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Line Parameters and Computed Spectra For Water Vapor Bands at 2.7μ

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Foreword

Knowledge concerning the infrared transmittance properties of the atmosphere is important to the study of the radiative balance of the atmosphere, astronomical observation, missile detection and tracking, laser communication, satellite weather reconnaissance, and optical communication. This Monograph is one of a series intended to provide fundamental information required for the estimation and interpretation of atmospheric transmittance at infrared frequencies.

Part I of this Monograph presents the fundamental properties of the 2.7μ water vapor band in terms of line absorptions and the integrated transmittance at any frequency for infinite resolution.

Part II presents examples of the "degraded" transmittance for finite resolution, as a function of the spectral slit width, concentration, and pressure with which direct observations may be compared.

A. V. Astin, *Director.*

Contents

Line Parameters and Computed Spectra for Water Vapor Bands at 2.7μ

Part I. Line Positions, Strengths, and Half-Widths for Water Vapor Bands ν_1, 2 ν_2, and ν_3 in the Interval 2857 to 4444 cm^{-1}

David M. Gates, Robert F. Calfee, David W. Hansen, and W. S. Benedict

The spectral line positions, strengths and half-widths of the ν_1, 2 ν_2, and ν_3 bands constituting the 2.7 μ region of water vapor are presented for the range 2857–4444 cm^{-1}. Lines attributed to the H_2O^{17} and H_2O^{18} molecules in this region have also been calculated and included along with the "hot lines" produced by 030–010, 011–010, and 110–010 transitions. The computations were carried out for values of J through 15.

1. Introduction

It has been evident for many years that the only fundamental approach to atmospheric transmission problems at infrared frequencies would be through an understanding of the complete detailed spectrum, band for band and line for line. However, the enormous complexity of this procedure has deterred many investigators from this approach. The problem is further complicated by the fact that the strength (intensity) and half-width of each line is dependent upon temperature and pressure as well as being dependent upon the concentration of the absorbing gas. Faced with the need to intercompare various spectroscopic observations of atmospheric transmission at infrared frequencies, both at low resolution and at high resolution, it became evident that one had to tackle the problem of computing the positions, strengths, and half-widths of all of the spectral lines within any region of the spectrum. It would be possible, at least in principle, to compute the integrated effect of all these lines on the transmission at any given position in the spectrum.

Two absorbing constituents, which are of greatest importance for atmospheric transmission problems in the infrared region of the spectrum, are water vapor and carbon dioxide. It was decided to work with water vapor first and to analyze the broad absorption region around 2.7μ, which involves the bands ν_3, ν_1, and $2\nu_2$. The many excellent experimental observations and analyses which have now been made of the water vapor spectrum, coupled with computations of line width and intensity, make it possible to systematically undertake such a program. Furthermore, the advent of the large computer makes the task of computing the transmission for given atmospheric conditions a manageable problem.

The water vapor molecule possesses a very complicated spectrum with irregularly spaced lines. It is triatomic, has three normal modes of vibration, and possesses three very different moments of inertia, hence falling into the category known as asymmetric top rotators. The general theory concerning such a molecule is to be found fully discussed by Herzberg [1954]. The analytical formulation of the rotational structure of H_2O is well known [Mecke, 1933; Randall, Dennison, Ginsburg, and Weber, 1937; and Benedict and Plyler, 1951], and will not be repeated here.

The strong, broad absorption region around 2.7μ is caused by the following vibrations: ν_3, a strong stretching fundamental with the change of dipole moment during the vibration along the least axis of inertia, giving rise to a type A band with the origin at 3755.92 cm^{-1}; ν_1, a weaker stretching fundamental with the change of dipole moment along the intermediate axis of inertia (type B band), with the origin at 3657.08 cm^{-1}; and 2 ν_2, the first overtone of the bending fundamental (type B band) with the band origin at 3151.60 cm^{-1}. The relative intensities of these

bands are approximately $\nu_3:\nu_1:2\nu_2=120:12:1$. In addition there are lines due to bands of isotopic configurations of H_2O whose normal abundances are H_2O^{18}, 0.20 percent; H_2O^{17}, 0.037 percent; and HDO, 0.027 percent. Lines are also due to bands in which the lower level is vibrationally excited. At atmospheric temperatures, <320 °K, the only such level which must be considered is the lowest, ν_2, and its abundance is very small, 0.033 percent at 287 °K.

In this note we will present a tabulation of the relevant parameters; frequency, strength, width and lower-level energy, for all water-vapor lines which can make significant contributions to atmospheric absorption between 2857–4444 cm^{-1} (3.5–2.25μ). In the "windows" beyond these limits there is a small contribution from very weak lines belonging to the three principal bands, however the main contribution to the weak water vapor absorption in the "windows" is due to other bands. At the lower frequency side the ν_1 band of HDO predominates ($\nu_0=2723.66$ cm^{-1}), while at the high frequency side the weak absorption is due to 3 ν_2 ($\nu_0=4666.72$ cm^{-1}). Because of their extreme weakness, the information concerning these bands is not as extensive as those treated in this paper.

2. Line Positions

Table I contains a listing in order of frequency of approximately 4500 lines giving their position (cm^{-1}), intensity ($cm^{-1}/g\ cm^{-2}$), half-width (cm^{-1}/atm), rotational identification for upper and lower states, energy of the lower state (cm^{-1}), rotational transition strength, and band designation. The positions of the lines as tabulated here are computed from the energy levels. The energy levels in turn are derived from observed line positions. All lines observed either in the solar spectrum [Benedict, 1955 and 1957], or in laboratory spectra [Plyler and Tidwell, 1957 and Gloersen, 1956], with the exception of a few very weak lines, are accounted for. It is possible to predict weaker lines that have not been observed due to insufficient resolving power under the proper conditions. These weak lines fall into several categories. Some of them are transitions of low inherent probability between levels whose energies have been established from several observed lines of higher probability. For these the line position can be predicted to within ± 0.05 cm^{-1}, since the ground state energy levels are known to within this limit. We have, however, also included lines whose positions are much less certain, involving transitions between higher energy states, observed weakly or inferred by extrapolation of one or two lines in observed series. Most of the lines attributed to H_2O^{18} and H_2O^{17} also have not been observed, but their positions should be calculable to within ± 2 cm^{-1}, using for H_2O^{18} the rotational energy shifts tabulated [Benedict, 1957], and the following vibrational shifts:

$$\nu_3=-15.3\ cm^{-1};\ \nu_1=-7.4\ cm^{-1};\ 2\nu_2=-12.5\ cm^{-1}.$$

The values of H_2O^{16} energy levels used in constructing table I do not differ greatly from those previously published [Benedict 1957], but are believed to be more self-consistent, the ground-state levels being based on more recent precise observations [Rao et al., 1962; Delbouille et al., 1963]. They also include higher levels than previously published, the intention being to include an entry for all levels, even if dubious, that would lead to transitions whose strength at 287 °K is greater than 10^{-2} $cm^{-1}/g\ cm^{-2}$; in the most completely analyzed band, ν_3, the strengths extend to 10^{-3} $cm^{-1}/g\ cm^{-2}$. The upper state levels may be found from the table by adding the value of the line position in the first column to the lower energy state in the E'' column.

The notation used to designate the rotational states of the asymmetric rotator [King et al., 1943] is $J\ K_a\ K_c$, where K_a and K_c run from 0 to J. J is the rotational quantum number of total angular momentum; K_a and K_c are indices that in the limiting case of the symmetric rotator would become the quantum numbers associated with the angular momentum of the molecule about A and C axes, respectively. The other notation in common use is J_τ, where $\tau=K_a-K_c$. The selection rules for the asymmetric top molecule are given as follows:

$$\Delta J=0,\ \pm 1$$

Axis of Dipole Moment	Allowed Transition K_aK_c	K_aK_c
A (least)	$e\ e$	$\longleftrightarrow\ e\ o$
	$o\ o$	$\longleftrightarrow\ o\ e$
B (intermediate)	$e\ e$	$\longleftrightarrow\ o\ o$
	$e\ o$	$\longleftrightarrow\ o\ e$

e = even, o = odd,

Hence, it is seen from the selection rules for type A bands $\Delta K_a-\Delta K_c$ is odd and for type B bands $\Delta K_a-\Delta K_c$ is even.

The energy levels for the four vibrational states for each rotational level $J\ K_aK_c$ were punched on cards. A computer program was devised to select the correct transitions in terms of the selection rules just given. The line positions were calculated for each of the three bands by subtracting the energy value of the ground state from that of each of the upper states. These are the line positions in cm^{-1} listed in the first column of table I.

The quantum number identifications of the upper and lower states are given in columns 4 and 5. Each column contains the J, K_a, and K_c values in that order. The sixth column lists the ground state energy value in cm^{-1}.

3. Line Strengths and Half-Widths

The intensity of every line in a rotation-vibration band, assuming no interaction effects between vibration and rotation, may be written as the product of a vibrational factor, S_v, common to all lines in the band and a rotational factor S_r, for the particular rotational transition involved. It is customary to define S_v as the sum of all the transitions in the band so that

$$S=S_vS_r(\nu/\nu_0)/Q_r$$

where Q_r is the rotational partition function given by

$$Q_r=\sum_J(2J+1)\ g\ \exp\ (-E''/kT)$$

where g is a statistical weighting factor depending upon the symmetry of the level, and E'' is the ground level energy. The values of g are:

$$g=1 \text{ for even } \tau''$$
$$g=3 \text{ for odd } \tau''$$

where $\tau=K_a-K_c$. The value of Q_r is evaluated to be 167.7 at a temperature of 287°K and varies with temperature approximately with $T^{3/2}$.

The rotational line strength, S_r is:

$$S_r=L\cdot g\cdot\exp\ (-E''/kT)$$

where L is called the rotational transition strength, defined to be the sum of the squares of the magnitude of the direction cosine matrix elements evaluated for the asymmetric rotator.

A full discussion of how L is evaluated for the rigid asymmetric rotator has been given by Cross, Hainer, and King [1944]. Very useful tables of L as a function of the asymmetry parameter have been computed by Schwendeman and Laurie [1958] for all transitions up to $J\leq 12$ at intervals of 0.1 in κ, and by Wacker and Pratto [1963] for higher J at a slightly coarser interval in κ. For the ground state of H_2O, $\kappa=\dfrac{2B-(A+C)}{A-C}=-0.4377$. It is slightly different from that value in the three excited vibrational states considered here. We have calculated L by interpolation to $\kappa=-0.4377$. The resulting values appear in the seventh column of table I. It is recognized that this results only in a first approximation to the true line strength; in addition to the neglect of the changed κ in the upper state, other interaction effects may be expected to enter. Their importance will be discussed shortly.

The values used for S_v in the present computation were as follows:

$$\nu_3,\ S_v=2.63\times10^5\ \text{cm}^{-1}/\text{g cm}^{-2}$$
$$\nu_1,\ S_v=2.7\times10^4\ \text{cm}^{-1}/\text{g cm}^{-2}$$
$$2\ \nu_2,\ S_v=2.21\times10^3\ \text{cm}^{-1}/\text{g cm}^{-2}.$$

The value for ν_3 is believed to be the most reliable; it is based on a recent determination, Jaffe and Benedict [1963], of the strength of a well resolved line near the band center by the dispersion method and agrees well with other measurements of the total band absorption. The values for ν_1 and $2\nu_2$ are based on intercomparisons of the relative strengths of lines of the three bands, principally in the region 3250–3500 cm^{-1}. Some confirmation of the estimate for $2\nu_2$ may be obtained from the low resolution studies of Burch and Williams [1960] for the low-frequency portion of the band which is free from overlapping by ν_1.

The value for ν_1 is the least certain, particularly as this relatively weak fundamental vibration appears to show interaction effects similar to those encountered in ν_2, with lines in the high frequency branches showing decreases in strength, and those in the low frequency branches showing increases. The general theory for these effects suggests that a number of processes may be acting in combination so that it is difficult to make a calculation. The dominant processes in ν_1 would appear to be interaction with the pure rotation (permanent dipole moment), increasing principally with rotation about A axis, and Coriolis coupling of the ν_1 and ν_3 vibrations. In the present computation, no attempt was made to correct for these general effects. This may result in an overestimate of many of the high J lines in the high frequency branches by factors of 200 to 300 percent, and in underestimates of the highest J lines in the low frequency branches by 50 to 100 percent.

The interaction effects do not appear to be large in $2\nu_2$, except possibly in some of the weaker branches, such as $P_{3\bar{1}}$.

In ν_3, present indications are that interaction effects do not have a noticeable influence on the high L lines of the $R_{0\bar{1}}$ and P_{01} branches, although experimental confirmation would be desirable. However, some of the weaker branches appear to show interaction effects [Benedict, 1955]; in particular the $Q_{2\bar{1}}$, and $Q_{3\bar{2}}$, and $Q_{4\bar{3}}$ branches are increasingly weaker than calculated. In addition to the general interaction effects just mentioned, there are instances of accidental perturbation when lines from a common lower state to upper state levels of the same J in different bands lie close together. In these cases the weaker line, usually in ν_1, "borrows" strength from the stronger, ν_3 line. For these cases the values of L have been adjusted so that the total strength remains constant, but shared in a desirable proportion. In the table such enhanced lines are designated "+" at the right margin. The "lending" line is designated "−".

Although the rigid line strengths may be in some cases uncertain for the reasons outlined, it is hoped that their publication in this form will be useful. Comparison of the composite transmission spectra derived from table I in various spectral regions with observed transmission spectra at various pressures and temperatures, and further measurements

of the absolute or relative strength of well-resolved lines, should reveal whether systematic deviations exist. If so, these may be accounted for by variations in S_ν, or introduction of empirical or theoretical factors with the correct rotational dependence on the several bands.

Values of the half width of the lines are listed in column 3, table I of this paper. The half-widths for the ν_1 and $2\nu_2$ lines were taken directly from the body of the tables published by Benedict and Kaplan [1959]; the half-widths for the ν_3 lines were calculated from the average half width, $\bar{\gamma}$, as given in the last column of these tables. Estimates for higher J lines not appearing in the tables by Benedict and Kaplan [1963] were made by extrapolations of these tables. It should be noted [Benedict and Kaplan, 1964] that the widths apply to water vapor in air rather than N_2 as implied by Benedict and Kaplan [1959]. The accuracy of the widths is not known, but recent measurements [Saiedy, 1961] confirm that they should be satisfactory for absorption computations.

The band identification is given in the last column of table I. As mentioned, the symbols "+" and "—" denote lines in which the band is mixed by perturbation. An asterisk indicates a line in the corresponding band of the isotopic molecule H_2O^{18}, a double asterisk H_2O^{17}, and three asterisks a "hot" line.

4. Discussion

Line strengths were calculated at 287.7 °K for all possible transitions in the three principal bands up to $J_{max}=15$. The strongest line (404–503 in ν_3, at 3838 cm^{-1}) has $S=9.23\times10^3$ $cm^{-1}/gm\ cm^{-2}$. Since the purpose of the table is to list all lines of possible significance in atmospheric transmission problems, the lower limit of S was set at 10^{-3} $cm^{-1}/g\ cm^{-2}$ in the band wings and at 10^{-2} in the central region 3503–3950 cm^{-1}, which includes all lines with $S>2\times10^2$. In addition weak lines were excluded if within 0.25 cm^{-1} of a strong line whose strength exceeded the strength of the weak line by 10^3 or if within 0.5 cm^{-1} of a strong line whose strength exceeded the strength of the weak line by 4×10^3. This limitation excludes from the table a large proportion of the lines in the weak branches of the original bands and in the weak satellite bands due to H_2O^{18}, H_2O^{17}, and the "hot" transitions 011–010, 110–010, 030–010. No attempt was made to list lines in the ν_3 band of HDO ($\nu_0=$ 3704.25 cm^{-1}) as it was determined that its strongest lines, with few exceptions, would be excluded by the above criteria. The very weak combination bands of HDO, $\nu_1+\nu_2$ ($\nu_0=4100.05$ cm^{-1}), and 3 ν_2, ($\nu_0=4145.59$ cm^{-1}), also are not considered.

It must be emphasized that the exclusion of extremely weak lines from table I was for purposes of saving space in printing and time in transmission computations based on line-by-line integrations. The actual distribution in strength of the lines in the spectrum includes additional weak lines in the categories mentioned and other weaker lines of vibrational and rotational states, which have not been included here. These higher-state lines are important when considering the absorptivity or emissivity of water vapor at elevated temperatures.

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TABLE 1

PARAMETERS OF THE 2.7μ BAND OF WATER VAPOR

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
2864.34	0.0623	0.0769	8	3	6	9	4	5	1360.28	1.797448	2NU2
2867.99	0.0043	0.032	13	1	13	14	0	14	2073.66	12.99955	2NU2
2867.99	0.0122	0.032	13	0	13	14	1	14	2073.66	12.99957	2NU2
2871.28	0.0804	0.0874	4	0	4	5	3	3	504.00	0.095779	2NU2
2872.38	0.0018	0.0743	5	1	5	5	4	2	610.12	0.003573	2NU2
2874.17	0.0019	0.0701	10	4	6	11	5	7	1985.83	3.652101	2NU2
2876.28	0.0062	0.0677	9	4	6	10	5	5	1724.72	3.272354	2NU2
2879.73	0.1306	0.0868	5	1	5	6	2	4	602.77	0.254241	2NU2
2881.42	0.0011	0.0388	9	0	9	10	1	10	2705.18	9.013676	2NU2***
2884.83	0.0014	0.0703	5	2	3	5	5	0	742.10	0.001850	2NU2
2884.88	0.0029	0.0571	10	5	6	11	6	5	2144.12	4.582064	2NU2
2888.11	0.0023	0.0771	5	3	2	6	4	3	2398.39	3.153879	2NU2***
2889.31	0.0010	0.0603	10	5	5	11	6	6	2142.69	4.667626	2NU2
2890.24	0.0454	0.0324	12	1	12	13	0	13	1806.78	11.99672	2NU2
2890.27	0.0151	0.0325	12	0	12	13	1	13	1806.78	11.99676	2NU2
2890.82	0.0047	0.0871	4	2	3	5	3	2	2130.50	1.841317	2NU2***
2892.29	0.0031	0.0852	5	2	3	6	3	4	2271.70	2.452523	2NU2***
2893.09	0.0222	0.0711	9	4	5	10	5	6	1718.77	3.697402	2NU2
2893.63	0.0034	0.0762	4	1	4	4	4	1	488.10	0.001222	2NU2
2893.77	0.4658	0.0839	6	2	5	7	3	4	842.38	0.996364	2NU2
2896.00	0.0013	0.0729	6	2	4	6	5	1	888.63	0.010677	2NU2
2896.21	0.0156	0.0741	7	0	7	7	3	4	842.38	0.033256	2NU2
2897.84	0.0014	0.0948	3	1	3	4	2	2	1922.92	0.610552	2NU2***
2899.32	0.0024	0.0327	13	0	13	13	1	12	2042.33	1.90653	2NU2
2901.75	0.0026	0.0443	8	1	8	9	0	9	2512.36	8.007087	2NU2***
2901.82	0.0855	0.0782	7	3	5	8	4	4	1131.76	2.323327	2NU2
2902.83	0.0041	0.0665	9	1	8	9	4	5	1360.28	0.116860	2NU2
2904.46	0.0723	0.0676	8	4	5	9	5	4	1477.31	3.682999	2NU2
2905.98	0.0043	0.0684	10	3	7	11	4	8	1843.02	4.032477	2NU2
2906.02	0.0031	0.0616	11	3	8	12	4	9	2124.98	4.836759	2NU2
2906.71	0.2389	0.0890	3	0	3	4	3	2	382.52	0.051049	2NU2
2907.23	0.0020	0.0865	4	2	2	5	3	3	2126.41	2.324407	2NU2***
2907.65	0.0060	0.0734	7	2	5	7	5	2	1059.85	0.038149	2NU2
2908.10	0.0035	0.033	13	1	12	14	2	13	2327.90	11.01049	2NU2
2908.42	0.0012	0.033	13	2	12	14	1	13	2327.88	11.00954	2NU2
2910.47	0.0041	0.0569	9	5	5	10	6	4	1875.53	4.830967	2NU2
2910.75	0.0050	0.0733	4	3	2	5	4	1	2251.86	3.250024	2NU2***
2911.34	0.0217	0.0708	8	4	4	9	5	5	1474.99	3.26	2NU2-
2911.40	0.0016	0.0608	5	4	1	6	5	2	2552.85	4.266963	2NU2***
2911.57	0.0017	0.0734	4	3	1	5	4	2	2251.71	3.270203	2NU2***
2911.90	0.1434	0.0335	11	0	11	12	1	12	1557.91	11.021891	2NU2
2911.95	0.0478	0.0331	11	1	11	12	0	12	1557.91	11.021861	2NU2
2912.00	0.0123	0.0583	9	5	4	10	6	5	1875.00	4.857731	2NU2
2912.26	0.0077	0.0547	8	0	8	9	5	5	1474.99	0.0557	NU1+

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
2913.06	0.0019	0.0481	10	6	5	11	7	4	2321.94	5.877228	2NU2
2913.26	0.0407	0.0737	9	3	6	10	4	7	1581.34	3.465920	2NU2
2914.48	0.0019	0.0653	7	1	6	8	2	7	2495.18	4.996649	2NU2***
2917.36	0.0019	0.0712	8	2	6	8	5	3	1255.92	0.098024	2NU2
2919.00	0.0055	0.0534	7	0	7	8	1	8	2337.70	7.000291	2NU2***
2919.58	0.0410	0.0775	8	3	5	9	4	6	1340.89	3.141455	2NU2
2920.90	0.0035	0.0858	3	2	2	4	3	1	2005.92	2.164905	2NU2***
2921.33	0.0018	0.0542	7	1	7	8	0	8	2337.53	6.998008	2NU2***
2921.39	0.0013	0.0764	6	1	5	7	2	6	2318.53	4.008107	2NU2***
2922.00	0.0036	0.0688	9	2	7	9	5	4	1477.31	0.180415	2NU2
2922.33	0.0083	0.0337	12	1	12	12	2	11	1774.74	1.854861	2NU2
2922.45	0.0028	0.0337	12	0	12	12	1	11	1774.60	1.854934	2NU2
2923.10	0.0027	0.0920	4	1	4	5	2	3	446.50	0.386397	2NU2*
2923.16	0.0017	0.0776	6	3	4	7	4	3	931.22	2.767638	2NU2*
2924.62	0.0400	0.0338	12	1	11	13	2	12	2042.38	8.71329	NU1
2925.25	0.0128	0.0349	12	2	11	13	1	12	2042.33	9.99731	2NU2
2925.38	0.0011	0.0864	5	2	4	6	3	3	661.56	1.411171	2NU2*
2926.46	0.0112	0.0851	3	2	1	4	3	2	2004.81	2.320352	2NU2***
2928.70	0.0065	0.0842	5	1	4	6	2	5	2161.30	3.129447	2NU2***
2930.16	0.3523	0.0796	7	3	4	8	4	5	1122.72	3.022183	2NU2
2930.54	0.0787	0.0665	7	4	4	8	5	3	1255.92	3.953657	2NU2
2931.10	0.0054	0.0709	8	1	7	8	4	4	1131.76	0.146118	2NU2
2933.14	0.1399	0.0354	10	0	10	11	1	11	1327.14	10.018239	2NU2
2933.18	0.2406	0.0686	7	4	3	8	5	4	1255.16	4.002077	2NU2
2933.26	0.4196	0.0348	10	1	10	11	0	11	1327.14	10.018153	2NU2
2933.69	0.0464	0.0557	8	5	4	9	6	3	1631.41	5.006530	2NU2
2933.73	0.8408	0.0776	6	3	4	7	4	3	931.22	2.767638	2NU2
2934.73	0.0155	0.0565	8	5	3	9	6	4	1631.27	5.013867	2NU2
2935.23	1.3260	0.0920	4	1	4	5	2	3	446.50	0.386397	2NU2
2935.65	0.0032	0.0680	3	3	1	4	4	0	2129.65	3.390390	2NU2***
2935.77	0.0097	0.0683	3	3	0	4	4	1	2129.63	3.393148	2NU2***
2936.00	0.0035	0.0545	4	4	1	5	5	0	2406.15	4.396748	2NU2***
2936.01	0.0012	0.0546	4	4	0	5	5	1	2406.15	4.397010	2NU2***
2936.18	0.0058	0.0475	9	6	3	10	7	4	2054.40	6.019433	2NU2
2936.74	0.0343	0.0895	2	0	2	3	3	1	285.23	0.013376	2NU2
2936.82	0.0035	0.0647	6	0	6	7	1	7	2181.12	5.990506	2NU2***
2936.95	0.5512	0.0864	5	2	4	6	3	3	661.56	1.411171	2NU2
2937.48	0.0033	0.0901	4	1	3	5	2	4	2024.17	2.444582	2NU2***
2937.60	0.0019	0.0473	9	6	4	10	7	3	2054.40	6.018378	2NU2
2938.50	0.0203	0.0793	6	0	6	6	3	3	661.56	0.051901	2NU2
2939.65	0.0106	0.0950	2	1	2	3	2	1	1819.34	0.925282	2NU2***
2939.66	0.0407	0.0361	11	1	10	12	2	11	1774.74	9.078065	2NU2
2940.92	0.0105	0.0671	6	1	6	7	0	7	2180.65	5.983681	2NU2***
2941.00	0.0136	0.0379	11	2	10	12	1	11	1774.60	9.076485	2NU2
2942.48	0.0022	0.0388	9	0	9	10	1	10	1114.56	9.013676	2NU2*
2943.45	0.0112	0.0465	11	2	9	12	3	10	1962.55	7.003088	2NU2
2944.02	0.0025	0.0470	12	3	10	13	2	11	2246.98	7.82232	2NU2
2944.73	0.0097	0.0358	11	1	11	11	2	10	1525.13	1.851690	2NU2
2944.94	0.0291	0.0359	11	0	11	11	1	10	1524.87	1.851910	2NU2
2945.75	0.0024	0.0559	8	4	5	9	7	2	1810.63	0.0668	NU1+
2945.95	0.3158	0.0790	6	3	3	7	4	4	927.77	3.050978	2NU2
2945.98	0.0013	0.0643	6	4	3	7	5	2	1059.85	4.131192	2NU2*
2946.57	0.0134	0.0544	10	2	8	11	3	9	1695.03	5.954956	2NU2
2946.96	0.0018	0.0656	7	0	7	7	1	6	2309.74	1.838288	2NU2***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
2947.61	0.0188	0.0841	2	2	1	3	3	0	1907.63	2.366160	2NU2***
2948.08	0.0415	0.0748	7	1	6	7	4	3	931.22	0.135960	2NU2
2948.65	0.0063	0.0830	2	2	0	3	3	1	1907.47	2.394805	2NU2***
2948.89	0.0145	0.0930	3	1	2	4	2	3	1907.99	1.970843	2NU2***
2950.44	0.0056	0.0777	4	1	3	4	4	0	488.13	0.005990	2NU2
2951.26	0.0014	0.0795	7	2	5	8	3	6	1006.12	3.262769	2NU2*
2951.38	0.0015	0.0769	5	3	3	6	4	2	757.78	3.066224	2NU2*
2953.15	0.1143	0.0637	9	2	7	10	3	8	1446.16	4.932263	2NU2
2953.47	0.0176	0.0771	5	0	5	6	1	6	2042.77	4.979001	2NU2***
2954.17	1.1029	0.0388	9	0	9	10	1	10	1114.56	9.013676	2NU2
2954.43	0.3677	0.0382	9	1	9	10	0	10	1114.55	9.013420	2NU2
2955.09	0.0486	0.0787	5	1	4	5	4	1	610.35	0.031887	2NU2
2955.28	0.0206	0.0785	6	1	5	6	4	2	757.78	0.084732	2NU2
2955.57	0.0424	0.0401	10	1	9	11	2	10	1525.13	8.063213	2NU2
2955.61	0.6655	0.0643	6	4	3	7	5	2	1059.85	4.131192	2NU2
2956.02	0.0046	0.0771	5	3	2	6	4	3	756.75	3.153879	2NU2*
2956.35	0.2225	0.0656	6	4	2	7	5	3	1059.65	4.143594	2NU2
2956.84	0.0475	0.0537	7	5	3	8	6	2	1411.68	5.142711	2NU2
2956.97	0.1426	0.0539	7	5	2	8	6	3	1411.65	5.144364	2NU2
2957.01	0.0981	0.0716	8	2	6	9	3	7	1216.27	4.004942	2NU2
2958.41	0.1273	0.0442	10	2	9	11	1	10	1524.87	8.058917	2NU2
2959.78	0.0045	0.0557	11	3	9	12	2	10	1960.22	6.964699	2NU2
2960.27	0.0037	0.0743	6	1	6	6	2	5	2161.30	1.783035	2NU2***
2960.78	0.0059	0.0806	5	1	5	6	0	6	2041.76	4.958549	2NU2***
2961.38	0.6888	0.0795	7	2	5	8	3	6	1006.12	3.262769	2NU2
2961.69	0.7464	0.0769	5	3	3	6	4	2	757.78	3.066224	2NU2
2962.11	0.0094	0.0871	4	2	3	5	3	2	508.81	1.841317	2NU2*
2962.86	0.0017	0.0447	8	0	8	9	1	9	920.21	8.007851	2NU2*
2963.32	0.0052	0.0443	8	1	8	9	0	9	920.18	8.007087	2NU2*
2963.42	0.0066	0.0959	2	1	1	3	2	2	1813.81	1.666667	2NU2***
2963.75	0.0214	0.0454	8	6	3	9	7	2	1810.63	5.53	NU2-
2964.75	0.0055	0.0454	8	6	2	9	7	3	1810.63	4.30	NU2-
2966.00	2.3187	0.0771	5	3	2	6	4	3	756.75	3.153879	2NU2
2966.64	0.0037	0.0848	6	2	5	7	1	6	2309.74	3.799063	2NU2***
2966.74	0.0926	0.0393	10	1	10	10	2	9	1293.66	1.847651	2NU2
2967.24	0.0311	0.0397	10	0	10	10	1	9	1293.04	1.848326	2NU2
2967.65	0.0062	0.0852	5	2	3	6	3	4	648.97	2.452523	2NU2*
2967.68	0.0017	0.0871	4	2	3	5	3	2	508.81	1.841317	2NU2**
2967.91	0.4999	0.0835	6	2	4	7	3	5	816.72	2.751216	2NU2
2968.85	0.0086	0.0880	4	0	4	5	1	5	1922.86	3.972803	2NU2***
2969.45	0.3534	0.0463	9	1	8	10	2	9	1293.66	7.043661	2NU2
2970.17	0.1589	0.0843	5	0	5	5	3	2	508.81	0.062476	2NU2
2970.62	0.0011	0.0604	5	4	2	6	5	1	888.63	4.264570	2NU2*
2970.73	0.0033	0.0608	5	4	1	6	5	2	888.60	4.266963	2NU2*
2971.66	0.0014	0.0777	6	0	6	6	1	5	2146.28	1.852055	2NU2***
2972.34	0.0027	0.0948	3	1	3	4	2	2	315.79	0.610552	2NU2*
2972.80	0.0011	0.0852	5	2	3	6	3	4	648.97	2.452523	2NU2**
2973.25	4.6875	0.0871	4	2	3	5	3	2	508.81	1.841317	2NU2
2974.00	0.0070	0.0947	1	1	1	2	2	0	1743.47	1.244747	2NU2***
2974.63	0.8690	0.0447	8	0	8	9	1	9	920.21	8.007851	2NU2
2975.10	2.6070	0.0443	8	1	8	9	0	9	920.18	8.007087	2NU2
2975.13	0.1186	0.0534	9	2	8	10	1	9	1293.04	7.032041	2NU2
2977.28	0.0100	0.0733	4	3	2	5	4	1	610.35	3.250024	2NU2*
2977.30	0.0399	0.0655	10	3	8	11	2	9	1690.70	5.859437	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
2977.96	3.1032	0.0852	5	2	3	6	3	4	648.97	2.452523	2NU2
2978.37	0.0024	0.0839	5	1	5	5	2	4	2024.17	1.711792	2NU2***
2978.45	0.0034	0.0734	4	3	1	5	4	2	610.12	3.270203	2NU2*
2980.25	0.5431	0.0604	5	4	2	6	5	1	888.63	4.264570	2NU2
2980.35	1.6302	0.0608	5	4	1	6	5	2	888.60	4.266963	2NU2
2980.75	0.0018	0.0646	8	2	7	9	1	8	1079.07	5.987889	2NU2*
2981.13	0.3918	0.0498	6	5	2	7	6	1	1216.20	5.265222	2NU2
2981.21	0.0255	0.0993	1	1	0	2	2	1	1742.28	1.500000	2NU2***
2981.24	0.1306	0.0499	6	5	1	7	6	2	1216.20	5.265494	2NU2
2981.36	0.0256	0.0914	4	1	4	5	0	5	1920.76	3.911752	2NU2***
2981.43	0.0041	0.0865	4	2	2	5	3	3	504.00	2.324407	2NU2*
2982.33	0.0039	0.0653	7	1	6	8	2	7	885.62	4.996649	2NU2*
2982.38	0.0019	0.0733	4	3	2	5	4	1	610.35	3.250024	2NU2**
2982.48	0.2942	0.0552	8	1	7	9	2	8	1080.38	6.019178	2NU2
2982.61	0.0111	0.0534	7	0	7	8	1	8	744.16	7.000291	2NU2*
2983.22	0.0326	0.0952	3	0	3	4	1	4	1821.61	3.004990	2NU2***
2983.52	0.0037	0.0542	7	1	7	8	0	8	744.09	6.998008	2NU2*
2983.87	0.0010	0.0438	12	2	11	13	3	10	2414.73	0.27474	NU1
2984.20	1.3649	0.0948	3	1	3	4	2	2	315.79	0.610552	2NU2
2987.49	5.0028	0.0733	4	3	2	5	4	1	610.35	3.250024	2NU2
2987.76	0.0238	0.0422	7	6	2	8	7	1	1590.74	6.263414	2NU2
2987.76	0.0714	0.0422	7	6	1	8	7	2	1590.74	6.263444	2NU2
2988.52	0.0020	0.0534	7	0	7	8	1	8	744.16	7.000291	2NU2**
2988.58	1.6807	0.0734	4	3	1	5	4	2	610.12	3.270203	2NU2
2988.60	0.0902	0.0451	9	1	9	9	2	8	1080.38	1.842036	2NU2
2989.02	0.0012	0.0470	13	1	12	13	2	11	2246.98	3.76133	2NU2
2989.66	0.2728	0.0459	9	0	9	9	1	8	1079.07	1.844131	2NU2
2991.43	0.0760	0.0870	4	0	4	4	3	1	383.85	0.047652	2NU2
2991.47	0.0010	0.0687	6	1	6	5	4	1	610.35	0.000636	2NU2
2991.93	2.0331	0.0865	4	2	2	5	3	3	504.00	2.324407	2NU2
2992.24	0.0025	0.0764	6	1	5	7	2	6	709.60	4.008107	2NU2*
2992.64	0.8868	0.0646	8	2	7	9	1	8	1079.07	5.987889	2NU2
2992.92	0.0069	0.0858	3	2	2	4	3	1	383.85	2.164905	2NU2*
2993.68	1.9468	0.0653	7	1	6	8	2	7	885.62	4.996649	2NU2
2994.13	0.0117	0.0907	4	1	4	4	2	3	1907.99	1.567300	2NU2***
2994.43	5.5317	0.0534	7	0	7	8	1	8	744.16	7.000291	2NU2
2995.00	0.0070	0.0545	4	4	1	5	5	0	742.10	4.396748	2NU2*
2995.01	0.0023	0.0546	4	4	0	5	5	1	742.10	4.397010	2NU2*
2995.34	0.0087	0.0871	5	0	5	5	1	4	2000.90	1.912338	2NU2***
2995.38	1.8446	0.0542	7	1	7	8	0	8	744.09	6.998008	2NU2
2996.24	0.0019	0.0447	5	5	0	6	6	1	1045.07	5.399718	2NU2*
2996.38	0.0016	0.0379	11	0	11	12	3	10	1962.55	0.089303	NU1
2997.64	0.0119	0.1006	2	0	2	3	1	3	1739.51	2.156792	2NU2***
2997.70	0.0014	0.0530	8	1	8	8	2	7	885.62	1.833129	2NU2*
2998.30	0.0385	0.0747	9	3	7	10	2	8	1438.00	4.706625	2NU2
2998.37	0.0013	0.0858	3	2	2	4	3	1	383.85	2.164905	2NU2**
2998.63	0.0032	0.0378	8	7	1	9	8	2	2009.87	7.261219	2NU2
2998.63	0.0095	0.0378	8	7	2	9	8	1	2009.87	7.261215	2NU2
2999.08	0.0013	0.0759	7	2	6	8	1	7	882.93	4.913532	2NU2*
2999.56	0.0225	0.0851	3	2	1	4	3	2	382.52	2.320352	2NU2*
2999.63	0.0080	0.0531	6	4	3	7	7	0	1394.86	0.026	NU1+
2999.82	0.0013	0.0545	4	4	1	5	5	0	742.10	4.396748	2NU2**
3001.34	0.0129	0.0842	5	1	4	6	2	5	552.92	3.129447	2NU2*
3001.70	0.0070	0.0647	6	0	6	7	1	7	586.48	5.990506	2NU2*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3002.14	0.0065	0.0680	3	3	1	4	4	0	488.13	3.390390	2NU2*
3002.32	0.0194	0.0683	3	3	0	4	4	1	488.10	3.393148	2NU2*
3003.26	0.0104	0.0974	3	1	3	4	0	4	1817.50	2.831638	2NU2***
3003.46	1.2588	0.0764	6	1	5	7	2	6	709.60	4.008107	2NU2
3003.59	0.0210	0.0671	6	1	6	7	0	7	586.26	5.983681	2NU2*
3003.80	0.1313	0.0874	3	0	3	3	3	0	285.43	0.016715	2NU2
3003.83	3.4667	0.0858	3	2	2	4	3	1	383.85	2.164905	2NU2
3004.65	3.5222	0.0545	4	4	1	5	5	0	742.10	4.396748	2NU2
3004.66	1.1741	0.0546	4	4	0	5	5	1	742.10	4.397010	2NU2
3004.68	0.0039	0.0783	6	2	5	6	3	4	2271.70	2.963539	2NU2***
3004.89	0.0042	0.0851	3	2	1	4	3	2	382.52	2.320352	2NU2**
3005.03	0.0060	0.0381	12	2	11	12	3	10	1962.55	3.648229	2NU2
3005.41	0.3172	0.0447	5	5	1	6	6	0	1045.07	5.399693	2NU2
3005.41	0.9517	0.0447	5	5	0	6	6	1	1045.07	5.399718	2NU2
3006.78	0.0024	0.0391	12	1	11	12	2	10	1960.22	3.652921	2NU2
3006.93	0.0024	0.0842	5	1	4	6	2	5	552.92	3.129447	2NU2**
3006.95	0.0052	0.0944	3	1	3	3	2	2	1813.81	1.297651	2NU2***
3007.07	0.0014	0.0547	6	4	2	7	7	1	1394.86	0.0133	NU1+
3007.24	0.0012	0.0680	3	3	1	4	4	0	488.13	3.390390	2NU2**
3007.42	0.0036	0.0683	3	3	0	4	4	1	488.10	3.393148	2NU2**
3007.64	0.0013	0.0647	6	0	6	7	1	7	586.48	5.990506	2NU2**
3009.57	0.0039	0.0671	6	1	6	7	0	7	586.26	5.983681	2NU2**
3009.66	0.7180	0.0530	8	1	8	8	2	7	885.62	1.833129	2NU2
3010.23	11.2452	0.0851	3	2	1	4	3	2	382.52	2.320352	2NU2
3011.18	0.0067	0.0901	4	1	3	5	2	4	416.22	2.444582	2NU2*
3011.22	0.6505	0.0759	7	2	6	8	1	7	882.93	4.913532	2NU2
3011.86	0.0023	0.0833	5	2	4	5	3	3	2126.41	2.492169	2NU2***
3011.91	0.2436	0.0548	8	0	8	8	1	7	882.93	1.839778	2NU2
3012.24	0.1679	0.0388	6	6	1	7	7	0	1394.86	5.44	NU2-
3012.35	3.2325	0.0680	3	3	1	4	4	0	488.13	3.390390	2NU2
3012.49	0.0659	0.0388	6	6	0	7	7	1	1394.86	6.401518	2NU2
3012.52	6.4740	0.0842	5	1	4	6	2	5	552.92	3.129447	2NU2
3012.52	9.7070	0.0683	3	3	0	4	4	1	488.10	3.393148	2NU2
3013.19	0.0359	0.0621	6	3	3	7	7	0	1394.86	0.010200	NU3+
3013.47	0.0340	0.1037	1	0	1	2	1	2	1677.08	1.500000	2NU2***
3013.58	3.4942	0.0647	6	0	6	7	1	7	586.48	5.990506	2NU2
3014.14	0.0211	0.0950	2	1	2	3	2	1	212.15	0.925282	2NU2*
3015.56	10.4892	0.0671	6	1	6	7	0	7	586.26	5.983681	2NU2
3016.22	0.0058	0.0942	4	0	4	4	1	3	1875.49	2.047924	2NU2***
3016.51	0.0092	0.0845	4	2	3	4	3	2	2004.81	1.848533	2NU2***
3016.71	0.0144	0.0955	2	1	2	2	2	1	1742.28	0.833333	2NU2***
3016.76	0.0012	0.0901	4	1	3	5	2	4	416.22	2.444582	2NU2**
3017.08	0.0027	0.0802	7	1	6	7	2	5	2392.58	3.983004	2NU2***
3017.91	0.0012	0.0634	7	1	7	7	2	6	709.60	1.816721	2NU2*
3019.35	0.0028	0.0833	3	2	2	3	3	1	1907.47	1.035682	2NU2***
3019.49	0.0074	0.0848	6	2	5	7	1	6	704.22	3.799063	2NU2*
3019.84	0.0352	0.0771	5	0	5	6	1	6	447.24	4.979001	2NU2*
3019.89	0.0375	0.0841	2	2	1	3	3	0	285.43	2.366160	2NU2*
3019.96	0.0039	0.0950	2	1	2	3	2	1	212.15	0.925282	2NU2**
3020.42	0.0075	0.0947	4	2	3	5	1	4	2000.90	1.638916	2NU2***
3020.57	0.0084	0.0425	11	2	10	11	3	9	1695.03	3.632655	2NU2
3021.18	0.0127	0.0830	2	2	0	3	3	1	285.23	2.394805	2NU2*
3021.94	0.0036	0.0656	7	0	7	7	1	6	704.22	1.838288	2NU2*
3022.35	3.3500	0.0901	4	1	3	5	2	4	416.22	2.444582	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3022.67	0.2861	0.0834	8	3	6	9	2	7	1201.95	3.529968	2NU2
3023.03	0.0290	0.0930	3	1	2	4	2	3	300.35	1.970843	2NU2*
3023.64	0.0089	0.0835	3	2	1	3	3	0	1907.63	1.092505	2NU2***
3023.70	0.0252	0.0445	11	1	10	11	2	9	1690.70	3.646421	2NU2
3023.71	0.0117	0.0806	5	1	5	6	0	6	446.71	4.958549	2NU2*
3025.30	0.0069	0.0841	2	2	1	3	3	0	285.43	2.366160	2NU2**
3025.78	10.5645	0.0950	2	1	2	3	2	1	212.15	0.925282	2NU2
3026.57	0.0023	0.0830	2	2	0	3	3	1	285.23	2.394805	2NU2**
3026.77	0.0018	0.0653	8	1	8	9	4	5	1360.28	0.004551	NU1
3027.10	0.0297	0.0994	2	1	2	3	0	3	1731.89	1.741385	2NU2***
3027.14	0.0126	0.0811	10	4	7	11	3	8	1813.26	3.178818	2NU2
3027.72	0.0036	0.0862	4	2	2	4	3	1	2005.92	2.167225	2NU2***
3028.55	0.0019	0.0447	11	1	10	12	4	9	2124.98	0.265959	NU1
3028.66	0.0054	0.0930	3	1	2	4	2	3	300.35	1.970843	2NU2**
3028.71	0.0023	0.0877	6	1	5	6	2	4	2211.21	4.225862	2NU2***
3029.75	0.0022	0.0806	5	1	5	6	0	6	446.71	4.958549	2NU2**
3029.87	0.5756	0.0634	7	1	7	7	2	6	709.60	1.816721	2NU2
3030.72	18.7586	0.0841	2	2	1	3	3	0	285.43	2.366160	2NU2
3031.27	0.0022	0.0739	6	3	4	6	4	3	2398.39	2.878858	2NU2***
3031.74	17.5826	0.0771	5	0	5	6	1	6	447.24	4.979001	2NU2
3031.75	0.0113	0.0996	0	0	0	1	1	1	1634.97	1.000000	2NU2***
3031.93	3.7126	0.0848	6	2	5	7	1	6	704.22	3.799063	2NU2
3031.96	6.3375	0.0830	2	2	0	3	3	1	285.23	2.394805	2NU2
3032.42	0.0312	0.0975	3	0	3	3	1	2	1772.41	2.185861	2NU2***
3032.88	0.0011	0.0737	5	3	3	5	4	2	2251.71	2.024051	2NU2***
3032.98	0.0032	0.0699	4	3	2	4	4	1	2129.63	1.082946	2NU2***
3033.49	0.0092	0.0884	5	2	3	5	3	2	2130.50	3.442901	2NU2***
3033.63	0.0011	0.0705	4	3	1	4	4	0	2129.65	1.088294	2NU2***
3033.76	0.0072	0.0957	2	1	1	2	2	0	1743.47	1.258755	2NU2***
3034.29	14.5185	0.0930	3	1	2	4	2	3	300.35	1.970843	2NU2
3034.37	1.7979	0.0656	7	0	7	7	1	6	704.22	1.838288	2NU2
3034.64	0.0033	0.0759	5	3	2	5	4	1	2251.86	2.066632	2NU2***
3035.14	0.0028	0.0340	8	8	1	9	9	0	2225.56	8.403719	2NU2
3035.79	5.8599	0.0806	5	1	5	6	0	6	446.71	4.958549	2NU2
3036.02	0.0154	0.0912	5	1	4	5	2	3	2053.98	4.214107	2NU2***
3036.71	0.0172	0.0880	4	0	4	5	1	5	326.64	3.972803	2NU2*
3036.94	0.0075	0.0743	6	1	6	6	2	5	552.92	1.783035	2NU2*
3037.08	0.0010	0.0927	6	3	4	7	2	5	2392.58	1.512999	2NU2***
3037.12	0.0859	0.0486	10	2	9	10	3	8	1446.16	3.605841	2NU2
3037.54	0.0299	0.0937	3	1	2	3	2	1	1819.34	2.538253	2NU2***
3037.63	0.0132	0.0959	2	1	1	3	2	2	206.30	1.666667	2NU2*
3038.73	0.0085	0.0934	4	1	3	4	2	2	1922.92	3.642913	2NU2***
3039.07	0.0020	0.0893	6	2	4	6	3	3	2282.59	4.829435	2NU2***
3041.25	0.0014	0.0832	7	3	4	7	4	3	2572.13	4.268667	2NU2***
3041.30	0.0015	0.0532	11	2	9	12	5	8	2275.44	0.426841	NU1
3042.33	0.0030	0.0886	7	2	5	7	3	4	2462.87	5.918411	2NU2***
3042.67	0.0032	0.0880	4	0	4	5	1	5	326.64	3.972803	2NU2**
3042.70	0.0302	0.0520	10	1	9	10	2	8	1438.00	3.646815	2NU2
3042.75	0.0039	0.0920	5	2	4	6	1	5	542.91	2.671788	2NU2*
3042.92	0.0014	0.0743	6	1	6	6	2	5	552.92	1.783035	2NU2**
3043.20	0.0020	0.0678	9	3	6	10	6	5	1875.00	0.071662	NU1
3043.31	0.0024	0.0959	2	1	1	3	2	2	206.30	1.666667	2NU2**
3043.50	0.0146	0.1021	2	0	2	2	1	1	1693.65	2.074578	2NU2***
3044.14	0.0512	0.0914	4	1	4	5	0	5	325.35	3.911752	2NU2*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3044.53	0.0027	0.0777	6	0	6	6	1	5	542.91	1.852055	2NU2*
3046.20	0.0011	0.0623	7	3	5	8	6	2	1411.68	0.010619	NU1
3047.80	0.0010	0.0488	11	2	10	12	3	9	2105.90	0.278800	NU1
3048.41	0.0140	0.0947	1	1	1	2	2	0	136.17	1.244747	2NU2*
3048.64	8.5945	0.0880	4	0	4	5	1	5	326.64	3.972803	2NU2
3048.90	3.7332	0.0743	6	1	6	6	2	5	552.92	1.783035	2NU2
3048.99	6.5817	0.0959	2	1	1	3	2	2	206.30	1.666667	2NU2
3050.04	0.0413	0.1075	1	0	1	1	1	0	1640.51	1.500000	2NU2***
3050.26	0.0095	0.0914	4	1	4	5	0	5	325.35	3.911752	2NU2**
3050.67	0.1971	0.0898	7	3	5	8	2	6	982.91	2.422109	2NU2
3051.33	0.0024	0.0951	3	2	2	4	1	3	1875.49	0.835095	2NU2***
3051.90	0.0899	0.0563	9	2	8	9	3	7	1216.27	3.554957	2NU2
3052.47	0.0652	0.0952	3	0	3	4	1	4	224.83	3.004990	2NU2*
3052.50	0.0069	0.1044	1	1	1	2	0	2	1664.97	0.755253	2NU2***
3053.80	0.0015	0.0646	8	2	7	8	3	6	1006.12	3.456295	2NU2*
3054.17	0.0026	0.0947	1	1	1	2	2	0	136.17	1.244747	2NU2**
3054.43	0.0048	0.0839	5	1	5	5	2	4	416.22	1.711792	2NU2*
3055.34	0.0024	0.0421	10	0	10	11	3	9	1695.03	0.097311	NU1
3055.57	0.0511	0.0993	1	1	0	2	2	1	134.91	1.500000	2NU2*
3055.60	1.9646	0.0920	5	2	4	6	1	5	542.91	2.671788	2NU2
3056.38	25.6158	0.0914	4	1	4	5	0	5	325.35	3.911752	2NU2
3057.15	1.3625	0.0777	6	0	6	6	1	5	542.91	1.852055	2NU2
3058.01	0.0011	0.0694	8	3	5	9	6	4	1631.27	0.032042	NU1
3058.43	0.0121	0.0952	3	0	3	4	1	4	224.83	3.004990	2NU2**
3058.45	0.0012	0.0622	10	1	10	9	2	7	1201.95	0.015027	2NU2
3059.27	0.0019	0.0459	13	2	11	13	3	10	2414.73	5.73353	2NU2
3059.68	0.0074	0.0440	10	1	10	11	2	9	1690.70	0.097873	NU1
3059.93	7.0055	0.0947	1	1	1	2	2	0	136.17	1.244747	2NU2
3061.16	0.3016	0.0613	9	1	8	9	2	7	1201.95	3.674255	2NU2
3061.29	0.0095	0.0993	1	1	0	2	2	1	134.91	1.500000	2NU2**
3062.61	0.0035	0.0562	9	0	9	8	3	6	1006.12	0.015979	2NU2
3062.77	0.0111	0.0863	9	4	6	10	3	7	1538.23	2.171641	2NU2
3064.40	32.6126	0.0952	3	0	3	4	1	4	224.83	3.004990	2NU2
3065.53	0.0209	0.0974	3	1	3	4	0	4	222.06	2.831638	2NU2*
3065.59	0.7553	0.0646	8	2	7	8	3	6	1006.12	3.456295	2NU2
3065.85	0.0012	0.0722	7	2	6	7	3	5	816.72	3.273499	2NU2*
3066.02	0.0036	0.0467	12	3	10	12	4	9	2124.98	5.350112	2NU2
3066.28	2.3799	0.0839	5	1	5	5	2	4	416.22	1.711792	2NU2
3067.01	25.5426	0.0993	1	1	0	2	2	1	134.91	1.500000	2NU2
3067.72	0.0237	0.1006	2	0	2	3	1	3	142.28	2.156792	2NU2*
3068.43	0.0020	0.0927	6	3	4	7	2	5	782.40	1.512999	2NU2*
3069.44	0.0149	0.0947	4	2	3	5	1	4	399.46	1.638916	2NU2*
3069.62	0.0234	0.0907	4	1	4	4	2	3	300.35	1.567300	2NU2*
3071.73	0.0039	0.0974	3	1	3	4	0	4	222.06	2.831638	2NU2**
3072.20	0.0107	0.0356	7	7	1	8	8	0	1789.10	7.402783	2NU2
3072.20	0.0322	0.0356	7	7	0	8	8	1	1789.10	7.402783	2NU2
3073.18	0.0032	0.0871	5	0	5	5	1	4	399.46	1.912338	2NU2**
3073.43	0.0042	0.0691	7	3	4	8	6	3	1411.65	0.013422	NU1
3073.70	0.0044	0.1006	2	0	2	3	1	3	142.28	2.156792	2NU2**
3075.50	0.0043	0.0907	4	1	4	4	2	3	300.35	1.567300	2NU2**
3075.84	0.0078	0.0783	6	2	5	6	3	4	648.97	2.963539	2NU2*
3076.02	0.0028	0.0947	4	2	3	5	1	4	399.46	1.638916	2NU2**
3076.10	0.0018	0.0519	12	2	10	12	3	9	2105.90	5.509361	2NU2
3076.70	0.0038	0.0617	6	3	4	7	6	1	1216.20	0.004557	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3076.98	0.0059	0.0528	11	3	9	11	4	8	1843.02	5.243402	2NU2
3077.34	0.0058	0.0753	5	1	4	4	4	1	488.10	0.001994	2NU2
3077.43	0.6168	0.0722	7	2	6	7	3	5	816.72	3.273499	2NU2
3077.93	10.4331	0.0974	3	1	3	4	0	4	222.06	2.831638	2NU2
3078.90	0.0014	0.0711	7	2	5	6	5	2	888.60	0.003511	2NU2
3079.52	8.7109	0.0871	5	0	5	5	1	4	399.46	1.912338	2NU2
3079.69	11.8510	0.1006	2	0	2	3	1	3	142.28	2.156792	2NU2
3079.95	0.3099	0.0706	8	1	7	8	2	6	982.91	3.773034	2NU2
3081.38	11.7249	0.0907	4	1	4	4	2	3	300.35	1.567300	2NU2
3082.03	0.0104	0.0944	3	1	3	3	2	2	206.30	1.297651	2NU2*
3082.55	1.0167	0.0927	6	3	4	7	2	5	782.40	1.512999	2NU2
3082.60	7.4729	0.0947	4	2	3	5	1	4	399.46	1.638916	2NU2
3083.17	0.0022	0.0595	10	2	8	11	5	7	1985.83	0.365425	NU1
3083.33	0.0045	0.0833	5	2	4	5	3	3	504.00	2.492169	2NU2*
3083.88	0.0054	0.0802	7	1	6	7	2	5	782.40	3.983004	2NU2*
3083.90	0.0680	0.1037	1	0	1	2	1	2	79.48	1.500000	2NU2*
3085.32	0.0020	0.0445	9	6	4	10	8	3	2254.34	0.051950	NU3
3086.07	0.0015	0.0710	9	1	9	8	2	6	982.91	0.018354	2NU2
3086.30	0.0029	0.0438	12	1	11	13	3	10	2414.73	0.074330	NU3
3086.66	0.0629	0.0590	10	3	8	10	4	7	1581.34	5.051335	2NU2
3087.15	0.0116	0.0942	4	0	4	4	1	3	275.52	2.047924	2NU2*
3087.18	3.8873	0.0783	6	2	5	6	3	4	648.97	2.963539	2NU2
3087.86	0.0019	0.0944	3	1	3	3	2	2	206.30	1.297651	2NU2**
3088.51	0.0184	0.0845	4	2	3	4	3	2	382.52	1.848533	2NU2*
3088.57	0.0594	0.0994	2	1	2	3	0	3	136.77	1.741385	2NU2*
3089.04	0.0011	0.0794	8	5	4	9	4	5	2998.78	7.39	NU1***
3089.62	0.0236	0.0684	7	0	7	6	3	4	648.97	0.017960	2NU2
3089.92	0.0126	0.1037	1	0	1	2	1	2	79.48	1.500000	2NU2**
3090.05	0.0112	0.0845	4	0	4	3	3	1	285.23	0.004153	2NU2
3091.03	0.0011	0.0705	8	3	6	8	4	5	1122.72	4.264036	2NU2*
3091.43	0.0287	0.0955	2	1	2	2	2	1	134.91	0.833333	2NU2*
3091.51	0.0056	0.0833	3	2	2	3	3	1	285.23	1.035682	2NU2*
3091.98	0.0014	0.0663	6	3	3	7	6	2	1216.20	0.004975	NU1
3092.30	0.0014	0.0597	9	1	8	10	5	5	1724.72	0.005774	NU3
3092.74	0.0228	0.0614	11	2	9	11	3	8	1813.26	5.642326	2NU2
3093.45	0.0022	0.0942	4	0	4	4	1	3	275.52	2.047924	2NU2**
3093.69	5.1996	0.0944	3	1	3	3	2	2	206.30	1.297651	2NU2
3094.02	0.0034	0.0845	4	2	3	4	3	2	382.52	1.848533	2NU2**
3094.51	2.2546	0.0833	5	2	4	5	3	3	504.00	2.492169	2NU2
3094.86	0.0110	0.0994	2	1	2	3	0	3	136.77	1.741385	2NU2**
3095.41	0.0655	0.0651	9	3	7	9	4	6	1340.89	4.734521	2NU2
3095.94	34.0199	0.1037	1	0	1	2	1	2	79.48	1.500000	2NU2
3096.46	0.0551	0.0816	5	0	5	4	3	2	382.52	0.011053	2NU2
3096.54	0.0178	0.0835	3	2	1	3	3	0	285.43	1.092505	2NU2*
3096.90	2.6891	0.0802	7	1	6	7	2	5	782.40	3.983004	2NU2
3096.95	0.0041	0.0656	7	2	6	8	5	3	1255.92	0.018297	NU1
3097.22	0.0053	0.0955	2	1	2	2	2	1	134.91	0.833333	2NU2**
3097.65	0.0047	0.0877	6	1	5	6	2	4	602.77	4.225862	2NU2*
3097.76	0.0044	0.0739	6	3	4	6	4	3	756.75	2.878858	2NU2*
3098.81	0.0048	0.0951	3	2	2	4	1	3	275.52	0.835095	2NU2*
3098.85	0.0785	0.0887	8	4	5	9	3	6	1282.92	1.416234	2NU2
3099.01	0.0022	0.0737	5	3	3	5	4	2	610.12	2.024051	2NU2*
3099.54	9.2244	0.0845	4	2	3	4	3	2	382.52	1.848533	2NU2
3099.76	5.8166	0.0942	4	0	4	4	1	3	275.52	2.047924	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3100.33	0.0021	0.0705	4	3	1	4	4	0	488.13	1.088294	2NU2*
3100.64	0.0029	0.0694	7	1	7	8	4	4	1131.76	0.006860	NU1
3101.16	29.7089	0.0994	2	1	2	3	0	3	136.77	1.741385	2NU2
3101.81	0.0020	0.0389	11	0	11	12	2	10	1960.22	0.025215	NU3
3101.90	0.5262	0.0705	8	3	6	8	4	5	1122.72	4.264036	2NU2
3101.93	0.0033	0.0835	3	2	1	3	3	0	285.43	1.092505	2NU2**
3102.18	0.0073	0.1032	2	0	2	1	1	1	1634.97	0.755253	2NU2***
3102.30	0.0066	0.0759	5	3	2	5	4	1	610.35	2.066632	2NU2*
3102.36	0.0226	0.0996	0	0	0	1	1	1	37.13	1.000000	2NU2*
3102.45	2.8045	0.0833	3	2	2	3	3	1	285.23	1.035682	2NU2
3103.02	14.3570	0.0955	2	1	2	2	2	1	134.91	0.833333	2NU2
3103.37	0.0307	0.0701	10	2	8	10	3	7	1538.23	5.910419	2NU2
3103.44	0.0624	0.0975	3	0	3	3	1	2	173.36	2.185861	2NU2*
3104.58	0.0012	0.0699	4	3	2	4	4	1	488.10	1.082946	2NU2**
3104.94	0.0461	0.1111	1	1	0	1	0	1	1618.55	1.500000	2NU2***
3105.81	0.3969	0.0732	7	3	5	7	4	4	927.77	3.637027	2NU2
3106.02	0.0016	0.0801	6	3	3	6	4	2	757.78	3.075987	2NU2*
3106.72	0.0013	0.0862	4	2	2	4	3	1	383.85	2.167225	2NU2**
3106.73	0.0307	0.0912	5	1	4	5	2	3	446.50	4.214107	2NU2*
3107.32	8.8801	0.0835	3	2	1	3	3	0	285.43	1.092505	2NU2
3107.35	0.0184	0.0884	5	2	3	5	3	2	508.81	3.442901	2NU2*
3107.60	0.0144	0.0957	2	1	1	2	2	0	136.17	1.258755	2NU2*
3108.20	2.2180	0.0739	6	3	4	6	4	3	756.75	2.878858	2NU2
3108.42	0.0042	0.0996	0	0	0	1	1	1	37.13	1.000000	2NU2**
3108.63	0.0016	0.0909	4	3	2	5	2	3	2053.98	0.436045	2NU2***
3108.89	0.0025	0.0627	5	3	2	6	6	1	1045.07	0.001286	NU1
3109.35	1.0823	0.0737	5	3	3	5	4	2	610.12	2.024051	2NU2
3109.65	0.0115	0.0975	3	0	3	3	1	2	173.36	2.185861	2NU2**
3109.74	3.1980	0.0699	4	3	2	4	4	1	488.10	1.082946	2NU2
3110.29	2.3448	0.0877	6	1	5	6	2	4	602.77	4.225862	2NU2
3110.57	1.0714	0.0705	4	3	1	4	4	0	488.13	1.088294	2NU2
3110.87	0.0598	0.0937	3	1	2	3	2	1	212.15	2.538253	2NU2*
3110.93	0.0170	0.0934	4	1	3	4	2	2	315.79	3.642913	2NU2*
3111.99	0.0040	0.0893	6	2	4	6	3	3	661.56	4.829435	2NU2*
3112.08	3.5955	0.0862	4	2	2	4	3	1	383.85	2.167225	2NU2
3112.16	2.3813	0.0951	3	2	2	4	1	3	275.52	0.835095	2NU2
3112.26	0.0194	0.1044	2	1	1	2	0	2	1664.97	2.074578	2NU2***
3112.40	3.3142	0.0759	5	3	2	5	4	1	610.35	2.066632	2NU2
3112.67	0.0050	0.0425	8	6	2	9	8	1	2009.87	0.032025	NU3
3112.73	0.0034	0.0884	5	2	3	5	3	2	508.81	3.442901	2NU2**
3112.83	0.0057	0.0912	5	1	4	5	2	3	446.50	4.214107	2NU2**
3112.88	0.0165	0.0801	8	1	8	7	2	5	782.40	0.024347	2NU2
3113.03	0.0014	0.0504	10	5	6	11	7	5	2321.89	0.107152	NU3
3113.12	0.0139	0.0567	10	2	9	11	3	8	1813.26	0.316624	NU1
3113.29	0.0139	0.1044	1	1	1	2	0	2	70.08	0.755253	2NU2*
3113.36	0.0027	0.0957	2	1	1	2	2	0	136.17	1.258755	2NU2**
3113.49	0.0060	0.0886	7	2	5	7	3	4	842.38	5.918411	2NU2*
3113.57	0.0280	0.0482	9	0	9	10	3	8	1446.16	0.106449	NU1
3113.69	0.0011	0.0825	4	2	3	3	3	0	1907.63	0.131472	2NU2***
3114.47	11.3161	0.0996	0	0	0	1	1	1	37.13	1.000000	2NU2
3114.53	0.0293	0.1021	2	0	2	2	1	1	95.17	2.074578	2NU2*
3115.25	0.0018	0.0613	11	3	9	12	4	8	2205.65	0.720922	NU1
3115.87	31.2022	0.0975	3	0	3	3	1	2	173.36	2.185861	2NU2
3115.94	0.7877	0.0801	6	3	3	6	4	2	757.78	3.075987	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{am\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3116.39	0.3480	0.0783	9	2	7	9	3	6	1282.92	6.247031	2NU2
3116.68	0.0111	0.0937	3	1	2	3	2	1	212.15	2.538253	2NU2**
3116.70	0.4801	0.0925	5	3	3	6	2	4	602.77	0.863547	2NU2
3116.85	0.0032	0.0934	4	1	3	4	2	2	315.79	3.642913	2NU2**
3117.10	0.0018	0.0578	5	4	1	5	5	0	742.10	1.101100	2NU2*
3117.12	0.0017	0.0620	6	4	3	6	5	2	888.60	2.085226	2NU2*
3118.12	9.1917	0.0884	5	2	3	5	3	2	508.81	3.442901	2NU2
3118.93	0.0186	0.0659	9	2	7	10	5	6	1718.77	0.266747	NU1
3118.94	15.3668	0.0912	5	1	4	5	2	3	446.50	4.214107	2NU2
3119.12	7.2213	0.0957	2	1	1	2	2	0	136.17	1.258755	2NU2
3119.65	0.0026	0.1044	1	1	1	2	0	2	70.08	0.755253	2NU2**
3120.18	0.0043	0.0569	10	5	5	11	7	4	2321.94	0.108914	NU3
3120.66	0.0054	0.1021	2	0	2	2	1	1	95.17	2.074578	2NU2**
3120.86	0.0826	0.1075	1	0	1	1	1	0	42.37	1.500000	2NU2*
3121.63	0.0354	0.0613	10	4	7	10	5	6	1718.77	5.482102	2NU2
3121.66	1.3799	0.0832	7	3	4	7	4	3	931.22	4.268667	2NU2
3121.76	0.0099	0.0511	9	1	9	10	2	8	1438.00	0.108277	NU1
3122.49	29.9070	0.0937	3	1	2	3	2	1	212.15	2.538253	2NU2
3122.78	8.5222	0.0934	4	1	3	4	2	2	315.79	3.642913	2NU2
3123.07	2.0057	0.0893	6	2	4	6	3	3	661.56	4.829435	2NU2
3123.13	0.3787	0.0840	8	2	6	8	3	5	1050.15	6.368783	2NU2
3124.99	0.0385	0.0994	3	1	2	3	0	3	1731.89	2.185861	2NU2***
3125.12	2.9878	0.0886	7	2	5	7	3	4	842.38	5.918411	2NU2
3126.01	0.0339	0.0639	9	4	6	9	5	5	1474.99	4.736397	2NU2
3126.02	6.9402	0.1044	1	1	1	2	0	2	70.08	0.755253	2NU2
3126.61	0.2500	0.0650	8	4	5	8	5	4	1255.16	3.901175	2NU2
3126.78	0.3058	0.0574	5	4	2	5	5	1	742.10	1.100600	2NU2
3126.80	14.6442	0.1021	2	0	2	2	1	1	95.17	2.074578	2NU2
3126.81	0.1711	0.0645	7	4	4	7	5	3	1059.65	3.012848	2NU2
3126.85	0.9180	0.0578	5	4	1	5	5	0	742.10	1.101100	2NU2
3126.86	0.8358	0.0620	6	4	3	6	5	2	888.60	2.085226	2NU2
3126.95	0.0153	0.1075	1	0	1	1	1	0	42.37	1.500000	2NU2**
3127.37	0.2793	0.0637	6	4	2	6	5	1	888.63	2.089996	2NU2
3127.75	0.0409	0.0994	3	0	3	2	1	2	1677.08	1.741385	2NU2***
3127.89	0.0054	0.0654	8	0	8	9	4	5	1360.28	0.001245	NU3
3128.49	0.5182	0.0680	7	4	3	7	5	2	1059.85	3.039271	2NU2
3128.71	0.2265	0.0844	8	3	5	8	4	4	1131.76	5.709388	2NU2
3129.36	0.0087	0.0949	2	2	1	3	1	2	173.36	0.300506	2NU2*
3129.63	0.0066	0.0546	11	4	8	12	6	7	2433.85	0.169033	NU3
3129.94	0.0037	0.0812	10	5	6	11	4	7	1899.06	1.370216	2NU2
3130.41	0.0747	0.0715	8	4	4	8	5	3	1255.92	3.41	NU2-
3130.41	0.0061	0.0446	11	2	10	12	4	9	2124.98	0.077267	NU3
3131.33	0.1309	0.0554	8	0	8	8	5	3	1255.92	0.580	NU1+
3131.94	0.0232	0.0755	11	3	8	11	4	7	1899.06	8.484859	2NU2
3132.49	0.0289	0.0806	10	3	7	10	4	6	1616.51	8.179783	2NU2
3133.05	41.3221	0.1075	1	0	1	1	1	0	42.37	1.500000	2NU2
3134.32	0.2717	0.0835	9	3	6	9	4	5	1360.28	7.165263	2NU2
3134.54	0.0017	0.0681	6	2	4	7	6	1	1216.20	0.000189	NU3
3134.55	0.1083	0.0740	9	4	5	9	5	4	1477.31	5.113359	2NU2
3134.69	0.0388	0.0567	9	1	8	10	4	7	1581.34	0.284777	NU1
3135.09	0.0041	0.0659	8	1	7	7	4	4	927.77	0.037317	2NU2
3135.28	0.0133	0.0755	10	4	6	10	5	5	1724.72	6.465380	2NU2
3136.07	0.0016	0.0949	2	2	1	3	1	2	173.36	0.300506	2NU2**
3136.31	0.0537	0.0894	7	4	4	8	3	5	1050.15	0.898681	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3136.70	0.0200	0.0861	7	1	7	6	2	4	602.77	0.035782	2NU2
3137.00	0.0032	0.0909	4	3	2	5	2	3	446.50	0.436045	2NU2*
3139.10	0.0092	0.0524	9	5	5	10	7	4	2054.40	0.078635	NU3
3139.53	0.0218	0.0687	6	2	5	7	5	2	1059.85	0.011802	NU1
3139.95	0.0025	0.0398	7	6	1	8	8	0	1789.10	0.014826	NU3
3139.95	0.0076	0.0398	7	6	2	8	8	1	1789.10	0.014826	NU3
3140.39	0.0057	0.0601	9	1	8	8	4	5	1122.72	0.045574	2NU2
3140.44	0.0467	0.1054	2	1	2	1	0	1	1618.55	1.500000	2NU2***
3142.21	0.0031	0.0548	9	5	4	10	7	3	2054.40	0.079027	NU3
3142.79	4.3267	0.0949	2	2	1	3	1	2	173.36	0.300506	2NU2
3144.15	0.0020	0.0662	9	2	7	8	5	4	1255.16	0.030877	2NU2
3144.15	0.0079	0.0974	4	1	3	4	0	4	1817.50	2.047924	2NU2***
3145.83	0.0056	0.0513	11	3	9	12	5	8	2275.44	0.143644	NU3
3146.97	0.0137	0.0634	8	1	7	9	5	4	1477.31	0.005631	NU3
3147.84	0.0035	0.0947	4	1	3	3	2	2	1813.81	0.835095	2NU2***
3147.92	0.0122	0.0704	8	2	6	9	5	5	1474.99	0.157672	NU1
3149.35	0.0031	0.0489	11	1	10	12	3	9	2105.90	0.080345	NU3
3151.34	1.6066	0.0909	4	3	2	5	2	3	446.50	0.436045	2NU2
3152.00	0.0012	0.0960	3	1	3	2	2	0	136.17	0.101693	2NU2*
3152.20	0.0163	0.0961	4	0	4	3	1	3	1739.51	2.831638	2NU2***
3152.26	0.2055	0.0477	6	5	2	6	6	1	1045.07	1.111607	2NU2
3152.32	0.0556	0.0518	7	5	3	7	6	2	1216.20	2.119434	2NU2
3152.37	0.0685	0.0478	6	5	1	6	6	0	1045.07	1.111654	2NU2
3152.42	0.1668	0.0521	7	5	2	7	6	1	1216.20	2.119964	2NU2
3153.45	0.0909	0.0545	8	5	4	8	6	3	1411.65	3.073714	2NU2
3154.00	0.0135	0.0554	10	5	6	10	6	5	1875.00	4.913223	2NU2
3154.32	0.0303	0.0556	8	5	3	8	6	2	1411.68	3.077042	2NU2
3154.73	0.0133	0.0558	9	5	5	9	6	4	1631.27	4.001691	2NU2
3155.04	0.0028	0.0914	3	2	1	4	1	4	224.83	0.123609	2NU2*
3155.32	0.2107	0.0902	6	1	6	5	2	3	446.50	0.057105	2NU2
3155.59	0.0401	0.0583	9	5	4	9	6	3	1631.41	4.017231	2NU2
3155.79	0.0205	0.1026	3	1	3	2	0	2	1664.97	2.156792	2NU2***
3156.47	0.0046	0.0608	10	5	5	10	6	4	1875.53	4.974368	2NU2
3156.63	0.0014	0.0814	5	3	2	6	2	5	552.92	0.312103	2NU2*
3157.41	0.0010	0.0829	3	3	0	4	2	3	1907.99	0.131472	2NU2***
3157.46	0.0030	0.0948	4	1	4	3	2	1	212.15	0.123609	2NU2*
3157.71	0.0076	0.0421	10	1	10	11	3	9	1695.03	0.027489	NU3
3158.15	0.0107	0.0951	4	2	2	4	1	3	1875.49	3.642913	2NU2***
3158.86	0.0374	0.0949	3	2	1	3	1	2	1772.41	2.538253	2NU2***
3159.18	0.0023	0.0886	5	2	3	4	3	2	2004.81	0.436045	2NU2***
3161.73	0.0012	0.0941	2	2	0	3	1	3	142.28	0.101693	2NU2*
3161.98	0.0038	0.0574	10	4	7	11	6	6	2142.69	0.142262	NU3
3162.04	0.0229	0.0440	10	0	10	11	2	9	1690.70	0.027627	NU3
3162.47	0.0092	0.0979	2	2	0	2	1	1	1693.65	1.258755	2NU2***
3163.09	0.0201	0.0947	5	2	3	5	1	4	2000.90	4.214107	2NU2***
3163.82	0.5918	0.0960	3	1	3	2	2	0	136.17	0.101693	2NU2
3163.97	0.0052	0.0569	11	5	7	12	6	6	2437.56	4.215931	NU1
3164.12	0.0897	0.0780	6	3	3	7	2	6	709.60	0.271048	2NU2
3164.61	0.0292	0.0736	6	1	6	7	4	3	931.22	0.008274	NU1
3164.80	0.0026	0.0653	11	4	8	12	5	7	2300.80	2.124861	NU1
3165.32	0.0923	0.1111	1	1	0	1	0	1	23.79	1.500000	2NU2*
3165.38	0.0085	0.0512	8	5	4	9	7	3	1810.63	0.053898	NU3
3165.70	0.0102	0.0689	9	4	5	10	3	8	1446.16	0.409296	2NU2
3166.41	0.0257	0.0523	8	5	3	9	7	2	1810.63	0.053971	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3166.71	0.2166	0.0929	5	1	5	4	2	2	315.79	0.091324	2NU2
3167.26	0.0795	0.0737	7	3	4	8	2	7	885.62	0.192937	2NU2
3167.92	1.3868	0.0914	3	2	1	4	1	4	224.83	0.123609	2NU2
3169.24	0.0133	0.0914	5	1	4	5	0	5	1920.76	1.912338	2NU2***
3169.29	0.2054	0.0872	4	2	2	5	1	5	326.64	0.091324	2NU2
3169.49	0.0034	0.0813	9	5	5	10	4	6	1616.51	0.959644	2NU2
3169.58	1.4784	0.0948	4	1	4	3	2	1	212.15	0.123609	2NU2
3169.83	0.6794	0.0814	5	3	2	6	2	5	552.92	0.312103	2NU2
3170.06	0.0162	0.0720	8	4	4	9	3	7	1216.27	0.616	NU2+
3170.23	0.0536	0.0976	4	1	4	3	0	3	1731.89	3.004990	2NU2***
3170.92	0.0520	0.0740	7	2	5	8	5	4	1255.16	0.074366	NU1
3170.98	0.0283	0.0559	8	0	8	9	3	7	1216.27	0.10	NU1-
3171.72	0.0171	0.1111	1	1	0	1	0	1	23.79	1.500000	2NU2**
3172.48	0.0388	0.1044	2	1	1	2	0	2	70.08	2.074578	2NU2*
3172.57	0.0145	0.1032	2	0	2	1	1	1	37.13	0.755253	2NU2*
3173.08	0.2821	0.0876	6	4	3	7	3	4	842.38	0.550367	2NU2
3174.63	0.0451	0.0880	5	0	5	4	1	4	1821.61	3.911752	2NU2***
3174.91	0.5760	0.0941	2	2	0	3	1	3	142.28	0.101693	2NU2
3175.05	0.0219	0.0481	10	6	5	11	7	4	2321.94	5.877228	NU1
3175.24	0.0073	0.0470	10	6	4	11	7	5	2321.89	5.881509	NU1
3175.38	0.0033	0.0920	6	2	4	6	1	5	2146.28	4.225862	2NU2***
3175.56	0.0089	0.0403	9	7	3	10	8	2	2254.34	7.138077	NU1
3175.56	0.0266	0.0403	9	7	2	10	8	3	2254.34	7.138103	NU1
3176.22	0.0082	0.0700	5	2	4	6	5	1	888.63	0.005627	NU1
3177.08	0.0285	0.0675	10	3	8	11	4	7	1899.06	0.954846	NU1
3178.13	46.1336	0.1111	1	1	0	1	0	1	23.79	1.500000	2NU2
3178.70	0.0027	0.1032	2	0	2	1	1	1	37.13	0.755253	2NU2**
3178.84	0.0218	0.0641	9	2	8	10	3	7	1538.23	0.380414	NU1
3178.84	0.0072	0.1044	2	1	1	2	0	2	70.08	2.074578	2NU2**
3179.69	0.2115	0.0812	5	2	3	6	1	6	447.24	0.057105	2NU2
3179.95	0.0130	0.0467	9	6	3	9	7	2	1810.63	3.116419	2NU2
3180.09	0.0066	0.0687	8	3	5	9	2	8	1080.38	0.126905	2NU2
3180.60	0.0042	0.0475	10	6	5	10	7	4	2054.40	4.058996	2NU2
3180.70	0.0014	0.0484	10	6	4	10	7	3	2054.40	4.061130	2NU2
3181.37	0.0043	0.0463	9	6	4	9	7	3	1810.63	3.116005	2NU2
3182.01	0.0130	0.0918	5	1	4	4	2	3	1907.99	1.638916	2NU2***
3182.22	0.1178	0.0741	7	4	3	8	3	6	1006.12	0.519243	2NU2
3182.48	0.3777	0.0829	4	3	1	5	2	4	416.22	0.261722	2NU2
3182.96	0.0413	0.0640	8	1	7	9	4	6	1340.89	0.269351	NU1
3183.21	0.0232	0.0996	1	1	1	0	0	0	0.00	1.000000	2NU2*
3183.30	0.0105	0.0340	8	8	0	9	9	1	2225.56	8.403719	NU1
3183.30	0.0314	0.0340	8	8	1	9	9	0	2225.56	8.403719	NU1
3183.64	0.0122	0.0409	7	6	2	7	7	1	1394.86	1.119792	2NU2
3183.64	0.0247	0.0440	8	6	3	8	7	2	1590.74	2.03	NU2-
3183.64	0.0365	0.0409	7	6	1	7	7	0	1394.86	1.119797	2NU2
3184.51	0.0111	0.0499	10	2	9	11	4	8	1843.02	0.082847	NU3
3184.64	0.0078	0.0441	8	6	2	8	7	1	1590.74	1.93	NU2-
3184.69	0.3855	0.0884	3	3	1	4	2	2	315.79	0.161593	2NU2
3184.84	7.2584	0.1032	2	0	2	1	1	1	37.13	0.755253	2NU2
3185.10	0.1125	0.0601	8	1	8	9	2	7	1201.95	0.122288	NU1
3185.21	19.4248	0.1044	2	1	1	2	0	2	70.08	2.074578	2NU2
3185.30	0.0769	0.0994	3	1	2	3	0	3	136.77	2.185861	2NU2*
3185.49	0.0022	0.0825	4	2	3	3	3	0	285.43	0.131472	2NU2*
3186.41	0.0020	0.0829	3	3	0	4	2	3	300.35	0.131472	2NU2*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3187.31	0.0075	0.0939	3	2	2	3	1	3	1739.51	1.297651	2NU2***
3187.54	0.0167	0.0613	11	5	6	12	6	7	2433.85	4.458582	NU1
3188.16	0.0107	0.0951	3	1	2	2	2	1	134.91	0.300506	2NU2*
3188.30	0.0031	0.0685	5	1	5	6	5	2	888.60	0.000066	NU3
3188.98	0.0009	0.0633	10	5	5	11	4	8	1843.02	0.753106	2NU2
3189.66	0.0043	0.0996	1	1	1	0	0	0	0.00	1.000000	2NU2**
3189.90	0.0179	0.0748	6	2	4	7	5	3	1059.65	0.028700	NU1
3190.09	0.0093	0.0566	10	3	8	11	5	7	1985.83	0.140157	NU3
3190.86	0.0225	0.0571	10	5	6	11	6	5	2144.12	3.00	NU1-
3191.58	0.0142	0.0994	3	1	2	3	0	3	136.77	2.185861	2NU2**
3191.93	0.0458	0.0489	7	5	3	8	7	2	1590.74	0.032804	NU3
3192.06	0.0359	0.0589	9	4	6	10	6	5	1875.00	0.112325	NU3
3192.17	0.0153	0.0493	7	5	2	8	7	1	1590.74	0.032814	NU3
3193.04	0.0101	0.0676	7	1	6	8	5	3	1255.92	0.004077	NU3
3193.94	0.0020	0.0951	3	1	2	2	2	1	134.91	0.300506	2NU2**
3194.24	0.0036	0.0678	11	4	7	12	6	6	2437.56	0.265013	NU3
3195.08	0.0115	0.0760	6	0	6	5	1	5	1922.86	4.958549	2NU2***
3195.46	0.0042	0.0848	7	2	5	7	1	6	2309.74	3.983004	2NU2***
3196.10	11.6127	0.0996	1	1	1	0	0	0	0.00	1.000000	2NU2
3196.63	1.0993	0.0825	4	2	3	3	3	0	285.43	0.131472	2NU2
3197.34	0.0819	0.0994	3	0	3	2	1	2	79.48	1.741385	2NU2*
3197.87	38.4548	0.0994	3	1	2	3	0	3	136.77	2.185861	2NU2
3198.15	0.0221	0.0747	6	2	4	7	1	7	586.48	0.035782	2NU2
3199.28	0.0844	0.0743	6	4	2	7	3	5	816.72	0.431025	2NU2
3199.71	0.0181	0.0896	4	2	3	4	1	4	1821.61	1.567300	2NU2***
3199.73	5.3386	0.0951	3	1	2	2	2	1	134.91	0.300506	2NU2
3200.27	1.0215	0.0829	3	3	0	4	2	3	300.35	0.131472	2NU2
3200.36	0.0049	0.0765	10	2	9	9	3	6	1282.92	0.084934	2NU2
3200.81	0.0350	0.0779	6	1	6	5	0	5	1920.76	4.979001	2NU2***
3200.94	0.0046	0.0633	9	3	6	10	2	9	1293.66	0.084934	2NU2
3201.03	0.0088	0.0696	7	0	7	8	4	4	1131.76	0.001880	NU3
3201.18	0.0933	0.1054	2	1	2	1	0	1	23.79	1.500000	2NU2*
3201.64	0.0018	0.0638	8	3	5	8	7	2	1590.74	0.001180	NU3+
3201.84	0.0226	0.0473	9	6	4	10	7	3	2054.40	6.018378	NU1
3201.96	0.0679	0.0475	9	6	3	10	7	4	2054.40	6.019433	NU1
3203.17	0.0364	0.0378	8	7	1	9	8	2	2009.87	7.261219	NU1
3203.17	0.1092	0.0378	8	7	2	9	8	1	2009.87	7.261215	NU1
3203.54	0.0152	0.0994	3	0	3	2	1	2	79.48	1.741385	2NU2**
3204.12	0.0158	0.0974	4	1	3	4	0	4	222.06	2.047924	2NU2*
3204.82	0.0260	0.0794	8	5	4	9	4	5	1360.28	0.669979	2NU2
3205.66	0.0093	0.0641	9	5	4	10	4	7	1581.34	0.720783	2NU2
3206.01	0.0749	0.0949	3	2	1	3	1	2	173.36	2.538253	2NU2*
3207.20	0.0402	0.0733	5	2	3	6	5	2	888.60	0.009072	NU1
3207.26	0.0215	0.0951	4	2	2	4	1	3	275.52	3.642913	2NU2*
3207.32	0.1295	0.0840	5	4	2	6	3	3	661.56	0.303663	2NU2
3207.61	0.0015	0.0509	10	2	9	10	5	6	1718.77	0.021485	NU1
3207.66	0.0173	0.1054	2	1	2	1	0	1	23.79	1.500000	2NU2**
3208.54	0.0183	0.0979	2	2	0	2	1	1	95.17	1.258755	2NU2*
3208.78	0.0513	0.0671	10	4	7	11	5	6	1999.02	2.723522	NU1
3209.23	0.0149	0.0690	4	2	3	5	5	0	742.10	0.001619	NU1
3209.25	0.0117	0.0603	10	5	5	11	6	6	2142.69	4.667626	NU1
3209.75	40.9463	0.0994	3	0	3	2	1	2	79.48	1.741385	2NU2
3210.31	0.0029	0.0974	4	1	3	4	0	4	222.06	2.047924	2NU2**
3210.70	0.4528	0.0864	4	2	2	3	3	1	285.23	0.161593	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3211.19	0.0145	0.0684	10	4	6	11	6	5	2144.12	0.181046	NU3
3211.48	0.0134	0.0677	9	4	5	10	6	4	1875.53	0.124623	NU3
3212.70	0.0139	0.0949	3	2	1	3	1	2	173.36	2.538253	2NU2**
3213.17	0.0056	0.0631	11	2	9	12	4	8	2205.65	0.209597	NU3
3213.83	0.0040	0.0951	4	2	2	4	1	3	275.52	3.642913	2NU2**
3213.93	0.0229	0.0631	7	0	7	6	1	6	2042.77	5.983681	2NU2***
3214.14	46.6563	0.1054	2	1	2	1	0	1	23.79	1.500000	2NU2
3214.66	0.4485	0.0826	5	2	4	4	3	1	383.85	0.261722	2NU2
3214.68	0.0402	0.0947	5	2	3	5	1	4	399.46	4.214107	2NU2*
3214.73	0.0433	0.1021	2	2	1	1	1	0	1640.51	1.500000	2NU2***
3215.23	0.0874	0.0482	9	1	9	10	3	8	1446.16	0.030178	NU3
3215.28	0.0034	0.0979	2	2	0	2	1	1	95.17	1.258755	2NU2**
3215.41	0.0040	0.0815	5	2	4	5	1	5	1922.86	1.711792	2NU2***
3215.54	0.0017	0.0831	6	2	5	5	3	2	508.81	0.312103	2NU2*
3215.75	0.0040	0.0843	6	1	5	5	2	4	2024.17	2.671788	2NU2***
3216.51	7.8852	0.0974	4	1	3	4	0	4	222.06	2.047924	2NU2
3216.88	0.0410	0.1026	3	1	3	2	0	2	70.08	2.156792	2NU2*
3217.10	0.0077	0.0642	7	1	7	6	0	6	2041.76	5.990506	2NU2***
3218.02	0.0078	0.0798	9	2	8	8	3	5	1050.15	0.126905	2NU2
3218.67	0.0189	0.0456	6	5	2	7	7	1	1394.86	0.014987	NU3
3218.72	0.0567	0.0457	6	5	1	7	7	0	1394.86	0.014988	NU3
3218.87	0.0010	0.0539	9	1	9	9	4	6	1340.89	0.006488	NU1
3219.39	37.4362	0.0949	3	2	1	3	1	2	173.36	2.538253	2NU2
3219.68	0.0214	0.0776	5	1	5	6	4	2	757.78	0.007497	NU1
3219.98	0.3804	0.0727	5	4	1	6	3	4	648.97	0.278030	2NU2
3220.22	0.0430	0.0601	8	4	5	9	6	4	1631.27	0.110400	NU3+
3220.40	0.0327	0.0961	4	0	4	3	1	3	142.28	2.831638	2NU2*
3220.41	10.7494	0.0951	4	2	2	4	1	3	275.52	3.642913	2NU2
3220.80	0.0042	0.0927	7	3	4	7	2	5	2392.58	5.918411	2NU2***
3221.07	0.0074	0.0947	5	2	3	5	1	4	399.46	4.214107	2NU2**
3221.15	0.0123	0.0949	2	2	0	1	1	1	1634.97	1.244747	2NU2***
3222.02	9.1560	0.0979	2	2	0	2	1	1	95.17	1.258755	2NU2
3223.26	0.0395	0.0952	2	2	1	2	1	2	79.48	0.833333	2NU2*
3223.34	0.0207	0.0679	7	2	5	8	1	8	744.16	0.024347	2NU2
3223.37	0.0309	0.0511	9	0	9	10	2	8	1438.00	0.030629	NU3
3223.39	0.0076	0.1026	3	1	3	2	0	2	70.08	2.156792	2NU2**
3224.48	0.0061	0.0703	4	2	2	5	5	1	742.10	0.001985	NU1
3225.07	0.0028	0.0925	6	3	3	6	2	4	2211.21	4.829435	2NU2***
3225.11	0.0086	0.0646	8	5	3	9	4	6	1340.89	0.597432	2NU2
3225.72	0.3078	0.0711	7	1	6	8	4	5	1122.72	0.222677	NU1
3226.13	0.3109	0.0650	7	0	7	8	3	6	1006.12	0.125531	NU1
3226.44	0.0013	0.0947	4	1	3	3	2	2	206.30	0.835095	2NU2**
3226.70	0.0060	0.0961	4	0	4	3	1	3	142.28	2.831638	2NU2**
3227.34	0.8624	0.0831	6	2	5	5	3	2	508.81	0.312103	2NU2
3227.47	20.1179	0.0947	5	2	3	5	1	4	399.46	4.214107	2NU2
3227.77	0.0266	0.0914	5	1	4	5	0	5	325.35	1.912338	2NU2*
3228.89	0.2794	0.0454	8	6	3	9	7	2	1810.63	6.141896	NU1
3228.94	0.0931	0.0454	8	6	2	9	7	3	1810.63	6.142105	NU1
3229.01	0.0035	0.0671	7	1	6	7	0	7	2180.65	1.838288	2NU2***
3229.33	0.1006	0.0819	8	2	7	7	3	4	842.38	0.192937	2NU2
3229.36	0.0066	0.0920	6	2	4	6	1	5	542.91	4.225862	2NU2*
3229.91	20.4780	0.1026	3	1	3	2	0	2	70.08	2.156792	2NU2
3230.16	0.0987	0.0616	9	3	7	10	5	6	1718.77	0.128613	NU3
3230.41	0.1647	0.0659	8	4	4	9	6	3	1631.41	0.140500	NU3+

