	95.4	98.2	97.1	94.6	90.6	96.6	93.8
8219.2	1.21666	98.5	99.4	97.4	98.0	98.3	97.7	94.7	90.9	96.6	93.7
8219.4	1.21663	95.5	99.4	98.0	96.1	98.4	97.9	94.8	91.1	96.6	93.9
8219.6	1.21660	79.4	99.4	98.1	56.3	98.6	98.2	45.1	91.3	96.7	93.9
8219.8	1.21657	99.5	94.4	96.2	96.1	98.6	96.4	91.3	51.2	96.8	94.0
8220.0	1.21655	99.7	99.4	98.3	96.3	98.7	98.4	95.6	91.1	96.9	94.1
8220.2	1.21652	49.3	99.4	98.3	93.3	98.7	98.4	95.5	91.0	97.0	94.2
8220.4	1.21649	100.0	99.4	98.3	96.3	98.6	98.5	95.4	90.9	97.0	94.2
8220.6	1.21646	100.0	97.2	96.2	96.7	98.6	98.9	94.9	90.3	97.1	94.8
8220.8	1.21643	100.0	97.2	98.0	94.0	98.6	98.8	94.3	90.4	97.1	94.3
8221.0	1.21640	99.1	98.1	97.8	95.8	98.4	99.5	93.8	89.9	97.2	94.4
8221.2	1.21637	96.6	94.9	97.9	45.2	98.0	96.3	93.2	89.4	97.0	94.4
8221.4	1.21634	99.3	98.7	97.2	94.4	97.9	97.6	92.7	89.0	97.1	94.3
8221.6	1.21631	99.1	98.6	95.3	94.6	97.8	97.3	92.2	88.5	97.1	94.3
8221.8	1.21628	98.9	99.5	96.4	94.6	97.7	96.4	92.5	88.3	97.2	94.2
8222.0	1.21625	44.1	98.4	99.7	4.5	97.5	96.2	92.8	88.0	97.2	94.2
8222.2	1.21622	49.4	98.4	96.4	34.7	97.7	96.2	93.2	88.2	97.2	94.1
8222.4	1.21619	99.5	98.9	97.0	44.4	98.0	98.3	93.1	88.5	97.3	94.1
8222.6	1.21616	99.6	98.8	97.2	95.0	98.1	94.9	94.0	88.7	97.3	94.2
8222.8	1.21613	99.7	95.9	97.4	[illegible]	98.7	[illegible]	99.4	88.5	97.3	94.2
8223.0	1.21610	99.7	98.1	97.7	99.1	98.4	97.9	94.4	88.8	97.2	94.2
8223.2	1.21607	99.7	99.3	98.0	44.1	98.8	93.1	94.5	89.0	97.2	[illegible]
8223.4	1.21604	99.7	99.4	98.0	95.0	98.5	98.1	94.5	88.7	97.2	94.3
8223.6	1.21601	99.7	99.4	94.1	94.7	98.4	98.0	94.6	88.3	97.2	94.3
8223.8	1.21598	99.7	99.4	97.5	94.6	98.4	98.1	94.2	97.4	97.1	94.2
8224.0	1.21595	99.7	99.4	97.7	94.3	98.4	98.0	93.4	87.1	97.1	94.2
8224.2	1.21592	99.7	99.4	97.3	[illegible]	98.2	97.3	92.8	87.0	97.1	94.1
8224.4	1.21589	99.5	99.3	96.9	93.6	98.0	97.5	91.8	86.8	97.0	94.1
8224.6	1.21586	99.4	98.7	96.5	93.4	97.5	96.8	90.8	86.0	97.0	94.1
8224.8	1.21583	99.4	98.2	98.0	93.1	97.0	96.2	89.8	85.4	[illegible]	94.0
8225.0	1.21581	98.9	98.1	95.8	93.0	96.7	95.2	88.9	84.7	[illegible]	94.0
8225.2	1.21578	98.4	97.8	95.6	92.8	96.4	93.7	88.8	84.0	[illegible]	93.9
8225.4	1.21575	98.2	97.8	95.7	92.7	96.6	93.6	89.4	85.7	99.9	93.8
8225.6	1.21572	98.2	97.8	95.8	92.9	96.9	93.8	90.2	83.4	98.5	93.8
8225.8	1.21569	98.2	98.0	99.0	93.0	97.1	[illegible]	[illegible]	83.9	96.8	93.8
8226.0	1.21566	99.4	94.1	96.2	93.4	97.4	44.5	91.8	83.8	96.8	93.7
8226.2	1.21563	98.5	98.4	99.5	93.5	97.8	94.9	92.5	84.2	96.7	93.7
8226.4	1.21560	98.5	96.8	96.6	93.7	97.8	95.6	93.2	84.7	96.7	93.7
8226.6	1.21557	98.6	99.1	97.0	93.7	97.8	96.4	93.3	84.8	96.6	93.9
8226.8	1.21554	98.7	99.1	97.2	93.7	97.5	98.7	93.3	84.7	99.6	91.6
8227.0	1.21551	98.8	97.1	97.3	93.5	97.8	97.0	93.0	84.2	96.5	93.3
8227.2	1.21548	99.0	97.1	97.4	93.2	98.0	97.3	92.2	83.5	96.5	93.5
8227.4	1.21545	99.1	97.1	97.3	92.8	97.9	97.5	91.4	82.7	96.5	93.4
8227.6	1.21542	99.1	99.1	96.7	92.5	97.7	97.4	90.0	81.8	96.4	93.4
8227.8	1.21539	99.1	89.0	96.1	41.8	97.3	97.1	88.5	[illegible]	96.4	93.3
8228.0	1.21536	98.9	94.7	95.3	91.2	96.7	96.2	87.5	80.5	96.3	93.2
8228.2	1.21533	98.5	99.2	94.7	90.9	96.2	95.0	86.2	[illegible]	96.3	93.1
8228.4	1.21530	98.3	97.5	94.2	90.4	95.7	93.7	85.6	76.9	96.2	93.0
8228.6	1.21527	48.2	77.0	54.0	90.5	95.3	92.5	85.6	78.2	96.2	92.9
8228.8	1.21524	97.7	96.6	94.0	90.4	95.1	92.0	65.6	78.0	96.1	92.8
8229.0	1.21521	97.6	98.8	94.2	90.5	95.4	71.8	86.4	77.8	96.1	92.7
8229.2	1.21518	97.9	96.9	94.5	90.8	95.9	92.1	87.2	77.9	96.1	92.6
8229.4	1.21516	98.4	97.3	94.7	90.9	96.4	92.9	88.9	78.1	96.1	92.5
8229.6	1.21513	96.6	97.9	95.4	91.0	[illegible]	93.8	90.0	78.1	93.0	92.4
8229.8	1.21510	99.0	98.4	95.8	91.1	97.1	94.5	90.9	78.5	99.0	92.3
8230.0	1.21507	99.2	98.8	99.2	91.2	[illegible]	95.4	91.4	78.7	96.0	92.2
8230.2	1.21504	99.4	98.9	99.4	91.2	97.9	99.0	91.4	78.8	96.0	52.2
8230.4	1.21501	99.8	98.9	96.6	91.0	97.7	99.3	90.8	78.8	95.9	92.1
8230.6	1.21498	99.5	99.1	96.5	90.8	97.8	90.2	89.9	78.3	95.9	92.1
8230.8	1.21495	99.4	98.9	99.8	90.5	97.6	96.1	86.7	77.7	95.9	92.1
8231.0	1.21492	99.2	94.7	95.1	90.1	97.3	95.6	87.2	76.8	95.8	92.0
8231.2	1.21489	99.1	96.5	94.3	29.1	96.8	94.7	85.7	75.8	95.8	92.0
8231.4	1.21486	99.1	98.2	93.5	88.6	96.2	94.0	84.5	74.5	99.7	91.8
8231.6	1.21483	98.9	97.7	92.9	88.1	95.3	92.9	82.4	73.1	95.8	91.7
8231.8	1.21480	98.6	97.3	92.3	87.6	94.8	91.6	81.2	71.7	95.8	91.5
8232.0	1.21477	98.2	96.3	91.9	87.6	94.2	97.0	81.1	71.4	95.5	91.4
8232.2	1.21474	97.8	95.4	91.5	87.6	94.0	86.5	81.9	73.1	95.4	91.2
8232.4	1.21471	97.8	95.4	92.0	87.9	94.3	86.2	83.1	71.2	95.4	91.1
8232.6	1.21468	97.6	95.5	92.8	87.9	94.6	88.9	89.5	71.4	95.3	91.0
8232.8	1.21465	97.6	96.2	93.4	88.0	95.4	89.8	85.9	72.1	95.3	91.0
8233.0	1.21462	97.4	98.9	98.2	88.3	98.3	91.7	87.2	72.9	95.2	90.9
8233.2	1.21459	98.1	97.5	94.8	89.5	96.7	93.2	88.1	73.1	95.1	90.8
8233.4	1.21457	98.7	98.3	95.1	88.4	96.9	94.2	88.4	73.2	95.1	90.7
8233.6	1.21454	99.1	98.5	95.2	88.4	97.1	94.9	88.1	72.7	95.1	90.6
8233.8	1.21451	99.1	99.5	95.0	88.3	97.2	95.1	87.5	72.2	95.0	90.5
8234.0	1.21448	99.1	98.5	94.5	97.9	96.9	94.7	86.8	71.5	95.0	90.5
8234.2	1.21445	99.1	98.4	94.0	87.5	99.6	94.4	84.0	70.9	95.0	90.4
8234.4	1.21442	99.1	99.3	93.0	87.1	95.9	98.2	82.6	70.2	94.9	90.1
8234.6	1.21439	99.0	97.9	91.9	85.6	95.1	93.3	80.5	69.4	99.9	90.2
8234.8	1.21436	98.7	97.3	91.0	85.8	94.2	92.2	78.3	98.2	94.8	[illegible]
8235.0	1.21433	93.2	99.4	90.2	84.8	93.3	90.5	78.8	66.7	99.7	89.9
8235.2	1.21430	97.5	95.4	89.8	84.5	92.6	88.0	76.5	65.4	94.6	89.7
8235.4	1.21427	97.0	94.4	87.7	84.8	92.0	86.9	77.0	65.5	94.5	89.6
8235.6	1.21424	96.7	95.4	90.0	85.2	92.1	85.5	78.2	65.9	94.4	89.4
8235.8	1.21421	98.3	91.9	90.7	85.9	92.9	85.1	80.1	66.9	94.4	89.3
8236.0	1.21418	96.4	94.5	91.5	86.4	93.7	86.1	82.1	67.8	94.3	89.3
8236.2	1.21415	97.4	95.4	92.7	88.8	94.9	87.8	84.2	68.4	94.3	89.2
8236.4	1.21412	98.3	96.3	95.7	87.1	95.8	90.1	86.1	68.9	94.3	85.1
8236.6	1.21409	98.9	97.1	94.6	87.7	96.5	92.2	87.2	69.3	94.2	89.0
8236.8	1.21406	99.1	97.5	95.0	87.1	98.9	93.4	87.3	69.5	94.2	99.0
8237.0	1.21405	99.1	97.9	99.8	88.8	96.8	95.9	88.9	69.4	94.1	98.9
8237.2	1.21400	[illegible]	98.1	94.4	86.4	96.6	94.2	86.9	69.0	94.0	88.9
8237.4	1.21398	99.2	98.1	93.8	85.9	98.2	94.0	83.0	68.1	94.0	88.9
8237.6	1.21395	99.3	98.1	92.9	85.3	99.9	93.8	81.0	67.1	93.9	88.8
8237.8	1.21392	99.3	97.6	91.3	84.3	94.9	92.7	78.3	[illegible]	93.8	88.8
8238.0	1.21389	98.9	94.7	89.8	63.5	93.9	93.3	79.5	90.0	91.7	88.8
8238.2	1.21386	98.3	75.4	98.9	82.9	92.3	89.7	73.3	62.8	93.6	88.4
8238.4	1.21383	97.2	94.0	87.4	92.4	90.9	87.2	72.6	61.8	93.5	88.1
8238.6	1.21380	95.6	93.7	87.3	62.1	90.5	86.8	77.5	91.0	93.5	87.9
8238.8	1.21377	94.9	92.5	87.5	82.0	90.4	82.8	73.5	60.4	93.4	87.7
8239.0	1.21374	95.4	92.0	88.9	82.5	91.3	[illegible]	75.9	56.5	93.3	87.5
8239.2	1.21371	96.2	92.9	89.5	82.9	92.3	83.1	78.9	60.7	93.2	87.3
8239.4	1.21368	57.2	93.9	90.5	33.1	95.5	85.1	80.6	51.3	93.1	87.1
8239.6	1.21365	56.0	95.2	91.9	83.2	96.6	87.5	81.9	61.9	93.1	87.0
8239.8	1.21362	98.6	98.1	92.7	83.0	99.2	90.0	[illegible]	[illegible]	91.8	86.4

