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Tables of N_2O Absorption Lines for the Calibration of Tunable Infrared Lasers from 522 cm^{-1} to 657 cm^{-1} and from 1115 cm^{-1} to 1340 cm^{-1}

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Tables of N_2O absorption lines are given for use as wavelength calibration standards in two regions in the infrared. The absorption lines are calculated from spectroscopic constants which have been determined by fitting of selected data in the literature to appropriate equations. Hot band lines and lines of N_2O containing less abundant isotopes of N and O are also given, along with relative intensities of all lines in order to provide patterns for correct identification of lines to be used as wavelength standards.

Key words: Infrared standards from 522 cm^{-1} to 657 cm^{-1}; infrared standards from 1115 cm^{-1} to 1340 cm^{-1}; infrared wavelength calibration; N_2O; nitrous oxide; spectroscopic constants of N_2O.

1. Introduction

This is the third of a series of papers [1,2][1] designed to provide data needed to calibrate the wavenumbers of tunable infrared laser devices via absorption line standards. We believe that the calibration data provided in this paper are the best that are available through July 1979. Since our ultimate aim is to provide calibration data with an accuracy of $\pm$ 2 MHz or better (about one thirtieth of the line width of the calibration gas), this paper must be considered to give only interim calibration standards, subject to later refinement as more accurate measurements become available.

The philosophy adopted in preparing these tables has been to provide an accurate calibration standard at least every 0.5 cm^{-1}, and to provide relative intensity and wavenumber data on a sufficient number of additional absorption lines to enable the user to unambiguously identify the calibration standards through pattern recognition, even though the laser may not tune more than 0.5 cm^{-1}.

In this work we are concerned with calibration of the region from approximately 525 cm^{-1} to 655 cm^{-1} via absorption lines of the 01^10–00^00 band of N_2O and the region from about 1115 cm^{-1} to 1340 cm^{-1} via absorption lines of the overlapping bands 02^00–00^00 and 10^00–00^00. In order to give features for recognizing absorption standard lines in the lower frequency region we give calculated line positions and relative intensities for hot bands involving a change of one quantum in ν_2 from the three lowest lying vibrational states, the 01^10 state itself and its overtones 02^00 and 02^20. Many absorption features are present in the spectrum of N_2O that are stronger than some of the absorption lines included in the tables.

In the region 1115 cm^{-1} to 1340 cm^{-1}, we have included in the tables in addition to the lines of the main bands 10^00–00^00 and $02^00 - 00^00$, the lines of the $02^20 - 00^00$ band and the lines of the $10^00 - 00^00$ bands of the isotopic species $^{14}N^{14}N^{18}O$, $^{14}N^{15}N^{16}O$, and $^{15}N^{14}N^{16}O$, and hot bands from the 01^10 state of the normal isotopic species. Undoubtedly many other hot band lines will be observed, but it is far beyond the immediate purpose of this work to provide a complete simulation of observable spectra.

These tables were created by calculating the wavenumbers and intensities of rotational transitions in a given vibrational band from the best vibrational band origins and rotational constants which we could determine from critically selected data in the literature. The relative intensities of lines were calculated, as explained in a later section, by means of the usual equations which ignore all complicating factors such as Fermi resonance and l-type resonance. The user is cautioned to remember that the intensities are for a temperature of 295 K, and are normalized to the strongest transition in a given spectral region. The wavenumber of each line in a given vibrational sub-band was calculated from spectroscopic constants which we obtained from least squares fits of the observed data, none of which are in the spectral regions for which we calculated the calibration standards. Since accurate calculated line wavenumbers are the goal of the calibration tables, the determination of very accurate band constants was the most critical part of this work. Since vibronic transition data obtained by grating spectroscopy often have sizable systematic errors we have elected to exclude grating data from this work, and to rely on accurate Fourier transform data to obtain combination differences to high values of J for rotational constants, and to obtain the needed vibrational band origins as differences between pairs of observed band origins. In order to provide checks on possible systematic errors in band origins the data used to obtain spectroscopic constants were selected to provide maximum redundancy. The method used to determine the ro-vibrational constants is described in the next section.

2. Determination of the Empirical Ro-Vibrational Constants

This section describes the method of determination of the spectroscopic constants given in tables 1 and 2. Table 1 gives the rotational constants obtained by least squares fitting of the available accurate data and subsequently used to calculate the separation of a rotational transition from its vibrational band center. Table 2 gives the vibrational band centers determined by least squares fitting of the data. Tables 3 and 4 give the line positions

[1]Figures in brackets indicate literature references at the end of this paper.

calculated from the constants in tables 1 and 2.

The ground state rotational constants for $^{14}N^{14}N^{16}O$ were determined by means of a simultaneous least squares fit of the microwave transitions given in refs. [3–7], along with combination differences obtained from the Fourier transform infrared bands observed by Amiot and Guelachvili [8,9]. Transitions from the ground state to twenty-one excited vibrational states were used to form the combination differences. The upper vibrational states of these bands were as follows: 00^01, 12^00, 20^00, 02^01, 10^01, 14^00, 22^00, 30^00, 00^02, 04^01, 12^01, 20^01, 02^02, 06^01, 11^01, 01^11, 13^10, 21^10, 11^11, 01^12, and 12^20. These are not all of the states to which transitions from the ground state have been observed by Amiot and Guelachvili, but they include all of those whose vibrational origin could be used to form a difference giving a value for the vibrational origin of one or more of the three vibrational states needed with high accuracy for this work, i.e., 10^00, 02^00 and 01^10. Fortunately, these twenty-one rovibrational bands also include all of those from which combination differences could be formed for high values of J.

The infrared combination differences were grouped according to the vibrational transition involved, and each group was weighted by the inverse square of the r.m.s. deviation of that group as determined from a preliminary fit with all the infrared data uniformly weighted. It was gratifying to see how well this procedure worked by the observation that the r.m.s. deviation obtained for each group in the final weighted fit was essentially the same as the r.m.s. deviation used to determine the weight for that group. Each microwave transition used in the final fit was weighted by the inverse square of the uncertainty estimate given in the original reference.

The equation for the ground state term values, $F_0(J)$, used in this least squares fit was:

$$F_0(J) = B_0J(J+1) - D_0J^2(J+1)^2 + H_0J^3(J+1)^3 \quad (1)$$

The microwave measurements covered the range from $J = 0$ to $J = 22$ and the infrared combination difference ranged up to $J = 76$. A total of 17 microwave transitions and 735 infrared combination differences from 21 vibrational bands were used in the fit to obtain the ground state rotational constants.

Other workers have determined different values for the H_0 coefficient depending on what data were used and how the data were weighted. In spite of the fact that the statistical analysis gives a value of H_0 that is eight times larger than its estimated uncertainty, we believe that it should only be treated as an empirical parameter, useful for fitting the data and for short interpolations. One rationale for including such a poorly determined H_0 in the analysis was the observation that some vibrational levels required an empirical H that was orders of magnitude larger than that of the ground vibrational state, and it was arbitrarily decided to use H terms throughout this work for the sake of consistency.

The negative sign found for this empirical H_0 was surprising, although it does agree reasonably well with the value obtained by Valentin *et al*. [10]. We note also that Nakagawa and Morino have calculated a negative H_0 for HCN [11].

There are also a great many measurements of infrared vibration-rotational bands that originate in the 01^10, 02^00, 02^20, and 10^00 states [8,9], accurate frequency measurements of the N_2O laser 00^01–10^00 band [12], and a great many microwave measurements for those states [3,5,7,13–16]. Consequently, the rotational constants for those states were determined by an anal-

Table 1. Empirical rotational band constants for N_2O

Isotopic Species	Vib. State $v_1v_2v_3$ ℓ	B_v(cm^{-1})	D_vX10^7(cm^{-1})	H_vX10^{14}(cm^{-1})	q_vX10^4 (cm^{-1})	q_{vJ}X10^9 (cm^{-1})	q_{vJJ}X10^{12} (cm^{-1})	Refs.[b]
$^{14}N^{14}N^{16}O$	0 0 0 0	0.41901099553 (583)[a]	1.760667 (105)	-2.677 (335)	-----	-----	-----	3,4,5,6,7,8,9
	0 1 0 1	0.41957360136 (1104)	1.788847 (177)	-0.783 (483)	7.9200575 (38)	1.02048 (596)	-----	3,5,7,8,9,14,16
	0 2 0 0	0.4199201794 (201)	2.480839 (405)	266.05 (270)	-----	-----	-----	5,7,8,9,13,14
	0 2 0 2	0.4201248710 (153)	1.511609 (366)	-134.13 (306)	0.003744 (309)	61.0474 (728)	2.7545 (595)	5,7,8,9,13
	0 3 0 1	0.4203309996 (300)	2.13767 (81)	-18.99 (728)	14.951593 (209)	7.8127 (277)	-----	7,8,9
	0 3 0 3	0.420663959 (82)	1.59859 (220)	-189.3 (196)	-----	-----	-----	7,8,9
	1 0 0 0	0.4172550892 (217)	1.726093 (526)	13.40 (457)	-----	-----	-----	5,7,8,9,12,13,14
	1 1 0 1	0.4179184182 (158)	1.733551 (240)	17.25 (110)	9.083160 (188)	-3.0047 (231)	-----	7,8,9
$^{14}N^{14}N^{18}O$	0 0 0 0	0.3955784 (2)	1.5840 (3)	-----	-----	-----	-----	18
	1 0 0 0	0.3941104 (6)	1.4829 (3)	-----	-----	-----	-----	18
$^{14}N^{15}N^{16}O$	0 0 0 0	0.4189825 (2)	1.7632 (3)	-----	-----	-----	-----	17
	1 0 0 0	0.4171276 (6)	1.754 (2)	-----	-----	-----	-----	17
$^{15}N^{14}N^{16}O$	0 0 0 0	0.4048586 (3)	1.637 (4)	-----	-----	-----	-----	17
	1 0 0 0	0.4032627 (4)	1.584 (1)	-----	-----	-----	-----	17

[a] Error limits, given in parenthesis, are one standard deviation in units of the last digit.

[b] For the normal isotopic species reference numbers are those of the sources of data. For the less abundant isotopic species reference numbers are for the source of rotational constants.

Table 2. Vibrational Band Centers for N_2O and key to the band designations used in tables 3 and 4

Isotopic Species	Vibrational Transition[a] $v_1' v_2' v_3' \ell' \leftarrow v_1'' v_2'' v_3'' \ell''$	ν_0 (cm^{-1})[b]	Band Designation Table 3[c]	Band Designation Table 4[c]
$^{14}N^{14}N^{16}O$	0 1 0 1e - 0 0 0 0	588.76817 (18)	A	----
	0 1 0 1f - 0 0 0 0	588.76817 (18)	A†	----
	0 2 0 0 - 0 1 0 1e	579.36412 (30)	B	----
	0 2 0 0 - 0 1 0 1f	579.36412 (30)	B†	----
	0 2 0 2e - 0 1 0 1e	588.97792 (100)	C	----
	0 2 0 2f - 0 1 0 1e	588.97792 (100)	C†	----
	0 2 0 2f - 0 1 0 1f	588.97792 (100)	D	----
	0 2 0 2e - 0 1 0 1f	588.97792 (100)	D†	----
	0 3 0 1e - 0 2 0 2e	571.32030 (140)	E	----
	0 3 0 1f - 0 2 0 2e	571.32030 (140)	E†	----
	0 3 0 1f - 0 2 0 2f	571.32030 (140)	F	----
	0 3 0 1e - 0 2 0 2f	571.32030 (140)	F†	----
	0 3 0 1e - 0 2 0 0	580.93410 (100)	G	----
	0 3 0 1f - 0 2 0 0	580.93410 (100)	G†	----
	0 3 0 3e - 0 2 0 2e	589.16843 (100)	H	----
	0 3 0 3f - 0 2 0 2e	589.16843 (100)	H†	----
	0 3 0 3f - 0 2 0 2f	589.16843 (100)	I	----
	0 3 0 3e - 0 2 0 2f	589.16483 (100)	I†	----
	1 0 0 0 - 0 0 0 0	1284.90329 (49)	----	A
	1 1 0 1e - 0 1 0 1e	1291.49713 (100)	----	B
	1 1 0 1f - 0 1 0 1e	1291.49713 (100)	----	B†
	1 1 0 1f - 0 1 0 1f	1291.49713 (100)	----	C
	1 1 0 1e - 0 1 0 1f	1291.49713 (100)	----	C†
	0 2 0 0 - 0 0 0 0	1168.13229 (18)	----	D
	0 3 0 1e - 0 1 0 1e	1160.29822 (100)	----	E
	0 3 0 1f - 0 1 0 1e	1160.29822 (100)	----	E†
	0 3 0 1f - 0 1 0 1f	1160.29822 (100)	----	F
	0 3 0 1e - 0 1 0 1f	1160.29822 (100)	----	F†
	0 2 0 2e - 0 0 0 0	1177.74609 (100)	----	G
$^{14}N^{14}N^{18}O$	1 0 0 0 - 0 0 0 0	1246.8850 (10)[d]	----	H
$^{14}N^{15}N^{16}O$	1 0 0 0 - 0 0 0 0	1280.3560 (10)[e]		I
$^{15}N^{14}N^{16}O$	1 0 0 0 - 0 0 0 0	1269.8944 (9)[e]	----	J

[a] When $\ell \neq 0$ the symmetry is usually designated by either e or f in accordance with the convention established in ref. 19.

[b] The uncertainty (one estimated standard deviation) in the last digits is given in parentheses.

[c] Q-branch transitions ($\Delta J=0$ transitions) are indicated by a dagger (†) in this table, but the dagger is not used in Tables 3 and 4.

[d] Ref. 18.

[e] Ref. 17.

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
657.28580(247)	A	R(80)	0.00001	633.53780(41)	A	R(52)	0.01025	624.20701(36)	A	R(41)	0.06727
656.43897(228)	A	R(79)	0.00001	633.47633(814)	I	R(50)	0.00007	624.16448(203)	C	R(39)	0.00530
655.59197(211)	A	R(78)	0.00001	633.16669(242)	B	R(61)	0.00008	623.66885(196)	I	R(39)	0.00047
654.74482(196)	A	R(77)	0.00002	633.12599(924)	H	R(50)	0.00007	623.62863(203)	D	R(40)	0.00458
653.89753(181)	A	R(76)	0.00003	632.96830(247)	D	R(51)	0.00072	623.55348(88)	B	R(50)	0.00082
653.05009(167)	A	R(75)	0.00004	632.68924(40)	A	R(51)	0.01244	623.53133(305)	H	R(39)	0.00047
652.20253(155)	A	R(74)	0.00005	632.60265(235)	C	R(48)	0.00127	623.35927(36)	A	R(40)	0.07768
651.35484(143)	A	R(73)	0.00007	632.57888(715)	I	R(49)	0.00010	623.24051(202)	C	R(38)	0.00607
650.50703(132)	A	R(72)	0.00009	632.29618(219)	B	R(60)	0.00010	622.96345(314)	G	R(50)	0.00010
649.65912(122)	A	R(71)	0.00011	632.25387(825)	H	R(49)	0.00009	622.78434(176)	I	R(38)	0.00053
649.19092(748)	C	R(65)	0.00003	632.11900(238)	D	R(50)	0.00087	622.78000(202)	D	R(39)	0.00527
648.81110(113)	A	R(70)	0.00015	631.84072(40)	A	R(50)	0.01502	622.67634(82)	B	R(49)	0.00098
648.19058(689)	C	R(64)	0.00004	631.68260(628)	I	R(48)	0.00011	622.65978(285)	H	R(38)	0.00053
647.96299(105)	A	R(69)	0.00020	631.65385(227)	C	R(47)	0.00152	622.51165(36)	A	R(39)	0.08928
647.19333(635)	C	R(63)	0.00005	631.42488(199)	B	R(59)	0.00013	622.31915(201)	C	R(37)	0.00692
647.11479(97)	A	R(68)	0.00026	631.38161(737)	H	R(48)	0.00011	622.15061(293)	G	R(49)	0.00012
646.26652(90)	A	R(67)	0.00033	631.26972(230)	D	R(49)	0.00105	621.93147(201)	D	R(38)	0.00604
646.19918(585)	C	R(62)	0.00007	630.99224(39)	A	R(49)	0.01807	621.90101(160)	I	R(37)	0.00061
645.41817(84)	A	R(66)	0.00043	630.78747(550)	I	R(47)	0.00014	621.79886(77)	B	R(48)	0.00117
645.20813(540)	C	R(61)	0.00008	630.70792(221)	C	R(46)	0.00181	621.78852(268)	H	R(37)	0.00061
644.85810(617)	D	R(65)	0.00003	630.55282(180)	B	R(58)	0.00016	621.66415(36)	A	R(38)	0.10213
644.56976(78)	A	R(65)	0.00056	630.50924(659)	H	R(47)	0.00013	621.40038(201)	C	R(36)	0.00785
644.22017(498)	C	R(60)	0.00011	630.42048(223)	D	R(48)	0.00126	621.33745(275)	G	R(48)	0.00014
644.00906(571)	D	R(64)	0.00004	630.14383(38)	A	R(48)	0.02163	621.08305(201)	D	R(37)	0.00688
643.72129(73)	A	R(64)	0.00072	629.89352(481)	I	R(46)	0.00016	621.01886(147)	I	R(36)	0.00070
643.23531(460)	C	R(59)	0.00014	629.76483(216)	C	R(45)	0.00213	620.92109(73)	B	R(47)	0.00140
643.15995(529)	D	R(63)	0.00005	629.68003(163)	B	R(57)	0.00020	620.91756(255)	H	R(36)	0.00070
642.87277(68)	A	R(63)	0.00092	629.63682(590)	H	R(46)	0.00016	620.81678(36)	A	R(37)	0.11629
642.31079(490)	D	R(62)	0.00007	629.57129(218)	D	R(47)	0.00150	620.52397(260)	G	R(47)	0.00017
642.25353(426)	C	R(58)	0.00017	629.29547(38)	A	R(47)	0.02579	620.48415(201)	C	R(35)	0.00887
642.02420(64)	A	R(62)	0.00117	629.00074(421)	I	R(45)	0.00019	620.23474(201)	D	R(36)	0.00782
641.46158(454)	D	R(61)	0.00008	628.82456(212)	C	R(44)	0.00251	620.13788(136)	I	R(35)	0.00079
641.27483(395)	C	R(57)	0.00022	628.80655(148)	B	R(56)	0.00025	620.04695(244)	H	R(35)	0.00079
641.17561(60)	A	R(61)	0.00148	628.76437(530)	H	R(45)	0.00019	620.04306(70)	B	R(46)	0.00166
640.61233(422)	D	R(60)	0.00011	628.72214(214)	D	R(46)	0.00179	619.96954(36)	A	R(36)	0.13178
640.32698(57)	A	R(60)	0.00186	628.44718(38)	A	R(46)	0.03060	619.71018(247)	G	R(46)	0.00020
640.29919(367)	C	R(56)	0.00026	628.10914(368)	I	R(44)	0.00022	619.57045(201)	C	R(34)	0.00998
639.76305(392)	D	R(59)	0.00014	627.93242(134)	B	R(55)	0.00030	619.38654(201)	D	R(35)	0.00883
639.47833(54)	A	R(59)	0.00234	627.89193(477)	H	R(44)	0.00022	619.25808(128)	I	R(34)	0.00089
639.32661(342)	C	R(55)	0.00033	627.88708(209)	C	R(43)	0.00294	619.17671(236)	H	R(34)	0.00089
638.91373(366)	D	R(58)	0.00017	627.87305(211)	D	R(45)	0.00212	619.16485(68)	B	R(45)	0.00196
638.62967(51)	A	R(58)	0.00293	627.59897(37)	A	R(45)	0.03615	619.12244(36)	A	R(35)	0.14863
638.35707(320)	C	R(54)	0.00040	627.21872(322)	I	R(43)	0.00026	618.89607(237)	G	R(45)	0.00024
638.06440(342)	D	R(57)	0.00021	627.05768(122)	B	R(54)	0.00037	618.65923(201)	C	R(33)	0.01116
637.78100(49)	A	R(57)	0.00365	627.02401(208)	D	R(44)	0.00249	618.53847(201)	D	R(34)	0.00993
637.39056(300)	C	R(53)	0.00050	627.01955(431)	H	R(43)	0.00026	618.37944(121)	I	R(33)	0.00099
637.21505(321)	D	R(56)	0.00026	626.95236(207)	C	R(42)	0.00343	618.30689(229)	H	R(33)	0.00099
636.93233(47)	A	R(56)	0.00453	626.75084(37)	A	R(44)	0.04251	618.28648(66)	B	R(44)	0.00230
636.64016(359)	B	R(65)	0.00003	626.32948(283)	I	R(42)	0.00030	618.27548(36)	A	R(34)	0.16683
636.42705(283)	C	R(52)	0.00060	626.18238(112)	B	R(53)	0.00046	618.08163(228)	G	R(44)	0.00028
636.36569(302)	D	R(55)	0.00033	626.17505(206)	D	R(43)	0.00292	617.75048(201)	C	R(32)	0.01242
636.08367(45)	A	R(55)	0.00559	626.14726(391)	H	R(42)	0.00030	617.69053(201)	D	R(33)	0.01111
635.77313(326)	B	R(64)	0.00004	626.02037(205)	C	R(41)	0.00399	617.50196(116)	I	R(32)	0.00111
635.51633(285)	D	R(54)	0.00040	625.90280(37)	A	R(43)	0.04976	617.43752(224)	H	R(32)	0.00111
635.46652(268)	C	R(51)	0.00073	625.44142(249)	I	R(41)	0.00035	617.42868(36)	A	R(33)	0.18635
635.23503(44)	A	R(54)	0.00687	625.32616(205)	D	R(42)	0.00340	617.40802(64)	B	R(43)	0.00269
634.90519(295)	B	R(63)	0.00005	625.30654(102)	B	R(52)	0.00056	617.26687(221)	G	R(43)	0.00033
634.66698(270)	D	R(53)	0.00049	625.27511(357)	H	R(41)	0.00035	616.84416(200)	C	R(31)	0.01377
634.50896(255)	C	R(50)	0.00088	625.09109(204)	C	R(40)	0.00461	616.84272(200)	D	R(32)	0.01238
634.38640(42)	A	R(53)	0.00841	625.05485(37)	A	R(42)	0.05799	616.62564(111)	I	R(31)	0.00124
634.37492(925)	I	R(51)	0.00007	624.55454(220)	I	R(40)	0.00040	616.58203(36)	A	R(32)	0.20714
634.03637(268)	B	R(62)	0.00006	624.47735(203)	D	R(41)	0.00396	616.56863(219)	H	R(31)	0.00124
633.81763(258)	D	R(52)	0.00059	624.43023(94)	B	R(51)	0.00068	616.52951(63)	B	R(42)	0.00313
633.55434(244)	C	R(49)	0.00106	624.40312(329)	H	R(40)	0.00040	616.45177(216)	G	R(42)	0.00039