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3230.86	0.1217	0.0356	7	7	1	8	8	0	1789.10	7.402783	NU1
3230.86	0.3650	0.0356	7	7	0	8	8	1	1789.10	7.402783	NU1
3230.93	0.0409	0.0717	6	1	5	7	5	2	1059.85	0.002023	NU3
3231.34	0.1191	0.0690	5	3	3	4	4	0	488.13	0.116422	2NU2
3231.87	0.0045	0.0520	8	0	8	7	1	7	2181.12	6.998008	2NU2***
3231.89	0.1073	0.0976	4	1	4	3	0	3	136.77	3.004990	2NU2*
3232.06	0.0150	0.0939	3	2	2	3	1	3	142.28	1.297651	2NU2*
3232.27	3.4961	0.0947	4	1	3	3	2	2	206.30	0.835095	2NU2
3232.52	0.0132	0.0909	5	3	2	5	2	3	2053.98	3.442901	2NU2***
3232.59	0.1165	0.0830	7	2	6	6	3	3	661.56	0.271048	2NU2
3232.76	0.0489	0.0569	9	5	5	10	6	4	1875.53	4.830967	NU1
3233.00	16.3336	0.0961	4	0	4	3	1	3	142.28	2.831638	2NU2
3233.39	0.0516	0.0729	9	3	7	10	4	6	1616.51	1.314980	NU1
3233.46	0.0135	0.0523	8	1	8	7	0	7	2180.65	7.000291	2NU2***
3233.50	0.0021	0.0859	7	2	5	6	3	4	2271.70	1.512999	2NU2***
3233.61	0.0068	0.0710	6	2	5	6	1	6	2042.77	1.783035	2NU2***
3233.75	0.0046	0.0886	5	2	3	4	3	2	382.52	0.436045	2NU2*
3233.77	0.1475	0.0583	9	5	4	10	6	5	1875.00	4.857731	NU1
3233.93	0.0049	0.0914	5	1	4	5	0	5	325.35	1.912338	2NU2**
3234.65	0.3668	0.0761	5	3	2	4	4	1	488.10	0.119405	2NU2
3235.54	0.0012	0.0920	6	2	4	6	1	5	542.91	4.225862	2NU2**
3235.98	0.0014	0.0661	10	6	5	11	5	6	1999.02	0.799607	2NU2
3236.40	0.1308	0.0560	9	2	8	10	4	7	1581.34	0.087251	NU3
3236.67	19.7590	0.0952	2	2	1	2	1	2	79.48	0.833333	2NU2
3237.72	0.0139	0.0706	8	5	4	7	4	3	2572.13	9.52	NU1***
3237.94	0.3310	0.0787	4	4	1	5	3	2	508.81	0.119405	2NU2
3238.42	0.0198	0.0976	4	1	4	3	0	3	136.77	3.004990	2NU2**
3238.73	0.0028	0.0939	3	2	2	3	1	3	142.28	1.297651	2NU2**
3240.09	13.2755	0.0914	5	1	4	5	0	5	325.35	1.912338	2NU2
3240.36	0.0053	0.0884	4	3	1	4	2	2	1922.92	2.167225	2NU2***
3241.39	0.0902	0.0880	5	0	5	4	1	4	224.83	3.911752	2NU2*
3241.72	3.2965	0.0920	6	2	4	6	1	5	542.91	4.225862	2NU2
3242.08	0.0016	0.0551	9	2	8	9	5	5	1474.99	0.019752	NU1
3242.76	0.1104	0.0708	4	4	0	5	3	3	504.00	0.116422	2NU2
3242.86	0.0055	0.0721	11	3	8	12	5	7	2300.80	0.411017	NU3
3243.02	0.3081	0.0712	8	2	7	9	3	6	1282.92	0.493418	NU1
3243.99	0.0362	0.0896	4	2	3	4	1	4	224.83	1.567300	2NU2*
3244.41	2.2776	0.0886	5	2	3	4	3	2	382.52	0.436045	2NU2
3244.96	53.6439	0.0976	4	1	4	3	0	3	136.77	3.004990	2NU2
3245.40	7.5139	0.0939	3	2	2	3	1	3	142.28	1.297651	2NU2
3245.90	0.0552	0.0644	7	5	2	8	4	5	1122.72	0.427306	2NU2
3246.06	0.0136	0.0854	3	3	0	3	2	1	1819.34	1.092505	2NU2***
3246.68	0.0748	0.0677	9	4	6	10	5	5	1724.72	3.272354	NU1
3247.31	0.1972	0.0596	7	4	4	8	6	3	1411.65	0.056441	NU3
3247.37	0.0310	0.0900	5	1	5	4	0	4	222.06	3.972803	2NU2*
3247.77	0.0167	0.0880	5	0	5	4	1	4	224.83	3.911752	2NU2**
3247.83	0.0016	0.0596	6	3	4	6	6	1	1045.07	0.000772	NU1
3248.36	0.0087	0.0734	7	1	6	6	2	5	2161.30	3.799063	2NU2***
3248.90	0.0070	0.0436	9	0	9	8	1	8	2337.70	8.007087	2NU2***
3248.91	0.0299	0.0955	4	2	3	3	1	2	1772.41	1.970843	2NU2***
3249.15	0.0144	0.0673	11	4	7	12	5	8	2275.44	3.784189	NU1
3249.49	0.1344	0.0690	7	1	7	8	2	6	982.91	0.143980	NU1
3249.72	0.0023	0.0437	9	1	9	8	0	8	2337.53	8.007851	2NU2***
3250.61	0.0067	0.0896	4	2	3	4	1	4	224.83	1.567300	2NU2**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3251.30	0.0084	0.0848	7	2	5	7	1	6	704.22	3.983004	2NU2*
3251.47	0.0666	0.0628	7	4	3	8	6	2	1411.68	0.057059	NU3
3251.49	0.0044	0.0830	3	3	1	3	2	2	1813.81	1.035682	2NU2***
3252.43	0.0017	0.0422	7	6	1	8	7	2	1590.74	6.263444	NU1*
3253.07	0.0022	0.0604	8	2	6	9	1	9	920.21	0.018354	2NU2
3253.25	0.0260	0.0918	5	1	4	4	2	3	300.35	1.638916	2NU2*
3254.15	45.0823	0.0880	5	0	5	4	1	4	224.83	3.911752	2NU2
3254.60	0.4662	0.0713	6	3	4	5	4	1	610.35	0.278030	2NU2
3254.62	0.0148	0.0829	4	3	2	4	2	3	1907.99	1.848533	2NU2***
3254.63	0.0012	0.0601	7	2	6	7	1	7	2181.12	1.816721	2NU2***
3256.01	0.2793	0.0422	7	6	2	8	7	1	1590.74	6.263414	NU1
3256.01	0.8380	0.0422	7	6	1	8	7	2	1590.74	6.263444	NU1
3257.23	18.0800	0.0896	4	2	3	4	1	4	224.83	1.567300	2NU2
3257.29	0.0016	0.0848	7	2	5	7	1	6	704.22	3.983004	2NU2**
3258.02	0.4997	0.0557	8	5	4	9	6	3	1631.41	4.505	NU1-
3258.12	0.1760	0.0566	8	5	3	9	6	4	1631.27	4.76	NU1-
3258.72	0.0079	0.0815	5	2	4	5	1	5	326.64	1.711792	2NU2*
3259.17	0.0048	0.0918	5	1	4	4	2	3	300.35	1.638916	2NU2**
3260.22	0.0866	0.1021	2	2	1	1	1	0	42.37	1.500000	2NU2*
3260.42	0.0037	0.0803	5	3	3	5	2	4	2024.17	2.492169	2NU2***
3260.44	15.5056	0.0900	5	1	5	4	0	4	222.06	3.972803	2NU2
3260.50	0.0230	0.0760	6	0	6	5	1	5	326.64	4.958549	2NU2*
3261.31	0.0098	0.0724	5	1	4	6	5	1	888.63	0.000613	NU3
3262.02	0.0264	0.0909	5	3	2	5	2	3	446.50	3.442901	2NU2*
3262.50	0.1820	0.0774	6	1	5	7	4	4	927.77	0.147419	NU1
3262.78	0.0074	0.0927	5	2	4	4	1	3	1875.49	2.444582	2NU2***
3263.28	4.1894	0.0848	7	2	5	7	1	6	704.22	3.983004	2NU2
3263.37	0.0699	0.0779	6	1	6	5	0	5	325.35	4.979001	2NU2*
3263.60	0.1704	0.0809	6	3	3	5	4	2	610.12	0.303663	2NU2
3263.79	0.0016	0.0927	7	3	4	7	2	5	782.40	5.918411	2NU2**
3263.99	0.0010	0.0925	6	3	3	6	2	4	602.77	4.829435	2NU2**
3264.12	0.0233	0.0701	10	4	6	11	5	7	1985.83	3.652101	NU1
3264.27	0.0870	0.0740	6	0	6	7	4	3	931.22	0.002241	NU3
3264.33	0.0100	0.0589	8	1	8	8	4	5	1122.72	0.007182	NU1
3265.09	12.9917	0.0918	5	1	4	4	2	3	300.35	1.638916	2NU2
3266.04	0.0937	0.0662	8	3	6	9	5	5	1474.99	0.109168	NU3
3266.11	0.0858	0.0704	6	5	2	7	4	3	931.22	0.253734	2NU2
3266.35	2.3549	0.0806	6	1	5	6	0	6	446.71	1.852055	2NU2
3266.58	0.0246	0.0949	2	2	0	1	1	1	37.13	1.244747	2NU2*
3266.96	0.0043	0.0760	6	0	6	5	1	5	326.64	4.958549	2NU2**
3267.00	0.0160	0.1021	2	2	1	1	1	0	42.37	1.500000	2NU2**
3267.21	0.0858	0.0795	4	1	4	5	4	1	610.35	0.004729	NU1
3267.28	0.0013	0.0620	9	6	4	10	5	5	1724.72	0.586260	2NU2
3268.36	0.0067	0.0751	6	3	4	6	2	5	2161.30	2.963539	2NU2***
3268.62	0.0107	0.0884	4	3	1	4	2	2	315.79	2.167225	2NU2*
3268.88	0.0037	0.0673	7	3	4	7	6	1	1216.20	0.004214	NU1
3269.13	0.0049	0.0909	5	3	2	5	2	3	446.50	3.442901	2NU2**
3269.67	0.0288	0.0626	6	5	1	7	4	4	927.77	0.250934	2NU2
3269.92	0.0129	0.0779	6	1	6	5	0	5	325.35	4.979001	2NU2**
3269.94	0.0017	0.0893	6	2	4	5	3	3	504.00	0.863547	2NU2*
3270.48	4.2197	0.0927	7	3	4	7	2	5	782.40	5.918411	2NU2
3270.78	0.0112	0.0591	8	2	7	8	5	4	1255.16	0.015469	NU1
3270.95	2.8182	0.0925	6	3	3	6	2	4	602.77	4.829435	2NU2
3271.40	0.0023	0.0497	10	0	10	10	4	7	1581.34	0.001525	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3271.87	3.9743	0.0815	5	2	4	5	1	5	326.64	1.711792	2NU2
3271.95	0.1032	0.0558	8	1	8	9	3	7	1216.27	0.033194	NU3
3272.03	0.0855	0.0704	10	2	8	11	4	7	1899.06	0.260837	NU3
3272.49	0.0775	0.0880	4	3	2	5	0	5	325.35	0.011053	2NU2
3272.76	0.0206	0.0865	5	3	3	6	0	6	446.71	0.016149	2NU2
3273.07	0.0020	0.0587	7	1	7	7	5	2	1059.85	0.000093	NU3
3273.36	0.0861	0.0590	6	4	3	5	5	0	742.10	0.098702	2NU2
3273.42	11.5179	0.0760	6	0	6	5	1	5	326.64	4.958549	2NU2
3273.78	43.3084	0.1021	2	2	1	1	1	0	42.37	1.500000	2NU2
3273.89	0.1059	0.0573	6	4	3	7	6	2	1216.20	0.033870	NU3
3274.25	0.0271	0.0854	3	3	0	3	2	1	212.15	1.092505	2NU2*
3274.60	0.0736	0.0752	10	3	7	11	5	6	1999.02	0.359370	NU3
3275.16	0.3186	0.0589	6	4	2	7	6	1	1216.20	0.033963	NU3
3275.48	0.0154	0.0873	6	2	5	5	1	4	2000.90	3.129447	2NU2***
3275.76	0.0020	0.0884	4	3	1	4	2	2	315.79	2.167225	2NU2**
3275.80	0.1160	0.0740	7	3	5	6	4	2	757.78	0.431025	2NU2
3275.87	0.0137	0.0710	6	2	5	6	1	6	447.24	1.783035	2NU2*
3276.25	13.1878	0.0909	5	3	2	5	2	3	446.50	3.442901	2NU2
3276.47	34.9525	0.0779	6	1	6	5	0	5	325.35	4.979001	2NU2
3276.81	0.0072	0.0628	9	0	9	9	3	6	1282.92	0.011425	NU1
3276.99	0.0015	0.0769	8	3	6	9	4	5	1360.28	1.797448	NU1*
3277.40	0.0016	0.0503	8	2	7	8	1	8	2337.70	1.833129	2NU2***
3277.56	0.5567	0.0898	8	3	5	8	2	6	982.91	6.368783	2NU2
3277.58	0.2703	0.0711	9	4	5	10	5	6	1718.77	3.697402	NU1
3277.60	0.0016	0.0685	8	3	5	8	6	2	1411.68	0.014126	NU1
3278.32	0.0459	0.0631	7	0	7	6	1	6	447.24	5.983681	2NU2*
3278.42	0.0163	0.0892	3	3	1	4	0	4	222.06	0.004153	2NU2
3278.47	0.0011	0.0682	7	3	5	7	2	6	2318.53	3.273499	2NU2***
3278.53	0.0011	0.0759	8	2	6	8	1	7	882.93	3.773034	2NU2*
3278.58	0.2815	0.0735	6	0	6	7	3	5	816.72	0.130226	NU1
3278.69	0.0342	0.0845	6	3	4	7	0	7	586.26	0.017960	2NU2
3278.79	0.0692	0.0648	9	1	8	10	3	7	1538.23	0.110021	NU3
3278.87	0.0248	0.0984	3	2	2	2	1	1	95.17	1.666667	2NU2*
3279.07	0.8791	0.0676	8	4	5	9	5	4	1477.31	3.682999	NU1
3279.22	0.0017	0.0613	8	1	7	7	2	6	2318.53	4.913532	2NU2***
3279.41	0.0015	0.0388	6	6	0	7	7	1	1394.86	6.401518	NU1*
3279.41	0.0046	0.0388	6	6	1	7	7	0	1394.86	6.401516	NU1*
3279.64	0.0154	0.0642	7	1	7	6	0	6	446.71	5.990506	2NU2*
3280.06	12.3204	0.0949	2	2	0	1	1	1	37.13	1.244747	2NU2
3280.14	0.0034	0.0539	7	5	2	8	6	3	1411.65	5.144364	NU1*
3280.47	0.0070	0.0671	7	1	6	7	0	7	586.26	1.838288	2NU2*
3280.63	0.8282	0.0893	6	2	4	5	3	3	504.00	0.863547	2NU2
3280.72	0.0011	0.0834	9	3	6	9	2	7	1201.95	6.247031	2NU2*
3281.36	0.0050	0.0854	3	3	0	3	2	1	212.15	1.092505	2NU2**
3282.39	0.0025	0.0710	6	2	5	6	1	6	447.24	1.783035	2NU2**
3282.91	5.3299	0.0884	4	3	1	4	2	2	315.79	2.167225	2NU2
3283.01	0.7731	0.0388	6	6	0	7	7	1	1394.86	6.401518	NU1
3283.01	2.3193	0.0388	6	6	1	7	7	0	1394.86	6.401516	NU1
3283.52	0.0296	0.0829	4	3	2	4	2	3	300.35	1.848533	2NU2*
3283.74	0.7692	0.0769	8	3	6	9	4	5	1360.28	1.797448	NU1
3284.10	0.5684	0.0537	7	5	3	8	6	2	1411.68	5.142711	NU1
3284.15	1.7058	0.0539	7	5	2	8	6	3	1411.65	5.144364	NU1
3284.69	0.0080	0.0843	6	1	5	5	2	4	416.22	2.671788	2NU2*
3284.75	0.0020	0.0543	9	2	7	10	1	10	1114.56	0.015027	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3284.83	0.0085	0.0631	7	0	7	6	1	6	447.24	5.983681	2NU2**
3285.01	0.1492	0.0623	8	2	7	9	4	6	1340.89	0.088564	NU3
3285.69	0.0046	0.0984	3	2	2	2	1	1	95.17	1.666667	2NU2**
3285.70	0.0092	0.0717	4	1	3	5	5	0	742.10	0.000091	NU3
3286.20	0.0028	0.0642	7	1	7	6	0	6	446.71	5.990506	2NU2**
3286.22	0.3507	0.0602	8	0	8	9	2	7	1201.95	0.034667	NU3
3286.75	0.0013	0.0671	7	1	6	7	0	7	586.26	1.838288	2NU2**
3286.79	0.0044	0.0679	9	3	6	9	6	3	1631.41	0.039684	NU1
3287.15	0.0016	0.0830	3	3	1	3	2	2	206.30	1.035682	2NU2**
3287.55	0.0013	0.0681	7	3	5	8	5	4	1255.16	0.084527	NU3*
3288.47	13.5567	0.0854	3	3	0	3	2	1	212.15	1.092505	2NU2
3288.91	6.8306	0.0710	6	2	5	6	1	6	447.24	1.783035	2NU2
3289.43	0.0075	0.0803	5	3	3	5	2	4	416.22	2.492169	2NU2*
3289.47	0.0032	0.0781	7	2	6	6	1	5	2146.28	4.008107	2NU2***
3289.49	0.0051	0.0818	7	3	5	8	0	8	744.09	0.017472	2NU2
3289.94	0.0013	0.0799	5	1	4	6	4	3	756.75	0.071290	NU1*
3290.35	0.5458	0.0759	8	2	6	8	1	7	882.93	3.773034	2NU2
3290.50	0.0055	0.0829	4	3	2	4	2	3	300.35	1.848533	2NU2**
3290.76	0.0015	0.0843	6	1	5	5	2	4	416.22	2.671788	2NU2**
3291.35	22.9399	0.0631	7	0	7	6	1	6	447.24	5.983681	2NU2
3292.51	12.3883	0.0984	3	2	2	2	1	1	95.17	1.666667	2NU2
3292.65	0.5516	0.0834	9	3	6	9	2	7	1201.95	6.247031	2NU2
3292.70	0.0268	0.0646	5	5	1	6	4	2	757.78	0.098971	2NU2
3292.76	7.6787	0.0642	7	1	7	6	0	6	446.71	5.990506	2NU2
3292.80	0.6267	0.0799	5	1	4	6	4	3	756.75	0.071290	NU1
3293.04	3.5190	0.0671	7	1	6	7	0	7	586.26	1.838288	2NU2
3293.22	0.0063	0.0636	7	2	6	7	5	3	1059.65	0.009705	NU1
3293.40	0.1771	0.0750	8	3	6	7	4	3	931.22	0.519243	2NU2
3293.43	0.0010	0.0659	10	3	7	10	6	4	1875.53	0.095771	NU1
3293.66	0.0017	0.0679	5	3	3	6	5	2	2552.85	0.105000	NU3***
3293.73	0.0806	0.0590	5	5	0	6	4	3	756.75	0.098702	2NU2
3294.11	0.2648	0.0708	8	4	4	9	5	5	1474.99	3.26	NU1-
3294.18	4.4189	0.0830	3	3	1	3	2	2	206.30	1.035682	2NU2
3294.63	0.0023	0.0601	7	2	6	7	1	7	586.48	1.816721	2NU2*
3294.89	0.0015	0.0629	11	3	8	11	6	5	2144.12	0.189337	NU1
3294.96	0.0597	0.0955	4	2	3	3	1	2	173.36	1.970843	2NU2*
3295.22	0.0090	0.0520	8	0	8	7	1	7	586.48	6.998008	2NU2*
3295.82	0.0015	0.0603	8	3	6	8	2	7	2495.18	3.456295	2NU2***
3295.84	0.0269	0.0523	8	1	8	7	0	7	586.26	7.000291	2NU2*
3296.09	0.0020	0.0561	10	2	8	10	6	5	1875.00	0.005881	NU3
3296.13	0.4497	0.0848	7	3	4	6	4	3	756.75	0.550367	2NU2
3296.34	0.0014	0.0803	5	3	3	5	2	4	416.22	2.492169	2NU2**
3296.84	3.9939	0.0843	6	1	5	5	2	4	416.22	2.671788	2NU2
3297.07	0.0506	0.0587	8	6	3	9	5	4	1477.31	2.26	2NU2+
3297.49	14.7987	0.0829	4	3	2	4	2	3	300.35	1.848533	2NU2
3297.58	0.0649	0.0766	9	3	6	10	5	5	1724.72	0.261892	NU3
3297.83	0.0354	0.0648	7	4	4	6	5	1	888.63	0.250934	2NU2
3298.11	0.6557	0.0681	7	3	5	8	5	4	1255.16	0.084527	NU3
3298.27	0.0027	0.0643	6	4	3	7	5	2	2724.19	4.131192	NU1***
3298.35	0.0012	0.0697	5	3	2	6	5	1	2552.87	0.221000	NU3***
3298.37	0.0135	0.0751	6	3	4	6	2	5	552.92	2.963539	2NU2*
3299.74	0.1073	0.0688	7	4	3	6	5	2	888.60	0.253734	2NU2
3299.91	0.0449	0.0961	3	2	1	2	1	2	79.48	0.925282	2NU2*
3300.31	0.3378	0.0535	5	4	2	6	6	1	1045.07	0.015207	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3300.39	0.0492	0.0549	8	6	2	9	5	5	1474.99	6.42	NU2+
3300.46	0.1127	0.0540	5	4	1	6	6	0	1045.07	0.015215	NU3
3300.78	0.0073	0.0530	12	3	9	13	4	10	2426.22	5.75353	NU1
3301.79	0.0017	0.0520	8	0	8	7	1	7	586.48	6.998008	2NU2**
3301.83	0.0111	0.0955	4	2	3	3	1	2	173.36	1.970843	2NU2**
3302.43	0.0050	0.0523	8	1	8	7	0	7	586.26	7.000291	2NU2**
3302.70	0.0074	0.0758	8	4	5	9	1	8	1079.07	0.045574	2NU2
3302.72	0.4661	0.0784	7	2	6	8	3	5	1050.15	0.688192	NU1
3303.25	3.7326	0.0803	5	3	3	5	2	4	416.22	2.492169	2NU2
3303.53	0.0054	0.0757	7	4	4	8	1	7	882.93	0.037317	2NU2
3304.44	0.0058	0.0770	8	3	6	9	0	9	920.18	0.015979	2NU2
3304.54	0.0212	0.0760	9	3	7	8	4	4	1131.76	0.505247	2NU2
3304.63	0.0089	0.0644	7	1	7	7	4	4	927.77	0.007119	NU1
3305.20	0.0025	0.0751	6	3	4	6	2	5	552.92	2.963539	2NU2**
3305.36	0.0054	0.0646	8	2	7	7	1	6	2309.74	4.996649	2NU2***
3306.01	0.0011	0.0542	8	1	7	8	0	8	744.09	1.839778	2NU2*
3306.11	0.0028	0.0790	6	1	6	7	2	5	782.40	0.182385	NU1*
3306.45	0.0094	0.0498	6	5	2	7	6	1	1216.20	5.265222	NU1*
3306.46	0.0031	0.0499	6	5	1	7	6	2	1216.20	5.265494	NU1*
3306.59	0.0083	0.0961	3	2	1	2	1	2	79.48	0.925282	2NU2**
3307.65	0.0043	0.0859	7	2	5	6	3	4	648.97	1.512999	2NU2*
3307.67	1.1631	0.0601	7	2	6	7	1	7	586.48	1.816721	2NU2
3307.72	0.0164	0.0770	10	3	8	9	4	5	1360.28	0.409296	2NU2
3308.03	0.9571	0.0665	7	4	4	8	5	3	1255.92	3.953657	NU1
3308.36	4.4811	0.0520	8	0	8	7	1	7	586.48	6.998008	2NU2
3308.40	0.0189	0.0791	3	1	3	4	4	0	488.13	0.001674	NU1
3308.70	29.8740	0.0955	4	2	3	3	1	2	173.36	1.970843	2NU2
3309.02	13.4655	0.0523	8	1	8	7	0	7	586.26	7.000291	2NU2
3309.16	0.0149	0.0927	5	2	4	4	1	3	275.52	2.444582	2NU2*
3309.82	0.0026	0.0507	9	1	8	8	2	7	2495.18	5.987889	2NU2***
3310.50	4.6862	0.0498	6	5	2	7	6	1	1216.20	5.265222	NU1
3310.51	1.5622	0.0499	6	5	1	7	6	2	1216.20	5.265494	NU1
3310.78	0.0202	0.0664	6	2	5	6	5	2	888.60	0.004423	NU1
3311.00	0.0533	0.0747	10	3	7	10	2	8	1438.00	5.910419	2NU2
3311.24	0.0252	0.0756	6	4	3	7	1	6	704.22	0.023637	2NU2
3311.35	0.0140	0.0436	9	0	9	8	1	8	744.16	8.007087	2NU2*
3311.66	0.0047	0.0437	9	1	9	8	0	8	744.09	8.007851	2NU2*
3312.03	6.7403	0.0751	6	3	4	6	2	5	552.92	2.963539	2NU2
3312.99	0.0059	0.0686	7	4	3	8	5	4	1255.16	4.002077	NU1*
3313.27	22.4584	0.0961	3	2	1	2	1	2	79.48	0.925282	2NU2
3313.43	1.4190	0.0790	6	1	6	7	2	5	782.40	0.182385	NU1
3313.82	0.0174	0.0734	7	1	6	6	2	5	552.92	3.799063	2NU2*
3314.03	0.0376	0.0616	11	3	8	12	4	9	2124.98	4.836759	NU1
3314.51	0.0032	0.0503	8	2	7	8	1	8	744.16	1.833129	2NU2*
3314.51	0.0013	0.0578	10	1	10	10	3	7	1538.23	0.002006	NU3
3315.07	0.4359	0.0768	8	3	5	9	5	4	1477.31	0.169518	NU3
3315.12	0.0011	0.0686	7	4	3	8	5	4	1255.16	4.002077	NU1**
3317.26	2.9302	0.0686	7	4	3	8	5	4	1255.16	4.002077	NU1
3317.69	0.1444	0.0806	4	1	3	5	4	2	610.12	0.023494	NU1
3317.72	0.0046	0.0614	11	2	9	11	5	6	1999.02	0.234997	NU1
3317.96	0.0026	0.0436	9	0	9	8	1	8	744.16	8.007087	2NU2**
3318.38	0.0605	0.0783	5	0	5	6	4	2	757.78	0.001931	NU3
3318.53	2.1333	0.0859	7	2	5	6	3	4	648.97	1.512999	2NU2
3318.77	0.5373	0.0542	8	1	7	8	0	8	744.09	1.839778	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3320.10	0.0032	0.0734	7	1	6	6	2	5	552.92	3.799063	2NU2**
3320.13	0.0021	0.0782	7	3	5	8	4	4	1131.76	2.323327	NU1*
3320.13	0.0023	0.0876	7	4	3	7	3	4	2462.87	4.268667	2NU2***
3320.14	0.0012	0.0640	4	3	2	5	5	1	2406.15	0.101300	NU3***
3320.24	0.6037	0.0646	9	2	7	9	1	8	1079.07	3.674255	2NU2
3320.48	0.0031	0.0539	9	0	9	9	4	6	1340.89	0.001797	NU3
3321.43	0.0038	0.0645	4	3	1	5	5	0	2406.15	0.111100	NU3***
3321.77	0.0454	0.0863	10	4	6	10	3	7	1538.23	8.179783	2NU2
3321.83	0.0148	0.0842	3	3	1	2	2	0	1743.47	2.394805	2NU2***
3321.92	0.0774	0.0640	8	4	5	7	5	2	1059.85	0.427306	2NU2
3322.24	0.0037	0.0811	5	0	5	6	3	4	648.97	0.123125	NU1*
3322.58	0.0050	0.0553	7	6	2	8	5	3	1255.92	0.222252	2NU2
3322.87	0.0309	0.0873	6	2	5	5	1	4	399.46	3.129447	2NU2*
3322.99	7.4432	0.0927	5	2	4	4	1	3	275.52	2.444582	2NU2
3323.12	0.0442	0.0840	3	3	0	2	2	1	1742.28	2.366160	2NU2***
3323.25	0.1319	0.0772	9	2	7	10	4	6	1616.51	0.306915	NU3
3323.34	0.0151	0.0527	7	6	1	8	5	4	1255.16	0.221954	2NU2
3323.45	0.0055	0.0500	7	5	3	6	6	0	1045.07	0.084869	2NU2
3323.55	0.0165	0.0502	7	5	2	6	6	1	1045.07	0.084894	2NU2
3323.98	1.1378	0.0682	7	3	5	7	2	6	709.60	3.273499	2NU2
3324.44	0.0013	0.0604	5	4	2	6	5	1	2552.87	2.56	NU1***
3324.57	7.0249	0.0436	9	0	9	8	1	8	744.16	8.007087	2NU2
3324.89	2.3430	0.0437	9	1	9	8	0	8	744.09	8.007851	2NU2
3325.60	0.0034	0.0776	6	3	4	7	4	3	2572.13	2.767638	NU1***
3325.79	0.0030	0.0603	8	3	6	8	2	7	885.62	3.456295	2NU2*
3325.82	0.0020	0.0729	8	1	7	9	3	6	1282.92	0.139840	NU3*
3325.94	0.0525	0.0684	10	3	7	11	4	8	1843.02	4.032477	NU1
3325.97	0.0079	0.0800	5	4	2	6	1	5	542.91	0.009847	2NU2
3326.12	1.0554	0.0782	7	3	5	8	4	4	1131.76	2.323327	NU1
3326.38	8.6781	0.0734	7	1	6	6	2	5	552.92	3.799063	2NU2
3326.68	0.0268	0.0741	8	4	4	7	5	3	1059.65	0.444062	2NU2
3326.76	0.0022	0.0381	10	0	10	9	1	9	920.21	9.013420	2NU2*
3326.80	0.9873	0.0648	7	1	7	8	3	6	1006.12	0.036269	NU3
3326.91	0.0066	0.0381	10	1	10	9	0	9	920.18	9.013676	2NU2*
3326.97	0.0014	0.0840	6	4	2	6	3	3	2282.59	3.075987	2NU2***
3327.34	1.8748	0.0811	5	0	5	6	3	4	648.97	0.123125	NU1
3327.54	0.0019	0.0839	6	2	5	7	3	4	2462.87	0.996364	NU1***
3327.55	1.6097	0.0503	8	2	7	8	1	8	744.16	1.833129	2NU2
3327.57	0.4073	0.0684	6	3	4	7	5	3	1059.65	0.058714	NU3
3328.67	0.0207	0.0653	12	4	9	13	3	10	2414.73	5.30517	NU1
3328.94	0.4264	0.0887	9	4	5	9	3	6	1282.92	7.165263	2NU2
3329.66	1.2834	0.0691	7	2	6	8	4	5	1122.72	0.084411	NU3
3329.78	0.0057	0.0873	6	2	5	5	1	4	399.46	3.129447	2NU2**
3329.79	0.0021	0.0434	9	6	4	9	8	1	2009.87	0.012330	NU3
3330.00	0.0013	0.0443	9	1	8	9	0	9	920.18	1.844131	2NU2*
3330.11	0.0162	0.0643	6	4	3	7	5	2	1059.85	4.131192	NU1*
3330.78	0.0046	0.0876	7	4	3	7	3	4	842.38	4.268667	2NU2*
3330.95	0.2729	0.0760	7	3	4	8	5	3	1255.92	0.105067	NU3
3332.37	0.0030	0.0643	6	4	3	7	5	2	1059.85	4.131192	NU1**
3332.66	0.0076	0.0447	5	5	1	6	6	0	1045.07	5.399693	NU1*
3332.66	0.0228	0.0447	5	5	0	6	6	1	1045.07	5.399718	NU1*
3332.70	0.1052	0.0851	8	3	5	7	4	4	927.77	0.898681	2NU2
3332.98	0.0120	0.0404	12	2	10	13	3	11	2248.16	7.87109	NU1
3333.07	0.0010	0.0737	9	3	6	10	4	7	1581.34	3.465920	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3333.26	0.0182	0.032	14	0	14	15	1	15	2358.44	14.00193	NU1
3333.26	0.0546	0.032	14	1	14	15	0	15	2358.44	14.00192	NU1
3333.31	0.0429	0.033	13	1	12	14	2	13	2327.90	11.01049	NU1
3333.37	0.0143	0.033	13	2	12	14	1	13	2327.88	11.00954	NU1
3333.44	0.0022	0.0417	8	6	2	8	8	1	1789.10	0.004043	NU3
3333.56	0.0012	0.0381	10	1	10	9	0	9	920.18	9.013676	2NU2**
3333.75	0.0059	0.0787	5	4	1	5	3	2	2130.50	2.066632	2NU2***
3334.64	8.0867	0.0643	6	4	3	7	5	2	1059.85	4.131192	NU1
3334.69	0.0014	0.0447	5	5	1	6	6	0	1045.07	5.399693	NU1**
3334.69	0.0042	0.0447	5	5	0	6	6	1	1045.07	5.399718	NU1**
3334.80	0.0014	0.0655	5	1	5	5	5	0	742.10	0.000013	NU3
3336.02	0.0305	0.0470	12	3	10	13	2	11	2246.98	7.82232	NU1
3336.18	0.3080	0.0894	8	4	4	8	3	5	1050.15	4.85	2NU2-
3336.24	0.0020	0.0720	4	4	0	4	3	1	2005.92	1.088294	2NU2***
3336.69	15.4453	0.0873	6	2	5	5	1	4	399.46	3.129447	2NU2
3336.73	3.7934	0.0447	5	5	1	6	6	0	1045.07	5.399693	NU1
3336.73	11.3802	0.0447	5	5	0	6	6	1	1045.07	5.399718	NU1
3336.86	0.5024	0.0737	9	3	6	10	4	7	1581.34	3.465920	NU1
3337.10	0.0690	0.0683	8	0	8	8	3	5	1050.15	0.101	NU1+
3337.34	0.0059	0.0689	4	4	1	4	3	2	2004.81	1.082946	2NU2***
3337.46	0.0065	0.0781	7	2	6	6	1	5	542.91	4.008107	2NU2*
3337.75	0.0020	0.0719	5	4	2	5	3	3	2126.41	2.024051	2NU2***
3337.85	0.0054	0.0656	6	4	2	7	5	3	1059.65	4.143594	NU1*
3337.86	0.0041	0.0720	6	4	3	6	3	4	2271.70	2.878858	2NU2***
3338.43	0.0026	0.0733	6	3	3	7	5	2	1059.85	0.063852	NU3*
3339.00	1.5020	0.0603	8	3	6	8	2	7	885.62	3.456295	2NU2
3339.08	0.0523	0.0699	6	1	6	6	4	3	756.75	0.005871	NU1
3339.30	0.1549	0.0784	3	1	2	4	4	1	488.10	0.004537	NU1
3339.36	0.0027	0.0840	6	4	2	6	3	3	661.56	3.075987	2NU2*
3340.07	1.0982	0.0381	10	0	10	9	1	9	920.21	9.013420	2NU2
3340.22	3.2949	0.0381	10	1	10	9	0	9	920.18	9.013676	2NU2
3340.30	0.0431	0.0655	11	3	8	11	2	9	1690.70	5.642326	2NU2
3340.40	0.0034	0.0613	8	1	7	7	2	6	709.60	4.913532	2NU2*
3340.51	0.0073	0.0970	4	2	2	3	1	3	142.28	0.610552	2NU2*
3341.36	0.9587	0.0729	8	1	7	9	3	6	1282.92	0.139840	NU3
3342.03	0.0046	0.0558	9	1	8	9	5	5	1474.99	0.005298	NU3
3342.28	2.7098	0.0656	6	4	2	7	5	3	1059.65	4.143594	NU1
3342.38	0.0047	0.0962	5	2	3	4	1	4	1821.61	0.386397	2NU2***
3342.93	0.6747	0.0443	9	1	8	9	0	9	920.18	1.844131	2NU2
3343.27	0.0296	0.0868	4	3	2	3	2	1	1819.34	2.320352	2NU2***
3344.28	0.0056	0.0649	10	2	8	10	5	5	1724.72	0.238204	NU1
3344.35	0.0012	0.0781	7	2	6	6	1	5	542.91	4.008107	2NU2**
3344.42	0.0010	0.0775	8	3	5	9	4	6	1340.89	3.141455	NU1*
3345.08	0.0136	0.0620	9	4	6	8	5	3	1255.92	0.597432	2NU2
3345.24	0.0119	0.0787	5	4	1	5	3	2	508.81	2.066632	2NU2*
3345.45	0.0104	0.0679	5	3	3	6	5	2	888.60	0.105000	NU3*
3345.96	2.3073	0.0876	7	4	3	7	3	4	842.38	4.268667	2NU2
3347.25	0.0155	0.0515	6	6	1	7	5	2	1059.85	0.084894	2NU2
3347.29	0.0099	0.0834	4	4	1	5	1	4	399.46	0.001994	2NU2
3347.70	0.0052	0.0497	6	6	0	7	5	3	1059.65	0.084869	2NU2
3347.96	0.2250	0.0430	9	2	8	9	1	9	920.21	1.842036	2NU2
3348.15	0.0039	0.0720	4	4	0	4	3	1	383.85	1.088294	2NU2*
3348.20	1.3374	0.0733	6	3	3	7	5	2	1059.85	0.063852	NU3
3348.39	0.5063	0.0775	8	3	5	9	4	6	1340.89	3.141455	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3348.56	0.0692	0.0534	10	2	8	10	1	9	1293.04	3.646815	2NU2
3348.90	0.0186	0.0516	8	5	4	7	6	1	1216.20	0.221954	2NU2
3349.47	0.0095	0.0861	4	3	1	3	2	2	1813.81	2.164905	2NU2***
3349.53	0.0073	0.0687	5	3	2	6	5	1	888.63	0.221000	NU3*
3349.54	0.0117	0.0689	4	4	1	4	3	2	382.52	1.082946	2NU2*
3349.79	0.0010	0.0656	8	4	5	8	3	6	2630.21	4.264036	2NU2***
3349.80	0.0062	0.0542	8	5	3	7	6	2	1216.20	0.222252	2NU2
3349.88	0.4189	0.0692	7	0	7	8	2	6	982.91	0.040852	NU3
3350.01	0.0116	0.0839	6	2	5	7	3	4	842.38	0.996364	NU1*
3350.09	0.0296	0.0842	3	3	1	2	2	0	136.17	2.394805	2NU2*
3350.22	0.0040	0.0719	5	4	2	5	3	3	504.00	2.024051	2NU2*
3350.37	0.0113	0.0545	4	4	1	5	5	0	2406.15	3.52	NU1***
3350.40	0.0039	0.0546	4	4	0	5	5	1	2406.15	3.61	NU1***
3350.58	0.0020	0.0679	5	3	3	6	5	2	888.60	0.105000	NU3**
3351.24	3.2323	0.0781	7	2	6	6	1	5	542.91	4.008107	2NU2
3351.54	0.0884	0.0840	3	3	0	2	2	1	134.91	2.366160	2NU2*
3351.80	0.0029	0.0812	8	2	6	9	4	5	1360.28	0.309042	NU3*
3351.93	0.0082	0.0720	6	4	3	6	3	4	648.97	2.878858	2NU2*
3352.69	0.0022	0.0787	5	4	1	5	3	2	508.81	2.066632	2NU2**
3353.26	1.7229	0.0613	8	1	7	7	2	6	709.60	4.913532	2NU2
3353.65	3.6532	0.0970	4	2	2	3	1	3	142.28	0.610552	2NU2
3353.70	0.0178	0.0703	5	2	3	5	5	0	742.10	0.001850	NU1
3353.84	0.0108	0.0646	8	2	7	7	1	6	704.22	4.996649	2NU2*
3354.19	0.1379	0.0465	11	2	9	12	3	10	1962.55	7.003088	NU1
3354.44	1.3721	0.0840	6	4	2	6	3	3	661.56	3.075987	2NU2
3355.25	1.3923	0.0349	11	0	11	10	1	10	1114.56	10.018153	2NU2
3355.31	0.4641	0.0349	11	1	11	10	0	10	1114.55	10.018239	2NU2
3355.36	0.0015	0.0696	7	4	4	7	3	5	816.72	3.637027	2NU2*
3355.44	0.1535	0.032	13	0	13	14	1	14	2073.66	12.99957	NU1
3355.72	5.1842	0.0679	5	3	3	6	5	2	888.60	0.105000	NU3+
3355.75	0.0511	0.0665	9	1	8	9	4	5	1360.28	0.116860	NU1
3355.92	0.1955	0.0529	9	3	7	9	2	8	1080.38	3.554957	2NU2
3356.21	0.0208	0.0776	6	3	4	7	4	3	931.22	2.767638	NU1*
3356.27	0.1577	0.0349	12	2	11	13	1	12	2042.33	9.99731	NU1
3356.33	0.0045	0.0585	11	2	10	11	4	7	1899.06	0.013267	NU3
3356.56	0.4977	0.0793	8	2	6	7	3	5	816.72	2.422109	2NU2
3356.70	0.0461	0.0774	9	4	5	8	5	4	1255.16	0.669979	2NU2
3357.00	5.8196	0.0839	6	2	5	7	3	4	842.38	0.996364	NU1
3358.10	0.0087	0.0796	7	3	4	8	4	5	1122.72	3.022183	NU1*
3358.62	0.0164	0.0840	3	3	0	2	2	1	134.91	2.366160	2NU2**
3358.94	0.0038	0.0776	6	3	4	7	4	3	931.22	2.767638	NU1**
3359.55	3.6412	0.0697	5	3	2	6	5	1	888.63	0.221000	NU3+
3359.70	0.0172	0.0735	11	4	8	12	3	9	2105.90	4.355455	NU1
3360.14	5.9457	0.0787	5	4	1	5	3	2	508.81	2.066632	2NU2
3360.39	0.0441	0.0688	9	2	7	9	5	4	1477.31	0.180415	NU1
3360.66	0.0020	0.0646	8	2	7	7	1	6	704.22	4.996649	2NU2**
3360.68	0.0550	0.0557	11	3	9	12	2	10	1960.22	6.964699	NU1
3360.92	0.0165	0.0729	6	2	4	6	5	1	888.63	0.010677	NU1
3361.68	10.3768	0.0776	6	3	4	7	4	3	931.22	2.767638	NU1
3362.36	4.3544	0.0796	7	3	4	8	4	5	1122.72	3.022183	NU1
3362.74	0.0106	0.0771	5	3	2	6	4	3	2398.39	3.53	NU1***
3362.91	1.9510	0.0720	4	4	0	4	3	1	383.85	1.088294	2NU2
3363.09	0.0164	0.0600	10	4	7	9	5	4	1477.31	0.720783	2NU2
3363.10	0.0347	0.0608	5	4	1	6	5	2	888.60	3.63	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3363.15	0.0028	0.0695	8	5	4	9	2	7	1201.95	0.030877	2NU2
3363.80	0.0075	0.032	14	1	13	14	2	13	2327.90	1.90878	NU1
3363.82	0.0025	0.032	14	0	14	14	1	13	2327.88	1.90883	NU1
3363.85	0.3093	0.0907	3	3	0	3	0	3	136.77	0.016715	2NU2
3364.23	5.8655	0.0689	4	4	1	4	3	2	382.52	1.082946	2NU2
3364.27	0.2108	0.0803	4	0	4	5	4	1	610.35	0.001060	NU3
3364.31	14.8187	0.0842	3	3	1	2	2	0	136.17	2.394805	2NU2
3364.77	1.4440	0.0812	8	2	6	9	4	5	1360.28	0.309042	NU3
3364.88	1.9911	0.0719	5	4	2	5	3	3	504.00	2.024051	2NU2
3365.36	0.0064	0.0608	5	4	1	6	5	2	888.60	3.63	NU1**
3365.45	0.0306	0.0590	8	0	8	8	4	5	1122.72	0.001991	NU3
3365.71	44.2161	0.0840	3	3	0	2	2	1	134.91	2.366160	2NU2
3366.12	0.0020	0.0874	4	0	4	5	3	3	504.00	0.095779	NU1*
3366.15	0.0859	0.0382	10	1	9	10	0	10	1114.55	1.848326	2NU2
3366.23	0.0754	0.0734	7	2	5	7	5	2	1059.85	0.038149	NU1
3366.49	4.1179	0.0720	6	4	3	6	3	4	648.97	2.878858	2NU2
3366.99	0.0242	0.0712	8	2	6	8	5	3	1255.92	0.098024	NU1
3367.22	0.0021	0.0840	6	2	4	7	4	3	2572.13	0.157817	NU3***
3367.34	0.0223	0.0743	5	1	5	5	4	2	610.12	0.003573	NU1
3367.49	5.4234	0.0646	8	2	7	7	1	6	704.22	4.996649	2NU2
3367.62	17.3426	0.0608	5	4	1	6	5	2	888.60	3.63	NU1-
3368.72	0.2578	0.0378	10	2	9	10	1	10	1114.56	1.847651	2NU2
3368.80	2.3502	0.0744	6	2	5	7	4	4	927.77	0.173000	NU3+
3369.10	3.9693	0.0604	5	4	2	6	5	1	888.63	2.56	NU1-
3369.12	0.0311	0.0608	8	1	7	8	5	4	1255.16	0.003922	NU3
3369.74	0.7503	0.0696	7	4	4	7	3	5	816.72	3.637027	2NU2
3369.91	0.1768	0.0332	12	0	12	11	1	11	1327.14	11.021861	2NU2
3369.93	0.5304	0.0332	12	1	12	11	0	11	1327.14	11.021891	2NU2
3370.98	1.0166	0.0874	4	0	4	5	3	3	504.00	0.095779	NU1
3371.36	0.0593	0.0868	4	3	2	3	2	1	212.15	2.320352	2NU2*
3371.69	0.0018	0.0539	9	2	8	8	1	7	882.93	6.019178	2NU2*
3371.88	0.1900	0.0820	9	3	6	8	4	5	1122.72	1.416234	2NU2
3372.81	0.0070	0.0640	4	3	2	5	5	1	742.10	0.101300	NU3*
3373.15	0.0023	0.0864	5	2	4	6	3	3	2282.59	1.411171	NU1***
3373.97	0.1651	0.0544	10	2	8	11	3	9	1695.03	5.954956	NU1
3374.18	0.0230	0.0645	4	3	1	5	5	0	742.10	0.111100	NU3*
3374.32	0.0041	0.0529	9	5	5	8	6	2	1411.68	0.391127	2NU2
3374.34	0.2056	0.0458	10	3	8	10	2	9	1293.66	3.605841	2NU2
3374.69	1.6486	0.0868	5	1	5	6	2	4	602.77	0.254241	NU1
3375.35	0.0124	0.0586	9	5	4	8	6	3	1411.65	0.393126	2NU2
3375.65	1.0261	0.0656	8	4	5	8	3	6	1006.12	4.264036	2NU2
3375.68	0.0098	0.0896	6	3	4	5	2	3	2053.98	2.452523	2NU2***
3376.57	0.0032	0.0515	11	5	7	11	7	4	2321.94	0.077402	NU3
3376.64	0.1926	0.0892	4	3	1	4	0	4	222.06	0.047652	2NU2
3377.09	0.0021	0.0459	8	7	2	9	6	3	1631.41	0.197898	2NU2
3377.49	2.6321	0.0507	9	1	8	8	2	7	885.62	5.987889	2NU2
3377.94	0.0013	0.0640	4	3	2	5	5	1	742.10	0.101300	NU3**
3378.03	0.5830	0.0324	12	1	12	13	0	13	1806.78	11.99672	NU1
3378.31	0.0190	0.0861	4	3	1	3	2	2	206.30	2.164905	2NU2*
3378.41	0.1905	0.0325	12	0	12	13	1	13	1806.78	11.99676	NU1
3378.47	0.0217	0.0628	9	1	9	9	3	6	1282.92	0.003124	NU3
3378.51	0.0153	0.0884	5	3	2	4	2	3	1907.99	1.841317	2NU2***
3378.52	0.0110	0.0868	4	3	2	3	2	1	212.15	2.320352	2NU2**
3378.54	0.0015	0.0794	6	0	6	7	2	5	2392.58	0.051494	NU3***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3378.79	0.5041	0.0361	11	1	10	12	2	11	1774.74	9.078065	NU1
3379.10	0.1680	0.0379	11	2	10	12	1	11	1774.60	9.076485	NU1
3379.12	0.9184	0.0731	6	1	6	7	3	5	816.72	0.038676	NU3
3379.27	0.0043	0.0645	4	3	1	5	5	0	742.10	0.111100	NU3**
3379.52	0.0026	0.0424	8	6	3	7	7	0	1394.86	0.074321	2NU2
3380.41	2.7376	0.0790	6	3	3	7	4	4	927.77	2.14	NU1-
3381.13	0.0659	0.0442	11	2	9	11	1	10	1524.87	3.646421	2NU2
3381.36	0.0017	0.0698	9	2	7	8	3	6	1006.12	3.529968	2NU2*
3381.67	0.0068	0.0734	4	3	1	5	4	2	2251.71	3.270203	NU1***
3381.87	0.0022	0.0804	5	1	5	6	3	4	2271.70	0.038984	NU3***
3382.87	0.0151	0.0516	9	5	5	9	7	2	1810.63	0.029706	NU3
3383.07	3.4956	0.0640	4	3	2	5	5	1	742.10	0.101300	NU3+
3383.14	0.0204	0.0733	4	3	2	5	4	1	2251.86	3.250024	NU1***
3383.74	0.0605	0.0324	13	1	13	12	0	12	1557.91	11.99676	2NU2
3383.74	0.1814	0.0324	13	0	13	12	1	12	1557.91	11.99672	2NU2
3383.87	0.0026	0.0804	7	1	6	8	3	5	1050.15	0.180748	NU3*
3384.37	11.5062	0.0645	4	3	1	5	5	0	742.10	0.111100	NU3+
3384.73	0.1328	0.0600	9	4	6	9	3	7	1216.27	4.734521	2NU2
3385.01	0.0074	0.0785	10	4	6	9	5	5	1474.99	0.959644	2NU2
3385.24	0.8958	0.0539	9	2	8	8	1	7	882.93	6.019178	2NU2
3385.27	0.0071	0.0498	8	5	4	8	7	1	1590.74	0.014493	NU3
3385.35	0.0035	0.0861	4	3	1	3	2	2	206.30	2.164905	2NU2**
3385.44	0.4891	0.0655	10	3	8	11	2	9	1690.70	5.859437	NU1
3385.69	29.6440	0.0868	4	3	2	3	2	1	212.15	2.320352	2NU2
3385.98	0.0051	0.0538	9	5	4	9	7	3	1810.63	0.029861	NU3
3386.30	0.0215	0.0509	8	5	3	8	7	2	1590.74	0.014513	NU3
3386.62	0.0101	0.0325	13	1	13	13	2	12	2042.38	1.90640	NU1
3386.67	0.0303	0.0327	13	0	13	13	1	12	2042.33	1.90653	NU1
3387.26	0.0896	0.0348	11	1	10	11	0	11	1327.14	1.851910	2NU2
3387.36	0.0184	0.0769	5	3	3	6	4	2	757.78	3.066224	NU1*
3387.72	0.0066	0.0563	10	5	5	10	7	4	2054.40	0.051622	NU3
3387.81	0.0189	0.0476	7	5	3	7	7	0	1394.86	0.004734	NU3
3388.05	0.0063	0.0479	7	5	2	7	7	1	1394.86	0.004736	NU3
3388.46	0.0299	0.0348	11	2	10	11	1	11	1327.14	1.851690	2NU2
3389.17	0.0028	0.0795	7	2	5	8	3	6	2630.21	3.262769	NU1***
3389.18	0.0119	0.0892	5	3	3	4	2	2	315.79	2.324407	2NU2*
3389.23	0.0093	0.0962	5	2	3	4	1	4	224.83	0.386397	2NU2*
3389.31	0.0153	0.0656	7	1	6	7	5	3	1059.65	0.002162	NU3
3389.46	0.0424	0.0762	4	1	4	4	4	1	488.10	0.001222	NU1
3389.87	0.1961	0.0741	7	0	7	7	3	4	842.38	0.033256	NU1
3389.96	0.0034	0.0769	5	3	3	6	4	2	757.78	3.066224	NU1**
3390.68	0.0024	0.0444	10	2	9	9	1	8	1079.07	7.043661	2NU2*
3391.54	1.4140	0.0637	9	2	7	10	3	8	1446.16	4.932263	NU1
3392.09	0.0677	0.0709	8	1	7	8	4	4	1131.76	0.146118	NU1
3392.40	9.5122	0.0861	4	3	1	3	2	2	206.30	2.164905	2NU2
3392.57	9.2083	0.0769	5	3	3	6	4	2	757.78	3.066224	NU1
3392.70	11.7236	0.0546	4	4	0	5	5	1	742.10	3.61	NU1-
3392.95	34.2967	0.0545	4	4	1	5	5	0	742.10	3.52	NU1-
3393.19	0.8539	0.0698	9	2	7	8	3	6	1006.12	3.529968	2NU2
3394.24	0.1346	0.0536	10	4	7	10	3	8	1446.16	5.051335	2NU2
3394.54	0.1520	0.0811	10	4	7	11	3	8	1813.26	3.178818	NU1
3394.87	0.0220	0.0406	11	3	9	11	2	10	1525.13	3.632655	2NU2
3395.66	0.0017	0.0962	5	2	3	4	1	4	224.83	0.386397	2NU2**
3395.88	0.0052	0.0793	11	5	7	12	4	8	2205.65	1.975180	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3396.23	1.2212	0.0841	7	2	5	8	4	4	1131.76	0.247061	NU3
3396.43	0.0022	0.0892	5	3	3	4	2	2	315.79	2.324407	2NU2**
3396.82	0.0138	0.0864	5	2	4	6	3	3	661.56	1.411171	NU1*
3397.21	32.0157	0.0771	5	3	2	6	4	3	756.75	3.53	NU1+
3397.28	0.0193	0.032	14	0	14	13	1	13	1806.78	12.99955	2NU2
3397.28	0.0578	0.032	14	1	14	13	0	13	1806.78	12.99957	2NU2
3397.40	0.4548	0.0880	5	3	2	5	0	5	325.35	0.062476	2NU2
3397.59	0.0062	0.0532	10	5	6	9	6	3	1631.41	0.576235	2NU2
3397.93	0.0088	0.0794	6	0	6	7	2	5	782.40	0.051494	NU3*
3398.42	0.0024	0.0832	8	3	6	7	2	5	2392.58	3.262769	2NU2***
3398.81	1.3424	0.0804	7	1	6	8	3	5	1050.15	0.180748	NU3
3399.68	0.0045	0.0348	9	8	1	9	9	0	2225.56	1.131403	NU1
3399.84	0.0026	0.0447	9	6	3	8	7	2	1590.74	0.197898	2NU2
3400.05	0.0025	0.0864	5	2	4	6	3	3	661.56	1.411171	NU1**
3400.28	0.0015	0.0348	9	8	2	9	9	1	2225.56	1.131403	NU1
3400.32	0.3918	0.0431	10	1	9	9	2	8	1080.38	7.032041	2NU2
3400.65	0.5258	0.0401	10	1	9	11	2	10	1525.13	8.063213	NU1
3400.73	0.0021	0.0619	10	5	5	9	6	4	1631.27	0.586260	2NU2
3400.83	0.0021	0.0835	6	2	4	7	3	5	2439.97	2.751216	NU1***
3401.02	0.6015	0.0331	11	1	11	12	0	12	1557.91	11.021861	NU1
3401.02	1.8044	0.0335	11	0	11	12	1	12	1557.91	11.021891	NU1
3401.19	0.0029	0.0795	4	2	2	5	4	1	2251.86	0.042579	NU3***
3401.51	1.5770	0.0442	10	2	9	11	1	10	1524.87	8.058917	NU1
3401.53	0.0024	0.0716	8	2	6	9	3	7	1216.27	4.004942	NU1*
3402.10	4.6556	0.0962	5	2	3	4	1	4	224.83	0.386397	2NU2
3402.18	0.0379	0.0694	6	1	5	6	5	2	888.60	0.000758	NU3
3402.72	0.0334	0.0795	3	0	3	4	4	0	488.13	0.000270	NU3
3403.29	6.8788	0.0864	5	2	4	6	3	3	661.56	1.411171	NU1
3403.68	5.9268	0.0892	5	3	3	4	2	2	315.79	2.324407	2NU2
3403.76	0.0196	0.0896	6	3	4	5	2	3	446.50	2.452523	2NU2*
3404.21	0.0060	0.0890	3	0	3	4	3	2	382.52	0.051049	NU1*
3404.21	1.1866	0.0444	10	2	9	9	1	8	1079.07	7.043661	2NU2
3404.27	0.0017	0.0539	12	4	9	12	6	6	2437.56	0.124675	NU3
3405.02	0.0270	0.0646	7	0	7	7	4	4	927.77	0.001966	NU3
3405.51	0.0016	0.0794	6	0	6	7	2	5	782.40	0.051494	NU3**
3406.64	1.2173	0.0716	8	2	6	9	3	7	1216.27	4.004942	NU1
3407.40	0.0063	0.0379	12	2	10	12	1	11	1774.60	3.652921	2NU2
3407.84	0.0044	0.0694	5	1	4	5	5	1	742.10	0.000125	NU3
3407.97	0.0017	0.0348	10	1	10	11	0	11	2915.94	10.018153	NU1***
3408.11	0.0331	0.0752	10	3	7	9	4	6	1340.89	2.171641	2NU2
3408.17	0.0128	0.0840	6	2	4	7	4	3	931.22	0.157817	NU3*
3408.54	0.0306	0.0884	5	3	2	4	2	3	300.35	1.841317	2NU2*
3408.72	1.4741	0.0774	5	2	4	6	4	3	756.75	0.015200	NU3-
3408.83	3.0175	0.0890	3	0	3	4	3	2	382.52	0.051049	NU1
3409.09	0.0094	0.0331	12	1	11	12	0	12	1557.91	1.854934	2NU2
3409.19	0.0395	0.0683	3	3	0	4	4	1	2129.63	3.393148	NU1***
3409.54	0.0131	0.0680	3	3	1	4	4	0	2129.65	3.390390	NU1***
3409.67	0.0283	0.0331	12	2	11	12	1	12	1557.91	1.854861	2NU2
3410.07	0.1040	0.0337	12	1	12	12	2	11	1774.74	1.854861	NU1
3410.19	0.1288	0.0552	11	6	5	12	6	6	2437.56	9.054429	NU3
3410.44	0.0052	0.032	15	1	15	14	0	14	2073.66	14.00192	2NU2
3410.44	0.0156	0.032	15	0	15	14	1	14	2073.66	14.00191	2NU2
3410.59	0.0347	0.0337	12	0	12	12	1	11	1774.60	1.854934	NU1
3411.02	0.0096	0.0622	10	2	9	10	4	6	1616.51	0.021601	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3411.10	0.0036	0.0896	6	3	4	5	2	3	446.50	2.452523	2NU2**
3411.13	0.0193	0.0871	4	2	3	5	3	2	2130.50	1.841317	NU1***
3411.83	0.0045	0.0869	6	1	5	7	3	4	2462.87	0.214427	NU3***
3411.85	0.3863	0.0516	11	6	6	12	6	7	2433.85	9.048040	NU3
3411.90	0.4713	0.0747	9	3	7	10	2	8	1438.00	4.706625	NU1
3412.11	0.0022	0.0887	6	3	3	5	2	4	2024.17	1.411171	2NU2***
3413.09	0.0050	0.0351	13	2	12	13	3	11	2248.16	3.75319	NU1
3413.09	4.3976	0.0794	6	0	6	7	2	5	782.40	0.051494	NU3
3413.77	0.1431	0.0721	11	5	6	12	5	7	2300.80	10.047055	NU3
3413.84	0.0024	0.0840	6	2	4	7	4	3	931.22	0.157817	NU3**
3414.23	0.0150	0.0470	13	1	12	13	2	11	2246.98	3.76133	NU1
3414.48	0.0128	0.0852	5	2	3	6	3	4	2271.70	2.452523	NU1***
3414.65	0.0020	0.0757	3	2	2	4	4	1	2129.63	0.015552	NU3***
3414.81	0.0130	0.0804	5	1	5	6	3	4	648.97	0.038984	NU3*
3414.93	0.0026	0.0806	6	5	2	7	2	5	782.40	0.003511	2NU2
3414.94	0.0171	0.0795	7	2	5	8	3	6	1006.12	3.262769	NU1*
3415.38	0.1234	0.0733	4	3	2	5	4	1	610.35	3.250024	NU1*
3415.46	0.4965	0.0566	12	3	9	13	3	10	2414.73	11.684530	NU3
3415.47	0.0057	0.0884	5	3	2	4	2	3	300.35	1.841317	2NU2**
3415.49	0.0249	0.0813	10	5	5	10	4	6	1616.51	6.465380	2NU2
3415.61	0.1625	0.0488	12	4	9	13	4	10	2426.22	11.473010	NU3
3415.97	0.0034	0.0881	7	3	5	6	2	4	602.77	2.751216	2NU2*
3416.00	0.0088	0.0463	9	1	8	10	2	9	1293.66	7.043661	NU1*
3416.26	0.0190	0.0368	12	3	10	12	2	11	1774.74	3.648229	2NU2
3416.33	0.0042	0.0412	10	7	3	10	8	2	2254.34	3.150851	NU1
3416.33	0.0126	0.0412	10	7	4	10	8	3	2254.34	3.150801	NU1
3416.71	0.0415	0.0734	4	3	1	5	4	2	610.12	3.270203	NU1*
3417.22	0.5182	0.0748	7	1	6	7	4	3	931.22	0.135960	NU1
3417.44	0.0029	0.0534	9	2	8	10	1	9	1293.04	7.032041	NU1*
3417.45	0.0032	0.0795	7	2	5	8	3	6	1006.12	3.262769	NU1**
3417.93	0.0228	0.0733	4	3	2	5	4	1	610.35	3.250024	NU1**
3418.45	9.8020	0.0896	6	3	4	5	2	3	446.50	2.452523	2NU2
3419.18	0.0016	0.0463	9	1	8	10	2	9	1293.66	7.043661	NU1**
3419.22	0.0077	0.0734	4	3	1	5	4	2	610.12	3.270203	NU1**
3419.36	0.0096	0.0561	11	4	8	11	6	5	2144.12	0.111521	NU3
3419.52	6.4141	0.0840	6	2	4	7	4	3	931.22	0.157817	NU3
3419.96	8.5676	0.0795	7	2	5	8	3	6	1006.12	3.262769	NU1
3420.03	0.0116	0.0391	9	7	3	9	8	2	2009.87	2.165389	NU1
3420.03	0.0348	0.0392	9	7	2	9	8	1	2009.87	2.165395	NU1
3420.49	61.6930	0.0733	4	3	2	5	4	1	610.35	3.250024	NU1
3420.74	0.4658	0.0378	11	1	10	10	2	9	1293.66	8.058917	2NU2
3421.37	0.0024	0.0804	5	1	5	6	3	4	648.97	0.038984	NU3**
3421.74	20.7259	0.0734	4	3	1	5	4	2	610.12	3.270203	NU1
3422.25	0.0156	0.0595	11	3	9	11	5	6	1999.02	0.072485	NU3
3422.37	4.3866	0.0463	9	1	8	10	2	9	1293.66	7.043661	NU1
3422.40	15.2993	0.0884	5	3	2	4	2	3	300.35	1.841317	2NU2
3422.56	0.1564	0.0385	11	2	10	10	1	9	1293.04	8.063213	2NU2
3423.07	0.4244	0.0564	11	5	7	12	5	8	2275.44	9.908577	NU3
3423.23	1.7581	0.0354	10	0	10	11	1	11	1327.14	10.018239	NU1
3423.24	5.2744	0.0348	10	1	10	11	0	11	1327.14	10.018153	NU1
3423.94	0.0196	0.0369	8	7	1	8	8	0	1789.10	1.126216	NU1
3423.94	0.0589	0.0369	8	7	2	8	8	1	1789.10	1.126215	NU1
3424.03	0.0334	0.0920	4	1	4	5	2	3	446.50	0.386397	NU1*
3424.03	1.4699	0.0534	9	2	8	10	1	9	1293.04	7.032041	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3424.32	0.0012	0.0646	6	5	1	6	4	2	757.78	2.089996	2NU2*
3424.37	0.0016	0.0460	10	6	5	9	7	2	1810.63	0.354752	2NU2
3424.88	0.0039	0.0580	5	5	0	5	4	1	610.35	1.101100	2NU2*
3425.12	0.0013	0.0566	5	5	1	5	4	2	610.12	1.100600	2NU2*
3425.32	0.0036	0.0607	6	5	2	6	4	3	756.75	2.085226	2NU2*
3425.33	0.1336	0.0590	10	2	8	9	3	7	1216.27	4.706625	2NU2
3426.15	0.3077	0.0772	11	4	7	12	4	8	2205.65	10.766337	NU3
3426.60	0.0014	0.0866	4	1	4	5	3	3	2126.41	0.035251	NU3***
3426.72	0.2120	0.0794	9	5	4	9	4	5	1360.28	5.113359	2NU2
3426.75	0.2825	0.0446	10	7	3	11	7	4	2321.94	6.588161	NU3
3426.80	0.0941	0.0425	10	7	4	11	7	5	2321.89	6.588139	NU3
3426.80	0.0020	0.0580	5	5	0	5	4	1	2251.86	1.101100	2NU2***
3427.01	0.0692	0.0865	6	3	3	6	0	6	446.71	0.051901	2NU2
3427.01	0.0018	0.0607	6	5	2	6	4	3	2398.39	2.085226	2NU2***
3427.05	0.0056	0.0824	5	2	3	6	4	2	757.78	0.086601	NU3*
3427.21	0.0011	0.0620	8	5	4	8	4	5	1122.72	3.901175	2NU2*
3427.34	0.0049	0.0832	8	3	6	7	2	5	782.40	3.262769	2NU2*
3427.54	0.0062	0.0920	4	1	4	5	2	3	446.50	0.386397	NU1**
3427.77	0.0125	0.0835	6	2	4	7	3	5	816.72	2.751216	NU1*
3427.93	6.5170	0.0804	5	1	5	6	3	4	648.97	0.038984	NU3
3428.43	0.0047	0.0779	4	2	3	5	4	2	610.12	0.034972	NU3*
3428.61	0.0036	0.0620	8	5	4	8	4	5	2764.71	6.79	NU1***
3429.14	0.0099	0.0578	10	4	7	10	6	4	1875.53	0.086992	NU3
3429.22	0.0061	0.0324	13	1	12	13	0	13	1806.78	1.90654	2NU2
3429.47	0.0046	0.0388	9	0	9	10	1	10	2705.18	9.013676	NU1***
3429.52	0.0029	0.0333	13	2	12	13	1	13	1806.78	1.90640	2NU2
3429.60	0.0015	0.0382	9	1	9	10	0	10	2705.15	9.013420	NU1***
3430.30	0.0023	0.0835	6	2	4	7	3	5	816.72	2.751216	NU1**
3430.40	0.1349	0.0943	3	3	1	2	0	2	70.08	0.013376	2NU2
3430.81	1.6839	0.0881	7	3	5	6	2	4	602.77	2.751216	2NU2
3431.06	16.6946	0.0920	4	1	4	5	2	3	446.50	0.386397	NU1
3431.44	0.0084	0.0865	4	2	2	5	3	3	2126.41	2.324407	NU1***
3432.09	0.0012	0.0834	8	3	6	9	2	7	2818.40	3.529968	NU1***
3432.49	0.2575	0.0785	6	1	5	6	4	2	757.78	0.084732	NU1
3432.83	6.2277	0.0835	6	2	4	7	3	5	816.72	2.751216	NU1
3433.17	0.1342	0.0863	9	4	6	10	3	7	1538.23	2.171641	NU1
3433.67	0.0056	0.0349	13	2	11	13	1	12	2042.33	3.76133	2NU2
3433.74	0.2553	0.0793	6	0	6	6	3	3	661.56	0.051901	NU1
3433.80	0.1219	0.0358	11	1	11	11	2	10	1525.13	1.851690	NU1
3434.00	0.0070	0.0834	8	3	6	9	2	7	1201.95	3.529968	NU1*
3434.06	0.3658	0.0359	11	0	11	11	1	10	1524.87	1.851910	NU1
3434.23	0.0274	0.0869	6	1	5	7	3	4	842.38	0.214427	NU3*
3434.24	0.1748	0.0756	8	5	3	8	4	4	1131.76	4.012859	2NU2
3434.52	0.0307	0.0674	4	4	1	3	3	0	1907.63	3.393148	2NU2***
3434.69	0.0102	0.0665	4	4	0	3	3	1	1907.47	3.390390	2NU2***
3435.65	0.0744	0.0590	9	4	6	9	6	3	1631.41	0.059724	NU3
3435.92	1.2000	0.0812	10	5	6	11	4	7	1899.06	37.2	NU1+
3436.05	0.0736	0.0381	12	2	11	12	3	10	1962.55	3.648229	NU1
3436.12	0.0019	0.0343	13	3	11	13	2	12	2042.38	3.75319	2NU2
3436.22	0.0012	0.0787	5	1	4	5	4	1	610.35	0.031887	NU1*
3436.29	0.5083	0.0411	12	2	10	13	2	11	2246.98	11.888730	NU3
3436.33	0.1892	0.0330	13	1	12	14	1	13	2327.88	13.271580	NU3
3436.33	0.5674	0.0330	13	2	12	14	2	13	2327.90	13.271150	NU3
3436.48	0.1169	0.0871	4	2	3	5	3	2	508.81	1.841317	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3437.12	0.0073	0.0552	8	1	7	9	2	8	1080.38	6.019178	NU1*
3437.38	0.0017	0.0752	10	3	7	11	3	8	3441.09	9.899853	NU3***
3437.40	1.0818	0.0704	7	5	2	7	4	3	931.22	3.039271	2NU2
3437.42	0.6686	0.0536	10	6	4	11	6	5	2144.12	7.774282	NU3
3437.76	0.4621	0.0658	11	3	8	12	3	9	2105.90	10.744435	NU3
3438.02	0.0014	0.0430	9	7	3	10	7	4	2054.40	5.133658	NU3*
3438.03	0.0013	0.0834	8	3	6	9	2	7	1201.95	3.529968	NU1**
3438.07	0.0397	0.0681	8	1	8	8	3	5	1050.15	0.005295	NU3
3438.08	0.2229	0.0515	10	6	5	11	6	6	2142.69	7.773013	NU3
3438.18	2.8088	0.0824	5	2	3	6	4	2	757.78	0.086601	NU3
3438.28	0.0295	0.0391	12	1	11	12	2	10	1960.22	3.652921	NU1
3438.50	0.9018	0.0548	11	4	8	12	4	9	2124.98	10.481399	NU3
3438.58	0.0277	0.0388	9	0	9	10	1	10	1114.56	9.013676	NU1*
3438.62	0.0092	0.0382	9	1	9	10	0	10	1114.55	9.013420	NU1*
3438.64	0.2102	0.0320	14	1	14	15	1	15	2358.44	14.743490	NU3
3438.64	0.6306	0.0320	14	0	14	15	0	15	2358.44	14.743490	NU3
3438.74	0.1561	0.0703	6	0	6	6	4	3	756.75	0.001595	NU3
3439.18	0.0074	0.0432	13	3	11	13	4	10	2426.22	5.48699	NU1
3439.20	0.6086	0.0787	5	1	4	5	4	1	610.35	0.031887	NU1
3439.50	0.0216	0.0871	4	2	3	5	3	2	508.81	1.841317	NU1**
3439.51	0.0067	0.0465	11	6	6	11	7	5	2321.89	4.990193	NU1
3439.66	0.5908	0.0646	6	5	1	6	4	2	757.78	2.089996	2NU2
3439.68	0.0702	0.0777	4	1	3	4	4	0	488.13	0.005990	NU1
3439.81	0.0440	0.0592	8	4	5	8	6	2	1411.68	0.035676	NU3
3439.82	0.0520	0.0374	9	8	1	10	8	2	2254.34	3.624262	NU3
3439.82	0.1560	0.0373	9	8	2	10	8	3	2254.34	3.624262	NU3
3439.96	2.3745	0.0779	4	2	3	5	4	2	610.12	0.034972	NU3
3440.08	0.0220	0.0646	8	2	7	9	1	8	1079.07	5.987889	NU1*
3440.13	1.9517	0.0580	5	5	0	5	4	1	610.35	1.101100	2NU2
3440.21	0.0202	0.0497	11	6	5	11	7	4	2321.94	4.999181	NU1
3440.36	0.6512	0.0566	5	5	1	5	4	2	610.12	1.100600	2NU2
3440.58	1.7783	0.0607	6	5	2	6	4	3	756.75	2.085226	2NU2
3440.65	0.4327	0.0895	2	0	2	3	3	1	285.23	0.013376	NU1
3440.75	0.3642	0.0624	7	5	3	7	4	4	927.77	3.012848	2NU2
3440.94	0.0016	0.0875	5	0	5	6	2	4	2211.21	0.069891	NU3***
3441.31	0.0051	0.0869	6	1	5	7	3	4	842.38	0.214427	NU3**
3441.62	0.0774	0.0852	5	2	3	6	3	4	648.97	2.452523	NU1*
3441.77	0.0080	0.0653	7	1	6	8	2	7	2495.18	4.996649	NU1***
3441.87	0.0051	0.0388	9	0	9	10	1	10	1114.56	9.013676	NU1**
3441.87	0.0556	0.0350	12	1	11	11	2	10	1525.13	9.076485	2NU2
3441.91	0.0017	0.0382	9	1	9	10	0	10	1114.55	9.013420	NU1**
3441.97	0.0797	0.0680	3	3	1	4	4	0	488.13	3.390390	NU1*
3442.07	3.5091	0.0834	8	3	6	9	2	7	1201.95	3.529968	NU1
3442.15	0.2393	0.0683	3	3	0	4	4	1	488.10	3.393148	NU1*
3442.22	2.4484	0.0832	8	3	6	7	2	5	782.40	3.262769	2NU2
3442.38	0.5343	0.0620	8	5	4	8	4	5	1122.72	3.901175	2NU2
3442.52	58.4557	0.0871	4	2	3	5	3	2	508.81	1.841317	NU1
3442.71	0.1669	0.0350	12	2	11	11	1	10	1524.87	9.078065	2NU2
3442.73	0.0164	0.0484	10	6	4	10	7	3	2054.40	4.061130	NU1
3442.76	0.1726	0.0578	7	4	4	7	6	1	1216.20	0.017491	NU3
3443.07	0.0143	0.0858	3	2	2	4	3	1	2005.92	2.164905	NU1***
3443.10	1.8952	0.0700	10	5	5	11	5	6	1999.02	8.798801	NU3
3443.47	0.0041	0.0646	8	2	7	9	1	8	1079.07	5.987889	NU1**
3443.47	3.6582	0.0552	8	1	7	9	2	8	1080.38	6.019178	NU1