Table 4-2 (continued)

Sam No		5	6	7	8	9	10	11	12	13	14
u(atm)		9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	9.9×10	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	1.46×10^{1}	1.46×10^{1}
u(atm cm) STP		1.11×10^{4}	3.14×10^{4}	6.12×10^{4}	5.40×10^{4}	2.81×10^{4}	5.57×10^{4}	1.10×10^{5}	2.19×10^{5}	2.18×10^{4}	4.71×10^{4}
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8240.0	1.21359	99.0	96.7	97.8	87.9	95.9	91.6	83.5	62.0	92.9	86.7
8240.2	1.21356	99.1	97.1	93.0	82.6	95.7	92.1	82.3	61.7	92.8	86.5
8240.4	1.21353	99.1	97.2	92.3	82.4	95.6	92.4	79.6	61.4	92.7	86.3
8240.6	1.21350	99.1	97.3	91.3	81.6	95.2	92.5	77.2	60.7	92.5	86.1
8240.8	1.21347	99.0	97.2	90.4	80.8	94.3	91.3	76.7	59.6	92.4	85.9
8241.0	1.21344	98.6	96.7	94.0	80.7	93.6	89.6	71.9	58.3	92.2	85.6
8241.2	1.21342	97.9	95.7	87.6	79.7	91.8	87.1	69.0	56.8	92.1	85.6
8241.4	1.21339	96.6	94.4	86.4	79.9	89.6	85.3	66.4	55.3	92.0	85.2
8241.6	1.21336	95.2	91.1	85.2	78.1	87.9	81.4	65.6	53.7	91.9	84.9
8241.8	1.21333	94.3	91.4	84.8	78.1	87.1	80.2	60.1	53.7	91.8	84.5
8242.0	1.21330	93.9	90.5	84.5	78.7	87.7	78.3	67.6	53.0	91.7	84.2
8242.2	1.21327	94.3	89.5	86.1	78.8	88.7	78.2	69.7	52.9	91.5	83.9
8242.4	1.21324	95.3	91.2	88.1	79.5	90.5	79.0	72.5	52.9	91.4	83.6
8242.6	1.21321	96.6	92.2	88.7	79.8	92.3	81.4	75.3	53.4	91.3	83.5
8242.8	1.21318	97.6	93.6	90.2	80.0	93.5	85.0	77.8	55.0	91.2	83.4
8243.0	1.21315	98.3	98.5	91.6	80.1	94.2	98.1	76.7	55.3	91.1	83.3
8243.2	1.21312	96.7	96.6	91.9	80.2	94.5	89.7	79.6	55.2	90.9	83.1
8243.4	1.21309	98.7	96.6	91.2	79.8	94.3	90.1	79.8	54.8	90.8	83.0
8243.6	1.21306	98.6	97.1	89.7	79.3	93.9	90.2	74.8	54.2	90.7	82.7
8243.8	1.21301	98.5	97.1	88.0	76.9	93.0	89.4	72.0	53.5	90.5	82.4
8244.0	1.21300	99.0	96.7	95.5	77.6	91.4	88.0	66.2	52.6	90.4	82.1
8244.2	1.21297	97.4	95.9	86.[illegible]	76.6	89.5	86.0	65.0	51.8	90.2	81.9
8244.4	1.21294	96.1	94.4	82.1	75.6	87.4	83.5	62.1	51.0	90.1	81.6
8244.6	1.21292	94.4	92.4	91.1	74.9	85.3	80.1	59.8	49.9	89.9	81.3
8244.8	1.21289	92.9	90.6	81.0	74.5	83.9	76.1	59.0	48.6	89.7	81.0
8245.0	1.21286	92.4	89.0	41.8	74.7	83.6	73.0	59.8	47.7	89.5	80.7
8245.2	1.21283	93.1	85.0	43.[illegible]	75.3	84.5	71.6	61.4	47.5	89.3	80.4
8245.4	1.21280	96.4	84.0	85.[illegible]	76.2	86.2	72.2	64.3	47.5	89.1	80.1
8245.6	1.21277	95.2	85.9	87.3	76.6	88.7	7[illegible].0	67.3	48.0	88.9	79.8
8245.8	1.21274	97.3	90.6	83.3	77.0	89.7	77.1	70.4	46.4	88.4	79.6
8246.0	1.21271	97.6	93.2	93.7	76.4	91.5	81.7	72.4	48.7	90.5	79.5
8246.2	1.21268	98.0	95.2	90.9	76.3	92.9	84.9	73.8	48.9	88.7	79.3
8246.4	1.21265	98.1	95.7	90.6	76.4	93.1	86.8	73.6	48.4	88.7	79.1
8246	1.21262	94.2	96.1	89.9	76.7	93.2	87.5	71.6	48.7	85.6	78.9
824	1.21259	98.3	96.3	88.2	75.3	92.9	87.7	69.3	47.9	88.5	78.7
8247.0	1.21256	98.1	96.4	96.2	74.4	90.4	86.7	66.3	47.1	88.3	79.5
8247.2	1.21253	97.7	95.6	93.3	73.6	89.1	85.5	62.5	45.9	88.1	79.2
8247.4	1.21250	96.3	94.2	91.1	72.8	86.3	82.9	59.1	44.7	87.9	77.3
8247.6	1.21247	93.3	91.0	79.2	72.4	84.1	78.7	57.7	43.7	87.7	77.7
8247.8	1.21244	91.6	88.7	78.1	72.1	81.5	74.1	53.5	42.4	87.5	77.4
8248.0	1.21242	90.5	85.6	77.8	72.0	80.1	70.0	51.1	42.2	87.3	77.1
8248.2	1.21239	90.6	85.1	78.9	72.1	80.5	67.3	54.4	41.7	87.2	76.7
8248.4	1.21236	91.5	84.8	80.9	72.3	82.1	66.9	57.0	41.6	87.1	76.6
8248.6	1.21233	92.9	85.5	83.0	72.4	84.2	68.0	59.7	41.7	86.7	76.0
8248.8	1.21230	94.6	88.5	85.1	73.1	86.6	71.0	62.9	41.9	86.8	75.7
MIDL
8254.0	1.21153	85.0	80.[illegible]	71.8	64.4	71.6	59.0	40.6	29.5	81.5	96.6
8254.2	1.21150	94.6	79.1	[illegible]	64.2	71.9	55.7	41.0	29.1	81.2	66.1
8254.4	1.21148	96.6	79.5	74.5	[illegible]	73.2	54.4	42.7	29.8	80.9	65.6
8254.6	1.21145	89.8	81.4	76.8	64.0	[illegible]	55.8	45.4	28.6	80.7	65.1
8254.8	1.21142	92.7	84.4	79.1	63.9	78.8	59.5	49.0	28.5	80.5	64.9
8255.0	1.21139	95.0	88.0	81.7	63.6	82.7	64.9	52.8	28.4	80.3	64.6
8255.2	1.21136	96.0	91.0	83.5	63.3	85.9	71.4	55.2	28.2	80.2	64.4
8255.4	1.21133	96.1	92.[illegible]	83.7	62.9	85.9	75.9	55.9	27.9	80.0	64.1
8255.6	1.21130	96.1	93.3	42.6	62.6	87.0	77.2	55.0	27.7	79.9	63.7
8255.8	1.21127	95.3	92.7	60.0	62.[illegible]	79.1	77.3	53.0	27.4	79.6	63.5
8256.0	1.21124	94.9	91.7	79.6	61.2	84.2	76.0	49.2	27.0	79.4	63.0
8256.2	1.21121	92.5	90.5	73.3	59.7	80.7	71.0	46.3	26.3	79.2	62.6
8256.4	1.21118	89.1	84.6	70.0	58.9	75.9	67.7	39.9	25.5	7[illegible].9	62.1
8256.6	1.21115	85.4	80.6	67.7	54.2	71.3	61.1	36.2	24.3	76.7	61.8
8256.8	1.21112	47.5	75.4	66.7	57.8	60.2	58.4	34.1	23.4	78.5	61.2
8257.0	1.21109	81.8	74.2	67.3	57.8	64.9	50.8	33.6	22.9	72.1	60.7
8257.2	1.21106	44.0	74.8	69.6	58.0	67.2	44.5	35.1	22.5	77.7	60.3
8257.4	1.21103	87.7	77.7	71.7	30.1	69.3	49.7	37.1	22.3	77.3	59.8
8257.6	1.21101	90.9	82.3	75.1	58.5	73.1	52.2	19.7	22.1	77.0	59.4
8257.8	1.21098	92.9	87.2	78.0	58.5	77.7	56.9	43.9	21.8	76.6	58.9
8258.0	1.21095	94.8	89.9	79.2	58.9	81.4	53.4	47.2	21.8	78.3	58.9
8258.2	1.21092	95.8	91.6	79.8	58.6	83.9	70.2	48.1	21.9	76.1	58.2
8258.4	1.21089	95.7	91.7	78.5	58.4	84.2	72.1	47.1	21.4	75.8	57.9
8258.6	1.21086	95.1	90.5	76.0	58.7	85.0	71.2	45.2	21.3	75.0	57.6
8258.8	1.21083	91.8	88.5	72.4	57.9	80.8	69.7	42.2	21.1	75.4	57.3
8259.0	1.21080	91.8	85.9	69.3	57.3	77.1	65.5	38.5	20.4	75.1	57.0
8259.2	1.21077	87.6	81.9	66.1	56.6	72.[illegible]	60.7	35.0	19.6	74.9	59.5
8259.4	1.21074	92.9	76.5	64.5	56.3	66.5	54.0	31.7	19.0	74.5	59.0
8259.6	1.21071	79.8	73.1	64.2	55.9	52.3	47.9	29.5	18.3	74.2	55.5
8259.8	1.21068	79.9	72.0	65.4	55.7	51.5	43.9	29.6	18.0	73.8	55.0
8260.0	1.21065	82.1	72.4	67.9	55.4	64.1	42.8	31.1	17.7	73.5	54.5
8260.2	1.21062	86.3	76.1	70.5	55.4	67.0	45.0	33.7	17.4	73.2	54.0
8260.4	1.21060	90.8	80.7	73.9	55.4	70.5	49.8	37.1	17.1	72.9	53.7
8260.6	1.21057	93.2	85.7	75.9	55.1	75.2	55.7	40.1	16.9	72.4	53.4
8260.8	1.21054	94.4	89.2	77.2	54.8	80.2	64.0	42.3	16.7	72.4	53.1