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
616.34609(400)	F	R(50)	0.00002	609.67756(200)	C	R(23)	0.02613	603.61655(93)	I	R(16)	0.00324
615.99505(200)	D	R(31)	0.01372	609.65623(96)	I	R(23)	0.00239	603.61219(201)	H	R(16)	0.00324
615.94023(200)	C	R(30)	0.01519	609.63830(204)	H	R(23)	0.00239	603.52186(200)	C	R(16)	0.03440
615.75048(108)	I	R(30)	0.00136	609.50585(60)	B	R(34)	0.00891	603.38057(60)	B	R(27)	0.01717
615.73555(36)	A	R(31)	0.22912	609.21953(200)	D	R(23)	0.02607	603.35673(200)	G	R(26)	0.00235
615.70024(216)	H	R(30)	0.00136	609.11030(335)	E	R(46)	0.00004	603.30099(200)	D	R(16)	0.03437
615.65101(62)	B	R(41)	0.00363	609.09938(201)	G	R(33)	0.00124	603.06196(36)	A	R(16)	0.54390
615.63633(212)	G	R(41)	0.00045	609.06559(297)	F	R(42)	0.00008	603.00687(285)	E	R(38)	0.00014
615.43378(378)	F	R(49)	0.00003	608.97031(36)	A	R(23)	0.42634	602.75810(93)	I	R(15)	0.00330
615.14754(200)	D	R(30)	0.01513	608.79183(200)	C	R(22)	0.02765	602.75471(201)	H	R(15)	0.00330
615.03868(200)	C	R(29)	0.01666	608.79012(95)	I	R(22)	0.00254	602.74014(282)	F	R(35)	0.00021
614.88924(36)	A	R(30)	0.25216	608.77503(203)	H	R(22)	0.00254	602.65075(200)	C	R(15)	0.03492
614.87646(105)	I	R(29)	0.00150	608.62920(60)	B	R(33)	0.00994	602.53434(200)	G	R(25)	0.00252
614.83240(213)	H	R(29)	0.00150	608.37340(200)	D	R(22)	0.02760	602.50812(60)	B	R(26)	0.01846
614.82054(208)	G	R(40)	0.00052	608.35809(323)	E	R(45)	0.00005	602.45637(200)	D	R(15)	0.03488
614.77256(62)	B	R(40)	0.00418	608.28042(201)	G	R(32)	0.00138	602.23102(283)	E	R(37)	0.00016
614.52202(360)	F	R(48)	0.00003	608.15898(292)	F	R(41)	0.00010	602.21888(36)	A	R(15)	0.54839
614.30017(200)	D	R(29)	0.01661	608.12557(36)	A	R(22)	0.44961	601.90072(92)	I	R(14)	0.00335
614.13947(200)	C	R(28)	0.01819	607.92511(94)	I	R(21)	0.00267	601.89814(200)	H	R(14)	0.00335
614.04310(36)	A	R(29)	0.27612	607.91253(202)	H	R(21)	0.00267	601.84084(281)	F	R(34)	0.00023
614.00439(206)	G	R(39)	0.00060	607.90824(200)	C	R(21)	0.02910	601.78164(200)	C	R(14)	0.03520
614.00359(103)	I	R(28)	0.00164	607.75301(60)	B	R(32)	0.01103	601.71141(200)	G	R(24)	0.00269
613.96512(211)	H	R(28)	0.00164	607.60267(313)	E	R(44)	0.00006	601.63644(60)	B	R(25)	0.01974
613.89421(61)	B	R(39)	0.00480	607.52747(200)	D	R(21)	0.02904	601.61198(200)	D	R(14)	0.03517
613.61085(344)	F	R(47)	0.00004	607.46101(201)	G	R(31)	0.00153	601.45255(282)	E	R(36)	0.00019
613.45297(200)	D	R(28)	0.01814	607.28105(36)	A	R(21)	0.47140	601.37606(36)	A	R(14)	0.54876
613.24257(200)	C	R(27)	0.01976	607.25330(289)	F	R(40)	0.00011	601.04443(92)	I	R(13)	0.00338
613.19715(36)	A	R(28)	0.30082	607.06121(94)	I	R(20)	0.00281	601.04249(200)	H	R(13)	0.00338
613.18787(204)	G	R(38)	0.00068	607.05080(202)	H	R(20)	0.00281	600.94273(281)	F	R(33)	0.00026
613.13186(101)	I	R(27)	0.00179	607.02679(200)	C	R(20)	0.03045	600.91453(200)	C	R(13)	0.03523
613.09845(209)	H	R(27)	0.00179	606.87732(60)	B	R(31)	0.01217	600.88792(200)	G	R(23)	0.00285
613.01603(61)	B	R(38)	0.00549	606.84412(305)	E	R(43)	0.00007	600.76783(200)	D	R(13)	0.03521
612.70032(330)	F	R(46)	0.00004	606.68174(200)	D	R(20)	0.03040	600.76559(60)	B	R(24)	0.02099
612.60593(200)	D	R(27)	0.01971	606.64114(201)	G	R(30)	0.00169	600.67151(282)	E	R(35)	0.00021
612.37098(203)	G	R(37)	0.00078	606.43675(36)	A	R(20)	0.49130	600.53351(36)	A	R(13)	0.54475
612.35138(36)	A	R(27)	0.32602	606.34858(286)	F	R(39)	0.00013	600.18920(92)	I	R(12)	0.00339
612.34796(200)	C	R(26)	0.02136	606.19841(93)	I	R(19)	0.00294	600.18779(200)	H	R(12)	0.00339
612.26127(99)	I	R(26)	0.00193	606.18989(201)	H	R(19)	0.00294	600.06387(200)	G	R(22)	0.00301
612.23240(207)	H	R(26)	0.00193	606.14745(200)	C	R(19)	0.03168	600.04940(200)	C	R(12)	0.03502
612.13805(61)	B	R(37)	0.00624	606.08250(298)	E	R(42)	0.00008	600.04586(281)	F	R(32)	0.00029
612.08555(410)	E	R(50)	0.00002	606.00219(60)	B	R(30)	0.01337	599.92393(200)	D	R(12)	0.03499
611.79048(319)	F	R(45)	0.00005	605.83623(200)	D	R(19)	0.03163	599.89561(60)	B	R(23)	0.02219
611.75906(200)	D	R(26)	0.02130	605.82078(200)	G	R(29)	0.00185	599.88798(281)	E	R(34)	0.00023
611.55369(202)	G	R(36)	0.00088	605.59269(36)	A	R(19)	0.50890	599.69122(36)	A	R(12)	0.53618
611.50581(36)	A	R(26)	0.35149	605.44486(284)	F	R(38)	0.00014	599.33505(92)	I	R(11)	0.00338
611.45561(200)	C	R(25)	0.02297	605.33670(93)	I	R(18)	0.00305	599.33404(200)	H	R(11)	0.00338
611.39180(98)	I	R(25)	0.00208	605.32980(201)	H	R(18)	0.00305	599.23924(200)	G	R(21)	0.00316
611.36701(206)	H	R(25)	0.00208	605.31789(293)	E	R(41)	0.00010	599.18623(200)	C	R(11)	0.03453
611.34692(387)	E	R(49)	0.00003	605.27019(200)	C	R(18)	0.03276	599.15026(281)	F	R(31)	0.00032
611.26032(60)	B	R(36)	0.00706	605.12765(60)	B	R(29)	0.01461	599.10201(281)	E	R(33)	0.00026
610.91236(200)	D	R(25)	0.02291	604.99994(200)	G	R(28)	0.00201	599.08029(200)	D	R(11)	0.03451
610.88138(310)	F	R(44)	0.00006	604.99092(200)	D	R(18)	0.03272	599.02654(60)	B	R(22)	0.02332
610.73601(202)	G	R(35)	0.00099	604.74887(36)	A	R(18)	0.52379	598.84921(36)	A	R(11)	0.52291
610.66044(36)	A	R(25)	0.37691	604.55037(290)	E	R(40)	0.00011	598.48196(92)	I	R(10)	0.00334
610.60479(367)	E	R(48)	0.00003	604.54219(283)	F	R(37)	0.00016	598.48127(200)	H	R(10)	0.00334
610.56548(200)	C	R(24)	0.02457	604.47608(93)	I	R(17)	0.00316	598.41401(200)	G	R(20)	0.00329
610.52346(97)	I	R(24)	0.00224	604.47056(201)	H	R(17)	0.00316	598.32501(200)	C	R(10)	0.03377
610.50230(205)	H	R(24)	0.00223	604.39500(200)	C	R(17)	0.03368	598.31369(281)	E	R(32)	0.00029
610.38291(60)	B	R(35)	0.00795	604.25377(60)	B	R(28)	0.01588	598.25595(281)	F	R(30)	0.00035
610.06585(200)	D	R(24)	0.02451	604.17860(200)	G	R(27)	0.00218	598.23689(200)	D	R(10)	0.03376
609.97307(302)	F	R(43)	0.00007	604.14584(200)	D	R(17)	0.03364	598.15842(60)	B	R(21)	0.02435
609.91791(201)	G	R(34)	0.00111	603.90529(36)	A	R(17)	0.53558	598.00747(36)	A	R(10)	0.50488
609.85922(349)	E	R(47)	0.00004	603.78001(287)	E	R(39)	0.00013	597.62994(92)	I	R(9)	0.00328
609.81527(36)	A	R(24)	0.40198	603.64060(282)	F	R(36)	0.00019	597.62948(200)	H	R(9)	0.00328

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
597.58819(200)	G	R(19)	0.00341	592.97167(60)	B	R(15)	0.02738	590.82609(37)	A	Q(46)	0.05929
597.52307(281)	E	R(31)	0.00032	592.96320(36)	A	R(4)	0.30341	590.78388(926)	I	Q(52)	0.00010
597.46573(200)	C	R(9)	0.03274	592.94528(80)	A	Q(66)	0.00085	590.76063(205)	C	Q(43)	0.00543
597.39377(200)	D	R(9)	0.03273	592.91927(280)	F	R(24)	0.00055	590.73914(37)	A	Q(45)	0.06999
597.36299(280)	F	R(29)	0.00038	592.86904(529)	C	Q(64)	0.00008	590.71977(815)	I	Q(51)	0.00011
597.29128(60)	B	R(20)	0.02527	592.82238(75)	A	Q(65)	0.00109	590.68008(203)	C	Q(42)	0.00633
597.16602(36)	A	R(9)	0.48211	592.75083(490)	C	Q(63)	0.00010	590.66031(200)	C	R(1)	0.01782
596.77899(92)	I	R(8)	0.00320	592.73456(280)	E	R(25)	0.00051	590.65873(200)	D	R(1)	0.01782
596.77870(200)	H	R(8)	0.00320	592.70124(70)	A	Q(64)	0.00140	590.65702(716)	I	Q(50)	0.00014
596.76176(200)	G	R(18)	0.00351	592.63437(454)	C	Q(62)	0.00013	590.65402(37)	A	Q(44)	0.08225
596.73021(281)	E	R(30)	0.00035	592.62008(200)	G	R(13)	0.00365	590.60137(203)	C	Q(41)	0.00733
596.60838(200)	C	R(8)	0.03145	592.58186(65)	A	Q(63)	0.00179	590.59565(629)	I	Q(49)	0.00016
596.55090(200)	D	R(8)	0.03145	592.54020(200)	H	R(3)	0.00259	590.57075(37)	A	Q(43)	0.09621
596.47139(280)	F	R(28)	0.00041	592.54020(92)	I	R(3)	0.00259	590.53566(551)	I	Q(48)	0.00020
596.42516(60)	B	R(19)	0.02606	592.51968(422)	C	Q(61)	0.00016	590.52448(202)	C	Q(40)	0.00846
596.32486(36)	A	R(8)	0.45470	592.46424(61)	A	Q(62)	0.00228	590.51452(690)	D	Q(65)	0.00006
595.93518(280)	E	R(29)	0.00038	592.40676(393)	C	Q(60)	0.00021	590.48932(37)	A	Q(42)	0.11203
595.93470(200)	G	R(17)	0.00359	592.35028(200)	C	R(3)	0.02182	590.47705(482)	I	Q(47)	0.00023
595.92910(92)	I	R(7)	0.00310	592.34840(58)	A	Q(61)	0.00288	590.44943(201)	C	Q(39)	0.00972
595.92893(200)	H	R(7)	0.00310	592.34076(200)	D	R(3)	0.02182	590.44856(635)	D	Q(64)	0.00008
595.75295(200)	C	R(7)	0.02992	592.29560(366)	C	Q(59)	0.00026	590.44521(36)	A	R(1)	0.15739
595.70831(200)	D	R(7)	0.02991	592.23433(55)	A	Q(60)	0.00364	590.41981(421)	I	Q(46)	0.00028
595.58119(280)	F	R(27)	0.00045	592.18622(342)	C	Q(58)	0.00032	590.40974(36)	A	Q(41)	0.12985
595.56011(60)	B	R(18)	0.02668	592.12355(36)	A	R(3)	0.25701	590.39397(60)	B	R(12)	0.02601
595.48399(36)	A	R(7)	0.42284	592.12204(52)	A	Q(59)	0.00457	590.38443(586)	D	Q(63)	0.00010
595.13804(280)	E	R(28)	0.00041	592.11121(60)	B	R(14)	0.02718	590.37622(201)	C	Q(38)	0.01110
595.10701(200)	G	R(16)	0.00364	592.07861(321)	C	Q(57)	0.00040	590.36395(368)	I	Q(45)	0.00033
595.08028(92)	I	R(6)	0.00298	592.03495(280)	F	R(23)	0.00057	590.34278(926)	H	Q(51)	0.00011
595.08019(200)	H	R(6)	0.00298	592.01154(50)	A	Q(58)	0.00571	590.33201(36)	A	Q(40)	0.14980
594.89943(200)	C	R(6)	0.02815	591.97279(302)	C	Q(56)	0.00050	590.32214(540)	D	Q(62)	0.00013
594.86600(200)	D	R(6)	0.02814	591.92956(280)	E	R(24)	0.00055	590.31414(280)	E	R(22)	0.00060
594.84767(234)	A	Q(80)	0.00002	591.90282(48)	A	Q(57)	0.00711	590.30947(322)	I	Q(44)	0.00039
594.70068(217)	A	Q(79)	0.00002	591.86875(285)	C	Q(55)	0.00061	590.30669(827)	H	Q(50)	0.00014
594.69616(60)	B	R(17)	0.02712	591.79590(46)	A	Q(56)	0.00882	590.30485(201)	C	Q(37)	0.01262
594.69242(280)	F	R(26)	0.00048	591.78979(200)	G	R(12)	0.00359	590.27096(280)	F	R(21)	0.00063
594.64342(36)	A	R(6)	0.38676	591.76649(271)	C	Q(54)	0.00076	590.27064(739)	H	Q(49)	0.00016
594.55538(201)	A	Q(78)	0.00003	591.69565(200)	H	R(2)	0.00250	590.26168(498)	D	Q(61)	0.00016
594.41177(186)	A	Q(77)	0.00004	591.69565(92)	I	R(2)	0.00250	590.25636(283)	I	Q(43)	0.00046
594.33885(280)	E	R(27)	0.00045	591.69077(44)	A	Q(55)	0.01088	590.25613(36)	A	Q(39)	0.17202
594.27869(200)	G	R(15)	0.00368	591.66603(258)	C	Q(53)	0.00093	590.23467(660)	H	Q(48)	0.00020
594.26986(172)	A	Q(76)	0.00005	591.58744(43)	A	Q(54)	0.01338	590.23533(201)	C	Q(36)	0.01430
594.23252(92)	I	R(5)	0.00285	591.56736(247)	C	Q(52)	0.00112	590.20462(249)	I	Q(42)	0.00053
594.23248(200)	H	R(5)	0.00285	591.50435(200)	C	R(2)	0.01964	590.20303(461)	D	Q(60)	0.00020
594.12965(159)	A	Q(75)	0.00007	591.49959(200)	D	R(2)	0.01964	590.19882(591)	H	Q(47)	0.00023
594.04781(200)	C	R(5)	0.02618	591.48591(42)	A	Q(53)	0.01636	590.18211(36)	A	Q(38)	0.19660
594.02396(200)	D	R(5)	0.02617	591.47049(238)	C	Q(51)	0.00137	590.16765(201)	C	Q(35)	0.01610
593.99115(147)	A	Q(74)	0.00010	591.38620(41)	A	Q(52)	0.01993	590.16311(531)	H	Q(46)	0.00028
593.85437(136)	A	Q(73)	0.00013	591.37542(230)	C	Q(50)	0.00164	590.15425(220)	I	Q(41)	0.00061
593.83333(60)	B	R(16)	0.02736	591.28829(40)	A	Q(51)	0.02417	590.14619(426)	D	Q(59)	0.00025
593.80510(280)	F	R(25)	0.00051	591.28422(36)	A	R(2)	0.20814	590.12758(477)	H	Q(45)	0.00033
593.80316(36)	A	R(5)	0.34682	591.28215(223)	C	Q(49)	0.00198	590.12719(200)	G	R(10)	0.00339
593.71930(126)	A	Q(72)	0.00017	591.25196(60)	B	R(13)	0.02672	590.10995(36)	A	Q(37)	0.22363
593.58596(116)	A	Q(71)	0.00022	591.19221(39)	A	Q(50)	0.02918	590.10524(197)	I	Q(40)	0.00071
593.53767(280)	E	R(26)	0.00048	591.19069(218)	C	Q(48)	0.00237	590.10182(201)	C	Q(34)	0.01805
593.45435(108)	A	Q(70)	0.00029	591.15217(280)	F	R(22)	0.00060	590.09226(431)	H	Q(44)	0.00039
593.44971(200)	G	R(14)	0.00368	591.12274(280)	E	R(23)	0.00057	590.09113(395)	D	Q(58)	0.00032
593.38583(92)	I	R(4)	0.00272	591.10105(214)	C	Q(47)	0.00282	590.05758(177)	I	Q(39)	0.00081
593.38581(200)	H	R(4)	0.00272	591.09794(39)	A	Q(49)	0.03507	590.05720(392)	H	Q(43)	0.00046
593.32447(100)	A	Q(69)	0.00039	591.01321(211)	C	Q(46)	0.00335	590.03965(36)	A	Q(36)	0.25316
593.19810(200)	C	R(4)	0.02405	591.00549(38)	A	Q(48)	0.04197	590.03785(367)	D	Q(57)	0.00039
593.19632(93)	A	Q(68)	0.00050	590.95882(200)	G	R(11)	0.00351	590.03784(201)	C	Q(33)	0.02014
593.18221(200)	D	R(4)	0.02404	590.92720(208)	C	Q(45)	0.00395	590.02241(358)	H	Q(42)	0.00053
593.06993(86)	A	Q(67)	0.00065	590.91488(38)	A	Q(47)	0.04999	590.01127(160)	I	Q(38)	0.00093
592.98900(572)	C	Q(65)	0.00006	590.84300(206)	C	Q(44)	0.00464	589.98794(329)	H	Q(41)	0.00061