FREQUENCY cm^{-1}	LINE STRENGTH cm^{-1} / gm cm^{-2}	HALF WIDTH cm^{-1} / atm.	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3444.07	0.0044	0.0887	6	3	3	5	2	4	416.22	1.411171	2NU2*
3444.18	0.0010	0.0625	7	4	3	8	1	8	744.16	0.001069	2NU2
3444.22	0.0143	0.0852	5	2	3	6	3	4	648.97	2.452523	NU1**
3444.52	0.0147	0.0680	3	3	1	4	4	0	488.13	3.390390	NU1**
3444.64	0.0174	0.0795	4	2	2	5	4	1	610.35	0.042579	NU3*
3444.70	0.0443	0.0683	3	3	0	4	4	1	488.10	3.393148	NU1**
3445.02	0.0441	0.0552	6	4	3	6	6	0	1045.07	0.005704	NU3
3445.11	0.0729	0.0600	9	5	5	9	4	6	1340.89	4.736397	2NU2
3445.17	13.8539	0.0388	9	0	9	10	1	10	1114.56	9.013676	NU1
3445.21	4.6179	0.0382	9	1	9	10	0	10	1114.55	9.013420	NU1
3445.61	0.0504	0.0463	9	6	4	9	7	3	1810.63	3.116005	NU1
3445.73	0.1513	0.0467	9	6	3	9	7	2	1810.63	3.116419	NU1
3445.79	0.0019	0.0915	4	3	2	3	0	3	136.77	0.051049	2NU2*
3446.29	0.1327	0.0568	6	4	2	6	6	1	1045.07	0.005721	NU3
3446.52	0.0614	0.0674	4	4	1	3	3	0	285.43	3.393148	2NU2*
3446.83	38.6857	0.0852	5	2	3	6	3	4	648.97	2.452523	NU1
3446.87	11.0009	0.0646	8	2	7	9	1	8	1079.07	5.987889	NU1
3446.95	0.0583	0.0610	7	4	3	7	6	2	1216.20	0.017690	NU3
3447.08	39.8404	0.0680	3	3	1	4	4	0	488.13	3.390390	NU1
3447.25	119.6379	0.0683	3	3	0	4	4	1	488.10	3.393148	NU1
3447.66	0.0762	0.0563	10	5	6	10	4	7	1581.34	5.482102	2NU2
3448.40	13.7101	0.0869	6	1	5	7	3	4	842.38	0.214427	NU3
3448.78	0.3040	0.0440	8	6	3	8	7	2	1590.74	2.144879	NU1
3448.83	0.1013	0.0441	8	6	2	8	7	1	1590.74	2.144937	NU1
3449.03	0.0015	0.0520	9	6	3	10	6	4	1875.53	6.440055	NU3*
3449.09	0.6291	0.0588	10	5	6	11	5	7	1985.83	8.747542	NU3
3449.36	0.0036	0.0889	5	1	4	6	3	3	2282.59	0.202769	NU3***
3449.45	0.0013	0.0710	6	3	3	6	5	2	2552.85	0.077000	NU3***
3449.47	0.0045	0.0508	9	6	4	10	6	5	1875.00	6.439836	NU3*
3449.65	0.0024	0.0427	7	7	0	8	6	3	1411.65	0.074321	2NU2
3449.66	0.0442	0.0674	11	3	8	10	4	7	1581.34	3.178818	2NU2
3449.71	0.0462	0.0851	3	2	1	4	3	2	2004.81	2.320352	NU1***
3449.83	0.0021	0.0604	9	5	5	10	5	6	3383.36	7.532122	NU3***
3449.87	0.0231	0.0459	13	2	11	13	3	10	2414.73	5.73353	NU1
3449.97	0.0023	0.0393	10	1	10	10	2	9	1293.66	1.847651	NU1*
3450.17	0.1377	0.0646	8	4	4	8	6	3	1411.65	0.037084	NU3
3450.21	0.0032	0.0795	4	2	2	5	4	1	610.35	0.042579	NU3**
3450.70	0.0031	0.0447	8	0	8	9	1	9	2512.43	6.81	NU1***
3451.10	0.0108	0.0443	8	1	8	9	0	9	2512.36	8.007087	NU1***
3451.20	0.0218	0.0620	10	3	8	10	5	5	1724.72	0.084234	NU3
3451.24	0.0022	0.032	14	2	13	14	1	14	2073.66	1.90878	2NU2
3451.89	0.1422	0.0409	7	6	2	7	7	1	1394.86	1.119792	NU1
3451.89	0.4266	0.0409	7	6	1	7	7	0	1394.86	1.119797	NU1
3452.08	0.0024	0.0879	7	3	4	6	2	5	2161.30	0.996364	2NU2***
3453.15	0.2218	0.0431	9	7	2	10	7	3	2054.40	5.133660	NU3
3453.15	0.6654	0.0430	9	7	3	10	7	4	2054.40	5.133658	NU3
3453.39	0.3689	0.0754	9	3	7	8	2	6	982.91	4.004942	2NU2
3453.81	0.0057	0.0948	3	1	3	4	2	2	1922.92	0.610552	NU1***
3453.88	0.0269	0.0531	12	5	8	12	6	7	2433.85	6.631337	NU1
3453.92	0.0114	0.0674	4	4	1	3	3	0	285.43	3.393148	2NU2**
3454.13	0.0038	0.0665	4	4	0	3	3	1	285.23	3.390390	2NU2**
3454.51	0.0027	0.0759	7	2	6	8	1	7	2490.37	4.913532	NU1***
3455.74	0.0280	0.0665	9	4	5	9	6	4	1631.27	0.066893	NU3
3455.79	8.7020	0.0795	4	2	2	5	4	1	610.35	0.042579	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3456.25	2.0134	0.0810	10	4	6	11	4	7	1899.06	5.820000	NU3-
3456.35	0.0039	0.0671	9	5	4	10	5	5	1724.72	7.545052	NU3*
3456.57	0.0485	0.0653	7	1	6	8	2	7	885.62	4.996649	NU1*
3456.72	1.1622	0.0393	10	1	10	10	2	9	1293.66	1.847651	NU1
3457.15	0.0118	0.0757	3	2	2	4	4	1	488.10	0.015552	NU3*
3457.18	0.0507	0.0865	4	2	2	5	3	3	504.00	2.324407	NU1*
3457.21	0.0030	0.0563	10	2	8	11	2	9	3314.91	9.932549	NU3***
3457.28	0.0022	0.0634	6	2	5	5	5	0	742.10	0.000220	NU1
3457.33	0.3901	0.0397	10	0	10	10	1	9	1293.04	1.848326	NU1
3457.46	0.1608	0.0658	9	2	8	9	4	5	1360.28	0.033499	NU3
3457.50	2.2123	0.0887	6	3	3	5	2	4	416.22	1.411171	2NU2
3457.99	0.6239	0.0928	6	2	4	5	1	5	326.64	0.254241	2NU2
3458.02	0.0434	0.0467	12	3	10	12	4	9	2124.98	5.350112	NU1
3458.15	0.0052	0.0764	6	1	5	7	2	6	2318.53	4.008107	NU1***
3458.24	0.0061	0.0742	5	4	2	4	3	1	2005.92	3.270203	2NU2***
3458.36	0.0010	0.0650	8	4	5	8	5	4	2919.63	3.901175	NU1***
3458.37	0.0099	0.0875	5	0	5	6	2	4	602.77	0.069891	NU3*
3458.60	0.9428	0.0475	11	2	9	12	2	10	1960.22	10.893773	NU3
3458.67	0.1033	0.0425	11	2	10	11	3	9	1695.03	3.632655	NU1
3458.70	0.7092	0.0338	12	2	11	13	2	12	2042.38	12.275740	NU3
3458.70	2.1229	0.0338	12	1	11	13	1	12	2042.33	12.276740	NU3
3458.72	2.3526	0.0447	11	3	9	12	3	10	1962.55	10.873594	NU3
3458.84	0.0157	0.0549	11	5	7	11	6	6	2142.69	5.799382	NU1
3459.44	0.0182	0.0719	5	4	1	4	3	2	2004.81	3.250024	2NU2***
3459.59	0.0124	0.0604	9	5	5	10	5	6	1718.77	7.532122	NU3*
3459.69	0.0090	0.0653	7	1	6	8	2	7	885.62	4.996649	NU1**
3459.84	0.1591	0.0494	11	2	9	10	3	8	1446.16	5.859437	2NU2
3459.88	0.0094	0.0865	4	2	2	5	3	3	504.00	2.324407	NU1**
3459.98	0.1597	0.0554	10	5	6	10	6	5	1875.00	4.913223	NU1
3460.19	0.0654	0.0443	8	1	8	9	0	9	920.18	8.007087	NU1*
3460.35	0.0082	0.0866	4	1	4	5	3	3	504.00	0.035251	NU3*
3460.36	5.1431	0.0752	10	3	7	11	3	8	1813.26	9.899853	NU3
3460.58	0.5918	0.0320	13	0	13	14	0	14	2073.66	13.743940	NU3
3460.58	1.7862	0.0320	13	1	13	14	1	14	2073.66	13.743930	NU3
3460.60	0.0014	0.0691	11	6	6	12	5	7	2300.80	1.049439	NU1
3461.07	0.9720	0.0915	4	3	2	3	0	3	136.77	0.051049	2NU2
3461.26	0.0528	0.0332	13	1	12	12	2	11	1774.74	9.99731	2NU2
3461.32	30.7223	0.0674	4	4	1	3	3	0	285.43	3.393148	2NU2
3461.53	10.2433	0.0665	4	4	0	3	3	1	285.23	3.390390	2NU2
3461.65	1.3626	0.0603	10	4	7	11	4	8	1843.02	9.438945	NU3
3461.70	0.0176	0.0331	13	2	12	12	1	11	1774.60	9.99954	2NU2
3461.94	0.0040	0.0843	5	0	5	5	3	2	508.81	0.062476	NU1*
3462.58	25.3423	0.0865	4	2	2	5	3	3	504.00	2.324407	NU1
3462.82	24.2543	0.0653	7	1	6	8	2	7	885.62	4.996649	NU1
3462.83	0.3113	0.0445	11	1	10	11	2	9	1690.70	3.646421	NU1
3462.90	0.0161	0.0759	7	2	6	8	1	7	882.93	4.913532	NU1*
3462.95	0.0021	0.0500	8	6	2	9	6	3	3321.00	5.032058	NU3***
3462.98	0.0045	0.0648	9	4	6	10	4	7	3224.55	8.354292	NU3***
3463.19	0.0019	0.0887	8	4	5	9	3	6	1282.92	1.416234	NU1*
3463.50	0.0041	0.0757	3	2	1	4	4	0	488.13	0.016542	NU3*
3463.53	0.0121	0.0443	8	1	8	9	0	9	920.18	8.007087	NU1**
3464.24	0.0014	0.0616	7	2	6	6	5	1	888.63	0.000884	NU1
3464.25	0.7443	0.0520	9	6	3	10	6	4	1875.53	6.440055	NU3
3464.25	0.0013	0.0407	8	7	2	9	7	3	1810.63	3.579253	NU3*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3464.25	0.0037	0.0408	8	7	1	9	7	2	1810.63	3.579254	NU3*
3464.66	2.2332	0.0508	9	6	4	10	6	5	1875.00	6.439836	NU3
3465.88	0.1099	0.0354	8	8	1	9	8	2	2009.87	1.901685	NU3
3465.88	0.3298	0.0354	8	8	0	9	8	1	2009.87	1.901685	NU3
3465.88	0.0018	0.0875	5	0	5	6	2	4	602.77	0.069891	NU3**
3466.04	0.0630	0.0751	5	0	5	5	4	2	610.12	0.000921	NU3
3466.05	0.4584	0.0657	10	3	8	9	2	7	1201.95	4.932263	2NU2
3466.09	0.0039	0.0585	8	2	7	7	5	2	1059.85	0.001936	NU1
3466.12	1.4345	0.0608	8	4	4	9	1	9	920.21	12.48	NU2+
3466.33	0.0048	0.0898	7	3	5	8	2	6	982.91	2.422109	NU1*
3466.62	0.0670	0.0845	7	3	4	7	0	7	586.26	0.033256	2NU2
3466.87	32.7206	0.0443	8	1	8	9	0	9	920.18	8.007087	NU1
3467.04	9.2767	0.0447	8	0	8	9	1	9	920.21	6.81	NU1-
3467.50	1.9978	0.0843	5	0	5	5	3	2	508.81	0.062476	NU1
3467.96	0.0267	0.0534	12	4	9	12	5	8	2275.44	6.558344	NU1
3468.28	0.0030	0.0530	8	1	8	8	2	7	2495.18	1.833129	NU1***
3468.60	5.8795	0.0757	3	2	2	4	4	1	488.10	0.015552	NU3
3469.14	0.0021	0.0680	7	4	3	7	5	2	2724.19	3.039271	NU1***
3469.18	0.0211	0.0320	14	0	14	14	2	13	2327.90	0.488990	NU3
3469.20	0.0864	0.0858	3	2	2	4	3	1	383.85	2.164905	NU1*
3469.20	0.0070	0.0320	14	1	14	14	1	13	2327.88	0.489010	NU3
3469.41	0.0121	0.0817	9	3	6	10	3	7	1538.23	9.029655	NU3*
3469.49	0.1636	0.0834	5	4	1	5	1	4	399.46	0.031887	2NU2
3469.61	0.0025	0.0620	6	4	3	6	5	2	2552.85	1.56	NU1***
3469.94	8.0734	0.0759	7	2	6	8	1	7	882.93	4.913532	NU1
3470.16	0.0122	0.0742	5	4	2	4	3	1	383.85	3.270203	2NU2*
3470.50	3.0644	0.0824	9	4	5	10	4	6	1616.51	6.830000	NU3-
3470.86	0.0270	0.0648	9	4	6	10	4	7	1581.34	8.354292	NU3*
3471.12	0.0771	0.0841	2	2	1	3	3	0	1907.63	2.366160	NU1***
3471.21	0.0028	0.0578	5	4	1	5	5	0	2406.15	0.826	NU1***
3471.24	0.0191	0.0840	4	4	0	4	1	3	275.52	0.005990	2NU2
3471.62	0.2181	0.0645	9	3	7	9	5	4	1477.31	0.080993	NU3
3471.64	0.0365	0.0719	5	4	1	4	3	2	382.52	3.250024	2NU2*
3471.87	0.0229	0.0534	7	0	7	8	1	8	2337.70	7.000291	NU1***
3471.89	1.9665	0.0671	9	5	4	10	5	5	1724.72	7.545052	NU3
3472.10	0.0160	0.0858	3	2	2	4	3	1	383.85	2.164905	NU1**
3472.32	0.0076	0.0542	7	1	7	8	0	8	2337.53	6.998008	NU1***
3472.56	0.0023	0.0451	9	1	9	9	2	8	1080.38	1.842036	NU1*
3472.83	0.0260	0.0830	2	2	0	3	3	1	1907.47	2.394805	NU1***
3472.85	0.0267	0.0842	5	1	4	6	2	5	2161.30	3.129447	NU1***
3473.09	0.0708	0.0800	6	4	2	6	1	5	542.91	0.084732	2NU2
3473.30	4.1084	0.0866	4	1	4	5	3	3	504.00	0.035251	NU3
3473.39	4.9709	0.0875	5	0	5	6	2	4	602.77	0.069891	NU3
3473.46	0.9471	0.0887	8	4	5	9	3	6	1282.92	1.416234	NU1
3473.69	0.0068	0.0459	9	0	9	9	1	8	1079.07	1.844131	NU1*
3473.98	0.0343	0.0948	3	1	3	4	2	2	315.79	0.610552	NU1*
3474.55	0.0314	0.0764	6	1	5	7	2	6	709.60	4.008107	NU1*
3474.73	6.2214	0.0604	9	5	5	10	5	6	1718.77	7.532122	NU3
3474.78	2.0881	0.0757	3	2	1	4	4	0	488.13	0.016542	NU3
3474.90	0.0056	0.0640	8	5	3	9	5	4	3141.06	6.258032	NU3***
3474.96	0.0215	0.0889	5	1	4	6	3	3	661.56	0.202769	NU3*
3474.97	2.4177	0.0898	7	3	5	8	2	6	982.91	2.422109	NU1
3475.01	43.1955	0.0858	3	2	2	4	3	1	383.85	2.164905	NU1
3475.63	0.0012	0.0739	7	1	7	7	3	4	842.38	0.009220	NU3*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3475.77	0.0018	0.0607	8	5	4	9	5	5	3139.50	6.255627	NU3***
3475.93	0.0043	0.0496	8	6	3	9	6	4	1631.27	5.032027	NU3*
3475.94	0.0128	0.0500	8	6	2	9	6	3	1631.41	5.032058	NU3*
3476.41	0.0541	0.0608	10	5	5	10	6	4	1875.53	4.974368	NU1
3476.44	0.0098	0.0644	12	5	7	12	6	6	2437.56	7.235377	NU1
3476.67	0.2802	0.0851	3	2	1	4	3	2	382.52	2.320352	NU1*
3476.74	0.0022	0.0817	9	3	6	10	3	7	1538.23	9.029655	NU3**
3477.02	0.1579	0.0558	9	5	5	9	6	4	1631.27	4.001691	NU1
3477.17	0.0013	0.0459	9	0	9	9	1	8	1079.07	1.844131	NU1**
3477.27	0.0491	0.0629	11	5	6	11	6	5	2144.12	6.009423	NU1
3477.36	0.0063	0.0948	3	1	3	4	2	2	315.79	0.610552	NU1**
3477.36	0.4756	0.0583	9	5	4	9	6	3	1631.41	4.017231	NU1
3477.43	0.0049	0.0477	6	5	2	6	6	1	1045.07	1.111607	NU1*
3477.44	0.0016	0.0478	6	5	1	6	6	0	1045.07	1.111654	NU1*
3477.59	0.0022	0.0742	5	4	2	4	3	1	383.85	3.270203	2NU2**
3477.61	0.0058	0.0764	6	1	5	7	2	6	709.60	4.008107	NU1**
3477.71	0.3601	0.0556	8	3	3	8	6	2	1411.68	3.077042	NU1
3477.78	1.0793	0.0545	8	5	4	8	6	3	1411.65	3.073714	NU1
3477.79	0.0157	0.0898	4	1	3	5	3	2	2130.50	0.137702	NU3***
3477.88	0.0714	0.0528	11	3	9	11	4	8	1843.02	5.243402	NU1
3478.29	0.0050	0.0648	9	4	6	10	4	7	1581.34	8.354292	NU3**
3478.67	0.0032	0.0666	9	2	7	10	2	8	3058.41	9.000870	NU3***
3479.03	0.0067	0.0719	5	4	1	4	3	2	382.52	3.250024	2NU2**
3479.06	0.0095	0.0800	6	4	3	5	3	2	2130.50	3.153879	2NU2***
3479.37	0.6232	0.0407	8	7	2	9	7	3	1810.63	3.579253	NU3
3479.37	1.8697	0.0408	8	7	1	9	7	2	1810.63	3.579254	NU3
3479.38	1.1312	0.0451	9	1	9	9	2	8	1080.38	1.842036	NU1
3479.45	0.0518	0.0851	3	2	1	4	3	2	382.52	2.320352	NU1**
3479.58	0.6609	0.0518	7	5	3	7	6	2	1216.20	2.119434	NU1
3479.60	1.9832	0.0521	7	5	2	7	6	1	1216.20	2.119964	NU1
3479.77	0.0415	0.0579	11	4	8	11	5	7	1985.83	6.097371	NU1
3480.22	1.0608	0.0486	10	2	9	10	3	8	1446.16	3.605841	NU1
3480.31	0.0400	0.0667	10	4	6	10	6	5	1875.00	0.114652	NU3
3480.39	9.0825	0.0563	10	2	8	11	2	9	1690.70	9.932549	NU3
3480.65	2.2914	0.0361	11	1	10	12	1	11	1774.60	11.275820	NU3
3480.65	6.8739	0.0360	11	2	10	12	2	11	1774.74	11.275004	NU3
3480.66	3.4212	0.0459	9	0	9	9	1	8	1079.07	1.844131	NU1
3480.67	15.7126	0.0764	6	1	5	7	2	6	709.60	4.008107	NU1
3480.74	17.1473	0.0948	3	1	3	4	2	2	315.79	0.610552	NU1
3480.89	3.0124	0.0515	10	3	8	11	3	9	1695.03	9.881611	NU3
3481.06	0.0118	0.0815	8	4	4	9	4	5	2998.78	7.302001	NU3***
3481.37	0.1388	0.0534	7	0	7	8	1	8	744.16	7.000291	NU1*
3481.37	0.0073	0.0402	10	1	9	11	1	10	3135.82	10.283342	NU3***
3481.55	0.0463	0.0542	7	1	7	8	0	8	744.09	6.998008	NU1*
3481.63	2.4445	0.0477	6	5	2	6	6	1	1045.07	1.111607	NU1
3481.64	0.8149	0.0478	6	5	1	6	6	0	1045.07	1.111654	NU1
3481.67	0.0040	0.0889	5	1	4	6	3	3	661.56	0.202769	NU3**
3482.24	140.1098	0.0851	3	2	1	4	3	2	382.52	2.320352	NU1
3482.41	2.2189	0.0325	12	1	12	13	1	13	1806.78	12.744430	NU3
3482.41	6.6590	0.0325	12	0	12	13	0	13	1806.78	12.739050	NU3
3482.57	0.0148	0.033	14	2	13	13	1	12	2042.33	9.74091	2NU2
3482.73	0.0018	0.0675	7	3	5	7	5	2	1059.85	0.041795	NU3*
3483.15	0.0031	0.0755	6	4	2	5	3	3	2126.41	3.066224	2NU2***
3483.53	0.0023	0.0500	8	6	2	9	6	3	1631.41	5.032058	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3484.07	6.0352	0.0817	9	3	6	10	3	7	1538.23	9.029655	NU3
3484.12	0.1527	0.0756	7	4	3	7	1	6	704.22	0.135960	2NU2
3484.40	0.0340	0.0640	8	5	3	9	5	4	1477.31	6.258032	NU3*
3484.73	0.0257	0.0534	7	0	7	8	1	8	744.16	7.000291	NU1**
3484.93	0.0086	0.0542	7	1	7	8	0	8	744.09	6.998008	NU1**
3485.03	6.0755	0.0742	5	4	2	4	3	1	383.85	3.270203	2NU2
3485.11	0.1744	0.0669	8	3	6	8	5	3	1255.92	0.064192	NU3
3485.48	0.0123	0.0687	6	1	6	5	4	1	610.35	0.000636	NU1
3485.72	13.4802	0.0648	9	4	6	10	4	7	1581.34	8.354292	NU3
3485.92	0.0710	0.0815	8	4	4	9	4	5	1360.28	7.302001	NU3*
3486.06	0.0019	0.0870	4	0	4	4	3	1	383.85	0.047652	NU1*
3486.43	18.2424	0.0719	5	4	1	4	3	2	382.52	3.250024	2NU2
3486.52	0.1040	0.0770	4	0	4	4	4	1	488.10	0.000274	NU3
3486.71	0.0037	0.0547	11	6	5	12	5	8	2275.44	0.908981	NU1
3486.74	0.0138	0.0901	4	1	3	5	2	4	2024.17	2.444582	NU1***
3486.97	0.0185	0.0424	12	2	10	11	3	9	1695.03	6.964699	2NU2
3487.05	0.0048	0.0879	7	3	4	6	2	5	552.92	0.996364	2NU2*
3487.68	0.0197	0.0666	9	2	7	10	2	8	1438.00	9.000870	NU3*
3487.78	0.3733	0.0520	10	1	9	10	2	8	1438.00	3.646815	NU1
3487.82	0.0922	0.0848	6	2	5	7	1	6	704.22	3.799063	NU1*
3488.09	69.4023	0.0534	7	0	7	8	1	8	744.16	7.000291	NU1
3488.31	23.1376	0.0542	7	1	7	8	0	8	744.09	6.998008	NU1
3488.38	10.7964	0.0889	5	1	4	6	3	3	661.56	0.202769	NU3
3488.74	0.0044	0.0469	7	6	2	8	6	3	3101.19	3.522863	NU3***
3489.03	0.4267	0.0613	10	4	7	10	5	6	1718.77	5.482102	NU1
3489.11	0.0056	0.0658	11	4	7	11	6	6	2142.69	0.195288	NU3
3489.33	0.0026	0.0715	5	1	5	4	4	0	488.13	0.000220	NU1
3489.46	0.0012	0.0613	9	1	8	9	2	7	2818.40	3.674255	NU1***
3489.56	0.0191	0.0864	8	3	5	9	3	6	2904.69	8.066869	NU3***
3490.29	0.0020	0.0380	7	7	0	8	7	1	1590.74	1.887603	NU3*
3490.29	0.0058	0.0380	7	7	1	8	7	2	1590.74	1.887603	NU3*
3490.54	0.5967	0.0739	7	1	7	7	3	4	842.38	0.009220	NU3
3490.55	0.1619	0.0842	5	1	4	6	2	5	552.92	3.129447	NU1*
3491.10	2.1246	0.0496	8	6	3	9	6	4	1631.27	5.032027	NU3
3491.13	0.9552	0.0870	4	0	4	4	3	1	383.85	0.047652	NU1
3491.13	6.3739	0.0500	8	6	2	9	6	3	1631.41	5.032058	NU3
3491.49	0.0171	0.0848	6	2	5	7	1	6	704.22	3.799063	NU1**
3491.63	0.0189	0.0800	6	4	3	5	3	2	508.81	3.153879	2NU2*
3491.78	0.1073	0.0814	9	5	5	10	4	6	1616.51	2.53	NU1+
3491.82	0.0079	0.0648	5	3	3	5	5	0	742.10	0.037100	NU3*
3491.86	0.0283	0.0327	13	0	13	13	2	12	2042.38	0.486060	NU3
3491.91	0.0849	0.0327	13	1	13	13	1	12	2042.33	0.486110	NU3
3492.06	0.0063	0.0640	8	5	3	9	5	4	1477.31	6.258032	NU3**
3492.34	0.0145	0.0647	6	0	6	7	1	7	2181.12	5.990506	NU1***
3493.42	0.9133	0.0675	7	3	5	7	5	2	1059.85	0.041795	NU3
3493.44	0.0021	0.0607	8	5	4	9	5	5	1474.99	6.255627	NU3**
3493.59	0.0299	0.0842	5	1	4	6	2	5	552.92	3.129447	NU1**
3493.65	0.0434	0.0671	6	1	6	7	0	7	2180.65	5.983681	NU1***
3493.73	0.0131	0.0815	8	4	4	9	4	5	1360.28	7.302001	NU3**
3493.83	0.0016	0.0732	7	3	5	7	4	4	2569.52	3.637027	NU1***
3493.96	0.0022	0.0563	9	2	8	9	3	7	1216.27	3.554957	NU1*
3494.11	0.0010	0.0420	12	1	12	11	2	9	1690.70	0.011432	NU1
3494.14	0.2294	0.0692	8	2	7	8	4	4	1131.76	0.045112	NU3
3494.42	0.1161	0.0864	8	3	5	9	3	6	1282.92	8.066869	NU3*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3494.57	0.0180	0.0530	8	1	8	8	2	7	885.62	1.833129	NU1*
3494.80	0.7668	0.0590	10	3	8	10	4	7	1581.34	5.051335	NU1
3495.16	46.0968	0.0848	6	2	5	7	1	6	704.22	3.799063	NU1
3495.50	0.0104	0.0594	9	3	7	10	3	8	1446.16	8.878817	NU3**
3495.60	0.0260	0.0682	8	4	5	9	4	6	1340.89	7.216366	NU3*
3495.93	0.0031	0.0666	5	3	2	5	5	1	742.10	0.043300	NU3*
3496.17	0.0437	0.0950	2	1	2	3	2	1	1819.34	0.925282	NU1***
3496.41	0.0056	0.0616	11	5	6	12	4	9	2124.98	0.678814	NU1
3496.41	0.4083	0.0639	9	4	6	9	5	5	1474.99	4.736397	NU1
3496.63	80.9344	0.0842	5	1	4	6	2	5	552.92	3.129447	NU1
3497.02	0.0015	0.0648	5	3	3	5	5	0	742.10	0.037100	NU3**
3497.31	0.0063	0.0755	6	4	2	5	3	3	504.00	3.066224	2NU2*
3497.41	0.4010	0.0880	5	3	3	4	0	4	222.06	0.095779	2NU2
3497.55	0.4671	0.0841	2	2	1	3	3	0	285.43	2.366160	NU1*
3497.81	0.0017	0.0762	5	2	4	5	4	1	2251.86	0.024136	NU3***
3497.97	0.0164	0.0661	10	6	5	11	5	6	1999.02	0.799607	NU1
3498.00	0.0033	0.0530	8	1	8	8	2	7	885.62	1.833129	NU1**
3498.59	0.3673	0.0665	6	3	4	6	5	1	888.63	0.021403	NU3
3498.85	0.0011	0.0650	8	4	5	8	5	4	1255.16	3.901175	NU1**
3499.06	0.1578	0.0830	2	2	0	3	3	1	285.23	2.394805	NU1*
3499.14	0.0035	0.0800	6	4	3	5	3	2	508.81	3.153879	2NU2**
3499.34	0.0090	0.0739	6	3	4	6	4	3	2398.39	2.878858	NU1***
3499.41	0.0014	0.0834	7	4	4	6	3	3	2282.59	3.050978	2NU2***
3499.65	0.0041	0.0645	7	4	4	7	5	3	1059.65	3.012848	NU1*
3499.73	16.9887	0.0640	8	5	3	9	5	4	1477.31	6.258032	NU3
3499.96	2.3947	0.0879	7	3	4	6	2	5	552.92	0.996364	2NU2
3500.23	0.0341	0.0886	3	1	3	4	3	2	382.52	0.026225	NU3*
3500.30	0.0561	0.0454	12	3	10	11	2	9	1690.70	7.003088	2NU2
3500.33	0.0290	0.0760	8	2	6	9	2	7	2818.40	8.113471	NU3***
3500.37	0.0047	0.0885	3	1	2	4	3	1	2005.92	0.066374	NU3***
3500.41	0.0864	0.0841	2	2	1	3	3	0	285.43	2.366160	NU1**
3500.65	0.0030	0.0482	11	7	4	12	6	7	2433.85	0.724220	NU1
3500.80	1.1104	0.0563	9	2	8	9	3	7	1216.27	3.554957	NU1
3501.02	5.7541	0.0607	8	5	4	9	5	5	1474.99	6.255627	NU3
3501.22	3.0147	0.0650	8	4	5	8	5	4	1255.16	3.901175	NU1
3501.33	0.0045	0.0608	7	5	2	8	5	3	2920.16	4.904299	NU3***
3501.43	8.9974	0.0530	8	1	8	8	2	7	885.62	1.833129	NU1
3501.54	35.5074	0.0815	8	4	4	9	4	5	1360.28	7.302001	NU3
3501.61	0.0600	0.0930	3	1	2	4	2	3	1907.99	1.970843	NU1***
3501.76	9.8584	0.0666	9	2	7	10	2	8	1438.00	9.000870	NU3
3501.90	0.0292	0.0830	2	2	0	3	3	1	285.23	2.394805	NU1**
3501.94	0.0215	0.0864	8	3	5	9	3	6	1282.92	8.066869	NU3**
3502.04	0.0876	0.0647	6	0	6	7	1	7	586.48	5.990506	NU1*
3502.22	0.0089	0.0469	7	6	1	8	6	2	1411.68	3.522866	NU3*
3502.22	3.9765	0.0648	5	3	3	5	5	0	742.10	0.037100	NU3+
3502.25	0.0266	0.0469	7	6	2	8	6	3	1411.65	3.522863	NU3*
3502.38	22.0795	0.0402	10	1	9	11	1	10	1524.87	10.283342	NU3
3502.40	7.3583	0.0397	10	2	9	11	2	10	1525.13	10.281117	NU3
3502.70	0.2630	0.0671	6	1	6	7	0	7	586.26	5.983681	NU1*
3502.77	28.0151	0.0594	9	3	7	10	3	8	1446.16	8.878817	NU3
3503.28	233.5445	0.0841	2	2	1	3	3	0	285.43	2.366160	NU1
3503.40	0.4727	0.0757	8	4	4	8	1	7	882.93	3.07	2NU2+
3503.48	0.2785	0.0614	11	2	9	11	3	8	1813.26	5.642326	NU1
3504.12	7.0357	0.0335	11	0	11	12	0	12	1557.91	11.742873	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3504.12	21.1072	0.0335	11	1	11	12	1	12	1557.91	11.742858	NU3
3504.30	2.0659	0.0645	7	4	4	7	5	3	1059.65	3.012848	NU1
3504.32	2.5886	0.0548	8	0	8	8	1	7	882.93	1.56	NU1-
3504.74	78.9022	0.0830	2	2	0	3	3	1	285.23	2.394805	NU1
3505.37	0.0129	0.0699	4	3	2	4	4	1	2129.63	1.082946	NU1***
3505.42	0.9658	0.0380	7	7	0	8	7	1	1590.74	1.887603	NU3
3505.42	2.8974	0.0380	7	7	1	8	7	2	1590.74	1.887603	NU3
3505.43	0.0162	0.0647	6	0	6	7	1	7	586.48	5.990506	NU1**
3505.52	0.0838	0.0901	4	1	3	5	2	4	416.22	2.444582	NU1*
3505.89	7.5510	0.0620	6	4	3	6	5	2	888.60	1.56	NU1-
3505.92	1.6510	0.0874	3	0	3	3	3	0	285.43	0.016715	NU1
3506.08	1.5485	0.0666	5	3	2	5	5	1	742.10	0.043300	NU3+
3506.09	0.0953	0.0898	4	1	3	5	3	2	508.81	0.137702	NU3*
3506.13	0.0486	0.0671	6	1	6	7	0	7	586.26	5.983681	NU1**
3506.65	9.4693	0.0800	6	4	3	5	3	2	508.81	3.153879	2NU2
3507.75	0.0205	0.0354	10	0	10	11	0	11	2915.94	10.743597	NU3***
3508.17	0.0125	0.0680	7	4	3	7	5	2	1059.85	3.039271	NU1*
3508.55	0.0155	0.0901	4	1	3	5	2	4	416.22	2.444582	NU1**
3508.81	0.1759	0.0760	8	2	6	9	2	7	1201.95	8.113471	NU3*
3508.82	43.8189	0.0647	6	0	6	7	1	7	586.48	5.990506	NU1
3509.01	0.7997	0.0651	9	3	7	9	4	6	1340.89	4.734521	NU1
3509.04	0.0179	0.0889	7	3	4	8	3	5	2670.79	6.985053	NU3***
3509.46	0.0080	0.0920	5	2	4	6	1	5	2146.28	2.671788	NU1***
3509.46	58.0876	0.0864	8	3	5	9	3	6	1282.92	8.066869	NU3
3509.57	131.4829	0.0671	6	1	6	7	0	7	586.26	5.983681	NU1
3510.07	0.0473	0.0674	8	3	6	9	3	7	1216.27	7.070000	NU3*
3510.50	12.4713	0.0927	6	3	4	7	2	5	782.40	1.512999	NU1
3510.60	12.9950	0.0682	8	4	5	9	4	6	1340.89	7.216366	NU3
3511.59	41.9220	0.0901	4	1	3	5	2	4	416.22	2.444582	NU1
3512.00	3.1481	0.0755	6	4	2	5	3	3	504.00	3.066224	2NU2
3512.04	0.0727	0.0771	5	0	5	6	1	6	2042.77	4.979001	NU1***
3512.32	0.0813	0.0594	7	5	3	8	5	4	1255.16	4.903948	NU3*
3512.54	0.0176	0.0898	4	1	3	5	3	2	508.81	0.137702	NU3**
3512.57	6.2667	0.0680	7	4	3	7	5	2	1059.85	3.039271	NU1
3513.00	0.0154	0.0743	6	1	6	6	2	5	2161.30	1.783035	NU1***
3513.03	17.0244	0.0886	3	1	3	4	3	2	382.52	0.026225	NU3
3513.11	0.0320	0.0701	7	4	4	8	4	5	2764.71	6.014663	NU3***
3513.13	0.0187	0.0646	8	2	7	8	3	6	1006.12	3.456295	NU1*
3513.18	0.8767	0.0715	8	4	4	8	5	3	1255.92	3.41	NU1-
3513.27	0.0954	0.0587	9	6	3	9	5	4	1477.31	4.017231	2NU2
3513.30	3.3793	0.0637	6	4	2	6	5	1	888.63	2.089996	NU1
3513.38	0.0914	0.0928	4	0	4	5	2	3	446.50	0.096503	NU3*
3513.45	0.0174	0.0378	13	2	11	12	3	10	1962.55	7.82232	2NU2
3513.80	0.6475	0.0894	7	4	4	8	3	5	1050.15	0.898681	NU1
3514.08	3.7290	0.0613	9	1	8	9	2	7	1201.95	3.674255	NU1
3514.12	8.3355	0.0578	5	4	1	5	5	0	742.10	0.826	NU1-
3514.19	0.0488	0.0920	5	2	4	6	1	5	542.91	2.671788	NU1*
3514.45	0.3000	0.0337	12	0	12	12	2	11	1774.74	0.487254	NU3
3514.59	0.1000	0.0337	12	1	12	12	1	11	1774.60	0.487287	NU3
3514.87	0.0242	0.0806	5	1	5	6	0	6	2041.76	4.958549	NU1***
3515.53	0.0129	0.0705	8	3	6	8	4	5	1122.72	4.264036	NU1*
3515.63	2.5912	0.0574	5	4	2	5	5	1	742.10	0.77	NU1-
3515.89	0.0621	0.0787	7	4	3	8	4	4	1131.76	6.039574	NU3*
3515.94	0.0144	0.0634	7	1	7	7	2	6	709.60	1.816721	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3515.95	0.0326	0.0760	8	2	6	9	2	7	1201.95	8.113471	NU3**
3516.05	0.0128	0.0352	13	1	12	13	3	11	2248.16	0.878880	NU3
3516.19	0.2649	0.0950	2	1	2	3	2	1	212.15	0.925282	NU1*
3516.23	0.0358	0.0529	10	6	5	10	5	6	1718.77	4.913223	2NU2
3516.87	0.0235	0.0456	9	2	8	10	2	9	1293.66	9.287364	NU3**
3517.01	0.0322	0.0534	9	6	4	9	5	5	1474.99	4.001691	2NU2
3517.25	0.0386	0.0359	13	2	12	13	2	11	2246.98	0.881500	NU3
3517.37	4.4441	0.0469	7	6	1	8	6	2	1411.68	3.522866	NU3
3517.40	13.3324	0.0469	7	6	2	8	6	3	1411.65	3.522863	NU3
3518.17	0.0272	0.0959	2	1	1	3	2	2	1813.81	1.666667	NU1***
3518.50	0.6071	0.0466	6	6	1	6	5	2	888.60	1.346	2NU2+
3518.65	0.4065	0.0515	7	6	1	7	5	2	1059.85	2.119964	2NU2
3518.71	0.0159	0.0783	6	2	5	6	3	4	2271.70	2.963539	NU1***
3518.72	0.1671	0.0469	6	6	0	6	5	1	888.63	1.111654	2NU2
3518.85	0.1355	0.0506	7	6	2	7	5	3	1059.65	2.119434	2NU2
3518.99	47.6211	0.0898	4	1	3	5	3	2	508.81	0.137702	NU3
3519.04	1.3098	0.0740	9	4	5	9	5	4	1477.31	5.113359	NU1
3519.22	0.3765	0.0527	8	6	3	8	5	4	1255.16	5.22	2NU2+
3519.45	3.9872	0.0710	6	3	3	6	5	2	888.60	0.077000	NU3+
3519.46	0.0490	0.0950	2	1	2	3	2	1	212.15	0.925282	NU1**
3519.46	0.2229	0.0553	8	6	2	8	5	3	1255.92	9.32	2NU2+
3519.82	9.3408	0.0646	8	2	7	8	3	6	1006.12	3.456295	NU1
3519.91	0.0151	0.0594	7	5	3	8	5	4	1255.16	4.903948	NU3**
3520.26	0.7478	0.0858	7	2	5	6	1	6	447.24	0.182385	2NU2
3520.70	0.0450	0.0656	7	0	7	7	1	6	704.22	1.838288	NU1*
3520.75	0.0169	0.0928	4	0	4	5	2	3	446.50	0.096503	NU3**
3520.89	0.3635	0.0930	3	1	2	4	2	3	300.35	1.970843	NU1*
3521.13	0.1942	0.0701	7	4	4	8	4	5	1122.72	6.014663	NU3*
3521.16	2.0392	0.0727	7	2	6	7	4	3	931.22	0.048724	NU3
3521.30	6.4342	0.0705	8	3	6	8	4	5	1122.72	4.264036	NU1
3521.35	0.0227	0.0675	12	3	9	12	4	8	2205.65	8.242761	NU1
3521.43	0.1079	0.0889	7	3	4	8	3	5	1050.15	6.985053	NU3*
3521.94	24.3889	0.0920	5	2	4	6	1	5	542.91	2.671788	NU1
3522.27	0.4409	0.0771	5	0	5	6	1	6	447.24	4.979001	NU1*
3522.73	132.4740	0.0950	2	1	2	3	2	1	212.15	0.925282	NU1
3522.80	7.2081	0.0634	7	1	7	7	2	6	709.60	1.816721	NU1
3523.10	87.9754	0.0760	8	2	6	9	2	7	1201.95	8.113471	NU3
3523.64	0.0115	0.0787	7	4	3	8	4	4	1131.76	6.039574	NU3**
3523.77	0.1468	0.0806	5	1	5	6	0	6	446.71	4.958549	NU1*
3523.93	0.0552	0.0559	8	1	7	9	1	8	2688.10	8.308658	NU3***
3523.97	0.0673	0.0930	3	1	2	4	2	3	300.35	1.970843	NU1**
3523.98	21.3062	0.0467	9	1	8	10	1	9	1293.04	9.293415	NU3
3524.08	63.4693	0.0456	9	2	8	10	2	9	1293.66	9.287364	NU3
3524.53	0.0182	0.0535	8	2	7	9	2	8	2690.64	8.292239	NU3***
3524.76	23.6949	0.0674	8	3	6	9	3	7	1216.27	7.070000	NU3-
3524.90	1.4301	0.0834	7	4	4	6	3	3	661.56	3.050978	2NU2
3525.20	0.0131	0.0738	12	4	8	12	5	7	2300.80	9.504415	NU1
3525.23	0.1605	0.0755	10	4	6	10	5	5	1724.72	6.465380	NU1
3525.57	0.1664	0.0755	11	4	7	11	5	6	1999.02	8.041630	NU1
3525.60	20.6930	0.0354	10	1	10	11	1	11	1327.14	10.743553	NU3
3525.60	62.0796	0.0354	10	0	10	11	0	11	1327.14	10.743597	NU3
3525.67	0.0816	0.0771	5	0	5	6	1	6	447.24	4.979001	NU1**
3526.31	0.0553	0.0736	7	3	5	8	3	6	2630.21	5.770000	NU3***
3526.99	13.4895	0.0608	7	5	2	8	5	3	1255.92	4.904299	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3527.05	181.7682	0.0930	3	1	2	4	2	3	300.35	1.970843	NU1
3527.22	0.3897	0.0740	7	3	4	7	5	3	1059.65	0.052981	NU3
3527.43	0.1104	0.0641	9	5	4	10	4	7	1581.34	0.720783	NU1
3527.51	40.6879	0.0594	7	5	3	8	5	4	1255.16	4.903948	NU3
3528.03	22.5150	0.0656	7	0	7	7	1	6	704.22	1.838288	NU1
3528.12	45.6895	0.0928	4	0	4	5	2	3	446.50	0.096503	NU3
3528.49	0.0127	0.0430	6	6	1	7	6	2	1216.20	1.869458	NU3*
3528.49	0.0380	0.0430	6	6	0	7	6	1	1216.20	1.869458	NU3*
3528.68	0.0359	0.0701	7	4	4	8	4	5	1122.72	6.014663	NU3**
3529.07	220.4414	0.0771	5	0	5	6	1	6	447.24	4.979001	NU1
3529.15	3.3984	0.0794	8	5	4	9	4	5	1360.28	7.39	NU1+
3529.67	0.0153	0.0722	7	2	6	7	3	5	816.72	3.273499	NU1*
3530.11	4.8586	0.0732	7	3	5	7	4	4	927.77	3.637027	NU1
3530.33	0.0288	0.0885	3	1	2	4	3	1	383.85	0.066374	NU3*
3530.48	0.1574	0.0838	7	2	5	8	2	6	982.91	7.251910	NU3*
3530.75	73.4053	0.0806	5	1	5	6	0	6	446.71	4.958549	NU1
3530.77	0.3757	0.0701	10	2	8	10	3	7	1538.23	5.910419	NU1
3530.81	0.3347	0.0559	8	1	7	9	1	8	1079.07	8.308658	NU3*
3530.98	0.1106	0.0535	8	2	7	9	2	8	1080.38	8.292239	NU3*
3531.39	31.0420	0.0787	7	4	3	8	4	4	1131.76	6.039574	NU3
3532.29	0.3349	0.0736	7	3	5	8	3	6	1006.12	5.770000	NU3*
3532.33	0.1096	0.0388	9	0	9	10	0	10	1114.55	9.744485	NU3*
3532.34	0.3287	0.0388	9	1	9	10	1	10	1114.56	9.744353	NU3*
3532.79	0.0204	0.0758	9	4	5	9	1	8	1079.07	0.116860	2NU2
3533.48	0.0101	0.0739	6	3	4	6	4	3	756.75	2.878858	NU1**
3534.28	0.7996	0.0789	6	1	6	6	3	3	661.56	0.014823	NU3
3534.99	0.0265	0.0737	5	3	3	5	4	2	610.12	2.024051	NU1*
3536.05	0.0934	0.0743	6	1	6	6	2	5	552.92	1.783035	NU1*
3536.15	7.6330	0.0722	7	2	6	7	3	5	816.72	3.273499	NU1
3536.15	27.1780	0.0739	6	3	4	6	4	3	756.75	2.878858	NU1
3536.24	97.1271	0.0701	7	4	4	8	4	5	1122.72	6.014663	NU3
3536.57	0.1058	0.0914	4	1	4	5	0	5	1920.76	3.911752	NU1***
3536.72	53.9853	0.0889	7	3	4	8	3	5	1050.15	6.985053	NU3
3536.90	0.3492	0.0358	11	0	11	11	2	10	1525.13	0.483142	NU3
3537.16	1.0479	0.0359	11	1	11	11	1	10	1524.87	0.483240	NU3
3537.21	0.0662	0.0748	6	4	2	7	4	3	2572.13	4.739627	NU3***
3537.22	0.8921	0.0742	8	3	5	8	5	4	1255.16	0.107233	NU3
3537.34	0.1055	0.0993	1	1	0	2	2	1	1742.28	1.500000	NU1***
3537.48	0.0171	0.0711	7	2	5	6	5	2	888.60	0.003511	NU1
3537.53	0.0785	0.0699	4	3	2	4	4	1	488.10	1.082946	NU1*
3537.59	0.0455	0.0555	9	6	3	10	5	6	1718.77	0.576235	NU1
3537.78	0.0291	0.0838	7	2	5	8	2	6	982.91	7.251910	NU3**
3537.89	0.1648	0.0959	2	1	1	3	2	2	206.30	1.666667	NU1*
3538.01	0.0619	0.0559	8	1	7	9	1	8	1079.07	8.308658	NU3**
3538.25	0.0205	0.0535	8	2	7	9	2	8	1080.38	8.292239	NU3**
3538.37	0.0118	0.0925	5	3	3	6	2	4	602.77	0.863547	NU1*
3538.48	0.1933	0.0381	12	1	11	12	3	10	1962.55	0.873307	NU3
3538.54	0.1534	0.0569	6	5	1	7	5	2	1059.85	3.450058	NU3*
3538.59	0.0263	0.0705	4	3	1	4	4	0	488.13	1.088294	NU1*
3538.61	0.0813	0.0759	5	3	2	5	4	1	610.35	2.066632	NU1*
3538.69	0.0164	0.0423	13	2	11	13	4	10	2426.22	1.112100	NU3
3538.71	0.0225	0.0700	6	4	3	7	4	4	2569.52	4.735129	NU3***
3538.71	0.0511	0.0565	6	5	2	7	5	3	1059.65	3.450020	NU3*
3538.79	1.3423	0.0755	6	2	5	6	4	2	757.78	0.040211	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3539.37	4.1621	0.0774	7	4	3	6	3	4	648.97	2.767638	2NU2
3539.39	1.7280	0.0852	8	4	5	7	3	4	842.38	3.022183	2NU2
3539.43	0.0759	0.0885	6	3	3	7	3	4	2462.87	3.480000	NU3***
3539.48	0.0173	0.0743	6	1	6	6	2	5	552.92	1.783035	NU1**
3539.57	0.0203	0.0388	9	0	9	10	0	10	1114.55	9.744485	NU3**
3539.58	0.0608	0.0388	9	1	9	10	1	10	1114.56	9.744353	NU3**
3539.60	0.9338	0.0804	6	3	4	5	0	5	325.35	0.123125	2NU2
3539.72	0.0620	0.0736	7	3	5	8	3	6	1006.12	5.770000	NU3**
3539.95	0.2821	0.0755	11	3	8	11	4	7	1899.06	8.484859	NU1
3540.13	0.0145	0.0699	4	3	2	4	4	1	488.10	1.082946	NU1**
3540.23	13.2722	0.0737	5	3	3	5	4	2	610.12	2.024051	NU1
3540.73	0.0306	0.0947	4	2	3	5	1	4	2000.90	1.638916	NU1***
3540.86	0.0775	0.0391	12	2	11	12	2	10	1960.22	0.875278	NU3
3540.94	3.8376	0.0706	8	1	7	8	2	6	982.91	3.773034	NU1
3541.02	0.0305	0.0959	2	1	1	3	2	2	206.30	1.666667	NU1**
3541.11	0.0150	0.0759	5	3	2	5	4	1	610.35	2.066632	NU1**
3541.51	0.2155	0.0880	4	0	4	5	1	5	326.64	3.972803	NU1*
3542.74	39.2409	0.0699	4	3	2	4	4	1	488.10	1.082946	NU1
3542.91	46.7236	0.0743	6	1	6	6	2	5	552.92	1.783035	NU1
3542.99	14.3889	0.0885	3	1	2	4	3	1	383.85	0.066374	NU3
3543.61	40.6415	0.0759	5	3	2	5	4	1	610.35	2.066632	NU1
3543.64	6.3267	0.0430	6	6	1	7	6	2	1216.20	1.869458	NU3
3543.64	18.9800	0.0430	6	6	0	7	6	1	1216.20	1.869458	NU3
3543.73	13.1471	0.0705	4	3	1	4	4	0	488.13	1.088294	NU1
3543.81	0.1855	0.0947	4	2	3	5	1	4	399.46	1.638916	NU1*
3544.15	82.4021	0.0959	2	1	1	3	2	2	206.30	1.666667	NU1
3544.17	0.0963	0.0783	6	2	5	6	3	4	648.97	2.963539	NU1*
3544.67	0.0435	0.0670	7	1	6	8	1	7	2490.37	7.336095	NU3***
3544.79	0.4011	0.0748	6	4	2	7	4	3	931.22	4.739627	NU3*
3545.07	0.6413	0.0914	4	1	4	5	0	5	325.35	3.911752	NU1*
3545.08	78.6951	0.0838	7	2	5	8	2	6	982.91	7.251910	NU3
3545.21	167.3104	0.0559	8	1	7	9	1	8	1079.07	8.308658	NU3
3545.52	55.2969	0.0535	8	2	7	9	2	8	1080.38	8.292239	NU3
3545.91	0.1282	0.0633	7	2	6	8	2	7	2495.18	7.292008	NU3***
3546.13	0.0283	0.0569	6	5	1	7	5	2	1059.85	3.450058	NU3**
3546.77	0.1872	0.0894	6	2	4	7	2	5	2392.58	6.352023	NU3***
3546.82	54.7715	0.0388	9	0	9	10	0	10	1114.55	9.744485	NU3
3546.83	164.3128	0.0388	9	1	9	10	1	10	1114.56	9.744353	NU3
3547.15	167.4662	0.0736	7	3	5	8	3	6	1006.12	5.770000	NU3-
3547.31	0.1916	0.0728	9	3	6	9	5	5	1474.99	0.205541	NU3
3547.58	5.8865	0.0925	5	3	3	6	2	4	602.77	0.863547	NU1
3547.84	0.0343	0.0947	4	2	3	5	1	4	399.46	1.638916	NU1**
3548.05	0.1349	0.0952	3	0	3	4	1	4	1821.61	3.004990	NU1***
3548.33	4.6837	0.0873	2	1	2	3	3	1	285.23	0.013176	NU3
3548.34	107.7404	0.0880	4	0	4	5	1	5	326.64	3.972803	NU1
3548.64	0.1186	0.0914	4	1	4	5	0	5	325.35	3.911752	NU1**
3549.03	0.0149	0.0525	5	5	0	4	4	1	2129.63	4.396748	2NU2***
3549.14	0.0338	0.0832	7	3	4	7	4	3	931.22	4.268667	NU1*
3549.34	0.0484	0.0907	4	1	4	4	2	3	1907.99	1.567300	NU1***
3549.57	0.1294	0.0447	8	0	8	9	0	9	2512.36	8.745630	NU3***
3549.58	0.0431	0.0446	8	1	8	9	1	9	2512.43	8.745235	NU3***
3550.19	0.1228	0.0689	9	4	5	10	3	8	1446.16	0.409296	NU1
3550.22	0.4601	0.0885	6	3	3	7	3	4	842.38	3.480000	NU3*
3550.40	9.6674	0.0801	6	3	3	6	4	2	757.78	3.075987	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3550.41	48.1511	0.0783	6	2	5	6	3	4	648.97	2.963539	NU1
3550.68	0.0521	0.0451	13	3	11	13	3	10	2414.73	1.178730	NU3
3550.72	0.1754	0.0947	1	1	1	2	2	0	136.17	1.244747	NU1*
3550.85	0.2124	0.0844	9	4	6	8	3	5	1050.15	3.141455	2NU2
3550.87	0.2555	0.0852	8	3	5	7	2	6	709.60	0.688192	2NU2
3551.24	0.0462	0.0885	2	1	1	3	3	0	285.43	0.021579	NU3*
3551.59	0.2640	0.0670	7	1	6	8	1	7	882.93	7.336095	NU3*
3551.87	92.7404	0.0947	4	2	3	5	1	4	399.46	1.638916	NU1
3552.11	85.8435	0.0876	6	4	3	7	3	4	842.38	13.89	NU1+
3552.11	0.7770	0.0633	7	2	6	8	2	7	885.62	7.292008	NU3*
3552.21	320.6569	0.0914	4	1	4	5	0	5	325.35	3.911752	NU1
3552.39	17.0523	0.0777	6	0	6	6	1	5	542.91	1.852055	NU1
3552.45	0.3525	0.0806	10	3	7	10	4	6	1616.51	8.179783	NU1
3552.83	2.4224	0.0720	8	4	4	9	3	7	1216.27	7.64	NU1+
3553.42	0.7839	0.0447	8	0	8	9	0	9	920.18	8.745630	NU3*
3553.43	0.2613	0.0446	8	1	8	9	1	9	920.21	8.745235	NU3*
3553.44	1.1343	0.0894	6	2	4	7	2	5	782.40	6.352023	NU3*
3553.45	0.0320	0.0516	5	5	1	6	5	2	2552.85	1.845180	NU3***
3553.73	76.6965	0.0569	6	5	1	7	5	2	1059.85	3.450058	NU3
3553.86	16.9197	0.0832	7	3	4	7	4	3	931.22	4.268667	NU1
3553.88	25.5662	0.0565	6	5	2	7	5	3	1059.65	3.450020	NU3
3554.49	0.0595	0.0839	5	1	5	5	2	4	416.22	1.711792	NU1*
3554.51	0.0134	0.0835	5	1	5	5	3	2	508.81	0.019115	NU3*
3554.74	0.0251	0.0700	6	4	3	7	4	4	927.77	4.735129	NU3**
3554.75	0.0380	0.0576	12	3	9	12	5	8	2275.44	0.855326	NU3
3554.77	0.0559	0.0833	5	2	4	5	3	3	504.00	2.492169	NU1*
3554.78	4.2757	0.0783	9	2	7	9	3	6	1282.92	6.247031	NU1
3554.85	0.3121	0.0694	10	3	7	10	5	6	1718.77	0.369280	NU3
3554.90	0.0118	0.0466	9	7	2	10	6	5	1875.00	0.354752	NU1
3554.92	0.0086	0.0650	10	4	6	11	3	9	1695.03	0.293096	NU1
3555.12	5.0746	0.0762	5	2	4	5	4	1	610.35	0.024136	NU3
3555.34	0.0541	0.032	13	1	13	14	0	14	2073.66	12.99955	NU1
3555.52	0.2283	0.0771	6	3	4	7	3	5	816.72	4.550000	NU3*
3555.68	0.0376	0.0884	5	2	3	5	3	2	2130.50	3.442901	NU1***
3556.51	0.0122	0.0886	7	2	5	7	3	4	2462.87	5.918411	NU1***
3557.14	87.7136	0.0947	1	1	1	2	2	0	136.17	1.244747	NU1
3557.27	0.6393	0.0993	1	1	0	2	2	1	134.91	1.500000	NU1*
3557.48	0.2204	0.0801	10	4	7	9	3	6	1282.92	3.465920	2NU2
3557.52	2.7741	0.0844	8	3	5	8	4	4	1131.76	5.709388	NU1
3557.81	0.0103	0.0833	5	2	4	5	3	3	504.00	2.492169	NU1**
3557.83	0.0445	0.0647	11	3	8	11	5	7	1985.83	0.598994	NU3
3557.86	0.0110	0.0839	5	1	5	5	2	4	416.22	1.711792	NU1**
3557.92	3.3222	0.0835	9	3	6	9	4	5	1360.28	7.165263	NU1
3557.94	0.0851	0.0885	6	3	3	7	3	4	842.38	3.480000	NU3**
3558.12	0.0667	0.0802	7	1	6	7	2	5	782.40	3.983004	NU1*
3558.29	0.0967	0.0477	12	2	10	12	4	9	2124.98	1.085478	NU3
3558.81	0.0488	0.0670	7	1	6	8	1	7	882.93	7.336095	NU3**
3559.08	3.2993	0.0393	10	0	10	10	2	9	1293.66	0.478039	NU3
3559.23	0.0431	0.0974	3	1	3	4	0	4	1817.50	2.831638	NU1***
3559.43	0.1438	0.0633	7	2	6	8	2	7	885.62	7.292008	NU3**
3559.59	0.0283	0.0876	6	4	3	7	3	4	2462.87	13.89	NU1***
3559.69	0.8176	0.0952	3	0	3	4	1	4	224.83	3.004990	NU1*
3559.70	1.1078	0.0397	10	1	10	10	1	9	1293.04	0.478334	NU3
3560.14	200.5529	0.0748	6	4	2	7	4	3	931.22	4.739627	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3560.22	0.2652	0.0427	11	1	10	11	3	9	1695.03	0.850512	NU3
3560.44	0.1183	0.0993	1	1	0	2	2	1	134.91	1.500000	NU1**
3560.68	0.0713	0.0952	3	0	3	4	2	2	315.79	0.116055	NU3*
3560.70	0.1450	0.0447	8	0	8	9	0	9	920.18	8.745630	NU3**
3560.72	0.0484	0.0446	8	1	8	9	1	9	920.21	8.745235	NU3**
3560.85	27.9425	0.0833	5	2	4	5	3	3	504.00	2.492169	NU1
3560.89	0.2099	0.0894	6	2	4	7	2	5	782.40	6.352023	NU3**
3561.24	29.7705	0.0839	5	1	5	5	2	4	416.22	1.711792	NU1
3561.45	0.0726	0.0753	5	1	4	4	4	1	488.10	0.001994	NU1
3561.95	1.1374	0.0750	4	2	3	4	4	0	488.13	0.008789	NU3
3562.21	0.1019	0.0587	8	6	3	9	5	4	1477.31	0.393126	NU1
3562.32	68.0243	0.0700	6	4	3	7	4	4	927.77	4.735129	NU3
3562.35	4.9576	0.0527	5	5	1	4	4	0	488.13	4.397010	2NU2
3562.38	14.8739	0.0525	5	5	0	4	4	1	488.10	4.396748	2NU2
3562.88	0.2288	0.0845	4	2	3	4	3	2	382.52	1.848533	NU1*
3562.92	0.0214	0.0944	3	1	3	3	2	2	1813.81	1.297651	NU1***
3563.01	0.0423	0.0771	6	3	4	7	3	5	816.72	4.550000	NU3**
3563.10	0.1513	0.0952	3	0	3	4	1	4	224.83	3.004990	NU1**
3563.61	319.6552	0.0993	1	1	0	2	2	1	134.91	1.500000	NU1
3563.85	23.0900	0.0885	2	1	1	3	3	0	285.43	0.021579	NU3
3563.94	0.0374	0.0699	5	4	1	6	4	2	2399.17	3.352166	NU3***
3564.02	0.2162	0.0756	7	5	3	8	4	4	1131.76	0.444062	NU1
3564.45	0.0490	0.1006	2	0	2	3	1	3	1739.51	2.156792	NU1***
3564.63	0.1129	0.0679	5	4	2	6	4	3	2398.39	3.351648	NU3***
3564.69	0.8018	0.0444	11	2	10	11	2	9	1690.70	0.856092	NU3
3564.72	46.4773	0.0792	6	6	1	7	3	4	842.38	81.799998	2NU2+
3564.92	0.0647	0.0516	5	5	0	6	5	1	888.63	1.845182	NU3*
3564.95	0.1943	0.0516	5	5	1	6	5	2	888.60	1.845180	NU3*
3564.96	0.2798	0.0785	6	1	5	7	1	6	2309.74	6.391209	NU3***
3565.67	230.0716	0.0885	6	3	3	7	3	4	842.38	3.480000	NU3-
3566.03	132.0104	0.0670	7	1	6	8	1	7	882.93	7.336095	NU3
3566.04	33.3505	0.0802	7	1	6	7	2	5	782.40	3.983004	NU1
3566.30	27.1083	0.0741	7	4	3	8	3	6	1006.12	9.90	NU1+
3566.52	408.8145	0.0952	3	0	3	4	1	4	224.83	3.004990	NU1
3566.76	388.5256	0.0633	7	2	6	8	2	7	885.62	7.292008	NU3
3567.17	0.2610	0.0974	3	1	3	4	0	4	222.06	2.831638	NU1*
3567.23	0.0623	0.0734	6	2	5	7	2	6	2318.53	4.390000	NU3***
3567.45	0.0192	0.0458	9	1	9	9	1	8	1079.07	0.472318	NU3*
3567.99	391.9608	0.0447	8	0	8	9	0	9	920.18	8.745630	NU3
3568.01	130.6484	0.0446	8	1	8	9	1	9	920.21	8.745235	NU3
3568.09	6.7027	0.0835	5	1	5	5	3	2	508.81	0.019115	NU3
3568.34	567.1561	0.0894	6	2	4	7	2	5	782.40	6.352023	NU3
3568.81	114.3949	0.0845	4	2	3	4	3	2	382.52	1.848533	NU1
3569.27	0.2179	0.0871	5	0	5	5	1	4	399.46	1.912338	NU1*
3569.61	0.5077	0.0793	8	4	4	7	3	5	816.72	2.323327	2NU2
3570.06	0.0926	0.0535	7	0	7	8	0	8	2337.53	7.747248	NU3***
3570.14	0.2779	0.0532	7	1	7	8	1	8	2337.70	7.746063	NU3***
3570.50	114.1599	0.0771	6	3	4	7	3	5	816.72	4.550000	NU3-
3570.55	0.2932	0.0907	4	1	4	4	2	3	300.35	1.567300	NU1*
3570.82	0.0483	0.0974	3	1	3	4	0	4	222.06	2.831638	NU1**
3571.18	0.3481	0.0861	5	3	2	6	3	3	661.56	3.180000	NU3*
3571.60	0.0158	0.0598	6	5	2	5	4	1	610.35	4.266963	2NU2*
3572.04	1.6961	0.0785	6	1	5	7	1	6	704.22	6.391209	NU3*
3572.15	0.1301	0.0917	5	2	3	6	2	4	2211.21	5.358633	NU3***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3572.23	0.3780	0.0734	6	2	5	7	2	6	709.60	4.390000	NU3*
3572.49	0.2269	0.0699	5	4	1	6	4	2	757.78	3.352166	NU3*
3572.50	0.0120	0.0516	5	5	0	6	5	1	888.63	1.845182	NU3**
3572.53	0.0359	0.0516	5	5	1	6	5	2	888.60	1.845180	NU3**
3572.76	4.6660	0.0840	8	2	6	8	3	5	1050.15	6.368783	NU1
3573.06	0.0403	0.0871	5	0	5	5	1	4	399.46	1.912338	NU1**
3573.08	0.6543	0.0644	7	5	2	8	4	5	1122.72	0.427306	NU1
3573.23	0.0592	0.0955	2	1	2	2	2	1	1742.28	0.833333	NU1***
3573.39	0.0743	0.0850	4	4	1	3	1	2	173.36	0.004537	2NU2
3573.44	0.6844	0.0679	5	4	2	6	4	3	756.75	3.351648	NU3*
3573.63	34.7936	0.0833	3	2	2	3	3	1	285.23	1.035682	NU1
3573.65	0.2203	0.0835	3	2	1	3	3	0	285.43	1.092505	NU1*
3573.88	0.0542	0.0907	4	1	4	4	2	3	300.35	1.567300	NU1**
3574.07	0.5616	0.0535	7	0	7	8	0	8	744.09	7.747248	NU3*
3574.11	1.6840	0.0532	7	1	7	8	1	8	744.16	7.746063	NU3*
3574.47	130.4987	0.0974	3	1	3	4	0	4	222.06	2.831638	NU1
3574.81	0.1950	0.0797	5	3	3	6	3	4	2271.70	3.370000	NU3***
3575.06	35.6751	0.0952	3	0	3	4	2	2	315.79	0.116055	NU3
3575.09	0.0591	0.0951	3	2	2	4	1	3	275.52	0.835095	NU1*
3575.10	0.0394	0.0909	4	3	2	5	2	3	446.50	0.436045	NU1*
3575.80	0.1464	0.0546	11	2	9	11	4	8	1843.02	0.981559	NU3
3576.49	0.0408	0.0835	3	2	1	3	3	0	285.43	1.092505	NU1**
3576.73	0.2971	0.1006	2	0	2	3	1	3	142.28	2.156792	NU1*
3576.85	108.9735	0.0871	5	0	5	5	1	4	399.46	1.912338	NU1
3577.21	146.6057	0.0907	4	1	4	4	2	3	300.35	1.567300	NU1
3578.04	0.0240	0.0942	4	0	4	4	1	3	1875.49	2.047924	NU1***
3578.04	4.2064	0.0762	4	2	2	4	4	1	488.10	0.010786	NU3
3578.06	0.7885	0.0917	5	2	3	6	2	4	602.77	5.358633	NU3*
3578.73	0.0511	0.0509	12	3	10	12	3	9	2105.90	1.142616	NU3
3578.90	0.0644	0.0861	5	3	2	6	3	3	661.56	3.180000	NU3**
3579.30	0.3138	0.0785	6	1	5	7	1	6	704.22	6.391209	NU3**
3579.33	110.1731	0.0835	3	2	1	3	3	0	285.43	1.092505	NU1
3579.60	0.0699	0.0734	6	2	5	7	2	6	709.60	4.390000	NU3**
3580.09	32.3977	0.0516	5	5	0	6	5	1	888.63	1.845182	NU3
3580.12	97.1937	0.0516	5	5	1	6	5	2	888.60	1.845180	NU3
3580.26	1.1817	0.0797	5	3	3	6	3	4	648.97	3.370000	NU3*
3580.43	0.0137	0.0886	7	2	5	7	3	4	842.38	5.918411	NU1**
3580.99	3.1751	0.0451	9	0	9	9	2	8	1080.38	0.471417	NU3
3581.03	0.1266	0.0679	5	4	2	6	4	3	756.75	3.351648	NU3**
3581.09	2.6402	0.0491	10	1	9	10	3	8	1446.16	0.818434	NU3
3581.29	0.1406	0.1037	1	0	1	2	1	2	1677.08	1.500000	NU1***
3581.32	0.2278	0.0884	5	2	3	5	3	2	508.81	3.442901	NU1*
3581.38	0.1039	0.0535	7	0	7	8	0	8	744.09	7.747248	NU3**
3581.43	0.3115	0.0532	7	1	7	8	1	8	744.16	7.746063	NU3**
3581.48	0.0488	0.0971	2	0	2	3	2	1	1819.34	0.094498	NU3***
3581.63	0.0241	0.0459	8	7	2	9	6	3	1631.41	0.197898	NU1
3582.01	0.0496	0.0893	6	2	4	6	3	3	661.56	4.829435	NU1*
3582.32	9.6106	0.0458	9	1	9	9	1	8	1079.07	0.472318	NU3
3582.73	44.5822	0.0862	4	2	2	4	3	1	383.85	2.167225	NU1
3583.28	0.2945	0.0684	7	0	7	6	3	4	648.97	0.017960	NU1
3583.34	29.5317	0.0951	3	2	2	4	1	3	275.52	0.835095	NU1
3583.60	148.5278	0.1006	2	0	2	3	1	3	142.28	2.156792	NU1
3583.70	36.9029	0.0886	7	2	5	7	3	4	842.38	5.918411	NU1
3584.15	0.0421	0.0884	5	2	3	5	3	2	508.81	3.442901	NU1**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3584.34	19.6813	0.0909	4	3	2	5	2	3	446.50	0.436045	NU1
3585.00	0.0092	0.0893	6	2	4	6	3	3	661.56	4.829435	NU1**
3585.14	0.0365	0.0692	6	0	6	5	4	1	610.35	0.000172	NU3
3585.21	25.6035	0.0743	6	4	2	7	3	5	816.72	10.83	NU1+
3585.62	0.1458	0.0917	5	2	3	6	2	4	602.77	5.358633	NU3**
3585.67	0.1804	0.0872	5	1	4	6	1	5	2146.28	5.488405	NU3***
3585.84	2.7719	0.0792	5	2	3	5	4	2	610.12	0.039164	NU3
3586.56	848.0212	0.0785	6	1	5	7	1	6	704.22	6.391209	NU3
3586.62	174.0871	0.0861	5	3	2	6	3	3	661.56	3.180000	NU3-
3586.87	0.1818	0.0709	7	3	5	6	0	6	446.71	0.130226	2NU2
3586.97	188.9975	0.0734	6	2	5	7	2	6	709.60	4.390000	NU3-
3586.98	7.8862	0.0598	6	5	2	5	4	1	610.35	4.266963	2NU2
3586.99	113.8876	0.0884	5	2	3	5	3	2	508.81	3.442901	NU1
3587.32	2.6308	0.0587	6	5	1	5	4	2	610.12	4.264570	2NU2
3587.50	29.1302	0.0877	6	1	5	6	2	4	602.77	4.225862	NU1
3587.75	113.4523	0.0699	5	4	1	6	4	2	757.78	3.352166	NU3
3587.80	0.2186	0.0797	5	3	3	6	3	4	648.97	3.370000	NU3**
3587.99	24.8189	0.0893	6	2	4	6	3	3	661.56	4.829435	NU1
3588.37	0.3947	0.0818	5	2	4	6	2	5	2161.30	4.200000	NU3***
3588.63	342.1935	0.0679	5	4	2	6	4	3	756.75	3.351648	NU3
3588.70	280.8225	0.0535	7	0	7	8	0	8	744.09	7.747248	NU3
3588.76	842.0047	0.0532	7	1	7	8	1	8	744.16	7.746063	NU3
3589.53	0.9367	0.0516	10	2	9	10	2	8	1438.00	0.834303	NU3
3589.75	0.1402	0.0845	4	0	4	3	3	1	285.23	0.004153	NU1
3589.75	1.3763	0.0620	10	2	8	10	4	7	1581.34	0.828214	NU3
3590.13	0.1278	0.0638	4	4	0	5	4	1	2251.86	1.810956	NU3***
3590.23	64.9916	0.0944	3	1	3	3	2	2	206.30	1.297651	NU1
3590.26	0.1231	0.0937	3	1	2	3	2	1	1819.34	2.538253	NU1***
3590.47	0.5364	0.0649	6	0	6	7	0	7	2180.65	6.749914	NU3***
3590.62	0.7425	0.0994	2	1	2	3	0	3	136.77	1.741385	NU1*
3590.64	0.1786	0.0642	6	1	6	7	1	7	2181.12	6.746361	NU3***
3590.83	0.0584	0.0553	7	6	2	8	5	3	1255.92	0.222252	NU1
3591.30	0.1826	0.0762	6	0	6	5	3	3	504.00	0.016149	NU1
3591.59	0.1759	0.0527	7	6	1	8	5	4	1255.16	0.221954	NU1
3591.69	0.2267	0.0711	7	1	6	6	4	3	756.75	0.023637	NU1
3591.76	0.0236	0.0780	6	3	3	7	2	6	2318.53	17.68	NU1***
3591.95	0.1455	0.0942	4	0	4	4	1	3	275.52	2.047924	NU1*
3592.33	1.0936	0.0872	5	1	4	6	1	5	542.91	5.488405	NU3*
3593.19	394.2654	0.0917	5	2	3	6	2	4	602.77	5.358633	NU3
3593.45	3.7532	0.0862	4	1	4	4	3	1	383.85	0.017070	NU3
3593.48	0.3588	0.0955	2	1	2	2	2	1	134.91	0.833333	NU1*
3593.79	0.6888	0.0816	5	0	5	4	3	2	382.52	0.011053	NU1
3593.99	10.3074	0.0803	6	2	4	6	4	3	756.75	0.100806	NU3
3594.04	0.8524	0.1037	1	0	1	2	1	2	79.48	1.500000	NU1*
3594.36	0.1374	0.0994	2	1	2	3	0	3	136.77	1.741385	NU1**
3594.52	3.2509	0.0649	6	0	6	7	0	7	586.26	6.749914	NU3*
3594.62	1.0818	0.0642	6	1	6	7	1	7	586.48	6.746361	NU3*
3594.72	0.0219	0.0840	5	4	2	6	3	3	2282.59	12.78	NU1***
3595.35	590.8837	0.0797	5	3	3	6	3	4	648.97	3.370000	NU3-
3595.48	1.0175	0.0704	6	5	2	7	4	3	931.22	0.253734	NU1
3595.94	0.3824	0.0912	5	1	4	5	2	3	446.50	4.214107	NU1*
3596.17	66.3420	0.0840	5	4	2	6	3	3	661.56	12.78	NU1+
3596.72	0.0664	0.0955	2	1	2	2	2	1	134.91	0.833333	NU1**
3596.82	0.0241	0.0431	8	7	1	8	6	2	1411.68	2.144937	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3596.85	0.0723	0.0430	8	7	2	8	6	3	1411.65	2.144879	2NU2
3597.08	0.3203	0.0826	4	3	1	5	3	2	2130.50	2.730000	NU3***
3597.21	0.0183	0.0870	3	1	3	3	3	0	285.43	0.008443	NU3*
3597.25	0.1288	0.0975	3	0	3	3	1	2	1772.41	2.185861	NU1***
3597.51	0.1577	0.1037	1	0	1	2	1	2	79.48	1.500000	NU1**
3597.62	2.3918	0.0818	5	2	4	6	2	5	552.92	4.200000	NU3*
3598.11	371.2599	0.0994	2	1	2	3	0	3	136.77	1.741385	NU1
3598.58	71.6598	0.0780	6	3	3	7	2	6	709.60	17.68	NU1+
3598.87	1.1526	0.0694	9	2	7	9	4	6	1340.89	0.624317	NU3
3598.94	0.3418	0.0626	6	5	1	7	4	4	927.77	0.250934	NU1
3598.97	0.2957	0.0971	2	0	2	3	2	1	212.15	0.094498	NU3*
3599.07	0.6819	0.0920	4	2	2	5	2	3	2053.98	4.253846	NU3***
3599.24	0.7743	0.0638	4	4	0	5	4	1	610.35	1.810956	NU3*
3599.45	0.2584	0.0633	4	4	1	5	4	2	610.12	1.810924	NU3*
3599.46	19.1232	0.0737	7	3	4	8	2	7	885.62	3.79	NU1+
3599.46	72.7472	0.0942	4	0	4	4	1	3	275.52	2.047924	NU1
3599.68	0.2023	0.0872	5	1	4	6	1	5	542.91	5.488405	NU3**
3599.97	179.3981	0.0955	2	1	2	2	2	1	134.91	0.833333	NU1
3600.22	3.1696	0.0791	7	2	5	7	4	4	927.77	0.218314	NU3
3600.75	2.6347	0.0570	9	1	8	9	3	7	1216.27	0.769552	NU3
3600.98	426.1887	0.1037	1	0	1	2	1	2	79.48	1.500000	NU1
3601.04	265.5457	0.0814	5	3	2	6	2	5	552.92	9.87	NU1+
3601.87	0.6015	0.0649	6	0	6	7	0	7	586.26	6.749914	NU3**
3601.99	0.2001	0.0642	6	1	6	7	1	7	586.48	6.746361	NU3**
3602.32	1.9411	0.0826	4	3	1	5	3	2	508.81	2.730000	NU3*
3602.33	6.6223	0.0747	8	2	6	8	4	5	1122.72	0.402567	NU3
3602.55	24.8739	0.0531	8	0	8	8	2	7	885.62	0.462205	NU3
3603.05	191.2005	0.0912	5	1	4	5	2	3	446.50	4.214107	NU1
3603.86	0.0409	0.0663	8	1	7	8	3	6	1006.12	0.691047	NU3*
3604.36	4.1325	0.0920	4	2	2	5	2	3	446.50	4.253846	NU3*
3604.48	0.0108	0.0838	4	4	0	3	1	3	142.28	0.001674	2NU2
3604.65	0.2061	0.0801	8	1	8	7	2	5	782.40	0.024347	NU1
3605.08	0.4425	0.0818	5	2	4	6	2	5	552.92	4.200000	NU3**
3605.27	0.2123	0.0934	4	1	3	4	2	2	315.79	3.642913	NU1*
3605.29	8.4594	0.0547	8	1	8	8	1	7	882.93	0.464983	NU3
3605.74	0.4620	0.0798	9	4	5	8	3	6	1006.12	1.797448	2NU2
3606.01	0.7798	0.0803	4	3	2	5	3	3	504.00	3.208780	NU3*
3606.02	0.0547	0.0971	2	0	2	3	2	1	212.15	0.094498	NU3**
3606.34	0.0177	0.0949	2	2	1	3	1	2	1772.41	0.300506	NU1***
3607.03	546.7939	0.0872	5	1	4	6	1	5	542.91	5.488405	NU3
3607.25	4.5897	0.0727	5	4	1	6	3	4	648.97	0.278030	NU1
3607.39	0.9355	0.0926	4	1	3	5	1	4	2000.90	4.601931	NU3***
3607.86	0.1803	0.0957	2	1	1	2	2	0	136.17	1.258755	NU1*
3608.01	0.6081	0.0596	11	3	9	11	3	8	1813.26	1.122765	NU3
3608.31	0.0271	0.0427	7	7	0	8	6	3	1411.65	0.074321	NU1
3608.46	0.0389	0.0636	7	0	7	7	2	6	709.60	0.448059	NU3*
3608.64	0.0393	0.0934	4	1	3	4	2	2	315.79	3.642913	NU1**
3608.73	0.7459	0.0937	3	1	2	3	2	1	212.15	2.538253	NU1*
3609.21	0.0127	0.0829	4	3	1	5	2	4	2024.17	2.18	NU1***
3609.23	1625.4689	0.0649	6	0	6	7	0	7	586.26	6.749914	NU3
3609.36	540.9480	0.0642	6	1	6	7	1	7	586.48	6.746361	NU3
3609.99	0.3591	0.0826	4	3	1	5	3	2	508.81	2.730000	NU3**
3610.12	9.1514	0.0870	3	1	3	3	3	0	285.43	0.008443	NU3
3610.31	0.0604	0.1021	2	0	2	2	1	1	1693.65	2.074578	NU1***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3610.39	0.3080	0.0775	5	0	5	6	0	6	2041.76	5.755360	NU3***
3610.66	0.7804	0.0975	3	0	3	3	1	2	173.36	2.185861	NU1*
3610.74	1.2296	0.0660	7	5	3	6	4	2	757.78	4.143594	2NU2
3610.80	0.9199	0.0764	5	1	5	6	1	6	2042.77	5.744669	NU3***
3611.07	0.0333	0.0957	2	1	1	2	2	0	136.17	1.258755	NU1**
3611.18	0.0198	0.0949	2	2	1	3	1	2	173.36	0.300506	NU1**
3611.41	0.0291	0.0994	1	0	1	2	2	0	1743.47	0.038246	NU3***
3611.87	3.6986	0.0628	7	5	2	6	4	3	756.75	4.131192	2NU2
3611.99	0.1380	0.0937	3	1	2	3	2	1	212.15	2.538253	NU1**
3612.00	0.7645	0.0920	4	2	2	5	2	3	446.50	4.253846	NU3**
3612.02	106.1695	0.0934	4	1	3	4	2	2	315.79	3.642913	NU1
3612.55	1195.9086	0.0818	5	2	4	6	2	5	552.92	4.200000	NU3-
3613.07	147.8754	0.0971	2	0	2	3	2	1	212.15	0.094498	NU3
3613.42	5.6696	0.0926	4	1	3	5	1	4	399.46	4.601931	NU3*
3613.59	0.1442	0.0803	4	3	2	5	3	3	504.00	3.208780	NU3**
3613.89	0.0177	0.0557	7	4	4	6	6	1	1045.07	0.000730	NU3
3614.28	.90.1255	0.0957	2	1	1	2	2	0	136.17	1.258755	NU1
3614.44	387.1051	0.0638	4	4	0	5	4	1	610.35	1.810956	NU3
3614.64	129.2037	0.0633	4	4	1	5	4	2	610.12	1.810924	NU3
3614.69	1.8667	0.0775	5	0	5	6	0	6	446.71	5.755360	NU3*
3614.84	5.5753	0.0764	5	1	5	6	1	6	447.24	5.744669	NU3*
3615.25	372.9500	0.0937	3	1	2	3	2	1	212.15	2.538253	NU1
3615.35	53.6079	0.0949	2	2	1	3	1	2	173.36	0.300506	NU1
3615.58	0.1841	0.0875	4	2	3	5	2	4	2024.17	2.950000	NU3***
3615.60	0.1733	0.1044	1	1	1	2	0	2	70.08	0.755253	NU1*
3615.64	38.4920	0.0829	4	3	1	5	2	4	416.22	2.18	NU1+
3615.79	9.0578	0.0606	9	2	8	9	2	7	1201.95	0.813942	NU3
3616.00	0.3813	0.0846	6	4	3	5	1	4	399.46	0.071290	2NU2
3617.66	970.5790	0.0826	4	3	1	5	3	2	508.81	2.730000	NU3-
3617.99	390.2244	0.0975	3	0	3	3	1	2	173.36	2.185861	NU1
3618.16	20.4583	0.0663	8	1	7	8	3	6	1006.12	0.691047	NU3
3618.22	0.0601	0.0497	6	6	0	7	5	3	1059.65	0.084869	NU1
3618.36	0.0290	0.0743	7	1	6	7	3	5	816.72	0.567704	NU3*
3618.85	1.1157	0.0875	4	2	3	5	2	4	416.22	2.950000	NU3*
3619.42	4.7191	0.0884	3	3	1	4	2	2	315.79	0.161593	NU1
3619.64	2066.2326	0.0920	4	2	2	5	2	3	446.50	4.253846	NU3
3619.95	141.6631	0.0996	0	0	0	1	1	1	37.13	1.000000	NU1
3620.88	1.0489	0.0926	4	1	3	5	1	4	399.46	4.601931	NU3**
3621.17	389.8899	0.0803	4	3	2	5	3	3	504.00	3.208780	NU3
3622.07	0.3454	0.0775	5	0	5	6	0	6	446.71	5.755360	NU3**
3622.25	1.0314	0.0764	5	1	5	6	1	6	447.24	5.744669	NU3**
3623.19	19.4846	0.0636	7	0	7	7	2	6	709.60	0.448059	NU3
3623.23	86.6399	0.1044	1	1	1	2	0	2	70.08	0.755253	NU1
3623.54	0.3663	0.1021	2	0	2	2	1	1	95.17	2.07457P	NU1*
3624.02	3.2722	0.0646	5	5	1	6	4	2	757.78	1.02	NU1+
3624.24	0.1295	0.0784	3	3	0	4	3	1	2005.92	1.758969	NU3***
3624.54	0.0560	0.0633	9	3	6	10	2	9	1293.66	0.084934	NU1
3625.05	9.8712	0.0590	5	5	0	6	4	3	756.75	1.02	NU1+
3625.17	0.3911	0.0774	3	3	1	4	3	2	2004.81	1.758385	NU3***
3625.48	0.0150	0.0773	6	1	6	6	1	5	2146.28	0.450603	NU3***
3626.24	153.1589	0.0787	4	4	1	5	3	2	508.81	4.58	NU1+
3626.35	0.2064	0.0875	4	2	3	5	2	4	416.22	2.950000	NU3**
3626.72	0.0180	0.0689	8	2	7	8	2	6	982.91	0.807542	NU3*
3626.80	0.3139	0.0914	3	2	1	4	2	2	1922.92	3.033776	NU3***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3627.12	0.0678	0.1021	2	0	2	2	1	1	95.17	2.074578	NU1**
3628.34	2834.7985	0.0926	4	1	3	5	1	4	399.46	4.601931	NU3
3628.70	61.3129	0.0654	7	1	7	7	1	6	704.22	0.456726	NU3
3629.45	933.3359	0.0775	5	0	5	6	0	6	446.71	5.755360	NU3
3629.66	2787.6639	0.0764	5	1	5	6	1	6	447.24	5.744669	NU3
3629.91	1.4124	0.0887	4	0	4	5	0	5	1920.76	4.769122	NU3***
3630.71	183.1462	0.1021	2	0	2	2	1	1	95.17	2.074578	NU1
3630.80	1.3310	0.0708	4	4	0	5	3	3	504.00	0.116422	NU1
3630.80	0.4647	0.0957	3	1	2	4	1	3	1875.49	3.667441	NU3***
3631.00	1.0367	0.1075	1	0	1	1	1	0	42.37	1.500000	NU1*
3631.21	0.7850	0.0784	3	3	0	4	3	1	383.85	1.758969	NU3*
3631.79	1.9028	0.0914	3	2	1	4	2	2	315.79	3.033776	NU3*
3632.15	0.0343	0.0914	3	2	1	4	1	4	224.83	0.123609	NU1*
3632.24	14.4900	0.0743	7	1	6	7	3	5	816.72	0.567704	NU3
3632.35	2.3704	0.0774	3	3	1	4	3	2	382.52	1.758385	NU3*
3632.49	0.1218	0.0871	4	1	3	4	3	2	382.52	0.090390	NU3*
3632.91	0.0541	0.0857	5	1	4	5	3	3	504.00	0.221254	NU3*
3633.86	557.8829	0.0875	4	2	3	5	2	4	416.22	2.950000	NU3-
3633.88	1.5055	0.0706	8	5	4	7	4	3	931.22	4.002077	2NU2
3634.42	8.5598	0.0887	4	0	4	5	0	5	325.35	4.769122	NU3*
3634.54	0.1918	0.1075	1	0	1	1	1	0	42.37	1.500000	NU1**
3635.00	12.4966	0.0829	3	3	0	4	2	3	300.35	0.131472	NU1
3635.10	0.0262	0.0813	6	1	5	6	3	4	648.97	0.398711	NU3**
3635.22	0.0450	0.0747	6	0	6	6	2	5	552.92	0.423826	NU3**
3635.74	2.8170	0.0872	4	1	4	5	1	5	326.64	4.737042	NU3*
3636.18	0.0457	0.0633	12	4	9	12	4	8	2205.65	1.508618	NU3
3636.22	2.8166	0.0957	3	1	2	4	1	3	275.52	3.667441	NU3*
3636.29	1.0035	0.0903	3	2	2	4	2	3	1907.99	2.984448	NU3***
3636.34	0.0326	0.0994	1	0	1	2	2	0	136.17	0.038246	NU3**
3636.47	0.0137	0.0500	10	1	10	9	3	7	1216.27	0.003958	NU3
3636.47	0.1789	0.0394	12	3	10	13	3	11	2248.16	11.866070	NU3
3637.45	0.0909	0.0773	6	1	6	6	1	5	542.91	0.450603	NU3*
3637.69	0.7973	0.0671	10	3	8	10	3	7	1538.23	1.142576	NU3
3638.09	518.3663	0.1075	1	0	1	1	1	0	42.37	1.500000	NU1
3638.36	0.2655	0.0614	8	3	6	7	0	7	586.26	0.125531	2NU2
3638.84	0.1452	0.0784	3	3	0	4	3	1	383.85	1.758969	NU3**
3638.88	0.0226	0.0871	4	1	3	4	3	2	382.52	0.090390	NU3**
3639.45	0.3521	0.0914	3	2	1	4	2	2	315.79	3.033776	NU3**
3639.93	17.1625	0.0914	3	2	1	4	1	4	224.83	0.123609	NU1
3639.94	26.7903	0.0872	4	2	2	5	1	5	326.64	0.963	NU1+
3639.95	0.4386	0.0774	3	3	1	4	3	2	382.52	1.758385	NU3**
3641.24	6.0815	0.0903	3	2	2	4	2	3	300.35	2.984448	NU3*
3641.61	8.4447	0.0860	3	1	2	3	3	1	285.23	0.023148	NU3
3641.81	70.8127	0.0813	6	1	5	6	3	4	648.97	0.398711	NU3
3641.84	1.5835	0.0887	4	0	4	5	0	5	325.35	4.769122	NU3**
3642.57	121.6832	0.0747	6	0	6	6	2	5	552.92	0.423826	NU3
3642.99	9.0052	0.0689	8	2	7	8	2	6	982.91	0.807542	NU3
3643.20	0.5212	0.0872	4	1	4	5	1	5	326.64	4.737042	NU3**
3643.33	88.2494	0.0994	1	0	1	2	2	0	136.17	0.038246	NU3
3643.55	0.1293	0.0788	7	4	4	6	1	5	542.91	0.147419	2NU2
3643.73	0.0397	0.0786	10	4	6	9	3	7	1216.27	1.314980	2NU2
3643.77	0.5210	0.0957	3	1	2	4	1	3	275.52	3.667441	NU3**
3644.12	0.0610	0.0812	5	4	1	4	1	4	224.83	0.004729	2NU2
3644.41	0.0111	0.0649	6	5	2	6	2	5	552.92	0.004423	2NU2