Sam No		5	6	7	8	9	10	11	12	13	14
u(atm)		9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	1.46×10^{1}	1.46×10^{1}
u(atm cm) STP		1.11×10^{4}	2.14×10^{4}	4.12×10^{4}	5.40×10^{4}	2.81×10^{4}	5.57×10^{4}	1.10×10^{5}	2.14×10^{5}	2.18×10^{4}	4.71×10^{4}
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8261.0	1.21051	95.2	90.8	76.7	54.7	81.9	66.0	42.4	16.5	72.1	52.8
8261.2	1.21048	95.1	93.1	73.9	53.6	90.3	68.7	40.8	14.4	71.8	52.5
8261.4	1.21045	93.8	87.9	70.8	53.1	77.9	67.1	37.6	14.6	71.5	52.1
8261.6	1.21042	91.0	84.9	56.9	52.6	76.3	63.7	33.8	15.7	71.7	51.6
8261.8	1.21039	86.0	80.7	63.7	51.9	58.3	58.5	30.1	15.2	70.6	51.4
8262.0	1.21036	81.[illegible]	75.5	65.7	51.1	93.3	52.4	27.7	14.8	70.6	51.0
8262.2	1.21033	77.1	70.4	59.[illegible]	50.6	58.3	47.4	25.6	14.6	70.3	50.6
8262.4	1.21030	76.3	68.0	54.8	50.4	56.4	40.4	24.6	14.0	70.0	50.2
8262.6	1.21027	77.6	69.6	61.4	5[illegible].6	58.3	37.8	25.0	13.4	64.6	49.6
8262.8	1.21024	82.1	73.5	64.4	50.4	62.9	37.5	27.6	13.7	69.3	49.0
8263.0	1.21021	98.5	78.2	68.2	50.3	67.0	33.1	30.1	13.7	64.5	[illegible]
8263.2	1.21019	91.9	82.1	72.1	50.1	72.7	44.6	33.1	13.1	68.6	47.6
8263.4	1.21016	93.6	86.4	71.4	50.1	76.8	53.9	35.4	13.1	68.1	47.2
8263.6	1.21013	86.6	84.4	73.7	50.0	76.5	60.4	36.2	12.9	68.0	46.8
8263.8	1.21010	86.1	84.2	72.2	49.9	76.8	62.4	35.6	12.7	67.8	46.5
8264.0	1.21007	97.7	86.5	64.4	49.8	74.7	82.6	33.6	12.4	67.6	46.3
8264.2	1.21004	90.7	83.3	66.5	49.8	70.5	60.1	31.0	12.2	67.5	46.0
8264.4	1.21001	86.1	78.8	53.3	49.5	64.3	55.8	27.9	12.0	67.1	45.8
8264.6	1.20998	80.5	74.5	60.4	49.0	59.1	50.1	24.5	11.7	67.1	45.5
8264.8	1.20995	76.6	69.9	58.6	44.4	55.2	43.8	22.2	11.5	66.7	45.0
RESTR

Table 4-2 (continued)