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
589.98633(342)	D	Q(56)	0.00049	589.49125(36)	A	Q(27)	0.61832	589.19116(92)	I	Q(6)	0.00259
589.97571(200)	C	Q(32)	0.02236	589.47906(204)	H	Q(24)	0.00359	589.19107(200)	H	Q(6)	0.00259
589.97122(36)	A	Q(35)	0.28521	589.47315(95)	I	Q(23)	0.00379	589.18779(200)	D	Q(31)	0.02460
589.96631(147)	I	Q(37)	0.00106	589.46497(207)	D	Q(43)	0.00539	589.18466(92)	I	Q(5)	0.00210
589.95381(305)	H	Q(40)	0.00071	589.45693(200)	C	Q(22)	0.04751	589.18461(200)	H	Q(5)	0.00210
589.93653(320)	D	Q(55)	0.00061	589.45522(203)	H	Q(23)	0.00379	589.17924(92)	I	Q(4)	0.00153
589.92268(136)	I	Q(36)	0.00120	589.44729(94)	I	Q(22)	0.00399	589.17922(200)	H	Q(4)	0.00153
589.92006(285)	H	Q(39)	0.00081	589.43973(36)	A	Q(26)	0.66531	589.17692(200)	C	Q(14)	0.05576
589.91544(200)	C	Q(31)	0.02469	589.43526(205)	D	Q(42)	0.00628	589.17491(200)	H	Q(3)	0.00087
589.90466(36)	A	Q(34)	0.31975	589.43221(202)	H	Q(22)	0.00399	589.17491(92)	I	Q(3)	0.00087
589.88845(300)	D	Q(54)	0.00074	589.42264(94)	I	Q(21)	0.00416	589.17159(200)	D	Q(30)	0.02704
589.88671(269)	H	Q(38)	0.00093	589.41534(200)	C	Q(21)	0.04965	589.17035(36)	A	Q(20)	0.91560
589.88038(128)	I	Q(35)	0.00136	589.41005(202)	H	Q(21)	0.00416	589.15628(200)	D	Q(29)	0.02956
589.85703(200)	C	Q(30)	0.02713	589.40687(204)	D	Q(41)	0.00728	589.15040(200)	C	Q(13)	0.05488
589.85381(255)	H	Q(37)	0.00106	589.39917(93)	I	Q(20)	0.00432	589.14183(200)	D	Q(28)	0.03215
589.84206(283)	D	Q(53)	0.00091	589.39133(280)	F	R(20)	0.00065	589.13210(36)	A	Q(19)	0.94510
589.83997(36)	A	Q(33)	0.35673	589.39010(36)	A	Q(25)	0.71194	589.12822(200)	D	Q(27)	0.03479
589.83940(121)	I	Q(34)	0.00152	589.38876(201)	H	Q(20)	0.00432	589.12577(200)	C	Q(12)	0.05350
589.82138(245)	H	Q(36)	0.00120	589.37977(203)	D	Q(40)	0.00840	589.11541(200)	D	Q(26)	0.03743
589.80048(200)	C	Q(29)	0.02966	589.37689(93)	I	Q(19)	0.00445	589.10336(200)	D	Q(25)	0.04006
589.79973(116)	I	Q(33)	0.00169	589.37563(200)	C	Q(20)	0.05156	589.10304(200)	C	Q(11)	0.05157
589.79734(268)	D	Q(52)	0.00112	589.36836(201)	H	Q(19)	0.00445	589.09575(36)	A	Q(18)	0.96902
589.78944(236)	H	Q(35)	0.00136	589.35577(93)	I	Q(18)	0.00457	589.09205(200)	D	Q(24)	0.04262
589.77715(36)	A	Q(32)	0.39600	589.35391(202)	D	Q(39)	0.00965	589.08219(200)	C	Q(10)	0.04910
589.76136(111)	I	Q(32)	0.00188	589.34887(201)	H	Q(18)	0.00456	589.08144(200)	D	Q(23)	0.04509
589.75804(229)	H	Q(34)	0.00151	589.34236(36)	A	Q(24)	0.75758	589.07152(200)	D	Q(22)	0.04742
589.75425(255)	D	Q(51)	0.00135	589.33780(200)	C	Q(19)	0.05320	589.06324(200)	C	Q(9)	0.04609
589.74580(200)	C	Q(28)	0.03225	589.33583(93)	I	Q(17)	0.00464	589.06224(200)	D	Q(21)	0.04956
589.72719(224)	H	Q(33)	0.00169	589.33030(201)	H	Q(17)	0.00464	589.06130(36)	A	Q(17)	0.98660
589.72429(108)	I	Q(31)	0.00207	589.32927(202)	D	Q(38)	0.01103	589.05358(200)	D	Q(20)	0.05148
589.71621(36)	A	Q(31)	0.43740	589.31703(93)	I	Q(16)	0.00467	589.04618(200)	C	Q(8)	0.04254
589.71277(244)	D	Q(50)	0.00163	589.31267(201)	H	Q(16)	0.00467	589.04551(200)	D	Q(19)	0.05312
589.69693(219)	H	Q(32)	0.00188	589.30581(201)	D	Q(37)	0.01256	589.03801(200)	D	Q(18)	0.05444
589.69298(200)	C	Q(27)	0.03488	589.30186(200)	C	Q(18)	0.05451	589.03106(200)	D	Q(17)	0.05541
589.68850(105)	I	Q(30)	0.00228	589.29939(92)	I	Q(15)	0.00467	589.03101(200)	C	Q(7)	0.03847
589.67287(235)	D	Q(49)	0.00196	589.29651(36)	A	Q(23)	0.80151	589.02876(36)	A	Q(16)	0.99714
589.66728(216)	H	Q(31)	0.00207	589.29600(200)	H	Q(15)	0.00467	589.02462(200)	D	Q(16)	0.05596
589.65715(36)	A	Q(30)	0.48068	589.29487(200)	G	R(9)	0.00323	589.01869(200)	D	Q(15)	0.05607
589.65399(103)	I	Q(29)	0.00249	589.28289(92)	I	Q(14)	0.00464	589.01774(200)	C	Q(6)	0.03388
589.64202(200)	C	Q(26)	0.03753	589.28349(201)	D	Q(36)	0.01422	589.01323(200)	D	Q(14)	0.05571
589.63827(213)	H	Q(30)	0.00228	589.28030(200)	H	Q(14)	0.00464	589.00823(200)	D	Q(13)	0.05485
589.63453(227)	D	Q(48)	0.00235	589.26752(92)	I	Q(13)	0.00455	589.00636(200)	C	Q(5)	0.02879
589.62074(101)	I	Q(28)	0.00271	589.26779(200)	C	Q(17)	0.05547	589.00366(200)	D	Q(12)	0.05346
589.60992(211)	H	Q(29)	0.00249	589.26558(200)	H	Q(13)	0.00455	588.99952(200)	D	Q(11)	0.05155
589.60653(36)	A	R(0)	0.10536	589.26228(201)	D	Q(35)	0.01603	588.99813(36)	A	Q(15)	1.00000
589.59996(36)	A	Q(29)	0.52552	589.25327(92)	I	Q(12)	0.00441	588.99688(200)	C	Q(4)	0.02319
589.59770(221)	D	Q(47)	0.00280	589.25256(36)	A	Q(22)	0.84301	588.99578(200)	D	Q(10)	0.04908
589.59294(200)	C	Q(25)	0.04016	589.25186(200)	H	Q(12)	0.00441	588.99243(200)	D	Q(9)	0.04607
589.58875(99)	I	Q(27)	0.00293	589.24214(201)	D	Q(34)	0.01797	588.98945(200)	D	Q(8)	0.04252
589.58227(209)	H	Q(28)	0.00271	589.24015(92)	I	Q(11)	0.00424	588.98930(200)	C	Q(3)	0.01698
589.56237(216)	D	Q(46)	0.00332	589.23914(200)	H	Q(11)	0.00424	588.98683(200)	D	Q(7)	0.03846
589.55800(98)	I	Q(26)	0.00316	589.23562(200)	C	Q(16)	0.05602	588.98457(200)	D	Q(6)	0.03388
589.55533(207)	H	Q(27)	0.00293	589.22814(92)	I	Q(10)	0.00401	588.98361(200)	C	Q(2)	0.00982
589.54573(200)	C	Q(24)	0.04272	589.22745(200)	H	Q(10)	0.00401	588.98265(200)	D	Q(5)	0.02879
589.54467(36)	A	Q(28)	0.57155	589.22303(201)	D	Q(33)	0.02005	588.98106(200)	D	Q(4)	0.02319
589.53726(60)	B	R(11)	0.02504	589.21725(92)	I	Q(9)	0.00373	588.97980(200)	D	Q(3)	0.01697
589.52914(206)	H	Q(26)	0.00316	589.21679(200)	H	Q(9)	0.00373	588.97886(200)	D	Q(2)	0.00982
589.52850(97)	I	Q(25)	0.00338	589.21050(36)	A	Q(21)	0.88131	588.96941(36)	A	Q(14)	0.99462
589.52849(212)	D	Q(45)	0.00392	589.20745(92)	I	Q(8)	0.00340	588.94259(36)	A	Q(13)	0.98055
589.50382(280)	E	R(21)	0.00063	589.20716(200)	H	Q(8)	0.00340	588.91769(36)	A	Q(12)	0.95746
589.50370(205)	H	Q(25)	0.00338	589.20532(200)	C	Q(15)	0.05613	588.89470(36)	A	Q(11)	0.92514
589.50021(96)	I	Q(24)	0.00359	589.20493(200)	D	Q(32)	0.02227	588.87362(36)	A	Q(10)	0.88353
589.50039(200)	C	Q(23)	0.04519	589.19876(92)	I	Q(7)	0.00302	588.85445(36)	A	Q(9)	0.83274
589.49604(209)	D	Q(44)	0.00461	589.19859(200)	H	Q(7)	0.00302	588.83720(36)	A	Q(8)	0.77300

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
588.82186(36)	A	Q(7)	0.70473	583.14959(200)	C	P(7)	0.01140	580.93632(200)	G	Q(1)	0.00106
588.80844(36)	A	Q(6)	0.62849	583.10924(212)	G	Q(42)	0.00075	580.81545(92)	I	P(10)	0.00113
588.79694(36)	A	Q(5)	0.54500	583.10515(200)	D	P(7)	0.01140	580.81475(200)	H	P(10)	0.00113
588.78735(36)	A	Q(4)	0.45512	583.00512(208)	G	Q(41)	0.00087	580.68725(280)	F	R(10)	0.00055
588.77968(36)	A	Q(3)	0.35981	582.96475(280)	E	R(13)	0.00065	580.68085(200)	C	P(10)	0.01714
588.77392(36)	A	Q(2)	0.26018	582.90927(36)	A	P(7)	0.28189	580.59329(200)	D	P(10)	0.01714
588.77009(36)	A	Q(1)	0.15739	582.90370(206)	G	Q(40)	0.00100	580.48933(280)	E	R(10)	0.00055
588.69183(280)	E	R(20)	0.00065	582.80496(204)	G	Q(39)	0.00115	580.40366(36)	A	P(10)	0.37866
588.68185(60)	B	R(10)	0.02381	582.73231(60)	B	R(3)	0.00873	579.98633(92)	I	P(11)	0.00126
588.51332(280)	F	R(19)	0.00066	582.70890(203)	G	Q(38)	0.00131	579.98533(200)	H	P(11)	0.00126
588.46188(200)	G	R(8)	0.00305	582.61551(202)	G	Q(37)	0.00149	579.86192(200)	C	P(11)	0.01863
587.87821(280)	E	R(19)	0.00066	582.61166(200)	G	R(1)	0.00106	579.82647(280)	F	R(9)	0.00051
587.82777(60)	B	R(9)	0.02233	582.52478(202)	G	Q(36)	0.00169	579.75670(200)	D	P(11)	0.01861
587.63695(280)	F	R(18)	0.00068	582.47711(92)	I	P(8)	0.00082	579.66163(280)	E	R(9)	0.00051
587.62820(200)	G	R(7)	0.00284	582.47682(200)	H	P(8)	0.00082	579.56920(36)	A	P(11)	0.40223
587.09247(36)	A	P(2)	0.05204	582.43670(201)	G	Q(35)	0.00190	579.36402(60)	B	Q(1)	0.00891
587.06301(280)	E	R(18)	0.00068	582.41419(280)	F	R(12)	0.00062	579.36382(60)	B	Q(2)	0.01473
586.97504(60)	B	R(8)	0.02059	582.35127(201)	G	Q(34)	0.00213	579.36351(60)	B	Q(3)	0.02037
586.79383(200)	G	R(6)	0.00259	582.32470(200)	C	P(8)	0.01351	579.36310(60)	B	Q(4)	0.02576
586.76223(280)	F	R(17)	0.00068	582.26846(201)	G	Q(33)	0.00238	579.36256(60)	B	Q(5)	0.03085
586.46856(200)	C	P(3)	0.00194	582.26751(200)	D	P(8)	0.01351	579.36191(60)	B	Q(6)	0.03557
586.45906(200)	D	P(3)	0.00194	582.18828(201)	G	Q(32)	0.00265	579.36112(60)	B	Q(7)	0.03988
586.25512(36)	A	P(3)	0.10280	582.14092(280)	E	R(12)	0.00062	579.36018(60)	B	Q(8)	0.04374
586.24627(280)	E	R(17)	0.00068	582.11070(201)	G	Q(31)	0.00292	579.35909(60)	B	Q(9)	0.04712
586.12368(60)	B	R(7)	0.01862	582.07370(36)	A	P(8)	0.31829	579.35782(60)	B	Q(10)	0.04999
585.95877(200)	G	R(5)	0.00233	582.03572(200)	G	Q(30)	0.00321	579.35636(60)	B	Q(11)	0.05234
585.88919(280)	F	R(16)	0.00068	581.96332(200)	G	Q(29)	0.00351	579.35469(60)	B	Q(12)	0.05416
585.81395(92)	I	P(4)	0.00012	581.89349(200)	G	Q(28)	0.00382	579.35280(60)	B	Q(13)	0.05546
585.81393(200)	H	P(4)	0.00012	581.88807(60)	B	R(2)	0.00589	579.35066(60)	B	Q(14)	0.05625
585.63592(200)	C	P(4)	0.00429	581.82622(200)	G	Q(27)	0.00414	579.34825(60)	B	Q(15)	0.05654
585.62008(200)	D	P(4)	0.00429	581.77317(200)	G	R(0)	0.00071	579.34555(60)	B	Q(16)	0.05637
585.42804(280)	E	R(16)	0.00068	581.76150(200)	G	Q(26)	0.00445	579.34253(60)	B	Q(17)	0.05577
585.41813(36)	A	P(4)	0.15171	581.69930(200)	G	Q(25)	0.00476	579.33917(60)	B	Q(18)	0.05476
585.27371(60)	B	R(6)	0.01642	581.64571(92)	I	P(9)	0.00098	579.33543(60)	B	Q(19)	0.05340
585.12302(200)	G	R(4)	0.00204	581.64525(200)	H	P(9)	0.00098	579.33129(60)	B	Q(20)	0.05173
585.01784(280)	F	R(15)	0.00068	581.63963(200)	G	Q(24)	0.00507	579.32672(60)	B	Q(21)	0.04978
584.97807(92)	I	P(5)	0.00028	581.58246(200)	G	Q(23)	0.00536	579.32169(60)	B	Q(22)	0.04761
584.97802(200)	H	P(5)	0.00028	581.54983(280)	F	R(11)	0.00059	579.31616(60)	B	Q(23)	0.04525
584.80521(200)	C	P(5)	0.00673	581.52778(200)	G	Q(22)	0.00564	579.31010(60)	B	Q(24)	0.04276
584.78143(200)	D	P(5)	0.00673	581.50178(200)	C	P(9)	0.01543	579.30347(60)	B	Q(25)	0.04018
584.60835(280)	E	R(15)	0.00068	581.47559(200)	G	Q(21)	0.00590	579.29625(60)	B	Q(26)	0.03754
584.58149(36)	A	P(5)	0.19818	581.43022(200)	D	P(9)	0.01543	579.28838(60)	B	Q(27)	0.03488
584.42515(60)	B	R(5)	0.01402	581.42586(200)	G	Q(20)	0.00613	579.27984(60)	B	Q(28)	0.03223
584.28659(200)	G	R(3)	0.00172	581.37859(200)	G	Q(19)	0.00633	579.27058(60)	B	Q(29)	0.02963
584.14822(280)	F	R(14)	0.00066	581.33376(200)	G	Q(18)	0.00649	579.26056(60)	B	Q(30)	0.02709
584.14330(92)	I	P(6)	0.00047	581.31576(280)	E	R(11)	0.00059	579.25365(200)	G	P(2)	0.00035
584.14321(200)	H	P(6)	0.00047	581.29137(200)	G	Q(17)	0.00661	579.24975(60)	B	Q(31)	0.02465
584.03949(294)	G	Q(50)	0.00019	581.25139(200)	G	Q(16)	0.00668	579.23809(60)	B	Q(32)	0.02231
583.97643(200)	C	P(6)	0.00912	581.23849(36)	A	P(9)	0.35063	579.22556(60)	B	Q(33)	0.02009
583.94312(200)	D	P(6)	0.00912	581.21383(200)	G	Q(15)	0.00670	579.21211(60)	B	Q(34)	0.01800
583.91375(276)	G	Q(49)	0.00023	581.17867(200)	G	Q(14)	0.00667	579.19768(60)	B	Q(35)	0.01605
583.79071(261)	G	Q(48)	0.00028	581.14590(200)	G	Q(13)	0.00657	579.18225(60)	B	Q(36)	0.01424
583.78724(280)	E	R(14)	0.00066	581.11551(200)	G	Q(12)	0.00642	579.16576(60)	B	Q(37)	0.01258
583.74520(36)	A	P(6)	0.24173	581.08749(200)	G	Q(11)	0.00620	579.15838(92)	I	P(12)	0.00138
583.67036(248)	G	Q(47)	0.00033	581.06183(200)	G	Q(10)	0.00592	579.15696(200)	H	P(12)	0.00138
583.57801(60)	B	R(4)	0.01145	581.04528(60)	B	R(1)	0.00297	579.14816(61)	B	Q(38)	0.01105
583.55273(237)	G	Q(46)	0.00039	581.03854(200)	G	Q(9)	0.00558	579.12943(61)	B	Q(39)	0.00967
583.44946(200)	G	R(2)	0.00140	581.01759(200)	G	Q(8)	0.00518	579.10950(61)	B	Q(40)	0.00842
583.43780(228)	G	Q(45)	0.00047	580.99899(200)	G	Q(7)	0.00473	579.08834(62)	B	Q(41)	0.00729
583.32558(221)	G	Q(44)	0.00055	580.98272(200)	G	Q(6)	0.00422	579.06589(62)	B	Q(42)	0.00629
583.30964(92)	I	P(7)	0.00065	580.96879(200)	G	Q(5)	0.00366	579.04501(200)	C	P(12)	0.01987
583.30947(200)	H	P(7)	0.00065	580.95719(200)	G	Q(4)	0.00305	579.04212(63)	B	Q(43)	0.00540
583.28033(280)	F	R(13)	0.00065	580.94791(200)	G	Q(3)	0.00241	579.01698(64)	B	Q(44)	0.00461
583.21606(216)	G	Q(43)	0.00064	580.94095(200)	G	Q(2)	0.00175	578.99041(66)	B	Q(45)	0.00392