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3644.66	0.0299	0.0424	8	6	3	7	7	0	1394.86	0.074321	NU1
3644.71	0.0100	0.0424	8	6	2	7	7	1	1394.86	0.074323	NU1
3645.10	0.1019	0.0401	7	7	0	7	6	1	1216.20	1.119797	2NU2
3645.28	60.8873	0.0871	4	1	3	4	3	2	382.52	0.090390	NU3
3645.41	0.1445	0.0846	5	0	5	5	2	4	416.22	0.379277	NU3*
3645.62	0.0302	0.0628	8	4	4	7	6	1	1216.20	0.002886	NU3
3645.94	27.0677	0.0857	5	1	4	5	3	3	504.00	0.221254	NU3
3646.47	392.4581	0.0784	3	3	0	4	3	1	383.85	1.758969	NU3
3647.12	951.3782	0.0914	3	2	1	4	2	2	315.79	3.033776	NU3
3647.55	1185.1957	0.0774	3	3	1	4	3	2	382.52	1.758385	NU3
3647.69	7.1283	0.0941	2	2	0	3	1	3	142.28	0.101693	NU1
3648.56	51.0375	0.0812	5	2	3	6	1	6	447.24	1.115	NU1+
3648.79	1.1250	0.0903	3	2	2	4	2	3	300.35	2.984448	NU3**
3649.27	4279.9025	0.0887	4	0	4	5	0	5	325.35	4.769122	NU3
3650.66	1408.4906	0.0872	4	1	4	5	1	5	326.64	4.737042	NU3
3651.32	1408.3050	0.0957	3	1	2	4	1	3	275.52	3.667441	NU3
3651.56	1.8287	0.0948	3	1	3	4	1	4	1821.61	3.713893	NU3***
3652.39	1.0352	0.0590	6	4	3	5	5	0	742.10	0.098702	NU1
3652.67	0.0941	0.0863	5	1	5	5	1	4	2000.90	0.456689	NU3***
3652.93	45.4636	0.0773	6	1	6	6	1	5	542.91	0.450603	NU3
3653.64	0.0147	0.0960	3	1	3	2	2	0	136.17	0.101693	NU1*
3653.66	0.1541	0.0782	7	2	6	7	2	5	782.40	0.838975	NU3*
3653.87	3.8369	0.0960	3	0	3	4	0	4	222.06	3.805784	NU3*
3654.24	0.1779	0.0750	9	5	5	8	4	4	1131.76	3.840219	2NU2
3654.32	0.8804	0.0907	2	2	0	3	2	1	1819.34	1.676022	NU3***
3655.15	0.1180	0.0650	9	2	7	8	1	8	744.16	0.122288	2NU2
3655.27	0.1328	0.0562	9	1	9	8	3	6	1006.12	0.004442	NU3
3655.41	0.0259	0.0577	9	4	6	8	6	3	1411.65	0.006585	NU3
3655.71	11.0833	0.0948	3	1	3	4	1	4	224.83	3.713893	NU3*
3655.77	1.6872	0.0986	2	1	1	3	1	2	1772.41	2.645088	NU3***
3656.35	3040.7787	0.0903	3	2	2	4	2	3	300.35	2.984448	NU3
3658.38	0.0468	0.0722	9	5	4	10	3	7	1538.23	0.066606	NU3
3658.39	0.0368	0.0948	4	1	4	3	2	1	212.15	0.123609	NU1*
3658.53	0.3008	0.0915	2	2	1	3	2	2	1813.81	1.666667	NU3***
3658.54	0.0494	0.0977	2	0	2	2	2	1	1742.28	0.063744	NU3***
3659.66	5.3353	0.0907	2	2	0	3	2	1	212.15	1.676022	NU3*
3659.83	0.3467	0.0629	6	4	2	5	5	1	742.10	0.098971	NU1
3659.86	0.0272	0.0825	4	2	3	3	3	0	285.43	0.131472	NU1*
3659.87	1.0473	0.0763	8	4	4	9	2	7	1201.95	0.092972	NU3
3659.90	0.6137	0.0916	4	0	4	4	2	3	300.35	0.299684	NU3*
3659.94	72.2409	0.0846	5	0	5	5	2	4	416.22	0.379277	NU3
3660.36	7.3739	0.0960	3	1	3	2	2	0	136.17	0.101693	NU1
3660.71	10.2254	0.0986	2	1	1	3	1	2	173.36	2.645088	NU3*
3661.07	0.1896	0.1111	1	1	0	1	0	1	1618.55	1.500000	NU1***
3661.33	0.7099	0.0960	3	0	3	4	0	4	222.06	3.805784	NU3**
3661.67	2.6981	0.0929	5	1	5	4	2	2	315.79	0.091324	NU1
3661.82	0.0285	0.0782	7	2	6	7	2	5	782.40	0.838975	NU3**
3661.84	0.5702	0.0863	5	1	5	5	1	4	399.46	0.456689	NU3*
3662.22	1.4535	0.0690	5	3	3	4	4	0	488.13	0.116422	NU1
3663.07	0.2732	0.0747	6	2	4	7	1	7	586.48	0.035782	NU1
3663.21	2.0504	0.0948	3	1	3	4	1	4	224.83	3.713893	NU3**
3664.26	1.8233	0.0915	2	2	1	3	2	2	206.30	1.666667	NU3*
3664.28	0.5369	0.0654	9	5	4	8	4	5	1122.72	3.682999	2NU2
3664.42	0.6240	0.0688	11	4	8	11	4	7	1899.06	1.701473	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3664.61	0.0723	0.0669	10	4	6	11	2	9	1690.70	0.075083	NU3
3664.67	0.2090	0.0652	7	3	5	6	5	2	888.60	0.003875	NU3
3665.00	4.5829	0.0431	6	6	1	5	5	0	742.10	4.59	2NU2-
3665.25	1.7589	0.0431	6	6	0	5	5	1	742.10	5.399693	2NU2
3665.41	18.4141	0.0948	4	1	4	3	2	1	212.15	0.123609	NU1
3665.62	0.0298	0.0447	9	6	3	8	7	2	1590.74	0.197898	NU1
3665.86	4.4771	0.0761	5	3	2	4	4	1	488.10	0.119405	NU1
3665.90	13.5789	0.0825	4	2	3	3	3	0	285.43	0.131472	NU1
3665.95	1.0990	0.0680	6	3	3	5	5	0	742.10	0.009800	NU3+
3666.01	9.2943	0.0740	9	3	7	9	3	6	1282.92	1.235624	NU3
3666.92	0.0954	0.0798	9	2	8	8	3	5	1050.15	0.126905	NU1
3667.01	0.0798	0.1044	2	1	1	2	0	2	1664.97	2.074578	NU1***
3667.02	1.1491	0.1111	1	1	0	1	0	1	23.79	1.500000	NU1*
3667.08	0.1136	0.0916	4	0	4	4	2	3	300.35	0.299684	NU3**
3667.31	0.9870	0.0907	2	2	0	3	2	1	212.15	1.676022	NU3**
3667.32	0.0219	0.0951	3	1	2	2	2	1	1742.28	0.300506	NU1***
3668.31	1.8917	0.0986	2	1	1	3	1	2	173.36	2.645088	NU3**
3668.79	1918.4159	0.0960	3	0	3	4	0	4	222.06	3.805784	NU3
3668.93	2.2135	0.1010	2	0	2	3	0	3	1731.89	2.880004	NU3***
3669.64	0.1055	0.0863	5	1	5	5	1	4	399.46	0.456689	NU3**
3669.98	77.0437	0.0782	7	2	6	7	2	5	782.40	0.838975	NU3
3670.37	0.1991	0.0948	3	0	3	3	2	2	206.30	0.181744	NU3*
3670.72	5541.6353	0.0948	3	1	3	4	1	4	224.83	3.713893	NU3
3671.35	0.0181	0.0345	8	8	0	8	8	1	1789.10	15.079045	NU3*
3671.50	0.1260	0.0620	8	1	8	7	3	5	816.72	0.004883	NU3
3671.85	0.3373	0.0915	2	2	1	3	2	2	206.30	1.666667	NU3**
3671.92	0.6619	0.0984	2	1	2	3	1	3	1739.51	2.653490	NU3***
3672.17	0.0104	0.0385	9	8	1	9	7	2	1810.63	2.165395	2NU2
3672.74	0.4835	0.1044	2	1	1	2	0	2	70.08	2.074578	NU1*
3673.19	0.0732	0.0542	8	5	3	7	6	2	1216.20	0.222252	NU1
3673.23	0.2192	0.0516	8	5	4	7	6	1	1216.20	0.221954	NU1
3673.40	13.4152	0.1010	2	0	2	3	0	3	136.77	2.880004	NU3*
3674.27	306.8374	0.0916	4	0	4	4	2	3	300.35	0.299684	NU3
3674.73	574.5293	0.1111	1	1	0	1	0	1	23.79	1.500000	NU1
3674.97	2667.6552	0.0907	2	2	0	3	2	1	212.15	1.676022	NU3
3675.92	5112.6901	0.0986	2	1	1	3	1	2	173.36	2.645088	NU3
3676.55	0.0894	0.1044	2	1	1	2	0	2	70.08	2.074578	NU1**
3677.37	0.6079	0.0729	5	2	4	4	4	1	488.10	0.001517	NU3
3677.44	285.1285	0.0863	5	1	5	5	1	4	399.46	0.456689	NU3
3677.71	0.1577	0.0994	3	1	2	3	0	3	1731.89	2.185861	NU1***
3678.36	0.0107	0.0749	9	4	6	10	1	9	1293.04	0.047764	NU1
3678.46	0.0570	0.0605	9	0	9	8	2	6	982.91	0.005067	NU3
3679.44	911.6467	0.0915	2	2	1	3	2	2	206.30	1.666667	NU3
3680.24	0.7428	0.0784	7	4	3	8	2	6	982.91	0.065935	NU3
3680.37	241.7413	0.1044	2	1	1	2	0	2	70.08	2.074578	NU1
3680.92	2.4818	0.1010	2	0	2	3	0	3	136.77	2.880004	NU3**
3681.00	5.5316	0.0826	5	2	4	4	3	1	383.85	0.261722	NU1
3681.02	0.0650	0.0757	7	4	4	8	1	7	882.93	0.037317	NU1
3681.35	5.5923	0.0864	4	2	2	3	3	1	285.23	0.161593	NU1
3681.38	0.0652	0.0649	8	3	6	7	5	3	1059.65	0.008488	NU3
3681.52	0.1849	0.0385	10	8	3	10	8	2	2254.34	12.044007	NU3
3681.52	0.5547	0.0385	10	8	2	10	8	3	2254.34	12.044007	NU3
3681.58	0.1811	0.1032	2	0	2	1	1	1	37.13	0.755253	NU1*
3681.74	0.4747	0.1037	1	1	0	2	1	1	1693.65	1.500000	NU3***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3681.92	0.2548	0.0679	7	2	5	8	1	8	744.16	0.024347	NU1
3681.95	0.0422	0.0639	12	5	8	12	5	7	2300.80	2.746007	NU3
3682.11	0.1526	0.0949	3	2	1	3	1	2	1772.41	2.538253	NU1***
3682.36	0.0438	0.0951	4	2	2	4	1	3	1875.49	3.642913	NU1***
3682.48	0.0120	0.0663	10	6	4	11	4	7	1899.06	0.032530	NU3
3682.55	5.6820	0.0713	6	3	4	5	4	1	610.35	0.278030	NU1
3683.01	0.2654	0.0951	4	2	2	4	1	3	275.52	3.642913	NU1*
3683.12	0.9247	0.0949	3	2	1	3	1	2	173.36	2.538253	NU1*
3683.16	0.9560	0.0994	3	1	2	3	0	3	136.77	2.185861	NU1*
3683.28	0.0554	0.0977	2	0	2	2	2	1	134.91	0.063744	NU3**
3683.56	1.2365	0.0819	8	2	7	7	3	4	842.38	0.192937	NU1
3683.72	0.7421	0.0984	2	1	2	3	1	3	142.28	2.653490	NU3**
3683.82	1.2905	0.0688	7	4	3	6	5	2	888.60	0.253734	NU1
3683.87	0.0212	0.0831	6	2	5	5	3	2	508.81	0.312103	NU1*
3683.95	0.9122	0.0682	7	1	7	6	3	4	648.97	0.005077	NU3
3683.96	0.0124	0.0394	8	7	2	8	7	1	1590.74	11.468981	NU3*
3683.96	0.0372	0.0394	8	7	1	8	7	2	1590.74	11.468981	NU3*
3684.29	0.8244	0.0362	9	8	1	9	8	2	2009.87	13.413519	NU3
3684.29	2.4731	0.0362	9	8	2	9	8	1	2009.87	13.413519	NU3
3684.55	99.5498	0.0948	3	0	3	3	2	2	206.30	0.181744	NU3
3685.16	0.0335	0.1032	2	0	2	1	1	1	37.13	0.755253	NU1**
3685.28	0.0819	0.0947	5	2	3	5	1	4	2000.90	4.214107	NU1***
3685.52	0.2891	0.1003	1	1	1	0	0	0	0.00	1.000000	NU1**
3685.72	0.0336	0.0847	6	2	5	6	2	4	602.77	1.202000	NU3**
3686.00	0.0380	0.0367	7	7	0	7	7	1	1394.86	13.092131	NU3*
3686.00	0.1139	0.0367	7	7	1	7	7	0	1394.86	13.092131	NU3*
3686.02	0.1327	0.0951	3	1	2	2	2	1	134.91	0.300506	NU1*
3686.08	0.0305	0.0408	6	6	1	6	6	0	2734.00	11.108831	NU3***
3686.08	0.0917	0.0408	6	6	0	6	6	1	2734.00	11.108831	NU3***
3686.18	0.3856	0.0934	4	1	4	4	1	3	275.52	0.495229	NU3*
3686.36	0.0184	0.0460	10	6	5	9	7	2	1810.63	0.354752	NU1
3686.42	0.2262	0.0979	2	2	0	2	1	1	95.17	1.258755	NU1*
3686.45	0.3438	0.0722	6	2	5	5	4	2	610.12	0.004724	NU3
3686.49	2.8776	0.1037	1	1	0	2	1	1	95.17	1.500000	NU3*
3686.64	0.0258	0.0544	10	2	9	9	4	6	1340.89	0.013637	NU3
3686.65	0.0373	0.0979	2	2	0	2	1	1	1693.65	1.258755	NU1***
3686.65	9.0416	0.0345	8	8	0	8	8	1	1789.10	15.079045	NU3
3686.65	3.0139	0.0345	8	8	1	8	8	0	1789.10	15.079045	NU3
3686.89	0.1769	0.0994	3	1	2	3	0	3	136.77	2.185861	NU1**
3687.03	0.0491	0.0951	4	2	2	4	1	3	275.52	3.642913	NU1**
3687.26	0.1711	0.0949	3	2	1	3	1	2	173.36	2.538253	NU1**
3687.48	0.0329	0.0695	8	5	4	9	2	7	1201.95	0.030877	NU1
3688.45	6707.5601	0.1010	2	0	2	3	0	3	136.77	2.880004	NU3
3688.75	90.5474	0.1032	2	0	2	1	1	1	37.13	0.755253	NU1
3689.25	0.0246	0.0951	3	1	2	2	2	1	134.91	0.300506	NU1**
3689.36	0.0196	0.0774	6	4	2	5	1	5	326.64	0.007497	2NU2
3689.42	0.0535	0.1003	1	1	1	0	0	0	0.00	1.000000	NU1**
3689.87	0.8302	0.0483	7	6	2	6	5	1	888.63	5.265494	2NU2
3689.90	2.4904	0.0480	7	6	1	6	5	2	888.60	5.265222	2NU2
3689.91	0.8102	0.1059	1	0	1	2	0	2	1664.97	1.961754	NU3***
3690.27	0.3028	0.0756	6	4	3	7	1	6	704.22	0.023637	NU1
3690.31	149.9058	0.0977	2	0	2	2	2	1	134.91	0.063744	NU3
3690.57	10.6222	0.0831	6	2	5	5	3	2	508.81	0.312103	NU1
3690.63	478.0043	0.0994	3	1	2	3	0	3	136.77	2.185861	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3690.88	11.5899	0.0798	8	3	6	8	3	5	1050.15	1.436963	NU3
3691.06	132.6981	0.0951	4	2	2	4	1	3	275.52	3.642913	NU1
3691.28	2005.8259	0.0984	2	1	2	3	1	3	142.28	2.653490	NU3
3691.40	462.3283	0.0949	3	2	1	3	1	2	173.36	2.538253	NU1
3691.84	0.5808	0.0757	6	1	6	5	3	3	504.00	0.004689	NU3
3692.07	0.5537	0.0837	4	1	4	3	3	1	285.23	0.001497	NU3
3692.21	0.0378	0.0531	9	3	7	8	0	8	744.09	0.116343	2NU2
3692.49	0.0918	0.0947	5	2	3	5	1	4	399.46	4.214107	NU1**
3692.49	66.3550	0.0951	3	1	2	2	2	1	134.91	0.300506	NU1
3692.58	0.1683	0.0994	3	0	3	2	1	2	1677.08	1.741385	NU1***
3692.69	1.5451	0.0989	1	1	1	2	1	2	1677.08	1.500000	NU3***
3692.93	0.0196	0.0509	9	6	4	9	6	3	1631.41	7.297946	NU3*
3693.31	144.5340	0.1003	1	1	1	0	0	0	0.00	1.000000	NU1
3693.77	0.1230	0.0619	9	3	7	8	5	4	1255.16	0.014160	NU3
3693.80	90.9143	0.0847	6	2	5	6	2	4	602.77	1.202000	NU3+
3694.12	0.2496	0.0735	8	5	3	9	3	6	1282.92	0.032937	NU3
3694.12	0.5323	0.1037	1	1	0	2	1	1	95.17	1.500000	NU3**
3694.24	4.9105	0.1059	1	0	1	2	0	2	70.08	1.961754	NU3*
3694.29	0.4194	0.0439	10	7	4	10	7	3	2054.40	9.075340	NU3
3694.29	1.2583	0.0439	10	7	3	10	7	4	2054.40	9.075340	NU3
3694.38	2.3349	0.0809	5	1	5	4	3	2	382.52	0.003420	NU3
3694.41	0.1029	0.0927	7	3	4	7	2	5	782.40	5.918411	NU1*
3694.52	0.2451	0.0827	7	3	5	7	3	4	842.38	1.781698	NU3*
3694.80	113.0859	0.0979	2	2	0	2	1	1	95.17	1.258755	NU1
3695.02	0.2268	0.0594	9	2	8	8	4	5	1122.72	0.013441	NU3
3695.24	0.0170	0.0927	7	3	4	7	2	5	2392.58	5.918411	NU1***
3695.39	0.0221	0.0487	8	6	3	8	6	2	1411.68	8.307617	NU3*
3695.59	0.0664	0.0487	8	6	2	8	6	3	1411.65	8.307617	NU3*
3695.63	0.9062	0.0691	7	2	6	6	4	3	756.75	0.008618	NU3
3695.69	0.1889	0.0887	5	2	4	5	2	3	2053.98	1.147395	NU3***
3696.34	248.1606	0.0947	5	2	3	5	1	4	399.46	4.214107	NU1
3696.53	0.9272	0.0640	8	4	5	7	5	2	1059.85	0.427306	NU1
3696.61	0.0487	0.0529	9	5	5	8	6	2	1411.68	0.391127	NU1
3696.92	1.8803	0.0421	9	7	2	9	7	3	1810.63	10.162962	NU3
3696.92	5.6408	0.0421	9	7	3	9	7	2	1810.63	10.162962	NU3
3696.96	0.1915	0.1054	2	1	2	1	0	1	1618.55	1.500000	NU1***
3697.01	9.3640	0.0989	1	1	1	2	1	2	79.48	1.500000	NU3*
3697.10	0.0143	0.0947	4	1	3	3	2	2	1813.81	0.835095	NU1***
3697.12	0.1467	0.0586	9	5	4	8	6	3	1411.65	0.393126	NU1
3697.16	0.0499	0.0588	7	5	3	7	5	2	2724.19	6.486001	NU3***
3697.44	0.0166	0.0588	7	5	2	7	5	3	2724.05	6.486001	NU3***
3697.55	0.0676	0.0451	7	6	1	7	6	2	1216.20	9.538170	NU3*
3697.55	0.2029	0.0451	7	6	2	7	6	1	1216.20	9.538170	NU3*
3698.06	2.0800	0.0809	6	3	3	5	4	2	610.12	0.303663	NU1
3698.13	0.1759	0.0642	8	2	7	7	4	4	927.77	0.011793	NU3
3698.24	0.0886	0.0721	7	3	4	6	5	1	888.63	0.004886	NU3
3698.33	0.3215	0.0909	5	3	2	5	2	3	446.50	3.442901	NU1*
3698.46	0.1957	0.0974	4	1	3	4	0	4	222.06	2.047924	NU1*
3698.54	0.0190	0.0927	7	3	4	7	2	5	782.40	5.918411	NU1**
3698.79	0.0136	0.0898	8	3	5	8	2	6	982.91	6.368783	NU1*
3698.83	0.0460	0.0546	6	5	2	6	5	1	2552.87	7.626602	NU3***
3698.89	0.1379	0.0546	6	5	1	6	5	2	2552.85	7.626602	NU3***
3699.26	6.1927	0.0394	8	7	2	8	7	1	1590.74	11.468981	NU3
3699.26	18.5782	0.0394	8	7	1	8	7	2	1590.74	11.468981	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3699.38	0.0812	0.0920	6	2	4	6	1	5	542.91	4.225862	NU1*
3699.47	0.1851	0.0408	6	6	1	6	6	0	1045.07	11.108831	NU3*
3699.47	0.5555	0.0408	6	6	0	6	6	1	1045.07	11.108831	NU3*
3699.49	0.7748	0.0646	11	5	7	11	5	6	1999.02	3.347960	NU3
3700.10	1.4118	0.0740	7	3	5	6	4	2	757.78	0.431025	NU1
3700.15	0.1145	0.0486	5	5	0	5	5	1	2406.15	9.130832	NU3***
3700.15	0.3436	0.0486	5	5	1	5	5	0	2406.15	9.130832	NU3***
3700.65	0.0274	0.0633	9	5	5	9	5	4	1477.31	4.762151	NU3*
3700.76	0.3862	0.0971	3	1	3	3	1	2	1772.41	0.597949	NU3***
3700.92	0.4878	0.0952	2	2	1	2	1	2	79.48	0.833333	NU1*
3700.93	0.0190	0.0581	10	3	8	9	5	5	1474.99	0.019495	NU3
3701.30	18.9961	0.0367	7	7	0	7	7	1	1394.86	13.092131	NU3
3701.30	56.9884	0.0367	7	7	1	7	7	0	1394.86	13.092131	NU3
3701.58	0.5239	0.0532	11	6	6	11	6	5	2144.12	5.657103	NU3
3701.75	1438.7777	0.1037	1	1	0	2	1	1	95.17	1.500000	NU3
3701.78	192.7970	0.0934	4	1	4	4	1	3	275.52	0.495229	NU3
3702.68	51.4549	0.0927	7	3	4	7	2	5	782.40	5.918411	NU1
3702.89	0.0595	0.0909	5	3	2	5	2	3	446.50	3.442901	NU1**
3703.01	0.0150	0.0920	6	2	4	6	1	5	542.91	4.225862	NU1**
3703.01	1.1452	0.0887	5	2	4	5	2	3	446.50	1.147395	NU3*
3703.04	0.0041	0.0487	8	6	3	8	6	2	1411.68	8.307617	NU3**
3703.23	1.1604	0.1054	2	1	2	1	0	1	23.79	1.500000	NU1*
3703.24	0.0123	0.0487	8	6	2	8	6	3	1411.65	8.307617	NU3**
3703.57	0.0727	0.0532	10	5	6	9	6	3	1631.41	0.576235	NU1
3703.64	0.2508	0.0865	5	3	3	6	0	6	446.71	0.016149	NU1
3703.77	0.0341	0.0751	8	4	5	8	4	4	1131.76	3.145152	NU3*
3703.83	8.3690	0.0801	6	3	3	7	1	6	704.22	0.061078	NU3
3703.94	0.9218	0.0754	7	3	4	8	1	7	882.93	0.049318	NU3
3704.14	0.0102	0.0887	9	4	5	9	3	6	1282.92	7.165263	NU1*
3704.39	0.0132	0.0770	11	3	9	10	4	6	1616.51	0.293096	NU1
3704.56	1.0200	0.0994	3	0	3	2	1	2	79.48	1.741385	NU1*
3704.60	1.7324	0.0989	1	1	1	2	1	2	79.48	1.500000	NU3**
3704.72	0.0323	0.0614	8	5	4	8	5	3	1255.92	5.561462	NU3*
3705.06	0.1749	0.0532	11	6	5	11	6	6	2142.69	5.657103	NU3
3705.07	0.0902	0.0952	2	2	1	2	1	2	79.48	0.833333	NU1**
3705.20	0.2286	0.0536	12	6	6	12	6	7	2433.85	4.929245	NU3
3705.20	0.0126	0.0451	7	6	1	7	6	2	1216.20	9.538170	NU3**
3705.20	0.0376	0.0451	7	6	2	7	6	1	1216.20	9.538170	NU3**
3705.24	0.7952	0.0520	10	6	5	10	6	4	1875.53	6.432643	NU3
3705.27	5.5085	0.0845	5	3	2	6	1	5	542.91	0.053826	NU3
3705.41	17.1589	0.0925	6	3	3	6	2	4	602.77	2.41	NU1+
3705.49	0.9451	0.0880	4	3	2	5	0	5	325.35	0.011053	NU1
3705.75	97.8469	0.0974	4	1	3	4	0	4	222.06	2.047924	NU1
3705.77	0.6215	0.0680	8	0	8	7	2	5	782.40	0.006703	NU3
3706.37	6.7804	0.0898	8	3	5	8	2	6	982.91	6.368783	NU1
3706.54	2.3864	0.0520	10	6	4	10	6	5	1875.00	6.432643	NU3
3706.64	0.4168	0.0845	6	3	4	7	0	7	586.26	0.017960	NU1
3706.64	40.5980	0.0920	6	2	4	6	1	5	542.91	4.225862	NU1
3706.65	0.0973	0.0614	8	5	3	8	5	4	1255.16	5.561462	NU3*
3706.68	2.3406	0.0971	3	1	3	3	1	2	173.36	0.597949	NU3*
3706.78	12.9838	0.0746	9	4	6	9	4	5	1360.28	2.522255	NU3
3706.88	0.1300	0.0884	4	3	1	4	2	2	315.79	2.167225	NU1*
3707.12	0.0342	0.0408	6	6	1	6	6	0	1045.07	11.108831	NU3**
3707.12	0.1028	0.0408	6	6	0	6	6	1	1045.07	11.108831	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3707.15	0.0530	0.0909	5	3	2	5	2	3	2053.98	3.442901	NU1***
3707.16	0.2147	0.1054	2	1	2	1	0	1	23.79	1.500000	NU1**
3707.46	160.7364	0.0909	5	3	2	5	2	3	446.50	3.442901	NU1
3707.50	0.3021	0.0588	7	5	3	7	5	2	1059.85	6.486001	NU3*
3707.72	0.0562	0.0886	5	2	3	4	3	2	382.52	0.436045	NU1*
3707.83	0.3283	0.0763	5	2	3	4	4	0	488.13	0.002437	NU3
3707.98	0.1007	0.0588	7	5	2	7	5	3	1059.65	6.486001	NU3*
3708.21	0.1887	0.0994	3	0	3	2	1	2	79.48	1.741385	NU1**
3708.25	9.8188	0.0509	9	6	4	9	6	3	1631.41	7.297946	NU3
3708.34	0.1854	0.0939	3	2	2	3	1	3	142.28	1.297651	NU1*
3708.35	0.0276	0.0793	12	5	7	12	4	8	2205.65	9.504415	NU1
3708.51	3.2732	0.0509	9	6	3	9	6	4	1631.27	7.297946	NU3
3708.96	3.0116	0.0802	6	4	2	7	2	5	782.40	0.032449	NU3
3709.23	243.8891	0.0952	2	2	1	2	1	2	79.48	0.833333	NU1
3709.42	2455.2679	0.1059	1	0	1	2	0	2	70.08	1.961754	NU3
3709.68	0.8360	0.0546	6	5	1	6	5	2	888.60	7.626602	NU3*
3710.20	1.1225	0.0642	10	5	6	10	5	5	1724.72	4.030316	NU3
3710.46	0.0214	0.0884	4	3	1	4	2	2	1922.92	2.167225	NU1***
3710.69	11.0561	0.0487	8	6	3	8	6	2	1411.68	8.307617	NU3
3710.89	33.1701	0.0487	8	6	2	8	6	3	1411.65	8.307617	NU3
3710.89	122.5898	0.0827	7	3	5	7	3	4	842.38	1.781698	NU3
3711.09	580.2141	0.1054	2	1	2	1	0	1	23.79	1.500000	NU1
3711.32	0.6942	0.0486	5	5	0	5	5	1	742.10	9.130832	NU3*
3711.32	2.0826	0.0486	5	5	1	5	5	0	742.10	9.130832	NU3*
3711.40	0.1397	0.0667	5	4	1	5	4	2	2251.71	5.742440	NU3***
3711.72	0.5465	0.0863	10	4	6	10	3	7	1538.23	8.179783	NU1
3711.87	510.0087	0.0994	3	0	3	2	1	2	79.48	1.741385	NU1
3712.20	4682.0000	0.0989	1	1	1	2	1	2	79.48	1.500000	NU3
3712.66	1.5409	0.1054	0	0	0	1	0	1	1618.55	1.000000	NU3***
3712.80	2.1502	0.0750	8	3	6	7	4	3	931.22	0.519243	NU1
3712.85	33.8205	0.0451	7	6	1	7	6	2	1216.20	9.538170	NU3
3712.85	101.4617	0.0451	7	6	2	7	6	1	1216.20	9.538170	NU3
3713.15	0.1988	0.0892	3	3	1	4	0	4	222.06	0.004153	NU1
3713.28	28.0766	0.0886	5	2	3	4	3	2	382.52	0.436045	NU1
3713.31	0.7199	0.0694	8	3	5	9	1	8	1079.07	0.034132	NU3
3713.39	0.0542	0.0914	5	1	4	5	0	5	1920.76	1.912338	NU1***
3713.43	5.1230	0.0887	9	4	5	9	3	6	1282.92	7.165263	NU1
3713.79	0.0615	0.0818	7	3	5	8	0	8	744.09	0.017472	NU1
3714.02	0.0670	0.0961	4	0	4	3	1	3	1739.51	2.831638	NU1***
3714.08	0.3306	0.0854	3	3	0	3	2	1	212.15	1.092505	NU1*
3714.26	0.0180	0.0614	8	5	3	8	5	4	1255.16	5.561462	NU3**
3714.43	0.4330	0.0971	3	1	3	3	1	2	173.36	0.597949	NU3**
3714.53	1.0415	0.0528	8	6	3	7	5	2	1059.85	5.144364	2NU2
3714.77	92.5882	0.0408	6	6	1	6	6	0	1045.07	11.108831	NU3
3714.77	277.7646	0.0408	6	6	0	6	6	1	1045.07	11.108831	NU3
3715.13	0.0177	0.0751	8	4	4	8	4	5	2764.71	3.145152	NU3***
3715.16	0.0559	0.0588	7	5	3	7	5	2	1059.85	6.486001	NU3**
3715.48	0.1624	0.0620	9	4	6	8	5	3	1255.92	0.597432	NU1
3715.62	0.0187	0.0588	7	5	2	7	5	3	1059.65	6.486001	NU3**
3715.73	0.3472	0.0502	8	6	2	7	5	3	1059.65	5.142711	2NU2
3715.86	0.1982	0.0770	10	3	8	9	4	5	1360.28	0.409296	NU1
3716.01	0.2714	0.0829	5	3	3	5	3	2	2130.50	2.240000	NU3***
3716.07	64.9813	0.0884	4	3	1	4	2	2	315.79	2.167225	NU1
3716.19	13.7273	0.0633	9	5	5	9	5	4	1477.31	4.762151	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3716.25	6.7049	0.0834	9	3	6	9	2	7	1201.95	6.247031	NU1
3716.58	92.6790	0.0939	3	2	2	3	1	3	142.28	1.297651	NU1
3716.83	0.1610	0.0907	4	2	3	4	2	2	1922.92	1.519518	NU3***
3716.87	9.3386	0.1054	0	0	0	1	0	1	23.79	1.000000	NU3*
3716.93	0.3314	0.0711	6	4	3	6	4	2	757.78	4.707057	NU3*
3716.98	0.3287	0.0914	5	1	4	5	0	5	325.35	1.912338	NU1*
3717.02	0.0120	0.0583	11	1	10	10	3	7	1538.23	0.016855	NU3
3717.25	0.0515	0.0546	6	5	2	6	5	1	888.63	7.626602	NU3**
3717.33	0.1546	0.0546	6	5	1	6	5	2	888.60	7.626602	NU3**
3717.71	0.0339	0.0829	6	3	4	6	3	3	661.56	1.610000	NU3**
3717.78	0.2663	0.0999	2	1	2	2	1	1	1693.65	0.833333	NU3***
3718.07	0.0440	0.0607	9	4	6	8	1	7	882.93	0.269351	2NU2
3718.14	0.2566	0.0760	9	3	7	8	4	4	1131.76	0.505247	NU1
3718.23	0.0160	0.0947	4	1	3	3	2	2	206.30	0.835095	NU1**
3718.36	0.4456	0.0896	4	2	3	4	1	4	224.83	1.567300	NU1*
3718.42	0.0190	0.0848	7	2	5	7	1	6	704.22	3.983004	NU1**
3718.52	0.5089	0.1026	3	1	3	2	0	2	70.08	2.156792	NU1*
3718.60	0.9759	0.0907	4	2	3	4	2	2	315.79	1.519518	NU3*
3718.64	0.0612	0.0854	3	3	0	3	2	1	212.15	1.092505	NU1**
3718.95	4.3541	0.0894	8	4	4	8	3	5	1050.15	5.709388	NU1
3718.97	572.6216	0.0887	5	2	4	5	2	3	446.50	1.147395	NU3
3719.39	1.0003	0.0711	6	4	2	6	4	3	756.75	4.707057	NU3*
3719.48	0.0546	0.0854	3	3	0	3	2	1	1819.34	1.092505	NU1***
3719.72	2.5369	0.0667	5	4	2	5	4	1	610.35	5.742440	NU3*
3719.73	17.0275	0.0751	8	4	5	8	4	4	1131.76	3.145152	NU3
3719.95	0.1077	0.0830	3	3	1	3	2	2	206.30	1.035682	NU1*
3719.95	0.0635	0.0737	7	4	4	7	4	3	931.22	3.870291	NU3**
3719.96	0.0554	0.0876	7	4	3	7	3	4	842.38	4.268667	NU1*
3719.96	1.6446	0.0829	5	3	3	5	3	2	508.81	2.240000	NU3*
3720.02	0.0735	0.0896	4	2	3	4	1	4	1821.61	1.567300	NU1***
3720.09	16.1346	0.0614	8	5	4	8	5	3	1255.92	5.561462	NU3
3720.10	0.0360	0.0735	12	4	8	12	3	9	2105.90	8.242761	NU1
3720.12	0.8468	0.0667	5	4	1	5	4	2	610.12	5.742440	NU3*
3720.35	0.1166	0.0737	7	4	3	7	4	4	927.77	3.870291	NU3*
3720.37	0.2501	0.0800	4	3	2	4	3	1	2005.92	3.310000	NU3***
3720.59	0.0608	0.0914	5	1	4	5	0	5	325.35	1.912338	NU1**
3720.67	0.0248	0.0619	10	5	5	9	6	4	1631.27	0.586260	NU1
3721.33	1.9441	0.0605	4	4	1	4	4	0	488.13	7.160948	NU3*
3721.39	5.8332	0.0605	4	4	0	4	4	1	488.10	7.160948	NU3*
3721.51	43.3543	0.0947	4	1	3	3	2	2	206.30	0.835095	NU1
3721.62	0.3606	0.0829	4	3	2	4	2	3	300.35	1.848533	NU1*
3721.62	4.6564	0.0633	9	5	4	9	5	5	1474.99	4.762151	NU3
3721.86	51.4633	0.0848	7	2	5	7	1	6	704.22	3.983004	NU1
3721.88	48.6859	0.0614	8	5	3	8	5	4	1255.16	5.561462	NU3
3722.19	1170.3233	0.0971	3	1	3	3	1	2	173.36	0.597949	NU3
3722.35	1.9306	0.0758	3	3	1	3	3	0	1907.63	5.203793	NU3***
3722.69	0.6443	0.0758	3	3	0	3	3	1	1907.47	5.203793	NU3***
3722.77	0.7557	0.0800	4	3	1	4	3	2	2004.81	3.310000	NU3***
3722.82	151.0475	0.0588	7	5	3	7	5	2	1059.85	6.486001	NU3
3722.98	1.6144	0.0999	2	1	2	2	1	1	95.17	0.833333	NU3*
3723.20	165.3169	0.0854	3	3	0	3	2	1	212.15	1.092505	NU1
3723.26	50.3551	0.0588	7	5	2	7	5	3	1059.65	6.486001	NU3
3723.35	3.5672	0.0642	10	5	5	10	5	6	1718.77	4.030316	NU3
3723.74	0.0110	0.0848	7	3	4	6	4	3	756.75	0.550367	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3724.20	164.3495	0.0914	5	1	4	5	0	5	325.35	1.912338	NU1
3724.50	1.7277	0.1054	0	0	0	1	0	1	23.79	1.000000	NU3**
3724.62	0.0613	0.0711	6	4	3	6	4	2	757.78	4.707057	NU3**
3724.90	139.3240	0.0546	6	5	2	6	5	1	888.63	7.626602	NU3
3724.94	1.1515	0.0910	3	2	2	3	2	1	1819.34	2.151589	NU3***
3724.98	417.9811	0.0546	6	5	1	6	5	2	888.60	7.626602	NU3
3725.20	0.4062	0.0961	4	0	4	3	1	3	142.28	2.831638	NU1*
3725.40	0.0431	0.0879	4	2	2	5	0	5	325.35	0.023440	NU3*
3725.41	0.0909	0.0803	5	3	3	5	2	4	416.22	2.492169	NU1*
3725.44	0.2198	0.0976	4	1	4	3	0	3	1731.89	3.004990	NU1***
3725.66	91.5553	0.0829	6	3	4	6	3	3	661.56	1.610000	NU3-
3725.95	1.5155	0.0800	4	3	2	4	3	1	383.85	3.310000	NU3*
3726.05	0.0667	0.0829	4	3	2	4	2	3	300.35	1.848533	NU1**
3726.45	254.4680	0.1026	3	1	3	2	0	2	70.08	2.156792	NU1
3726.50	222.7880	0.0896	4	2	3	4	1	4	224.83	1.567300	NU1
3726.62	347.1002	0.0486	5	5	0	5	5	1	742.10	9.130832	NU3
3726.62	1041.3007	0.0486	5	5	1	5	5	0	742.10	9.130832	NU3
3727.00	0.1850	0.0711	6	4	2	6	4	3	756.75	4.707057	NU3**
3727.01	17.8522	0.0854	4	3	1	5	1	4	399.46	0.028214	NU3
3727.37	0.4693	0.0667	5	4	2	5	4	1	610.35	5.742440	NU3**
3727.73	0.3042	0.0829	5	3	3	5	3	2	508.81	2.240000	NU3**
3727.74	171.4775	0.0737	7	4	4	7	4	3	931.22	3.870291	NU3
3728.33	5.4781	0.0848	7	3	4	6	4	3	756.75	0.550367	NU1
3728.72	4.5800	0.0800	4	3	1	4	3	2	382.52	3.310000	NU3*
3728.74	0.2604	0.0646	11	5	6	11	5	7	1985.83	3.347960	NU3
3728.87	0.8541	0.0912	2	2	1	2	2	0	1743.47	3.269589	NU3***
3728.91	53.8748	0.0830	3	3	1	3	2	2	206.30	1.035682	NU1
3728.95	0.0752	0.0961	4	0	4	3	1	3	142.28	2.831638	NU1**
3728.98	0.3597	0.0605	4	4	1	4	4	0	488.13	7.160948	NU3**
3729.04	1.0791	0.0605	4	4	0	4	4	1	488.10	7.160948	NU3**
3729.08	6.9788	0.0910	3	2	2	3	2	1	212.15	2.151589	NU3*
3729.13	0.5629	0.0829	5	3	2	5	3	3	504.00	2.240000	NU3*
3729.26	0.0564	0.0637	9	3	6	10	1	9	1293.04	0.023266	NU3
3729.26	1.8787	0.1027	1	1	1	1	1	0	1640.51	1.500000	NU3***
3729.33	11.7012	0.0758	3	3	1	3	3	0	285.43	5.203793	NU3*
3729.47	0.0162	0.0855	4	1	3	3	3	0	285.43	0.007215	NU3*
3729.77	0.0168	0.0803	5	3	3	5	2	4	416.22	2.492169	NU1**
3729.80	3.9047	0.0758	3	3	0	3	3	1	285.23	5.203793	NU3*
3730.02	0.7482	0.0749	7	0	7	6	2	4	602.77	0.009797	NU3
3730.04	27.7032	0.0876	7	4	3	7	3	4	842.38	4.268667	NU1
3730.16	0.0978	0.0815	5	2	4	5	1	5	326.64	1.711792	NU1*
3730.49	0.1957	0.0600	10	4	7	9	5	4	1477.31	0.720783	NU1
3730.49	180.3214	0.0829	4	3	2	4	2	3	300.35	1.848533	NU1
3730.68	0.2987	0.0999	2	1	2	2	1	1	95.17	0.833333	NU3**
3730.96	0.6472	0.0747	10	3	7	10	2	8	1438.00	5.910419	NU1
3731.33	0.0149	0.0922	4	0	4	3	2	1	1819.34	0.027572	NU3***
3731.38	2.5800	0.0912	2	2	0	2	2	1	1742.28	3.269589	NU3***
3731.42	0.1640	0.0751	6	3	4	6	2	5	552.92	2.963539	NU1*
3732.13	4669.2922	0.1054	0	0	0	1	0	1	23.79	1.000000	NU3
3732.31	165.7268	0.0711	6	4	3	6	4	2	757.78	4.707057	NU3
3732.70	203.1144	0.0961	4	0	4	3	1	3	142.28	2.831638	NU1
3732.82	1.3321	0.0976	4	1	4	3	0	3	136.77	3.004990	NU1*
3732.88	0.0161	0.0815	5	2	4	5	1	5	1922.86	1.711792	NU1***
3733.20	0.1847	0.0880	5	0	5	4	1	4	1821.61	3.911752	NU1***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3733.26	0.0134	0.0759	8	2	6	8	1	7	882.93	3.773034	NU1*
3733.26	0.0154	0.0817	6	0	6	5	2	3	446.50	0.015393	NU3*
3733.63	0.2804	0.0800	4	3	2	4	3	1	383.85	3.310000	NU3**
3733.97	11.3858	0.1027	1	1	1	1	1	0	42.37	1.500000	NU3*
3734.09	0.0765	0.0945	2	2	0	3	0	3	136.77	0.016142	NU3*
3734.13	45.4466	0.0803	5	3	3	5	2	4	416.22	2.492169	NU1
3734.23	5.1762	0.0912	2	2	1	2	2	0	136.17	3.269589	NU3*
3734.29	487.9030	0.0907	4	2	3	4	2	2	315.79	1.519518	NU3
3734.61	500.1260	0.0711	6	4	2	6	4	3	756.75	4.707057	NU3
3735.03	1268.4414	0.0667	5	4	2	5	4	1	610.35	5.742440	NU3
3735.38	58.3012	0.0737	7	4	3	7	4	4	927.77	3.870291	NU3
3735.41	423.3935	0.0667	5	4	1	5	4	2	610.12	5.742440	NU3
3735.51	822.3154	0.0829	5	3	3	5	3	2	508.81	2.240000	NU3-
3735.91	0.3965	0.0910	3	2	1	3	2	2	1813.81	2.151589	NU3***
3736.08	0.1273	0.0558	9	6	4	8	5	3	1255.92	5.013867	2NU2
3736.33	0.8473	0.0800	4	3	1	4	3	2	382.52	3.310000	NU3**
3736.63	972.0568	0.0605	4	4	1	4	4	0	488.13	7.160948	NU3
3736.69	2916.5519	0.0605	4	4	0	4	4	1	488.10	7.160948	NU3
3736.80	0.2464	0.0976	4	1	4	3	0	3	136.77	3.004990	NU1**
3736.81	1.2910	0.0910	3	2	2	3	2	1	212.15	2.151589	NU3**
3736.95	15.6361	0.0912	2	2	0	2	2	1	134.91	3.269589	NU3*
3736.98	2.1647	0.0758	3	3	1	3	3	0	285.43	5.203793	NU3**
3737.27	0.0441	0.0653	13	4	9	13	3	10	2414.73	8.21407	NU1
3737.34	0.0200	0.0640	11	3	8	10	2	9	1293.66	0.316624	2NU2
3737.44	0.7224	0.0758	3	3	0	3	3	1	285.23	5.203793	NU3**
3737.88	1.0676	0.1021	2	2	1	1	1	0	42.37	1.500000	NU1*
3737.97	0.1284	0.0639	12	5	7	12	5	8	2275.44	2.746007	NU3
3738.21	48.9070	0.0815	5	2	4	5	1	5	326.64	1.711792	NU1
3738.24	0.1762	0.1021	2	2	1	1	1	0	1640.51	1.500000	NU1***
3738.39	807.2323	0.0999	2	1	2	2	1	1	95.17	0.833333	NU3
3739.10	53.7027	0.0751	8	4	4	8	4	5	1122.72	3.145152	NU3
3739.13	0.0635	0.0900	5	1	5	4	0	4	1817.50	3.972803	NU1***
3739.86	0.0126	0.0827	7	3	4	7	3	5	2439.97	1.430000	NU3***
3739.98	6.6819	0.0759	8	2	6	8	1	7	882.93	3.773034	NU1
3739.98	81.9777	0.0751	6	3	4	6	2	5	552.92	2.963539	NU1
3740.09	0.0167	0.0840	6	4	2	6	3	3	2282.59	9.42	NU1***
3740.37	50.4661	0.0840	6	4	2	6	3	3	661.56	9.42	NU1+
3740.39	2.4940	0.0792	6	2	4	5	4	1	610.35	0.011274	NU3
3740.42	0.6447	0.1027	1	1	0	1	1	1	1634.97	1.500000	NU3***
3740.79	666.0628	0.0976	4	1	4	3	0	3	136.77	3.004990	NU1
3740.79	21.5634	0.0879	4	2	2	5	0	5	325.35	0.023440	NU3
3740.85	14.1716	0.0922	3	2	1	4	0	4	222.06	0.027572	NU3
3741.32	757.7312	0.0800	4	3	2	4	3	1	383.85	3.310000	NU3-
3741.48	2.4032	0.0910	3	2	1	3	2	2	206.30	2.151589	NU3*
3741.64	2.1063	0.1027	1	1	1	1	1	0	42.37	1.500000	NU3**
3741.90	0.9575	0.0912	2	2	1	2	2	0	136.17	3.269589	NU3**
3742.11	0.1975	0.1021	2	2	1	1	1	0	42.37	1.500000	NU1**
3742.22	0.0142	0.0945	2	2	0	3	0	3	136.77	0.016142	NU3**
3742.37	8.1063	0.0855	4	1	3	3	3	0	285.43	0.007215	NU3
3742.46	0.3214	0.0918	5	1	4	4	2	3	300.35	1.638916	NU1*
3742.76	0.8640	0.0792	5	4	1	6	2	4	602.77	0.011274	NU3
3743.56	29.0700	0.0806	6	1	5	6	0	6	446.71	1.852055	NU1
3743.95	2289.9859	0.0800	4	3	1	4	3	2	382.52	3.310000	NU3-
3744.18	281.4220	0.0829	5	3	2	5	3	3	504.00	2.240000	NU3-