Sam. No		5	6	7	8	9	10	11	12	13	14
p(atm)		9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	9.97×10^{-1}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	2.53×10^{0}	1.46×10^{1}	1.46×10^{1}
v(atm cm) STP		1.11 × 10[illegible]	2.18 × 10[illegible]	4.12 × 10[illegible]	8.20 × 10[illegible]	2.43 × 10[illegible]	5.33 × 10[illegible]	1.10 × 10[illegible]	2.15 × 10[illegible]	2.34 × 10[illegible]	4.71 × 10[illegible]
ν (cm^{-1})	λ (micron)	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100	T × 100
8282.0	1.20744	79.5	65.7	49.1	29.2	46.9	23.2	9.1	1.5	47.5	23.1
8282.2	1.20741	75.5	64.8	49.7	29.0	52.2	27.6	9.5	1.7	47.4	23.1
8282.4	1.20738	86.0	72.4	49.5	29.4	51.5	30.7	9.5	1.7	47.1	23.0
8282.6	1.20735	83.5	73.4	49.3	28.5	51.1	31.8	9.3	1.6	47.2	22.9
8282.8	1.20732	74.5	66.3	44.1	29.1	49.1	30.7	9.0	1.6	47.1	27.8
8283.0	1.20729	70.6	62.5	45.[illegible]	27.6	45.9	21.1	6.5	.6	47.0	22.7
8283.2	1.20726	65.4	57.3	45.9	27.4	41.0	21.9	6.0	1.5	46.9	22.6
8283.4	1.20723	64.3	54.6	44.1	27.0	38.1	22.5	7.8	1.5	46.9	22.5
8283.6	1.20720	67.2	55.8	44.2	26.4	19.2	13.1	7.7	1.5	46.8	27.6
8283.8	1.20718	72.0	58.6	45.5	26.7	40.5	19.8	7.6	1.6	46.7	22.4
8284.0	1.20715	77.4	62.9	45.6	26.3	45.5	22.7	7.7	1.4	46.8	22.3
8284.2	1.20712	42.9	67.7	47.0	26.3	49.8	25.9	7.8	1.4	46.7	22.3
8284.4	1.20709	83.9	63.9	47.1	26.1	40.9	24.0	7.9	1.4	46.6	22.3
8284.6	1.20706	91.3	65.3	45.5	25.9	50.0	29.5	7.8	1.4	46.9	22.2
8284.8	1.20703	76.4	64.2	45.4	25.9	47.0	28.0	7.8	1.4	46.3	22.2
8285.0	1.20700	70.3	59.1	44.1	25.9	41.0	24.8	7.6	1.4	46.9	22.7
8285.2	1.20697	66.1	55.8	42.7	25.1	40.0	21.2	7.2	1.4	46.8	22.5
8285.4	1.20694	66.0	54.9	42.8	25.0	38.7	19.5	7.1	1.4	47.0	22.[illegible]
8285.6	1.20691	69.1	56.7	41.0	24.9	39.6	19.3	7.1	1.4	47.0	22.4
8285.8	1.20688	75.1	59.8	43.6	24.7	41.0	21.0	7.3	1.4	47.0	22.4
8286.0	1.20685	74.3	64.2	44.7	24.5	47.3	23.7	7.5	1.4	47.1	22.5
8286.2	1.20683	53.3	67.5	45.2	24.3	49.7	26.9	7.7	1.4	47.2	22.6
8286.4	1.20680	41.8	67.6	45.1	24.1	49.9	26.6	7.5	1.4	47.4	22.7
8286.6	1.20677	77.5	64.9	44.6	24.[illegible]	47.8	26.1	7.6	1.4	47.5	22.6
8286.8	1.20674	74.1	61.1	43.6	24.1	44.5	26.5	7.6	1.[illegible]	47.7	22.9
8287.0	1.20671	69.1	57.2	42.4	24.2	42.6	23.5	7.5	1.5	47.3	23.0
8287.2	1.20669	67.2	55.6	42.7	24.3	41.1	21.1	7.4	1.[illegible]	48.1	23.2
8287.4	1.20665	69.4	57.6	43.2	24.4	[illegible]	20.7	7.4	1.[illegible]	48.8	20.4
8287.6	1.20662	75.2	54.6	43.6	24.5	44.7	21.1	7.4	1.6	47.5	23.8
8287.8	1.20657	81.1	62.7	44.1	24.5	43.9	21.6	7.3	1.6	48.9	23.6
8288.0	1.20656	43.7	69.7	44.9	24.5	50.5	26.1	8.0	1.7	49.0	24.0
8288.2	1.20653	42.6	67.4	45.2	24.5	51.3	29.3	8.2	1.7	49.3	24.1
8288.4	1.20651	85.2	65.6	45.3	24.6	50.5	28.9	9.1	1.7	49.6	24.7
8288.6	1.20648	75	62.6	45.1	24.4	48.7	28.1	8.1	1.7	50.0	25.1
8288.8	1.20645	72.[illegible]	63.1	44.7	24.5	46.3	26.1	8.4	1.8	50.5	24.6
8289.0	1.20642	71.1	58.7	45.6	24.[illegible]	45.7	24.6	8.5	1.8	50.6	26.0
8289.2	1.20639	72.9	57.6	45.7	24.[illegible]	49.1	24.0	8.5	1.8	51.0	26.6
8289.4	1.20636	77.1	57.0	45.5	25.[illegible]	46.0	24.9	9.2	1.9	51.4	26.9
8289.6	1.20631	81.7	64.8	46.2	25.5	50.9	26.1	9.7	1.9	51.9	27.2
8289.8	1.20630	86.4	64.0	46.7	25.8	51.5	24.9	10.1	1.9	52.5	27.6
8290.0	1.20627	82.[illegible]	69.0	46.9	25.8	55.2	31.1	10.4	1.9	52.8	23.0
8290.2	1.20624	90.8	69.6	47.0	26.0	54.9	32.6	10.7	2.0	51.2	28.4
8290.4	1.20621	77.6	66.3	47.0	26.4	51.9	32.5	10.9	2.0	53.7	28.9
8290.6	1.20619	75.6	64.4	45.3	26.7	52.7	31.1	11.2	2.0	54.5	29.5
8290.8	1.20616	75.5	51.8	47.7	27.8	52.5	30.4	11.3	2.4	54.9	30.0
8291.0	1.20611	77.2	66.1	49.5	29.1	53.5	30.4	12.2	2.8	55.4	30.6
8291.2	1.20610	79.6	65.8	49.6	30.7	55.2	31.5	13.0	5.[illegible]	56.0	31.1
8291.4	1.20607	83.4	68.8	50.4	32.3	57.9	33.5	13.9	5.6	56.6	31.7
8291.6	1.20604	95.4	71.1	51.4	34.8	60.2	35.9	14.6	6.[illegible]	57.4	32.3
8291.8	1.20601	85.0	72.1	52.6	37.1	61.1	37.6	15.5	5.9	58.2	33.5
8292.0	1.20598	63.5	73.0	54.2	40.0	61.6	39.0	17.3	7.0	59.1	34.4
8292.2	1.20595	92.1	71.4	56.1	41.4	51.9	37.8	20.3	8.3	59.9	35.4
8292.4	1.20592	41.8	71.3	56.7	47.1	62.8	40.5	21.6	9.9	60.6	36.3
8292.6	1.20589	42.4	72.7	63.0	51.4	65.0	42.0	20.7	12.4	61.4	37.2
8292.8	1.20587	85.5	75.9	67.5	55.5	68.6	44.9	11.8	14.8	62.2	38.0
8293.0	1.20584	80.2	73.5	72.0	58.3	73.9	50.4	19.5	15.8	63.1	38.4
8293.2	1.20581	33.0	64.4	78.2	61.8	78.5	57.7	45.1	18.8	64.1	39.9
8293.4	1.20578	95.5	69.7	80.5	62.4	92.5	65.5	40.9	21.0	65.2	41.1
8293.6	1.20575	98.9	82.6	43.7	64.5	85.2	74.2	52.3	23.1	66.0	47.2
8293.8	1.20572	96.9	91.3	83.8	65.0	86.2	76.2	51.[illegible]	24.2	66.7	43.4
8294.0	1.20569	96.4	93.8	91.6	65.4	86.0	75.9	54.[illegible]	25.7	67.2	44.4
8294.2	1.20566	95.4	92.8	82.5	[illegible]	85.3	74.9	52.9	25.7	63.5	45.3
8294.4	1.20563	94.3	91.4	81.1	63.6	84.4	73.4	51.7	26.1	67.7	49.0
8294.6	1.20560	93.7	90.2	79.3	62.[illegible]	83.3	71.2	49.0	25.4	57.8	46.2
8294.8	1.20557	93.5	89.2	77.4	60.1	82.0	69.2	46.[illegible]	24.2	67.9	46.5
8295.0	1.20555	91.5	89.5	75.3	58.3	90.8	67.9	43.4	22.8	67.5	46.5
8295.2	1.20552	91.6	89.1	75.	56.4	79.6	66.6	39.9	21.3	67.1	46.4
8295.4	1.20549	92.6	86.9	70.	54.3	78.1	64.4	36.8	19.8	64.5	46.0
8295.6	1.20546	90.5	84.5	66.3	51.9	76.0	61.8	34.4	18.2	65.8	45.5
8295.8	1.20543	85.7	42.0	66.0	48.0	75.7	58.4	31.8	16.5	65.0	44.6
8296.0	1.20540	35.5	79.7	64.0	46.0	70.3	55.1	28.4	14.[illegible]	63.9	43.4
8296.2	1.20537	84.4	77.5	62.1	44.1	66.9	50.0	25.1	11.6	62.8	42.2
8296.4	1.20534	81.9	76.0	60.4	42.1	65.4	46.6	22.4	10.1	62.0	40.3
8296.6	1.20531	94.7	75.4	58.4	40.1	63.9	44.0	20.5	8.4	61.1	39.2
8296.8	1.20528	56.1	74.9	57.9	36.2	62.5	42.1	18.9	7.2	59.7	37.5
8297.0	1.20525	86.1	73.8	55.4	36.7	60.8	40.8	17.4	5.7	58.3	35.9
8297.2	1.20523	83.5	77.5	53.4	34.4	58.7	39.4	15.8	4.6	56.3	34.3
8297.4	1.20520	79.7	70.5	52.2	32.6	56.5	37.2	13.7	1.6	55.3	32.8
8297.6	1.20517	73.1	68.5	50.7	31.0	54.3	34.5	12.2	5.0	53.8	31.5
8297.8	1.20514	76.3	65.9	47.3	29.5	51.9	31.6	10.8	2.3	52.5	30.1
8298.0	1.20511	77.3	65.4	47.8	28.3	50.1	24.2	9.6	2.5	50.8	29.0
8298.2	1.20508	79.3	64.9	46.4	26.9	48.9	27.6	9.4	2.5	49.5	27.6
8298.4	1.20505	76.6	64.2	45.0	25.4	47.5	26.4	2.4	2.1	47.7	26.2
8298.6	1.20502	76.5	62.9	43.6	25.6	45.9	25.0	9.7	1.5	46.2	24.8
8298.8	1.20499	73.1	61.7	42.6	22.1	44.2	24.1	6.[illegible]	1.8	44.7	21.5
8299.0	1.20496	70.6	59.7	41.1	21.3	42.[illegible]	22.9	5.5	1.4	45.1	22.2
8299.2	1.20494	70.1	57.5	34.8	20.4	40.1	21.2	4.3	1.[illegible]	41.9	21.0
8299.4	1.20491	72.[illegible]	56.8	38.[illegible]	19.7	39.0	19.4	4.1	0.9	40.[illegible]	18.7
8299.6	1.20488	72.7	56.3	37.[illegible]	18.[illegible]	37.8	17.4	5.5	0.4	19.6	14.2
8299.8	1.20485	72.6	55.6	34.4	17.5	36.6	17.0	1.1	0.3	38.5	16.6
8300.0	1.20482	69.3	54.9	35.5	16.1	35.7	16.0	3.1	0.1	37.2	15.7
8300.2	1.20479	67.1	54.0	34.7	15.5	34.4	15.1	2.3	0.	36.0	14.6
8300.4	1.20476	63.6	52.1	34.[illegible]	13.1	31.0	14.0	2.1	0.	34.7	14.0
8300.6	1.20473	66.1	50.4	32.8	14.[illegible]	31.3	13.1	1.8	0.	33.4	13.4
8300.8	1.20470	47.0	43.5	31.5	13.5	30.4	12.1	1.7	0.	32.3	12.7
8301.0	1.20467	66.8	49.8	30.3	17.[illegible]	28.9	11.5	1.5	0.	33.1	11.8
8301.2	1.20465	64.2	49.3	28.3	12.7	27.9	10.7	1.4	0.	30.2	10.8
8301.4	1.20462	62.1	47.7	28.8	11.6	26.9	9.9	1.2	0.	29.2	10.2
8301.6	1.20459	61.1	46.6	27.8	10.8	25.8	9.2	1.0	0.	28.2	9.5
8301.8	1.20456	61.4	45.5	27.0	10.0	24.9	9.9	0.9	0.	27.1	9.0
8302.0	1.20453	61.9	45.9	26.1	9.3	24.2	9.2	0.7	0.	26.5	9.4
8302.2	1.20450	61.1	43.2	25.2	8.7	22.4	7.6	0.5	0.	25.6	7.9