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
578.96750(280)	F	R(8)	0.00046	574.99143(200)	C	P(17)	0.02252	571.66054(200)	G	P(11)	0.00270
578.96239(68)	B	Q(46)	0.00332	574.74481(200)	D	P(17)	0.02249	571.63502(280)	E	Q(18)	0.00154
578.93285(70)	B	Q(47)	0.00280	574.70031(280)	F	R(3)	0.00013	571.60294(280)	E	Q(17)	0.00156
578.92047(200)	D	P(12)	0.01986	574.67040(280)	E	R(3)	0.00013	571.57242(280)	E	Q(16)	0.00158
578.90177(74)	B	Q(48)	0.00235	574.57050(36)	A	P(17)	0.45102	571.54349(280)	E	Q(15)	0.00159
578.86909(77)	B	Q(49)	0.00196	574.35634(60)	B	P(6)	0.01916	571.51620(280)	E	Q(14)	0.00158
578.83477(82)	B	Q(50)	0.00163	574.21552(93)	I	P(18)	0.00168	571.49057(280)	E	Q(13)	0.00155
578.83271(280)	E	R(8)	0.00046	574.20861(201)	H	P(18)	0.00168	571.46664(280)	E	Q(12)	0.00151
578.79877(88)	B	Q(51)	0.00135	574.19707(200)	G	P(8)	0.00213	571.44443(280)	E	Q(11)	0.00146
578.76105(95)	B	Q(52)	0.00111	574.18707(200)	C	P(18)	0.02240	571.42397(280)	E	Q(10)	0.00139
578.73512(36)	A	P(12)	0.42128	573.91080(200)	D	P(18)	0.02237	571.41108(200)	D	P(21)	0.02095
578.72156(103)	B	Q(53)	0.00091	573.85247(280)	F	R(2)	0.00005	571.40530(280)	E	Q(9)	0.00130
578.68027(112)	B	Q(54)	0.00075	573.83453(280)	E	R(2)	0.00005	571.38842(280)	E	Q(8)	0.00120
578.63714(122)	B	Q(55)	0.00061	573.73876(36)	A	P(18)	0.44522	571.37337(280)	E	Q(7)	0.00108
578.59213(134)	B	Q(56)	0.00049	573.52692(60)	B	P(7)	0.02127	571.36016(280)	E	Q(6)	0.00096
578.54521(148)	B	Q(57)	0.00040	573.39596(93)	I	P(19)	0.00166	571.34881(280)	E	Q(5)	0.00081
578.52576(60)	B	P(1)	0.00594	573.38744(201)	H	P(19)	0.00166	571.33933(280)	E	Q(4)	0.00066
578.49634(163)	B	Q(58)	0.00032	573.38489(200)	C	P(19)	0.02209	571.33173(280)	E	Q(3)	0.00048
578.44548(180)	B	Q(59)	0.00025	573.35214(200)	G	P(9)	0.00235	571.32602(280)	E	Q(2)	0.00028
578.41249(200)	G	P(3)	0.00069	573.16159(392)	E	Q(50)	0.00004	571.31705(280)	F	Q(2)	0.00028
578.39261(199)	B	Q(60)	0.00020	573.11007(371)	E	Q(49)	0.00005	571.31379(280)	F	Q(3)	0.00048
578.33769(220)	B	Q(61)	0.00016	573.07717(200)	D	P(19)	0.02206	571.30944(280)	F	Q(4)	0.00066
578.33159(92)	I	P(13)	0.00147	573.05805(353)	E	Q(48)	0.00007	571.30400(280)	F	Q(5)	0.00081
578.32965(200)	H	P(13)	0.00147	573.00561(338)	E	Q(47)	0.00008	571.29747(280)	F	Q(6)	0.00096
578.28071(243)	B	Q(62)	0.00013	572.95284(325)	E	Q(46)	0.00010	571.28984(280)	F	Q(7)	0.00108
578.23013(200)	C	P(13)	0.02087	572.90741(36)	A	P(19)	0.43620	571.28110(280)	F	Q(8)	0.00120
578.22162(268)	B	Q(63)	0.00010	572.89982(315)	E	Q(45)	0.00011	571.27126(280)	F	Q(9)	0.00130
578.16042(296)	B	Q(64)	0.00008	572.84661(306)	E	Q(44)	0.00013	571.26029(280)	F	Q(10)	0.00139
578.11036(280)	F	R(7)	0.00039	572.79331(300)	E	Q(43)	0.00015	571.24821(280)	F	Q(11)	0.00146
578.09707(326)	B	Q(65)	0.00006	572.73997(294)	E	Q(42)	0.00017	571.24595(36)	A	P(21)	0.40991
578.08460(200)	D	P(13)	0.02086	572.69898(60)	B	P(8)	0.02316	571.23500(280)	F	Q(12)	0.00151
578.00258(280)	E	R(7)	0.00039	572.68669(290)	E	Q(41)	0.00021	571.22065(280)	F	Q(13)	0.00155
577.90142(36)	A	P(13)	0.43580	572.63353(287)	E	Q(40)	0.00023	571.20515(280)	F	Q(14)	0.00158
577.68890(60)	B	P(2)	0.00884	572.58491(200)	C	P(20)	0.02161	571.18849(280)	F	Q(15)	0.00159
577.57067(200)	G	P(4)	0.00102	572.58057(285)	E	Q(39)	0.00027	571.17067(280)	F	Q(16)	0.00158
577.50597(92)	I	P(14)	0.00155	572.57765(93)	I	P(20)	0.00163	571.15168(280)	F	Q(17)	0.00156
577.50339(200)	H	P(14)	0.00155	572.56724(201)	H	P(20)	0.00163	571.13149(280)	F	Q(18)	0.00154
577.41731(200)	C	P(14)	0.02163	572.52789(284)	E	Q(38)	0.00031	571.11010(280)	F	Q(19)	0.00150
577.25506(280)	F	R(6)	0.00033	572.50662(200)	G	P(10)	0.00254	571.08750(280)	F	Q(20)	0.00146
577.24910(200)	D	P(14)	0.02161	572.47555(283)	E	Q(37)	0.00036	571.06366(280)	F	Q(21)	0.00140
577.17126(280)	E	R(6)	0.00033	572.42363(282)	E	Q(36)	0.00040	571.04751(60)	B	P(10)	0.02619
577.06811(36)	A	P(14)	0.44586	572.37220(281)	E	Q(35)	0.00045	571.03859(280)	F	Q(22)	0.00134
576.85352(60)	B	P(3)	0.01164	572.32133(281)	E	Q(34)	0.00051	571.01226(280)	F	Q(23)	0.00128
576.72821(200)	G	P(5)	0.00133	572.27109(281)	E	Q(33)	0.00057	570.99169(200)	C	P(22)	0.02023
576.68155(92)	I	P(15)	0.00161	572.24393(200)	D	P(20)	0.02157	570.98465(280)	F	Q(24)	0.00120
576.67816(200)	H	P(15)	0.00161	572.22154(281)	E	Q(32)	0.00063	570.95576(280)	F	Q(25)	0.00113
576.60658(200)	C	P(15)	0.02215	572.17275(281)	E	Q(31)	0.00070	570.94482(94)	I	P(22)	0.00155
576.41397(200)	D	P(15)	0.02213	572.12479(280)	E	Q(30)	0.00076	570.92973(202)	H	P(22)	0.00155
576.40161(280)	F	R(5)	0.00026	572.07772(280)	E	Q(29)	0.00083	570.92555(280)	F	Q(26)	0.00106
576.33879(280)	E	R(5)	0.00026	572.07648(36)	A	P(20)	0.42430	570.89402(280)	F	Q(27)	0.00099
576.23518(36)	A	P(15)	0.45161	572.03159(280)	E	Q(28)	0.00091	570.86115(280)	F	Q(28)	0.00091
576.01964(60)	B	P(4)	0.01431	571.98648(280)	E	Q(27)	0.00099	570.82691(280)	F	Q(29)	0.00083
575.88512(200)	G	P(6)	0.00162	571.94244(280)	E	Q(26)	0.00106	570.81389(200)	G	P(12)	0.00282
575.85832(92)	I	P(16)	0.00165	571.89952(280)	E	Q(25)	0.00113	570.79129(280)	F	Q(30)	0.00076
575.85396(200)	H	P(16)	0.00165	571.87252(60)	B	P(9)	0.02481	570.75426(281)	F	Q(31)	0.00070
575.79794(200)	C	P(16)	0.02245	571.85778(280)	E	Q(24)	0.00120	570.71580(281)	F	Q(32)	0.00063
575.57920(200)	D	P(16)	0.02242	571.81727(280)	E	Q(23)	0.00128	570.67590(281)	F	Q(33)	0.00057
575.55002(280)	F	R(4)	0.00020	571.78717(200)	C	P(21)	0.02099	570.63452(281)	F	Q(34)	0.00051
575.50516(280)	E	R(4)	0.00020	571.77806(280)	E	Q(22)	0.00134	570.59164(281)	F	Q(35)	0.00046
575.40264(36)	A	P(16)	0.45325	571.76060(93)	I	P(21)	0.00160	570.57861(200)	D	P(22)	0.02020
575.18725(60)	B	P(5)	0.01683	571.74801(201)	H	P(21)	0.00160	570.54725(282)	F	Q(36)	0.00040
575.04140(200)	G	P(7)	0.00189	571.74017(280)	E	Q(21)	0.00140	570.50130(282)	F	Q(37)	0.00036
575.03631(93)	I	P(17)	0.00167	571.70368(280)	E	Q(20)	0.00146	570.45378(283)	F	Q(38)	0.00031
575.03079(201)	H	P(17)	0.00167	571.66861(280)	E	Q(19)	0.00150	570.41583(36)	A	P(22)	0.39341

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
570.40466(285)	F	Q(39)	0.00027	565.47874(280)	F	P(7)	0.00078	559.66518(128)	I	P(36)	0.00051
570.35391(287)	F	Q(40)	0.00023	565.44393(36)	A	P(28)	0.27073	559.66305(36)	A	P(35)	0.13658
570.30151(290)	F	Q(41)	0.00021	565.41578(280)	E	P(7)	0.00078	559.64236(60)	B	P(24)	0.02187
570.24741(293)	F	Q(42)	0.00017	565.31236(60)	B	P(17)	0.02871	559.56388(236)	H	P(36)	0.00051
570.22396(60)	B	P(11)	0.02732	565.27114(101)	I	P(29)	0.00103	559.45652(280)	E	P(14)	0.00094
570.19850(200)	C	P(23)	0.01938	565.22707(209)	H	P(29)	0.00103	559.35361(201)	C	P(37)	0.00574
570.19160(298)	F	Q(43)	0.00015	564.87313(200)	G	P(19)	0.00292	558.96699(201)	D	P(36)	0.00645
570.13404(304)	F	Q(44)	0.00013	564.76261(200)	D	P(29)	0.01309	558.91745(280)	F	P(15)	0.00093
570.13033(94)	I	P(23)	0.00149	564.71314(200)	C	P(30)	0.01207	558.91215(200)	G	P(26)	0.00210
570.11239(202)	H	P(23)	0.00149	564.65189(280)	F	P(8)	0.00082	558.87013(137)	I	P(37)	0.00046
570.07469(312)	F	Q(45)	0.00011	564.61677(36)	A	P(29)	0.24940	558.83899(36)	A	P(36)	0.12138
570.01353(322)	F	Q(46)	0.00010	564.56790(280)	E	P(8)	0.00082	558.83719(60)	B	P(25)	0.02053
569.96670(200)	G	P(13)	0.00292	564.49854(60)	B	P(18)	0.02816	558.75763(245)	H	P(37)	0.00046
569.95053(333)	F	Q(47)	0.00008	564.46603(103)	I	P(30)	0.00095	558.60042(280)	E	P(15)	0.00093
569.88564(347)	F	Q(48)	0.00007	564.41579(211)	H	P(30)	0.00095	558.59898(201)	C	P(38)	0.00506
569.81883(364)	F	Q(49)	0.00005	564.02264(200)	G	P(20)	0.00284	558.14076(201)	D	P(37)	0.00571
569.75007(383)	F	Q(50)	0.00004	563.93949(200)	C	P(31)	0.01102	558.10582(280)	F	P(16)	0.00093
569.74654(200)	D	P(23)	0.01934	563.93339(200)	D	P(30)	0.01202	558.07657(147)	I	P(38)	0.00040
569.64171(280)	F	P(2)	0.00050	563.82697(280)	F	P(9)	0.00085	558.05936(200)	G	P(27)	0.00195
569.63872(280)	E	P(2)	0.00050	563.79005(36)	A	P(30)	0.22852	558.03313(60)	B	P(26)	0.01917
569.58613(36)	A	P(23)	0.37518	563.71890(280)	E	P(9)	0.00085	558.01538(36)	A	P(37)	0.10734
569.40764(200)	C	P(24)	0.01844	563.68605(60)	B	P(19)	0.02743	557.95201(255)	H	P(38)	0.00040
569.40185(60)	B	P(12)	0.02818	563.66232(105)	I	P(31)	0.00087	557.84723(202)	C	P(39)	0.00444
569.31713(95)	I	P(24)	0.00142	563.60530(213)	H	P(31)	0.00087	557.74307(280)	E	P(16)	0.00093
569.29598(203)	H	P(24)	0.00142	563.17175(200)	G	P(21)	0.00274	557.31497(201)	D	P(38)	0.00503
569.11899(200)	G	P(14)	0.00299	563.16845(200)	C	P(32)	0.01002	557.29606(280)	F	P(17)	0.00091
568.91487(200)	D	P(24)	0.01840	563.10459(200)	D	P(31)	0.01098	557.28451(161)	I	P(39)	0.00036
568.80528(280)	F	P(3)	0.00055	563.00396(280)	F	P(10)	0.00089	557.23017(60)	B	P(27)	0.01781
568.79630(280)	E	P(3)	0.00055	562.96377(36)	A	P(31)	0.20829	557.20633(200)	G	P(28)	0.00181
568.75684(36)	A	P(24)	0.35560	562.87484(60)	B	P(20)	0.02654	557.19223(36)	A	P(38)	0.09447
568.61914(200)	C	P(25)	0.01744	562.86876(280)	E	P(10)	0.00089	557.14699(269)	H	P(39)	0.00036
568.58116(60)	B	P(13)	0.02878	562.86002(108)	I	P(32)	0.00079	557.09839(202)	C	P(40)	0.00387
568.50525(96)	I	P(25)	0.00135	562.79558(216)	H	P(32)	0.00079	556.88443(280)	E	P(17)	0.00091
568.48046(204)	H	P(25)	0.00135	562.40005(200)	C	P(33)	0.00905	556.49396(177)	I	P(40)	0.00031
568.27076(200)	G	P(15)	0.00303	562.32049(200)	G	P(22)	0.00263	556.48962(201)	D	P(39)	0.00441
568.08361(200)	D	P(25)	0.01739	562.27622(200)	D	P(32)	0.00998	556.48815(280)	F	P(18)	0.00089
567.97077(280)	F	P(4)	0.00061	562.18286(280)	F	P(11)	0.00091	556.42825(60)	B	P(28)	0.01645
567.95281(280)	E	P(4)	0.00061	562.13792(36)	A	P(32)	0.18886	556.36953(36)	A	P(39)	0.08274
567.92798(36)	A	P(25)	0.33503	562.06489(60)	B	P(21)	0.02551	556.35308(200)	G	P(29)	0.00167
567.83302(200)	C	P(26)	0.01639	562.05914(111)	I	P(33)	0.00072	556.35250(203)	C	P(41)	0.00337
567.76189(60)	B	P(14)	0.02912	562.01748(280)	E	P(11)	0.00091	556.34254(285)	H	P(40)	0.00031
567.69470(97)	I	P(26)	0.00128	561.98660(220)	H	P(33)	0.00072	556.02447(280)	E	P(18)	0.00089
567.66583(205)	H	P(26)	0.00128	561.63432(201)	C	P(34)	0.00814	555.70494(197)	I	P(41)	0.00027
567.42204(200)	G	P(16)	0.00304	561.46888(200)	G	P(23)	0.00251	555.68210(280)	F	P(19)	0.00085
567.25274(200)	D	P(26)	0.01634	561.44826(200)	D	P(33)	0.00901	555.66472(201)	D	P(40)	0.00385
567.13817(280)	F	P(5)	0.00066	561.36366(280)	F	P(12)	0.00093	555.62735(60)	B	P(29)	0.01512
567.10823(280)	E	P(5)	0.00066	561.31252(36)	A	P(33)	0.17038	555.60960(204)	C	P(42)	0.00291
567.09953(36)	A	P(26)	0.31383	561.25970(116)	I	P(34)	0.00065	555.54729(36)	A	P(40)	0.07213
567.04933(200)	C	P(27)	0.01531	561.25618(60)	B	P(22)	0.02438	555.53863(305)	H	P(41)	0.00027
566.94401(60)	B	P(15)	0.02921	561.17833(224)	H	P(34)	0.00065	555.49964(200)	G	P(30)	0.00153
566.88549(98)	I	P(27)	0.00120	561.16502(280)	E	P(12)	0.00093	555.16315(280)	E	P(19)	0.00085
566.85207(206)	H	P(27)	0.00120	560.87132(201)	C	P(35)	0.00728	554.91745(221)	I	P(42)	0.00023
566.57285(200)	G	P(17)	0.00302	560.62074(201)	D	P(34)	0.00810	554.87789(280)	F	P(20)	0.00083
566.42229(200)	D	P(27)	0.01527	560.61693(200)	G	P(24)	0.00238	554.86973(205)	C	P(43)	0.00251
566.30749(280)	F	P(6)	0.00072	560.54637(280)	F	P(13)	0.00094	554.84026(202)	D	P(41)	0.00335
566.27152(36)	A	P(27)	0.29230	560.48756(36)	A	P(34)	0.15293	554.82744(60)	B	P(30)	0.01382
566.26809(200)	C	P(28)	0.01422	560.46171(121)	I	P(35)	0.00058	554.73524(330)	H	P(42)	0.00023
566.26255(280)	E	P(6)	0.00072	560.44868(60)	B	P(23)	0.02316	554.72552(36)	A	P(41)	0.06258
566.12750(60)	B	P(16)	0.02907	560.37077(229)	H	P(35)	0.00058	554.64603(200)	G	P(31)	0.00139
566.07763(99)	I	P(28)	0.00112	560.31137(280)	E	P(13)	0.00094	554.30045(280)	E	P(20)	0.00083
566.03915(207)	H	P(28)	0.00112	560.11106(201)	C	P(36)	0.00648	554.13292(207)	C	P(44)	0.00215
565.72321(200)	G	P(18)	0.00298	559.79365(201)	D	P(35)	0.00724	554.13151(250)	I	P(43)	0.00020
565.59224(200)	D	P(28)	0.01418	559.76469(200)	G	P(25)	0.00224	554.07551(280)	F	P(21)	0.00079
565.48935(200)	C	P(29)	0.01314	559.73097(280)	F	P(14)	0.00094	554.02847(60)	B	P(31)	0.01257