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3744.55	3489.4356	0.0910	3	2	2	3	2	1	212.15	2.151589	NU3
3744.64	5850.5869	0.0758	3	3	1	3	3	0	285.43	5.203793	NU3
3745.09	1952.3806	0.0758	3	3	0	3	3	1	285.23	5.203793	NU3
3745.52	139.8683	0.0720	6	4	3	6	3	4	648.97	8.16	NU1+
3745.55	10.1844	0.0893	6	2	4	5	3	3	504.00	0.863547	NU1
3746.12	4.8467	0.0746	9	4	5	9	4	6	1340.89	2.522255	NU3
3746.34	533.7904	0.1021	2	2	1	1	1	0	42.37	1.500000	NU1
3746.86	0.1023	0.0787	5	4	1	5	3	2	2130.50	8.97	NU1***
3747.23	16.9013	0.0696	7	4	4	7	3	5	816.72	6.84	NU1+
3747.41	309.9884	0.0787	5	4	1	5	3	2	508.81	8.97	NU1+
3747.43	0.3847	0.0900	5	1	5	4	0	4	222.06	3.972803	NU1*
3747.74	0.0899	0.0922	4	0	4	3	2	1	212.15	0.027572	NU3*
3747.82	0.0437	0.0457	10	3	8	9	0	9	920.18	0.106449	2NU2
3748.17	0.0311	0.0710	6	2	5	6	1	6	447.24	1.783035	NU1**
3748.28	13.8194	0.0682	7	3	5	7	2	6	709.60	3.273499	NU1
3748.31	0.5214	0.0655	11	3	8	11	2	9	1690.70	5.642326	NU1
3748.49	2.4978	0.0794	9	5	4	9	4	5	1360.28	5.113359	NU1
3748.65	0.0562	0.0949	2	2	0	1	1	1	37.13	1.244747	NU1**
3748.75	0.0387	0.0583	10	3	7	11	1	10	1524.87	0.016855	NU3
3748.99	7.7443	0.0817	6	0	6	5	2	3	446.50	0.015393	NU3
3749.20	160.6755	0.0918	5	1	4	4	2	3	300.35	1.638916	NU1
3749.31	5692.9022	0.1027	1	1	1	1	1	0	42.37	1.500000	NU3
3749.57	2588.0843	0.0912	2	2	1	2	2	0	136.17	3.269589	NU3
3750.26	12.2782	0.0656	8	4	5	8	3	6	1006.12	4.264036	NU1
3750.29	0.0364	0.0603	8	3	6	8	2	7	885.62	3.456295	NU1*
3750.35	38.2258	0.0945	2	2	0	3	0	3	136.77	0.016142	NU3
3750.60	0.0471	0.0760	6	0	6	5	1	5	1922.86	4.958549	NU1***
3750.63	0.0458	0.0720	4	4	0	4	3	1	2005.92	6.45	NU1***
3750.88	3.1891	0.0907	4	2	2	4	2	3	300.35	1.519518	NU3*
3750.95	138.9137	0.0720	4	4	0	4	3	1	383.85	6.45	NU1+
3751.10	0.8717	0.0999	2	1	1	2	1	2	1677.08	0.833333	NU3***
3751.48	559.7738	0.0880	5	0	5	4	1	4	224.83	3.911752	NU1
3752.14	83.9324	0.0710	6	2	5	6	1	6	447.24	1.783035	NU1
3752.21	7818.0682	0.0912	2	2	0	2	2	1	134.91	3.269589	NU3
3752.53	420.3516	0.0689	4	4	1	4	3	2	382.52	6.46	NU1+
3752.84	151.8258	0.0949	2	2	0	1	1	1	37.13	1.244747	NU1
3753.54	0.1430	0.0779	6	1	6	5	0	5	1920.76	4.979001	NU1***
3753.64	1.6436	0.0563	10	5	6	10	4	7	1581.34	10.08	NU1+
3753.73	105.4296	0.0719	5	4	2	5	3	3	504.00	8.92	NU1+
3754.18	0.0346	0.0704	7	5	2	7	4	3	931.22	4.12	NU1*
3754.61	5.2830	0.0999	2	1	1	2	1	2	79.48	0.833333	NU3*
3754.68	12.7948	0.0945	3	0	3	2	2	0	136.17	0.016142	NU3
3754.71	0.0866	0.0671	7	1	6	7	0	7	586.26	1.838288	NU1*
3754.80	2.8489	0.0855	3	3	0	4	1	3	275.52	0.007215	NU3
3755.13	1.5863	0.0600	9	4	6	9	3	7	1216.27	4.734521	NU1
3755.15	0.3050	0.0984	3	2	2	2	1	1	95.17	1.666667	NU1*
3755.40	192.3580	0.0900	5	1	5	4	0	4	222.06	3.972803	NU1
3755.92	0.0758	0.0827	7	3	4	7	3	5	816.72	1.430000	NU3*
3756.61	1201.5765	0.0910	3	2	1	3	2	2	206.30	2.151589	NU3
3757.63	2.0594	0.0756	8	5	3	8	4	4	1131.76	4.012859	NU1
3757.69	0.1234	0.0586	10	6	5	9	5	4	1477.31	4.857731	2NU2
3758.13	16.9430	0.0645	6	6	1	6	3	4	648.97	10.80	2NU2+
3758.32	0.0213	0.0567	9	6	4	10	4	7	1581.34	0.012276	NU3
3758.33	0.5899	0.0907	4	2	2	4	2	3	300.35	1.519518	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3758.40	18.2093	0.0603	8	3	6	8	2	7	885.62	3.456295	NU1
3758.45	0.0285	0.0601	7	2	6	7	1	7	586.48	1.816721	NU1*
3758.51	0.0897	0.0515	11	5	7	11	4	8	1843.02	6.097371	NU1
3758.63	7.3609	0.0646	9	2	7	9	1	8	1079.07	3.674255	NU1
3759.08	295.1506	0.0829	6	3	3	6	3	4	648.97	1.610000	NU3-
3759.79	1953.3406	0.1027	1	1	0	1	1	1	37.13	1.500000	NU3
3760.15	0.5201	0.1043	1	0	1	0	0	0	1594.73	1.000000	NU3***
3760.37	7.5790	0.0879	5	0	5	4	2	2	315.79	0.023440	NU3
3760.84	0.2856	0.0760	6	0	6	5	1	5	326.64	4.958549	NU1*
3761.33	0.0530	0.0525	10	4	7	9	1	8	1079.07	0.284777	2NU2
3761.51	1.2792	0.0851	8	3	5	7	4	4	927.77	0.898681	NU1
3761.64	1.6062	0.0536	10	4	7	10	3	8	1446.16	5.051335	NU1
3762.18	43.3012	0.0671	7	1	6	7	0	7	586.26	1.838288	NU1
3762.20	0.9774	0.0999	2	1	1	2	1	2	79.48	0.833333	NU3**
3762.47	44.9303	0.0922	4	0	4	3	2	1	212.15	0.027572	NU3
3762.48	0.8664	0.0779	6	1	6	5	0	5	325.35	4.979001	NU1*
3762.75	0.0579	0.0468	12	5	8	12	4	9	2124.98	6.558344	NU1
3763.03	0.0141	0.0827	7	3	4	7	3	5	816.72	1.430000	NU3**
3763.13	0.1327	0.0661	11	6	5	11	5	6	1999.02	6.009423	NU1
3763.69	152.5244	0.0984	3	2	2	2	1	1	95.17	1.666667	NU1
3764.16	3.1523	0.1043	1	0	1	0	0	0	0.	1.000000	NU3*
3764.48	2.4607	0.0749	6	2	4	7	0	7	586.26	0.009797	NU3
3764.58	17.2987	0.0704	7	5	2	7	4	3	931.22	4.12	NU1+
3764.75	0.0528	0.0760	6	0	6	5	1	5	326.64	4.958549	NU1**
3765.10	0.4514	0.0887	5	2	3	5	2	4	416.22	1.147395	NU3*
3765.79	1594.5383	0.0907	4	2	2	4	2	3	300.35	1.519518	NU3
3766.09	6.5014	0.0854	5	1	4	4	3	1	383.85	0.028214	NU3
3766.38	0.0968	0.0735	9	3	6	8	5	3	1255.92	0.032937	NU3
3766.39	14.2643	0.0601	7	2	6	7	1	7	586.48	1.816721	NU1
3766.48	0.1603	0.0779	6	1	6	5	0	5	325.35	4.979001	NU1**
3766.71	10.9598	0.0620	8	5	4	8	4	5	1122.72	6.79	NU1+
3766.78	0.0487	0.0557	12	3	9	12	2	10	1960.22	5.509361	NU1
3766.78	0.1530	0.0971	3	1	2	3	1	3	1739.51	0.597949	NU3***
3766.80	0.0938	0.0631	7	0	7	6	1	6	2042.77	5.983681	NU1***
3766.87	0.2810	0.0694	9	1	8	8	3	5	1050.15	0.034132	NU3
3767.00	0.0985	0.0843	6	1	5	5	2	4	416.22	2.671788	NU1*
3767.40	0.8589	0.0600	9	5	5	9	4	6	1340.89	4.736397	NU1
3768.01	7.8283	0.0624	7	5	3	7	4	4	927.77	5.49	NU1+
3768.09	0.0314	0.0642	7	1	7	6	0	6	2041.76	5.990506	NU1***
3768.09	0.0400	0.0845	6	1	5	5	3	2	508.81	0.053826	NU3*
3768.26	0.4062	0.0583	8	6	3	8	3	6	1006.12	1.52	2NU2+
3768.66	142.8230	0.0760	6	0	6	5	1	5	326.64	4.958549	NU1
3768.93	12.7448	0.0646	6	5	1	6	4	2	757.78	3.82	NU1+
3769.22	0.1212	0.0955	4	2	3	3	1	2	1772.41	1.970843	NU1***
3769.33	0.7348	0.0955	4	2	3	3	1	2	173.36	1.970843	NU1*
3769.47	0.9269	0.0971	3	1	2	3	1	3	142.28	0.597949	NU3*
3769.52	2.3651	0.0529	9	3	7	9	2	8	1080.38	3.554957	NU1
3769.80	2641.4699	0.0999	2	1	1	2	1	2	79.48	0.833333	NU3
3769.95	47.2035	0.0607	6	5	2	6	4	3	756.75	4.69	NU1+
3770.15	37.8850	0.0827	7	3	4	7	3	5	816.72	1.430000	NU3-
3770.21	1.1541	0.0802	7	2	5	6	4	2	757.78	0.032449	NU3
3770.48	433.2210	0.0779	6	1	6	5	0	5	325.35	4.979001	NU1
3771.11	0.0954	0.0594	8	4	5	9	2	8	1080.38	0.013441	NU3
3771.20	0.3417	0.0721	6	5	1	7	3	4	842.38	0.004886	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3771.45	78.2781	0.0580	5	5	0	5	4	1	610.35	3.74	NU1+
3771.68	26.1273	0.0566	5	5	1	5	4	2	610.12	3.74	NU1+
3771.83	0.5831	0.1043	1	0	1	0	0	0	0.	1.000000	NU3**
3772.10	0.0132	0.0542	8	1	7	8	0	8	744.09	1.839778	NU1*
3772.41	0.1322	0.0620	10	6	4	10	5	5	1724.72	4.974368	NU1
3772.42	0.0835	0.0887	5	2	3	5	2	4	416.22	1.147395	NU3**
3772.46	0.0890	0.0798	8	3	5	8	3	6	1006.12	1.436963	NU3*
3773.28	0.0156	0.0607	6	5	2	6	4	3	2398.39	4.69	NU1***
3773.34	0.6647	0.0642	7	4	4	8	2	7	885.62	0.011793	NU3
3773.40	0.0998	0.0544	9	4	6	10	2	9	1293.66	0.013637	NU3
3773.65	0.1359	0.0955	4	2	3	3	1	2	173.36	1.970843	NU1**
3773.84	0.0394	0.0503	8	2	7	8	1	8	744.16	1.833129	NU1*
3773.92	0.0294	0.0486	12	6	7	12	5	8	2275.44	6.631337	NU1
3773.97	2.8476	0.0726	10	4	6	10	4	7	1581.36	1.530000	NU3-
3774.05	49.2429	0.0843	6	1	5	5	2	4	416.22	2.671788	NU1
3774.69	0.0258	0.0580	5	5	0	5	4	1	2251.86	3.74	NU1***
3774.96	0.0893	0.0785	10	4	6	9	5	5	1474.99	0.959644	NU1
3775.57	0.0428	0.0515	11	6	6	11	5	7	1985.83	5.799382	NU1
3775.65	0.0352	0.0734	7	1	6	6	2	5	2161.30	3.799063	NU1***
3775.96	0.8407	0.0534	10	2	8	10	1	9	1293.04	3.646815	NU1
3776.46	0.6509	0.0989	2	1	2	1	1	1	1634.97	1.500000	NU3***
3776.55	0.2623	0.0649	7	5	3	8	3	6	1006.12	0.008488	NU3
3777.01	0.1714	0.0971	3	1	2	3	1	3	142.28	0.597949	NU3**
3777.02	0.5527	0.0961	3	2	1	2	1	2	79.48	0.925282	NU1*
3777.08	0.5683	0.0631	7	0	7	6	1	6	447.24	5.983681	NU1*
3777.11	26.1526	0.0859	7	2	5	6	3	4	648.97	1.512999	NU1
3777.44	0.0912	0.0961	3	2	1	2	1	2	1677.08	0.925282	NU1***
3777.97	367.3966	0.0955	4	2	3	3	1	2	173.36	1.970843	NU1
3778.22	0.4141	0.0529	10	6	5	10	5	6	1718.77	4.913223	NU1
3778.29	1.2356	0.0763	4	4	0	5	2	3	446.50	0.002437	NU3
3778.67	0.0116	0.0466	6	6	1	6	5	2	888.60	1.111607	NU1*
3779.05	1.1050	0.0587	9	6	3	9	5	4	1477.31	4.017231	NU1
3779.50	1576.1857	0.1043	1	0	1	0	0	0	0.	1.000000	NU3
3779.74	225.6980	0.0887	5	2	3	5	2	4	416.22	1.147395	NU3
3779.76	6.5911	0.0542	8	1	7	8	0	8	744.09	1.839778	NU1
3780.25	0.0302	0.0927	5	2	4	4	1	3	1875.49	2.444582	NU1***
3780.49	0.3911	0.0691	6	4	3	7	2	6	709.60	0.008618	NU3
3780.60	0.1828	0.0927	5	2	4	4	1	3	275.52	2.444582	NU1*
3780.85	0.1187	0.0427	12	4	9	12	3	10	1962.55	5.350112	NU1
3781.02	3.9448	0.0989	2	1	2	1	1	1	37.13	1.500000	NU3*
3781.04	0.1051	0.0631	7	0	7	6	1	6	447.24	5.983681	NU1**
3781.15	0.1023	0.0961	3	2	1	2	1	2	79.48	0.925282	NU1**
3781.25	0.3731	0.0534	9	6	4	9	5	5	1474.99	4.001691	NU1
3781.48	0.0128	0.0577	8	6	3	9	4	6	1340.89	0.006585	NU3
3781.68	0.0352	0.0642	7	1	7	6	0	6	446.71	5.990506	NU1**
3781.78	19.7042	0.0503	8	2	7	8	1	8	744.16	1.833129	NU1
3781.90	3.4583	0.0754	8	1	7	7	3	4	842.38	0.049318	NU3
3781.97	20.0055	0.0845	6	1	5	5	3	2	508.81	0.053826	NU3
3782.27	2.7335	0.1059	2	0	2	1	0	1	1618.55	1.961754	NU3***
3782.48	2.4819	0.0458	10	3	8	10	2	9	1293.66	3.605841	NU1
3782.70	0.0613	0.0810	8	5	4	7	2	5	782.40	0.074366	2NU2
3782.81	0.0550	0.0523	8	1	8	7	0	7	2180.65	7.000291	NU1***
3783.38	0.5625	0.0847	6	2	4	6	2	5	552.92	0.939536	NU3*
3783.65	0.8520	0.0553	8	6	2	8	5	3	1255.92	3.077042	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3783.90	0.2562	0.0680	7	2	5	8	0	8	744.09	0.006703	NU3
3784.02	0.0254	0.0470	13	3	10	13	2	11	2246.98	5.73352	NU1
3784.36	2.5674	0.0527	8	6	3	8	5	4	1255.16	3.073714	NU1
3784.56	463.4236	0.0971	3	1	2	3	1	3	142.28	0.597949	NU3
3785.01	284.1359	0.0631	7	0	7	6	1	6	447.24	5.983681	NU1
3785.28	276.3516	0.0961	3	2	1	2	1	2	79.48	0.925282	NU1
3785.69	95.0855	0.0642	7	1	7	6	0	6	446.71	5.990506	NU1
3786.01	16.5667	0.1059	2	0	2	1	0	1	23.79	1.961754	NU3*
3786.26	44.5172	0.0798	8	3	5	8	3	6	1006.12	1.436963	NU3
3786.68	0.2526	0.0934	4	1	3	4	1	4	1821.61	0.495229	NU3***
3786.90	4.7126	0.0515	7	6	1	7	5	2	1059.85	2.119964	NU1
3787.10	1.5705	0.0506	7	6	2	7	5	3	1059.65	2.119434	NU1
3787.40	3.5309	0.0801	7	1	6	6	3	3	661.56	0.061078	NU3
3787.61	0.0263	0.0459	12	7	6	12	6	7	2433.85	5.917211	NU1
3787.67	1.9075	0.1037	2	1	1	1	1	0	1640.51	1.500000	NU3***
3787.97	1.5311	0.0934	4	1	3	4	1	4	224.83	0.495229	NU3*
3788.02	0.0165	0.0443	9	1	8	9	0	9	920.18	1.844131	NU1*
3788.06	0.2133	0.0734	7	1	6	6	2	5	552.92	3.799063	NU1*
3788.72	0.7298	0.0989	2	1	2	1	1	1	37.13	1.500000	NU3**
3788.78	0.2689	0.0688	11	4	7	11	4	8	1843.02	1.701473	NU3
3789.24	1.9386	0.0469	6	6	0	6	5	1	888.63	1.111654	NU1
3789.27	5.8155	0.0466	6	6	1	6	5	2	888.60	1.111607	NU1
3789.33	91.4180	0.0927	5	2	4	4	1	3	275.52	2.444582	NU1
3789.92	0.3605	0.0842	3	3	1	2	2	0	136.17	2.394805	NU1*
3790.38	0.0445	0.0488	11	7	4	11	6	5	2144.12	4.999181	NU1
3790.60	0.1040	0.0847	6	2	4	6	2	5	552.92	0.939536	NU3**
3791.20	0.3789	0.0873	6	2	5	5	1	4	399.46	3.129447	NU1*
3791.37	1.0755	0.0840	3	3	0	2	2	1	134.91	2.366160	NU1*
3791.44	0.0154	0.0442	11	2	9	10	1	10	1114.56	0.097873	2NU2
3791.57	11.5607	0.1037	2	1	1	1	1	0	42.37	1.500000	NU3*
3791.79	0.0395	0.0734	7	1	6	6	2	5	552.92	3.799063	NU1**
3791.79	0.0148	0.0473	11	7	5	11	6	6	2142.69	4.990193	NU1
3791.87	0.7954	0.0442	11	2	9	11	1	10	1524.87	3.646421	NU1
3792.30	0.1976	0.0410	8	7	1	7	6	2	1216.20	6.263414	2NU2
3792.30	0.5929	0.0410	8	7	2	7	6	1	1216.20	6.263444	2NU2
3792.46	1.4121	0.0722	5	4	2	6	2	5	552.92	0.004724	NU3
3792.71	0.3332	0.0523	8	1	8	7	0	7	586.26	7.000291	NU1*
3792.73	0.0943	0.0520	8	0	8	7	1	7	586.48	5.95	NU1*
3793.72	3.0648	0.1059	2	0	2	1	0	1	23.79	1.961754	NU3**
3793.83	2.9731	0.0784	8	2	6	7	4	3	931.22	0.065935	NU3
3794.48	0.0667	0.0842	3	3	1	2	2	0	136.17	2.394805	NU1**
3795.14	0.0483	0.0475	10	7	3	10	6	4	1875.53	4.061130	NU1
3795.47	0.2833	0.0934	4	1	3	4	1	4	224.83	0.495229	NU3**
3795.48	2.3034	0.0820	9	3	6	8	4	5	1122.72	1.416234	NU1
3795.52	106.6507	0.0734	7	1	6	6	2	5	552.92	3.799063	NU1
3795.67	0.1447	0.0463	10	7	4	10	6	5	1875.00	4.058996	NU1
3795.77	0.2644	0.0406	11	3	9	11	2	10	1525.13	3.632655	NU1
3795.85	8.2511	0.0443	9	1	8	9	0	9	920.18	1.844131	NU1
3795.90	0.1990	0.0840	3	3	0	2	2	1	134.91	2.366160	NU1**
3796.09	2.8097	0.0984	3	1	3	2	1	2	1677.08	2.653490	NU3***
3796.43	1972.3763	0.0989	2	1	2	1	1	1	37.13	1.500000	NU3
3796.86	2.7480	0.0430	9	2	8	9	1	9	920.21	1.842036	NU1
3796.95	0.0287	0.0436	9	0	9	8	1	8	2337.70	8.007087	NU1***
3797.08	2.3801	0.0757	5	3	3	6	1	6	447.24	0.004689	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3797.29	0.0159	0.0628	7	6	1	8	4	4	1131.76	0.002886	NU3
3797.82	281.2435	0.0847	6	2	4	6	2	5	552.92	0.939536	NU3
3798.49	0.4030	0.0459	9	7	2	9	6	3	1631.41	3.116419	NU1
3798.53	1.0581	0.0809	4	3	2	5	1	5	326.64	0.003420	NU3
3798.58	3.7621	0.0907	3	3	0	3	0	3	136.77	0.016715	NU1
3798.60	0.0131	0.0781	7	2	6	6	1	5	2146.28	4.008107	NU1***
3798.63	0.1343	0.0454	9	7	3	9	6	4	1631.27	3.116005	NU1
3799.04	180.2308	0.0842	3	3	1	2	2	0	136.17	2.394805	NU1
3799.24	2.1387	0.1037	2	1	1	1	1	0	42.37	1.500000	NU3**
3799.85	7.9446	0.0760	8	4	4	7	1	7	586.48	10.90	2NU2+
3799.92	189.4512	0.0873	6	2	5	5	1	4	399.46	3.129447	NU1
3800.44	537.7475	0.0840	3	3	0	2	2	1	134.91	2.366160	NU1
3800.58	17.0284	0.0984	3	1	3	2	1	2	79.48	2.653490	NU3*
3800.74	0.4287	0.0682	6	3	4	7	1	7	586.48	0.005077	NU3
3800.77	47.1439	0.0520	8	0	8	7	1	7	586.48	5.95	NU1-
3800.79	166.5854	0.0523	8	1	8	7	0	7	586.26	7.000291	NU1
3801.43	8283.3461	0.1059	2	0	2	1	0	1	23.79	1.961754	NU3
3802.00	1.3395	0.0915	3	2	2	2	2	1	1742.28	1.666667	NU3***
3802.31	0.0369	0.0669	11	2	9	10	4	6	1616.51	0.075083	NU3
3802.97	765.5725	0.0934	4	1	3	4	1	4	224.83	0.495229	NU3
3803.51	0.8768	0.0948	3	2	2	3	0	3	136.77	0.181744	NU3*
3803.76	0.3817	0.0401	7	7	1	7	6	2	1216.20	1.119792	NU1
3803.76	1.1452	0.0401	7	7	0	7	6	1	1216.20	1.119797	NU1
3804.11	0.0770	0.0782	7	2	5	7	2	6	709.60	0.838975	NU3*
3804.87	0.2422	0.0605	8	2	6	9	0	9	920.18	0.005067	NU3
3805.22	7.4254	0.1010	3	0	3	2	0	2	70.08	2.880004	NU3*
3805.24	2.3152	0.0837	3	3	1	4	1	4	224.83	0.001497	NU3
3805.62	0.0146	0.0781	7	2	6	6	1	5	542.91	4.008107	NU1**
3805.82	0.1163	0.0766	11	4	7	10	5	6	1718.77	1.370216	NU1
3806.03	4.4716	0.0740	9	3	6	9	3	7	1216.27	1.235624	NU3
3806.19	6.0791	0.0793	8	2	6	7	3	5	816.72	2.422109	NU1
3806.25	0.4469	0.0907	3	2	1	2	2	0	1743.47	1.676022	NU3***
3806.33	0.0483	0.0573	7	6	2	8	4	5	1122.72	0.002778	NU3
3806.37	8.1183	0.0915	3	2	2	2	2	1	134.91	1.666667	NU3*
3806.91	5780.3612	0.1037	2	1	1	1	1	0	42.37	1.500000	NU3
3807.45	0.1737	0.0436	9	0	9	8	1	8	744.16	8.007087	NU1*
3807.54	0.0579	0.0437	9	1	9	8	0	8	744.09	8.007851	NU1*
3808.00	0.5153	0.0763	9	2	7	8	4	4	1131.76	0.092972	NU3
3808.04	0.0184	0.0422	11	8	3	11	7	4	2321.94	4.105208	NU1
3808.26	0.2284	0.0368	12	3	10	12	2	11	1774.74	3.648229	NU1
3808.30	0.2844	0.0863	5	1	4	5	1	5	326.64	0.456689	NU3*
3808.32	3.1503	0.0984	3	1	3	2	1	2	79.48	2.653490	NU3**
3808.54	0.3006	0.0729	4	4	1	5	2	4	416.22	0.001517	NU3
3808.58	0.1438	0.0633	12	4	8	12	4	9	2124.98	1.508618	NU3
3808.98	0.0304	0.0687	5	4	1	6	1	6	447.24	0.000636	NU1
3809.09	0.0469	0.0863	5	1	4	5	1	5	1922.86	0.456689	NU3***
3809.11	0.5633	0.0620	7	3	5	8	1	8	744.16	0.004883	NU3
3809.46	0.7202	0.0868	4	3	2	3	2	1	212.15	2.320352	NU1*
3809.80	2.3407	0.0892	4	3	1	4	0	4	222.06	0.047652	NU1
3809.96	39.5794	0.0781	7	2	6	6	1	5	542.91	4.008107	NU1
3810.81	0.4963	0.0718	10	2	8	9	4	5	1360.28	0.093773	NU3
3811.20	0.0141	0.0410	10	8	2	10	7	3	2054.40	3.150851	NU1
3811.20	0.0423	0.0408	10	8	3	10	7	4	2054.40	3.150801	NU1
3811.23	1.0476	0.0382	10	1	9	10	0	10	1114.55	1.848326	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3811.25	0.0142	0.0782	7	2	5	7	2	6	709.60	0.838975	NU3**
3811.45	2.7080	0.0907	3	2	1	2	2	0	136.17	1.676022	NU3*
3811.51	0.0321	0.0436	9	0	9	8	1	8	744.16	8.007087	NU1**
3811.55	0.0134	0.0381	10	1	10	9	0	9	2512.36	9.013676	NU1***
3811.60	0.0107	0.0437	9	1	9	8	0	8	744.09	8.007851	NU1**
3811.72	0.1622	0.0948	3	2	2	3	0	3	136.77	0.181744	NU3**
3811.79	0.3152	0.0916	4	2	3	4	0	4	222.06	0.299684	NU3*
3811.82	3.1420	0.0378	10	2	9	10	1	10	1114.56	1.847651	NU1
3812.39	0.1447	0.0948	3	2	2	3	0	3	1731.89	0.181744	NU3***
3812.64	0.8666	0.0986	3	1	2	2	1	1	1693.65	2.645088	NU3***
3812.68	0.0106	0.0507	9	1	8	8	2	7	2495.18	5.987889	NU1***
3812.99	1.3738	0.1010	3	0	3	2	0	2	70.08	2.880004	NU3**
3813.17	0.1326	0.0646	8	2	7	7	1	6	704.22	4.996649	NU1*
3813.50	0.9625	0.0948	4	1	4	3	1	3	1739.51	3.713893	NU3***
3814.07	0.1332	0.0868	4	3	2	3	2	1	212.15	2.320352	NU1**
3814.08	1.5019	0.0915	3	2	2	2	2	1	134.91	1.666667	NU3**
3814.25	21.1080	0.0613	8	1	7	7	2	6	709.60	4.913532	NU1
3814.61	0.1164	0.0385	9	8	1	9	7	2	1810.63	2.165395	NU1
3815.21	0.0388	0.0385	9	8	2	9	7	3	1810.63	2.165389	NU1
3815.57	86.8369	0.0436	9	0	9	8	1	8	744.16	8.007087	NU1
3815.66	82.0644	0.0977	2	2	1	2	0	2	70.08	0.063744	NU3
3815.67	28.9611	0.0437	9	1	9	8	0	8	744.09	8.007851	NU1
3816.07	8514.1759	0.0984	3	1	3	2	1	2	79.48	2.653490	NU3
3817.44	0.0245	0.0646	8	2	7	7	1	6	704.22	4.996649	NU1**
3817.52	0.0733	0.0444	9	7	3	8	6	2	1411.68	6.142105	2NU2
3817.55	0.2198	0.0443	9	7	2	8	6	3	1411.65	6.141896	2NU2
3818.12	0.0589	0.0364	8	8	0	8	7	1	1590.74	1.126216	NU1
3818.12	0.1767	0.0364	8	8	1	8	7	2	1590.74	1.126215	NU1
3818.34	0.0313	0.0970	4	2	2	3	1	3	1739.51	1.29	NU1***
3818.39	38.4497	0.0782	7	2	5	7	2	6	709.60	0.838975	NU3
3818.69	360.1188	0.0868	4	3	2	3	2	1	212.15	2.320352	NU1
3818.78	3.0435	0.0960	4	0	4	3	0	3	1731.89	3.805784	NU3***
3819.09	0.5010	0.0907	3	2	1	2	2	0	136.17	1.676022	NU3**
3819.43	5.8335	0.0948	4	1	4	3	1	3	142.28	3.713893	NU3*
3819.93	438.3722	0.0948	3	2	2	3	0	3	136.77	0.181744	NU3
3820.77	3712.7214	0.1010	3	0	3	2	0	2	70.08	2.880004	NU3
3821.72	66.2925	0.0646	8	2	7	7	1	6	704.22	4.996649	NU1
3821.79	4059.1468	0.0915	3	2	2	2	2	1	134.91	1.666667	NU3
3822.17	18.4455	0.0960	4	0	4	3	0	3	136.77	3.805784	NU3*
3822.40	0.0643	0.0507	9	1	8	8	2	7	885.62	5.987889	NU1*
3823.30	142.2114	0.0863	5	1	4	5	1	5	326.64	0.456689	NU3
3823.97	0.9717	0.0986	3	1	2	2	1	1	95.17	2.645088	NU3**
3824.05	0.5723	0.0846	5	2	4	5	0	5	325.35	0.303000	NU3*
3824.30	94.8028	0.0970	4	2	2	3	1	3	142.28	1.29	NU1+
3824.54	1.1771	0.0774	4	3	2	3	3	1	285.23	1.530000	NU3*
3824.85	0.0208	0.0698	9	2	7	8	3	6	1006.12	3.529968	NU1*
3825.10	0.0926	0.0689	8	2	6	8	2	7	885.62	0.807542	NU3*
3825.16	0.1438	0.0892	5	3	3	4	2	2	315.79	2.324407	NU1*
3825.21	0.0252	0.0543	9	2	7	10	0	10	1114.55	0.004155	NU3
3825.56	160.1007	0.0861	4	3	1	3	2	2	206.30	3.00	NU1+
3825.70	3.4366	0.0784	4	3	1	3	3	0	285.43	1.490000	NU3*
3825.94	0.5450	0.0903	4	2	3	3	2	2	1813.81	2.890000	NU3***
3826.09	0.0151	0.0381	10	1	10	9	0	9	920.18	9.013676	NU1**
3826.39	1.0898	0.0348	11	1	10	11	0	11	1327.14	1.851910	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3826.74	1353.9804	0.0907	3	2	1	2	2	0	136.17	1.676022	NU3
3827.22	1.0792	0.0948	4	1	4	3	1	3	142.28	3.713893	NU3**
3827.29	0.2311	0.0857	5	3	3	5	1	4	399.46	0.177000	NU3*
3827.46	3.9394	0.0671	10	3	7	10	3	8	1446.16	1.142576	NU3
3828.02	157.6210	0.0916	4	2	3	4	0	4	222.06	0.299684	NU3
3828.07	0.4002	0.0752	10	3	7	9	4	6	1340.89	2.171641	NU1
3828.29	3.3028	0.0903	4	2	3	3	2	2	206.30	2.890000	NU3*
3828.42	0.4631	0.0773	6	1	5	6	1	6	447.24	0.450603	NU3*
3828.61	67.3233	0.0880	5	3	2	5	0	5	325.35	0.762	NU1+
3828.91	0.0945	0.0846	5	2	4	5	0	5	1920.76	0.303000	NU3***
3829.78	0.0247	0.0574	13	4	9	13	4	10	2426.22	1.549000	NU3
3829.86	0.0266	0.0892	5	3	3	4	2	2	315.79	2.324407	NU1**
3830.01	3.4125	0.0960	4	0	4	3	0	3	136.77	3.805784	NU3**
3830.16	13.5642	0.0381	10	0	10	9	1	9	920.21	9.013420	NU1
3830.20	40.6942	0.0381	10	1	10	9	0	9	920.18	9.013676	NU1
3830.41	32.1513	0.0507	9	1	8	8	2	7	885.62	5.987889	NU1
3831.58	10.3849	0.0698	9	2	7	8	3	6	1006.12	3.529968	NU1
3831.67	2626.1743	0.0986	3	1	2	2	1	1	95.17	2.645088	NU3
3831.96	2.4478	0.0872	5	1	5	4	1	4	1821.61	4.737042	NU3***
3832.24	0.2177	0.0774	4	3	2	3	3	1	285.23	1.530000	NU3**
3832.26	0.0172	0.0689	8	2	6	8	2	7	885.62	0.807542	NU3**
3832.33	0.1486	0.0743	7	3	5	7	1	6	704.22	0.522000	NU3*
3833.37	0.6358	0.0784	4	3	1	3	3	0	285.43	1.490000	NU3**
3833.39	0.2513	0.0633	5	4	2	4	4	1	2129.63	1.810924	NU3***
3833.46	0.0838	0.0638	5	4	1	4	4	0	2129.65	1.810956	NU3***
3833.71	1.6711	0.0914	4	2	2	3	2	1	1819.34	3.033776	NU3***
3833.96	0.1032	0.0747	6	2	5	6	0	6	446.71	0.299000	NU3*
3834.14	10.9281	0.0539	9	2	8	8	1	7	882.93	6.019178	NU1
3834.56	71.9165	0.0892	5	3	3	4	2	2	315.79	2.324407	NU1
3835.02	2916.7265	0.0948	4	1	4	3	1	3	142.28	3.713893	NU3
3835.72	0.0134	0.0813	6	3	4	6	1	5	542.91	0.339000	NU3**
3835.88	2.4530	0.0957	4	1	3	3	1	2	1772.41	3.667441	NU3***
3835.98	0.0857	0.0773	6	1	5	6	1	6	447.24	0.450603	NU3**
3836.03	0.6110	0.0903	4	2	3	3	2	2	206.30	2.890000	NU3**
3836.07	0.0427	0.0857	5	3	3	5	1	4	399.46	0.177000	NU3**
3836.39	14.8350	0.0872	5	1	5	4	1	4	224.83	4.737042	NU3*
3836.81	0.2376	0.0896	6	3	4	5	2	3	446.50	2.452523	NU1*
3836.90	0.0169	0.034	14	3	12	14	2	13	2327.90	3.76386	NU1
3837.85	9222.7358	0.0960	4	0	4	3	0	3	136.77	3.805784	NU3
3838.35	5.0508	0.0887	5	0	5	4	0	4	222.06	4.769122	NU3*
3838.72	10.1279	0.0914	4	2	2	3	2	1	212.15	3.033776	NU3*
3838.80	0.0939	0.0860	3	3	1	3	1	2	173.36	0.023148	NU3*
3838.88	0.0289	0.0444	10	2	9	9	1	8	1079.07	7.043661	NU1*
3838.94	14.8661	0.0957	4	1	3	3	1	2	173.36	3.667441	NU3*
3839.43	46.3159	0.0689	8	2	6	8	2	7	885.62	0.807542	NU3
3839.94	588.5700	0.0774	4	3	2	3	3	1	285.23	1.530000	NU3-
3840.12	286.1386	0.0846	5	2	4	5	0	5	325.35	0.303000	NU3-
3840.59	0.1143	0.0331	12	1	11	12	0	12	1557.91	1.854934	NU1
3840.69	0.3429	0.0331	12	2	11	12	1	12	1557.91	1.854861	NU1
3841.04	1718.3218	0.0784	4	3	1	3	3	0	285.43	1.490000	NU3-
3841.60	0.0440	0.0896	6	3	4	5	2	3	446.50	2.452523	NU1**
3841.68	1.2546	0.0875	5	2	4	4	2	3	1907.99	3.530000	NU3***
3841.70	0.6429	0.0803	5	3	3	4	3	2	2004.81	2.730000	NU3***
3841.80	0.0270	0.0663	8	3	6	8	1	7	882.93	0.691047	NU3*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{am\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3841.87	1.5227	0.0633	5	4	2	4	4	1	488.10	1.810924	NU3*
3841.91	0.0191	0.0747	6	2	5	6	0	6	446.71	0.299000	NU3**
3842.00	0.5076	0.0638	5	4	1	4	4	0	488.13	1.810956	NU3*
3843.54	231.5447	0.0773	6	1	5	6	1	6	447.24	0.450603	NU3
3843.78	1651.4006	0.0903	4	2	3	3	2	2	206.30	2.890000	NU3-
3844.23	2.7445	0.0872	5	1	5	4	1	4	224.83	4.737042	NU3**
3844.31	36.1015	0.0813	6	3	4	6	1	5	542.91	0.339000	NU3-
3844.37	17.1819	0.0349	11	0	11	10	1	10	1114.56	10.018153	NU1
3844.38	5.7274	0.0349	11	1	11	10	0	10	1114.55	10.018239	NU1
3844.86	115.5386	0.0857	5	3	3	5	1	4	399.46	0.177000	NU3-
3845.30	0.1888	0.0826	5	3	2	4	3	1	2005.92	2.420000	NU3***
3845.37	0.0408	0.0881	7	3	5	6	2	4	602.77	2.751216	NU1*
3845.40	4.7726	0.0431	10	1	9	9	2	8	1080.38	7.032041	NU1
3845.55	0.0241	0.0516	6	5	2	5	5	1	2406.15	1.845180	NU3***
3845.59	0.0721	0.0516	6	5	1	5	5	0	2406.15	1.845182	NU3***
3845.61	0.0381	0.0857	5	3	3	5	1	4	2000.90	0.177000	NU3***
3846.22	0.9344	0.0887	5	0	5	4	0	4	222.06	4.769122	NU3**
3846.35	1.8736	0.0914	4	2	2	3	2	1	212.15	3.033776	NU3**
3846.36	3.8963	0.0803	5	3	3	4	3	2	382.52	2.730000	NU3*
3846.40	118.7903	0.0896	6	3	4	5	2	3	446.50	2.452523	NU1
3846.69	2.7503	0.0957	4	1	3	3	1	2	173.36	3.667441	NU3**
3846.70	0.3282	0.0994	2	2	0	1	0	1	23.79	0.038246	NU3*
3846.78	0.0245	0.0743	7	3	5	7	1	6	2309.74	0.522000	NU3***
3847.14	0.0783	0.0654	7	1	6	7	1	7	586.48	0.456726	NU3*
3847.31	14.4440	0.0444	10	2	9	9	1	8	1079.07	7.043661	NU1
3847.75	0.0174	0.0860	3	3	1	3	1	2	173.36	0.023148	NU3**
3848.63	0.3784	0.0596	11	3	8	11	3	9	1695.03	1.122765	NU3
3848.89	0.2144	0.0674	4	4	1	3	3	0	1907.63	5.89	NU1***
3848.90	0.5974	0.0764	6	1	6	5	1	5	1922.86	5.744669	NU3***
3849.05	74.3308	0.0743	7	3	5	7	1	6	704.22	0.522000	NU3-
3849.07	1.1444	0.0826	5	3	2	4	3	1	383.85	2.420000	NU3*
3849.08	0.0656	0.0665	4	4	0	3	3	1	1907.47	5.49	NU1***
3849.53	7.6040	0.0875	5	2	4	4	2	3	300.35	3.530000	NU3*
3849.57	198.6771	0.0665	4	4	0	3	3	1	285.23	5.49	NU1+
3849.62	649.6736	0.0674	4	4	1	3	3	0	285.43	5.89	NU1+
3849.65	31.1338	0.0871	4	3	2	4	1	3	275.52	0.076900	NU3-
3849.86	51.6049	0.0747	6	2	5	6	0	6	446.71	0.299000	NU3-
3850.25	0.2312	0.0636	7	2	6	7	0	7	586.26	0.448059	NU3*
3850.36	1.8076	0.0775	6	0	6	5	0	5	1920.76	5.755360	NU3***
3852.07	7417.5214	0.0872	5	1	5	4	1	4	224.83	4.737042	NU3
3852.73	1.6180	0.0590	10	2	8	9	3	7	1216.27	4.706625	NU1
3853.14	0.3522	0.0884	5	3	2	4	2	3	1907.99	10.59	NU1***
3853.42	3.6207	0.0764	6	1	6	5	1	5	326.64	5.744669	NU3*
3853.61	1067.1312	0.0884	5	3	2	4	2	3	300.35	10.59	NU1+
3853.99	5063.9614	0.0914	4	2	2	3	2	1	212.15	3.033776	NU3
3854.10	2525.4405	0.0887	5	0	5	4	0	4	222.06	4.769122	NU3
3854.30	10.9552	0.0775	6	0	6	5	0	5	325.35	5.755360	NU3*
3854.44	7433.0627	0.0957	4	1	3	3	1	2	173.36	3.667441	NU3
3855.01	0.0607	0.0994	2	2	0	1	0	1	23.79	0.038246	NU3**
3855.11	20.3797	0.0881	7	3	5	6	2	4	602.77	2.751216	NU1
3855.11	0.0541	0.0994	2	2	0	1	0	1	1618.55	0.038246	NU3***
3855.47	0.0345	0.0333	13	2	12	13	1	13	1806.78	1.90640	NU1
3855.93	0.0161	0.0430	7	6	2	6	6	1	2734.00	1.869458	NU3***
3856.00	0.1457	0.0516	6	5	2	5	5	1	742.10	1.845180	NU3*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3856.05	0.4372	0.0516	6	5	1	5	5	0	742.10	1.845182	NU3*
3856.46	0.6187	0.0926	5	1	4	4	1	3	1875.49	4.601931	NU3***
3856.52	0.0847	0.0679	6	4	3	5	4	2	2251.71	3.351648	NU3***
3856.70	0.2117	0.0826	5	3	2	4	3	1	383.85	2.420000	NU3**
3856.71	46.9431	0.0860	3	3	1	3	1	2	173.36	0.023148	NU3
3856.76	268.5014	0.0834	5	4	1	5	1	4	399.46	4.37	NU1+
3857.28	761.3661	0.0633	5	4	2	4	4	1	488.10	1.810924	NU3
3857.32	1.4067	0.0875	5	2	4	4	2	3	300.35	3.530000	NU3**
3857.40	253.7719	0.0638	5	4	1	4	4	0	488.13	1.810956	NU3
3857.48	0.2539	0.0699	6	4	2	5	4	1	2251.86	3.352166	NU3***
3857.67	0.5327	0.0674	11	3	8	10	4	7	1581.34	3.178818	NU1
3857.67	6.5393	0.0332	12	1	12	11	0	11	1327.14	11.021891	NU1
3858.05	2.1800	0.0332	12	0	12	11	1	11	1327.14	11.021861	NU1
3858.10	13.4536	0.0663	8	3	6	8	1	7	882.93	0.691047	NU3
3858.18	0.0427	0.0636	7	2	6	7	0	7	586.26	0.448059	NU3**
3858.74	3.7502	0.0926	5	1	4	4	1	3	275.52	4.601931	NU3*
3859.02	6.3714	0.0800	6	4	2	6	1	5	542.91	0.637	NU1+
3859.28	4.9618	0.0840	4	4	0	4	1	3	275.52	0.1303	NU1+
3859.38	5.9083	0.0606	9	2	7	9	2	8	1080.38	0.813942	NU3
3859.87	5.6605	0.0378	11	1	10	10	2	9	1293.66	8.058917	NU1
3860.44	0.0381	0.0636	7	2	6	7	0	7	2180.65	0.448059	NU3***
3860.44	0.4683	0.0920	5	2	3	4	2	2	1922.92	4.253846	NU3***
3860.66	1.9004	0.0385	11	2	10	10	1	9	1293.04	8.063213	NU1
3861.31	0.6698	0.0764	6	1	6	5	1	5	326.64	5.744669	NU3**
3861.47	19.4285	0.0865	6	3	3	6	0	6	446.71	1.20	NU1+
3861.62	29.5843	0.0832	8	3	6	7	2	5	782.40	3.262769	NU1
3861.80	1948.1717	0.0803	5	3	3	4	3	2	382.52	2.730000	NU3-
3862.22	2.0267	0.0775	6	0	6	5	0	5	325.35	5.755360	NU3**
3862.48	39.1902	0.0654	7	1	6	7	1	7	586.48	0.456726	NU3
3863.33	164.1211	0.0994	2	2	0	1	0	1	23.79	0.038246	NU3
3863.71	0.0270	0.0516	6	5	2	5	5	1	742.10	1.845180	NU3**
3863.76	0.0809	0.0516	6	5	1	5	5	0	742.10	1.845182	NU3**
3863.80	0.1548	0.0797	6	3	4	5	3	3	2126.41	3.600000	NU3***
3864.33	572.2053	0.0826	5	3	2	4	3	1	383.85	2.420000	NU3-
3864.68	1.5832	0.0818	6	2	5	5	2	4	416.22	3.920000	NU3*
3864.74	0.0110	0.0657	10	3	8	9	2	7	1201.95	4.932263	NU1*
3864.85	2.8384	0.0920	5	2	3	4	2	2	315.79	4.253846	NU3*
3865.11	7.4267	0.0694	9	4	6	9	2	7	1201.95	0.624317	NU3
3865.12	3801.9877	0.0875	5	2	4	4	2	3	300.35	3.530000	NU3-
3865.67	1.5388	0.0699	6	4	2	5	4	1	610.35	3.352166	NU3*
3865.83	0.3867	0.0649	7	0	7	6	0	6	2041.76	6.749914	NU3***
3865.84	0.2932	0.0351	8	8	1	7	7	0	1394.86	7.402783	2NU2
3865.84	0.0977	0.0351	8	8	0	7	7	1	1394.86	7.402783	2NU2
3866.12	115.5784	0.0636	7	2	6	7	0	7	586.26	0.448059	NU3
3866.58	0.6938	0.0926	5	1	4	4	1	3	275.52	4.601931	NU3**
3866.67	1.0017	0.0620	10	4	7	10	2	8	1438.00	0.828214	NU3
3866.99	4.4486	0.0754	9	3	7	8	2	6	982.91	4.004942	NU1
3867.64	0.2765	0.0509	12	3	9	12	3	10	1962.55	1.142616	NU3
3867.71	0.9382	0.0797	6	3	4	5	3	3	504.00	3.600000	NU3*
3867.84	0.0260	0.032	14	2	13	14	1	14	2073.66	1.90878	NU1
3867.94	0.0160	0.0803	6	4	3	6	2	4	602.77	0.100806	NU3*
3868.20	7.4799	0.0756	7	4	3	7	1	6	704.22	0.557	NU1+
3868.50	0.0652	0.0565	7	5	3	6	5	2	2552.85	3.450020	NU3***
3868.53	0.0326	0.0430	7	6	1	6	6	0	1045.07	1.869458	NU3*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3868.53	0.0977	0.0430	7	6	2	6	6	1	1045.07	1.869458	NU3*
3868.58	4.7672	0.0747	8	4	5	8	2	6	982.91	0.402567	NU3
3868.62	0.0218	0.0569	7	5	2	6	5	1	2552.87	3.450058	NU3***
3869.20	1810.3455	0.0764	6	1	6	5	1	5	326.64	5.744669	NU3
3869.82	7.0093	0.0642	7	1	7	6	1	6	447.24	6.746361	NU3*
3869.86	16.9154	0.0570	9	3	7	9	1	8	1079.07	0.769552	NU3
3870.14	5477.5779	0.0775	6	0	6	5	0	5	325.35	5.755360	NU3
3870.58	1.9171	0.0494	11	2	9	10	3	8	1446.16	5.859437	NU1
3870.97	185.6067	0.0962	5	2	3	4	1	4	224.83	1.257	NU1+
3871.09	0.7449	0.0324	13	1	13	12	0	12	1557.91	11.99676	NU1
3871.09	2.2347	0.0324	13	0	13	12	1	12	1557.91	11.99672	NU1
3871.43	72.8685	0.0516	6	5	2	5	5	1	742.10	1.845180	NU3
3871.48	218.6085	0.0516	6	5	1	5	5	0	742.10	1.845182	NU3
3871.80	0.3440	0.0861	6	3	3	5	3	2	2130.50	2.720000	NU3***
3872.26	0.0949	0.0679	6	4	3	5	4	2	610.12	3.351648	NU3**
3872.34	0.0203	0.0547	8	1	7	8	1	8	744.16	0.464983	NU3**
3872.51	0.2928	0.0818	6	2	5	5	2	4	416.22	3.920000	NU3**
3872.51	0.5251	0.0920	5	2	3	4	2	2	315.79	4.253846	NU3**
3872.55	0.1700	0.0719	5	4	1	4	3	2	2004.81	7.67	NU1***
3872.78	0.9988	0.0546	11	4	8	11	2	9	1690.70	0.981559	NU3
3873.34	0.2847	0.0699	6	4	2	5	4	1	610.35	3.352166	NU3**
3873.37	0.6742	0.0350	12	1	11	11	2	10	1525.13	9.076485	NU1
3873.70	515.2017	0.0719	5	4	1	4	3	2	382.52	7.67	NU1+
3873.73	2.0230	0.0350	12	2	11	11	1	10	1524.87	9.078065	NU1
3873.80	1.1966	0.0872	6	1	5	5	1	4	2000.90	5.488405	NU3***
3873.88	236.4411	0.0742	5	4	2	4	3	1	383.85	10.63	NU1+
3874.19	5.5187	0.0657	10	3	8	9	2	7	1201.95	4.932263	NU1
3874.42	1875.1260	0.0926	5	1	4	4	1	3	275.52	4.601931	NU3
3875.42	7.2518	0.0872	6	1	5	5	1	4	399.46	5.488405	NU3*
3876.25	0.0181	0.0430	7	6	2	6	6	1	1045.07	1.869458	NU3**
3876.33	0.2483	0.0971	3	2	1	2	0	2	70.08	0.094498	NU3*
3876.46	0.0886	0.0834	5	4	1	5	1	4	2000.90	4.37	NU1***
3876.56	21.1764	0.0791	7	4	4	7	2	5	782.40	0.218314	NU3
3876.85	0.0415	0.0576	12	5	8	12	3	9	2105.90	0.855326	NU3
3877.43	6.2732	0.0516	10	2	8	10	2	9	1293.66	0.834303	NU3
3877.61	0.0498	0.0521	13	5	9	13	3	10	2414.73	1.031690	NU3
3877.75	1.2967	0.0642	7	1	7	6	1	6	447.24	6.746361	NU3**
3878.13	0.4336	0.0649	7	0	7	6	0	6	446.71	6.749914	NU3**
3878.53	0.0130	0.0469	8	6	2	7	6	1	2905.42	3.522866	NU3***
3878.64	0.3954	0.0565	7	5	3	6	5	2	888.60	3.450020	NU3*
3878.87	0.1318	0.0569	7	5	2	6	5	1	888.63	3.450058	NU3*
3879.43	0.1735	0.0700	7	4	4	6	4	3	2398.39	4.735129	NU3***
3879.44	0.0410	0.0792	5	4	2	5	2	3	446.50	0.039164	NU3*
3879.79	0.6045	0.0734	7	2	6	6	2	5	2161.30	5.960000	NU3***
3879.97	256.6825	0.0679	6	4	3	5	4	2	610.12	3.351648	NU3
3880.12	54.6477	0.0547	8	1	7	8	1	8	744.16	0.464983	NU3
3880.17	1419.2277	0.0920	5	2	3	4	2	2	315.79	4.253846	NU3
3880.35	791.6073	0.0818	6	2	5	5	2	4	416.22	3.920000	NU3-
3881.01	769.3965	0.0699	6	4	2	5	4	1	610.35	3.352166	NU3
3881.28	0.6656	0.0535	8	0	8	7	0	7	2180.65	7.747248	NU3***
3881.61	0.1054	0.0477	12	4	9	12	2	10	1960.22	1.085478	NU3
3881.68	0.0462	0.0451	9	2	8	9	0	9	920.18	0.471417	NU3*
3881.76	0.0106	0.032	15	1	14	15	0	15	2358.44	1.91083	NU1
3881.81	18.1225	0.0531	8	2	7	8	0	8	744.09	0.462205	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3882.00	0.0576	0.0748	7	4	3	6	4	2	2399.17	4.739627	NU3***
3882.88	2.0675	0.0491	10	3	8	10	1	9	1293.04	0.818434	NU3
3882.90	0.6787	0.0547	11	3	9	10	2	8	1438.00	5.954956	NU1
3883.22	469.0807	0.0797	6	3	4	5	3	3	504.00	3.600000	NU3-
3883.37	1.3416	0.0872	6	1	5	5	1	4	399.46	5.488405	NU3**
3883.42	0.1167	0.0527	5	5	1	4	4	0	488.13	4.397010	NU1*
3883.45	0.3502	0.0525	5	5	0	4	4	1	488.10	4.396748	NU1*
3883.60	3.6637	0.0734	7	2	6	6	2	5	552.92	5.960000	NU3*
3883.98	0.0662	0.0605	12	3	9	11	4	8	1843.02	4.355455	NU1
3883.98	16.2910	0.0430	7	6	1	6	6	0	1045.07	1.869458	NU3
3883.98	48.8730	0.0430	7	6	2	6	6	1	1045.07	1.869458	NU3
3884.08	2.0845	0.0861	6	3	3	5	3	2	508.81	2.720000	NU3*
3884.20	0.0541	0.0862	4	3	1	4	1	4	224.83	0.017070	NU3*
3884.58	0.0460	0.0971	3	2	1	2	0	2	70.08	0.094498	NU3**
3884.75	0.0410	0.0971	3	2	1	2	0	2	1664.97	0.094498	NU3***
3884.82	0.3211	0.0771	7	3	5	6	3	4	2271.70	5.110000	NU3***
3884.92	0.2374	0.032	14	0	14	13	1	13	1806.78	12.99955	NU1
3884.92	0.7116	0.032	14	1	14	13	0	13	1806.78	12.99957	NU1
3885.37	0.9264	0.0917	6	2	4	5	2	3	2053.98	5.358633	NU3***
3885.68	543.9519	0.0800	6	4	3	5	3	2	508.81	15.18	NU1+
3885.68	3504.6611	0.0642	7	1	7	6	1	6	447.24	6.746361	NU3
3885.94	4.0338	0.0535	8	0	8	7	0	7	586.26	7.747248	NU3*
3886.08	1172.0190	0.0649	7	0	7	6	0	6	446.71	6.749914	NU3
3886.47	0.6388	0.0332	13	1	12	12	2	11	1774.74	9.99731	NU1
3886.65	0.2130	0.0331	13	2	12	12	1	11	1774.60	9.99954	NU1
3886.77	1.0514	0.0700	7	4	4	6	4	3	756.75	4.735129	NU3*
3887.32	8.0240	0.0803	6	4	3	6	2	4	602.77	0.100806	NU3
3888.04	6.7224	0.0870	3	3	0	3	1	3	142.28	0.008443	NU3
3888.54	0.0216	0.0527	5	5	1	4	4	0	488.13	4.397010	NU1**
3888.57	0.0648	0.0525	5	5	0	4	4	1	488.10	4.396748	NU1**
3888.68	1.9460	0.0771	7	3	5	6	3	4	648.97	5.110000	NU3*
3888.76	0.2275	0.0785	7	1	6	6	1	5	2146.28	6.391209	NU3***
3888.77	5.6151	0.0917	6	2	4	5	2	3	446.50	5.358633	NU3*
3889.97	1.3791	0.0785	7	1	6	6	1	5	542.91	6.391209	NU3*
3890.12	0.3492	0.0748	7	4	3	6	4	2	757.78	4.739627	NU3*
3891.32	3625.9114	0.0872	6	1	5	5	1	4	399.46	5.488405	NU3
3891.66	0.3857	0.0861	6	3	3	5	3	2	508.81	2.720000	NU3**
3891.96	256.0173	0.0887	6	3	3	5	2	4	416.22	13.47	NU1+
3892.30	0.6720	0.0454	12	3	10	11	2	9	1690.70	7.003088	NU1
3892.83	124.1187	0.0971	3	2	1	2	0	2	70.08	0.094498	NU3
3893.67	58.3632	0.0527	5	5	1	4	4	0	488.13	4.397010	NU1
3893.69	0.6812	0.0444	11	2	9	11	2	10	1525.13	0.856092	NU3
3893.70	175.1005	0.0525	5	5	0	4	4	1	488.10	4.396748	NU1
3893.76	0.2484	0.0532	8	1	8	7	1	7	586.48	7.746063	NU3**
3893.92	0.7463	0.0535	8	0	8	7	0	7	586.26	7.747248	NU3**
3894.07	11.7787	0.0915	4	3	2	3	0	3	136.77	0.051049	NU1
3894.07	197.6637	0.0565	7	5	3	6	5	2	888.60	3.450020	NU3
3894.28	65.8922	0.0569	7	5	2	6	5	1	888.63	3.450058	NU3
3894.49	0.1945	0.0700	7	4	4	6	4	3	756.75	4.735129	NU3**
3895.14	2.8823	0.0380	8	7	2	7	7	1	1394.86	1.887603	NU3
3895.14	8.6468	0.0380	8	7	1	7	7	0	1394.86	1.887603	NU3
3896.27	0.0460	0.0755	6	4	2	5	3	3	2126.41	11.35	NU1***
3896.33	0.3424	0.0446	9	1	9	8	1	8	2337.70	8.745235	NU3***
3896.40	2.0316	0.0427	11	3	9	11	1	10	1524.87	0.850512	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3896.46	0.1142	0.0447	9	0	9	8	0	8	2337.53	8.745630	NU3***
3896.49	0.3600	0.0771	7	3	5	6	3	4	648.97	5.110000	NU3**
3896.50	1.0388	0.0917	6	2	4	5	2	3	446.50	5.358633	NU3**
3896.64	0.1131	0.0633	8	2	7	7	2	6	2318.53	7.292008	NU3***
3896.69	0.2760	0.0694	10	5	6	10	3	7	1538.23	0.369280	NU3
3896.81	7.7064	0.0458	9	1	8	9	1	9	920.21	0.472318	NU3
3896.81	0.0177	0.0397	10	1	9	10	1	10	1114.56	0.478334	NU3*
3896.90	0.0193	0.0527	5	5	1	4	4	0	2129.65	4.397010	NU1***
3896.92	0.0578	0.0525	5	5	0	4	4	1	2129.63	4.396748	NU1***
3897.24	0.0778	0.032	15	1	15	14	0	14	2073.66	14.00192	NU1
3897.24	0.1921	0.032	15	0	15	14	1	14	2073.66	14.00191	NU1
3897.24	0.1054	0.0885	7	3	4	6	3	3	2282.59	5.330000	NU3***
3897.56	23.0795	0.0451	9	2	8	9	0	9	920.18	0.471417	NU3
3897.93	139.3042	0.0755	6	4	2	5	3	3	504.00	11.35	NU1+
3898.01	0.2552	0.0785	7	1	6	6	1	5	542.91	6.391209	NU3**
3898.29	214.0639	0.0725	6	6	1	5	3	2	508.81	64.02	2NU2+
3898.82	5.8341	0.0845	7	3	4	7	0	7	586.26	0.239	NU1+
3898.82	0.0301	0.0692	5	4	1	6	0	6	446.71	0.000172	NU3
3898.88	20.4906	0.0792	5	4	2	5	2	3	446.50	0.039164	NU3
3899.24	1042.2919	0.0861	6	3	3	5	3	2	508.81	2.720000	NU3-
3899.46	1831.8316	0.0734	7	2	6	6	2	5	552.92	5.960000	NU3-
3900.35	0.6856	0.0633	8	2	7	7	2	6	709.60	7.292008	NU3*
3900.60	0.0070	0.0496	9	6	4	8	6	3	3101.19	5.032027	NU3***
3900.95	0.0801	0.0594	8	5	4	7	5	3	1059.65	4.903948	NU3*
3901.21	2.0752	0.0446	9	1	9	8	1	8	744.16	8.745235	NU3*
3901.25	0.6921	0.0447	9	0	9	8	0	8	744.09	8.745630	NU3*
3901.33	0.0123	0.0407	9	7	3	8	7	2	1590.74	3.579253	NU3*
3901.64	27.0726	0.0862	4	3	1	4	1	4	224.83	0.017070	NU3
3901.74	671.4213	0.0532	8	1	8	7	1	7	586.48	7.746063	NU3
3901.91	2016.9288	0.0535	8	0	8	7	0	7	586.26	7.747248	NU3
3902.21	525.6870	0.0700	7	4	4	6	4	3	756.75	4.735129	NU3
3902.39	41.0263	0.0834	7	4	4	6	3	3	661.56	7.34	NU1+
3903.35	4.7486	0.0662	6	6	0	5	3	3	504.00	4.25	2NU2+
3903.46	0.0858	0.0852	8	4	5	7	3	4	842.38	6.30	NU1*
3903.90	2.1279	0.0670	8	1	7	7	1	6	704.22	7.336095	NU3*
3904.24	2807.5183	0.0917	6	2	4	5	2	3	446.50	5.358633	NU3
3904.30	972.9716	0.0771	7	3	5	6	3	4	648.97	5.110000	NU3-
3905.06	0.4026	0.0354	9	8	1	8	8	0	1789.10	1.901685	NU3
3905.06	1.2079	0.0354	9	8	2	8	8	1	1789.10	1.901685	NU3
3905.10	0.0713	0.0656	6	4	2	7	0	7	586.26	0.000274	NU3
3905.37	174.6112	0.0748	7	4	3	6	4	2	757.78	4.739627	NU3
3906.05	689.5227	0.0785	7	1	6	6	1	5	542.91	6.391209	NU3
3906.17	13.1418	0.0469	8	6	3	7	6	2	1216.20	3.522863	NU3
3906.32	0.0619	0.0587	6	5	1	5	4	2	610.12	4.264570	NU1*
3906.34	39.4272	0.0469	8	6	2	7	6	1	1216.20	3.522866	NU3
3906.48	0.1100	0.0757	8	5	3	8	2	6	982.91	0.098024	NU1
3906.82	0.2036	0.0695	9	5	4	9	2	7	1201.95	0.180415	NU1
3907.40	0.1684	0.0894	7	2	5	6	2	4	2211.21	6.352023	NU3***
3907.71	0.0839	0.0787	8	4	4	7	4	3	2572.13	5.440000	NU3***
3908.23	0.1903	0.0701	8	4	5	7	4	4	927.77	6.014663	NU3*
3908.32	0.1268	0.0633	8	2	7	7	2	6	709.60	7.292008	NU3**
3908.53	0.5993	0.0391	12	2	10	12	2	11	1774.74	0.875278	NU3
3908.57	0.2984	0.0736	8	3	6	7	3	5	816.72	5.410000	NU3*
3908.65	0.0149	0.0594	8	5	4	7	5	3	1059.65	4.903948	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3908.73	0.0159	0.0852	8	4	5	7	3	4	842.38	6.30	NU1**
3908.97	3.6252	0.0762	4	4	1	4	2	2	315.79	0.010786	NU3
3909.22	0.3840	0.0446	9	1	9	8	1	8	744.16	8.745235	NU3**
3909.26	0.1280	0.0447	9	0	9	8	0	8	744.09	8.745630	NU3**
3909.36	0.0286	0.0637	6	5	1	7	1	6	704.22	0.000197	NU3
3909.51	0.0445	0.0608	8	5	3	7	5	2	1059.85	4.904299	NU3**
3909.52	1.0211	0.0894	7	2	5	6	2	4	602.77	6.352023	NU3*
3909.86	0.0229	0.032	16	0	16	15	1	15	2358.44	15.00394	NU1
3910.03	0.1994	0.0381	12	3	10	12	1	11	1774.60	0.873307	NU3
3910.16	0.6387	0.0885	7	3	4	6	3	3	661.56	5.330000	NU3*
3910.22	0.1823	0.0795	4	4	1	4	1	4	224.83	0.001222	NU1
3910.58	1.6492	0.0728	9	5	5	9	3	6	1282.92	0.205541	NU3
3910.73	0.0135	0.0834	7	4	4	6	3	3	2282.59	7.34	NU1***
3910.86	0.0687	0.032	16	1	16	15	0	15	2358.44	15.00394	NU1
3911.21	0.0343	0.0598	6	5	2	5	4	1	610.35	4.266963	NU1**
3911.27	0.0530	0.0388	10	1	10	9	1	9	2512.43	9.744353	NU3***
3911.33	0.1589	0.0388	10	0	10	9	0	9	2512.36	9.744485	NU3***
3911.45	0.0114	0.0587	6	5	1	5	4	2	610.12	4.264570	NU1**
3911.98	0.3936	0.0670	8	1	7	7	1	6	704.22	7.336095	NU3**
3912.30	0.0670	0.032	15	1	14	14	2	13	2327.90	12.01879	NU1
3912.32	0.0183	0.032	15	2	14	14	1	13	2327.88	12.01920	NU1
3912.34	0.1607	0.0535	9	2	8	8	2	7	2495.18	8.292239	NU3***
3912.58	0.0425	0.0496	9	6	4	8	6	3	1411.65	5.032027	NU3*
3912.69	8.8978	0.0397	10	1	9	10	1	10	1114.56	0.478334	NU3
3912.69	0.0142	0.0500	9	6	3	8	6	2	1411.68	5.032058	NU3*
3912.98	2.9643	0.0393	10	2	9	10	0	10	1114.55	0.478039	NU3
3913.15	0.5759	0.0952	4	2	2	3	0	3	136.77	0.116055	NU3*
3913.40	0.3505	0.0806	7	5	2	7	2	5	782.40	0.038149	NU1
3913.56	0.0191	0.0607	9	5	5	8	5	4	2919.63	6.255627	NU3***
3913.80	0.0312	0.0340	10	9	2	9	9	1	2225.56	1.912938	NU3
3913.80	0.0937	0.0340	10	9	1	9	9	0	2225.56	1.912938	NU3
3914.00	42.9027	0.0852	8	4	5	7	3	4	842.38	6.30	NU1+
3914.12	0.2876	0.0774	7	4	3	6	3	4	648.97	8.01	NU1*
3915.12	0.0142	0.0852	8	4	5	7	3	4	2462.87	6.30	NU1***
3915.35	0.0152	0.0928	6	2	4	5	1	5	326.64	0.254241	NU1*
3915.50	0.5083	0.0787	8	4	4	7	4	3	931.22	5.440000	NU3*
3915.65	0.0544	0.0559	9	1	8	8	1	7	2490.37	8.308658	NU3***
3915.97	0.0353	0.0701	8	4	5	7	4	4	927.77	6.014663	NU3**
3916.06	0.9741	0.0535	9	2	8	8	2	7	885.62	8.292239	NU3*
3916.30	342.7574	0.0633	8	2	7	7	2	6	709.60	7.292008	NU3
3916.35	92.7388	0.0598	6	5	2	5	4	1	610.35	4.266963	NU1
3916.36	40.0471	0.0594	8	5	4	7	5	3	1059.65	4.903948	NU3
3916.44	0.0552	0.0736	8	3	6	7	3	5	816.72	5.410000	NU3**
3916.45	0.9627	0.0388	10	0	10	9	0	9	920.18	9.744485	NU3*
3916.59	30.9367	0.0587	6	5	1	5	4	2	610.12	4.264570	NU1
3916.81	2.0463	0.0408	9	7	2	8	7	1	1590.74	3.579254	NU3
3916.81	6.1389	0.0407	9	7	3	8	7	2	1590.74	3.579253	NU3
3917.19	120.1755	0.0608	8	5	3	7	5	2	1059.85	4.904299	NU3
3917.23	1037.6231	0.0446	9	1	9	8	1	8	744.16	8.745235	NU3
3917.28	346.0373	0.0447	9	0	9	8	0	8	744.09	8.745630	NU3
3917.73	0.1182	0.0885	7	3	4	6	3	3	661.56	5.330000	NU3**
3917.82	0.0408	0.037	14	3	12	13	2	11	2246.98	8.90961	NU1
3917.89	0.3299	0.0559	9	1	8	8	1	7	882.93	8.308658	NU3*
3918.78	0.0532	0.0774	7	4	3	6	3	4	648.97	8.01	NU1**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3919.06	0.0116	0.0626	7	4	3	8	0	8	744.09	0.000295	NU3
3919.81	0.0306	0.0598	6	5	2	5	4	1	2251.86	4.266963	NU1***
3920.06	1063.9061	0.0670	8	1	7	7	1	6	704.22	7.336095	NU3
3921.25	2.5260	0.0844	9	4	6	8	3	5	1050.15	3.141455	NU1
3921.26	0.1066	0.0952	4	2	2	3	0	3	136.77	0.116055	NU3**
3921.54	6.1053	0.0835	5	3	2	5	1	5	326.64	0.019115	NU3
3921.63	0.0475	0.0774	7	4	3	6	3	4	2271.70	8.01	NU1***
3922.53	0.0577	0.0359	13	2	11	13	2	12	2042.38	0.881500	NU3
3922.82	0.0429	0.0682	9	4	6	8	4	5	2764.71	7.216366	NU3***
3922.90	0.1159	0.0607	9	5	5	8	5	4	1255.16	6.255627	NU3*
3922.91	7.6227	0.0928	6	2	4	5	1	5	326.64	0.254241	NU1
3922.99	0.0836	0.0674	9	3	7	8	3	6	2630.21	7.854581	NU3***
3923.05	0.0940	0.0787	8	4	4	7	4	3	931.22	5.440000	NU3**
3923.08	0.1723	0.0352	13	3	11	13	1	12	2042.33	0.878880	NU3
3923.45	143.8194	0.0774	7	4	3	6	3	4	648.97	8.01	NU1+
3923.72	95.1719	0.0701	8	4	5	7	4	4	927.77	6.014663	NU3
3923.94	0.0805	0.0822	6	5	1	6	2	4	602.77	0.010677	NU1
3924.09	0.1802	0.0535	9	2	8	8	2	7	885.62	8.292239	NU3**
3924.31	149.1879	0.0736	8	3	6	7	3	5	816.72	5.410000	NU3-
3924.35	0.2263	0.0879	7	3	4	6	2	5	552.92	3.89	NU1*
3924.44	9.6121	0.0750	4	4	0	4	2	3	300.35	0.008789	NU3
3924.47	0.0593	0.0388	10	1	10	9	1	9	920.21	9.744353	NU3**
3924.50	0.1781	0.0388	10	0	10	9	0	9	920.18	9.744485	NU3**
3924.88	2.6192	0.0801	10	4	7	9	3	6	1282.92	3.465920	NU1
3925.22	510.5409	0.0894	7	2	5	6	2	4	602.77	6.352023	NU3
3925.31	319.3415	0.0885	7	3	4	6	3	3	661.56	5.330000	NU3-
3925.86	0.9200	0.0742	8	5	4	8	3	5	1050.15	0.107233	NU3
3925.99	0.2373	0.0373	10	8	3	9	8	2	2009.87	3.624262	NU3
3925.99	0.7121	0.0374	10	8	2	9	8	1	2009.87	3.624262	NU3
3925.99	0.0611	0.0559	9	1	8	8	1	7	882.93	8.308658	NU3**
3926.15	0.2360	0.0838	8	2	6	7	2	5	2392.58	7.251910	NU3***
3926.52	0.0373	0.0879	7	3	4	6	2	5	2161.30	3.89	NU1***
3926.65	1.4309	0.0838	8	2	6	7	2	5	782.40	7.251910	NU3*
3926.90	0.5068	0.0674	9	3	7	8	3	6	1006.12	7.854581	NU3*
3927.29	0.0228	0.0456	10	2	9	9	2	8	2690.64	9.287364	NU3***
3927.37	0.2851	0.0731	11	4	8	10	3	7	1538.23	4.032477	NU1
3927.63	0.0289	0.0660	7	5	3	6	4	2	757.78	4.143594	NU1*
3928.01	21.2671	0.0496	9	6	4	8	6	3	1411.65	5.032027	NU3
3928.10	7.0893	0.0500	9	6	3	8	6	2	1411.68	5.032058	NU3
3928.11	1.0370	0.0359	11	1	10	11	1	11	1327.14	0.483240	NU3
3928.25	3.1105	0.0358	11	2	10	11	0	11	1327.14	0.483142	NU3
3928.29	4.8510	0.0880	5	3	3	4	0	4	222.06	0.095779	NU1
3928.74	0.2600	0.0682	9	4	6	8	4	5	1122.72	7.216366	NU3*
3928.78	0.0869	0.0628	7	5	2	6	4	3	756.75	4.131192	NU1*
3929.09	0.0688	0.0467	10	1	9	9	1	8	2688.10	9.293415	NU3***
3929.31	4.9355	0.0762	5	4	1	5	2	4	416.22	0.024136	NU3
3929.37	287.9477	0.0952	4	2	2	3	0	3	136.77	0.116055	NU3
3930.14	0.2678	0.0649	12	4	9	11	3	8	1813.26	4.836759	NU1
3930.40	0.0226	0.0431	6	6	1	5	5	0	742.10	5.399718	NU1**
3930.60	254.1416	0.0787	8	4	4	7	4	3	931.22	5.440000	NU3-
3930.97	0.1379	0.0456	10	2	9	9	2	8	1080.38	9.287364	NU3*
3931.09	0.1073	0.0737	5	4	2	5	1	5	326.64	0.003573	NU1
3931.38	0.1602	0.0889	8	3	5	7	3	4	2462.87	6.630000	NU3***
3932.00	4.6990	0.0801	8	6	3	7	3	4	842.38	7.42	2NU2+