8302.4	1.20447	59.6	42.7	24.3	8.[illegible]	22.5	6.9	0.4	0.	24.8	7.4
8302.6	1.20444	57.7	42.6	23.4	7.8	21.6	6.8	0.[illegible]	0.	24.3	6.9
8302.8	1.20441	57.1	41.	22.9	7.1	20.3	6.5	0.1	0.	23.4	6.5
8303.0	1.204[illegible]	57.1	39.8	22.5	4.4	20.1	5.9	0.0	0.	22.1	6.1
8303.2	1.20435	57.3	39.	21.6	6.1	19.1	5.4	0.	0.	22.0	6.0
8303.4	1.20433	56.4	38.7	20.6	5.5	18.5	5.0	0.	0.	21.3	5.8
8303.6	1.20430	55.4	38.2	19.9	5.2	17.7	4.7	0.	0.	20.7	5.5
8303.8	1.20427	54.3	37.5	19.3	5.0	17.0	4.1	0.	0.	20.2	5.2
8304.0	1.20424	53.4	36.7	18.7	4.8	16.4	4.1	0.	0.	19.8	4.9
8304.2	1.20421	53.5	35.6	18.1	4.5	15.[illegible]	3.8	0.	0	18.4	4.7
8304.4	1.20418	52.9	35.0	17.4	4.1	15.2	3.5	0.	0.	19.1	4.5
8304.6	1.20415	52.6	34.5	16.7	3.5	14.9	1.1	0.	0.	19.0	4.4
8304.8	1.20412	51.1	34.1	16.0	1.6	14.4	3.2	0.	0.	18.8	4.8
8305.0	1.20409	50.7	31.4	15.6	3.3	13.8	3.1	0.	0.	18.3	4.1
8305.2	1.20406	50.5	32.5	15.7	3.[illegible]	13.2	2.6	0.	0.	17.7	3.9
8305.4	1.20404	48.8	31.4	14.5	7.4	12.8	2.4	0.	0.	17.6	3.8
8305.6	1.20401	49.2	33.6	13.8	2.4	12.1	2.4	0.	0.	18.4	3.3
8305.8	1.20398	44.4	30.0	13.5	2.6	11.6	2.7	0.	0.	17.2	3.6
8306.0	1.20395	47.9	23.5	13.2	2.5	11.3	2.2	0.	0.	17.1	3.5
8306.2	1.20392	47.1	28.1	12.4	2.3	10.9	2.1	0.	0.	16.9	3.5
8306.4	1.20389	44.7	27.8	11.6	2.7	10.5	2.0	0.	0.	16.8	3.5
8306.6	1.20386	45.4	27.0	11.1	1.9	10.1	1.9	0.	0.	16.7	3.5
8306.8	1.20383	45.4	26.3	1[illegible]	1.6	10.2	1.9	0.	0.	16.7	3.5
8307.0	1.20380	44.6	25.6	10.5	1.5	9.9	1.6	0.	0.	16.7	3.5
8307.2	1.20378	44.0	24.9	10.1	1.5	9.6	1.7	0.	0.	16.7	3.5
8307.4	1.20375	43.4	24.3	9.5	1.4	9.3	1.6	0.	0.	16.7	3.5
8307.6	1.20372	43.2	23.7	8.8	1.9	8.1	1.6	0.	0.	16.5	3.5
8307.8	1.20369	42.8	22.9	8.2	0.9	8.9	1.5	0.	0.	17.1	3.5
8308.0	1.20366	41.3	22.1	7.8	1.7	8.7	1.5	0.	0.	17.6	3.5
8308.2	1.20363	40.7	21.1	7.4	1.6	8.5	1.5	0.	0.0	1[illegible]	3.6
8308.4	1.20360	40.2	20.4	8.7	2.5	6.1	1.5	0.	0.7	19.7	3.8
8308.6	1.20357	19.5	18.8	6.0	4.1	6.2	1.5	0.0	0.3	21.4	[illegible]
8308.8	1.20354	18.5	16.5	6.1	7.1	7.9	1.5	0.[illegible]	0.4	21.1	[illegible]
8309.0	1.203[illegible]	36.8	17.4	4.2	10.7	7.4	1.5	0.5	0.4	26.0	[illegible]
8309.2	[illegible]	35.1	16.3	7.4	14.2	7.2	1.4	1.5	1.6	28.3	[illegible]
8309.4	[illegible]	31.3	15.3	8.8	14.4	7.0	1.4	2.6	2.3	32.7	11.[illegible]
8309.6	[illegible]	17.8	15.6	14.7	24.2	7.3	2.1	6.0	4.3	36.[illegible]	14.[illegible]
8309.8	1.2034[illegible]	34.9	17.0	22.3	30.[illegible]	9.0	4.1	10.2	4.8	41.3	16.5
8310.0	1.20337	41.6	25.0	32.4	37.7	14.2	8.0	15.4	9.9	43.6	25.6
8310.2	1.20334	55.2	34.1	44.2	45.7	21.8	19.0	21.4	13.6	55.2	28.6
8310.4	1.20331	70.1	46.1	55.9	51.1	32.6	24.9	20.7	17.5	58.0	33.5
8310.6	1.20328	41.6	63.7	67.3	60.[illegible]	46.9	34.2	37.4	21.7	92.0	36.1
8310.8	1.20325	30.[illegible]	76.6	77.7	66.6	60.7	48.8	46.0	24.[illegible]	67.3	44.4
8311.0	1.20322	94.4	65.6	84.1	72.5	75.7	65.0	52.8	51.7	81.6	50.5
8311.2	1.20320	96.9	90.9	90.4	78.0	94.7	71.1	87.7	37.[illegible]	75.5	54.0
8311.4	1.20317	93.5	95.4	32.8	42.1	88.0	81.0	73.5	43.3	78.6	61.2
8311.6	1.20314	97.9	97.0	95.2	66.1	91.2	86.6	79.1	49.9	81.8	65.9
8311.8	1.20311	96.4	97.1	96.0	68.6	92.[illegible]	87.1	82.1	55.6	85.6	69.8
8312.0	1.20308	96.[illegible]	50.2	96.9	91.[illegible]	94.5	90.2	85.2	61.4	95.7	73.4
8312.2	1.20305	98.8	98.9	77.2	92.8	94.9	92.5	87.3	65.8	87.5	75.[illegible]
8312.4	1.20302	99.0	93.9	97.5	94.[illegible]	95.4	91.[illegible]	99.4	70.3	89.3	76.9
8312.6	1.20299	99.7	98.1	97.3	94.[illegible]	96.0	94.	90.5	[illegible]5.6	90.1	78.9
8312.8	1.20296	94.4	91.5	98.0	45.4	96.6	95.[illegible]	91.3	77.6	91.2	80.7
8313.0	1.20294	99.5	99.4	96.[illegible]	95.[illegible]	97.0	95.4	92.1	79.7	91.9	92.9
8313.2	1.20291	99.5	99.5	98.1	96.[illegible]	97.2	96.2	92.8	82.1	92.6	84.5
8313.4	1.20288	99.5	97.6	98.3	96.2	97.4	96.8	91.3	84.0	91.3	85.9
8313.6	1.20285	99.6	97.6	98.4	96.4	97.6	97.0	93.8	95.5	93.8	96.9
8313.8	1.20282	99.6	99.1	98.5	96.0	97.9	97.2	94.3	86.9	94.3	87.9
8314.0	1.20279	99.6	99.7	96.7	96.7	99.0	97.4	94.7	89.2	94.5	88.7
8314.2	1.20276	99.7	99.2	98.0	96.8	98.2	97.6	95.1	99.4	94.7	89.5
8314.4	1.20273	99.7	99.7	98.9	97.0	98.1	97.2	95.3	90.0	95.0	90.2
8314.6	1.20270	99.7	99.2	96.9	97.[illegible]	96.4	97.8	95.5	90.5	95.1	90.8
8314.8	1.20267	99.8	99.8	94.0	97.5	98.6	97.9	95.9	91.0	95.3	91.2
8315.0	1.20265	99.8	99.6	99.1	97.5	98.8	98.2	96.2	91.4	85.8	91.8
8315.2	1.20262	99.8	83.8	99.1	97.3	98.8	98.3	96.4	91.9	96.1	91.9
8315.4	1.20259	99.3	99.8	99.2	97.7	98.8	98.5	98.6	92.[illegible]	95.3	92.4
8315.6	1.20256	99.9	97.9	99.1	97.7	99.9	99.2	96.9	95.[illegible]	96.5	92.9
8315.8	1.20253	99.6	99.9	99.4	97.7	99.0	98.8	96.9	91.5	96.8	95.2
8316.0	1.20250	100.0	99.9	99.4	97.3	99.1	99.9	97.1	97.7	96.9	97.5
8316.2	1.20247	100.0	99.9	99.3	97.6	99.2	99.0	97.5	93.6	96.9	95.9
8316.4	1.20244	100.0	99.9	99.6	97.6	99.2	99.1	97.5	94.[illegible]	83.0	94.1
8316.6	1.20241	100.0	97.9	99.4	97.8	99.2	99.1	97.7	96.4	97.1	96.4
8316.8	1.20239	100.0	100.0	99.5	97.6	99.7	99.[illegible]	97.8	94.4	97.2	94.9
8317.0	1.20236	100.0	100.0	99.5	97.8	99.2	98.2	97.9	94.8	97.3	95.2
8317.2	1.20233	100.0	100.0	99.5	97.8	99.2	99.1	97.9	95.0	97.5	95.4
8317.4	1.20230	100.0	100.0	99.5	97.8	99.2	99.4	97.3	95.2	97.7	95.5
8317.6	1.20227	100.0	100.0	99.6	97.8	99.2	99.4	97.9	95.4	97.8	99.5
8317.8	1.20224	100.0	100.0	99.3	97.8	99.2	99.4	96.0	95.5	97.9	95.6
8318.0	1.20221	100.0	100.0	96.9	97.6	99.2	99.5	99.1	95.6	97.9	95.7
8318.2	1.20219	100.0	100.0	99.6	97.8	99.3	99.6	98.2	95.7	98.0	95.9
8318.4	1.20215	100.0	100.0	99.6	97.9	99.5	99.8	98.6	95.8	88.0	96.0
8318.6	1.20213	100.0	100.0	99.6	97.9	99.5	99.6	98.5	95.9	98.1	96.1
8318.8	1.20210	100.0	100.0	99.6	97.8	99.3	99.7	99.7	96.0	98.3	99.2
8319.0	1.20207	100.0	100.0	99.7	91.8	99.3	99.2	99.8	99.2	98.5	96.4
8319.2	1.20204	100.0	100.0	99.7	97.8	99.3	99.2	99.7	96.4	98.7	96.5
8319.4	1.20201	100.0	100.0	99.7	97.5	99.5	96.9	99.7	96.6	99.7	96.6
8319.6	1.20199	100.0	100.0	99.7	94.0	99.4	99.7	98.7	96.3	58.7	96.7
8319.8	1.20195	100.0	100.0	99.7	63.7	99.4	99.7	98.7	96.8	98.8	99.6
8320.0	1.20192	100.0	100.0	99.7	98.3	98.4	99.7	98.8	96.5	99.9	96.9
8320.2	1.20189	100.0	100.0	99.7	99.1	99.4	99.7	96.8	97.0	99.0	97.0
8320.4	1.20187	100.0	100.0	99.7	98.1	99.6	93.8	99.9	97.2	99.1	97.1
8320.6	1.20184	100.0	100.0	99.8	98.[illegible]	99.6	99.8	96.9	97.3	99.1	97.2
8320.8	1.20181	100.0	100.0	99.8	98.2	99.5	99.7	98.9	97.5	99.1	97.5
8321.0	1.20178	100.0	100.0	99.9	98.2	99.5	99.7	98.8	97.6	99.1	97.4
8321.2	1.20175	100.0	100.0	99.6	98.3	99.5	99.7	99.9	98.8	99.1	98.4
8321.4	1.20172	100.0	100.0	97.8	94.3	99.5	99.7	98.9	97.8	99.1	97.5
8321.6	1.20169	100.0	100.0	99.9	98.3	99.5	99.6	99.9	97.5	99.1	97.5
8321.8	1.20166	100.0	100.0	99.8	98.6	99.5	99.2	98.9	98.0	99.2	97.9
8322.0	1.20163	100.0	100.0	99.9	98.4	99.6	99.8	99.0	98.1	99.2	97.6
8322.2	1.20161	100.0	[illegible]	99.9	98.4	99.6	99.9	99.2	94.2	94.3	97.9
8322.4	1.20158	100.0	[illegible]	99.9	98.5	99.5	99.8	99.2	99.[illegible]	99.4	97.8
8322.6	1.20155	100.0	100.0	99.9	98.5	99.6	99.8	99.2	98.4	99.5	97.6
8322.8	1.20152	100.0	100.0	94.9	96.6	99.6	99.8	99.2	99.4	99.5	97.9
8323.0	1.20149	100.0	100.0	99.9	98.6	99.8	97.9	99.2	98.4	99.6	99.0
8323.2	1.20146	100.0	100.0	99.8	88.5	99.6	96.8	99.2	98.4	99.1	98.0
8323.4	1.20141	100.0	100.0	99.9	88.7	99.7	99.9	99.2	98.4	99.1	96.1
8323.6	1.20140	100.0	100.0	100.0	98.1	99.7	99.8	89.2	88.5	99.3	9[illegible].1
8323.8	1.20137	100.0	100.0	100.0	84.7	99.7	99.8	99.3	94.[illegible]	99.8	98.1