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
554.01625(203)	D	P(42)	0.00289	548.26092(218)	D	P(49)	0.00091	541.47239(282)	F	P(37)	0.00019
553.93234(358)	H	P(43)	0.00020	548.21962(280)	E	P(27)	0.00054	541.43447(499)	C	P(62)	0.00006
553.90420(36)	A	P(42)	0.05404	548.16817(38)	A	P(49)	0.01701	541.34129(68)	B	P(47)	0.00143
553.79228(201)	G	P(32)	0.00126	547.90046(718)	I	P(51)	0.00005	541.16589(281)	E	P(35)	0.00024
553.43634(280)	E	P(21)	0.00079	547.81388(203)	G	P(39)	0.00055	540.98358(239)	G	P(47)	0.00016
553.39922(209)	C	P(45)	0.00182	547.72046(280)	F	P(29)	0.00046	540.89492(321)	D	P(58)	0.00015
553.34711(283)	I	P(44)	0.00017	547.66612(61)	B	P(39)	0.00492	540.82784(48)	A	P(58)	0.00278
553.27494(280)	F	P(22)	0.00075	547.64573(268)	C	P(53)	0.00043	540.76218(540)	C	P(63)	0.00005
553.23040(60)	B	P(32)	0.01137	547.52348(829)	H	P(51)	0.00005	540.69831(283)	F	P(38)	0.00016
553.19269(203)	D	P(43)	0.00249	547.44058(224)	D	P(50)	0.00076	540.55226(71)	B	P(48)	0.00120
553.12991(392)	H	P(44)	0.00017	547.35063(39)	A	P(50)	0.01416	540.27514(282)	E	P(36)	0.00022
553.08336(37)	A	P(43)	0.04645	547.34443(280)	E	P(28)	0.00050	540.13039(250)	G	P(48)	0.00014
552.93841(201)	G	P(33)	0.00114	547.12873(817)	I	P(52)	0.00004	540.09352(586)	C	P(64)	0.00004
552.66866(212)	C	P(46)	0.00155	546.95978(205)	G	P(40)	0.00048	540.07888(343)	D	P(59)	0.00012
552.57076(280)	E	P(22)	0.00075	546.94158(283)	C	P(54)	0.00036	540.01470(51)	A	P(59)	0.00223
552.56428(323)	I	P(45)	0.00014	546.93382(280)	F	P(30)	0.00041	539.92569(284)	F	P(39)	0.00014
552.47617(280)	F	P(23)	0.00071	546.87391(61)	B	P(40)	0.00429	539.76344(74)	B	P(49)	0.00100
552.43321(60)	B	P(33)	0.01024	546.72373(929)	H	P(52)	0.00004	539.42850(636)	C	P(65)	0.00003
552.36958(205)	D	P(44)	0.00212	546.62071(230)	D	P(51)	0.00063	539.38220(282)	E	P(37)	0.00019
552.32791(432)	H	P(45)	0.00014	546.53358(39)	A	P(51)	0.01173	539.27737(263)	G	P(49)	0.00011
552.26298(37)	A	P(44)	0.03974	546.46748(280)	E	P(29)	0.00046	539.26333(366)	D	P(60)	0.00010
552.08443(201)	G	P(34)	0.00102	546.35859(928)	I	P(53)	0.00004	539.20206(53)	A	P(60)	0.00177
551.94128(216)	C	P(47)	0.00131	546.24087(301)	C	P(55)	0.00029	539.15448(285)	F	P(40)	0.00013
551.78302(369)	I	P(46)	0.00013	546.14884(280)	F	P(31)	0.00037	538.97478(78)	B	P(50)	0.00083
551.70369(280)	E	P(23)	0.00071	546.10574(206)	G	P(41)	0.00042	538.48700(283)	E	P(38)	0.00016
551.67919(280)	F	P(24)	0.00067	546.08223(61)	B	P(41)	0.00371	538.44827(393)	D	P(61)	0.00007
551.63685(60)	B	P(34)	0.00917	545.80131(238)	D	P(52)	0.00052	538.42454(279)	G	P(50)	0.00009
551.54693(206)	D	P(45)	0.00181	545.71701(40)	A	P(52)	0.00968	538.38991(56)	A	P(61)	0.00141
551.52632(479)	H	P(46)	0.00013	545.58871(280)	E	P(30)	0.00041	538.38467(287)	F	P(41)	0.00011
551.44307(37)	A	P(45)	0.03384	545.54363(320)	C	P(56)	0.00023	538.18626(82)	B	P(51)	0.00069
551.23039(201)	G	P(35)	0.00091	545.36549(281)	F	P(32)	0.00034	537.63370(422)	D	P(62)	0.00006
551.21711(221)	C	P(48)	0.00110	545.29106(62)	B	P(42)	0.00320	537.61621(290)	F	P(42)	0.00010
551.00334(422)	I	P(47)	0.00011	545.25176(209)	G	P(42)	0.00036	537.58950(284)	E	P(39)	0.00014
550.88397(280)	F	P(25)	0.00063	544.98238(247)	D	P(53)	0.00042	537.57826(59)	A	P(62)	0.00111
550.84128(60)	B	P(35)	0.00818	544.90093(41)	A	P(53)	0.00795	537.39783(88)	B	P(52)	0.00057
550.83508(280)	E	P(24)	0.00067	544.84989(343)	C	P(57)	0.00019	536.84907(294)	F	P(43)	0.00008
550.72511(532)	H	P(47)	0.00011	544.70809(281)	E	P(31)	0.00037	536.81963(455)	D	P(63)	0.00004
550.72474(208)	D	P(46)	0.00154	544.58375(281)	F	P(33)	0.00031	536.76711(63)	A	P(63)	0.00087
550.62363(37)	A	P(46)	0.02869	544.50036(62)	B	P(43)	0.00275	536.68962(286)	E	P(40)	0.00013
550.49620(227)	C	P(49)	0.00092	544.39788(212)	G	P(43)	0.00031	536.60944(95)	B	P(53)	0.00047
550.37628(201)	G	P(36)	0.00081	544.16393(258)	D	P(54)	0.00035	536.08323(299)	F	P(44)	0.00007
550.22524(483)	I	P(48)	0.00009	544.15967(368)	C	P(58)	0.00015	536.00605(490)	D	P(64)	0.00004
550.09051(280)	F	P(26)	0.00058	544.08533(42)	A	P(54)	0.00650	535.95646(67)	A	P(64)	0.00068
550.04647(60)	B	P(36)	0.00726	543.82554(281)	E	P(32)	0.00034	535.82108(103)	B	P(54)	0.00038
549.96490(280)	E	P(25)	0.00063	543.80360(281)	F	P(34)	0.00027	535.78730(289)	E	P(41)	0.00011
549.92425(593)	H	P(48)	0.00009	543.71007(63)	B	P(44)	0.00235	535.31864(305)	F	P(45)	0.00006
549.90300(211)	D	P(47)	0.00130	543.54411(217)	G	P(44)	0.00026	535.19298(529)	D	P(65)	0.00003
549.80467(38)	A	P(47)	0.02421	543.47300(395)	C	P(59)	0.00012	535.14632(72)	A	P(65)	0.00053
549.77857(235)	C	P(50)	0.00077	543.34595(271)	D	P(55)	0.00028	535.03268(112)	B	P(55)	0.00031
549.52215(202)	G	P(37)	0.00072	543.27023(43)	A	P(55)	0.00530	534.88250(292)	E	P(42)	0.00010
549.44872(552)	I	P(49)	0.00007	543.02500(281)	F	P(35)	0.00024	534.55527(313)	F	P(46)	0.00005
549.29879(280)	F	P(27)	0.00054	542.94103(281)	E	P(33)	0.00031	534.33668(77)	A	P(66)	0.00041
549.25236(60)	B	P(37)	0.00641	542.92016(65)	B	P(45)	0.00200	534.24424(123)	B	P(56)	0.00025
549.12371(662)	H	P(49)	0.00007	542.78990(427)	C	P(60)	0.00010	533.97513(296)	E	P(43)	0.00008
549.09309(280)	E	P(26)	0.00058	542.69045(223)	G	P(45)	0.00023	533.79308(323)	F	P(47)	0.00004
549.08173(214)	D	P(48)	0.00109	542.52846(285)	D	P(56)	0.00023	533.52754(82)	A	P(67)	0.00032
549.06426(244)	C	P(51)	0.00063	542.45561(45)	A	P(56)	0.00429	533.45569(135)	B	P(57)	0.00020
548.98618(38)	A	P(48)	0.02034	542.24794(281)	F	P(36)	0.00022	533.06514(302)	E	P(44)	0.00007
548.67379(630)	I	P(50)	0.00006	542.13058(66)	B	P(46)	0.00169	533.03203(336)	F	P(48)	0.00004
548.66801(202)	G	P(38)	0.00063	542.11038(461)	C	P(61)	0.00007	532.71891(89)	A	P(68)	0.00025
548.50878(280)	F	P(28)	0.00050	542.05450(281)	E	P(34)	0.00027	532.66703(148)	B	P(58)	0.00016
548.45893(60)	B	P(38)	0.00563	541.83694(230)	G	P(46)	0.00019	532.27209(350)	F	P(49)	0.00003
548.35330(255)	C	P(52)	0.00053	541.71145(302)	D	P(57)	0.00019	532.15247(309)	E	P(45)	0.00006
548.32346(741)	H	P(50)	0.00006	541.64148(46)	A	P(57)	0.00346	531.91079(95)	A	P(69)	0.00019

TABLE 3. Wavenumbers, assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 657 cm^{-1} to 523 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
531.87820(163)	B	P(59)	0.00013	529.51049(220)	B	P(62)	0.00006	527.54664(378)	E	P(50)	0.00003
531.51322(367)	F	P(50)	0.00003	529.48949(120)	A	P(72)	0.00008	527.14037(297)	B	P(65)	0.00003
531.23706(318)	E	P(46)	0.00005	529.39773(343)	E	P(48)	0.00004	527.07280(152)	A	P(75)	0.00003
531.10318(103)	A	P(70)	0.00014	528.72074(243)	B	P(63)	0.00005	526.26826(164)	A	P(76)	0.00003
531.08919(181)	B	P(60)	0.00010	528.68341(130)	A	P(73)	0.00006	525.46425(177)	A	P(77)	0.00002
530.31883(330)	E	P(47)	0.00004	528.47368(359)	E	P(49)	0.00003	524.66075(192)	A	P(78)	0.00001
530.29996(199)	B	P(61)	0.00008	527.93071(269)	B	P(64)	0.00004	523.85777(207)	A	P(79)	0.00001
530.29608(111)	A	P(71)	0.00011	527.87785(140)	A	P(74)	0.00005	523.05531(224)	A	P(80)	0.00001

TABLE 4. Wavenumbers [a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1340.94514(***)	A	R(80)	0.00002	1329.64291(205)	B	R(50)	0.00161	1318.93159(110)	A	R(44)	0.08057
1340.39459(***)	A	R(79)	0.00002	1329.38399(203)	C	R(49)	0.00192	1318.86432(200)	C	R(34)	0.01768
1339.84065(***)	A	R(78)	0.00003	1329.27995(389)	A	R(60)	0.00355	1318.72590(505)*	I	R(51)	0.00009
1339.82776(269)	C	R(65)	0.00006	1328.98254(204)	B	R(49)	0.00194	1318.65612(200)	B	R(34)	0.01776
1339.28333(***)	A	R(77)	0.00004	1328.70493(202)	C	R(48)	0.00230	1318.25435(107)	A	R(43)	0.09428
1339.19704(259)	C	R(64)	0.00008	1328.65994(352)	A	R(59)	0.00446	1318.13739(200)	C	R(33)	0.01973
1339.13136(279)	B	R(65)	0.00006	1328.31867(203)	B	R(48)	0.00232	1318.08593(482)*	I	R(50)	0.00011
1338.72260(***)	A	R(76)	0.00005	1328.03638(319)	A	R(58)	0.00558	1317.93958(200)	B	R(33)	0.01982
1338.56494(250)	C	R(63)	0.00010	1328.02271(202)	C	R(47)	0.00274	1317.57351(105)	A	R(42)	0.10981
1338.52295(268)	B	R(64)	0.00008	1327.65130(202)	B	R(47)	0.00276	1317.44208(461)*	I	R(49)	0.00018
1338.15845(***)	A	R(75)	0.00007	1327.40927(289)	A	R(57)	0.00695	1317.40723(200)	C	R(32)	0.02192
1337.92903(242)	C	R(62)	0.00012	1327.33733(202)	C	R(46)	0.00325	1317.21954(200)	B	R(32)	0.02201
1337.91112(258)	B	R(63)	0.00010	1326.98042(202)	B	R(46)	0.00328	1316.88907(103)	A	R(41)	0.12731
1337.59088(***)	A	R(74)	0.00009	1326.77859(262)	A	R(56)	0.00862	1316.79433(440)*	I	R(48)	0.00015
1337.29586(249)	B	R(62)	0.00013	1326.64879(201)	C	R(45)	0.00384	1316.67384(200)	C	R(31)	0.02423
1337.29012(235)	C	R(61)	0.00016	1326.30604(202)	B	R(45)	0.00387	1316.49597(200)	B	R(31)	0.02432
1337.01988(***)	A	R(73)	0.00012	1326.14435(237)	A	R(55)	0.01064	1316.20104(102)	A	R(40)	0.14691
1336.67716(242)	B	R(61)	0.00016	1325.95707(201)	C	R(44)	0.00452	1316.14269(422)*	I	R(47)	0.00018
1336.64817(229)	C	R(60)	0.00020	1325.62815(201)	B	R(44)	0.00455	1315.93722(200)	C	R(30)	0.02665
1336.44542(***)	A	R(72)	0.00017	1325.50655(215)	A	R(54)	0.01308	1315.76890(200)	B	R(30)	0.02674
1336.05502(235)	B	R(60)	0.00020	1325.26218(201)	C	R(43)	0.00529	1315.50940(101)	A	R(39)	0.16875
1336.00319(224)	C	R(59)	0.00025	1324.94676(201)	B	R(43)	0.00533	1315.48716(404)*	I	R(46)	0.00022
1335.86751(***)	A	R(71)	0.00022	1324.86517(196)	A	R(53)	0.01600	1315.19737(200)	C	R(29)	0.02916
1335.42942(229)	B	R(59)	0.00025	1324.56411(201)	C	R(42)	0.00616	1315.03831(200)	B	R(29)	0.02925
1335.35517(220)	C	R(58)	0.00031	1324.26185(201)	B	R(42)	0.00620	1314.82775(387)*	I	R(45)	0.00026
1335.28613(***)	A	R(70)	0.00029	1324.22022(179)	A	R(52)	0.01949	1314.81417(100)	A	R(38)	0.19293
1334.80037(224)	B	R(58)	0.00032	1323.86284(201)	C	R(41)	0.00714	1314.45429(200)	C	R(28)	0.03173
1334.70408(216)	C	R(57)	0.00039	1323.57343(201)	B	R(41)	0.00719	1314.30422(200)	B	R(28)	0.03183
1334.70128(916)	A	R(69)	0.00038	1323.57169(165)	A	R(51)	0.02364	1314.16446(371)*	I	R(44)	0.00030
1334.16785(220)	B	R(57)	0.00039	1323.15839(201)	C	R(40)	0.00825	1314.11533(100)	A	R(37)	0.21953
1334.11294(836)	A	R(68)	0.00049	1322.91959(152)	A	R(50)	0.02855	1313.70797(200)	C	R(27)	0.03436
1334.04992(213)	C	R(56)	0.00048	1322.88150(201)	B	R(40)	0.00830	1313.56661(200)	B	R(27)	0.03446
1333.53187(216)	B	R(56)	0.00049	1322.45073(201)	C	R(39)	0.00948	1313.49729(357)*	I	R(43)	0.00035
1333.52112(763)	A	R(67)	0.00064	1322.26389(141)	A	R(49)	0.03432	1313.41290(99)	A	R(36)	0.24860
1333.39268(211)	C	R(55)	0.00059	1322.18606(201)	B	R(39)	0.00953	1313.17864(***)*	J	R(60)	0.00002
1332.92579(695)	A	R(66)	0.00083	1321.73987(201)	C	R(38)	0.01084	1312.95841(200)	C	R(26)	0.03700
1332.89242(213)	B	R(55)	0.00060	1321.60461(132)	A	R(48)	0.04108	1312.82624(343)*	I	R(42)	0.00041
1332.73235(209)	C	R(54)	0.00073	1321.40710(201)	B	R(38)	0.01090	1312.82549(200)	B	R(26)	0.03710
1332.32696(633)	A	R(65)	0.00107	1321.24671(609)*	I	R(55)	0.00004	1312.70686(99)	A	R(35)	0.28018
1332.24948(211)	B	R(54)	0.00074	1321.02581(201)	C	R(37)	0.01234	1312.56600(***)*	J	R(59)	0.00002
1332.06891(207)	C	R(53)	0.00089	1320.94174(125)	A	R(47)	0.04894	1312.20561(200)	C	R(25)	0.03963
1331.72461(576)	A	R(64)	0.00137	1320.70463(201)	B	R(37)	0.01240	1312.15133(330)*	I	R(41)	0.00047
1331.60307(209)	B	R(53)	0.00090	1320.62237(581)*	I	R(54)	0.00005	1312.08087(200)	B	R(25)	0.03973
1331.40237(206)	C	R(52)	0.00109	1320.30853(200)	C	R(36)	0.01398	1311.99722(99)	A	R(34)	0.31425
1331.11874(523)	A	R(63)	0.00175	1320.27529(119)	A	R(46)	0.05805	1311.95016(***)*	J	R(58)	0.00003
1330.95318(207)	B	R(52)	0.00110	1320.07864(201)	B	R(36)	0.01405	1311.47255(318)*	I	R(40)	0.00055
1330.73271(205)	C	R(51)	0.00132	1319.99412(554)*	I	R(53)	0.00006	1311.44958(200)	C	R(24)	0.04220
1330.50935(474)	A	R(62)	0.00222	1319.60523(114)	A	R(45)	0.06855	1311.33274(200)	B	R(24)	0.04230
1330.29979(206)	B	R(51)	0.00134	1319.58804(200)	C	R(35)	0.01576	1311.33113(983)*	J	R(57)	0.00003
1330.05992(204)	C	R(50)	0.00160	1319.36913(200)	B	R(35)	0.01583	1311.28399(99)	A	R(33)	0.35074
1329.89642(430)	A	R(61)	0.00282	1319.36196(529)*	I	R(52)	0.00007	1310.78990(307)*	I	R(39)	0.00063

TABLE 4. Wavenumbers[a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1310.70890(923)*	J	R(56)	0.00004	1300.98910(353)*	J	R(41)	0.00053	1291.46707(200)	C	Q(3)	0.00329
1310.69030(200)	C	R(23)	0.04469	1300.92124(98)	A	R(19)	0.93904	1291.46333(200)	B	Q(6)	0.00164
1310.58110(200)	B	R(23)	0.04479	1300.82901(219)*	I	R(25)	0.00262	1291.45207(200)	B	Q(7)	0.00138
1310.56715(99)	A	R(32)	0.38953	1300.52484(200)	C	R(10)	0.05031	1291.44702(200)	C	Q(4)	0.00250
1310.10339(297)*	I	R(38)	0.00072	1300.49199(200)	B	R(10)	0.05033	1291.43920(200)	B	Q(8)	0.00118
1310.08346(866)*	J	R(55)	0.00005	1300.31525(333)*	J	R(40)	0.00061	1291.42473(200)	B	Q(9)	0.00101
1309.92778(200)	C	R(22)	0.04705	1300.15414(98)	A	R(18)	0.96411	1291.42197(200)	C	Q(5)	0.00199
1309.84672(98)	A	R(31)	0.43046	1300.08881(217)*	I	R(24)	0.00279	1291.40866(200)	B	Q(10)	0.00088
1309.82597(200)	B	R(22)	0.04715	1299.72023(200)	C	R(9)	0.04757	1291.39191(200)	C	Q(6)	0.00164
1309.45481(812)*	J	R(54)	0.00006	1299.69155(200)	B	R(9)	0.04758	1291.39098(200)	B	Q(11)	0.00077
1309.41303(287)*	I	R(37)	0.00082	1299.63816(315)*	J	R(39)	0.00070	1291.37170(200)	B	Q(12)	0.00067
1309.16202(200)	C	R(21)	0.04924	1299.38347(98)	A	R(17)	0.98308	1291.35684(200)	C	Q(7)	0.00138
1309.12269(98)	A	R(30)	0.47329	1299.34480(214)*	I	R(23)	0.00295	1291.35083(200)	B	Q(13)	0.00059
1309.06733(200)	B	R(21)	0.04933	1298.95782(299)*	J	R(38)	0.00079	1291.32836(200)	B	Q(14)	0.00052
1308.82295(761)*	J	R(53)	0.00007	1298.91239(200)	C	R(8)	0.04431	1291.31677(200)	C	Q(8)	0.00118
1308.71881(279)*	I	R(36)	0.00092	1298.88764(200)	B	R(8)	0.04433	1291.30430(200)	B	Q(15)	0.00046
1308.39506(98)	A	R(29)	0.51773	1298.60922(98)	A	R(16)	0.99525	1291.27865(200)	B	Q(16)	0.00040
1308.39302(200)	C	R(20)	0.05122	1298.59699(212)*	I	R(22)	0.00311	1291.27168(200)	C	Q(9)	0.00101
1308.30520(200)	B	R(20)	0.05130	1298.27424(284)*	J	R(37)	0.00090	1291.25973(202)*	J	R(27)	0.00239
1308.18787(713)*	J	R(52)	0.00009	1298.10133(200)	C	R(7)	0.04057	1291.25141(200)	B	Q(17)	0.00035
1308.02074(271)*	I	R(35)	0.00104	1298.08027(200)	B	R(7)	0.04058	1291.22258(200)	B	Q(18)	0.00031
1307.66383(98)	A	R(28)	0.56340	1297.84538(210)*	I	R(21)	0.00325	1291.22160(200)	C	Q(10)	0.00088
1307.62077(200)	C	R(19)	0.05293	1297.83141(98)	A	R(15)	1.00000	1291.19217(200)	B	Q(19)	0.00027
1307.54958(668)*	J	R(51)	0.00011	1297.58741(270)*	J	R(36)	0.00101	1291.16650(200)	C	Q(11)	0.00077
1307.53957(200)	B	R(19)	0.05301	1297.28705(200)	C	R(6)	0.03635	1291.16018(200)	B	Q(20)	0.00024
1307.31882(263)*	I	R(34)	0.00117	1297.26944(200)	B	R(6)	0.03636	1291.10641(200)	C	Q(12)	0.00067
1306.92901(98)	A	R(27)	0.60989	1297.08997(208)*	I	R(20)	0.00338	1291.04131(200)	C	Q(13)	0.00059
1306.90807(625)*	J	R(50)	0.00013	1297.05003(98)	A	R(14)	0.99677	1290.97121(200)	C	Q(14)	0.00052
1306.84529(200)	C	R(18)	0.05434	1296.89733(259)*	J	R(35)	0.00114	1290.91043(201)*	I	R(12)	0.00359
1306.77044(200)	B	R(18)	0.05441	1296.46955(200)	C	R(5)	0.03169	1290.89611(200)	C	Q(15)	0.00046
1306.61306(256)*	I	R(33)	0.00130	1296.45516(200)	B	R(5)	0.03170	1290.81601(200)	C	Q(16)	0.00040
1306.26333(586)*	J	R(49)	0.00015	1296.33076(207)*	I	R(19)	0.00349	1290.73092(200)	C	Q(17)	0.00035
1306.19060(98)	A	R(26)	0.65668	1296.26508(98)	A	R(13)	0.98509	1290.67088(98)	A	R(6)	0.65568
1306.06657(200)	C	R(17)	0.05540	1296.20401(248)*	J	R(34)	0.00127	1290.64084(200)	C	Q(18)	0.00031
1305.99783(200)	B	R(17)	0.05546	1295.64884(200)	C	R(4)	0.02662	1290.54576(200)	C	Q(19)	0.00027
1305.90346(250)*	I	R(32)	0.00145	1295.63742(200)	B	R(4)	0.02662	1290.54040(199)*	J	R(26)	0.00256
1305.61536(549)*	J	R(48)	0.00018	1295.56777(206)*	I	R(18)	0.00359	1290.44569(200)	C	Q(20)	0.00024
1305.44859(98)	A	R(25)	0.70322	1295.50743(239)*	J	R(33)	0.00141	1290.12102(201)*	I	R(11)	0.00348
1305.28460(200)	C	R(16)	0.05607	1295.47657(98)	A	R(12)	0.96464	1289.85753(98)	A	R(5)	0.57597
1305.22172(200)	B	R(16)	0.05613	1294.82491(200)	C	R(3)	0.02114	1289.81783(196)*	J	R(25)	0.00274
1305.19002(244)*	I	R(31)	0.00160	1294.81624(200)	B	R(3)	0.02114	1289.81700(200)	B	P(2)	0.00856
1304.96417(514)*	J	R(47)	0.00021	1294.80761(230)*	J	R(32)	0.00156	1289.81406(200)	C	P(2)	0.00856
1304.70300(98)	A	R(24)	0.74888	1294.80099(205)*	I	R(17)	0.00366	1289.32785(201)*	I	R(10)	0.00334
1304.49940(200)	C	R(15)	0.05632	1294.68450(98)	A	R(11)	0.93520	1289.09200(193)*	J	R(24)	0.00290
1304.47275(239)*	I	R(30)	0.00176	1294.10453(223)*	J	R(31)	0.00171	1289.04064(98)	A	R(4)	0.48988
1304.44213(200)	B	R(15)	0.05637	1294.03043(204)*	I	R(16)	0.00370	1288.97180(200)	B	P(3)	0.01503
1304.30975(482)*	J	R(46)	0.00025	1293.99777(200)	C	R(2)	0.01522	1288.96775(200)	C	P(3)	0.01503
1303.95382(98)	A	R(23)	0.79299	1293.99162(200)	B	R(2)	0.01522	1288.53092(200)*	I	R(9)	0.00316
1303.75165(234)*	I	R(29)	0.00193	1293.88888(98)	A	R(10)	0.89668	1288.36293(191)*	J	R(23)	0.00306
1303.71095(200)	C	R(14)	0.05612	1293.39821(217)*	J	R(30)	0.00188	1288.22022(98)	A	R(3)	0.39837
1303.65906(200)	B	R(14)	0.05616	1293.25609(203)*	I	R(15)	0.00372	1288.12319(200)	B	P(4)	0.02080
1303.65209(452)*	J	R(45)	0.00029	1293.16742(200)	C	R(1)	0.00863	1288.11825(200)	C	P(4)	0.02080
1303.20105(98)	A	R(22)	0.83482	1293.16356(200)	B	R(1)	0.00863	1287.73024(200)*	I	R(8)	0.00295
1303.02672(230)*	I	R(28)	0.00210	1293.08970(98)	A	R(9)	0.84917	1287.63061(189)*	J	R(22)	0.00322
1302.99120(424)*	J	R(44)	0.00034	1292.68863(211)*	J	R(29)	0.00205	1287.39627(98)	A	R(2)	0.30246
1302.91928(200)	C	R(13)	0.05543	1292.47797(202)*	I	R(14)	0.00371	1287.27117(200)	B	P(5)	0.02608
1302.87251(200)	B	R(13)	0.05547	1292.28697(98)	A	R(8)	0.79289	1287.26558(200)	C	P(5)	0.02608
1302.44469(98)	A	R(21)	0.87362	1291.97581(206)*	J	R(28)	0.00222	1286.92581(200)*	I	R(7)	0.00271
1302.32707(398)*	J	R(43)	0.00040	1291.69609(202)*	I	R(13)	0.00366	1286.89504(187)*	J	R(21)	0.00336
1302.29797(226)*	I	R(27)	0.00227	1291.49552(200)	B	Q(1)	0.00863	1286.56879(98)	A	R(1)	0.20330
1302.12436(200)	C	R(12)	0.05424	1291.49230(200)	B	Q(2)	0.00476	1286.49566(457)*	H	R(55)	0.00003
1302.08248(200)	B	R(12)	0.05427	1291.49212(200)	C	Q(1)	0.00863	1286.41575(200)	B	P(6)	0.03093
1301.68475(98)	A	R(20)	0.90862	1291.48747(200)	B	Q(3)	0.00329	1286.40974(200)	C	P(6)	0.03092
1301.65971(375)*	J	R(42)	0.00046	1291.48210(200)	C	Q(2)	0.00476	1286.15622(186)*	J	R(20)	0.00348
1301.56539(223)*	I	R(26)	0.00244	1291.48103(200)	B	Q(4)	0.00250	1286.11764(200)*	I	R(6)	0.00244
1301.32622(200)	C	R(11)	0.05254	1291.48070(98)	A	R(7)	0.72822	1285.86768(444)*	H	R(54)	0.00004
1301.28897(200)	B	R(11)	0.05256	1291.47290(200)	B	Q(5)	0.00199	1285.73780(98)	A	R(0)	0.10206