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3932.12	487.0765	0.0535	9	2	8	8	2	7	885.62	8.292239	NU3
3932.16	113.1350	0.0879	7	3	4	6	2	5	552.92	3.89	NU1+
3932.53	160.4471	0.0388	10	1	10	9	1	9	920.21	9.744353	NU3
3932.56	481.3514	0.0388	10	0	10	9	0	9	920.18	9.744485	NU3
3934.09	164.9429	0.0559	9	1	8	8	1	7	882.93	8.308658	NU3
3934.65	0.2647	0.0838	8	2	6	7	2	5	782.40	7.251910	NU3**
3934.69	0.9711	0.0889	8	3	5	7	3	4	842.38	6.630000	NU3*
3934.75	0.0184	0.0520	10	6	4	9	6	3	1631.41	6.440055	NU3*
3934.85	0.0938	0.0674	9	3	7	8	3	6	1006.12	7.854581	NU3**
3935.15	22.0035	0.0885	3	3	0	2	1	1	95.17	0.021579	NU3
3935.17	0.2344	0.0885	4	3	1	3	1	2	173.36	0.056400	NU3*
3935.30	0.0917	0.0815	5	5	0	5	2	3	446.50	0.001850	NU1
3935.77	61.0285	0.0431	6	6	1	5	5	0	742.10	5.399718	NU1
3935.77	0.0438	0.0340	14	2	12	14	2	13	2327.90	0.895030	NU3
3936.54	0.0480	0.0682	9	4	6	8	4	5	1122.72	7.216366	NU3**
3938.00	14.4444	0.0660	7	5	3	6	4	2	757.78	4.143594	NU1
3938.06	1.0117	0.0430	10	7	4	9	7	3	1810.63	5.133658	NU3
3938.06	3.0352	0.0431	10	7	3	9	7	2	1810.63	5.133660	NU3
3938.34	57.9477	0.0607	9	5	5	8	5	4	1255.16	6.255627	NU3
3938.44	12.4824	0.0755	6	4	2	6	2	5	552.92	0.040211	NU3
3939.05	43.4443	0.0628	7	5	2	6	4	3	756.75	4.131192	NU1
3940.05	0.0771	0.0467	10	1	9	9	1	8	1079.07	9.293415	NU3**
3940.07	0.0201	0.0431	6	6	1	5	5	0	2406.15	5.399718	NU1***
3940.27	0.0638	0.0815	9	4	5	8	4	4	1131.76	5.540000	NU3*
3940.29	3.8707	0.0740	7	5	3	7	3	4	842.38	0.052981	NU3
3940.54	0.1965	0.0760	9	2	7	8	2	6	982.91	8.113471	NU3*
3940.69	19.2321	0.0640	9	5	4	8	5	3	1255.92	6.258032	NU3
3941.27	0.0325	0.0760	9	2	7	8	2	6	2595.81	8.113471	NU3***
3941.64	0.0118	0.0608	8	4	4	9	0	9	920.18	0.000238	NU3
3941.64	0.0162	0.0873	3	3	1	2	1	2	79.48	0.013176	NU3**
3941.93	0.0143	0.0628	7	5	2	6	4	3	2398.39	4.131192	NU1***
3942.34	0.1797	0.0889	8	3	5	7	3	4	842.38	6.630000	NU3**
3942.65	715.4263	0.0838	8	2	6	7	2	5	782.40	7.251910	NU3
3942.81	253.3967	0.0674	9	3	7	8	3	6	1006.12	7.854581	NU3
3943.12	0.9857	0.0337	12	1	11	12	1	12	1557.91	0.487287	NU3
3943.17	0.3286	0.0337	12	2	11	12	0	12	1557.91	0.487254	NU3
3943.57	0.0783	0.0793	8	4	4	7	3	5	816.72	5.02	NU1*
3943.58	0.0668	0.0594	10	3	8	9	3	7	1216.27	8.878817	NU3*
3944.14	0.0434	0.0885	4	3	1	3	1	2	173.36	0.056400	NU3**
3944.34	129.9811	0.0682	9	4	6	8	4	5	1122.72	7.216366	NU3
3944.41	0.0157	0.0789	6	3	3	6	1	6	447.24	0.014823	NU3*
3944.47	0.0157	0.0604	10	5	6	9	5	5	1474.99	7.532122	NU3*
3945.19	0.0722	0.0818	8	3	5	8	0	8	744.09	0.019318	NU1
3946.50	0.0858	0.0392	11	8	3	10	8	2	2254.34	5.216541	NU3
3946.50	0.2576	0.0391	11	8	4	10	8	3	2254.34	5.216540	NU3
3946.64	0.0772	0.0658	11	6	6	11	4	7	1899.06	0.195288	NU3
3947.15	68.9486	0.0456	10	2	9	9	2	8	1080.38	9.287364	NU3
3947.25	0.2907	0.0681	6	4	3	6	1	6	447.24	0.005871	NU1
3947.47	201.6251	0.0354	11	1	11	10	1	10	1114.56	10.743553	NU3
3947.48	67.2088	0.0354	11	0	11	10	0	10	1114.55	10.743597	NU3
3947.76	0.0118	0.0815	9	4	5	8	4	4	1131.76	5.540000	NU3**
3947.97	0.0145	0.0793	8	4	4	7	3	5	816.72	5.02	NU1**
3948.18	208.4119	0.0467	10	1	9	9	1	8	1079.07	9.293415	NU3
3948.69	0.0364	0.0760	9	2	7	8	2	6	982.91	8.113471	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J''	K_a	K_c	E'' cm^{-1}	L	BAND
3948.89	0.0105	0.0662	11	6	5	11	3	8	1813.26	0.189337	NU1
3949.39	0.0379	0.0850	4	4	1	3	1	2	173.36	0.097	NU1*
3949.50	3.0760	0.0508	10	6	5	9	6	4	1631.27	6.439836	NU3
3950.00	485.5714	0.0889	8	3	5	7	3	4	842.38	6.630000	NU3-
3950.13	9.2298	0.0520	10	6	4	9	6	3	1631.41	6.440055	NU3
3950.59	43.7681	0.0873	3	3	1	2	1	2	79.48	0.013176	NU3
3951.39	0.0041	0.0669	8	5	3	8	3	6	1006.12	0.064192	NU3*
3951.43	0.0119	0.0643	8	5	3	7	4	4	927.77	3.953657	NU1*
3951.61	0.0123	0.0594	10	3	8	9	3	7	1216.27	8.878817	NU3**
3951.62	0.0014	0.0612	10	5	5	9	2	8	1080.38	0.021627	2NU2
3951.97	1.4100	0.0710	6	5	2	6	3	3	661.56	0.023375	NU3
3952.08	0.0051	0.0781	10	6	5	9	3	6	1282.92	0.071662	2NU2
3952.38	39.1454	0.0793	8	4	4	7	3	5	816.72	15.02	NU1+
3952.62	0.2199	0.0666	10	2	8	9	2	7	1201.95	9.000870	NU3*
3952.77	0.0106	0.0480	7	6	1	6	5	2	888.60	5.265222	NU1**
3953.11	117.2356	0.0885	4	3	1	3	1	2	173.36	0.056400	NU3-
3953.55	2.3121	0.0727	7	4	3	7	2	6	709.60	0.048724	NU3
3953.72	0.0363	0.0666	10	2	8	9	2	7	2818.40	9.000870	NU3***
3953.74	0.0232	0.0864	9	3	6	8	3	5	2670.79	8.066869	NU3***
3954.55	0.0015	0.0665	6	5	1	6	3	4	648.97	0.021403	NU3**
3955.17	0.0387	0.0885	4	3	1	3	1	2	1772.41	0.056400	NU3***
3955.25	31.8921	0.0815	9	4	5	8	4	4	1131.76	5.540000	NU3-
3955.54	0.0070	0.0850	4	4	1	3	1	2	173.36	0.097	NU1**
3955.91	0.0063	0.0648	10	4	7	9	4	6	1340.89	8.354292	NU3**
3956.14	0.0028	0.0588	11	5	7	10	5	6	3383.36	8.747542	NU3***
3956.52	0.0022	0.0643	8	5	3	7	4	4	927.77	3.953657	NU1**
3956.59	0.1401	0.0864	9	3	6	8	3	5	1050.15	8.066869	NU3*
3956.85	98.2710	0.0760	9	2	7	8	2	6	982.91	8.113471	NU3
3957.28	0.0086	0.0671	10	5	5	9	5	4	1477.31	7.545052	NU3**
3957.43	0.0962	0.0327	13	1	12	13	1	13	1806.78	0.486110	NU3
3957.45	0.2887	0.0327	13	2	12	13	0	13	1806.78	0.486060	NU3
3957.85	0.0225	0.0804	6	3	4	5	0	5	325.35	0.123125	NU1*
3958.04	0.1054	0.0928	5	2	3	4	0	4	222.06	0.096503	NU3*
3958.12	9.5916	0.0483	7	6	2	6	5	1	888.63	5.265494	NU1
3958.15	28.7734	0.0480	7	6	1	6	5	2	888.60	5.265222	NU1
3958.21	42.0275	0.0706	8	5	4	7	4	3	931.22	9.52	NU1+
3958.30	0.0471	0.0337	9	9	0	8	8	1	1789.10	8.403719	2NU2
3958.66	3.6727	0.0630	8	6	2	7	3	5	816.72	15.00	2NU2+
3958.90	0.0068	0.0725	10	6	4	10	3	7	1538.23	0.095771	NU1
3958.95	0.9790	0.0425	11	7	5	10	7	4	2054.40	6.588139	NU3
3959.05	0.3264	0.0446	11	7	4	10	7	3	2054.40	6.588161	NU3
3959.22	0.0054	0.0692	8	4	4	8	2	7	885.62	0.045112	NU3*
3959.27	0.1106	0.0725	13	5	8	12	5	7	2300.80	11.223190	NU3
3959.65	33.4287	0.0594	10	3	8	9	3	7	1216.27	8.878817	NU3
3959.91	2.8344	0.0666	5	5	1	5	3	2	508.81	0.007283	NU3
3959.93	7.8365	0.0604	10	5	6	9	5	5	1474.99	7.532122	NU3
3960.81	7.8490	0.0789	6	3	3	6	1	6	447.24	0.014823	NU3
3960.88	0.0407	0.0666	10	2	8	9	2	7	1201.95	9.000870	NU3**
3961.62	5.9272	0.0643	8	5	3	7	4	4	927.77	3.953657	NU1
3961.69	18.9596	0.0850	4	4	1	3	1	2	173.36	0.097	NU1+
3961.73	78.9862	0.0397	11	2	10	10	2	9	1293.66	10.281117	NU3
3962.05	25.4178	0.0335	12	1	12	11	1	11	1327.14	11.742858	NU3
3962.05	76.2535	0.0335	12	0	12	11	0	11	1327.14	11.742873	NU3
3962.21	26.5075	0.0402	11	1	10	10	1	9	1293.04	10.283342	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3962.70	0.0042	0.0804	6	3	4	5	0	5	325.35	0.123125	NU1**
3963.35	0.0467	0.0775	10	5	6	9	4	5	1360.28	2.80	NU1*
3963.49	0.0032	0.0483	7	6	2	6	5	1	2552.87	5.265494	NU1***
3963.51	0.0095	0.0480	7	6	1	6	5	2	2552.85	5.265222	NU1***
3963.69	0.0321	0.0378	7	7	0	6	6	1	1045.07	6.401516	NU1*
3963.78	16.9862	0.0648	10	4	7	9	4	6	1340.89	8.354292	NU3
3964.08	0.0020	0.0643	8	5	3	7	4	4	2569.52	3.953657	NU1***
3964.26	0.0588	0.0667	10	6	5	10	4	6	1616.51	0.114652	NU3
3964.37	0.0259	0.0864	9	3	6	8	3	5	1050.15	8.066869	NU3**
3964.61	4.1382	0.0665	6	5	1	6	3	4	648.97	0.021403	NU3
3964.72	0.9442	0.0648	5	5	0	5	3	3	504.00	0.007097	NU3
3964.81	23.2044	0.0671	10	5	5	9	5	4	1477.31	7.545052	NU3
3965.09	0.0427	0.0886	4	3	2	3	1	3	142.28	0.026225	NU3*
3965.58	0.0222	0.0698	5	5	1	5	2	4	416.22	0.001149	NU1
3965.66	0.0189	0.0750	9	5	5	8	4	4	1131.76	7.37	NU1*
3965.86	0.0174	0.0928	5	2	3	4	0	4	1817.50	0.096503	NU3***
3965.97	0.0195	0.0928	5	2	3	4	0	4	222.06	0.096503	NU3**
3966.19	1.1648	0.0675	7	5	2	7	3	5	816.72	0.041795	NU3
3967.55	11.2730	0.0804	6	3	4	5	0	5	325.35	0.123125	NU1
3968.88	0.0240	0.0528	8	6	3	7	5	2	1059.85	5.144364	NU1*
3969.14	109.9538	0.0666	10	2	8	9	2	7	1201.95	9.000870	NU3
3970.00	0.0365	0.0859	5	4	2	4	1	3	275.52	0.465	NU1*
3970.70	3.0892	0.0515	11	6	6	10	6	5	1875.00	7.773013	NU3
3970.92	2.0857	0.0669	8	5	3	8	3	6	1006.12	0.064192	NU3
3971.09	0.0035	0.0750	9	5	5	8	4	4	1131.76	7.37	NU1**
3971.36	0.0182	0.0858	7	2	5	6	1	6	447.24	0.182385	NU1*
3971.49	0.0242	0.0320	14	2	13	14	0	14	2073.66	0.488990	NU3
3971.49	0.0729	0.0320	14	1	13	14	1	14	2073.66	0.489010	NU3
3972.15	70.0220	0.0864	9	3	6	8	3	5	1050.15	8.066869	NU3
3972.22	1.0302	0.0536	11	6	5	10	6	4	1875.53	7.774282	NU3
3972.66	37.8942	0.0898	5	3	2	4	1	3	275.52	0.089700	NU3
3973.44	0.0304	0.0779	9	6	3	9	3	6	1282.92	0.039684	NU1
3973.78	0.1300	0.0649	6	5	2	6	2	5	552.92	0.004423	NU1
3973.90	52.6906	0.0928	5	2	3	4	0	4	222.06	0.096503	NU3
3974.70	23.3262	0.0775	10	5	6	9	4	5	1360.28	42.8	NU1+
3974.76	0.1479	0.0817	10	3	7	9	3	6	1282.92	9.029655	NU3*
3974.89	5.3573	0.0378	7	7	1	6	6	0	1045.07	6.401518	NU1
3974.89	16.0718	0.0378	7	7	0	6	6	1	1045.07	6.401516	NU1
3975.11	35.3837	0.0515	11	3	9	10	3	8	1446.16	9.881611	NU3
3975.73	0.0126	0.0898	5	3	2	4	1	3	1875.49	0.089700	NU3***
3975.95	9.1607	0.0360	12	2	11	11	2	10	1525.13	11.275004	NU3
3976.08	0.0239	0.0654	9	5	4	8	4	5	1122.72	6.99	NU1*
3976.16	27.4855	0.0361	12	1	11	11	1	10	1524.87	11.275820	NU3
3976.20	2.6796	0.0692	8	4	4	8	2	7	885.62	0.045112	NU3
3976.33	8.4533	0.0325	13	0	13	12	0	12	1557.91	12.744460	NU3
3976.33	25.3539	0.0325	13	1	13	12	1	12	1557.91	12.744430	NU3
3976.53	9.4335	0.0750	9	5	5	8	4	4	1131.76	17.37	NU1+
3976.97	0.0037	0.0804	6	3	4	5	0	5	1920.76	0.123125	NU1***
3977.47	0.0590	0.0630	7	4	4	7	1	7	586.48	0.007119	NU1
3978.56	0.0031	0.0750	9	5	5	8	4	4	2771.71	17.37	NU1***
3978.84	9.1041	0.0858	7	2	5	6	1	6	447.24	0.182385	NU1
3979.38	0.3697	0.0665	9	6	4	9	4	5	1360.28	0.066893	NU3
3979.66	0.1322	0.0429	12	7	6	11	7	5	2321.89	7.967474	NU3
3979.67	12.0178	0.0528	8	6	3	7	5	2	1059.85	5.144364	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3979.68	3.0846	0.0852	8	3	5	7	2	6	709.60	0.688192	NU1
3979.74	8.2754	0.0588	11	5	7	10	5	6	1718.77	8.747542	NU3
3979.91	0.3967	0.0453	12	7	5	11	7	4	2321.94	7.967606	NU3
3979.92	4.0049	0.0502	8	6	2	7	5	3	1059.65	5.142711	NU1
3980.34	0.3065	0.0645	9	5	4	9	3	7	1216.27	0.080993	NU3
3980.43	0.0112	0.0838	4	4	0	3	1	3	142.28	0.0731	NU1*
3980.82	12.3671	0.0563	11	2	9	10	2	8	1438.00	9.932549	NU3
3981.06	0.0044	0.0654	9	5	4	8	4	5	1122.72	6.99	NU1**
3981.36	0.0018	0.0378	7	7	1	6	6	0	2734.00	6.401518	NU1***
3981.36	0.0053	0.0378	7	7	0	6	6	1	2734.00	6.401516	NU1***
3982.14	17.3995	0.0603	11	4	8	10	4	7	1581.34	9.438945	NU3
3982.21	18.2742	0.0859	5	4	2	4	1	3	275.52	0.465	NU1+
3982.73	0.0273	0.0817	10	3	7	9	3	6	1282.92	9.029655	NU3**
3982.89	21.3901	0.0886	4	3	2	3	1	3	142.28	0.026225	NU3
3983.09	0.0682	0.0846	6	4	3	5	1	4	399.46	0.536	NU1*
3983.35	0.0018	0.0798	9	4	5	8	3	6	2630.21	1.797448	NU1***
3983.47	0.0709	0.0679	13	6	8	12	5	7	2300.80	4.44317	NU1
3984.11	0.0063	0.0850	4	4	1	3	1	2	1772.41	0.097	NU1***
3984.46	0.0055	0.0590	9	6	3	8	3	6	1006.12	0.019449	2NU2
3984.58	0.0195	0.0451	13	3	10	13	3	11	2248.16	1.178730	NU3
3984.64	0.0260	0.0785	6	6	1	5	1	4	399.46	2.857	2NU2*
3984.70	0.0016	0.0739	7	3	4	7	1	7	586.48	0.009220	NU3*
3985.02	1.2442	0.0778	11	5	7	10	4	7	1616.51	25.73	NU1+
3985.16	0.0040	0.0528	8	6	3	7	5	2	2724.19	5.144364	NU1***
3985.33	0.0013	0.0502	8	6	2	7	5	3	2724.05	5.142711	NU1***
3985.37	0.0082	0.0320	15	1	14	15	1	15	2358.44	0.491510	NU3
3985.37	0.0244	0.0320	15	2	14	15	0	15	2358.44	0.491500	NU3
3985.62	0.0045	0.0410	8	7	1	7	6	2	1216.20	6.263414	NU1*
3985.62	0.0135	0.0410	8	7	2	7	6	1	1216.20	6.263444	NU1*
3986.05	11.9396	0.0654	9	5	4	8	4	5	1122.72	6.99	NU1+
3986.18	0.0436	0.0600	7	5	3	7	2	6	709.60	0.009705	NU1
3986.20	0.0020	0.0798	9	4	5	8	3	6	1006.12	1.797448	NU1**
3986.47	0.0021	0.0838	4	4	0	3	1	3	142.28	0.0731	NU1**
3986.78	0.0070	0.0886	4	3	2	3	1	3	1739.51	0.026225	NU3***
3986.84	0.0039	0.0654	9	5	4	8	4	5	2764.71	6.99	NU1***
3988.67	0.1418	0.0754	12	5	8	11	4	7	1899.06	3.784189	NU1
3989.06	0.0126	0.0846	6	4	3	5	1	4	399.46	0.536	NU1**
3989.42	0.0116	0.0803	8	6	2	8	3	5	1050.15	0.014126	NU1
3989.49	24.5023	0.0346	13	2	12	12	2	11	1774.74	12.275740	NU3
3989.60	3.7992	0.0447	12	3	10	11	3	9	1695.03	10.873594	NU3
3989.61	8.1702	0.0338	13	1	12	12	1	11	1774.60	12.276740	NU3
3989.85	2.6353	0.0700	11	5	6	10	5	5	1724.72	8.798801	NU3
3990.23	5.5069	0.0798	9	4	5	8	3	6	1006.12	1.797448	NU1
3990.30	2.7420	0.0320	14	1	14	13	1	13	1806.78	13.743930	NU3
3990.30	8.2322	0.0320	14	0	14	13	0	13	1806.78	13.743940	NU3
3990.43	0.0088	0.0536	9	6	3	8	5	4	1255.16	5.006530	NU1*
3990.61	0.2154	0.0646	8	6	3	8	4	4	1131.76	0.037084	NU3
3990.70	73.9364	0.0817	10	3	7	9	3	6	1282.92	9.029655	NU3
3991.12	0.3012	0.0516	12	6	7	11	6	6	2142.69	9.048040	NU3
3991.23	0.0025	0.0410	8	7	2	7	6	1	1216.20	6.263444	NU1**
3991.41	0.2760	0.0889	6	3	3	5	1	4	399.46	0.202769	NU3*
3992.30	0.0077	0.0775	10	5	6	9	4	5	2998.78	42.80	NU1***
3992.52	5.6070	0.0838	4	4	0	3	1	3	142.28	0.0731	NU1+
3992.57	11.4273	0.0475	12	2	10	11	2	9	1690.70	10.893773	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
3993.32	0.0575	0.0757	4	4	0	3	2	1	212.15	0.016542	NU3*
3994.93	0.9051	0.0552	12	6	6	11	6	5	2144.12	9.054429	NU3
3995.03	34.1141	0.0846	6	4	3	5	1	4	399.46	0.536	NU1+
3995.03	23.8564	0.0824	10	4	6	9	4	5	1360.28	4.300000	NU3-
3995.96	0.3032	0.0620	10	5	5	10	3	8	1446.16	0.084234	NU3
3996.14	0.0048	0.0785	6	6	1	5	1	4	399.46	2.857	2NU2**
3996.35	0.0138	0.0700	13	5	9	12	4	8	2205.65	4.43448	NU1
3996.84	2.2435	0.0410	8	7	1	7	6	2	1216.20	6.263414	NU1
3996.84	6.7304	0.0410	8	7	2	7	6	1	1216.20	6.263444	NU1
3996.92	0.8258	0.0564	12	5	8	11	5	7	1985.83	9.908577	NU3
3997.83	0.8406	0.0610	7	6	2	7	4	3	931.22	0.017690	NU3
3998.02	0.0538	0.0770	9	3	6	9	0	9	920.18	0.011425	NU1
3998.81	1.7479	0.0548	12	4	9	11	4	8	1843.02	10.481399	NU3
3998.89	0.1225	0.0590	9	6	3	9	4	6	1340.89	0.059724	NU3
3999.31	0.0185	0.0757	4	4	1	3	2	2	206.30	0.015552	NU3*
3999.72	0.0112	0.0726	11	4	7	11	1	10	1524.87	0.048549	NU1
3999.82	0.6517	0.0592	8	6	2	8	4	5	1122.72	0.035676	NU3
4000.00	0.0510	0.0889	6	3	3	5	1	4	399.46	0.202769	NU3**
4000.20	0.1610	0.0578	10	6	4	10	4	7	1581.34	0.086992	NU3
4000.32	1.4678	0.0558	9	6	4	8	5	3	1255.92	5.013867	NU1
4000.39	0.8194	0.0739	7	3	4	7	1	7	586.48	0.009220	NU3
4000.48	0.0018	0.0751	5	4	2	5	0	5	325.35	0.000921	NU3*
4000.75	0.0021	0.0587	12	7	6	12	5	7	2300.80	0.124645	NU3
4001.20	4.4214	0.0536	9	6	3	8	5	4	1255.16	5.006530	NU1
4001.28	0.2822	0.0578	7	6	1	7	4	4	927.77	0.017491	NU3
4001.40	0.0455	0.0889	6	3	3	5	1	4	2000.90	0.202769	NU3***
4001.62	0.0013	0.0661	10	5	5	9	4	6	1340.89	3.272354	NU1*
4001.69	0.0044	0.0709	7	3	5	6	0	6	446.71	0.130226	NU1*
4001.82	0.0060	0.0859	5	4	2	4	1	3	1875.49	0.465	NU1***
4001.84	0.0824	0.0866	5	3	3	4	1	4	224.83	0.025200	NU3*
4002.06	0.2160	0.0568	6	6	1	6	4	2	757.78	0.005721	NU3
4002.47	0.0022	0.0351	8	8	0	7	7	1	1394.86	7.402783	NU1*
4002.47	0.0066	0.0351	8	8	1	7	7	0	1394.86	7.402783	NU1*
4002.70	0.1506	0.0770	4	4	1	4	0	4	222.06	0.000274	NU3
4002.71	0.0022	0.0658	12	3	9	11	3	8	3441.09	10.744435	NU3***
4002.77	0.8874	0.0330	14	2	13	13	2	12	2042.38	13.271150	NU3
4002.82	2.6561	0.0330	14	1	13	13	1	12	2042.33	13.271580	NU3
4002.86	0.7343	0.0320	15	0	15	14	0	14	2073.66	14.743490	NU3
4002.86	2.2163	0.0320	15	1	15	14	1	14	2073.66	14.743490	NU3
4002.86	2.8563	0.0394	13	3	11	12	3	10	1962.55	11.407070	NU3
4002.98	0.0106	0.0757	4	4	0	3	2	1	212.15	0.016542	NU3**
4003.09	0.6496	0.0552	6	6	0	6	4	3	756.75	0.005704	NU3
4003.81	0.0868	0.0553	8	5	4	8	2	7	885.62	0.015469	NU1
4004.37	0.0294	0.0792	7	6	1	7	3	4	842.38	0.004214	NU1
4004.69	1.1902	0.0411	13	2	11	12	2	10	1960.22	11.888730	NU3
4004.73	0.0187	0.0561	11	6	5	11	4	8	1843.02	0.111521	NU3
4005.43	7.6069	0.0752	11	3	8	10	3	7	1538.23	9.899853	NU3
4006.63	0.2524	0.0658	9	4	5	9	2	8	1080.38	0.033499	NU3
4006.97	0.0017	0.0444	9	7	3	8	6	2	1411.68	6.142105	NU1*
4007.00	0.0050	0.0443	9	7	2	8	6	3	1411.65	6.141896	NU1*
4007.37	0.0015	0.0536	9	6	3	8	5	4	2919.63	5.006530	NU1***
4007.64	12.9864	0.0785	6	6	1	5	1	4	399.46	2.857	2NU2+
4008.59	137.9963	0.0889	6	3	3	5	1	4	399.46	0.202769	NU3
4009.56	0.0031	0.0788	7	4	4	6	1	5	542.91	0.147419	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4009.81	0.1384	0.0875	6	2	4	5	0	5	325.35	0.069891	NU3*
4010.29	0.0295	0.0795	5	4	1	4	2	2	315.79	0.042579	NU3*
4010.66	0.0152	0.0866	5	3	3	4	1	4	224.83	0.025200	NU3**
4010.78	0.5121	0.0503	13	6	8	12	6	7	2433.85	10.260880	NU3
4011.05	0.6318	0.0661	10	5	5	9	4	6	1340.89	3.272354	NU1
4011.17	2.1902	0.0709	7	3	5	6	0	6	446.71	0.130226	NU1
4012.22	0.0819	0.0588	8	4	5	8	1	8	744.16	0.007182	NU1
4012.64	28.7486	0.0757	4	4	0	3	2	1	212.15	0.016542	NU3
4014.00	1.0931	0.0351	8	8	0	7	7	1	1394.86	7.402783	NU1
4014.00	3.2793	0.0351	8	8	1	7	7	0	1394.86	7.402783	NU1
4014.00	1.1512	0.0488	13	4	10	12	4	9	2124.98	11.473010	NU3
4014.07	0.0126	0.0539	12	6	6	12	4	9	2124.98	0.124675	NU3
4014.33	0.0205	0.0562	11	7	5	11	5	6	1999.02	0.081625	NU3
4014.39	2.5230	0.0721	12	5	7	11	5	6	1999.02	10.047055	NU3
4015.29	5.0402	0.0810	11	4	7	10	4	6	1616.51	9.709460	NU3
4015.73	0.2142	0.0360	14	3	12	13	3	11	2248.16	12.856270	NU3
4015.91	0.7129	0.0330	15	2	14	14	2	13	2327.90	14.267060	NU3
4015.93	0.2377	0.0320	15	1	14	14	1	13	2327.88	14.267240	NU3
4016.31	0.0048	0.0755	6	6	0	6	3	3	661.56	0.000843	NU1
4016.66	0.2622	0.0320	16	1	16	15	1	15	2358.44	15.743100	NU3
4016.66	0.7867	0.0320	16	0	16	15	0	15	2358.44	15.743100	NU3
4016.69	0.6430	0.0370	14	2	12	13	2	11	2246.98	12.866510	NU3
4016.90	0.5487	0.0531	13	5	9	12	5	8	2275.44	10.979590	NU3
4016.93	6.4797	0.0658	12	3	9	11	3	8	1813.26	10.744435	NU3
4017.60	0.0256	0.0875	6	2	4	5	0	5	325.35	0.069891	NU3**
4018.02	0.0011	0.0351	8	8	1	7	7	0	3109.98	7.402783	NU1***
4018.04	0.1735	0.0573	13	6	7	12	6	6	2437.56	10.408370	NU3
4018.22	0.8306	0.0444	9	7	3	8	6	2	1411.68	6.142105	NU1
4018.25	2.4918	0.0443	9	7	2	8	6	3	1411.65	6.141896	NU1
4018.46	9.2903	0.0757	4	4	1	3	2	2	206.30	0.015552	NU3
4018.59	0.0228	0.0875	6	2	4	5	0	5	1920.76	0.069891	NU3***
4018.83	0.0010	0.0543	10	6	4	9	3	7	1216.27	0.029596	2NU2
4019.49	41.1748	0.0866	5	3	3	4	1	4	224.83	0.025200	NU3-
4019.54	0.0255	0.0595	11	5	6	11	3	9	1695.03	0.072485	NU3
4019.68	1.4213	0.0586	10	6	5	9	5	4	1477.31	4.857731	NU1
4020.01	0.0054	0.0795	5	4	1	4	2	2	315.79	0.042579	NU3**
4020.03	0.9109	0.0751	5	4	2	5	0	5	325.35	0.000921	NU3
4021.04	1.5364	0.0788	7	4	4	6	1	5	542.91	0.147419	NU1
4021.48	0.0014	0.0594	5	5	1	6	1	6	447.24	0.000003	NU3
4021.56	0.0113	0.0846	6	4	3	5	1	4	2000.90	0.536	NU1***
4022.14	0.4791	0.0540	10	6	4	9	5	5	1474.99	4.830967	NU1
4022.65	0.0094	0.0757	4	4	0	3	2	1	1819.34	0.016542	NU3***
4022.94	0.0024	0.0371	9	8	1	8	7	2	1590.74	7.261215	NU1*
4023.97	0.0156	0.0563	10	7	4	10	5	5	1724.72	0.051622	NU3
4024.90	0.0136	0.0866	5	3	3	4	1	4	1821.61	0.025200	NU3***
4025.39	69.1862	0.0875	6	2	4	5	0	5	325.35	0.069891	NU3
4025.39	0.0940	0.0824	6	4	2	5	2	3	446.50	0.086601	NU3*
4025.96	0.0788	0.0779	5	4	2	4	2	3	300.35	0.034972	NU3*
4026.41	0.0054	0.0502	12	7	5	12	5	8	2275.44	0.108157	NU3
4026.84	0.7200	0.0566	13	3	10	12	3	9	2105.90	11.684530	NU3
4027.53	0.0479	0.0869	7	3	4	6	1	5	542.91	0.214427	NU3*
4027.62	0.0065	0.0515	11	7	4	11	5	7	1985.83	0.077402	NU3
4027.91	0.0140	0.0522	9	5	5	9	2	8	1080.38	0.019752	NU1
4027.95	0.0017	0.0465	10	7	4	9	6	3	1631.41	6.019433	NU1*

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4028.08	0.2084	0.0430	14	4	11	13	4	10	2426.22	12.476350	NU3
4028.16	0.0031	0.0757	4	4	1	3	2	2	1813.81	0.015552	NU3***
4028.81	0.0024	0.0764	8	2	6	7	1	7	586.48	0.143980	NU1*
4028.90	0.0142	0.0645	6	6	1	6	3	4	648.97	0.000772	NU1
4029.14	0.0010	0.0797	9	3	6	8	2	7	885.62	0.493418	NU1**
4029.38	0.0015	0.0523	13	6	7	13	4	10	2426.22	0.089990	NU3
4029.74	14.7533	0.0795	5	4	1	4	2	2	315.79	0.042579	NU3
4029.92	0.0486	0.0519	10	7	3	10	5	6	1718.77	0.050729	NU3
4030.03	0.0089	0.0619	7	6	2	7	3	5	816.72	0.003337	NU1
4030.24	0.0933	0.0538	9	7	3	9	5	4	1477.31	0.029861	NU3
4031.39	14.8720	0.0812	5	4	1	4	1	4	224.83	0.0967	NU1+
4032.56	0.0314	0.0516	9	7	2	9	5	5	1474.99	0.029706	NU3
4032.58	2.7892	0.0797	9	3	6	8	2	7	885.62	0.493418	NU1
4033.17	0.0013	0.0681	8	3	5	8	1	8	744.16	0.005295	NU3*
4033.40	0.0267	0.0583	8	6	3	8	3	6	1006.12	0.008606	NU1
4033.55	0.0079	0.0869	7	3	4	6	1	5	2146.28	0.214427	NU3***
4033.68	0.4733	0.0786	10	4	6	9	3	7	1216.27	1.314980	NU1
4034.08	0.0456	0.0509	8	7	2	8	5	3	1255.92	0.014513	NU3
4034.50	1.2038	0.0371	9	8	1	8	7	2	1590.74	7.261215	NU1
4034.50	4.3475	0.0772	12	4	8	11	4	7	1899.06	10.766337	NU3
4034.84	0.1375	0.0498	8	7	1	8	5	4	1255.16	0.014493	NU3
4035.10	0.4013	0.0371	9	8	2	8	7	1	1590.74	7.261219	NU1
4035.12	0.0174	0.0824	6	4	2	5	2	3	446.50	0.086601	NU3**
4035.44	0.0015	0.0759	11	7	4	11	4	7	1899.06	0.039893	NU1
4035.49	0.0146	0.0779	5	4	2	4	2	3	300.35	0.034972	NU3**
4035.74	0.0089	0.0869	7	3	4	6	1	5	542.91	0.214427	NU3**
4036.31	0.1196	0.0479	7	7	1	7	5	2	1059.85	0.004736	NU3
4036.43	1.2115	0.0764	8	2	6	7	1	7	586.48	0.143980	NU1
4036.51	0.0399	0.0476	7	7	0	7	5	3	1059.65	0.004734	NU3
4036.68	0.1327	0.0618	11	6	6	10	5	5	1724.72	4.667626	NU1
4036.96	0.0010	0.0337	9	9	0	8	8	1	1789.10	8.403719	NU1*
4038.51	0.0020	0.0533	7	5	3	8	1	8	744.16	0.000016	NU3
4039.26	0.8278	0.0465	10	7	4	9	6	3	1631.41	6.019433	NU1
4039.40	0.2759	0.0460	10	7	3	9	6	4	1631.27	6.018378	NU1
4039.97	0.0060	0.0540	9	6	4	9	3	7	1216.27	0.016664	NU1
4040.05	0.4780	0.0676	11	5	6	10	4	7	1581.34	2.723522	NU1
4040.19	0.0048	0.0795	5	4	1	4	2	2	1922.92	0.042579	NU3***
4041.13	0.0263	0.0840	7	4	3	6	2	4	602.77	0.157817	NU3*
4041.27	0.0132	0.0692	8	4	5	7	1	6	704.22	0.47	NU1*
4041.32	0.0158	0.0496	10	5	6	10	2	9	1293.66	0.021485	NU1
4043.10	0.0199	0.0804	6	3	4	5	1	5	326.64	0.030200	NU3*
4043.38	0.4133	0.0523	11	6	5	10	5	6	1718.77	4.582064	NU1
4043.38	0.2882	0.0703	6	4	3	6	0	6	446.71	0.001595	NU3
4043.96	23.9504	0.0869	7	3	4	6	1	5	542.91	0.214427	NU3
4044.86	47.0066	0.0824	6	4	2	5	2	3	446.50	0.086601	NU3
4045.03	39.4195	0.0779	5	4	2	4	2	3	300.35	0.034972	NU3
4046.71	0.0024	0.0692	8	4	5	7	1	6	704.22	0.47	NU1**
4048.22	0.6493	0.0681	8	3	5	8	1	8	744.16	0.005295	NU3
4048.43	0.0064	0.0614	8	3	6	7	0	7	586.26	0.125531	NU1*
4048.81	0.1731	0.0337	9	9	1	8	8	0	1789.10	8.403719	NU1
4048.81	0.5193	0.0337	9	9	0	8	8	1	1789.10	8.403719	NU1
4050.34	0.1060	0.0655	12	6	7	11	5	6	1999.02	4.458582	NU1
4050.35	0.3876	0.0719	13	4	9	12	4	8	2205.65	11.537610	NU3
4050.75	0.0048	0.0840	7	4	3	6	2	4	602.77	0.157817	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4050.85	0.0090	0.0496	10	6	5	10	3	8	1446.16	0.026178	NU1
4050.86	0.0135	0.0572	12	5	7	12	3	10	1962.55	0.053237	NU3
4051.19	0.0103	0.0544	9	4	6	9	1	9	920.21	0.006488	NU1
4051.64	0.0012	0.0482	12	8	5	12	6	6	2437.56	0.066727	NU3
4051.71	0.0014	0.0798	5	5	1	4	2	2	315.79	0.0215	NU1*
4051.84	0.0037	0.0804	6	3	4	5	1	5	326.64	0.030200	NU3**
4052.16	6.6138	0.0692	8	4	5	7	1	6	704.22	0.47	NU1+
4053.09	0.0012	0.0614	8	3	6	7	0	7	586.26	0.125531	NU1**
4054.41	0.0044	0.0707	10	3	7	10	0	10	1114.55	0.007326	NU1
4054.97	0.1359	0.0396	10	8	2	9	7	3	1810.63	7.138077	NU1
4054.97	0.4078	0.0396	10	8	3	9	7	2	1810.63	7.138103	NU1
4054.98	0.0236	0.0774	6	4	3	5	2	4	416.22	0.055572	NU3*
4055.03	0.0130	0.0779	5	4	2	4	2	3	1907.99	0.034972	NU3***
4055.35	0.0033	0.0459	12	8	4	12	6	7	2433.85	0.066188	NU3
4055.36	0.0156	0.0824	6	4	2	5	2	3	2053.98	0.086601	NU3***
4055.75	0.0049	0.0812	5	4	1	4	1	4	1821.61	0.0967	NU1***
4056.45	0.0040	0.0719	5	5	0	5	0	5	325.35	0.000043	NU1
4056.72	0.0044	0.0471	11	8	4	11	6	5	2144.12	0.043132	NU3
4057.76	3.1892	0.0614	8	3	6	7	0	7	586.26	0.125531	NU1
4058.15	0.0015	0.0459	11	8	3	11	6	6	2142.69	0.043025	NU3
4058.95	0.0747	0.0475	11	7	5	10	6	4	1875.53	5.881509	NU1
4059.50	0.2241	0.0468	11	7	4	10	6	5	1875.00	5.877228	NU1
4060.38	13.1213	0.0840	7	4	3	6	2	4	602.77	0.157817	NU3
4060.58	9.9877	0.0804	6	3	4	5	1	5	326.64	0.030200	NU3-
4060.77	0.0505	0.0841	8	4	4	7	2	5	782.40	0.247061	NU3*
4060.86	0.0103	0.0448	10	8	2	10	6	5	1875.00	0.025193	NU3
4061.65	0.1702	0.0622	10	4	6	10	2	9	1293.66	0.021601	NU3
4062.75	0.0182	0.0437	9	8	2	9	6	3	1631.41	0.012333	NU3
4062.89	0.0061	0.0434	9	8	1	9	6	4	1631.27	0.012330	NU3
4063.73	0.0049	0.0774	6	4	2	5	1	5	326.64	0.0787	NU1*
4064.07	0.0059	0.0417	8	8	1	8	6	2	1411.68	0.004043	NU3
4064.10	0.0176	0.0416	8	8	0	8	6	3	1411.65	0.004043	NU3
4064.42	0.0044	0.0774	6	4	3	5	2	4	416.22	0.055572	NU3**
4064.46	0.0078	0.0645	5	5	0	4	3	1	383.85	0.015576	NU3*
4065.42	0.0335	0.0530	12	6	6	11	5	7	1985.83	4.215931	NU1
4065.84	0.0188	0.0794	7	2	5	6	0	6	446.71	0.051494	NU3*
4065.86	0.0234	0.0640	5	5	1	4	3	2	382.52	0.015487	NU3*
4066.01	0.7051	0.0798	5	5	1	4	2	2	315.79	0.0215	NU1+
4066.37	0.0012	0.0462	11	6	6	11	3	9	1695.03	0.034735	NU1
4067.35	0.0033	0.0804	6	3	4	5	1	5	1922.86	0.030200	NU3***
4067.75	0.0014	0.0795	4	4	0	3	0	3	136.77	0.000270	NU3*
4068.25	0.0022	0.0692	8	4	5	7	1	6	2309.74	0.47	NU1***
4069.26	0.0865	0.0694	5	5	1	5	1	4	399.46	0.000125	NU3
4069.62	0.0036	0.0739	9	7	2	9	4	5	1360.28	0.006880	NU1
4069.84	0.0011	0.0614	8	3	6	7	0	7	2180.65	0.125531	NU1***
4069.96	0.0044	0.0840	7	4	3	6	2	4	2211.21	0.157817	NU3***
4070.09	0.0093	0.0841	8	4	4	7	2	5	782.40	0.247061	NU3**
4070.16	0.2192	0.0627	8	6	3	7	1	6	704.22	0.17	2NU2+
4070.61	0.0526	0.0350	10	9	1	9	8	2	2009.87	8.259078	NU1
4070.61	0.1579	0.0350	10	9	2	9	8	1	2009.87	8.259079	NU1
4070.62	0.0852	0.0694	6	5	2	6	1	5	542.91	0.000758	NU3
4070.98	0.0339	0.0690	12	5	7	11	4	8	1843.02	2.124861	NU1
4072.50	0.0465	0.0804	8	3	5	7	1	6	704.22	0.154000	NU3*
4072.70	0.5343	0.0646	7	4	4	7	0	7	586.26	0.001966	NU3

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4073.87	11.7820	0.0774	6	4	3	5	2	4	416.22	0.055572	NU3
4074.66	0.0015	0.0645	5	5	0	4	3	1	383.85	0.015576	NU3**
4075.29	2.4512	0.0774	6	4	2	5	1	5	326.64	0.0787	NU1+
4075.58	0.0336	0.0413	11	8	4	10	7	3	2054.40	7.018690	NU1
4075.58	0.1007	0.0412	11	8	3	10	7	4	2054.40	7.018546	NU1
4076.03	0.0044	0.0640	5	5	1	4	3	2	382.52	0.015487	NU3**
4076.40	0.0016	0.0470	11	5	7	11	2	10	1525.13	0.020871	NU1
4076.85	0.0031	0.0794	7	2	5	6	0	6	2041.76	0.051494	NU3***
4077.28	0.0015	0.0659	8	7	2	7	4	3	931.22	0.003551	2NU2
4077.34	0.0547	0.0481	12	7	6	11	6	5	2144.12	5.716270	NU1
4078.14	0.0010	0.0607	9	4	6	8	1	7	882.93	0.269351	NU1*
4078.43	0.3292	0.0754	11	4	7	10	3	8	1446.16	0.954846	NU1
4078.45	0.3262	0.0656	7	5	3	7	1	6	704.22	0.002162	NU3
4079.11	0.0182	0.0470	12	7	5	11	6	6	2142.69	5.701369	NU1
4079.42	25.2190	0.0841	8	4	4	7	2	5	782.40	0.247061	NU3
4080.00	0.0028	0.0626	6	5	1	6	0	6	446.71	0.000164	NU1
4080.20	0.4661	0.0822	6	5	2	5	2	3	446.50	0.009072	NU1
4080.33	0.0086	0.0804	8	3	5	7	1	6	704.22	0.154000	NU3**
4081.28	9.3902	0.0794	7	2	5	6	0	6	446.71	0.051494	NU3
4081.45	0.1728	0.0743	5	5	0	4	2	3	300.35	0.001619	NU1
4083.61	0.0012	0.0405	11	9	3	11	7	4	2321.94	0.021839	NU3
4084.06	0.0039	0.0774	6	4	3	5	2	4	2024.17	0.055572	NU3***
4084.19	0.0290	0.0697	6	5	1	5	3	2	508.81	0.036022	NU3*
4084.51	0.0077	0.0804	8	3	5	7	1	6	2309.74	0.154000	NU3***
4084.87	3.8931	0.0645	5	5	0	4	3	1	383.85	0.015576	NU3
4085.56	0.0028	0.0650	9	2	7	8	1	8	744.16	0.122288	NU1*
4085.57	0.0022	0.0378	9	9	1	9	7	2	1810.63	0.003527	NU3
4086.20	11.6938	0.0640	5	5	1	4	3	2	382.52	0.015487	NU3
4086.47	0.0062	0.0812	9	4	5	8	2	6	982.91	0.240000	NU3*
4086.81	0.0010	0.0442	12	6	7	12	3	10	1962.55	0.040149	NU1
4087.26	0.0083	0.0841	8	4	4	7	2	5	2392.58	0.247061	NU3***
4087.38	0.0473	0.0744	7	4	4	6	2	5	552.92	0.073173	NU3*
4088.02	0.6971	0.0795	4	4	0	3	0	3	136.77	0.000270	NU3
4088.16	23.2913	0.0804	8	3	5	7	1	6	704.22	0.154000	NU3-
4088.47	0.5215	0.0607	9	4	6	8	1	7	882.93	0.269351	NU1
4088.58	0.2745	0.0722	10	3	7	9	2	8	1080.38	0.380414	NU1
4088.71	0.0384	0.0731	7	3	5	6	1	6	447.24	0.034900	NU3*
4088.74	0.0023	0.0655	7	7	0	7	4	3	931.22	0.000515	NU1
4089.01	0.0012	0.0553	9	7	3	9	4	6	1340.89	0.006153	NU1
4089.20	0.0097	0.0679	6	5	2	5	3	3	504.00	0.035127	NU3*
4089.33	0.0023	0.0525	10	7	4	10	4	7	1581.34	0.013111	NU1
4089.97	0.0130	0.0369	11	9	3	10	8	2	2254.34	8.133537	NU1
4089.97	0.0391	0.0369	11	9	2	10	8	3	2254.34	8.133535	NU1
4090.32	0.0039	0.0569	8	7	2	8	4	5	1122.72	0.002252	NU1
4092.95	0.0014	0.0810	8	5	4	7	2	5	782.40	0.074366	NU1*
4093.01	0.2257	0.0836	7	5	3	6	2	4	602.77	0.028700	NU1
4093.08	0.0810	0.0608	8	5	4	8	1	7	882.93	0.003922	NU3
4093.24	0.0101	0.0494	10	4	7	10	1	10	1114.56	0.005517	NU1
4093.54	1.4228	0.0650	9	2	7	8	1	8	744.16	0.122288	NU1
4094.48	0.0054	0.0697	6	5	1	5	3	2	508.81	0.036022	NU3**
4096.71	0.0088	0.0744	7	4	4	6	2	5	552.92	0.073173	NU3**
4097.37	0.0071	0.0731	7	3	5	6	1	6	447.24	0.034900	NU3**
4099.36	0.0018	0.0679	6	5	2	5	3	3	504.00	0.035127	NU3**
4100.38	0.0013	0.0645	5	5	0	4	3	1	2005.92	0.015576	NU3***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4100.52	0.0081	0.0733	7	5	2	6	3	3	661.56	0.063852	NU3*
4101.49	0.0038	0.0640	5	5	1	4	3	2	2004.81	0.015487	NU3***
4102.09	0.0537	0.0628	9	3	6	9	1	9	920.21	0.003124	NU3
4103.48	0.0012	0.0803	5	4	1	4	0	4	222.06	0.001060	NU3*
4104.10	3.1030	0.0812	9	4	5	8	2	6	982.91	0.247000	NU3-
4104.77	14.5311	0.0697	6	5	1	5	3	2	508.81	0.036022	NU3
4105.81	0.4528	0.0531	9	3	7	8	0	8	744.09	0.116343	NU1
4106.03	19.1581	0.0731	7	3	5	6	1	6	447.24	0.034900	NU3-
4106.04	23.6813	0.0744	7	4	4	6	2	5	552.92	0.073173	NU3
4106.67	0.0112	0.0585	11	4	7	11	2	10	1525.13	0.013267	NU3
4107.03	0.7171	0.0810	8	5	4	7	2	5	782.40	0.074366	NU1
4107.40	0.0826	0.0590	8	4	5	8	0	8	744.09	0.001991	NU3
4109.53	4.8438	0.0679	6	5	2	5	3	3	504.00	0.035127	NU3
4109.54	0.0083	0.0572	7	5	2	7	0	7	586.26	0.000324	NU1
4110.49	0.1130	0.0709	6	5	1	5	2	4	416.22	0.005627	NU1
4110.93	0.0015	0.0733	7	5	2	6	3	3	661.56	0.063852	NU3**
4111.86	0.0017	0.0754	9	5	5	8	2	6	982.91	0.7281	NU1*
4111.87	0.0033	0.0625	11	3	8	11	0	11	1327.14	0.005168	NU1
4112.99	0.0013	0.0437	12	5	8	12	2	11	1774.74	0.018820	NU1
4113.45	0.0236	0.0684	7	5	3	6	3	4	648.97	0.058714	NU3*
4113.62	0.0161	0.0760	8	5	3	7	3	4	842.38	0.105067	NU3*
4113.75	0.0063	0.0731	7	3	5	6	1	6	2042.77	0.034900	NU3***
4114.15	0.0045	0.0756	7	4	3	6	1	6	447.24	0.0432	NU1*
4114.43	0.1238	0.0558	9	5	5	9	1	8	1079.07	0.005298	NU3
4115.52	0.0186	0.0684	13	5	8	12	4	9	2124.98	1.92132	NU1
4116.52	0.0078	0.0744	7	4	4	6	2	5	2161.30	0.073173	NU3***
4118.86	0.0013	0.0525	10	4	7	9	1	8	1079.07	0.284777	NU1*
4120.36	0.0033	0.0670	10	5	6	9	2	7	1201.95	1.386	NU1*
4121.24	0.0048	0.0697	6	5	1	5	3	2	2130.50	0.036022	NU3***
4121.35	4.0167	0.0733	7	5	2	6	3	3	661.56	0.063852	NU3
4123.24	0.0226	0.0692	8	2	6	7	0	7	586.26	0.040852	NU3*
4123.47	0.6004	0.0803	5	4	1	4	0	4	222.06	0.001060	NU3
4123.57	0.0044	0.0684	7	5	3	6	3	4	648.97	0.058714	NU3**
4123.60	0.0084	0.0691	8	4	5	7	2	6	709.60	0.084411	NU3*
4124.14	0.0030	0.0760	8	5	3	7	3	4	842.38	0.105067	NU3**
4124.31	0.0059	0.0729	9	3	6	8	1	7	882.93	0.139840	NU3*
4125.18	2.2357	0.0756	7	4	3	6	1	6	447.24	0.0432	NU1+
4125.38	0.8625	0.0754	9	5	5	8	2	6	982.91	0.7281	NU1+
4125.46	0.0031	0.0768	9	5	4	8	3	5	1050.15	0.169518	NU3*
4128.11	0.0075	0.0540	6	6	0	5	4	1	610.35	0.015215	NU3*
4128.35	0.0025	0.0535	6	6	1	5	4	2	610.12	0.015207	NU3*
4128.73	0.6267	0.0525	10	4	7	9	1	8	1079.07	0.284777	NU1
4130.97	0.0245	0.0696	12	4	8	11	3	9	1695.03	0.720922	NU1
4131.01	0.0041	0.0692	8	2	6	7	0	7	586.26	0.040852	NU3**
4132.74	0.0015	0.0691	8	4	5	7	2	6	709.60	0.084411	NU3**
4133.03	1.6544	0.0670	10	5	6	9	2	7	1201.95	1.386	NU1+
4133.70	11.8363	0.0684	7	5	3	6	3	4	648.97	0.058714	NU3
4134.66	8.0547	0.0760	8	5	3	7	3	4	842.38	0.105067	NU3
4137.35	0.0067	0.0648	8	3	6	7	1	7	586.48	0.036269	NU3*
4137.71	0.0384	0.0613	9	6	4	9	2	7	1201.95	0.003008	NU3
4138.08	0.0037	0.0692	8	2	6	7	0	7	2180.65	0.040852	NU3***
4138.46	0.0010	0.0448	11	4	8	11	1	11	1327.14	0.004565	NU1
4138.79	11.2811	0.0692	8	2	6	7	0	7	586.26	0.040852	NU3
4138.90	0.0014	0.0733	7	5	2	6	3	3	2282.59	0.063852	NU3***

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4139.25	0.0050	0.0681	8	5	4	7	3	5	816.72	0.084527	NU3*
4139.37	2.9209	0.0729	9	3	6	8	1	7	882.93	0.139840	NU3
4139.46	0.0137	0.0642	8	6	3	8	2	6	982.91	0.001082	NU3
4141.88	0.0159	0.0513	10	5	6	10	1	9	1293.04	0.005888	NU3
4141.89	4.1963	0.0691	8	4	5	7	2	6	709.60	0.084411	NU3
4142.08	0.0045	0.0655	5	5	0	5	1	5	326.64	0.000013	NU3
4142.53	0.0024	0.0617	7	6	1	7	1	6	704.22	0.000170	NU1
4142.77	0.0076	0.0561	10	6	5	10	2	8	1438.00	0.005881	NU3
4142.88	0.3617	0.0666	7	5	2	6	2	5	552.92	0.011802	NU1
4145.30	0.0017	0.0552	8	5	3	8	0	8	744.09	0.000443	NU1
4145.35	0.2388	0.0640	11	3	8	10	2	9	1293.66	0.316624	NU1
4145.95	0.0013	0.0648	8	3	6	7	1	7	586.48	0.036269	NU3**
4146.43	0.0039	0.0783	6	4	2	5	0	5	325.35	0.001931	NU3*
4146.46	1.5361	0.0768	9	5	4	8	3	5	1050.15	0.169518	NU3
4146.65	0.0263	0.0664	7	6	2	7	2	5	782.40	0.000253	NU3
4146.88	0.0937	0.0539	9	4	6	9	0	9	920.18	0.001797	NU3
4148.79	0.1765	0.0536	10	2	8	9	1	9	920.21	0.108277	NU1
4149.49	3.7339	0.0540	6	6	0	5	4	1	610.35	0.015215	NU3
4149.65	0.0039	0.0684	7	5	3	6	3	4	2271.70	0.058714	NU3***
4149.72	1.2455	0.0535	6	6	1	5	4	2	610.12	0.015207	NU3
4149.78	0.0026	0.0589	7	6	1	6	4	2	757.78	0.033963	NU3*
4150.89	0.0081	0.0573	7	6	2	6	4	3	756.75	0.033870	NU3*
4152.61	0.0014	0.0691	8	4	5	7	2	6	2318.53	0.084411	NU3***
4153.09	0.0026	0.0760	8	5	3	7	3	4	2462.87	0.105067	NU3***
4153.36	2.3648	0.0772	10	4	6	9	2	7	1201.95	0.185000	NU3-
4154.55	3.3475	0.0648	8	3	6	7	1	7	586.48	0.036269	NU3
4155.00	0.0096	0.0517	11	6	6	11	2	9	1690.70	0.008757	NU3
4155.96	0.5215	0.0457	10	3	8	9	0	9	920.18	0.106449	NU1
4156.64	0.0010	0.0550	8	6	2	8	1	7	882.93	0.000504	NU1
4157.07	0.0028	0.0660	6	6	1	6	2	4	602.77	0.000032	NU3
4158.82	0.0061	0.0547	12	4	8	12	2	11	1774.74	0.008389	NU3
4159.06	0.0396	0.0578	10	3	7	10	1	10	1114.56	0.002006	NU3
4159.20	2.2350	0.0766	10	5	5	9	3	6	1282.92	0.261892	NU3
4159.29	2.4705	0.0681	8	5	4	7	3	5	816.72	0.084527	NU3
4159.74	0.0027	0.0802	5	5	1	4	0	4	222.06	0.000050	NU1
4161.59	0.0015	0.0573	7	6	2	6	4	3	756.75	0.033870	NU3**
4163.50	0.0111	0.0623	9	4	6	8	2	7	885.62	0.088564	NU3*
4163.53	0.1178	0.0573	11	5	7	10	2	8	1438.00	0.963	NU1+
4166.01	1.9787	0.0783	6	4	2	5	0	5	325.35	0.001931	NU3
4166.34	0.0268	0.0625	6	5	1	6	1	6	447.24	0.000048	NU3
4167.64	0.0075	0.0662	9	5	5	8	3	6	1006.12	0.109168	NU3*
4168.22	0.0013	0.0540	6	6	0	5	4	1	2251.86	0.015215	NU3***
4169.06	0.0494	0.0725	6	6	1	5	3	2	508.81	0.001286	NU1
4169.63	0.0056	0.0628	8	6	2	7	4	3	931.22	0.057059	NU3*
4171.27	1.3364	0.0589	7	6	1	6	4	2	757.78	0.033963	NU3
4172.30	4.0204	0.0573	7	6	2	6	4	3	756.75	0.033870	NU3
4172.56	0.0713	0.0462	11	4	8	10	1	9	1293.04	0.280036	NU1
4173.18	0.0020	0.0596	8	6	3	7	4	4	927.77	0.056441	NU3*
4173.59	0.0012	0.0474	12	6	7	12	2	10	1960.22	0.010688	NU3
4173.64	0.0147	0.0478	11	5	7	11	1	10	1524.87	0.005757	NU3
4173.87	0.0165	0.0662	6	6	0	5	3	3	504.00	0.001253	NU1
4176.34	0.2879	0.0752	11	5	6	10	3	7	1538.23	0.359370	NU3
4177.29	0.0022	0.0485	9	6	3	9	1	8	1079.07	0.000971	NU1
4177.51	0.0014	0.0662	9	5	5	8	3	6	1006.12	0.109168	NU3**

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4179.75	0.0053	0.0648	10	3	7	9	1	8	1079.07	0.110021	NU3*
4179.78	0.0030	0.0602	9	2	7	8	0	8	744.09	0.034667	NU3*
4179.79	0.0861	0.0622	8	5	3	7	2	6	709.60	0.018297	NU1
4181.44	5.5320	0.0623	9	4	6	8	2	7	885.62	0.088564	NU3
4182.62	0.0598	0.0760	8	4	4	7	1	7	586.48	0.006860	NU1
4185.19	0.0298	0.0771	7	6	2	6	3	3	661.56	0.004975	NU1
4185.26	0.0018	0.0456	7	7	1	6	5	2	888.60	0.014987	NU3*
4187.38	3.7403	0.0662	9	5	5	8	3	6	1006.12	0.109168	NU3
4187.61	0.0084	0.0558	9	3	7	8	1	8	744.16	0.033194	NU3*
4188.59	0.0023	0.0562	9	5	4	9	0	9	920.18	0.000466	NU1
4189.45	0.0182	0.0630	13	4	9	12	3	10	1962.55	0.73907	NU1
4190.12	0.0101	0.0497	10	4	7	10	0	10	1114.55	0.001525	NU3
4191.32	2.8424	0.0628	8	6	2	7	4	3	931.22	0.057059	NU3
4192.35	0.0018	0.0623	9	4	6	8	2	7	2495.18	0.088564	NU3***
4193.20	0.0403	0.0717	5	5	0	4	1	3	275.52	0.000091	NU3
4193.80	0.2571	0.0704	11	4	7	10	2	8	1438.00	0.196000	NU3-
4194.55	2.6213	0.0648	10	3	7	9	1	8	1079.07	0.110021	NU3
4194.60	0.9548	0.0596	8	6	3	7	4	4	927.77	0.056441	NU3
4195.58	0.0032	0.0601	9	6	4	8	4	5	1122.72	0.082913	NU3*
4195.67	1.4691	0.0602	9	2	7	8	0	8	744.09	0.034667	NU3
4196.19	0.0016	0.0558	9	3	7	8	1	8	744.16	0.033194	NU3**
4196.43	0.0086	0.0587	7	5	2	7	1	7	586.48	0.000093	NU3
4197.03	0.0442	0.0488	12	5	8	11	2	9	1690.70	0.426841	NU1
4197.14	0.0980	0.0801	8	6	3	7	3	4	842.38	0.013422	NU1
4197.78	0.0875	0.0653	7	6	1	6	3	4	648.97	0.004557	NU1
4198.86	0.0015	0.0677	10	6	4	9	4	5	1360.28	0.124623	NU3*
4200.09	0.0021	0.0563	11	7	5	11	3	8	1813.26	0.003273	NU3
4200.15	0.2592	0.0721	12	5	7	11	3	8	1813.26	0.411017	NU3
4201.35	0.0205	0.0728	6	5	2	5	0	5	325.35	0.000211	NU1
4201.87	0.0225	0.0548	12	3	9	11	2	10	1525.13	0.278800	NU1
4202.18	0.1835	0.0442	11	2	9	10	1	10	1114.56	0.097873	NU1
4202.98	0.0013	0.0662	9	5	5	8	3	6	2630.21	0.109168	NU3***
4204.77	4.2275	0.0558	9	3	7	8	1	8	744.16	0.033194	NU3
4206.09	0.0276	0.0808	9	6	4	8	3	5	1050.15	0.032042	NU1
4206.35	0.0609	0.0404	11	3	9	10	0	10	1114.55	0.097311	NU1
4206.67	0.0014	0.0560	10	4	7	9	2	8	1080.38	0.087251	NU3*
4206.92	0.0043	0.0595	6	6	0	6	2	5	552.92	0.000013	NU3
4207.53	0.3093	0.0457	7	7	0	6	5	1	888.63	0.014988	NU3
4207.56	0.9278	0.0456	7	7	1	6	5	2	888.60	0.014987	NU3
4207.79	0.0017	0.0493	8	7	1	7	5	2	1059.85	0.032814	NU3*
4208.02	0.5267	0.0659	9	6	3	8	4	4	1131.76	0.085997	NU3
4208.15	0.0013	0.0448	12	5	8	12	1	11	1774.60	0.005196	NU3
4214.07	0.0581	0.0781	10	6	5	9	3	6	1282.92	0.071662	NU1
4214.12	0.4385	0.0724	6	5	1	5	1	4	399.46	0.000613	NU3
4215.50	0.0014	0.0558	9	3	7	8	1	8	2337.70	0.033194	NU3***
4216.44	0.4221	0.0740	7	4	3	6	0	6	446.71	0.002241	NU3
4216.52	0.0032	0.0528	11	3	8	11	1	11	1327.14	0.001419	NU3
4216.94	1.5967	0.0601	9	6	4	8	4	5	1122.72	0.082913	NU3
4218.53	0.0645	0.0415	12	4	9	11	1	10	1524.87	0.265959	NU1
4218.65	0.5159	0.0616	10	5	6	9	3	7	1216.27	0.128613	NU3
4219.45	0.0031	0.0568	7	6	1	7	2	6	709.60	0.000062	NU3
4221.26	0.7306	0.0677	10	6	4	9	4	5	1360.28	0.124623	NU3
4222.85	0.0296	0.0630	8	6	2	7	3	5	816.72	0.010619	NU1
4223.15	0.1316	0.0603	9	5	4	8	2	7	885.62	0.022231	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4223.17	0.0112	0.0725	11	6	6	10	3	7	1538.23	0.147349	NU1
4224.24	0.0017	0.0460	13	3	10	13	0	13	1806.78	0.02938	NU1
4224.29	0.6933	0.0560	10	4	7	9	2	8	1080.38	0.087251	NU3
4224.63	0.0030	0.0633	9	7	3	9	3	6	1282.92	0.000341	NU3
4230.15	0.8683	0.0493	8	7	1	7	5	2	1059.85	0.032814	NU3
4230.35	0.2894	0.0489	8	7	2	7	5	3	1059.65	0.032804	NU3
4231.24	0.0991	0.0684	11	6	5	10	4	6	1616.51	0.181046	NU3
4232.88	0.0160	0.0553	8	5	3	8	1	8	744.16	0.000125	NU3
4233.37	0.0098	0.0662	13	5	8	12	3	9	2105.90	0.310600	NU3
4233.56	0.0043	0.0565	13	7	8	12	5	7	2300.80	0.244900	NU3
4234.53	0.0032	0.0511	10	2	8	9	0	9	920.18	0.030629	NU3*
4236.10	0.0158	0.0657	12	6	7	11	3	8	1813.26	0.264753	NU1
4236.34	0.0088	0.0460	11	4	8	11	0	11	1327.14	0.001260	NU3
4236.92	0.0101	0.0533	8	6	2	8	2	7	885.62	0.000159	NU3
4237.39	0.0002	0.0573	10	5	5	10	0	10	1114.55	0.000396	NU1
4239.88	0.2443	0.0589	10	6	5	9	4	6	1340.89	0.112325	NU3
4239.99	0.1124	0.0678	12	6	6	11	4	7	1899.06	0.265013	NU3
4240.00	0.2369	0.0717	7	5	2	6	1	5	542.91	0.002023	NU3
4241.78	0.0040	0.0423	13	5	9	12	2	10	1960.22	0.40461	NU1
4242.86	0.2336	0.0631	12	4	8	11	2	9	1690.70	0.209597	NU3
4243.89	0.0314	0.0703	5	5	1	4	1	4	224.83	0.000018	NU3
4249.07	0.0079	0.0642	7	5	3	6	0	6	446.71	0.000443	NU1
4249.95	0.0139	0.0668	13	6	7	12	4	8	2205.65	0.394450	NU3
4250.24	0.0635	0.0590	9	6	3	8	3	6	1006.12	0.019449	NU1
4250.62	0.2534	0.0571	11	3	8	10	1	9	1293.04	0.091645	NU3
4250.91	1.6355	0.0511	10	2	8	9	0	9	920.18	0.030629	NU3
4251.43	0.0013	0.0676	8	5	3	7	1	6	704.22	0.004077	NU3*
4251.63	0.1789	0.0523	9	7	2	8	5	3	1255.92	0.053971	NU3
4252.19	0.0550	0.0763	9	4	5	8	1	8	744.16	0.004551	NU1
4252.35	0.5368	0.0566	11	5	7	10	3	8	1446.16	0.140157	NU3
4252.39	0.5391	0.0512	9	7	3	8	5	4	1255.16	0.053898	NU3
4254.00	0.0195	0.0382	12	2	10	11	1	11	1327.14	0.089480	NU1
4255.71	0.5378	0.0482	10	3	8	9	1	9	920.21	0.030178	NU3
4255.86	0.0585	0.0367	12	3	10	11	0	11	1327.14	0.089303	NU1
4256.26	0.0192	0.0464	13	3	10	12	2	11	1774.74	0.27474	NU1
4257.57	0.0075	0.0553	13	6	8	12	3	9	2105.90	0.37068	NU1
4259.40	0.0023	0.0502	9	6	3	9	2	8	1080.38	0.000288	NU3
4259.55	0.0604	0.0398	8	8	1	7	6	2	1216.20	0.014826	NU3
4259.55	0.1810	0.0398	8	8	0	7	6	1	1216.20	0.014826	NU3
4262.18	0.0037	0.0610	7	7	1	6	4	2	757.78	0.000981	NU1
4263.21	0.0111	0.0570	7	7	0	6	4	3	756.75	0.000979	NU1
4264.36	0.2809	0.0574	11	6	6	10	4	7	1581.34	0.142262	NU3
4265.40	0.0059	0.0381	13	4	10	12	1	11	1774.60	0.25444	NU1
4269.82	0.6860	0.0499	11	4	8	10	2	9	1293.66	0.082847	NU3
4271.38	0.2618	0.0548	10	7	3	9	5	4	1477.31	0.079027	NU3
4271.56	0.0465	0.0612	10	5	6	9	2	8	1080.38	0.0617	NU1+
4272.28	0.0024	0.0465	12	3	9	12	1	12	1557.91	0.001084	NU3
4272.82	0.6444	0.0676	8	5	3	7	1	6	704.22	0.004077	NU3
4273.70	0.0882	0.0524	10	7	4	9	5	5	1474.99	0.078635	NU3
4275.56	0.5363	0.0696	8	4	4	7	0	7	586.26	0.001880	NU3
4276.40	0.0023	0.0533	9	5	4	9	1	9	920.21	0.000130	NU3
4278.41	0.0015	0.0785	6	6	1	5	1	4	399.46	0.000022	NU1
4280.86	0.0113	0.0543	10	6	4	9	3	7	1216.27	0.029596	NU1
4281.82	0.0170	0.0659	8	7	2	7	4	3	931.22	0.003551	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4282.48	0.0492	0.0425	9	8	1	8	6	2	1411.68	0.032025	NU3
4282.51	0.1476	0.0424	9	8	2	8	6	3	1411.65	0.032024	NU3
4283.88	0.0015	0.0554	8	7	1	8	3	6	1006.12	0.000044	NU3
4285.27	0.0057	0.0579	8	7	1	7	4	4	927.77	0.003511	NU1
4286.89	0.0230	0.0685	6	5	2	5	1	5	326.64	0.000066	NU3
4287.72	0.0539	0.0513	12	5	8	11	3	9	1695.03	0.143644	NU3
4287.88	0.0033	0.0474	10	6	4	10	2	9	1293.66	0.000402	NU3
4288.73	0.0350	0.0569	11	7	4	10	5	5	1724.72	0.108914	NU3
4290.79	0.0303	0.0546	12	6	7	11	4	8	1843.02	0.169033	NU3
4294.58	0.1094	0.0504	11	7	5	10	5	6	1718.77	0.107152	NU3
4295.78	0.0199	0.0563	13	4	9	12	2	10	1960.22	0.185870	NU3
4298.14	0.0051	0.0708	9	7	3	8	4	4	1131.76	0.008626	NU1
4302.53	0.0012	0.0497	10	7	3	10	3	8	1446.16	0.000310	NU3
4302.83	0.0393	0.0584	12	7	5	11	5	6	1999.02	0.145917	NU3
4303.17	0.0172	0.0567	8	5	4	7	0	7	586.26	0.000639	NU1
4303.84	0.0018	0.0728	7	6	2	6	1	5	542.91	0.000161	NU1
4304.27	0.1885	0.0440	11	2	9	10	0	10	1114.55	0.027627	NU3
4304.45	0.0811	0.0448	10	8	2	9	6	3	1631.41	0.051960	NU3
4304.59	0.0271	0.0445	10	8	3	9	6	4	1631.27	0.051950	NU3
4305.32	0.2121	0.0489	12	3	9	11	1	10	1524.87	0.080345	NU3
4305.46	0.0278	0.0364	9	9	1	8	7	2	1590.74	0.014704	NU3
4305.51	0.0092	0.0364	9	9	0	8	7	1	1590.74	0.014704	NU3
4306.69	0.0179	0.0348	13	2	11	12	1	12	1557.91	0.08639	NU1
4306.71	0.5629	0.0421	11	3	9	10	1	10	1114.56	0.027489	NU3
4307.18	0.0153	0.0578	9	7	2	8	4	5	1122.72	0.008300	NU1
4307.49	0.0059	0.0342	13	3	11	12	0	12	1557.91	0.08609	NU1
4310.39	0.0101	0.0742	10	7	4	9	4	5	1360.28	0.017923	NU1
4313.34	0.0157	0.0665	6	6	0	5	2	3	446.50	0.000027	NU3
4313.68	0.1226	0.0634	9	5	4	8	1	7	882.93	0.005631	NU3
4315.72	0.0126	0.0513	12	7	6	11	5	7	1985.83	0.139005	NU3
4315.99	0.0139	0.0508	11	6	5	10	3	8	1446.16	0.037991	NU1
4316.70	0.0682	0.0446	12	4	9	11	2	10	1525.13	0.077267	NU3
4317.97	0.0018	0.0753	11	7	5	10	4	6	1616.51	0.035256	NU1
4319.65	0.0196	0.0505	13	6	8	12	4	9	2124.98	0.181000	NU3
4322.40	0.0028	0.0737	12	7	6	11	4	7	1899.06	0.068678	NU1
4325.31	0.0108	0.0464	11	8	3	10	6	4	1875.53	0.074997	NU3
4325.84	0.0325	0.0454	11	8	4	10	6	5	1875.00	0.074947	NU3
4326.28	0.0167	0.0681	7	6	1	6	2	4	602.77	0.000189	NU3
4327.56	0.0022	0.0526	10	5	5	10	1	10	1114.56	0.000109	NU3
4327.73	0.0135	0.0638	11	5	6	10	2	9	1293.66	0.017174	NU1
4328.73	0.0068	0.0383	10	9	2	9	7	3	1810.63	0.031444	NU3
4328.73	0.0204	0.0384	10	9	1	9	7	2	1810.63	0.031445	NU3
4329.74	0.0045	0.0755	10	4	6	9	1	9	920.21	0.002627	NU1
4329.78	0.0033	0.0556	10	7	3	9	4	6	1340.89	0.016023	NU1
4329.79	0.0362	0.0464	13	5	9	12	3	10	1962.55	0.133420	NU3
4335.30	0.0082	0.0627	8	6	3	7	1	6	704.22	0.000543	NU1
4335.43	0.0755	0.0644	7	5	3	6	1	6	447.24	0.000130	NU3
4340.14	0.0874	0.0682	8	6	2	7	2	5	782.40	0.000806	NU3
4342.92	0.0546	0.0654	9	4	5	8	0	8	744.09	0.001245	NU3
4343.62	0.0038	0.0631	6	6	1	5	2	4	416.22	0.000017	NU3
4345.08	0.0111	0.0474	12	8	4	11	6	5	2144.12	0.101574	NU3
4345.85	0.0032	0.0436	10	1	0	9	8	1	2009.87	0.014608	NU3
4346.51	0.0037	0.0462	12	8	5	11	6	6	2142.69	0.101336	NU3
4349.01	0.0020	0.0490	8	8	1	7	5	2	1059.85	0.000796	NU1

FREQUENCY cm^{-1}	LINE STRENGTH $\frac{cm^{-1}}{gm\ cm^{-2}}$	HALF WIDTH $\frac{cm^{-1}}{atm.}$	J'	K_a	K_c	J"	K_a	K_c	E" cm^{-1}	L	BAND
4349.39	0.0086	0.0510	14	4	10	13	2	11	2246.98	0.160530	NU3
4350.78	0.0033	0.0450	14	6	9	13	4	10	2426.22	0.186890	NU3
4351.15	0.0083	0.0398	11	9	3	10	7	4	2054.40	0.050502	NU3
4351.15	0.0028	0.0399	11	9	2	10	7	3	2054.40	0.050503	NU3
4353.16	0.0051	0.0522	11	7	4	10	4	7	1581.34	0.026914	NU1
4356.13	0.1801	0.0389	12	2	10	11	0	11	1327.14	0.025215	NU3
4356.22	0.0015	0.0496	12	6	6	11	3	9	1695.03	0.041150	NU1
4356.87	0.0326	0.0655	9	6	3	8	2	6	982.91	0.002446	NU3
4357.49	0.0599	0.0379	12	3	10	11	1	11	1327.14	0.025171	NU3
4357.52	0.0016	0.034	14	2	12	13	1	13	1806.78	0.08004	NU1
4358.02	0.0049	0.034	14	3	12	13	0	13	1806.78	0.07993	NU1
4358.14	0.0540	0.0438	13	3	10	12	1	11	1774.60	0.074330	NU3
4362.97	0.0028	0.0481	13	8	5	12	6	6	2437.56	0.150080	NU3
4363.05	0.1431	0.0597	10	5	5	9	1	8	1079.07	0.005774	NU3
4364.20	0.0030	0.0524	9	5	5	8	0	8	744.09	0.000727	NU1
4364.24	0.1541	0.0402	13	4	10	12	2	11	1774.74	0.070610	NU3
4366.67	0.0021	0.0457	13	8	6	12	6	7	2433.85	0.037850	NU3
4369.22	0.0017	0.0549	11	10	2	10	8	3	2254.34	0.030999	NU3
4370.08	0.0027	0.0495	9	8	1	8	5	4	1255.16	0.002788	NU1
4372.96	0.0039	0.0410	12	9	3	11	7	4	2321.94	0.072157	NU3
4373.01	0.0013	0.0390	12	9	4	11	7	5	2321.89	0.072150	NU3
4373.31	0.0024	0.0549	9	6	4	8	1	7	882.93	0.001147	NU1
4374.44	0.0023	0.0440	14	5	10	13	3	11	2248.16	0.129110	NU3
4376.13	0.0264	0.0617	7	6	2	6	2	5	552.92	0.000077	NU3
4379.59	0.0721	0.0625	10	6	4	9	2	7	1201.95	0.005348	NU3
4388.29	0.0021	0.0559	10	8	3	9	5	4	1477.31	0.006528	NU1
4388.87	0.0010	0.0662	12	5	7	11	2	10	1525.13	0.011578	NU1
4389.53	0.0177	0.0592	8	5	4	7	1	7	586.48	0.000182	NU3
4407.00	0.0170	0.0357	13	2	11	12	0	12	1557.91	0.023180	NU3
4407.50	0.0510	0.0350	13	3	11	12	1	12	1557.91	0.023120	NU3
4408.80	0.0135	0.0410	14	3	11	13	1	12	2042.33	0.067400	NU3
4409.75	0.0118	0.0578	11	6	5	10	2	8	1438.00	0.008540	NU3
4410.03	0.0028	0.0728	11	4	7	10	1	10	1114.56	0.001448	NU1
4411.21	0.0012	0.0504	11	8	3	10	5	6	1718.77	0.012538	NU1
4411.92	0.0048	0.0370	14	4	11	13	2	12	2042.38	0.065890	NU3
4412.77	0.0105	0.0586	8	6	3	7	2	6	709.60	0.000198	NU3
4414.80	0.0037	0.0497	10	5	6	9	0	9	920.18	0.000705	NU1
4417.92	0.0042	0.0481	10	6	5	9	1	8	1079.07	0.001773	NU1
4421.53	0.0134	0.0571	11	5	6	10	1	9	1293.04	0.004657	NU3
4435.13	0.0399	0.0617	10	4	6	9	0	9	920.18	0.000715	NU3

Part II. Atlas of Computed Transmission Spectra for 2.7μ H_2O Band

David M. Gates, Robert F. Calfee, and David W. Hansen

Theoretical transmission spectra of the 2.7μ atmospheric water vapor band at infinite spectral resolution have been determined for specific values of pressure, temperature, and water vapor concentration. A triangular slit function has been applied to the theoretical spectra to show the effect of slit width upon the resolution of an actual instrument. Both the theoretical and "degraded" spectra are displayed in graphic form.

1. Introduction

The transparency of the Earth's atmosphere to infrared radiation of various frequencies is of great importance to astronomers, meteorologists, atmospheric physicists, communications engineers, ecologists, and others. The infrared spectral region covers a broad wavelength span from 7000 Å or 0.7μ to 1000μ or 1 mm, and a frequency span from 14,300 $cm^{-1}(4.28\times10^{14}c/s)$ to 10 $cm^{-1}(3.0\times10^{11}c/s)$. The infrared region spans 10.5 octaves compared with the visible which spans less than 1 octave. If the atmosphere were transparent this would present a magnificent opportunity for communication beyond the very crowded radio-frequency region and beyond the very narrow optical region of the electromagnetic spectrum. Both fortunately and unfortunately, the Earth's atmosphere possesses many strong and broad absorption bands throughout the infrared spectrum due to water vapor, carbon dioxide, ozone, and weaker absorption bands arising from methane, nitrous oxide, heavy water, and other very minor constituents. Sunlight is absorbed by these gases in the atmosphere and the atmosphere reradiates this heat toward space and toward the ground. The climate of the Earth is greatly modified by this absorbed radiation. Without this warmth the Earth's surface would become intensely cold at night, and without the shielding affect of the atmosphere from the infrared solar radiation the daylight side would become very much hotter.

The location of many of the absorption bands at infrared frequencies are seen in figure 1, which represents a direct recording of solar radiation transmitted by the atmosphere. Although the absorption bands are numerous, there are "windows" between some of these bands where radiation passes relatively unattenuated through the atmosphere. The best window of the entire infrared spectrum occurs at 11.08 microns, but other windows are good, particularly when the path length is not too great. A detailed analysis of the spectrum shown in figure 1 giving attenuation coefficients as a function of the frequency has been given by Gates [1960] and by Gates and Harrop [1963].

The absorption spectrum is actually very much more complex than it would appear to be in figure 1. Each absorption band when fully resolved is seen to be comprised of many hundreds of individual absorption lines. A typical segment of the highly resolved absorption spectrum is shown in figure 2 as taken from the Migeotte Atlas [1956]. A thorough understanding of the infrared transmission by the atmosphere involves a detailed analysis of the high resolution spectrum. This requires that one deal with each and every line in the spectrum and with the simultaneous collective effect of the wings of many lines on the transmission of the atmosphere at any specific frequency. The precise nature of the observed spectrum will depend upon the instrument used for the observation, the spectrum being degraded by the influence of the slit or instrument factor. Before a careful analysis can be made of the spectral transmission as observed, it is first necessary to establish in detail the theoretical spectral transmission, which would be recorded with an instrument of infinite resolving power. This requires that one calculate the detailed absorption spectrum for each of the major absorbing molecules present in the Earth's atmosphere. Since water vapor is one of the most important constituents, these calculations have been performed for this molecule first.

Calculations have been made of the line positions, line strengths, and line half-widths of the water vapor spectrum from the quantum mechanical analysis of the asymmetric rotator. These results have been presented in tabular form by Gates, Calfee, Hansen, and Benedict [1963] for the frequency span 2857 to 4444 cm^{-1}.

2. Transmission

The monochromatic transmission at a frequency ν, of m g cm^{-2} of absorbing gas at a constant pressure and temperature is

$$T_\nu(m)=\exp(-k_\nu m) \tag{1}$$

where k_ν is the monochromatic absorption coefficient.

Each absorption line is affected by collisions which shorten the natural lifetime of excited vibrational states. The following Lorentz formula is taken to reasonably represent the spectral line shape which gives the monochromatic absorption coefficient in the following form:

$$k_\nu=\frac{S}{\pi}\frac{\alpha}{[(\nu-\nu_0)^2+\alpha^2]} \tag{2}$$

where ν_0 is the frequency of the line center, S is the line strength which depends upon temperature according to

$$S=S_0\left(\frac{T_0}{T}\right)^{3/2}\exp\left[\frac{-E''}{k}\left(\frac{T_0-T}{TT_0}\right)\right] \tag{3}$$

α is the half-width of the line which depends upon pressure and temperature in the following manner:

$$\alpha=\alpha_0\left(\frac{P}{P_0}\right)\left(\frac{T_0}{T}\right)^n \tag{4}$$

where P/P_0 is the total pressure of the gas in atmospheres, T the absolute temperature, and n depends upon the nature of the broadening gas and the frequency of the transition. For N_2-H_2O collisions, Benedict and Kaplan [1959] show $n=0.62$ to be a good representative value. Here S_0 and α_0 refer to the strength and half-width, respectively, calculated at a reference temperature T_0.

The line strength, S, is composed of vibrational and rotational contributions, S_r and S_v, determined by

$$S=\frac{S_rS_v}{Q_r}\frac{\nu}{\nu_0}.$$

The central frequency of the band is ν_0. The rotational factor S_r for a particular rotational transition is

$$S_r=Lg\exp(-E''/kT)$$

where L is the rotational transition strength defined to be the sum of the squares of the magnitude of the direction cosine matrix elements evaluated for the asymmetric rotator. A full discussion of the evaluation of L for a rigid asymmetric rotator has been given by Cross, Hainer, and King [1944]. Schwendeman and Laurie [1958] have published a very useful table giving values of L as a function of the asymmetry parameter, κ, for all transitions up to $J=12$. Wacker and Pratto [1963] have extended the computations of L to higher J values. For the ground state of H_2O, $\kappa=-0.4377$ was used for the present computations.

The statistical weighting factor g depends upon the symmetry of the ground energy level E'' [Townes and Schawlow, 1955].

The rotational partition function Q_r is given by

$$Q_r=\sum_J(2J+1)g\exp(-E''/kT).$$

The vibrational transition probability, S_v, is common to all lines in a band.

However, the transmission at any frequency in the spectrum depends not only on the shape, half-width, and strength of the nearest line, but is also influenced by the wings of many dozens of lines on either side. Therefore, to obtain the actual absorption coefficient at any frequency, it is necessary to sum the influence of many lines as follows:

$$k(\nu)=\sum_{\nu_0}k_\nu=\sum_{\nu_0}\frac{S}{\pi}\frac{\alpha}{[(\nu-\nu_0)^2+\alpha^2]}. \tag{5}$$

The transmission for a given pressure, temperature, and water vapor concentration is now given as a function of the frequency ν,

$$T(\nu)=\exp[-k(\nu)m]. \tag{6}$$

The total absorption across an entire band is invariant to the spectral slit width of the instrument [Nielson, Thornton, and Dale, 1944]. For this reason the total band absorption is often given by experimentalists rather than the specific absorption within a narrow spectral interval. The total band absorption is given by

$$A=\int_{\nu_1}^{\nu_2}A(\nu)d\nu=\int_{\nu_1}^{\nu_2}[1-T(\nu)]d\nu \tag{7}$$

where ν_1 and ν_2 are the frequency limits for the band.

3. Computational Procedure

It was desired to compute the transmission as a function of the frequency across a definite frequency interval for a given pressure, temperature, and water vapor concentration. To avoid any end effects, the computation was extended to include the strong lines out to 150 cm^{-1} on either side of the interval selected. Starting with the first point of the interval, the transmission was computed by calculating directly the contributions of all lines by means of the Lorentz line shape formula. This was a straight sum of the k_ν's at this position. The frequency value was then

increased by a fixed increment, 0.01 cm^{-1}, and the transmission again calculated. When the point came within 0.05 cm^{-1} of a line center, the increment was decreased to 0.0005 cm^{-1} in order to gain the full influence of the line on the calculations. Furthermore, at the position of each line the influence of all other lines was summed up to give an added effective strength to the single line absorption coefficient. By using a coarse increment when far from line centers and a fine increment when close, a marked saving of computer time was realized. After calculating the transmissions throughout the total interval, the total absorption was calculated using Simpson's rule, taking into account the two sizes of step intervals.

The computed theoretical water vapor spectra for the frequency interval 3500 to 4000 cm^{-1} are shown in figure 3 for a pressure of 0.1 atmosphere and figure 4 for a pressure of 1.0 atmosphere at a temperature of 287.7 °K. The water vapor concentration was changed in certain sections of the spectrum in order to display the line structure to better advantage. The values of water vapor concentration are indicated on each plate in figures 3 and 4.

The necessary data for computation are the pressure in atmospheres, the water vapor concentration in precipitable centimeters, and the absolute temperature along with the line positions, line strengths, half-widths, and energy values of the initial state.

4. Degraded Spectra

A spectrometer scanning an absorption spectrum will not record it with the sharp detail of the natural line shape but will degrade the spectrum because of finite slit widths and limited dispersion of the grating or prism. Since all observed spectra are of this degraded nature to various degrees, it is desirable to modify the theoretical spectrum described earlier with a slit function or instrument factor. Several authors have discussed slit factors, including Dennison [1928], Nielsen, Thornton, and Dale [1944], Kostkowski and Bass [1956], and Rautian [1958].

The slit function, $\rho(\nu)$, is defined according to the degraded transmission $\overline{T}_{\nu_i}$ recorded by the spectrometer at a frequency, ν_i, as follows:

$$\overline{T}_{\nu_i}=\frac{\int_{\nu_i-a}^{\nu_i+a}\rho(\nu)T_\nu d\nu}{\int_{\nu_i-a}^{\nu_i+a}\rho(\nu)d\nu} \tag{8}$$

where T_ν is the theoretical transmission at infinite resolving power at any frequency ν, ν_i is the frequency at the center of the spectral interval being momentarily scanned by the exit slit, and a is the spectral slit width (defined as one-half of the total frequency span passed by the spectrometer slits).

Various approximations to the slit function can be derived such as a Gaussian distribution, a trapezoidal type of distribution, and a triangular function. The simplicity of the triangular function and the fact that it represents reasonably well the slit distortions across the central maximum make it attractive for computational purposes. The triangular slit function was used in the following form:

$$\rho'\nu)=a-|\nu-\nu_i|. \tag{9}$$

To compute the degraded spectrum from the theoretical spectrum, the triangle slit function was superimposed upon the theoretical spectrum. Then the average transmission was calculated across the frequency span passed by the slit. The slit function was shifted across the spectrum by increments of approximately 0.2 to 0.4 cm^{-1}, depending upon the slit width used, and at each position the average transmission across the slit was computed, using (8). The averaging process within the spectral interval was calculated in steps of 0.05 cm^{-1}.

The theoretical water vapor spectra of figures 3 and 4 covering the frequency range from 3500 to 4000 cm^{-1} are shown in degraded form in figures 5 to 7. The degraded spectra were calculated for spectral slit widths, 0.5 cm^{-1} and 1.0 cm^{-1}, or a full slit span of 1 cm^{-1} and 2 cm^{-1}. Again pressures of 0.1 and 1.0 atmosphere were used at a temperature of 287.7 °K.

Within the figures on a single plate the effect of the difference in water concentration can be seen. By a comparison of figures 5 and 6, the pressure effect on the spectrum can be observed since the same spectral slit width was used for each. Figures 6 and 7 show the effect of a change in slit width at constant pressure. These figures are presented as examples of the type of theoretical analysis possible.[2] Given any pressure, temperature, and water vapor concentration, the theoretical spectrum can be computed. With additional information about spectral slit conditions, this theoretical spectrum can be degraded to any degree.

Figure 8 shows a small portion of the spectrum degraded by a triangular half slit width of 0.05 cm^{-1}. As narrower slit widths are used (below about 0.1 cm^{-1}) the triangular function becomes more and more inadequate as a slit function. This figure is included to show the type of spectral structure to be expected from a high resolution spectrometer. For a more correct presentation of the narrow slit spectrum, a more refined slit function, e.g., a Gaussian function, could be used.

[2] Spectral data for any specific region in the 2.7μ H_2O band and any conditions of pressure, temperature, and slit conditions can be furnished in either graphic form or as numerical tables.

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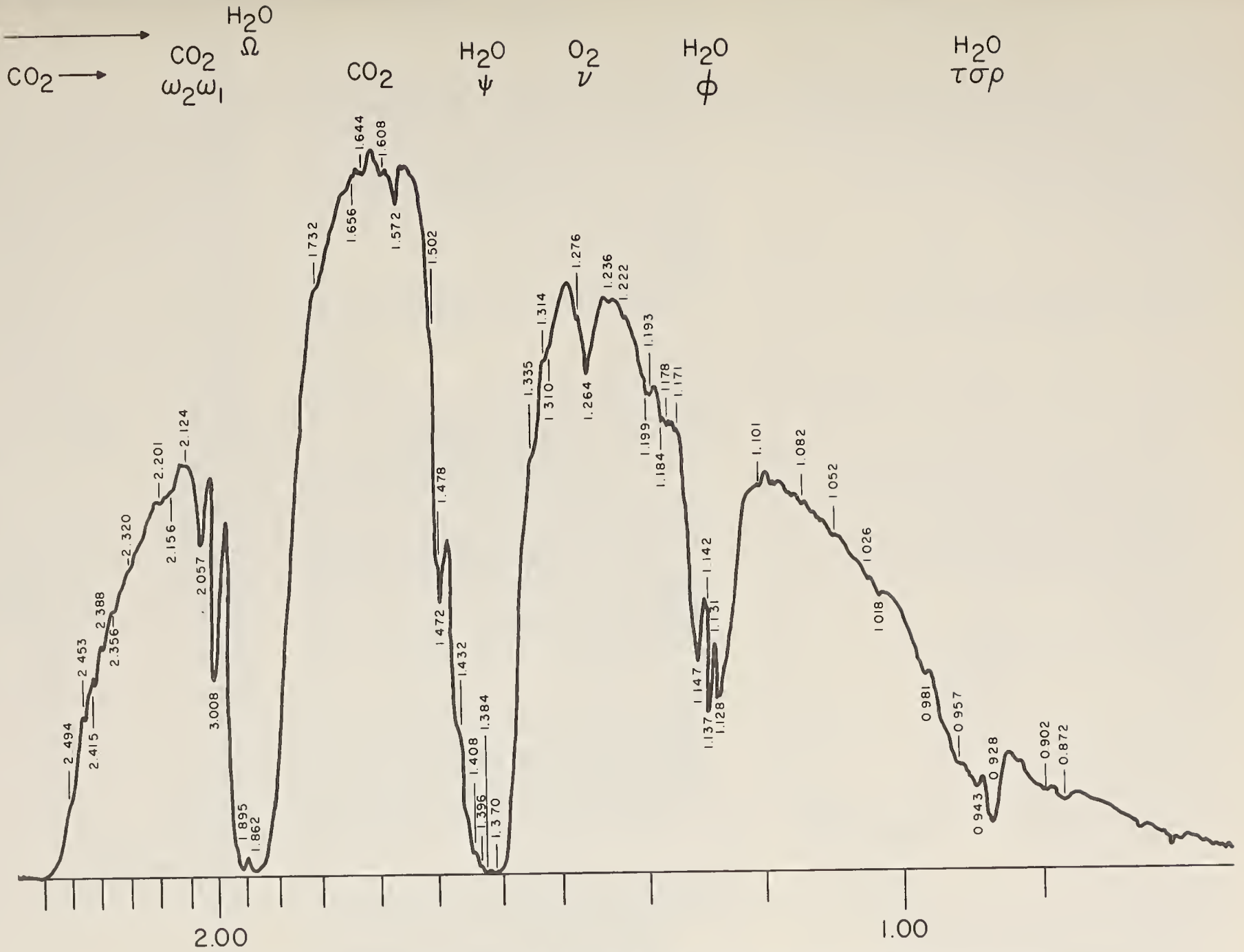


FIGURE 1. *Near infrared solar spectrum as recorded by a double pass spectrometer with a NaCl prism.*

The absorption band identifications are given above the spectrum. The ordinate represents the recorder deflection; the abscissa the wavelength in microns.