Table 4-2 (continued)

Sam. No		5	6	7	8	9	10	11	12	13	14
p(atm)		9.97 x 10^{-1}	9.97 x 10^{-1}	9.97 x 10^{-1}	9.97 x 10^{-1}	2.53 x 10^{0}	2.53 x 10^{0}	2.53 x 10^{0}	2.53 x 10^{0}	1.46 x 10^{1}	1.46 x 10^{1}
u(atm cm)		1.11 x 10^{4}	2.18 x 10^{4}	4.32 x 10^{4}	8.6C x 10^{4}	2.83 x 10^{4}	5.57 x 10^{4}	1.10 x 10^{5}	2.19 x 10^{5}	2.18 x 10^{4}	4.73 x 10^{4}
STP											
ν (cm^{-1})	λ (micron)	T x 100	T x 100	T x 100	T x 100	T x 100	T x 100	T x 100	T x 100	T x 100	T x 100
8324.0	1.20135	100.0	100.0	100.0	98.4	99.7	99.8	99.2	98.5	99.7	98.2
8324.2	1.20132	100.0	100.0	100.0	98.8	99.7	99.8	99.4	98.6	99.7	98.2
8324.4	1.20129	100.0	100.0	100.0	98.8	99.7	99.8	99.4	98.7	99.7	98.3
8324.6	1.20126	100.0	100.0	100.0	99.5	99.8	99.8	99.4	98.8	99.8	95.3
8324.8	1.20123	100.0	100.0	100.0	99.9	99.8	99.8	99.4	98.7	99.8	98.4
8325.0	1.20120	100.0	100.0	100.0	99.0	99.8	99.8	99.5	98.7	99.9	98.5
8325.2	1.20117	100.0	100.0	100.0	99.0	99.8	99.8	99.5	98.8	99.9	98.6
8325.4	1.20114	100.0	100.0	100.0	99.0	99.8	99.8	99.5	98.8	99.9	98.6
8325.6	1.20111	100.0	100.0	100.0	99.1	99.8	99.9	99.5	98.9	100.0	98.6
8325.8	1.20109	100.0	100.0	100.0	99.1	99.9	99.9	99.5	98.8	100.0	98.6
8326.0	1.20106	100.0	100.0	100.0	99.1	99.9	99.9	99.5	98.9	100.0	98.7
8326.2	1.20103	100.0	100.0	100.0	99.2	99.9	99.9	99.5	98.9	100.0	98.7
8326.4	1.20100	100.0	100.0	100.0	99.2	99.9	99.9	99.6	99.0	100.0	98.7
8326.6	1.20097	100.0	100.0	100.0	99.2	99.9	99.9	99.6	99.0	100.0	98.7
8326.8	1.20094	100.0	100.0	100.0	99.3	99.9	99.9	99.6	99.0	100.0	98.8
8327.0	1.20091	100.0	100.0	100.0	99.3	100.0	99.9	99.6	99.1	100.0	98.8
8327.2	1.20088	100.0	100.0	100.0	99.3	100.0	99.9	99.6	99.1	100.0	98.9
8327.4	1.20085	100.0	100.0	100.0	99.4	100.0	99.9	99.6	99.1	100.0	99.0
8327.6	1.20083	100.0	100.0	100.0	99.4	100.0	99.9	99.6	99.2	100.0	99.0
8327.8	1.20080	100.0	100.0	100.0	99.5	100.0	99.9	99.7	99.2	100.0	99.1
8328.0	1.20077	100.0	100.0	100.0	99.5	100.0	99.9	99.7	99.2	100.0	99.2
8328.2	1.20074	100.0	100.0	100.0	99.5	100.0	99.9	99.7	99.3	100.0	99.2
8328.4	1.20071	100.0	100.0	100.0	99.6	100.0	99.9	99.7	99.3	100.0	99.3
8328.6	1.20068	100.0	100.0	100.0	99.6	100.0	99.9	99.7	99.3	100.0	99.4
8328.8	1.20065	100.0	100.0	100.0	99.6	100.0	99.9	99.7	99.4	100.0	99.4
8329.0	1.20062	100.0	100.0	100.0	99.7	100.0	99.9	99.7	99.4	100.0	99.4
8329.2	1.20059	100.0	100.0	100.0	99.7	100.0	99.9	99.8	99.4	100.0	99.4
8329.4	1.20057	100.0	100.0	100.0	99.7	100.0	100.0	99.8	99.5	100.0	99.4
8329.6	1.20054	100.0	100.0	100.0	99.8	100.0	100.0	99.8	99.5	100.0	99.4
8329.	1.20051	100.0	100.0	100.0	99.8	100.0	100.0	99.8	99.5	100.0	99.4
8330.0	1.20048	100.0	100.0	100.0	99.	100.0	100.0	99.8	99.6	100.0	99.4
8330.2	1.20045	100.0	100.0	100.0	99.9	100.0	100.0	99.8	99.6	100.0	99.5
8330.4	1.20042	100.0	100.0	100.0	99.9	100.0	100.0	99.8	99.6	100.0	99.5
8330.6	1.20039	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7	100.0	99.5
8330.8	1.20036	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7	100.0	99.6
8331.0	1.20034	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7	100.0	99.6
8331.2	1.20031	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.8	100.0	99.6
8331.4	1.20028	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.8	100.0	99.7
8331.6	1.20025	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.8	100.0	99.7
8331.8	1.20022	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.9	100.0	99.7
8332.0	1.20019	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0	99.8
8332.2	1.20016	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0	99.8
8332.4	1.20013	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8
8332.6	1.20011	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9
8332.8	1.20008	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9
8333.0	1.20005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8333.2	1.20002	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8333.4	1.19999	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8333.6	1.19996	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8333.8	1.19993	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.	100.0	100.0
8334.0	1.19990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8334.2	1.19987	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8334.4	1.19985	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8334.6	1.19982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8334.8	1.19979	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8335.0	1.19976	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8335.2	1.19973	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8335.4	1.19970	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8335.6	1.19967	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8335.8	1.19964	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8336.0	1.19962	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8336.2	1.19959	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8336.4	1.19956	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8336.6	1.19953	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8336.8	1.19950	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8337.0	1.19947	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8337.2	1.19944	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8337.4	1.19941	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8337.6	1.19939	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8337.8	1.19936	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8338.0	1.19933	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8338.2	1.19930	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8338.4	1.19927	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8338.6	1.19924	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8338.8	1.19921	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8339.0	1.19918	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8339.2	1.19916	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8339.4	1.19913	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8339.6	1.19910	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8339.8	1.19907	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8340.0	1.19904	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SECTION 5

TABLES OF INTEGRATED ABSORPTANCE

Values of the integrated absorptance are presented in Tables 5-1 and 5-2 for the 9430-9660 cm^{-1} and 8030-8340 cm^{-1} intervals, respectively. The integrals were calculated from the transmittance tables in Section 4 by assuming that the spectrum could be constructed by plotting the transmittance values and joining them with straight lines.