TABLE 4. Wavenumbers[a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1285.55693(200)	B	P(7)	0.03533	1276.25693(180)*	J	R(7)	0.00272	1266.63642(180)*	J	P(4)	0.00146
1285.55073(200)	C	P(7)	0.03532	1276.12917(200)*	I	P(5)	0.00179	1266.57449(98)	A	P(21)	0.83391
1285.41416(185)*	J	R(19)	0.00359	1276.11039(288)*	H	R(39)	0.00041	1266.50633(202)*	I	P(16)	0.00348
1285.30573(200)*	I	R(5)	0.00214	1275.89441(200)	C	P(18)	0.05146	1266.41839(219)*	H	R(25)	0.00155
1285.23692(431)*	H	R(53)	0.00005	1275.88693(200)	B	P(18)	0.05153	1265.86465(200)	C	P(29)	0.02818
1284.69471(200)	B	P(8)	0.03927	1275.49288(98)	A	P(11)	0.85726	1265.81398(180)*	J	P(5)	0.00179
1284.68857(200)	C	P(8)	0.03926	1275.47284(180)*	J	R(6)	0.00245	1265.81339(200)	B	P(29)	0.02828
1284.66886(184)*	J	R(18)	0.00367	1275.43705(281)*	H	R(38)	0.00047	1265.70409(216)*	H	R(24)	0.00164
1284.60338(418)*	H	R(52)	0.00005	1275.27272(200)*	I	P(6)	0.00209	1265.66383(98)	A	P(22)	0.79852
1284.49009(200)*	I	R(4)	0.00182	1274.99790(200)	C	P(19)	0.05027	1265.60960(203)*	I	P(17)	0.00345
1284.06527(98)	A	P(1)	0.10165	1274.98771(200)	B	P(19)	0.05034	1264.98837(180)*	J	P(6)	0.00210
1283.96705(406)*	H	R(51)	0.00007	1274.76082(274)*	H	R(37)	0.00053	1264.98684(214)*	H	R(23)	0.00172
1283.92031(183)*	J	R(17)	0.00374	1274.68554(180)*	J	R(5)	0.00215	1264.93471(200)	C	P(30)	0.02579
1283.82910(200)	B	P(9)	0.04272	1274.61652(98)	A	P(12)	0.89044	1264.87788(200)	B	P(30)	0.02588
1283.82325(200)	C	P(9)	0.04271	1274.41258(200)*	I	P(7)	0.00237	1264.74977(98)	A	P(23)	0.75994
1283.67072(200)*	I	R(3)	0.00148	1274.09830(200)	C	P(20)	0.04877	1264.70923(204)*	I	P(18)	0.00340
1283.32792(394)*	H	R(50)	0.00008	1274.08516(200)	B	P(20)	0.04884	1264.26664(212)*	H	R(22)	0.00180
1283.22374(98)	A	P(2)	0.20164	1274.08169(268)*	H	R(36)	0.00059	1264.15959(180)*	J	P(7)	0.00238
1283.16853(182)*	J	R(16)	0.00377	1273.89503(180)*	J	R(4)	0.00182	1264.00179(200)	C	P(31)	0.02347
1282.96011(200)	B	P(10)	0.04568	1273.73671(98)	A	P(13)	0.91473	1263.93913(200)	B	P(31)	0.02356
1282.95478(200)	C	P(10)	0.04566	1273.54877(200)*	I	P(8)	0.00262	1263.83232(98)	A	P(24)	0.71892
1282.84762(200)*	I	R(2)	0.00113	1273.39964(261)*	H	R(35)	0.00066	1263.80523(205)*	I	P(19)	0.00332
1282.68598(382)*	H	R(49)	0.00009	1273.19562(200)	C	P(21)	0.04700	1263.54348(210)*	H	R(21)	0.00188
1282.41350(182)*	J	R(15)	0.00378	1273.17929(200)	B	P(21)	0.04708	1263.32764(180)*	J	P(8)	0.00263
1282.37871(98)	A	P(3)	0.29877	1273.10131(180)*	J	R(3)	0.00148	1263.06590(200)	C	P(32)	0.02126
1282.08774(200)	B	P(11)	0.04812	1272.85346(98)	A	P(14)	0.93031	1262.99712(200)	B	P(32)	0.02134
1282.08316(200)	C	P(11)	0.04810	1272.71469(256)*	H	R(34)	0.00073	1262.91148(98)	A	P(25)	0.67617
1282.04123(371)*	H	R(48)	0.00011	1272.68128(200)*	I	P(9)	0.00284	1262.89761(206)*	I	P(20)	0.00322
1282.02079(200)*	I	R(1)	0.00076	1272.30438(180)*	J	R(2)	0.00113	1262.81737(208)*	H	R(20)	0.00194
1281.65524(181)*	J	R(14)	0.00376	1272.28989(200)	C	P(22)	0.04500	1262.49255(180)*	J	P(9)	0.00286
1281.53018(98)	A	P(4)	0.39191	1272.27010(200)	B	P(22)	0.04509	1262.12705(200)	C	P(33)	0.01915
1281.39365(360)*	H	R(47)	0.00013	1272.02682(250)*	H	R(33)	0.00081	1262.08829(207)*	H	R(19)	0.00200
1281.21199(200)	B	P(12)	0.05005	1271.96675(98)	A	P(15)	0.93750	1262.05186(200)	B	P(33)	0.01923
1281.20841(200)	C	P(12)	0.05002	1271.81012(200)*	I	P(10)	0.00303	1261.98726(98)	A	P(26)	0.63236
1281.19025(200)*	I	R(0)	0.00038	1271.50425(180)*	J	R(1)	0.00076	1261.98637(207)*	I	P(21)	0.00310
1280.89374(181)*	J	R(13)	0.00371	1271.38110(200)	C	P(23)	0.04283	1261.65429(180)*	J	P(10)	0.00306
1280.74323(350)*	H	R(46)	0.00015	1271.35759(200)	B	P(23)	0.04292	1261.35625(206)*	H	R(18)	0.00205
1280.67815(98)	A	P(5)	0.47997	1271.33604(245)*	H	R(32)	0.00090	1261.18525(200)	C	P(34)	0.01717
1280.33287(200)	B	P(13)	0.05146	1271.07661(98)	A	P(16)	0.93671	1261.10338(200)	B	P(34)	0.01725
1280.33053(200)	C	P(13)	0.05143	1270.93530(201)*	I	P(11)	0.00319	1261.07151(209)*	I	P(22)	0.00297
1280.12901(181)*	J	R(12)	0.00363	1270.70092(180)*	J	R(0)	0.00038	1261.05967(98)	A	P(27)	0.58811
1280.08998(340)*	H	R(45)	0.00018	1270.64232(240)*	H	R(31)	0.00098	1260.81290(180)*	J	P(11)	0.00322
1279.82264(98)	A	P(6)	0.56201	1270.46925(200)	C	P(24)	0.04051	1260.62125(205)*	H	R(17)	0.00208
1279.51804(200)*	I	P(1)	0.00038	1270.44178(200)	B	P(24)	0.04060	1260.24051(200)	C	P(35)	0.01532
1279.45039(200)	B	P(14)	0.05238	1270.18303(98)	A	P(17)	0.92846	1260.15304(210)*	I	P(23)	0.00283
1279.44953(200)	C	P(14)	0.05234	1270.05681(201)*	I	P(12)	0.00331	1260.15166(200)	B	P(35)	0.01539
1279.43388(330)*	H	R(44)	0.00021	1269.94568(236)*	H	R(30)	0.00107	1260.12872(98)	A	P(20)	0.54398
1279.36104(181)*	J	R(11)	0.00351	1269.55437(200)	C	P(25)	0.03810	1259.96836(181)*	J	P(12)	0.00335
1278.96364(98)	A	P(7)	0.63719	1269.52268(200)	B	P(25)	0.03819	1259.88329(204)*	H	R(16)	0.00209
1278.77492(321)*	H	R(43)	0.00024	1269.28602(98)	A	P(18)	0.91336	1259.29284(200)	C	P(36)	0.01360
1278.67637(200)*	I	P(2)	0.00075	1269.24610(232)*	H	R(29)	0.00117	1259.23097(212)*	I	P(24)	0.00267
1278.58985(180)*	J	R(10)	0.00336	1269.17466(201)*	I	P(13)	0.00340	1259.19673(200)	B	P(36)	0.01367
1278.56541(200)	C	P(15)	0.05277	1269.08468(180)*	J	P(1)	0.00038	1259.19440(98)	A	P(29)	0.50047
1278.56455(200)	B	P(15)	0.05282	1268.63647(200)	C	P(26)	0.03563	1259.14237(203)*	H	R(15)	0.00210
1278.11310(312)*	H	R(42)	0.00028	1268.60028(200)	B	P(26)	0.03572	1259.12068(181)*	J	P(13)	0.00345
1278.10115(98)	A	P(8)	0.70479	1268.54359(228)*	H	R(28)	0.00126	1258.39848(202)*	H	R(14)	0.00208
1277.83099(200)*	I	P(3)	0.00111	1268.38559(98)	A	P(19)	0.89209	1258.34225(200)	C	P(37)	0.01201
1277.81543(180)*	J	R(9)	0.00318	1268.28886(201)*	I	P(14)	0.00346	1258.30529(215)*	I	P(25)	0.00252
1277.67818(200)	C	P(16)	0.05275	1268.27178(180)*	J	P(2)	0.00075	1258.26988(181)*	J	P(14)	0.00351
1277.67536(200)	B	P(16)	0.05280	1267.83813(225)*	H	R(27)	0.00136	1258.25673(98)	A	P(30)	0.45802
1277.44841(304)*	H	R(41)	0.00032	1267.71553(200)	C	P(27)	0.03313	1258.23859(200)	B	P(37)	0.01208
1277.23520(98)	A	P(9)	0.76425	1267.67459(200)	B	P(27)	0.03322	1257.65162(202)*	H	R(13)	0.00205
1277.03779(180)*	J	R(8)	0.00296	1267.48175(98)	A	P(20)	0.86535	1257.41595(181)*	J	P(15)	0.00355
1276.98193(200)*	I	P(4)	0.00146	1267.45569(180)*	J	P(3)	0.00111	1257.38876(201)	C	P(38)	0.01056
1276.78784(200)	C	P(17)	0.05230	1267.39942(202)*	I	P(15)	0.00349	1257.37601(217)*	I	P(26)	0.00235
1276.78282(200)	B	P(17)	0.05236	1267.12973(221)*	H	R(26)	0.00145	1257.31572(98)	A	P(31)	0.41701
1276.78084(296)*	H	R(40)	0.00036	1266.79159(200)	C	P(28)	0.03064	1257.27724(201)	B	P(38)	0.01062
1276.36577(98)	A	P(10)	0.81517	1266.74562(200)	B	P(28)	0.03073	1256.90181(201)*	H	R(12)	0.00200

TABLE 4. Wavenumbers[a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1256.55890(182)*	J	P(16)	0.00355	1246.09384(200)*	H	P(1)	0.00021	1235.54370(201)*	H	P(14)	0.00194
1256.44314(220)*	I	P(27)	0.00219	1246.03322(203)*	J	P(28)	0.00214	1235.33674(225)	B	P(60)	0.00020
1256.43238(201)	C	P(39)	0.00924	1245.94586(280)*	I	P(38)	0.00070	1235.07091(326)*	J	P(40)	0.00060
1256.37137(98)	A	P(32)	0.37773	1245.76542(103)	A	P(43)	0.09213	1235.02106(424)*	I	P(49)	0.00013
1256.31270(201)	B	P(39)	0.00930	1245.72502(203)	C	P(50)	0.00157	1234.76776(180)	A	P(54)	0.01284
1256.14902(201)*	H	R(11)	0.00194	1245.49459(203)	B	P(50)	0.00158	1234.71195(202)*	H	P(15)	0.00197
1255.69873(182)*	J	P(17)	0.00353	1245.29976(200)*	H	P(2)	0.00041	1234.68841(226)	C	P(61)	0.00015
1255.50668(223)*	I	P(28)	0.00202	1245.13619(208)*	J	P(29)	0.00198	1234.30450(230)	B	P(61)	0.00016
1255.47312(201)	C	P(40)	0.00805	1244.97026(289)*	I	P(39)	0.00061	1234.13810(346)*	J	P(41)	0.00052
1255.42369(98)	A	P(33)	0.34042	1244.78163(105)	A	P(44)	0.07878	1234.00693(443)*	I	P(50)	0.00010
1255.39328(201)*	H	R(10)	0.00185	1244.73498(203)	C	P(51)	0.00130	1233.87735(202)*	H	P(16)	0.00197
1255.34498(201)	B	P(40)	0.00810	1244.50274(200)*	H	P(3)	0.00061	1233.74900(196)	A	P(55)	0.01045
1254.83546(183)*	J	P(18)	0.00348	1244.49246(204)	B	P(51)	0.00131	1233.66954(231)	C	P(62)	0.00012
1254.63458(200)*	H	R(9)	0.00175	1244.23614(213)*	J	P(30)	0.00182	1233.56943(498)	G	R(60)	0.00001
1254.56664(227)*	I	P(29)	0.00186	1243.99113(298)*	I	P(40)	0.00053	1233.26932(236)	B	P(62)	0.00012
1254.51099(201)	C	P(41)	0.00697	1243.79461(107)	A	P(45)	0.06706	1233.20237(367)*	J	P(42)	0.00045
1254.47268(99)	A	P(34)	0.30527	1243.74223(204)	C	P(52)	0.00107	1233.03990(203)*	H	P(17)	0.00196
1254.37408(201)	B	P(41)	0.00702	1243.70280(200)*	H	P(4)	0.00080	1232.98933(463)*	I	P(51)	0.00009
1253.96909(184)*	J	P(19)	0.00341	1243.48726(205)	B	P(52)	0.00108	1232.72713(216)	A	P(56)	0.00847
1253.87291(200)*	H	R(8)	0.00163	1243.33307(219)*	J	P(31)	0.00166	1232.64816(237)	C	P(63)	0.00010
1253.62303(231)*	I	P(30)	0.00170	1243.00848(309)*	I	P(41)	0.00046	1232.56644(460)	G	R(59)	0.00001
1253.54601(201)	C	P(42)	0.00602	1242.89994(200)*	H	P(5)	0.00098	1232.26371(390)*	J	P(43)	0.00039
1253.51836(99)	A	P(35)	0.27240	1242.80438(110)	A	P(46)	0.05682	1232.23122(243)	B	P(63)	0.00010
1253.40001(201)	B	P(42)	0.00606	1242.74678(205)	C	P(53)	0.00088	1232.19961(204)*	H	P(18)	0.00194
1253.10829(200)*	H	R(7)	0.00150	1242.47900(206)	B	P(53)	0.00089	1231.96826(484)*	I	P(52)	0.00007
1253.09962(185)*	J	P(20)	0.00331	1242.42699(226)*	J	P(32)	0.00151	1231.70216(237)	A	P(57)	0.00683
1252.67583(235)*	I	P(31)	0.00155	1242.09417(200)*	H	P(6)	0.00115	1231.62430(244)	C	P(64)	0.00007
1252.57818(201)	C	P(43)	0.00517	1242.02231(320)*	I	P(42)	0.00040	1231.56677(426)	G	R(58)	0.00001
1252.56073(99)	A	P(36)	0.24189	1241.81093(114)	A	P(47)	0.04792	1231.35649(205)*	H	P(19)	0.00190
1252.42278(201)	B	P(43)	0.00520	1241.74866(206)	C	P(54)	0.00072	1231.32215(416)*	J	P(44)	0.00034
1252.34070(200)*	H	R(6)	0.00134	1241.51790(234)*	J	P(33)	0.00137	1231.19020(251)	B	P(64)	0.00008
1252.22706(186)*	J	P(21)	0.00320	1241.46771(208)	B	P(54)	0.00072	1230.94374(507)*	I	P(53)	0.00006
1251.72508(240)*	I	P(32)	0.00141	1241.28548(200)*	H	P(7)	0.00131	1230.67410(262)	A	P(58)	0.00549
1251.60753(201)	C	P(44)	0.00442	1241.03263(332)*	I	P(43)	0.00034	1230.59797(252)	C	P(65)	0.00006
1251.59981(99)	A	P(37)	0.21375	1240.81428(119)	A	P(48)	0.04024	1230.57043(395)	G	R(57)	0.00001
1251.57017(200)*	H	R(5)	0.00118	1240.74789(208)	C	P(55)	0.00058	1230.51055(206)*	H	P(20)	0.00185
1251.44241(201)	B	P(44)	0.00445	1240.60582(243)*	J	P(34)	0.00123	1230.37769(443)*	J	P(45)	0.00029
1251.35142(187)*	J	P(22)	0.00308	1240.47389(200)*	H	P(8)	0.00145	1230.14630(260)	B	P(65)	0.00006
1250.79667(200)*	H	R(4)	0.00100	1240.45338(209)	B	P(55)	0.00059	1229.91576(531)*	I	P(54)	0.00005
1250.77075(245)*	I	P(33)	0.00127	1240.03944(345)*	I	P(44)	0.00029	1229.66180(207)*	H	P(21)	0.00179
1250.63559(99)	A	P(38)	0.18798	1239.81444(125)	A	P(49)	0.03363	1229.64297(289)	A	P(59)	0.00439
1250.63406(201)	C	P(45)	0.00376	1239.74447(209)	C	P(56)	0.00047	1229.57741(367)	G	R(56)	0.00002
1250.47270(189)*	J	P(23)	0.00294	1239.69076(253)*	J	P(35)	0.00111	1229.43034(473)*	J	P(46)	0.00025
1250.45889(201)	B	P(45)	0.00379	1239.65941(200)*	H	P(9)	0.00158	1228.88433(557)*	I	P(55)	0.00004
1250.02023(200)*	H	R(3)	0.00081	1239.43604(211)	B	P(56)	0.00048	1228.81024(209)*	H	P(22)	0.00173
1249.81287(251)*	I	P(34)	0.00114	1239.04275(359)*	I	P(45)	0.00025	1228.60877(319)	A	P(60)	0.00350
1249.66809(100)	A	P(39)	0.16453	1238.84203(200)*	H	P(10)	0.00168	1228.58768(342)	G	R(55)	0.00002
1249.65779(201)	C	P(46)	0.00318	1238.81142(133)	A	P(50)	0.02799	1228.48011(505)*	J	P(47)	0.00021
1249.59092(191)*	J	P(24)	0.00279	1238.77271(265)*	J	P(36)	0.00099	1227.95588(210)*	H	P(23)	0.00165
1249.47225(201)	B	P(46)	0.00321	1238.73843(212)	C	P(57)	0.00038	1227.60126(320)	G	R(54)	0.00002
1249.24084(200)*	H	R(2)	0.00062	1238.41569(214)	B	P(57)	0.00039	1227.57152(353)	A	P(61)	0.00277
1248.85144(257)*	I	P(35)	0.00101	1238.04256(373)*	I	P(46)	0.00021	1227.52701(540)*	J	P(48)	0.00018
1248.70607(193)*	J	P(25)	0.00263	1238.02176(201)*	H	P(11)	0.00178	1227.09874(212)*	H	P(24)	0.00157
1248.69731(100)	A	P(40)	0.14333	1237.85170(278)*	J	P(37)	0.00088	1226.61811(300)	G	R(53)	0.00003
1248.67874(201)	C	P(47)	0.00268	1237.80523(142)	A	P(51)	0.02319	1226.57106(576)*	J	P(49)	0.00015
1248.48249(202)	B	P(47)	0.00271	1237.72979(214)	C	P(58)	0.00031	1226.53123(390)	A	P(62)	0.00219
1248.45850(200)*	H	R(1)	0.00041	1237.39235(217)	B	P(58)	0.00031	1226.23882(214)*	H	P(25)	0.00149
1247.88645(264)*	I	P(36)	0.00090	1237.19861(201)*	H	P(12)	0.00185	1226.08361(338)	D	R(65)	0.00004
1247.81817(196)*	J	P(26)	0.00247	1237.03888(389)*	I	P(47)	0.00018	1225.63823(283)	G	R(52)	0.00003
1247.72327(101)	A	P(41)	0.12428	1236.92772(292)*	J	P(38)	0.00077	1225.61225(616)*	J	P(50)	0.00012
1247.69692(202)	C	P(48)	0.00225	1236.79588(152)	A	P(52)	0.01912	1225.48792(430)	A	P(63)	0.00172
1247.67322(200)*	H	R(0)	0.00021	1236.71856(217)	C	P(59)	0.00024	1225.37613(217)*	H	P(26)	0.00140
1247.48962(202)	B	P(48)	0.00227	1236.37259(201)*	H	P(13)	0.00191	1225.19728(305)	D	R(64)	0.00005
1246.92721(199)*	J	P(27)	0.00230	1236.36603(221)	B	P(59)	0.00025	1224.66159(268)	G	R(51)	0.00004
1246.91793(272)*	I	P(37)	0.00080	1236.03171(406)*	I	P(48)	0.00015	1224.65060(658)*	J	P(51)	0.00010
1246.74597(102)	A	P(42)	0.10725	1236.00079(308)*	J	P(39)	0.00068	1224.51068(219)*	H	P(27)	0.00131
1246.71234(202)	C	P(49)	0.00188	1235.78339(165)	A	P(53)	0.01570	1224.44160(475)	A	P(64)	0.00135
1246.49365(203)	B	P(49)	0.00190	1235.70476(221)	C	P(60)	0.00019	1224.31027(275)	D	R(63)	0.00007