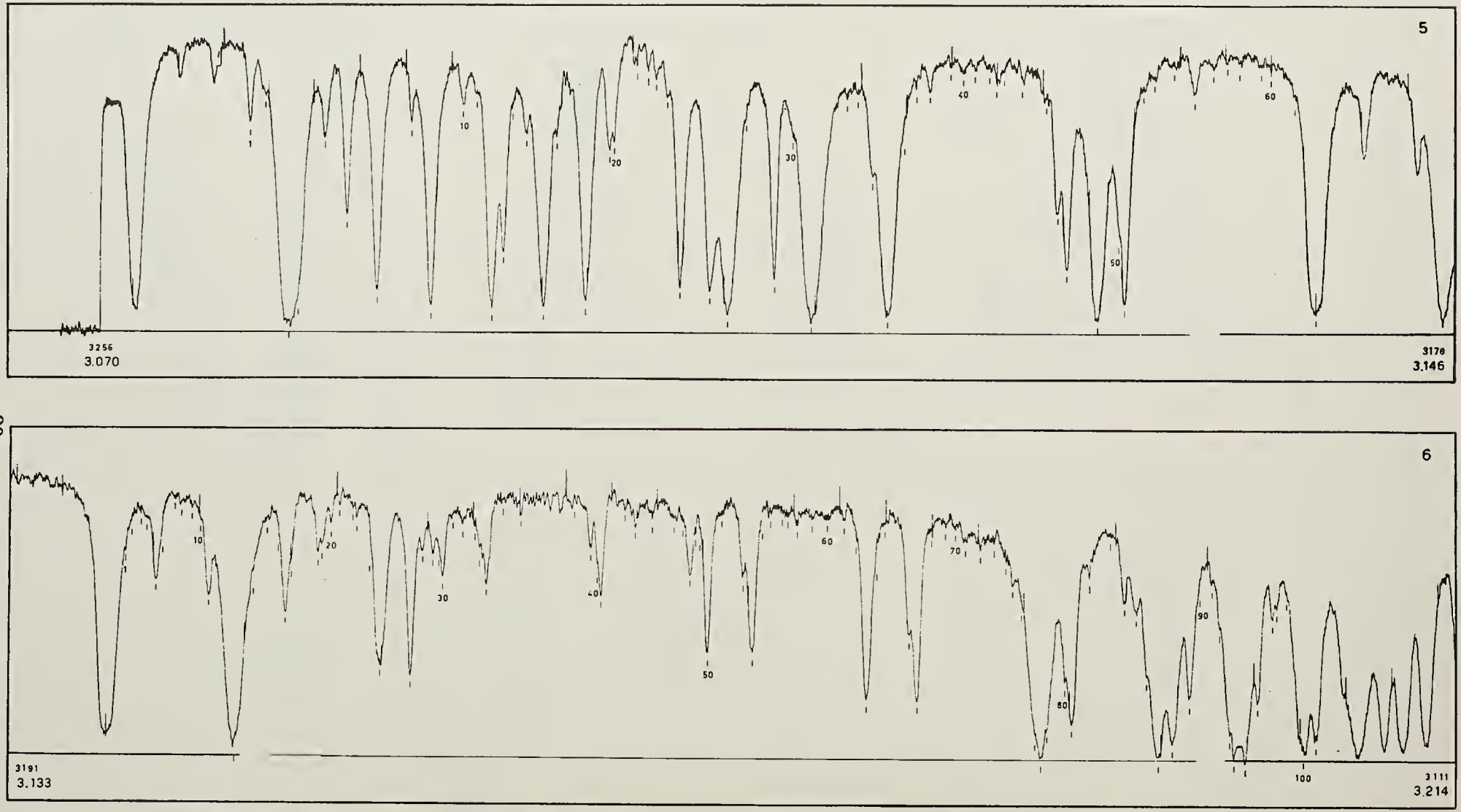


FIGURE 2. *An example of a high resolution solar absorption spectrograph for a portion of the 2.7μ region taken from the Migeotte Atlas.*

The upper numbers along the abscissa indicate the frequency in wave numbers; the lower numbers indicate the wavelength in microns.

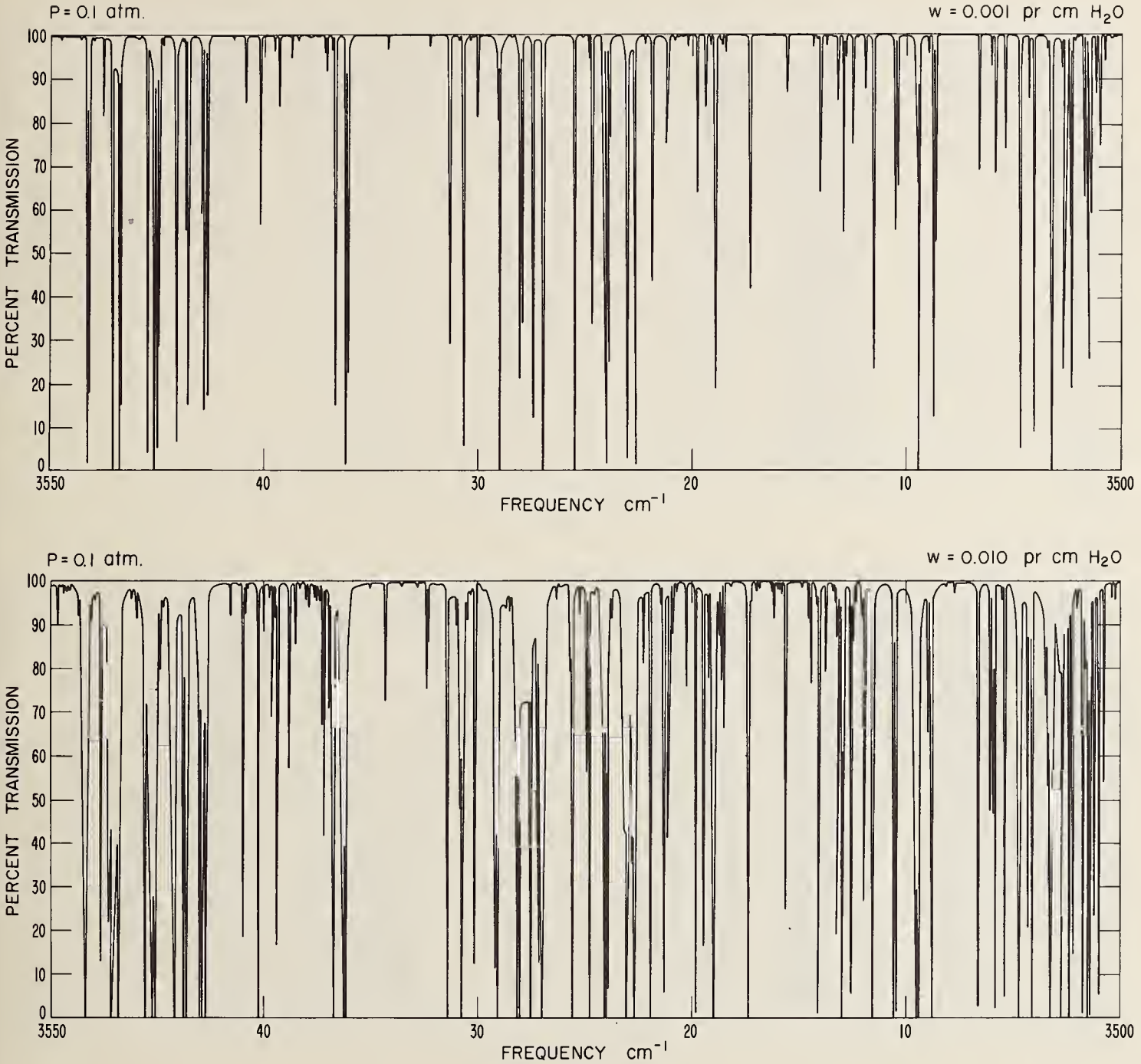


FIGURE 3. *Computed high resolution theoretical spectra for the frequency range 3500 to 4000 cm^{-1} at a pressure of 0.1 atmosphere and at concentrations of 0.001 and 0.01 cm of precipitable water vapor for a temperature of 287.7 °K.*

It should be noted that for the range 3950 to 4000 cm^{-1} in the wing of the band wbere the absorption is weak, the concentrations used are 0.01 and 0.10 cm of precipitable water vapor.

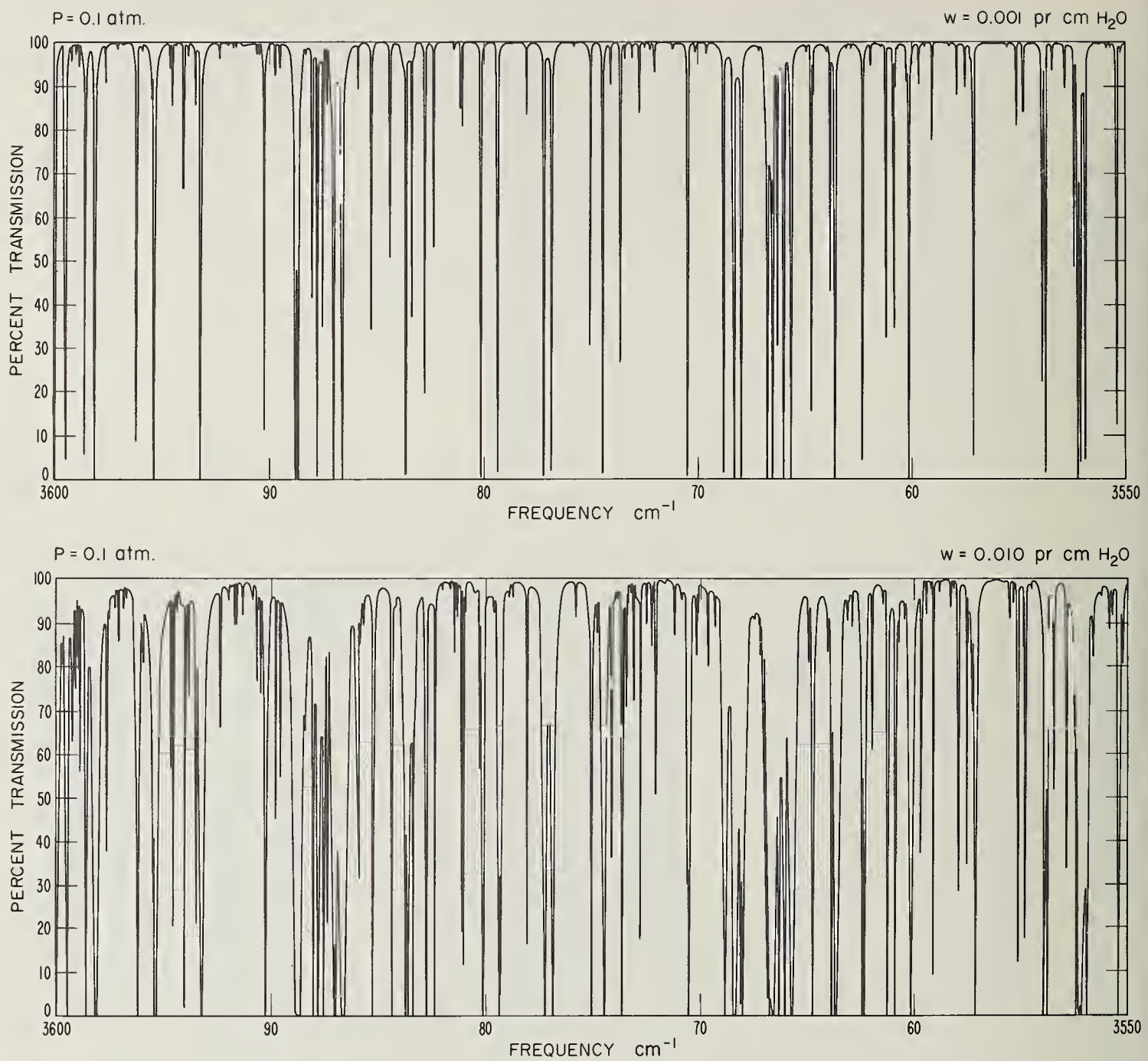


FIGURE 3.—Continued

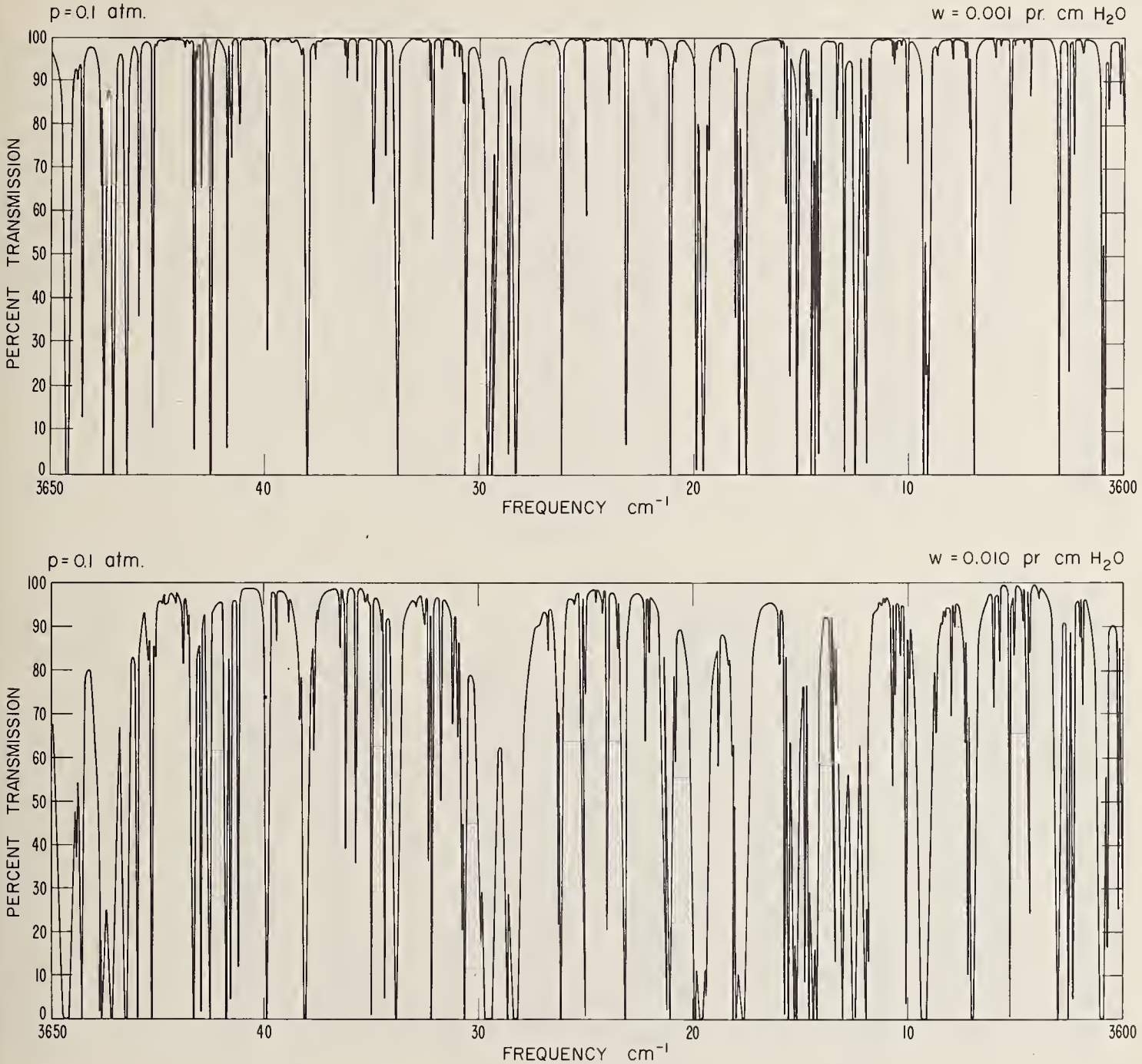
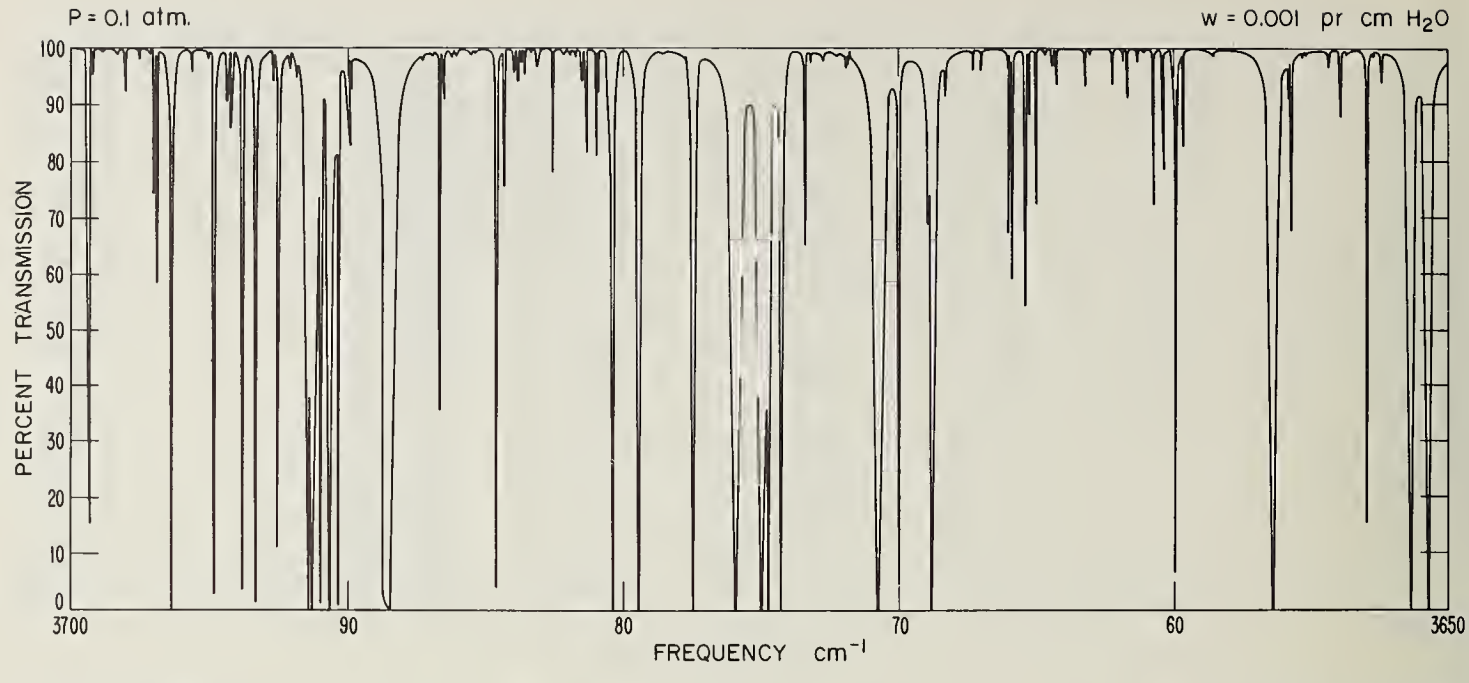


FIGURE 3.—Continued



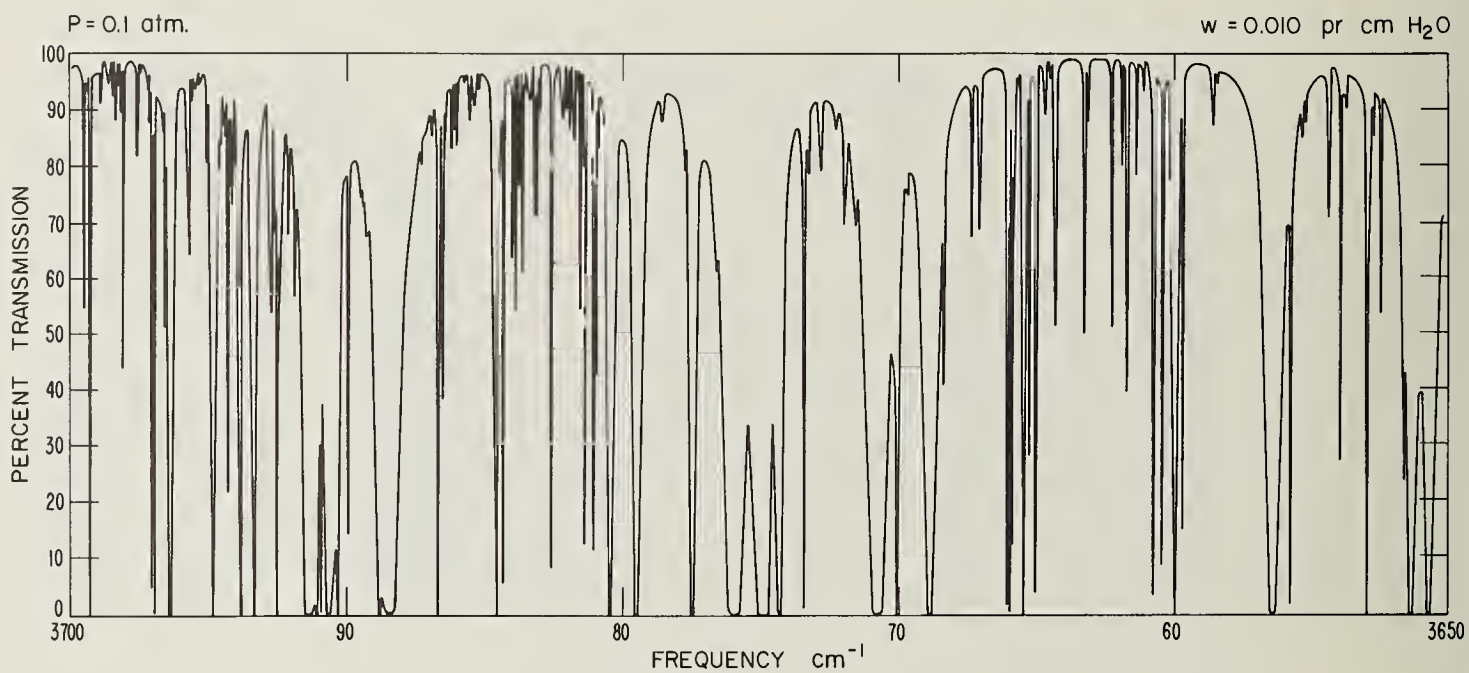
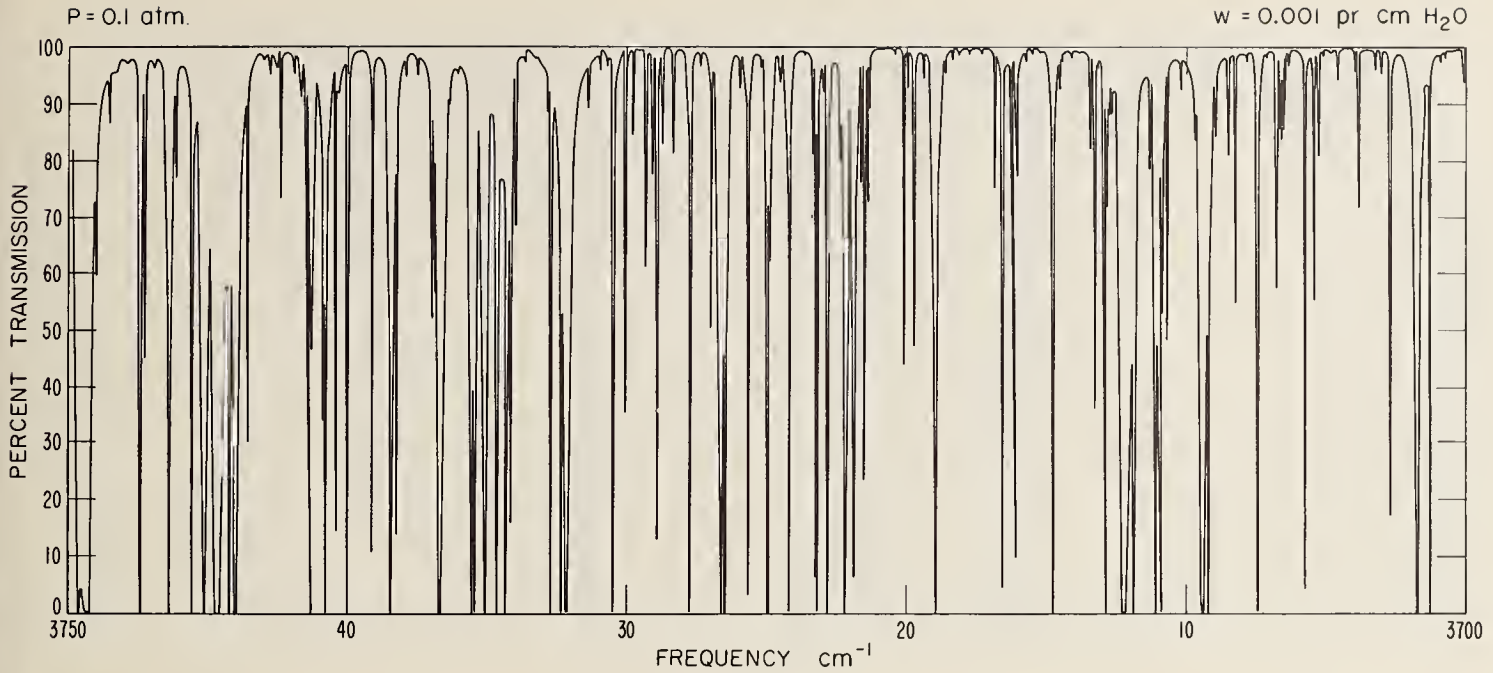


FIGURE 3.—Continued



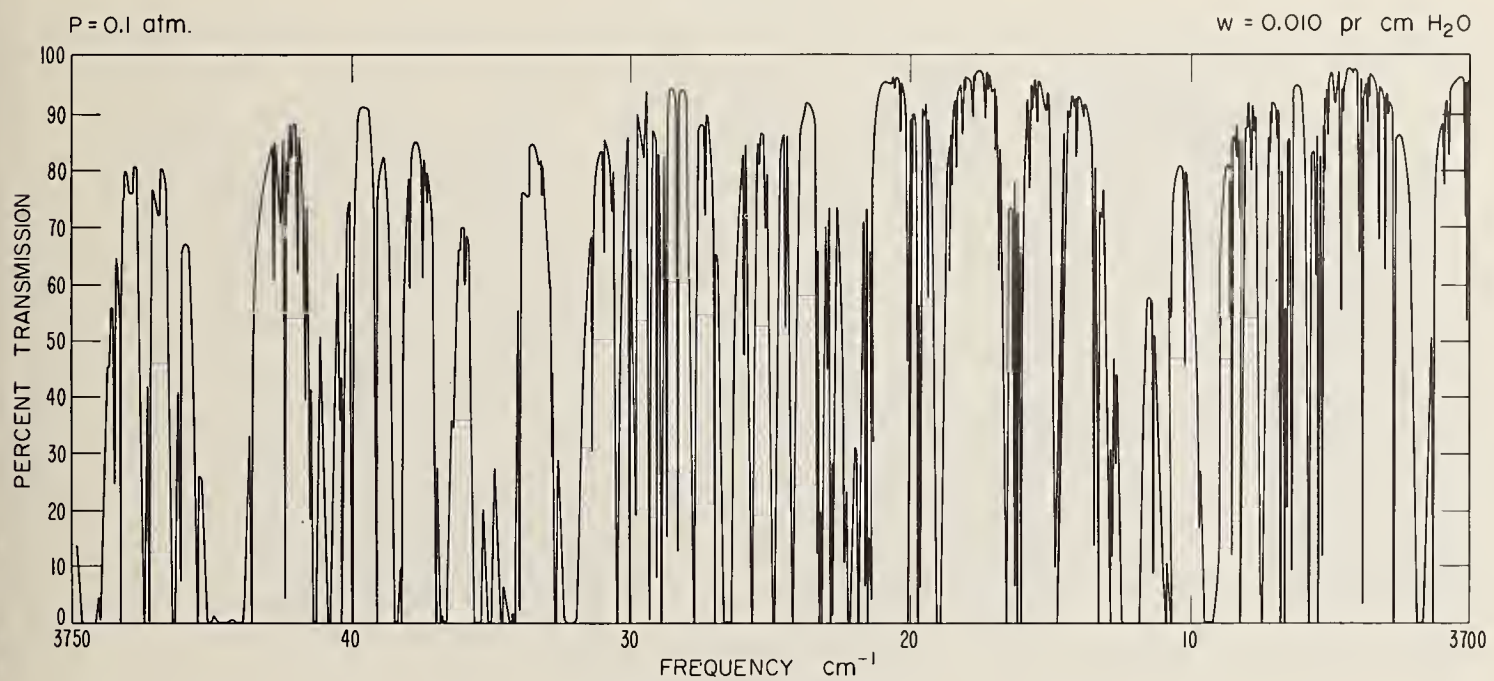


FIGURE 3.—Continued

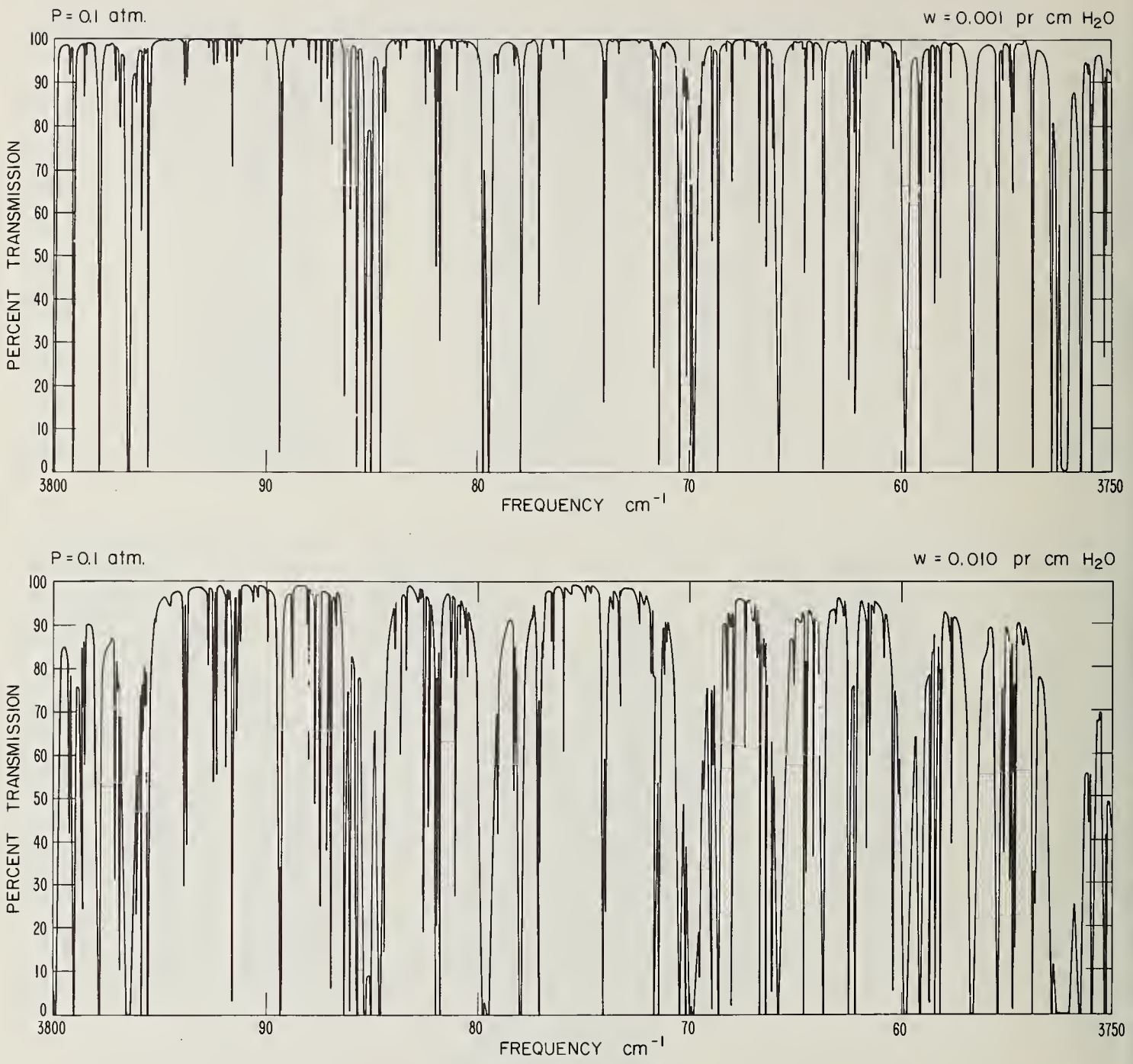
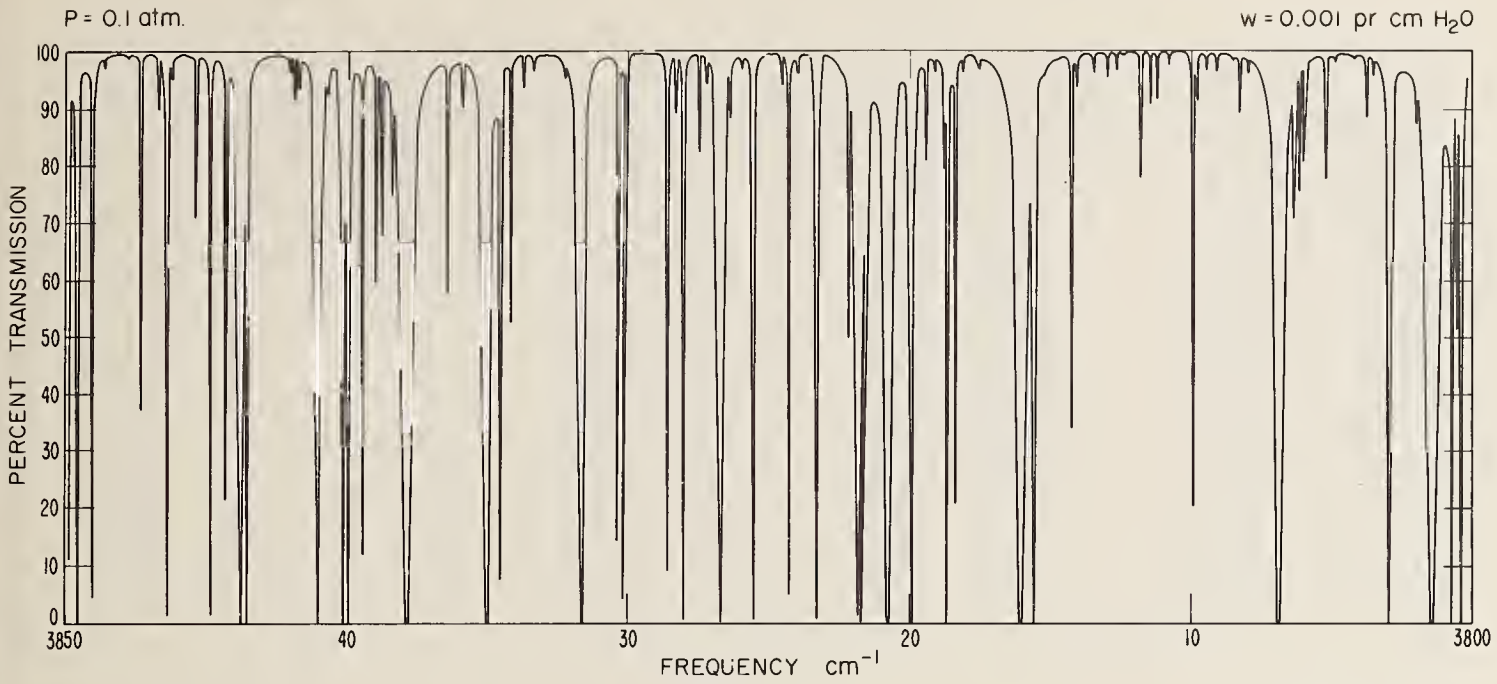


FIGURE 3.—Continued



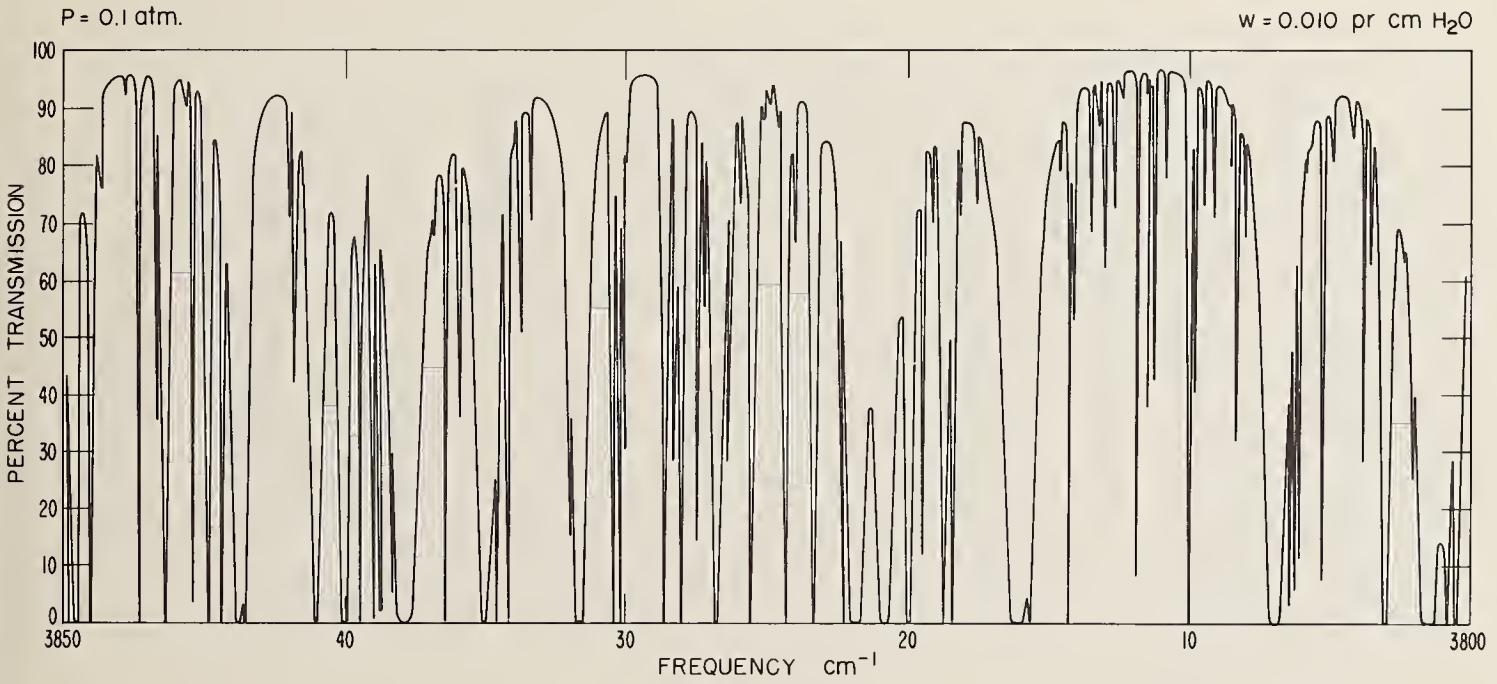


FIGURE 3.—Continued

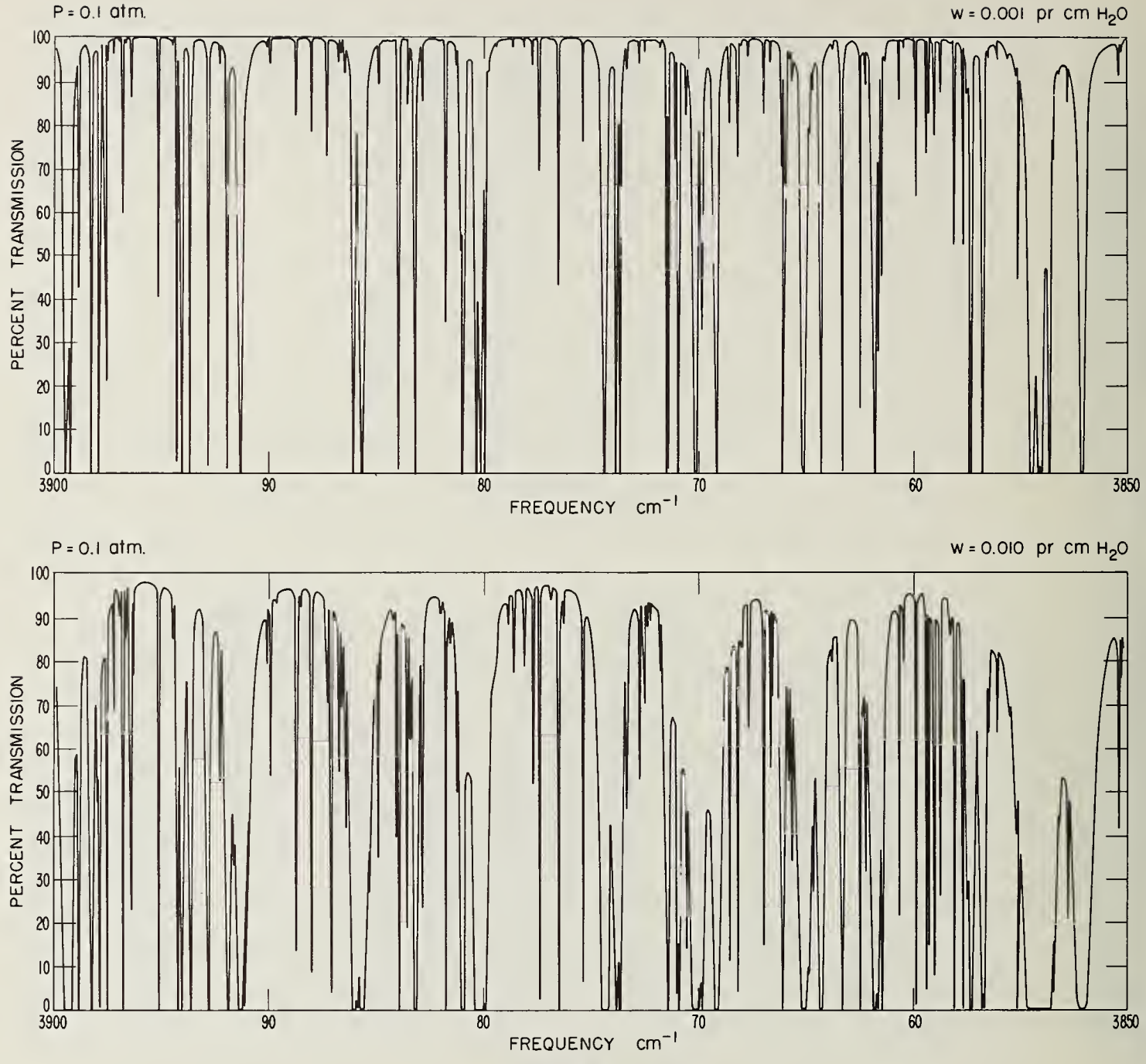
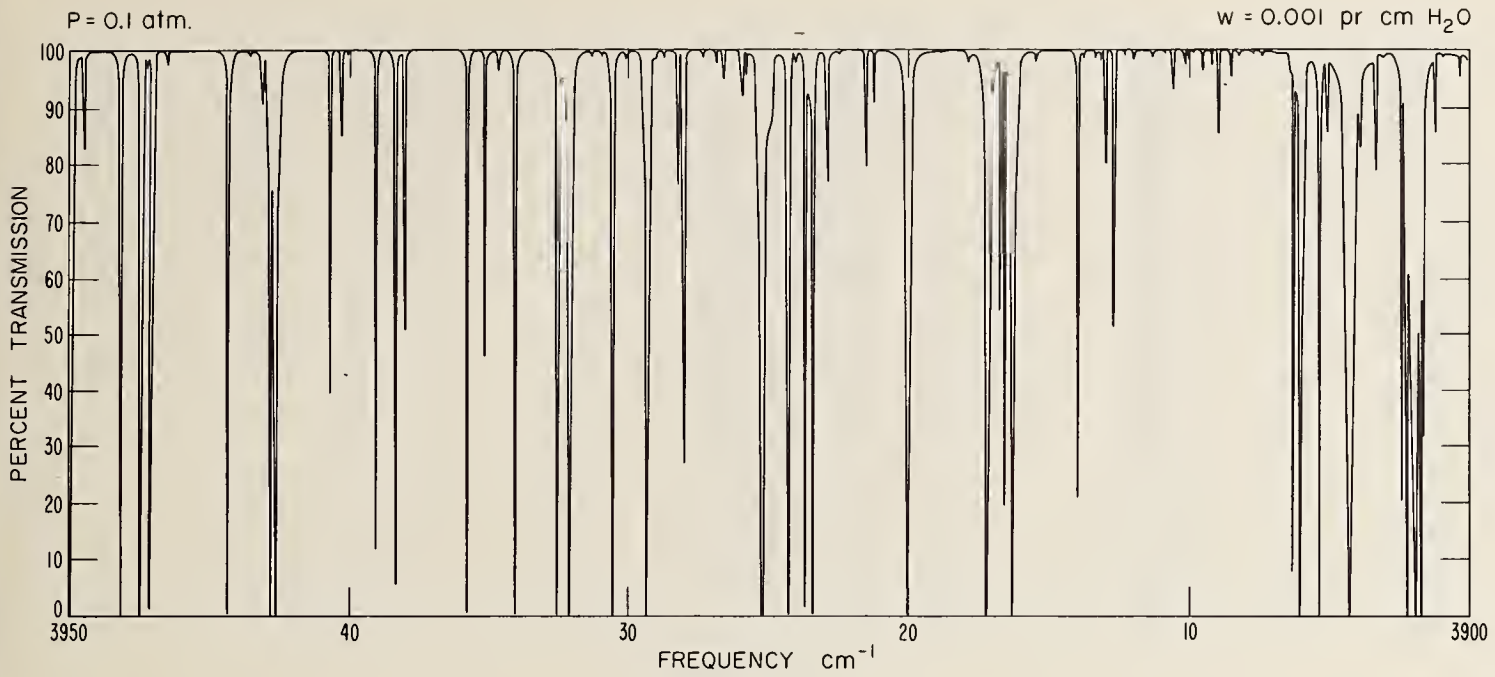


FIGURE 3.—Continued



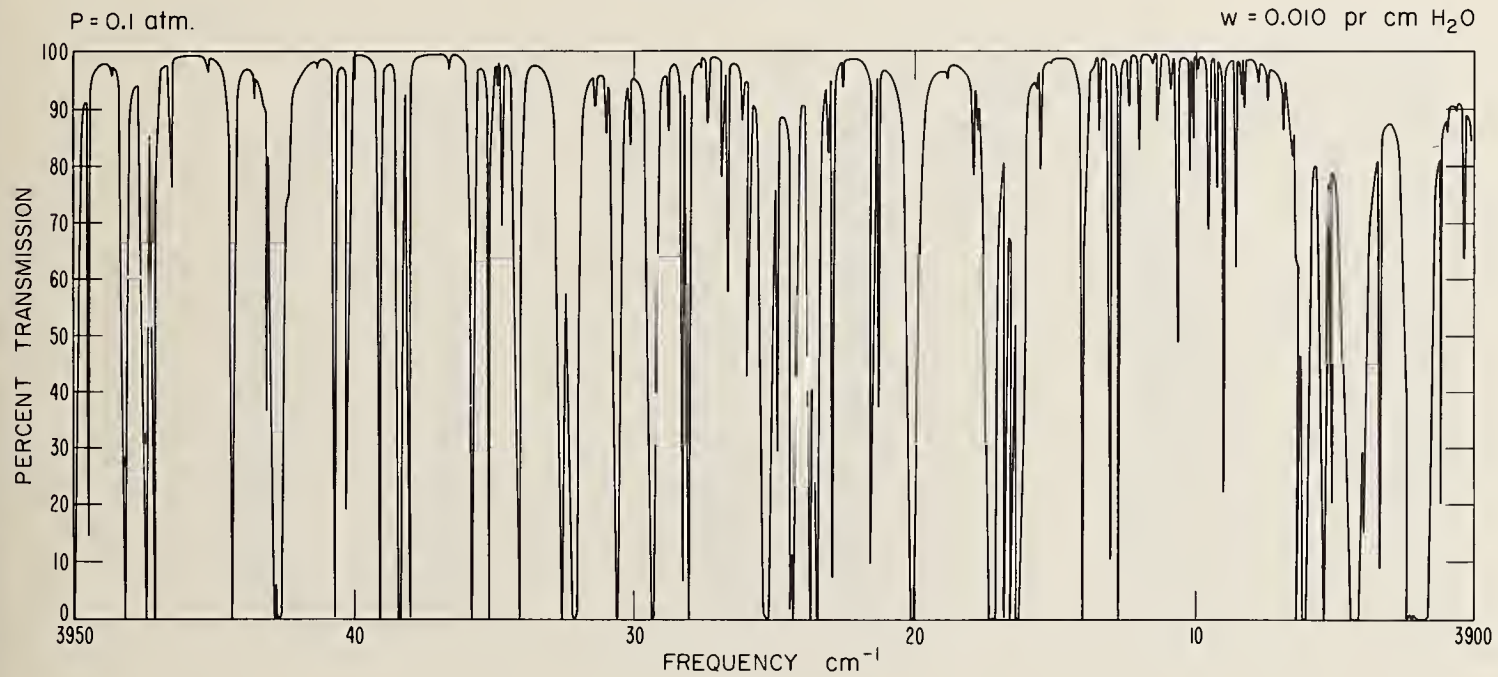


FIGURE 3.—Continued

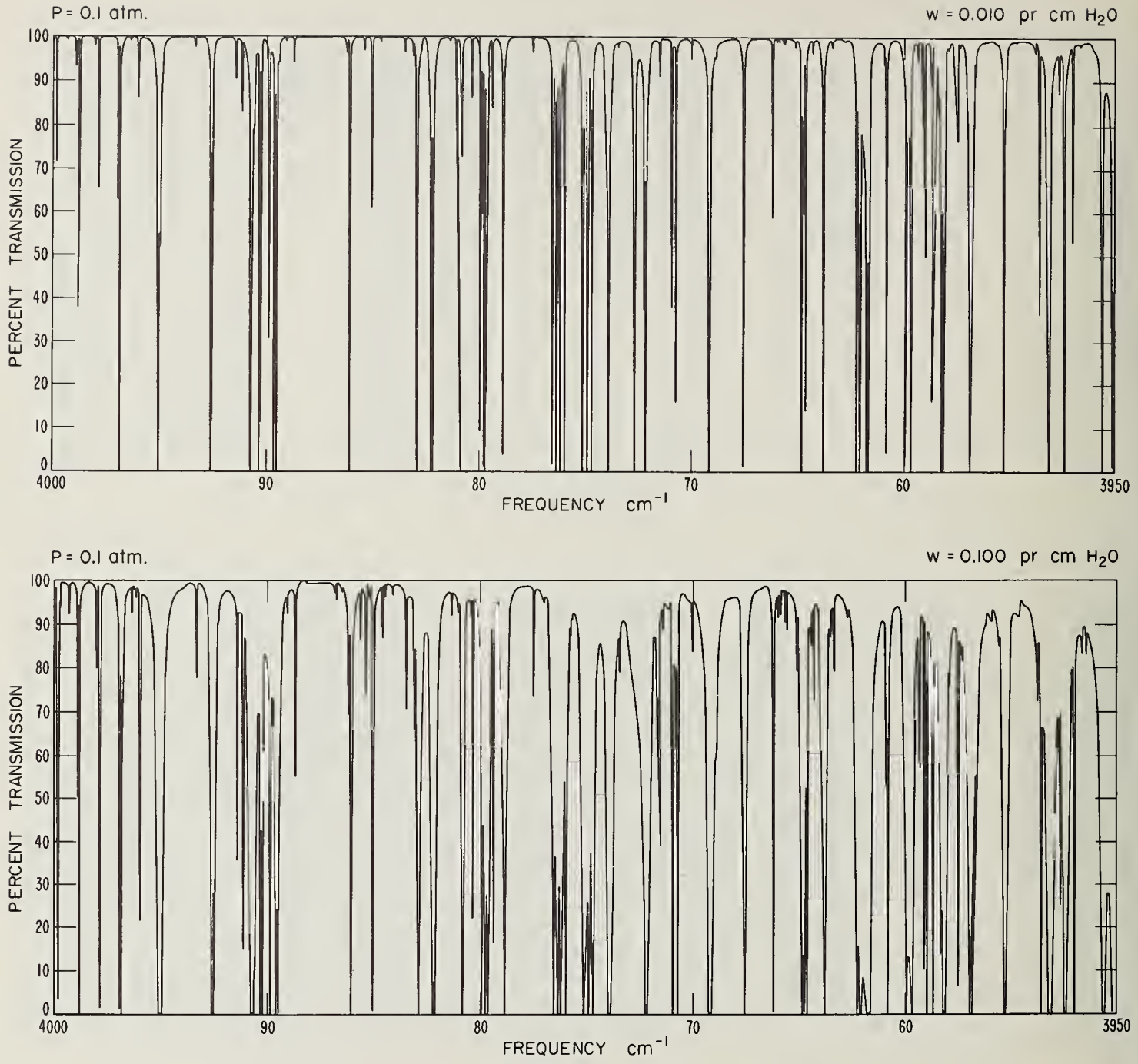


FIGURE 3.—Continued

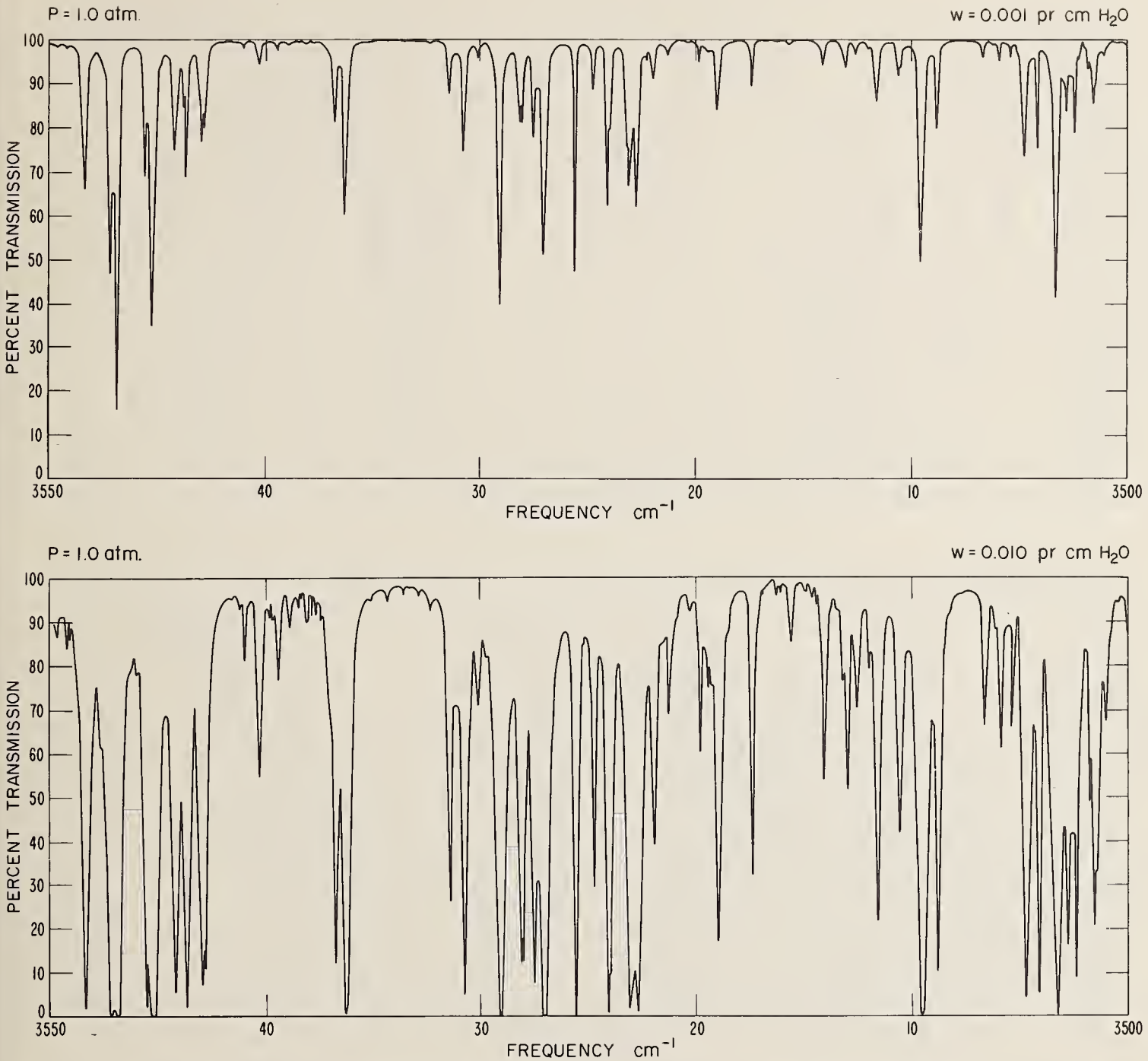


FIGURE 4. *Computed high resolution theoretical spectra for the frequency range 3500 to 4000 cm^{-1} at a pressure of 1.0 atmosphere and at concentrations of 0.001 and 0.01 cm of precipitable water vapor for a temperature of 287.7 °K.*

It should be noted that for the range 3950 to 4000 cm^{-1} in the wing of the band where the absorption is weak, the concentrations used are 0.01 and 0.10 cm of precipitable water vapor.

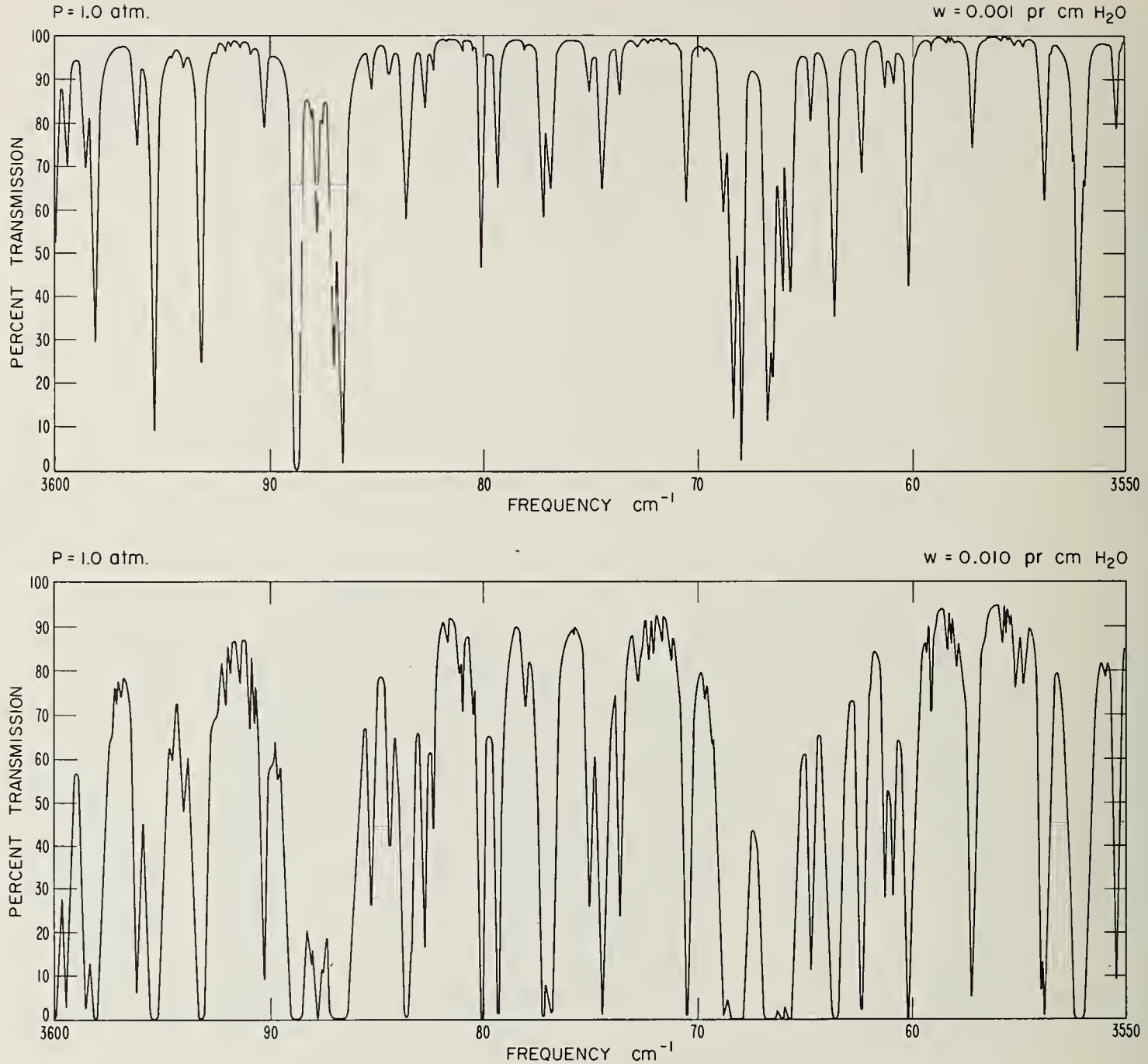


FIGURE 4.—Continued

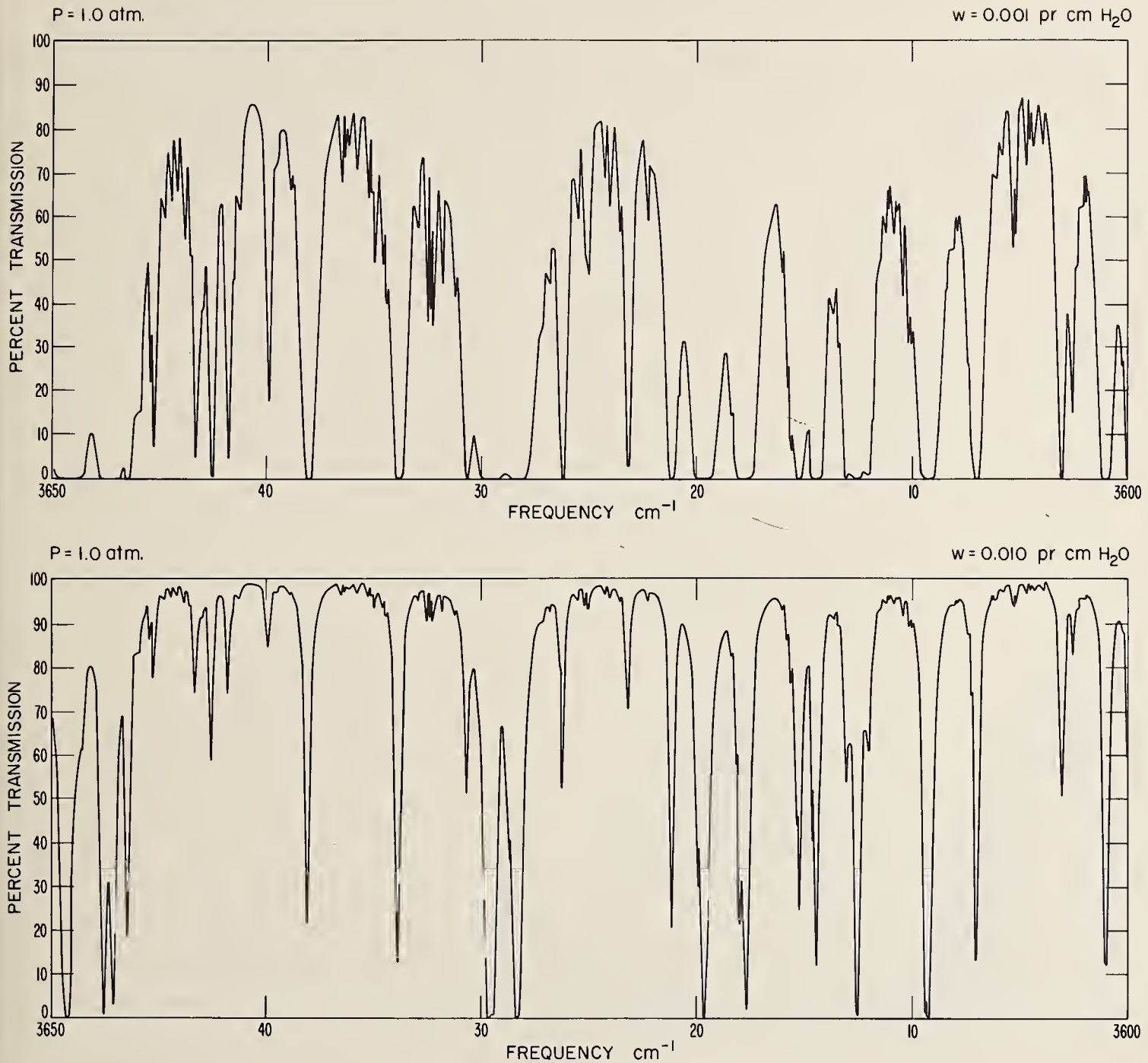


FIGURE 4.—Continued

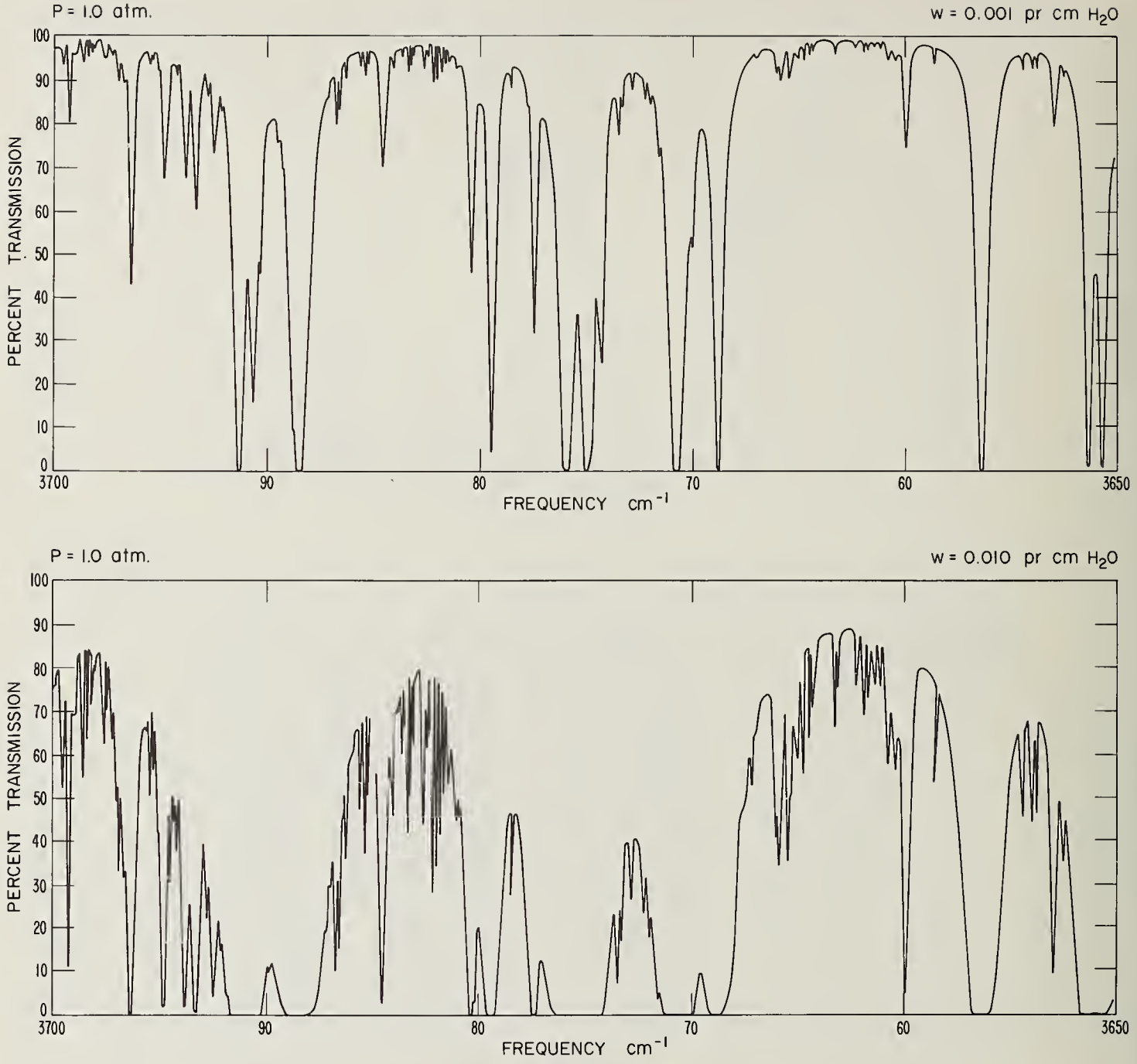


FIGURE 4.—Continued

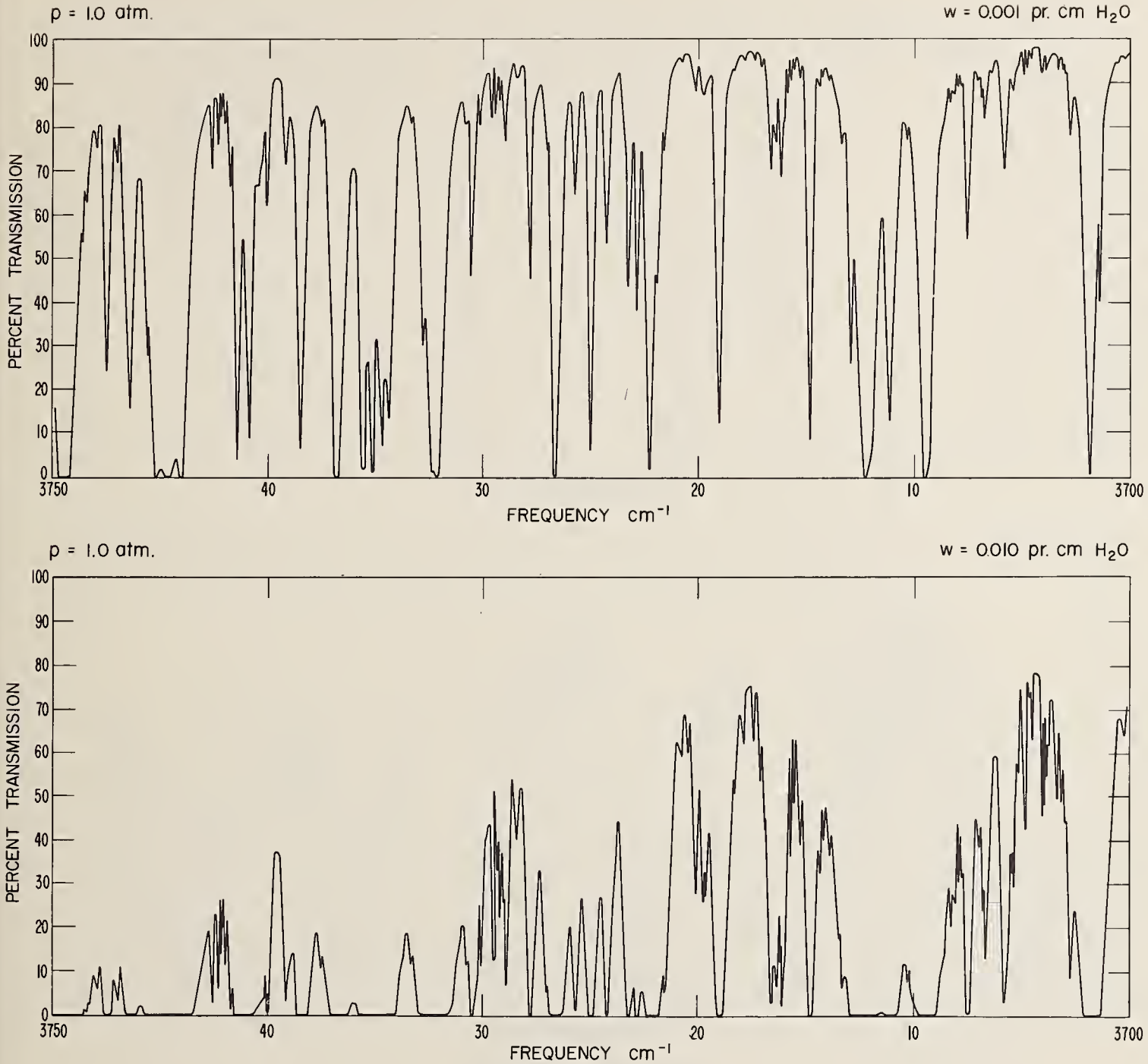
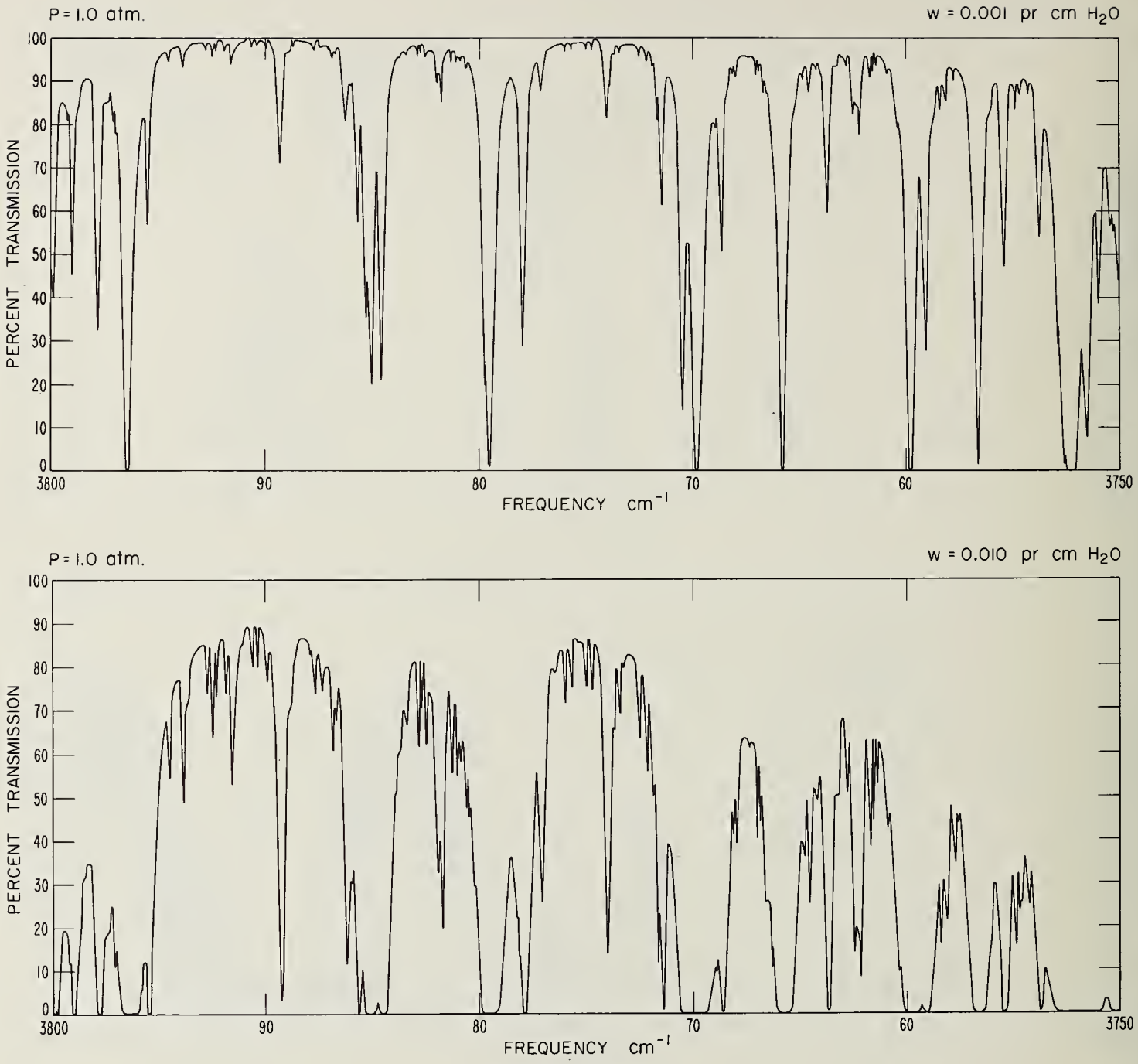


FIGURE 4.—Continued .