The lower limit of integration ν', which is shown at the top of each column, was chosen at a point where there was essentially no absorption. The integrated absorptance between any two wavenumbers listed can be found by subtracting the values tabulated at those two points. Values are tabulated at intervals of 5 cm^{-1} in Table 5-1 which covers samples whose spectra have but little structure. Table 5-2 includes samples whose spectra have considerable structure. Throughout most of the region, the integral is tabulated at points midway between the absorption lines. In regions where the spectra are smooth, tabulations are made at intervals of 5 or 10 cm^{-1}.

Table 5-1 $\left[\int_{\nu'}^{\nu} A(\nu)\,d\nu\right]$

Sam. No.	3	4
p(atm)	$2.50_0 \times 10^0$	$2.50_0 \times 10^0$
u(atm cm) STP	$1.63_5 \times 10^5$	$2.17_5 \times 10^5$
ν (cm^{-1})	ν'=9340 cm^{-1}	ν'=9340 cm^{-1}
9340.0	0.	0.
9345.0	0.	0.
9350.0	0.001	0.
9355.0	0.022	0.010
9360.0	0.071	0.065
9365.0	0.148	0.144
9370.0	0.257	0.345
9375.0	0.394	0.560
9380.0	0.548	0.796
9385.0	0.682	0.987
9390.0	0.757	1.110
9395.0	0.875	1.261
9400.0	1.166	1.651
9405.0	1.552	2.162
9410.0	1.906	2.515
9415.0	1.815	2.524

Sam. No.	1	2	3	4
p(atm)	$2.50_0 \times 10^0$	$2.50_0 \times 10^0$	$2.50_0 \times 10^0$	$2.50_0 \times 10^0$
u(atm cm) STP	$5.51_6 \times 10^4$	$1.09_5 \times 10^5$	$1.63_5 \times 10^5$	$2.17_5 \times 10^5$
ν (cm^{-1})	ν'=9430 cm^{-1}	ν'=9430 cm^{-1}	ν'=9430 cm^{-1}	ν'=9430 cm^{-1}
9430.0	0.	0.	0.	0.
9435.0	0.	0.	0.	0.
9440.0	0.	0.002	0.005	0.001
9445.0	0.000	0.010	0.036	0.025
9450.0	0.018	0.031	0.097	0.088
9455.0	0.051	0.065	0.187	0.185
9460.0	0.093	0.112	0.306	0.307
9465.0	0.139	0.177	0.450	0.481
9470.0	0.202	0.261	0.616	0.699
9475.0	0.283	0.382	0.804	0.956
9480.0	0.377	0.526	1.022	1.238
9485.0	0.525	0.736	1.368	1.668
9490.0	0.730	1.085	1.936	2.337
9495.0	1.007	1.561	2.666	3.224
9500.0	1.297	2.050	3.448	4.162
9505.0	1.589	2.604	4.256	5.166
9510.0	1.985	3.163	5.067	6.170
9515.0	2.083	3.566	5.678	6.922
9520.0	2.199	3.789	6.058	7.375
9525.0	2.603	4.534	7.035	8.624
9530.0	3.406	5.961	8.892	10.076
9535.0	3.944	6.936	10.285	12.497
9540.0	3.950	6.952	10.328	12.531
9545.0	3.950	6.952	10.328	12.531
9550.0	3.950	6.952	10.328	12.531

Sam. No.	2	3	4
p(atm)	$2.50_0 \times 10^0$	$2.50_0 \times 10^0$	$2.50_0 \times 10^0$
u(atm cm) STP	$1.09_5 \times 10^5$	$1.63_5 \times 10^5$	$2.17_5 \times 10^5$
ν (cm^{-1})	ν'=9570 cm^{-1}	ν'=9570 cm^{-1}	ν'=9570 cm^{-1}
9570.0	0.	0.	0.
9575.0	0.	0.	0.
9580.0	0.	0.001	0.007
9585.0	0.	0.023	0.059
9590.0	0.010	0.074	0.166
9595.0	0.047	0.169	0.317
9600.0	0.115	0.315	0.520
9605.0	0.214	0.500	0.804
9610.0	0.342	0.730	1.162
9615.0	0.533	1.040	1.621
9620.0	0.744	1.401	2.094
9625.0	0.959	1.757	2.589
9630.0	1.104	2.028	2.956
9635.0	1.184	2.210	3.229
9640.0	1.464	2.668	3.821
9645.0	1.994	3.471	4.808
9650.0	2.508	4.214	5.707
9655.0	2.537	4.322	5.865
9660.0	2.537	4.322	5.865