TABLE 4. Wavenumbers[a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1223.68819(255)	G	R(50)	0.00004	1210.29740(306)*	H	P(43)	0.00023	1197.80391(220)	E	R(43)	0.00064
1223.68612(703)*	J	P(52)	0.00009	1210.05439(50)	D	R(47)	0.00196	1197.64389(200)	G	R(22)	0.00025
1223.64249(222)*	H	P(28)	0.00122	1209.48582(***)	A	P(78)	0.00003	1197.58182(35)	D	R(33)	0.01403
1223.42260(247)	D	R(62)	0.00009	1209.45907(201)	G	R(35)	0.00020	1197.39954(210)	F	R(41)	0.00086
1223.39229(523)	A	P(65)	0.00105	1209.42292(413)	F	R(54)	0.00009	1196.94479(215)	E	R(42)	0.00074
1222.77156(225)*	H	P(29)	0.00113	1209.38681(314)*	H	P(44)	0.00020	1196.75306(200)	G	R(21)	0.00024
1222.71883(750)*	J	P(53)	0.00007	1209.16161(47)	D	R(46)	0.00232	1196.69494(35)	D	R(32)	0.01558
1222.71799(244)	G	R(49)	0.00005	1208.53407(201)	G	R(34)	0.00022	1196.48164(208)	F	R(40)	0.00099
1222.53432(222)	D	R(61)	0.00011	1208.49341(381)	F	R(53)	0.00011	1196.08557(211)	E	R(41)	0.00086
1222.34000(576)	A	P(66)	0.00081	1208.47368(323)*	H	P(45)	0.00017	1195.86468(200)	G	R(20)	0.00022
1221.89790(229)*	H	P(30)	0.00104	1208.39628(***)	A	P(79)	0.00002	1195.80886(35)	D	R(31)	0.01722
1221.75099(235)	G	R(48)	0.00006	1208.26890(44)	D	R(45)	0.00274	1195.56497(205)	F	R(39)	0.00114
1221.74873(801)*	J	P(54)	0.00006	1208.08970(452)	E	R(55)	0.00007	1195.22628(208)	E	R(40)	0.00100
1221.64544(199)	D	R(60)	0.00014	1207.61186(201)	G	R(33)	0.00023	1194.97873(200)	G	R(19)	0.00021
1221.28474(634)	A	P(67)	0.00063	1207.56447(353)	F	R(52)	0.00013	1194.92365(35)	D	R(30)	0.01893
1221.02152(233)*	H	P(31)	0.00095	1207.55802(333)*	H	P(46)	0.00015	1194.64957(204)	F	R(38)	0.00130
1220.78715(227)	G	R(47)	0.00006	1207.37633(42)	D	R(44)	0.00322	1194.36696(206)	E	R(39)	0.00114
1220.77582(854)*	J	P(55)	0.00005	1207.30399(***)	A	P(80)	0.00002	1194.09519(200)	G	R(18)	0.00019
1220.75601(178)	D	R(59)	0.00018	1207.23520(416)	E	R(54)	0.00009	1194.03935(35)	D	R(29)	0.02071
1220.22653(696)	A	P(68)	0.00048	1206.69241(201)	G	R(32)	0.00024	1193.73550(203)	F	R(37)	0.00148
1220.14244(237)*	H	P(32)	0.00087	1206.63985(342)*	H	P(47)	0.00013	1193.50765(204)	E	R(38)	0.00131
1219.86606(159)	D	R(58)	0.00022	1206.63616(327)	F	R(51)	0.00016	1193.21405(200)	G	R(17)	0.00018
1219.82646(221)	G	R(46)	0.00007	1206.48395(40)	D	R(43)	0.00377	1193.15600(35)	D	R(28)	0.02254
1219.80014(911)*	J	P(56)	0.00004	1206.38006(383)	E	R(53)	0.00011	1192.82279(202)	F	R(36)	0.00168
1219.26066(241)*	H	P(33)	0.00079	1205.77570(200)	G	R(31)	0.00025	1192.64838(203)	E	R(37)	0.00149
1219.16539(764)	A	P(69)	0.00037	1205.71919(352)*	H	P(48)	0.00011	1192.33527(200)	G	R(16)	0.00016
1218.97563(142)	D	R(57)	0.00028	1205.70853(305)	F	R(50)	0.00019	1192.27365(35)	D	R(27)	0.02440
1218.86889(216)	G	R(45)	0.00008	1205.59180(39)	D	R(42)	0.00439	1191.91148(201)	F	R(35)	0.00189
1218.82167(971)*	J	P(57)	0.00003	1205.52433(355)	E	R(52)	0.00013	1191.78918(202)	E	R(36)	0.00169
1218.37620(246)*	H	P(34)	0.00071	1204.86170(200)	G	R(30)	0.00025	1191.45885(200)	G	R(15)	0.00014
1218.10133(837)	A	P(70)	0.00028	1204.79605(363)*	H	P(49)	0.00009	1191.39236(35)	D	R(26)	0.02627
1218.08476(126)	D	R(56)	0.00034	1204.78165(286)	F	R(49)	0.00023	1191.00161(201)	F	R(34)	0.00212
1217.91441(212)	G	R(44)	0.00009	1204.69994(38)	D	R(41)	0.00509	1190.93010(201)	E	R(35)	0.00190
1217.84044(***)*	J	P(58)	0.00003	1204.66806(329)	E	R(51)	0.00016	1190.58477(200)	G	R(14)	0.00013
1217.48907(251)*	H	P(35)	0.00064	1203.95037(200)	C	R(29)	0.00026	1190.51217(35)	D	R(25)	0.02013
1217.19349(113)	D	R(55)	0.00043	1203.87045(374)*	H	P(50)	0.00008	1190.09322(201)	F	R(33)	0.00237
1217.03437(916)	A	P(71)	0.00022	1203.85556(269)	F	R(48)	0.00028	1190.07116(201)	E	R(34)	0.00213
1216.96301(209)	G	R(43)	0.00010	1203.81129(307)	E	R(50)	0.00019	1189.71301(200)	G	R(13)	0.00011
1216.85646(***)*	J	P(59)	0.00002	1203.80842(37)	D	R(40)	0.00588	1189.63311(35)	D	R(24)	0.02996
1216.59929(257)*	H	P(36)	0.00057	1203.04170(200)	G	R(28)	0.00027	1189.21239(201)	E	R(33)	0.00238
1216.30186(100)	D	R(54)	0.00052	1202.95408(287)	E	R(49)	0.00023	1189.18635(201)	F	R(32)	0.00263
1216.01465(207)	G	R(42)	0.00011	1202.94239(385)*	H	P(51)	0.00006	1188.84356(200)	G	R(12)	0.00009
1215.96452(***)	A	P(72)	0.00016	1202.93032(255)	F	R(47)	0.00033	1188.75525(35)	D	R(23)	0.03172
1215.86974(***)*	J	P(60)	0.00002	1202.91730(37)	D	R(39)	0.00675	1188.35384(201)	E	R(32)	0.00264
1215.70685(263)*	H	P(37)	0.00051	1202.13565(200)	G	R(27)	0.00027	1188.28103(201)	F	R(31)	0.00291
1215.40993(90)	D	R(53)	0.00064	1202.09647(270)	E	R(48)	0.00028	1187.97640(200)	G	R(11)	0.00008
1215.06930(205)	G	R(41)	0.00013	1202.02662(36)	D	R(38)	0.00772	1187.87860(35)	D	R(22)	0.03339
1214.89180(***)	A	P(73)	0.00012	1202.01190(397)*	H	P(52)	0.00005	1187.49552(201)	E	R(31)	0.00292
1214.81179(269)*	H	P(38)	0.00045	1202.00598(243)	F	R(46)	0.00039	1187.37731(201)	F	R(30)	0.00320
1214.51772(80)	D	R(52)	0.00078	1201.23850(256)	E	R(47)	0.00033	1187.11152(200)	G	R(10)	0.00006
1214.12695(204)	G	R(40)	0.00014	1201.23221(200)	C	R(26)	0.00027	1187.00323(35)	D	R(21)	0.03494
1213.91410(276)*	H	P(39)	0.00040	1201.13645(36)	D	R(37)	0.00878	1186.63748(201)	E	R(30)	0.00321
1213.81623(***)	A	P(74)	0.00009	1201.08260(233)	F	R(45)	0.00046	1186.47520(200)	F	R(29)	0.00350
1213.62530(72)	D	R(51)	0.00095	1201.07900(409)*	H	P(53)	0.00004	1186.24891(200)	G	R(9)	0.00005
1213.18756(203)	G	R(39)	0.00015	1200.38021(244)	E	R(46)	0.00039	1186.12917(35)	D	R(20)	0.03634
1213.01380(283)*	H	P(40)	0.00035	1200.33133(200)	G	R(25)	0.00027	1185.77973(200)	E	R(29)	0.00351
1212.73783(***)	A	P(75)	0.00007	1200.24683(36)	D	R(36)	0.00994	1185.57475(200)	F	R(28)	0.00381
1212.73271(65)	D	R(50)	0.00114	1200.16021(225)	F	R(44)	0.00054	1185.38856(200)	G	R(8)	0.00004
1212.25111(202)	G	R(38)	0.00016	1200.14370(421)*	H	P(54)	0.00004	1185.25645(35)	D	R(19)	0.03756
1212.11091(290)*	H	P(41)	0.00031	1199.52166(234)	E	R(45)	0.00046	1184.92231(200)	E	R(28)	0.00382
1211.83999(59)	D	R(49)	0.00137	1199.43300(200)	G	R(24)	0.00026	1184.67599(200)	F	R(27)	0.00412
1211.65662(***)	A	P(76)	0.00005	1199.35782(36)	D	R(35)	0.01121	1184.38511(35)	D	R(18)	0.03856
1211.31756(201)	G	R(37)	0.00018	1199.23887(219)	F	R(43)	0.00063	1184.06525(200)	E	R(27)	0.00413
1211.20544(298)*	H	P(42)	0.00027	1199.20601(434)*	H	P(55)	0.00003	1183.77896(200)	F	R(26)	0.00444
1210.94720(54)	D	R(48)	0.00164	1198.66288(226)	E	R(44)	0.00055	1183.51520(35)	D	R(17)	0.03932
1210.57261(***)	A	P(77)	0.00004	1198.53720(200)	G	R(23)	0.00026	1183.20857(200)	E	R(26)	0.00445
1210.38609(201)	G	R(36)	0.00019	1198.46947(35)	D	R(34)	0.01257	1182.88367(200)	F	R(25)	0.00476
1210.35295(449)	F	R(55)	0.00007	1198.31863(214)	F	R(42)	0.00074	1182.64675(35)	D	R(16)	0.03981

TABLE 4. Wavenumbers[a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1182.35229(200)	E	R(25)	0.00477	1164.53107(200)	F	R(4)	0.00319	1153.61437(200)	E	P(8)	0.00471
1181.99016(200)	F	R(24)	0.00506	1164.50206(200)	E	R(4)	0.00319	1153.32355(35)	D	P(18)	0.03653
1181.77978(35)	D	R(15)	0.04000	1163.96042(35)	D	P(5)	0.01920	1152.87104(200)	G	P(31)	0.00022
1181.49645(200)	E	R(24)	0.00508	1163.81047(200)	G	P(17)	0.00015	1152.81894(200)	F	P(9)	0.00513
1181.09847(200)	F	R(23)	0.00536	1163.68010(200)	F	R(3)	0.00254	1152.78260(200)	E	P(9)	0.00513
1180.91434(35)	D	R(14)	0.03987	1163.65970(200)	E	R(3)	0.00254	1152.51733(35)	D	P(19)	0.03568
1180.64106(200)	E	R(23)	0.00537	1163.13152(35)	D	P(6)	0.02248	1152.11038(200)	G	P(32)	0.00022
1180.20861(200)	F	R(22)	0.00565	1163.01207(200)	G	P(18)	0.00017	1151.99904(200)	F	P(10)	0.00548
1180.05044(35)	D	R(13)	0.03940	1162.83132(200)	F	R(2)	0.00183	1151.95165(200)	E	P(10)	0.00548
1179.78615(200)	E	R(22)	0.00566	1162.81813(200)	E	R(2)	0.00183	1151.71272(35)	D	P(20)	0.03461
1179.32061(200)	F	R(21)	0.00591	1162.30444(35)	D	P(7)	0.02549	1151.35267(200)	G	P(33)	0.00021
1179.18813(35)	D	R(12)	0.03859	1162.21617(200)	G	P(19)	0.00018	1151.18137(200)	F	P(11)	0.00577
1178.93175(200)	E	R(21)	0.00592	1161.98475(200)	F	R(1)	0.00104	1151.12152(200)	E	P(11)	0.00577
1178.43450(200)	F	R(20)	0.00615	1161.97736(200)	E	R(1)	0.00104	1150.90970(35)	D	P(21)	0.03336
1178.32743(35)	D	R(11)	0.03741	1161.47916(35)	D	P(8)	0.02819	1150.59794(201)	G	P(34)	0.00020
1178.07787(200)	E	R(20)	0.00616	1161.42280(200)	G	P(20)	0.00019	1150.36591(200)	F	P(12)	0.00600
1177.55031(200)	F	R(19)	0.00635	1160.65569(35)	D	P(9)	0.03057	1150.29221(200)	E	P(12)	0.00601
1177.46836(35)	D	R(10)	0.03587	1160.63199(200)	G	P(21)	0.00021	1150.10824(35)	D	P(22)	0.03194
1177.22454(200)	E	R(19)	0.00636	1160.50686(200)	E	Q(10)	0.00011	1149.84623(201)	G	P(35)	0.00019
1176.66806(200)	F	R(18)	0.00652	1160.46900(200)	E	Q(9)	0.00012	1149.55266(200)	F	P(13)	0.00617
1176.61095(35)	D	R(9)	0.03397	1160.43489(200)	E	Q(8)	0.00014	1149.46371(200)	E	P(13)	0.00618
1176.37177(200)	E	R(18)	0.00653	1160.40456(200)	E	Q(7)	0.00017	1149.30831(35)	D	P(23)	0.03040
1175.78776(200)	F	R(17)	0.00665	1160.37799(200)	E	Q(6)	0.00020	1149.09758(201)	G	P(36)	0.00018
1175.75522(35)	D	R(8)	0.03172	1160.35522(200)	E	Q(5)	0.00024	1148.74161(200)	F	P(14)	0.00628
1175.51959(200)	E	R(17)	0.00666	1160.33623(200)	E	Q(4)	0.00030	1148.63602(200)	E	P(14)	0.00629
1174.90945(200)	F	R(16)	0.00673	1160.32103(200)	E	Q(3)	0.00039	1148.50988(35)	D	P(24)	0.02876
1174.90119(35)	D	R(7)	0.02913	1160.30962(200)	E	Q(2)	0.00057	1148.35201(201)	G	P(37)	0.00016
1174.66801(200)	E	R(16)	0.00674	1160.30202(200)	E	Q(1)	0.00104	1147.93275(200)	F	P(15)	0.00633
1174.04889(35)	D	R(6)	0.02623	1160.29745(200)	F	Q(1)	0.00104	1147.80914(200)	E	P(15)	0.00634
1174.03314(200)	F	R(15)	0.00676	1160.29590(200)	F	Q(2)	0.00057	1147.71291(35)	D	P(25)	0.02705
1173.81706(200)	E	R(15)	0.00676	1160.29358(200)	F	Q(3)	0.00039	1147.60958(201)	G	P(38)	0.00015
1173.19833(35)	D	R(5)	0.02304	1160.29049(200)	F	Q(4)	0.00030	1147.12608(200)	F	P(16)	0.00633
1173.15886(200)	F	R(14)	0.00673	1160.28661(200)	F	Q(5)	0.00024	1146.98305(200)	E	P(16)	0.00634
1172.96675(200)	E	R(14)	0.00674	1160.28195(200)	F	Q(6)	0.00020	1146.91738(35)	D	P(26)	0.02529
1172.34952(35)	D	R(4)	0.01960	1160.27650(200)	F	Q(7)	0.00017	1146.87031(201)	G	P(39)	0.00014
1172.28662(200)	F	R(13)	0.00665	1160.27026(200)	F	Q(8)	0.00014	1146.32159(200)	F	P(17)	0.00628
1172.11709(200)	E	R(13)	0.00666	1160.26322(200)	F	Q(9)	0.00012	1146.15774(200)	E	P(17)	0.00628
1171.50249(35)	D	R(3)	0.01593	1160.25538(200)	F	Q(10)	0.00011	1146.13425(202)	G	P(40)	0.00013
1171.41644(200)	F	R(12)	0.00651	1159.84376(200)	G	P(22)	0.00022	1146.12325(35)	D	P(27)	0.02352
1171.26811(200)	E	R(12)	0.00651	1159.83402(35)	D	P(10)	0.03261	1145.51926(200)	F	P(18)	0.00618
1170.65724(35)	D	R(2)	0.01210	1159.05814(200)	G	P(23)	0.00023	1145.40143(203)	G	P(41)	0.00012
1170.54834(200)	F	R(11)	0.00630	1159.01413(35)	D	P(11)	0.03429	1145.33322(200)	E	P(18)	0.00618
1170.41981(200)	E	R(11)	0.00631	1158.62233(200)	E	P(2)	0.00103	1145.33048(35)	D	P(28)	0.02176
1169.81378(35)	D	R(1)	0.00813	1158.62056(200)	F	P(2)	0.00103	1144.71909(200)	F	P(19)	0.00603
1169.68233(200)	F	R(10)	0.00604	1158.27516(200)	G	P(24)	0.00023	1144.67188(204)	G	P(42)	0.00011
1169.57221(200)	E	R(10)	0.00604	1158.19601(35)	D	P(12)	0.03562	1144.53904(35)	D	P(29)	0.02002
1169.46736(200)	G	P(10)	0.00005	1157.78561(200)	E	P(3)	0.00180	1144.50948(200)	E	P(19)	0.00604
1168.97213(35)	D	R(0)	0.00408	1157.78507(200)	F	P(3)	0.00180	1143.94565(205)	G	P(43)	0.00010
1168.81843(200)	F	R(9)	0.00571	1157.49486(200)	G	P(25)	0.00024	1143.92106(200)	F	P(20)	0.00585
1168.72533(200)	E	R(9)	0.00571	1157.37964(35)	D	P(13)	0.03659	1143.74890(35)	D	P(30)	0.01832
1168.65209(200)	G	P(11)	0.00006	1156.95181(200)	F	P(4)	0.00250	1143.68649(200)	E	P(20)	0.00586
1167.95666(200)	F	R(8)	0.00532	1156.94971(200)	E	P(4)	0.00250	1143.22277(207)	G	P(44)	0.00009
1167.87918(200)	E	R(8)	0.00532	1156.71727(200)	G	P(26)	0.00024	1143.12516(200)	F	P(21)	0.00564
1167.83917(200)	G	P(12)	0.00007	1156.56502(35)	D	P(14)	0.03721	1142.96001(35)	D	P(31)	0.01668
1167.29427(35)	D	P(1)	0.00407	1156.12078(200)	F	P(5)	0.00313	1142.86426(200)	E	P(21)	0.00565
1167.09702(200)	F	R(7)	0.00487	1156.11463(200)	E	P(5)	0.00313	1142.50327(209)	G	P(45)	0.00008
1167.03376(200)	E	R(7)	0.00487	1155.94241(200)	G	P(27)	0.00024	1142.33137(200)	F	P(22)	0.00540
1167.02861(200)	G	P(13)	0.00009	1155.75211(35)	D	P(15)	0.03750	1142.17233(35)	D	P(32)	0.01511
1166.45807(35)	D	P(2)	0.00807	1155.29197(200)	F	P(6)	0.00371	1142.04277(200)	E	P(22)	0.00541
1166.23954(200)	F	R(6)	0.00436	1155.28039(200)	E	P(6)	0.00371	1141.78720(212)	G	P(46)	0.00007
1166.22044(200)	G	P(14)	0.00010	1155.17032(200)	G	P(28)	0.00024	1141.53969(200)	F	P(23)	0.00514
1166.18910(200)	E	R(6)	0.00436	1154.94092(35)	D	P(16)	0.03747	1141.38583(35)	D	P(33)	0.01362
1165.62370(35)	D	P(3)	0.01195	1154.46540(200)	F	P(7)	0.00424	1141.22201(200)	E	P(23)	0.00515
1165.41468(200)	G	P(15)	0.00012	1154.44697(200)	E	P(7)	0.00424	1141.07458(216)	G	P(47)	0.00006
1165.38422(200)	F	R(5)	0.00380	1154.40104(200)	G	P(29)	0.00024	1140.75008(200)	F	P(24)	0.00486
1165.34519(200)	E	R(5)	0.00380	1154.13140(35)	D	P(17)	0.03714	1140.60047(35)	D	P(34)	0.01221
1164.79115(35)	D	P(4)	0.01568	1153.64105(200)	F	P(8)	0.00471	1140.40197(200)	E	P(24)	0.00487
1164.61135(200)	G	P(16)	0.00013	1153.63460(200)	G	P(30)	0.00023	1140.36545(221)	G	P(48)	0.00005