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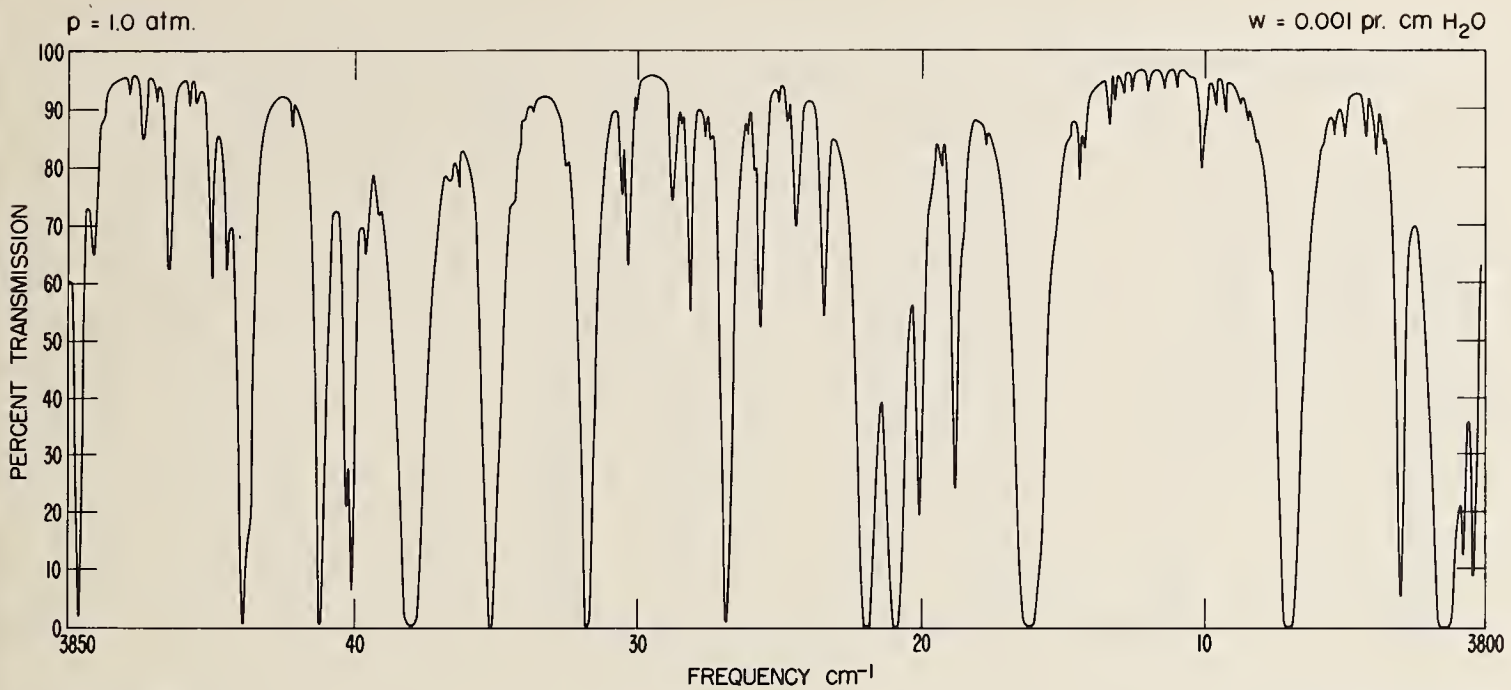


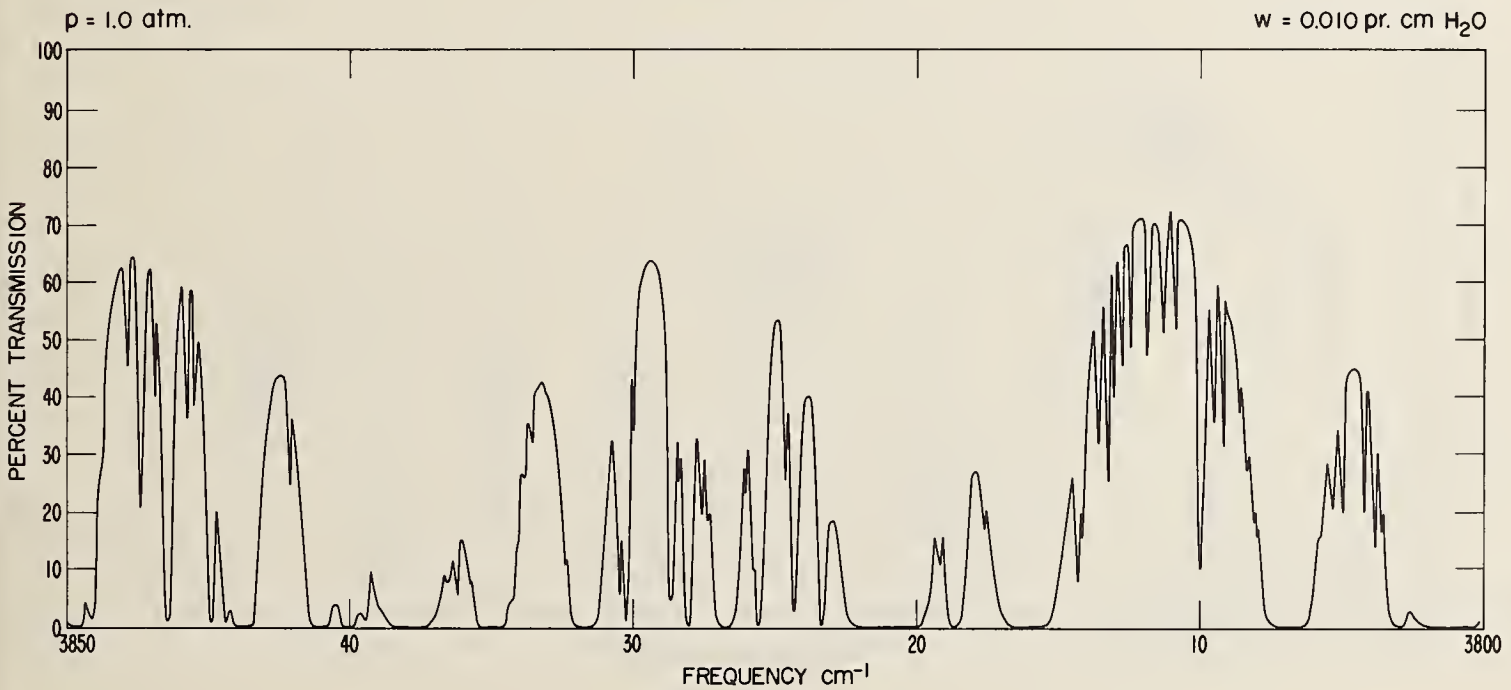
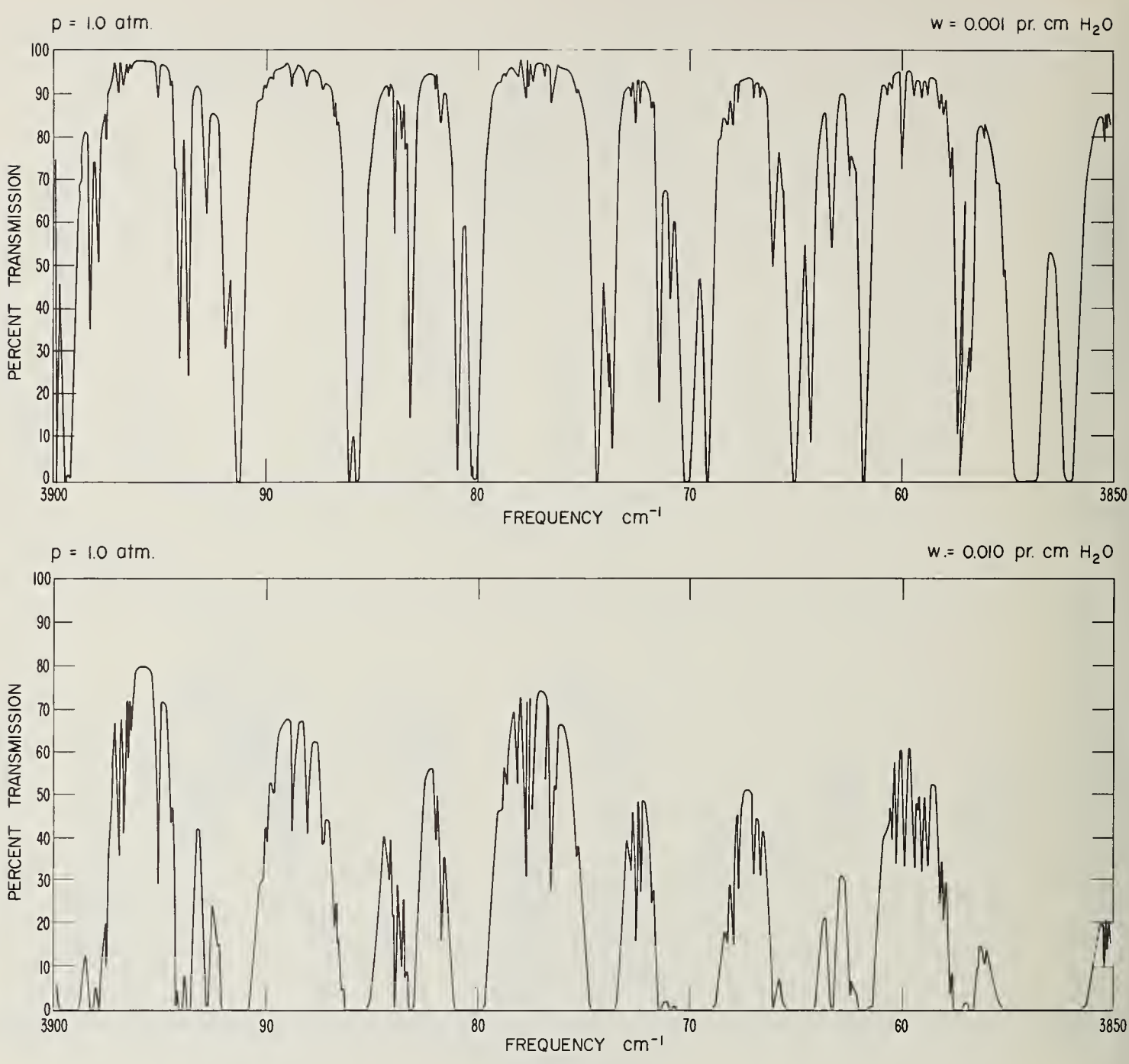


FIGURE 4.—Continued



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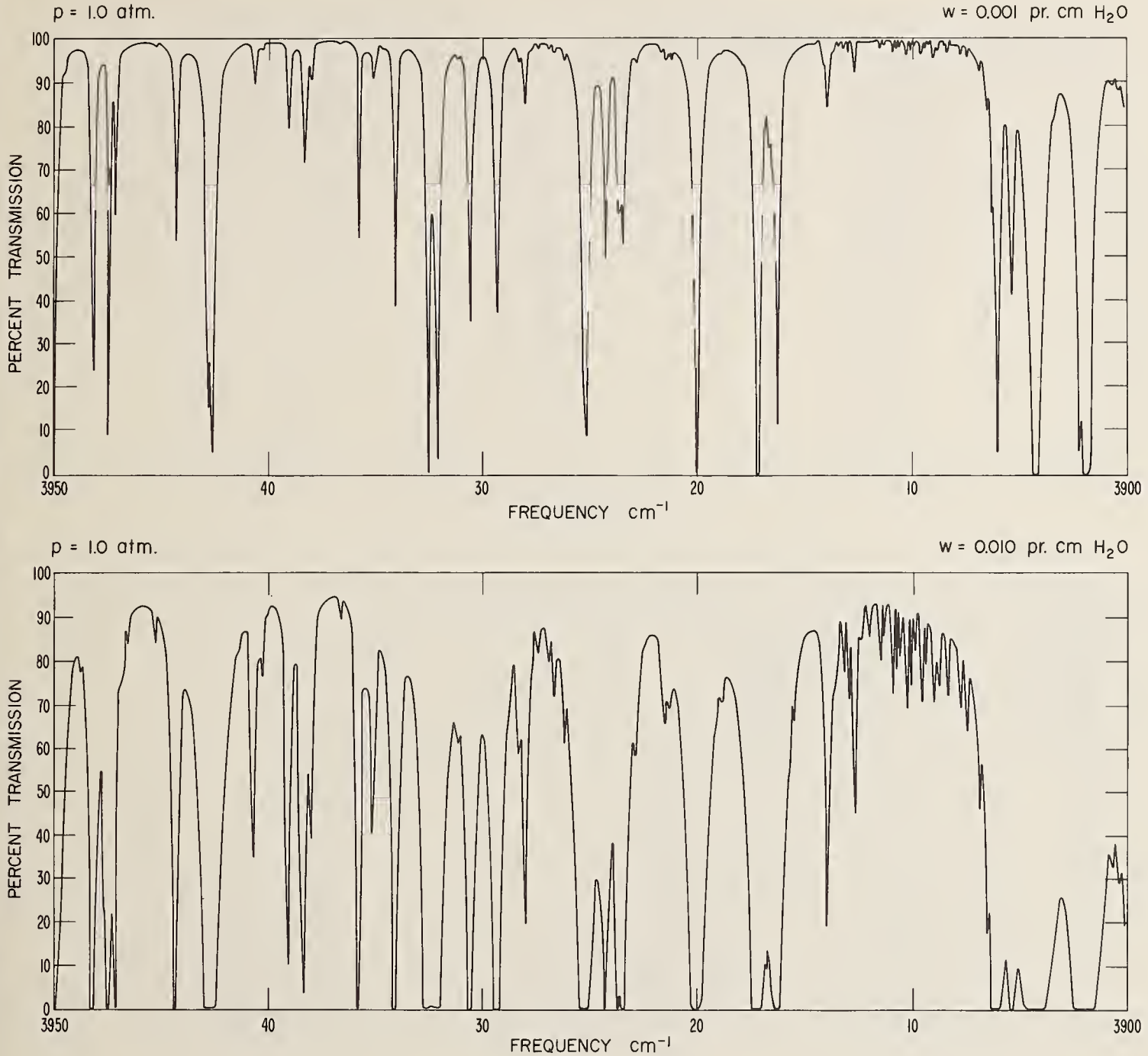
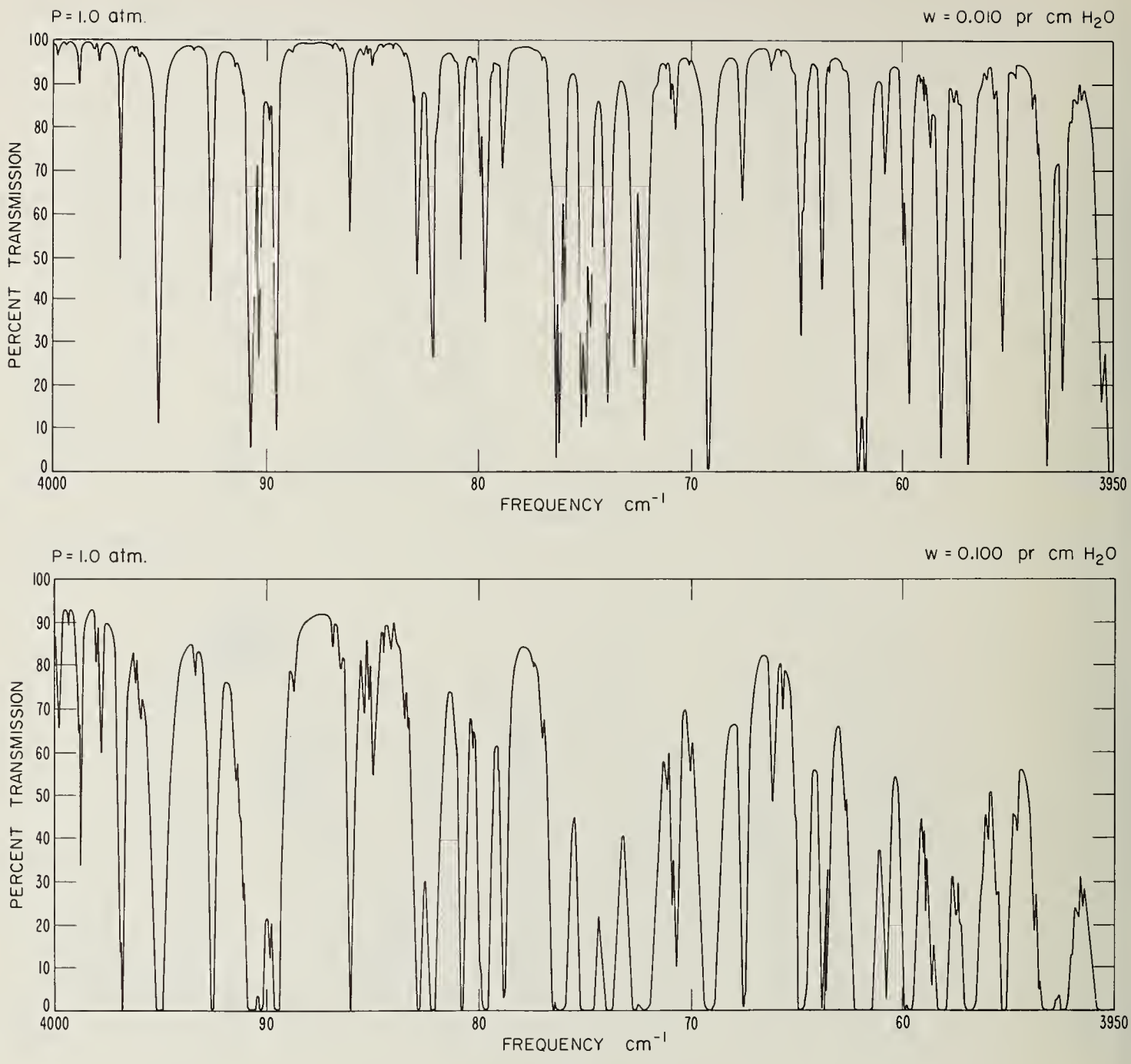


FIGURE 4.—Continued



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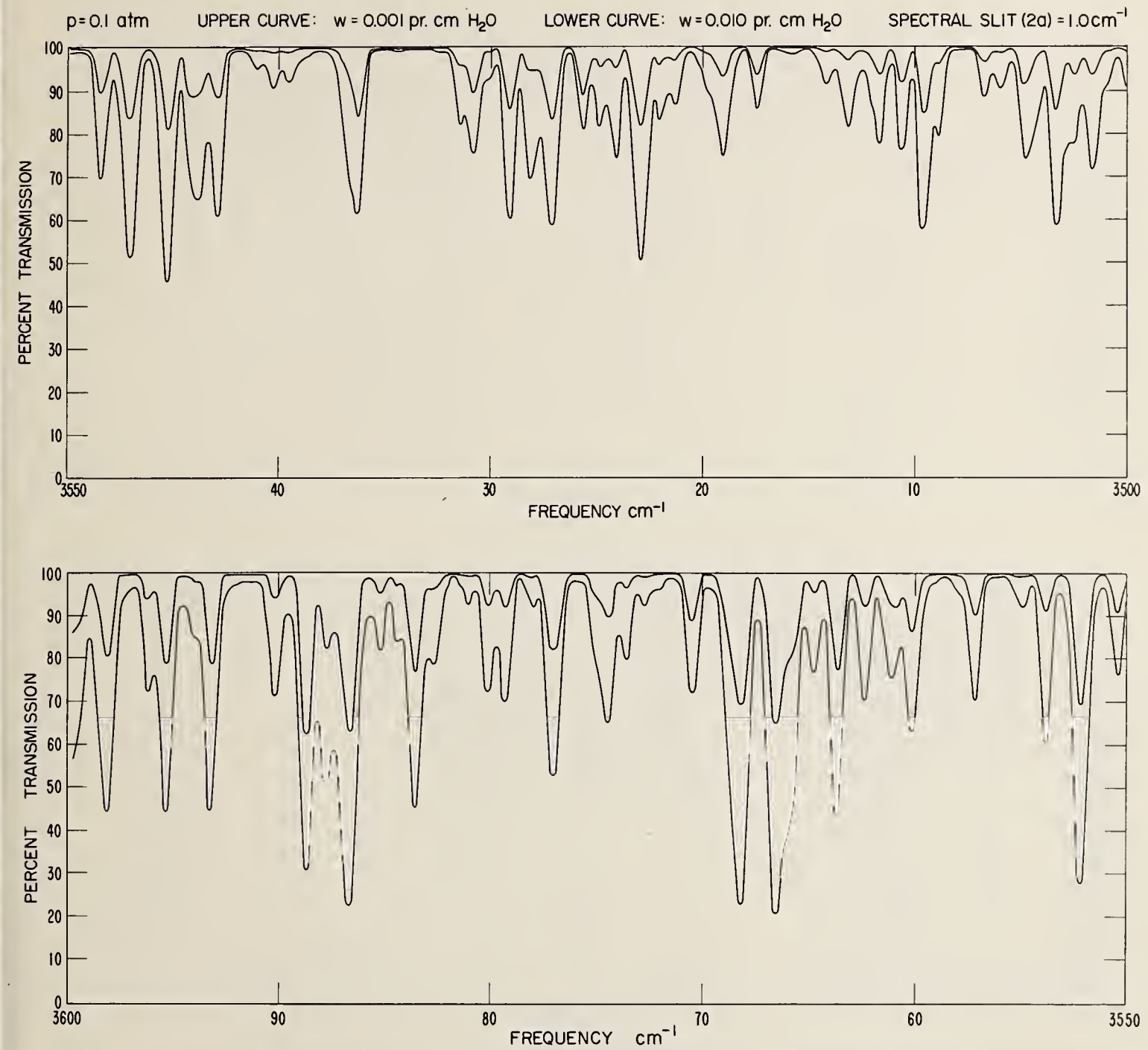

FIGURE 5. *Computed degraded water vapor transmission spectra for the frequency range 3500 to 4000 cm^{-1} at a pressure of 0.1 atmosphere, at concentrations of 0.001 and 0.01 cm of precipitable water vapor, for a temperature of 287.7 °K, and at a full spectral slit (triangular) span of 1.0 cm^{-1}.*

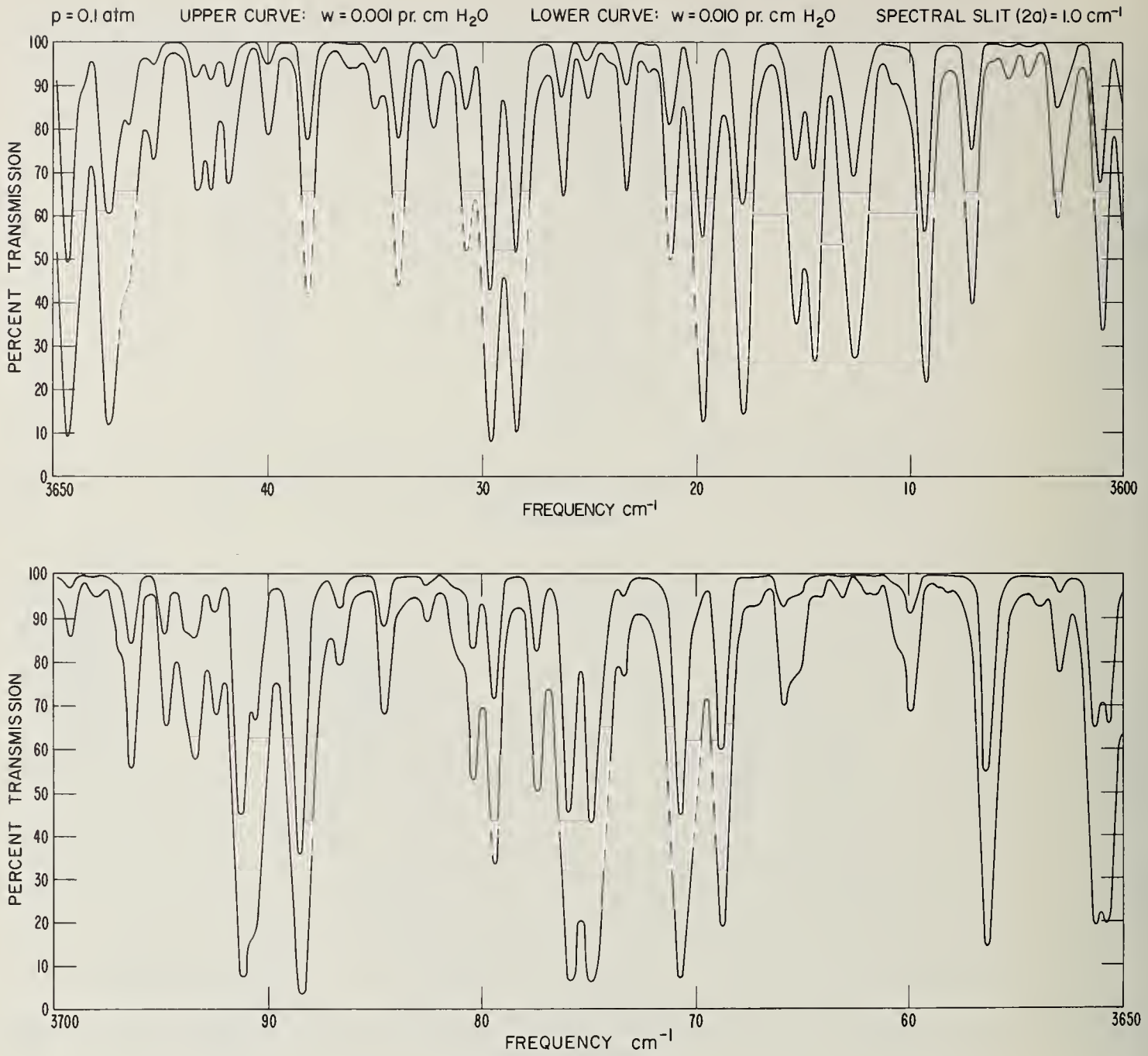

FIGURE 5.—Continued

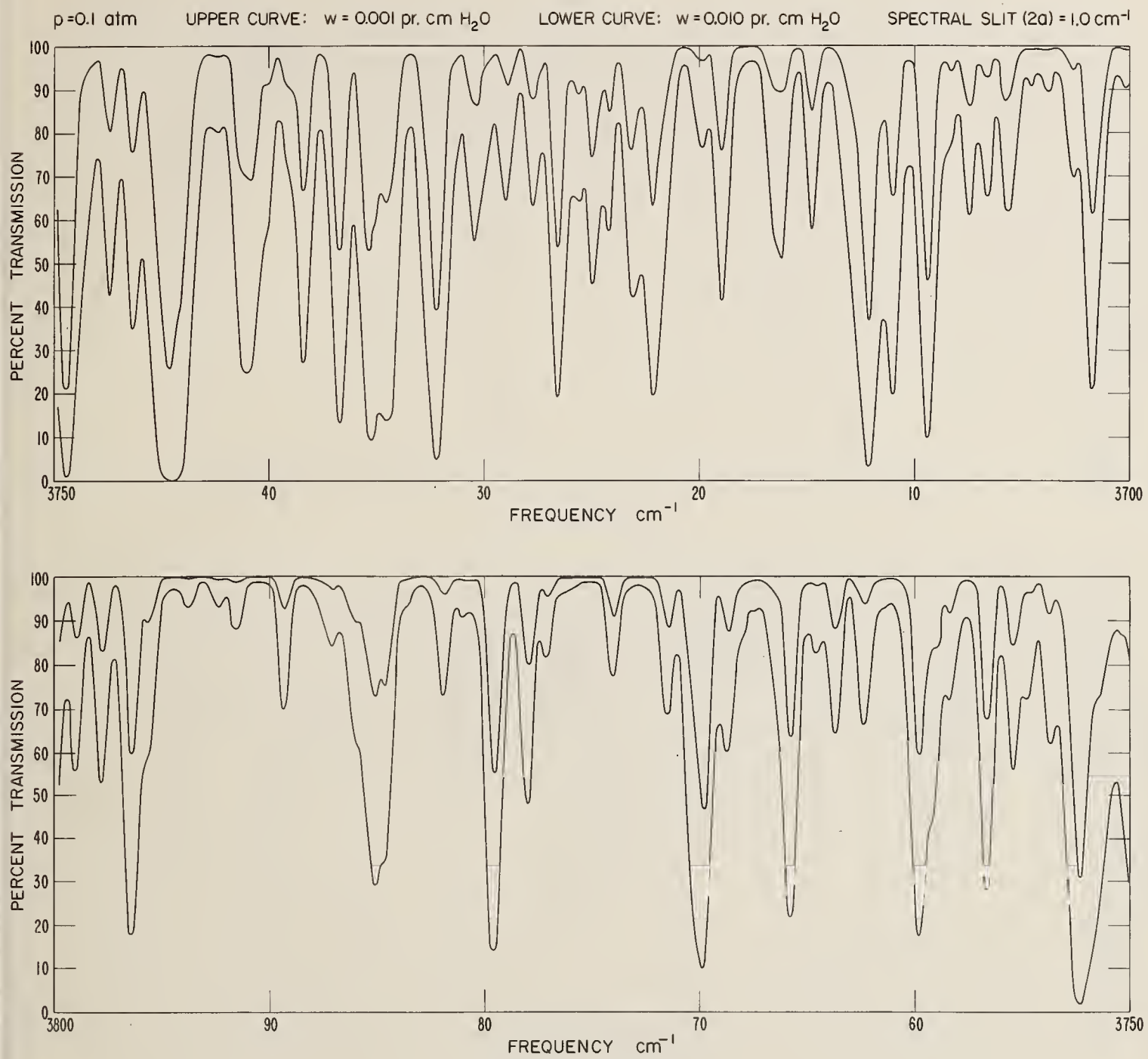

FIGURE 5.—Continued

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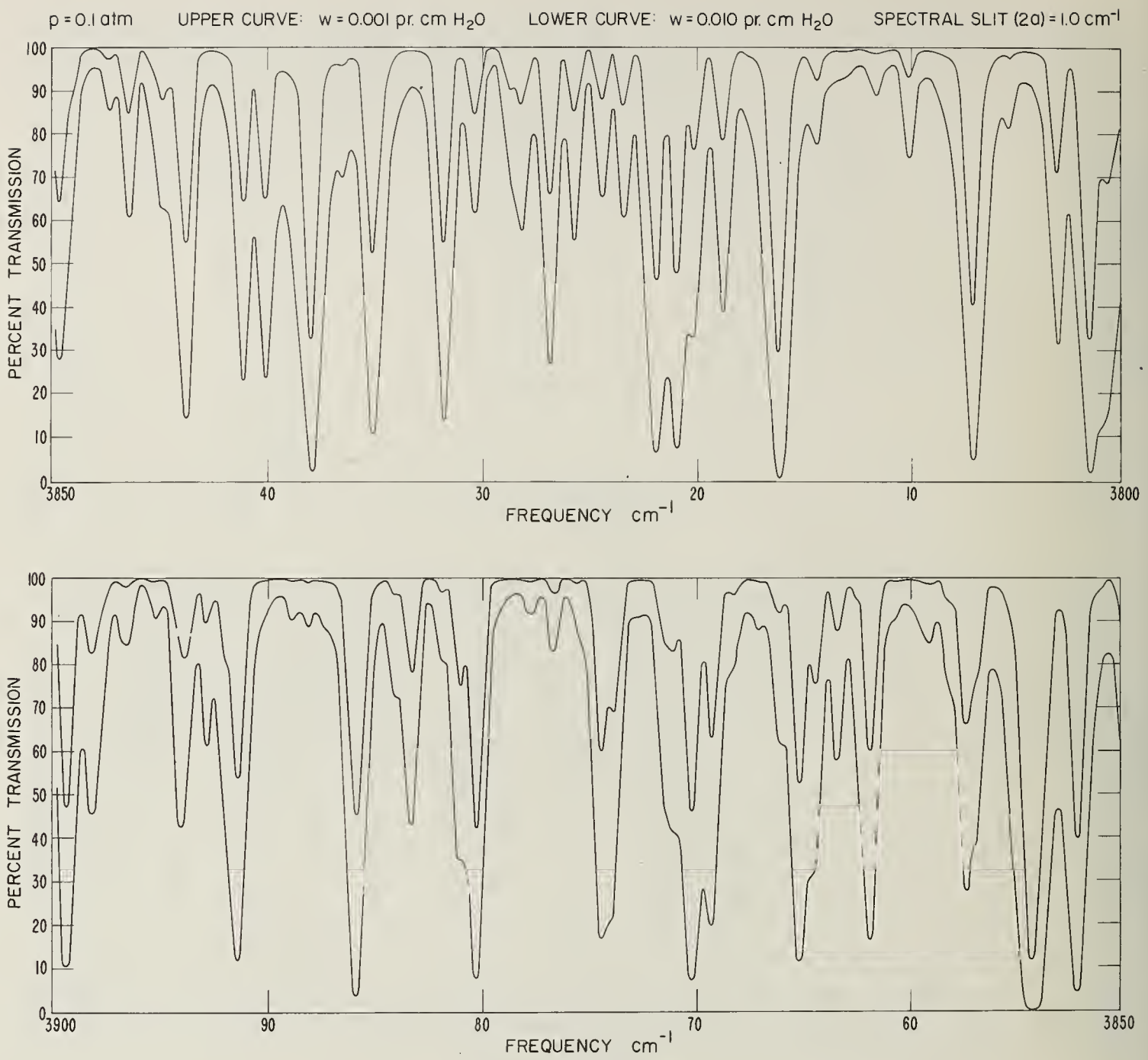

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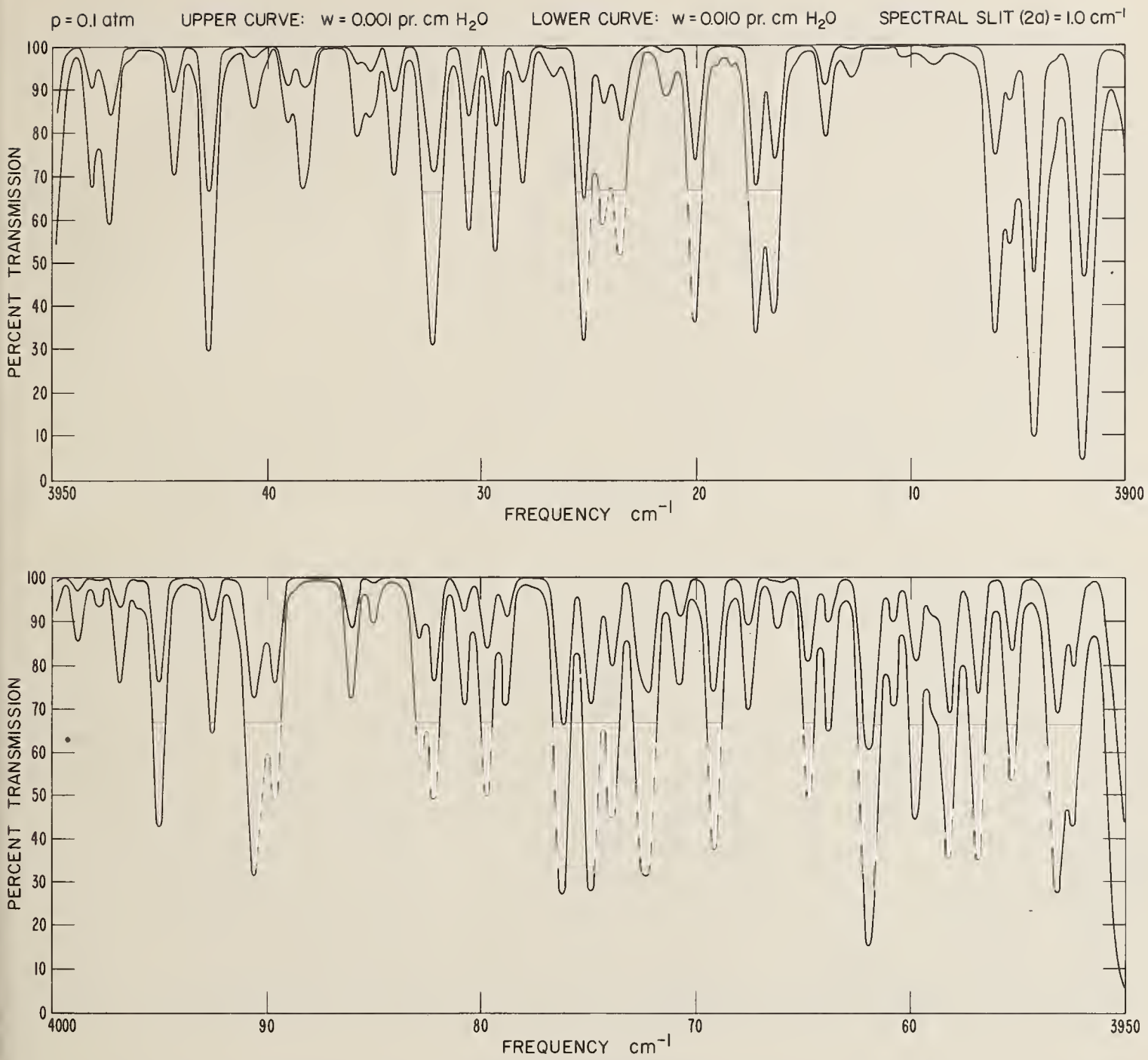

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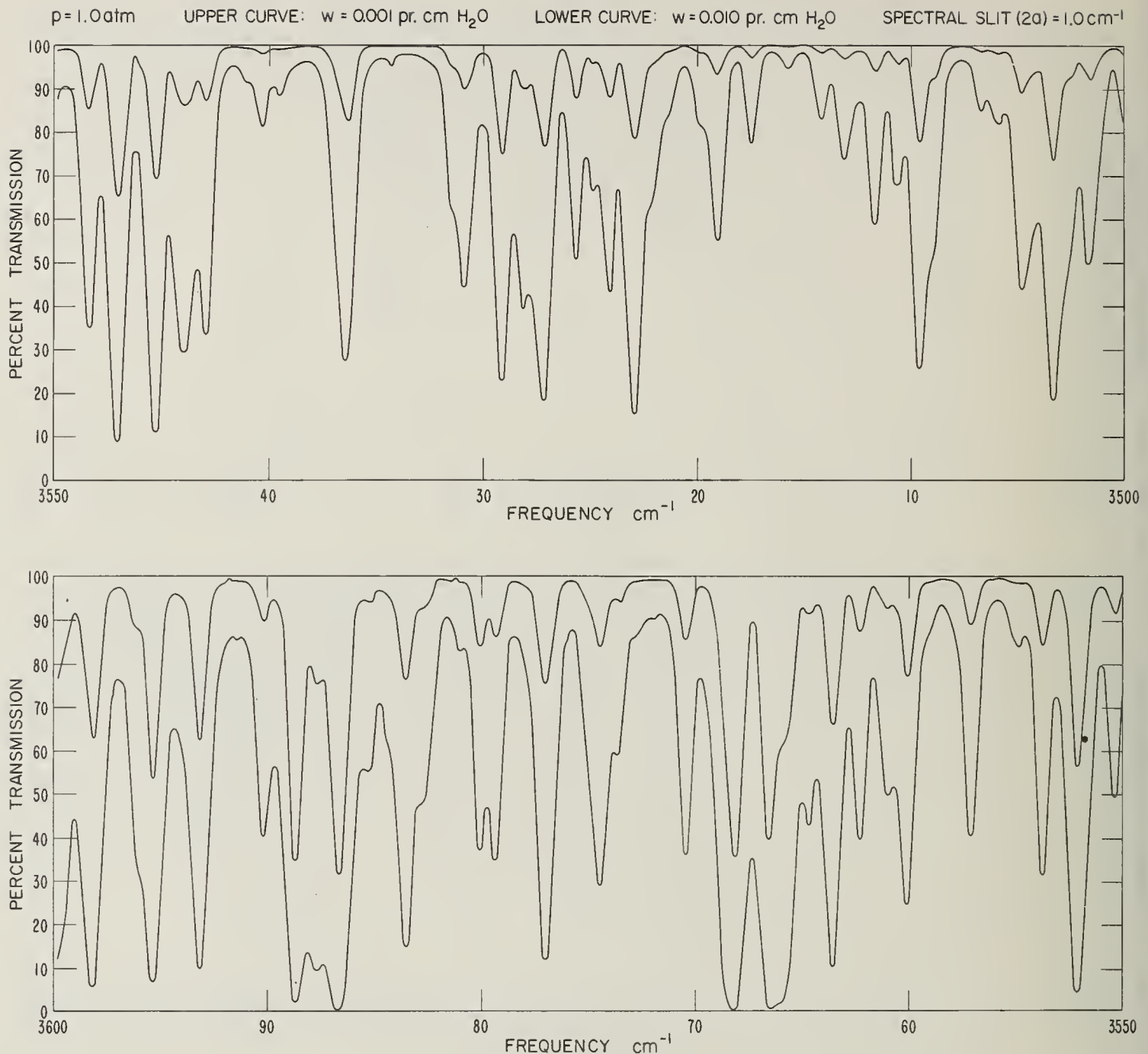
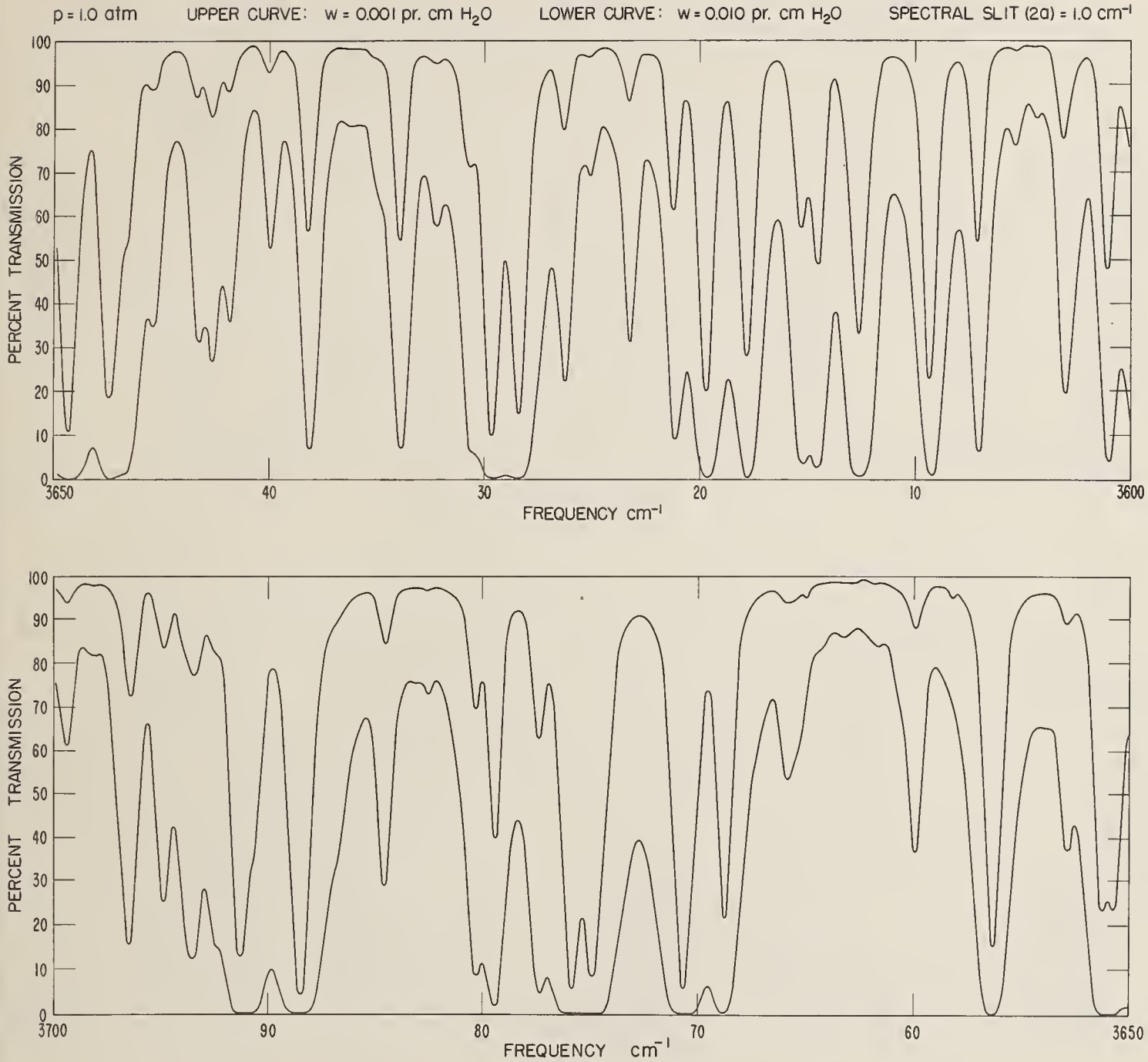


FIGURE 6. *Computed degraded water vapor transmission spectra for the frequency range 3500 to 4000 cm^{-1} at a pressure of 1.0 atmosphere, at concentrations of 0.001 and 0.01 cm of precipitable water vapor, for a temperature of 287.7 °K, and at a full spectral slit (triangular) span of 1.0 cm^{-1}.*



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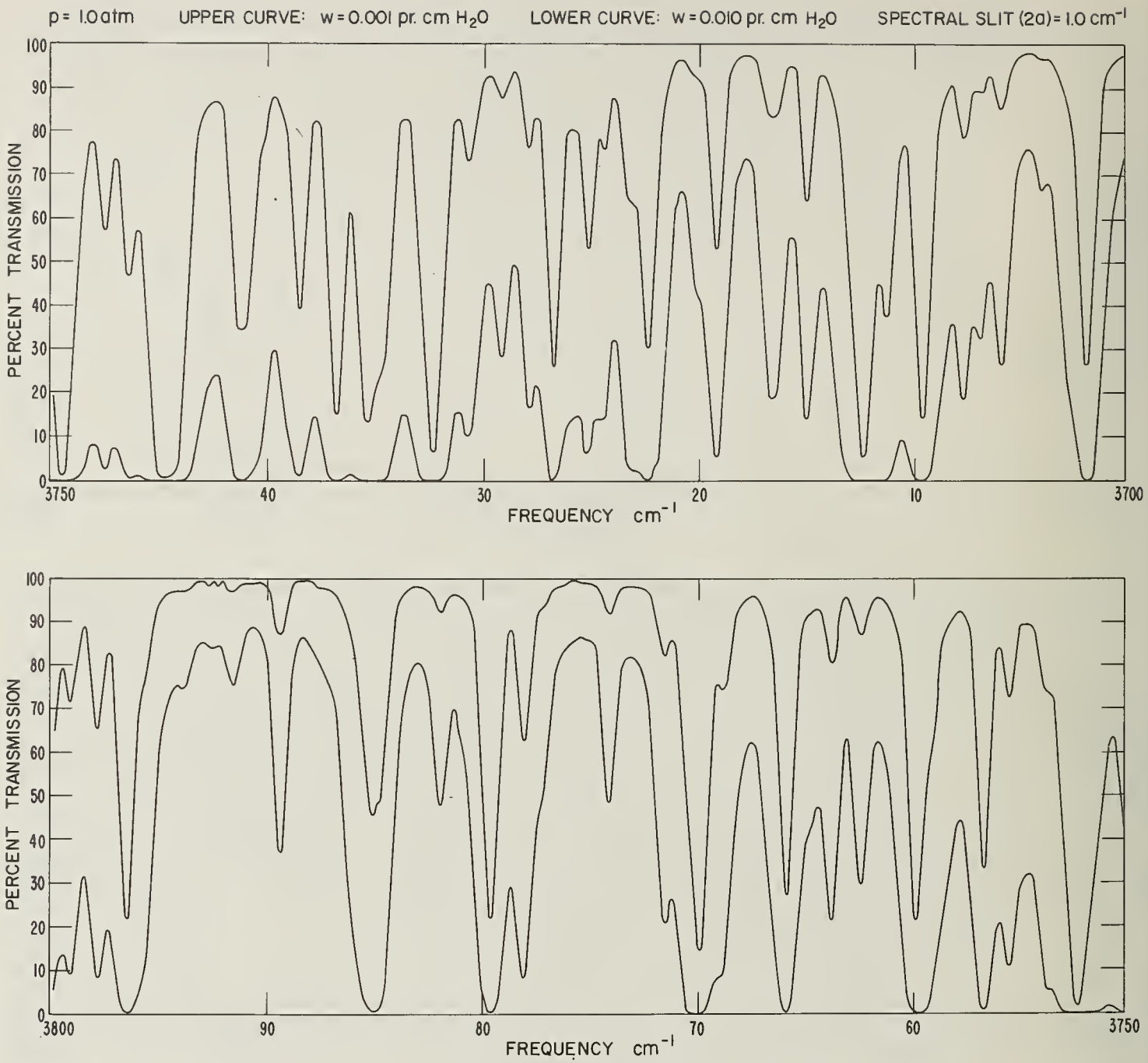

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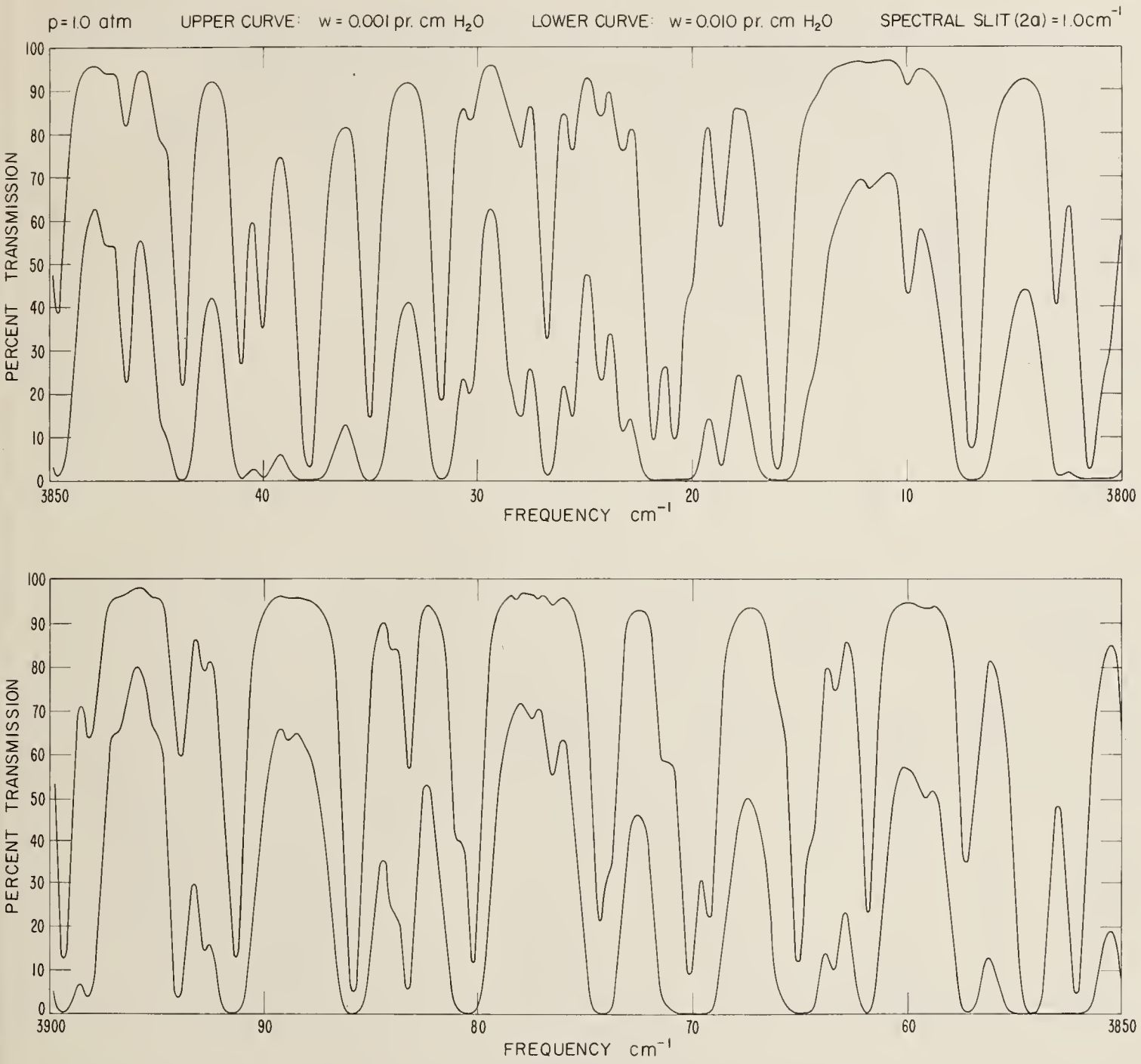

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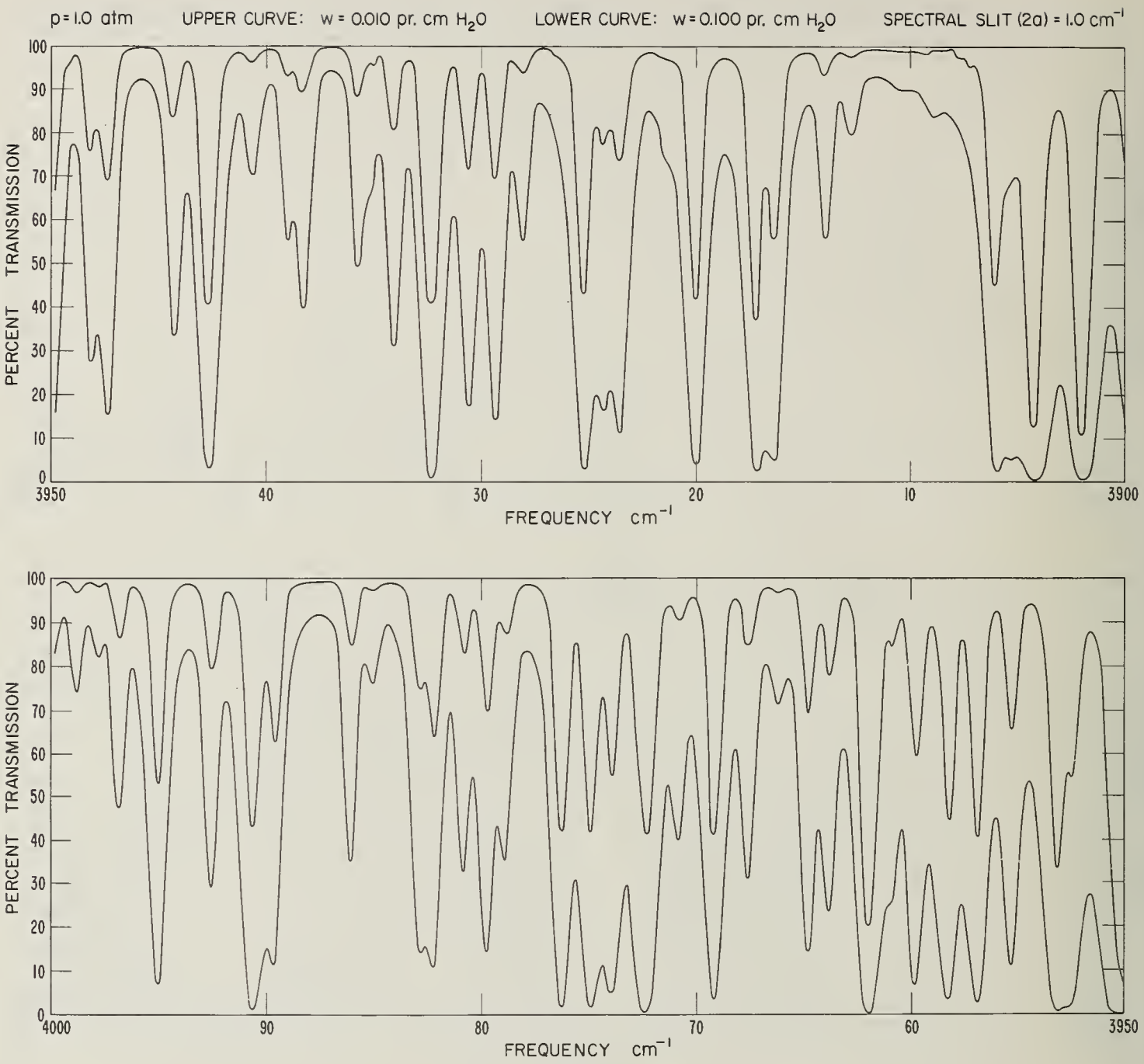

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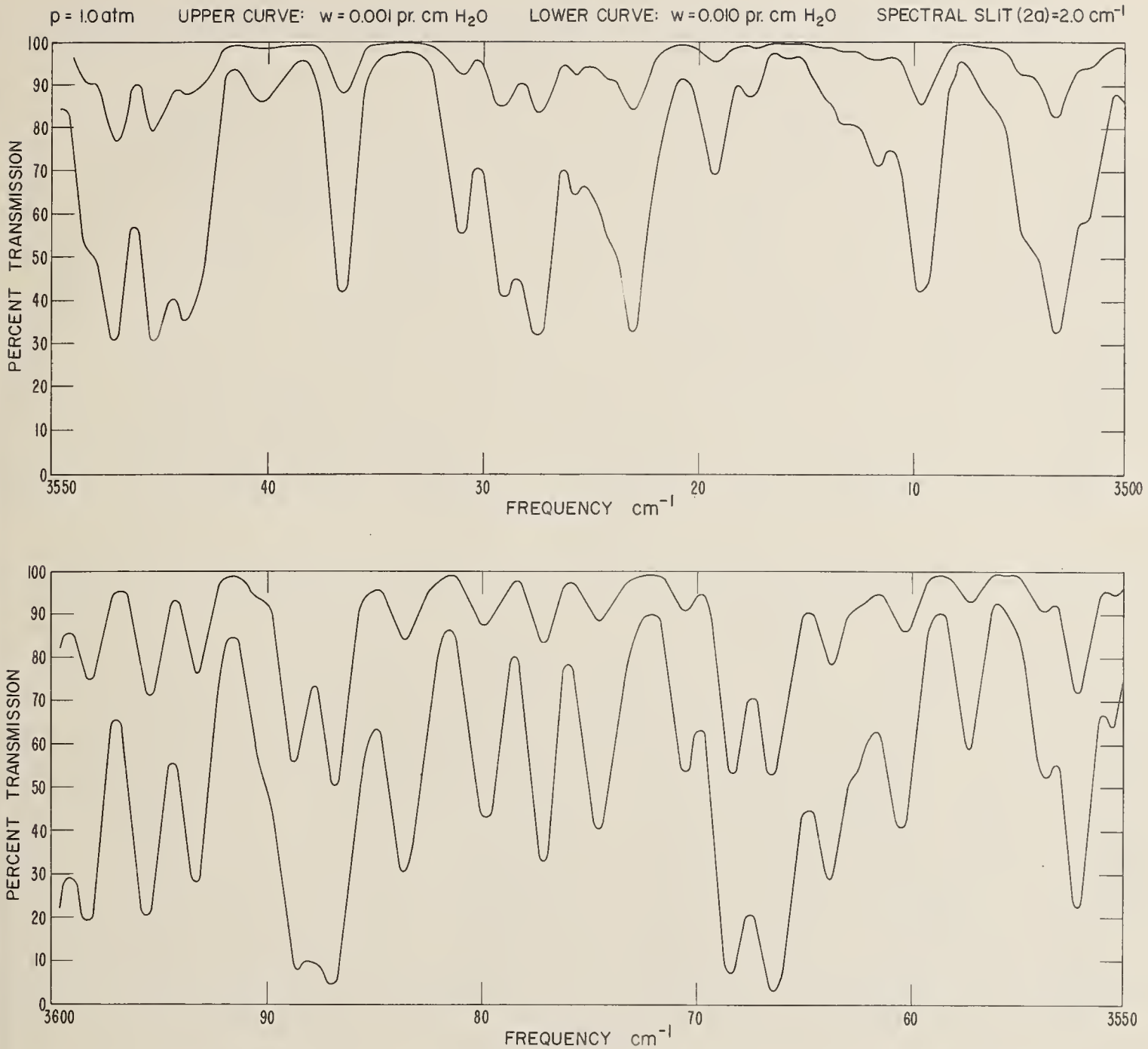
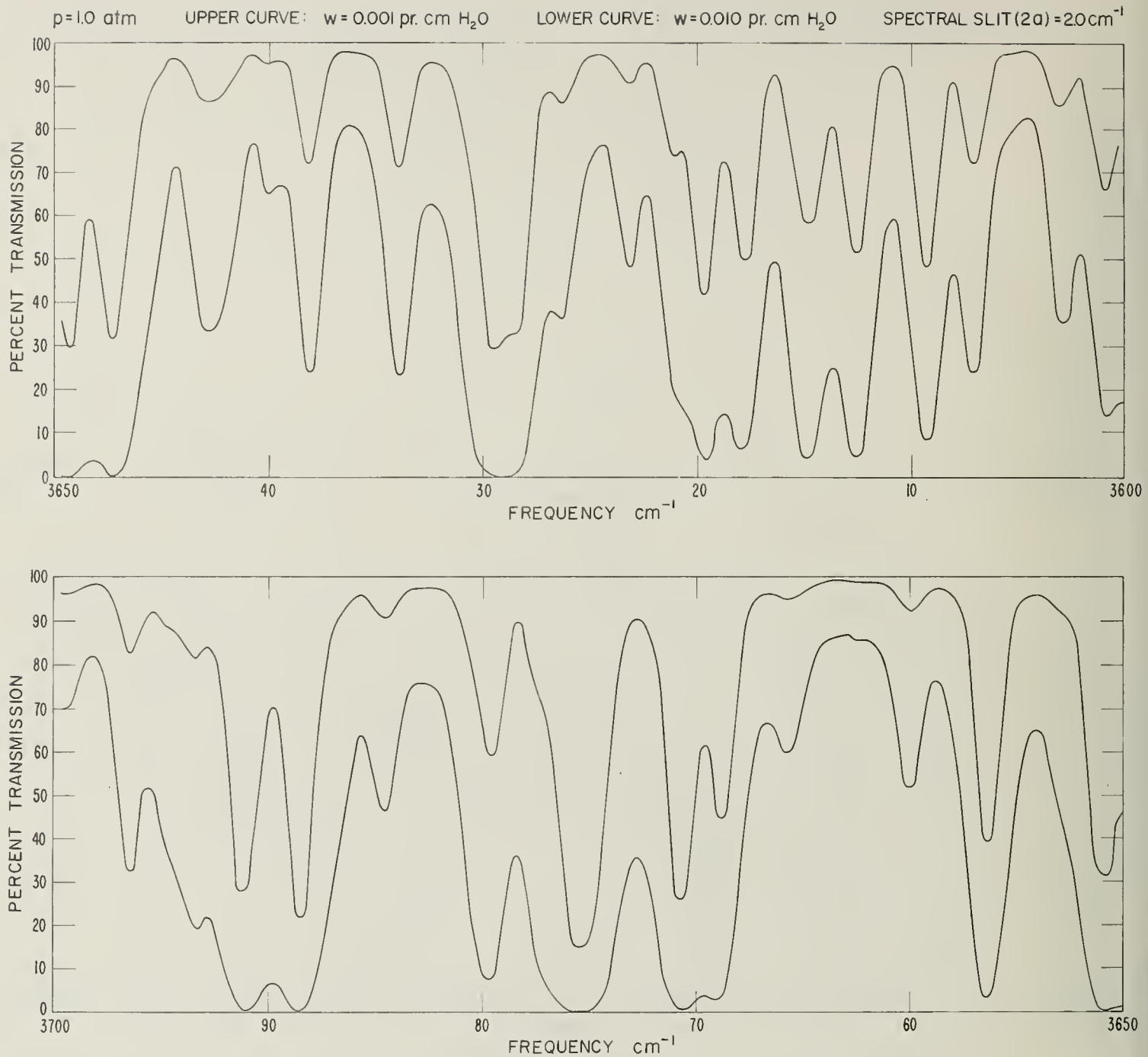


FIGURE 7. *Computed degraded water vapor transmission spectra for the frequency range 3500 to 4000 cm^{-1} at a pressure of 1.0 atmosphere, at concentrations of 0.001 and 0.01 cm of precipitable water vapor, for a temperature of 287.7 °K, and at a full spectral slit (triangular) span of 2.0 cm^{-1}.*



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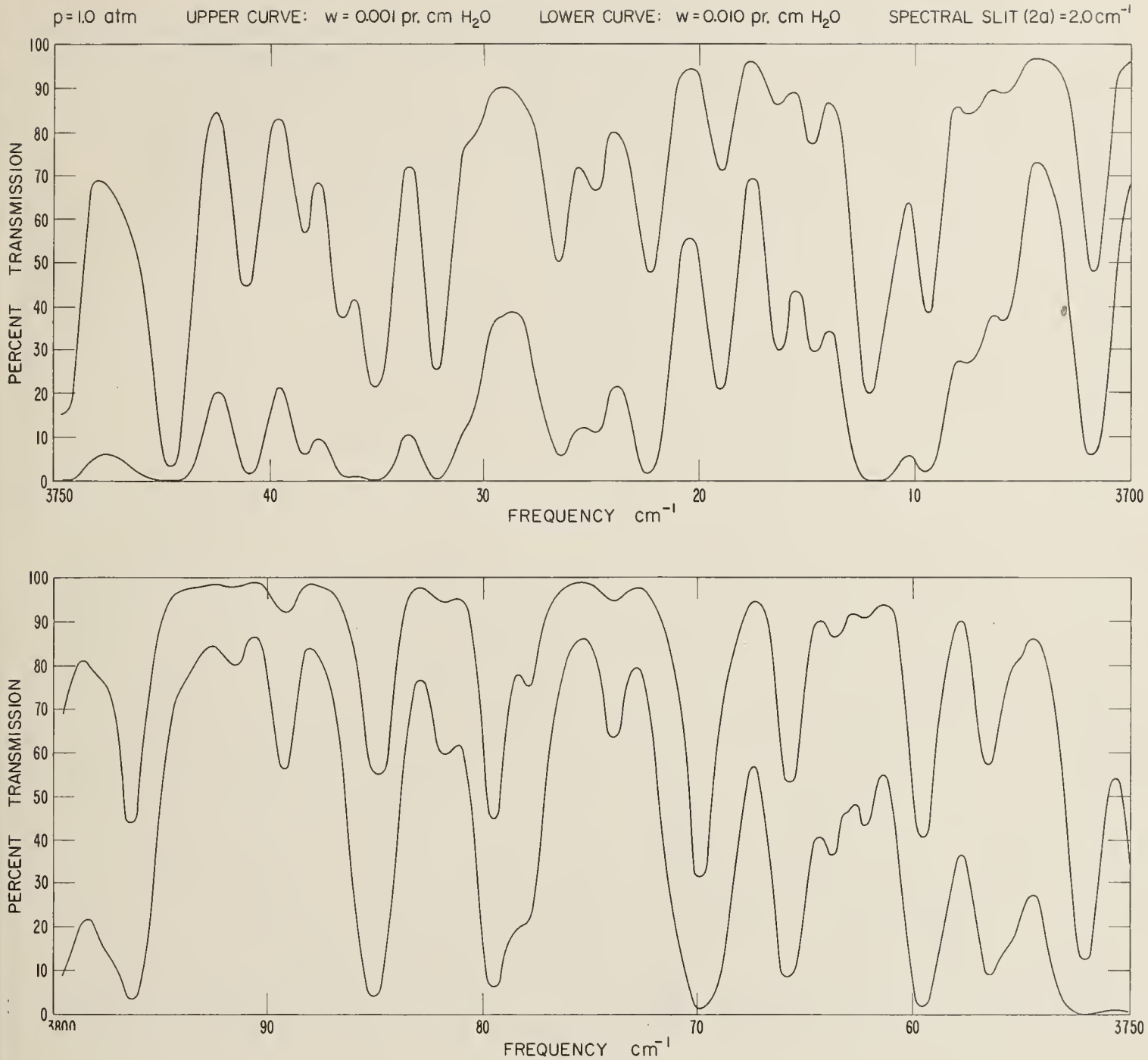

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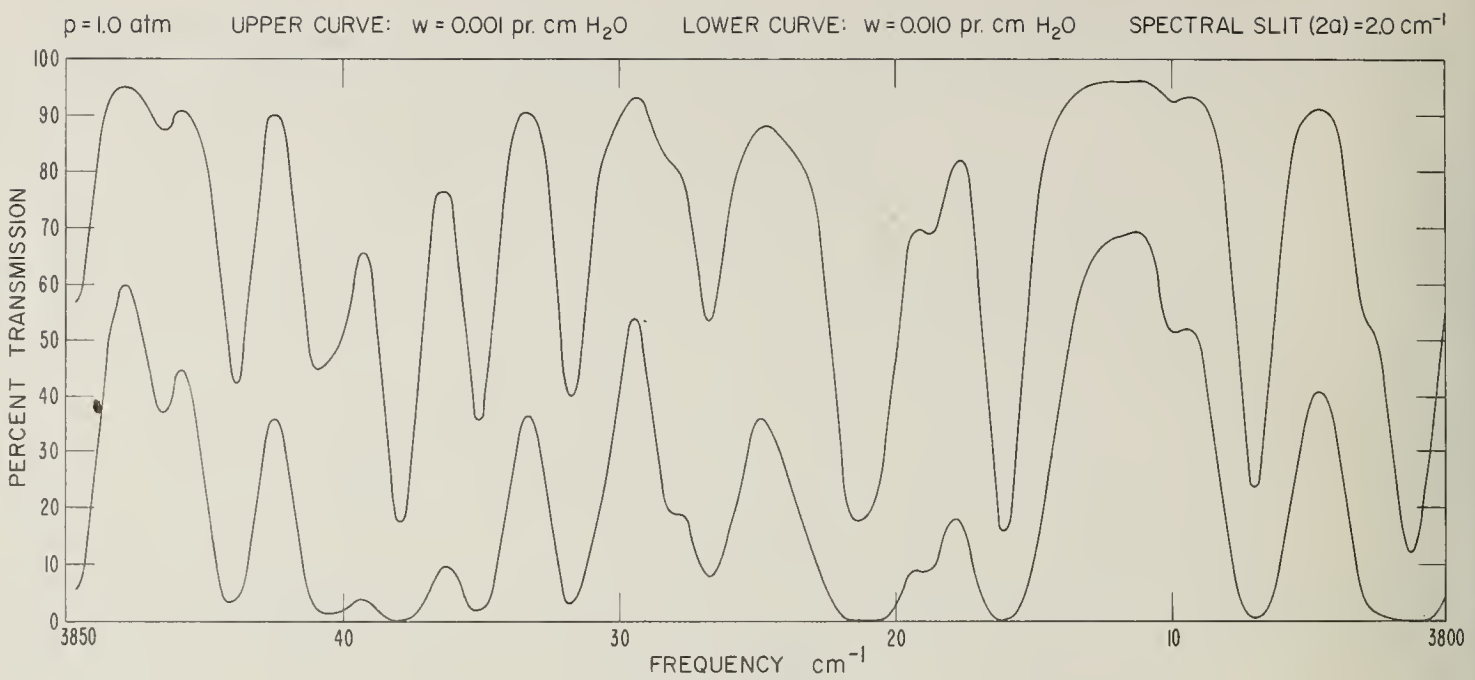

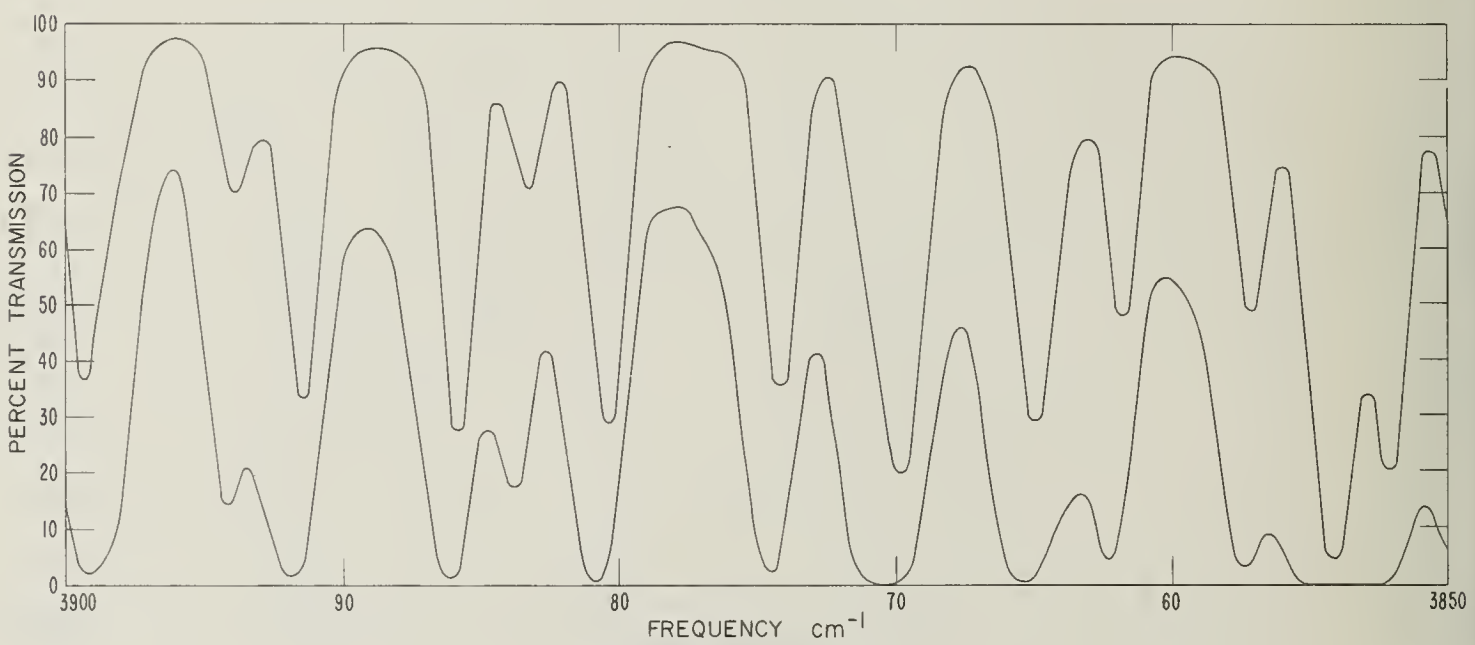

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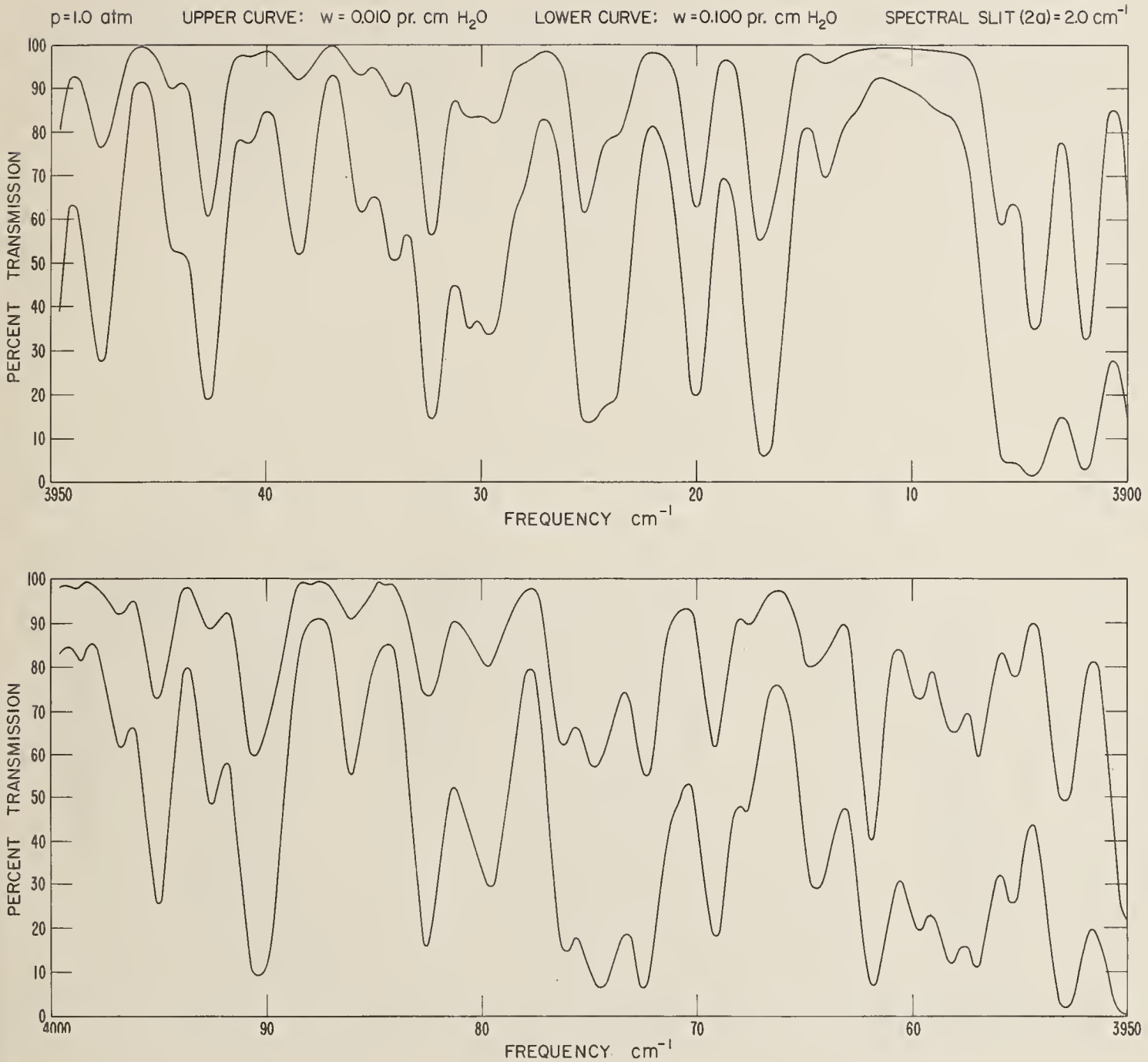

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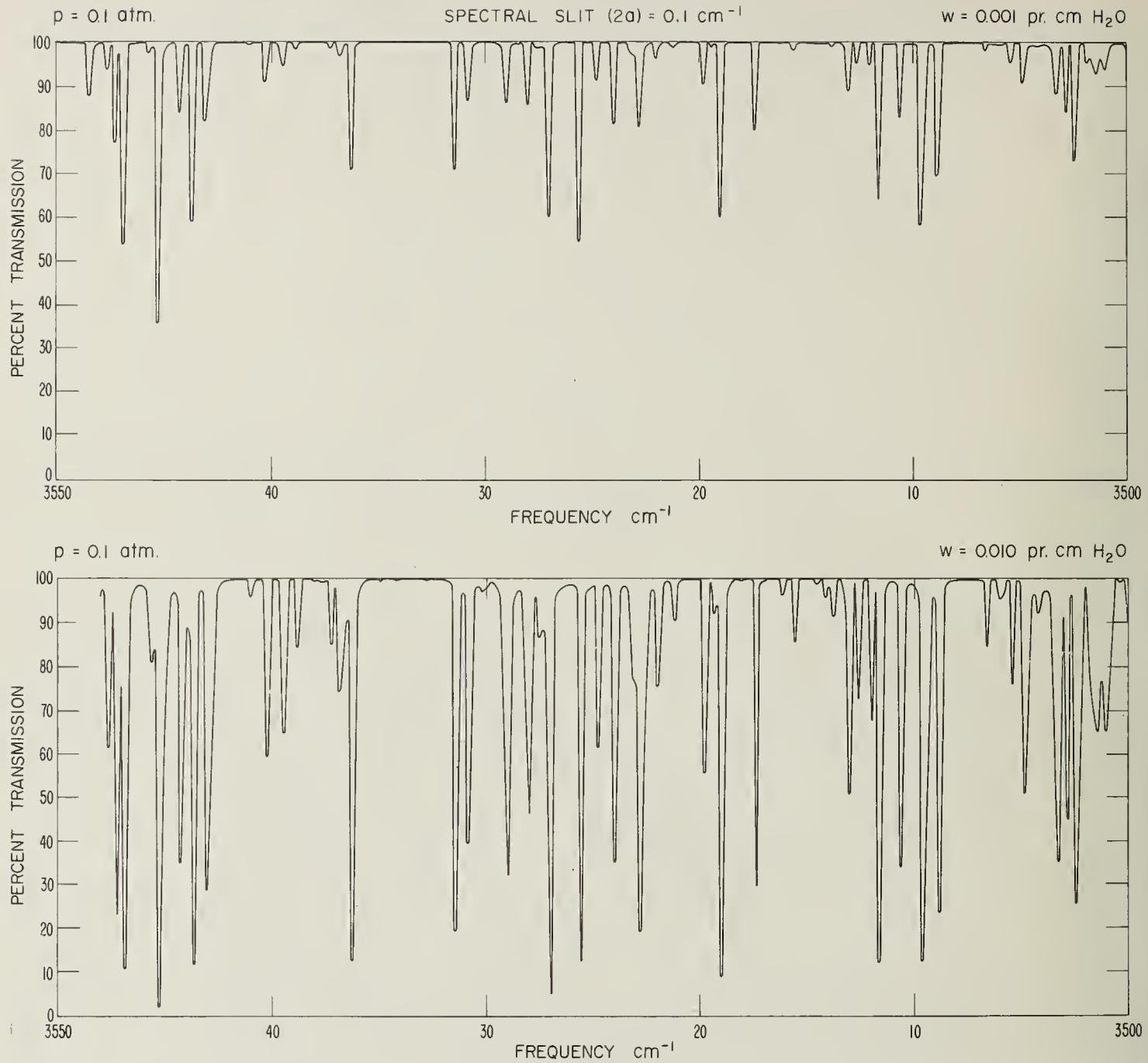

FIGURE 8. *Computed degraded water vapor transmission spectra for the frequency range 3500 to 4000 cm^{-1} at a pressure of 0.1 atmosphere, at concentrations of 0.001 and 0.01 cm of precipitable water vapor, for a temperature of 287.7 °K, and at a full spectral slit (triangular) span of 0.1 cm^{-1}.*

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