Table 5-2 $\left[\int_{\nu'}^{\infty} A(\nu)d\nu\right]$

Sum. No.	5	6	7	8	9	10	11	12	13	14
β(atm)	8.97_{-1} $\times 10^{-1}$	5.97_{-1} $\times 10^{-1}$	5.07_{-1} $\times 10^{-1}$	5.57_{-1} $\times 10^{-1}$	2.93_{0} $\times 10^{0}$	3.53_{0} $\times 10^{0}$	2.33_{0} $\times 10^{0}$	3.53_{0} $\times 10^{0}$	1.66_{1} $\times 10^{1}$	1.46_{1} $\times 10^{1}$
u(atm cm) STP	1.11_{0} $\times 10^{0}$	3.16_{0} $\times 10^{0}$	4.32_{0} $\times 10^{0}$	8.60_{0} $\times 10^{0}$	1.83_{1} $\times 10^{1}$	3.37_{1} $\times 10^{1}$	1.18_{2} $\times 10^{2}$	3.35_{2} $\times 10^{2}$	2.38_{3} $\times 10^{3}$	6.73_{3} $\times 10^{3}$
ν (cm^{-1})	ν'=8020 cm^{-1}	ν'=8030 cm^{-1}	ν'=8040 cm^{-1}	ν'=8050 cm^{-1}	ν'=8060 cm^{-1}	ν'=8070 cm^{-1}	ν'=8080 cm^{-1}	ν'=8090 cm^{-1}	ν'=8100 cm^{-1}	ν'=8110 cm^{-1}
8030.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8040.0	0.	0.	0.	0.	0.	0.	0.001	0.005	0.	0.007
8050.0	0.	0.001	0.014	0.096	0.	0.040	0.074	0.124	0.010	0.064
8059.0	0.	0.012	0.040	0.116	0.002	0.069	0.134	0.251	0.044	0.156
8060.0	0.	0.025	0.045	0.219	0.023	0.127	0.264	0.486	0.094	0.246
8064.0	0.	0.019	0.121	0.249	0.041	0.199	0.415	0.936	0.134	0.325
8066.4	0.001	0.054	0.146	0.337	0.060	0.231	0.500	0.964	0.160	0.381
8068.7	0.003	0.077	0.179	0.431	0.080	0.294	0.605	0.981	0.188	0.440
8071.0	0.006	0.083	0.214	0.529	0.103	0.379	0.719	1.164	0.215	0.505
8071.3	0.008	0.094	0.256	0.622	0.133	0.399	0.942	1.400	0.252	0.574
8075.4	0.015	0.106	0.301	0.716	0.161	0.461	0.963	1.211	0.286	0.642
8077.4	0.020	0.130	0.346	0.816	0.191	0.506	1.085	1.230	0.314	0.710
8079.0	0.021	0.144	0.375	0.893	0.216	0.536	1.187	2.015	0.740	0.766
8081.4	0.025	0.169	0.441	1.047	0.233	0.672	1.361	2.504	0.379	0.852
8087.2	0.071	0.180	0.447	1.125	0.284	0.674	1.451	2.941	0.408	0.915
8088.0	0.044	0.234	0.616	1.456	0.364	0.838	1.804	3.133	0.505	1.114
8095.0	0.072	0.279	0.751	1.702	0.491	1.014	2.160	3.921	0.631	1.347
8100.0	0.129	0.375	0.981	2.174	0.565	1.304	2.760	4.936	0.750	1.681
8105.0	0.215	0.536	1.393	2.979	0.797	1.761	3.647	6.513	1.020	2.176
8110.0	0.266	0.670	1.332	3.413	0.933	2.106	4.351	7.734	1.220	2.486
8115.0	0.338	0.802	1.647	3.736	1.127	2.490	5.054	9.063	1.411	2.867
8120.0	0.442	0.967	1.744	4.012	1.779	2.908	5.561	10.228	1.643	3.315
8123.5	0.518	1.100	2.525	5.194	1.373	3.701	6.661	11.970	1.817	3.677
8127.0	0.615	1.237	2.802	5.662	1.771	3.609	7.346	13.098	1.957	4.039
8130.4	0.691	1.376	3.176	6.106	1.914	3.900	8.074	14.769	2.178	4.400
8133.8	0.754	1.503	3.121	6.691	2.133	4.269	8.701	15.312	2.337	4.753
8137.2	0.814	1.605	3.530	7.050	2.274	4.535	9.334	16.207	2.530	5.095
8140.3	0.842	1.720	3.773	7.514	2.457	4.948	9.965	17.291	2.711	5.450
8143.4	1.009	1.941	4.216	8.144	2.779	5.402	10.545	17.940	2.873	5.971
8146.4	1.107	2.249	4.515	9.029	3.215	6.156	12.270	21.083	7.534	6.659
8149.3	1.394	2.621	5.502	10.967	3.720	7.035	13.762	23.157	3.767	7.484
8152.2	1.672	3.032	6.276	11.934	4.290	8.027	15.376	25.632	4.250	8.153
8155.0	1.851	3.386	6.990	12.760	4.727	8.629	16.593	27.220	4.761	9.173
8157.7	1.984	3.626	7.274	13.412	5.103	9.447	17.434	28.713	5.074	9.873
8160.3	2.162	3.910	7.749	14.136	5.547	10.186	18.796	30.394	5.488	10.634
8162.9	2.361	4.234	8.289	14.973	6.039	11.027	20.084	32.154	5.977	11.517
8165.4	2.554	4.609	8.991	15.866	6.640	11.941	21.476	34.011	6.538	12.493
8167.9	2.834	5.029	9.562	16.637	7.309	12.949	23.301	35.991	7.167	13.596
8170.2	3.112	5.464	10.263	17.917	7.994	14.028	24.519	37.909	7.823	14.723
8172.6	3.425	5.960	11.001	18.958	8.761	15.194	26.179	39.980	8.576	15.992
8176.8	7.778	6.430	11.756	19.955	9.556	16.337	27.797	41.937	9.320	17.226
8177.0	4.067	6.963	12.541	21.052	10.369	17.564	29.630	43.926	10.126	18.510
8179.1	4.400	7.480	13.329	22.143	11.177	18.771	31.064	45.845	10.884	19.766
8181.1	4.770	7.986	14.084	23.205	11.964	19.976	32.604	47.648	11.632	20.979
8183.1	5.053	8.484	14.854	24.286	12.744	21.033	34.175	49.536	12.372	22.174
8185.0	5.354	9.048	15.576	25.306	13.439	22.112	35.643	51.251	13.050	23.278
8186.8	5.617	9.577	16.236	26.233	14.072	23.067	36.945	52.929	13.654	24.268
8188.5	5.834	9.934	16.788	27.044	14.575	23.813	37.934	54.451	14.166	25.125
8190.2	6.065	10.273	17.260	27.721	14.974	24.405	38.754	55.747	14.628	25.891
8192.6	6.117	10.226	17.591	28.369	15.279	25.152	40.092	57.217	15.154	26.824
8196.1	6.178	10.332	17.693	28.771	15.446	25.483	40.709	56.186	15.482	27.596
8195.6	6.329	10.529	18.264	29.447	15.834	26.043	41.893	59.438	15.862	28.058
8196.9	6.529	10.883	18.970	30.174	16.275	26.856	43.706	60.823	16.272	28.753
8198.2	6.760	11.291	19.962	31.014	16.823	27.685	45.073	61.871	16.775	29.557
8199.4	7.079	11.757	19.977	31.753	17.414	28.324	44.912	63.042	17.329	30.403
8200.6	7.617	12.242	20.652	32.751	18.077	29.214	46.837	64.227	17.856	31.520
8204.0	8.567	13.918	22.894	35.604	20.312	32.084	49.354	67.623	20.036	34.374
8208.0	9.342	15.079	24.364	37.417	21.786	33.904	51.330	69.623	21.588	35.957
8208.0	10.175	16.311	25.871	38.25	23.332	35.765	53.333	71.62.	22.706	37.708
8212.0	10.951	17.474	27.564	40.096	24.871	37.631	55.214	73.510	23.913	39.576
8220.0	11.041	17.624	28.120	41.900	25.339	38.446	56.106	74.442	25.063	41.381
8221.4	11.055	17.660	28.211	42.041	25.419	38.728	56.513	75.026	25.100	42.452
8226.0	11.062	17.709	28.327	42.266	25.564	38.866	56.801	76.338	25.268	41.210
8230.4	11.139	17.772	28.482	42.566	25.618	39.045	57.106	77.045	25.340	41.960
8231.8	11.197	17.858	28.486	42.974	25.753	39.293	57.673	77.946	25.494	42.293
8237.1	11.248	17.975	28.914	43.421	25.923	39.601	58.257	78.978	25.625	42.505
8240.4	11.318	18.121	29.262	43.971	26.127	39.965	58.954	80.169	25.892	42.999
8245.5	11.411	18.295	29.596	44.600	26.381	40.416	59.870	81.576	26.190	43.681
8246.6	11.420	18.517	30.023	45.331	26.719	40.997	60.819	83.171	25.474	44.078
8249.7	11.474	18.782	30.521	46.146	27.120	41.653	61.996	84.787	26.868	44.799
8252.6	11.852	19.106	31.086	47.091	27.596	42.474	63.296	86.731	27.318	45.633
8255.5	12.064	19.479	31.726	48.106	28.166	43.404	64.776	87.769	27.859	46.585
8258.4	12.301	19.913	32.412	49.290	28.837	44.473	66.435	90.017	28.483	47.718
8261.1	12.669	20.395	33.254	50.675	29.599	45.627	68.151	93.1..	29.187	48.927
8263.7	13.002	20.924	34.115	51.745	30.375	46.884	69.911	95.388	29.974	50.230
8266.3	13.376	21.519	35.017	53.06.	31.269	48.242	71.811	97.667	30.859	51.676
8268.9	13.787	22.194	36.013	54.5..	32.290	49.694	73.796	100.032	31.841	53.299
8273.3	14.215	22.903	36.975	55.860	33.247	51.178	75.799	102.276	32.827	54.885
8273.7	14.665	23.682	37.990	57.271	34.351	2.630	77.868	104.532	33.885	56.434
8276.0	15.095	24.155	38.832	58.634	35.485	54.186	79.581	106.719	34.953	58.069
8278.2	13.548	24.816	39.907	59.978	36.943	55.575	81.459	109.022	36.023	59.875
8280.3	16.007	25.497	40.896	61.329	37.514	57.028	83.305	110.857	37.086	61.247
8282.4	16.503	26.228	41.965	62.787	38.620	58.564	85.199	112.914	38.182	62.849
8284.4	17.068	26.972	43.035	64.238	39.716	60.043	87.013	114.694	39.263	64.598
8286.5	17.490	27.702	44.092	65.662	40.768	61.486	88.793	116.757	40.250	65.876
8288.1	17.832	28.358	45.102	67.024	41.747	62.867	90.457	118.539	41.184	67.255
8289.8	18.338	29.062	46.065	68.377	42.661	64.169	92.098	120.267	42.071	68.587
8291.4	18.688	29.630	46.965	69.552	43.432	65.328	93.565	121.931	42.841	69.278
8294.0	18.961	30.124	47.727	70.720	44.110	66.476	95.100	124.701	43.745	71.261
8295.5	19.052	30.267	48.065	71.319	44.378	66.926	95.976	125.145	44.232	72.071
8298.9	19.244	30.367	46.552	72.097	44.821	67.410	97.012	126.377	44.751	72.985
8298.5	19.526	31.008	49.281	73.019	45.958	68.925	98.234	127.724	45.398	73.862
8299.6	19.871	31.571	50.061	74.074	48.202	69.435	99.464	129.003	45.129	74.848
8300.8	20.249	32.181	50.825	75.085	46.992	70.155	100.633	130.256	46.847	75.868
8301.9	20.650	32.858	51.608	76.057	47.795	71.543	101.717	133.104	47.675	76.853
8305.0	22.014	34.560	54.067	79.473	50.316	74.482	104.614	134.404	50.100	79.772
8307.5	23.139	36.135	56.295	81.420	52.538	76.928	107.916	136.904	52.123	82.181
8310.0	24.077	37.361	58.506	83.630	54.828	79.378	109.7 .	139.139	54.025	84.485
8312.5	25.177	38.886	58.763	84.290	55.539	80.279	110.725	140.898	54.886	85.613
8315.0	25.186	38.872	58.928	84.360	55.618	80.363	110.884	141.232	54.965	85.967
8320.0	25.189	38.879	58.943	84..	55.639	80.388	110.901	141.445	54.965	86.187
8325.0	25.189	38.879	58.931	84.365	55.680	80.409	111.046	141.581	54.996	86.388
8330.0	25.189	38.879	58.951	84.365	55.682	80.414	111.054	141.624	54.995	86.358
8340.0	25.189	38.879	58.951	84.396	55.682	80.414	111.054	141.624	54.995	86.367

(This page is left intentionally blank.)

SECTION 6

REFERENCES

1. G. Herzberg and L. Herzberg, J. Opt. Soc. Am. 43, 1037 (1953).

2. D. E. Burch, D. A. Gryvnak and R. R. Patty, Absorption of CO_2 Between 4500 and 5400 cm^{-1}, Aeronutronic Report U-2955, Contract NOnr 3560(00), (15 December 1964).

3. D. E. Burch, R. R. Patty and D. A. Gryvnak, Absorption and Emission of Infrared Radiation by CO_2 and H_2O, Aeronutronic Report U-2367, Contract NOnr 3560(00), (26 November 1963).

4. D. E. Burch, D. A. Gryvnak and Dudley Williams, Appl. Opt. 1, 759, (1962).

5. D. E. Burch, D. A. Gryvnak, R. R. Patty and Charlotte Bartky, The Shapes of Collision-Broadened CO_2 Absorption Lines, Aeronutronic Report U-3203, Contract NOnr 3560(00), (1965).

6. C. P. Courtoy, Annales de la Societe Scientifique de Bruxelles, Serie 1, pp 5-230 (27 March 1959). Also, C. P. Courtoy, Canad. J. Phys. 35, 608 (1957).

7. V. R. Stull, P. J. Wyatt and G. N. Plass, The Infrared Absorption of Carbon Dioxide, Aeronutronic Report U-1505, Contract AF 19(604)-7479, (30 December 1961).

8. D. E. Burch, D. A. Gryvnak and R. R. Patty, Absorption by CO_2 Between 6600 and 7125 cm^{-1} (1.4 Micron Region), Aeronutronic Report U-3127, Contract NOnr 3560(00), (1965).

9. L. D. Gray and J. E. Selvidge, J. Quant. Spectros. Radiat. Transfer 5, 291, (1965).

10. G. Herzberg, Infrared and Raman Spectra of Polyatomic Molecules, D. Van Nostrand Co. (See 266 ff for a discussion of the intensities of difference bands) (Ninth printing 1960).

REFERENCES

(Continued)

11. B. H. Winters, S. Silverman and W. S. Benedict, J. Quant. Spec. 4, 527 (1964).

12. R. Ladenberg and F. Reiche, Ann. Physik 42, 181 (1913).

13. L. D. Kaplan and D. F. Eggers, Jr., J. Chem. Phys. 25, 876 (1956).

14. G. N. Plass, J. Opt. Soc. Am. 55, 104 (1965).

15. R. P. Madden, J. Chem. Phys 35, No. 6, 2083 (1961).