TABLE 4. Wavenumbers[a], assignments, and relative intensities (at 295 K) for the absorption lines of N_2O from 1340 cm^{-1} to 1115 cm^{-1}—Continued

Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.	Wave number (cm^{-1})	Band	Rot. assign.	Rel. int.
1139.96254(200)	F	P(25)	0.00457	1133.47291(367)	G	P(58)	0.00001	1124.93492(211)	E	P(43)	0.00062
1139.81620(35)	D	P(35)	0.01090	1133.05141(201)	E	P(33)	0.00231	1124.61075(219)	F	P(45)	0.00045
1139.65985(227)	G	P(49)	0.00005	1132.96437(201)	F	P(34)	0.00206	1124.29375(90)	D	P(55)	0.00042
1139.58263(200)	E	P(25)	0.00458	1132.80413(395)	G	P(59)	0.00001	1124.12535(215)	E	P(44)	0.00053
1139.17705(200)	F	P(26)	0.00428	1132.79992(39)	D	P(44)	0.00315	1123.86093(226)	F	P(46)	0.00038
1139.03298(35)	D	P(36)	0.00968	1132.23768(201)	E	P(34)	0.00207	1123.52245(101)	D	P(56)	0.00034
1138.95780(235)	G	P(50)	0.00004	1132.19634(201)	F	P(35)	0.00184	1123.31604(220)	E	P(45)	0.00045
1138.76398(200)	E	P(26)	0.00429	1132.13916(426)	G	P(60)	0.00001	1123.11255(234)	F	P(47)	0.00032
1138.39359(200)	F	P(27)	0.00398	1132.02421(40)	D	P(45)	0.00268	1122.75130(113)	D	P(57)	0.00027
1138.25933(244)	G	P(51)	0.00003	1131.43013(201)	F	P(36)	0.00163	1122.50697(226)	E	P(46)	0.00039
1138.25077(36)	D	P(37)	0.00855	1131.42447(201)	E	P(35)	0.00185	1122.36557(243)	F	P(48)	0.00027
1137.94601(200)	E	P(27)	0.00399	1131.24912(42)	D	P(46)	0.00227	1121.98027(127)	D	P(58)	0.00022
1137.61214(200)	F	P(28)	0.00368	1130.66570(201)	F	P(37)	0.00144	1121.69811(234)	E	P(47)	0.00032
1137.56449(255)	G	P(52)	0.00003	1130.61177(201)	E	P(36)	0.00164	1121.61995(255)	F	P(49)	0.00023
1137.46953(36)	D	P(38)	0.00752	1130.47460(44)	D	P(47)	0.00192	1121.20933(142)	D	P(59)	0.00018
1137.12870(200)	E	P(28)	0.00369	1129.90302(202)	F	P(38)	0.00127	1120.88941(244)	E	P(48)	0.00027
1136.87329(268)	G	P(53)	0.00002	1129.79955(201)	E	P(37)	0.00145	1120.87566(269)	F	P(50)	0.00019
1136.83267(200)	F	P(29)	0.00338	1129.70060(47)	D	P(48)	0.00161	1120.43845(159)	D	P(60)	0.00014
1136.68921(36)	D	P(39)	0.00658	1129.14207(203)	F	P(39)	0.00111	1120.13263(286)	F	P(51)	0.00016
1136.31203(200)	E	P(29)	0.00339	1128.98779(202)	E	P(38)	0.00127	1120.08085(256)	E	P(49)	0.00023
1136.18576(283)	G	P(54)	0.00002	1128.92709(50)	D	P(49)	0.00135	1119.66759(179)	D	P(61)	0.00011
1136.05517(200)	F	P(30)	0.00309	1128.38282(204)	F	P(40)	0.00097	1119.39084(305)	F	P(52)	0.00013
1135.90977(36)	D	P(40)	0.00573	1128.17645(203)	E	P(39)	0.00112	1119.27239(271)	E	P(50)	0.00019
1135.50194(300)	G	P(55)	0.00002	1128.15401(54)	D	P(50)	0.00112	1118.89672(200)	D	P(62)	0.00009
1135.49598(200)	E	P(30)	0.00311	1127.62522(205)	F	P(41)	0.00084	1118.65023(327)	F	P(53)	0.00011
1135.27962(200)	F	P(31)	0.00282	1127.38133(59)	D	P(51)	0.00093	1118.46400(287)	E	P(51)	0.00016
1135.13116(37)	D	P(41)	0.00497	1127.36553(204)	E	P(40)	0.00097	1118.12582(223)	D	P(63)	0.00007
1134.82184(320)	G	P(56)	0.00001	1126.86925(208)	F	P(42)	0.00072	1117.91076(353)	F	P(54)	0.00009
1134.68054(200)	E	P(31)	0.00283	1126.60901(65)	D	P(52)	0.00076	1117.65564(307)	E	P(52)	0.00013
1134.50598(201)	F	P(32)	0.00255	1126.55498(206)	E	P(41)	0.00084	1117.35486(248)	D	P(64)	0.00005
1134.35335(37)	D	P(42)	0.00429	1126.11488(210)	F	P(43)	0.00062	1117.17238(381)	F	P(55)	0.00007
1134.14549(342)	G	P(57)	0.00001	1125.83700(72)	D	P(53)	0.00063	1116.84727(329)	E	P(53)	0.00011
1133.86569(201)	E	P(32)	0.00256	1125.74479(208)	E	P(42)	0.00073	1116.58382(276)	D	P(65)	0.00004
1133.73424(201)	F	P(33)	0.00230	1125.36205(214)	F	P(44)	0.00053	1116.03886(355)	E	P(54)	0.00009
1133.57628(38)	D	P(43)	0.00369	1125.06526(80)	D	P(54)	0.00051	1115.23037(384)	E	P(55)	0.00007

[a]The entries followed by an asterisk or that have asterisks instead of an uncertainty should not be used for calibration purposes.

ysis similar to that just described for the 00^00 (ground) state.

Since there is a weak Fermi resonance between the 10^00 and 02^00 states, the effective values of the centrifugal distortion constants, D_v and especially H_v, are quite different from the ground state values. The 02^00 and 02^20 states are also strongly coupled through l-type resonance. This latter resonance causes a J-dependent splitting of the 02^20 state into e and f levels. In order to empirically fit both e and f levels we have used the energy expression:

$$F_v(J) = \tilde{\nu}_0 + B_vJ(J+1) - D_v[J(J+1) - l^2]^2 + H_v[J(J+1) - l^2]^3 \pm \tfrac{1}{2}q_vJ(J+1) \mp \tfrac{1}{2}q_{vJ}J^2(J+1)^2 \pm \tfrac{1}{2}q_{vJJ}J^3(J+1)^3 \quad (2)$$

where the upper sign is used for the f levels and the lower sign is used for the e levels. Theoretically the q_v term should be zero when $l = 2$, but a significant improvement was made in the fit of the data when the q_v term was allowed to be non-zero even though q_v is indeed small. The q terms for the $l = 2$ state here are strictly empirical, e.g., the effect of q_v is simply to allow slightly different B values of the e and f components.

Equation 2 was also used to fit the data for the 01^10 and 03^10 states with the same sign convention (upper sign for f levels and lower sign for e levels).

After determining the rotational constants for the 01^10, 02^00, and 10^00 states (given in table 1), the vibrational energies of these states were determined from the many infrared difference bands in refs. 8 and 9 as follows: Each pair of hot band and ground state vibrational transitions with the same upper state (e.g., 02^01–00^00 and 02^01–01^10) was least-squares fitted to obtain a single set of upper state rotational constants and the two vibrational band centers. In the fit the rotational constants for the lower states were constrained to the values already determined (given in table 1). Each pair of band centers gave a value (and an estimated uncertainty) for the separation of the two lower states (e.g., 01^10–00^00 in the example just cited). Finally, all the resulting lower state separations (eight different values for 01^10–00^00) were combined in a least-squares fit with each value given a weight inversely proportional to the square of the estimated uncertainty obtained from the fit of pairs. Table 2 gives the calculated vibrational band centers for 01^10–00^00, 02^00–00^00 and 10^00–00^00 determined in this way.

A similar procedure was used to obtain the separation 02^20–01^10 from transitions 12^21–02^20, 12^21–01^10, 02^21–02^20, and 02^21–01^10. Since only two independent values for the separation 02^20 from 01^10 were determined, the uncertainty given to the weighted mean was arbitrarily set equal to $\pm$ 0.00046 cm^{-1}, which was the uncertainty determined for 10^00–00^00.

The rotational constants for the 03^10 state were determined by combining the microwave measurements [7] for the

03^10 state with the infrared measurements on the transitions for the three bands 03^11–03^10, 03^11–02^00 and 03^11–01^10. The rotational constants previously determined for the 02^00 and 01^10 states (and given in table 1) were kept, held constant in this fit. Appropriate combinations of the band centers for the infrared transitions gave the band centers 03^10–$02^00 = 580.93410$ cm^{-1} and 03^10–$01^10 = 1160.29822$ cm^{-1}. These were then combined with the calculated band centers for the transitions 02^00–00^00 and 01^10–00^00, given in table 2 to yield the band centers involving 03^10 that are given in table 2. Note that 03^11 is the only common upper state, so there is no check on a possible systematic error in the 03^11–03^10 separation. This separation is common to both loops leading to values for the 03^10 energy.

Since there were very little data on the 03^30 state, the vibrational energy and rotational constants were determined simultaneously in a single least squares fit to the microwave data on the 03^30 state [7] and the interferometer measurements on the 03^31–03^30 and 03^31–02^20 transitions [9]. The analysis assumed that the splitting of the $l = 3$ levels is too small to be observed. Some small trends observed in the deviations of the least squares fit may result from this assumption. The fit gave directly the $\tilde{\nu}_0$ value needed for the 03^30–02^20 separation. The fit also determined three rotational constants for the 03^31 state (B, D, and H) and a $\tilde{\nu}_0$ for the 03^31–02^20 transition. The previously determined rotational constants for the 02^20 state (given in table 1) were used as fixed values in the fit. Since the 03^31 state is the only common upper state there are no checks for systematic errors in the 03^31–03^30 and 03^31–02^20 vibrational separations.

The rotational constants for the 11^10 state and the band center for the 11^10–00^00 transition were determined by simultaneously fitting the microwave data [7] for the 11^10 state and the Fourier transform measurements [8,9] for the 11^10–00^00, 11^11–01^10, 11^11–11^10, and 11^10–00^00 transitions. In this fit the rotational constants for the 00^00 and 01^10 states were constrained to the values previously determined (and given in table 1). In order to avoid correlating absolute measurement errors with the rotational constants, each infrared band was fit to an independent band center even though the vibrational energy differences were over-determined. As a result, two independent values were determined for the 11^10–00^00 band center. These two values were weighted by the inverse square of their uncertainties and combined with other appropriate data to give the 11^10–01^10 band center given in table 2.

Transitions for the rarer isotopic species were calculated for the 10^00–00^00 band since it was observed that some of the stronger lines occur where the most abundant isotope has only weak lines. The rarer isotopes were included only for completeness in order to help users to correctly identify the other transitions through pattern recognition. No attempt was made to refine the isotopic constants. The constants used are given in table 1 and were taken directly from the work of Amiot [17,18].

3. Estimating the Accuracy of the Calibration Data

The uncertainties in absorption line positions given in tables 3 and 4 were determined by using a variance-covariance matrix that contained the following three blocks of non-zero elements: a 1×1 block containing the uncertainty of the band center, a block containing the variance-covariance matrix determined by the least squares fit of the upper state rotational and centrifugal distortion constants (including the l-type doubling constants), and thirdly a block containing the variance-covariance matrix determined for the lower state constants.

When the band center had been determined from least squares fits of only one or two sets of infrared measurements, it was realized that statistical techniques could not give a good estimate of the uncertainty and the minimum uncertainty of the band center was therefore arbitrarily set at 0.0010 cm^{-1}.

In tables 3 and 4 we have attempted to give the best absolute values of absorption line positions and the error limits cited are somewhat different in form from those usually obtained from the analysis of a single vibration-rotation band. The error limits given in Tables 3 and 4 are twice the standard deviation values obtained from the variable-covariance matrix described above. The reason for this extra doubling is simply a rough attempt to take care of model errors which our experience indicates are usually about the same as statistical errors of data fits. It has been our goal in constructing these tables to give error limits which we believe will bracket the absolute value of the line position. Line to line spacings are very highly correlated, and differences between adjacent lines should be more accurate than the errors indicated for the absolute values by at least one order of magnitude.

4. Intensities

Tables 3 and 4 give estimated relative intensities for all the lines. In order to generate these intensities, a number of assumptions are required. Here we have assumed that the vibrational transition moment is constant for the fundamental and accompanying "hot bands" in a band system. In addition we have ignored the effects of the small Fermi resonance in this molecule on the intensities as well as any possible Herman-Wallace (or rotational) effect. Therefore, these intensities are to be used only as an order-of-magnitude guide for line identification. The relative intensities in the region from 1265 to 1180 cm^{-1} have been studied with a tunable diode laser, and the observed intensities agree fairly well with the intensity estimates given in table 4. Outside that spectral region we have not been able to compare the theoretical spectrum with an observed spectrum. As expected, the diode laser spectra show that the tables do not list all the lines that can be observed.

The relative intensities given in tables 3 and 4 were calculated using the expression

$$I_{\mathrm{Rel}} = RSCN \exp(-E''/kT) \tag{3}$$

where C is the isotopic concentration for the species involved, N is a normalizing term that given the strongest transition in each table an intensity of 1.0, and the last term is the standard Boltzman exponential. The intensities were calculated for a temperature of 295 K. S is the Hönl-London line strength and includes for the $02^{2e}0$–00^00 transitions an l-type resonance interaction term. R is a vibrational matrix element that governs the relative transition moments for the different vibrational transitions.

For the $\Delta l = 0$ transitions (table 4), S for the P and R branch lines was given by:

$$S = (|m|^2 - l^2)/|m| \tag{4}$$

where $m = J'$ for $\Delta J = 1$ transitions and $m = -J''$ for $\Delta J = -1$ transitions. The Q branch lines were calculated using:

$$S = l^2(2J+1)/(J(J+1)). \quad (5)$$

The $02^{2e}0$–00^00 transitions are normally forbidden and derive their intensity from the 02^00–00^00 transitions due to the l-type resonance that mixes the wavefunctions of the two upper states. Since the l-type resonance increases approximately proportional to J^2, we have estimated the intensity of the $02^{2e}0$–00^00 transitions using:

$$S = 1.4\times10^{-5}\ \text{m}^3. \quad (6)$$

The coefficient, 1.4×10^{-5}, was estimated by comparing the observed intensity ratio of R (44) $02^{2e}0$–00^00 to R (56) 02^00–00^00 and the intensity ratio of R (41) in the $02^{2e}0$–00^00 band to P (73) in the 10^00–00^00 band.

For the $\Delta l = 0$ transitions (and for the $02^{2e}0$–00^00 transitions) the vibrational term R was given by:

$$R(v+1, v_2, v_3 \leftarrow v_1, v_2, v_3) = (v_1+1) \quad (7)$$

and

$$R(v_1, v_2+2, v_3 \leftarrow v_1, v_2, v_3) = 0.08(v_2+1)(v_2+2)/4. \quad (8)$$

In the latter equation the coefficient 0.08 was determined from diode laser measurements of the relative intensities of the R (56) line of 02^00–00^00 and the P (70) line of 10^00–00^00. These two lines have nearly the same intensity (the R (56) line being slightly stronger) and are only 0.016 cm^{-1} apart.

For the $\Delta l = \perp 1$ transitions (table 3), S for the R branch transitions was given by the equation:

$$S = (J' \pm l')(J' - 1 \pm l')/J' \quad (9)$$

where the upper sign is used for $\Delta l = +1$ transitions and the lower sign is for $\Delta l = -1$ transitions. Similarly for P branch transitions, S was given by:

$$S = (J'' \mp l'')(J'' - 1 \mp l'')/J'' \quad (10)$$

and for the Q branch transitions S was given by:

$$S = (J \mp l'')(J + 1 \pm l'')(2J+1)/[J(J+1)]. \quad (11)$$

For the $\Delta l = \pm 1$ transitions, the vibrational term R was computed from the doubly degenerate harmonic oscillator matrix elements given by Moffit and Liehr [20]. The values obtained for R are 1 for all $\Delta l = \pm 1$ transitions except for the 03^10–02^00 and 02^20–01^10 bands for which $R = 2$ and the 03^30–02^20 band where $R = 3$. No further factors were used to take into account the degeneracy of the different vibrational states since separate transitions are given for the e and f levels.

5. Conclusion

We note again that we have used eq. (2) as an empirical equation to fit observed line positions. The reader is cautioned not to take the coefficients q_v, q_{vJ}, and q_{vJJ} as anything other than empirical constants of the fit. The reader is also cautioned not to attempt to use the constants given in tables 1 and 2 to calculate line positions to higher J values than those given in tables 3 and 4. For some ro-vibronic levels which we have calculated, the value of the matrix element for l-type doubling is of the order of the energy difference between the two states coupled. Equation (2) is barely adequate to fit levels at the highest J values for which we have calculated transitions, and will be inadequate at higher J vales. Reisfeld and Flicker [21] have recently given line positions for the 01^10–00^00 band of N_2O up to $J = 35$ for P, Q, and R branches. These workers also determined the band center from the Fourier transform work of Amiot and Guelachvili [8,9] and, to the number of digits cited, their value is the same as that in the present work. Reisfeld and Flicker, however, used only the microwave rotational constants of ref. [5] to determine line position up to $J = 35$. Their calculated values agree well with those obtained in the present work, differing by less than 0.0005 cm^{-1} from those calculated here at $J = 35$.

The calibration data presented in tables 3 and 4 have been used in preliminary form in our laboratory and elsewhere, and have been found to be reliable and adequate for present needs of which we are aware.

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