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Absolute Absorption Cross Section Measurements of Ozone and the Temperature Dependence at Four Reference Wavelengths Leading to Renormalization of the Cross Section Between 240 and 350 nm

W. H. Parkinson
K. Yoshino
D. E. Freeman

Smithsonian Institution
Astrophysical Observatory
Cambridge, MA 02138

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AIR FORCE GEOPHYSICS LABORATORY
AIR FORCE SYSTEMS COMMAND
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HANSCOM AIR FORCE BASE, MASSACHUSETTS 01731-5000

"This technical report has been reviewed and is approved for publication"

Gail P. Anderson
(Signature)
GAIL P. ANDERSON
Contract Manager

Robert O'Neil
(Signature)
ROBERT O'NEIL
Branch Chief

FOR THE COMMANDER

R. Earl Good
(Signature)
R. EARL GOOD
Division Director
Optical/Infrared Technology Division

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We have developed techniques for the preparation and preservation of pure ozone which have enabled its absolute cross section at important mercury-line reference wavelength 253.7 nm and at iron line wavelengths 283.3, 245.8 and 263.7 nm to be determined at the temperatures 293, 228 and 195 K. Specially constructed absorption cells are used together with existing spectrometers and associated equipment and light sources which have already been employed successfully to study the absolute cross section of ozone at longer wavelengths. This determination of the temperature dependence of the absolute cross section at 238.3, 245.8, 253.7 and 263.7 nm permit renormalization of the full relative cross sections for ozone between 240 nm and 350 nm. A tabular and computer accessible form of the ozone cross sections data has been made at 5/cm^{-1} intervals. These absolute cross sections and their temperature dependence are needed for accurate calculations of the atmospheric transmission in the visible and near ultraviolet regions.

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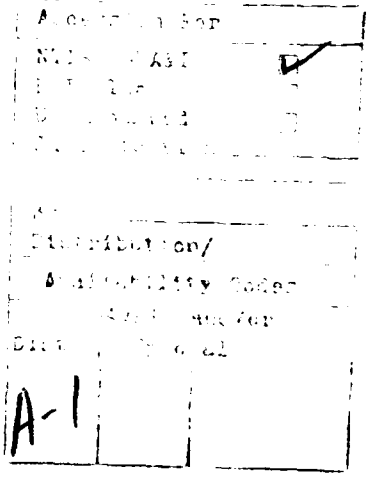

1. Abstract of Objectives

We have developed techniques for the preparation and preservation of pure ozone which have enabled its absolute cross section at important mercury-line reference wavelength 253.7 nm and at iron line wavelengths 238.3, 245.8 and 263.7 nm to be determined at the temperatures 293, 228 and 195 K. Specially constructed absorption cells are used together with existing spectrometers and associated equipment and light sources which have already been employed successfully to study the absolute cross section of ozone at longer wavelengths. This determination of the temperature dependence of the absolute cross section at 238.3, 245.8, 253.7 and 263.7 nm permit renormalization of the full relative cross sections for ozone between 240 nm and 350 nm. A tabular and computer accessible form of the ozone cross sections data has been made at 5 cm^{-1} intervals. These absolute cross sections and their temperature dependence are needed for accurate calculations of the atmospheric transmission in the visible and near ultraviolet regions.

2. Introduction

The atmospherically important molecule ozone occurs in the troposphere and stratosphere where the temperature ranges approximately from 200 K to 300 K. Accurate calculations of the atmospheric transmission in the visible and near ultraviolet regions therefore require laboratory values of the absorption cross section of ozone and its temperature dependence. In the usual method of determining the absorption cross section $\sigma(\lambda)$ of a molecule, the formula

$$\ln I_0(\lambda)/I(\lambda) = N\sigma(\lambda) \qquad (1)$$

is used in which the measured quantities are the ratio of the incident flux

$I_0(\lambda)$ to that transmitted $I(\lambda)$ through the gas and the column density N of absorbing molecules. In the application to ozone the major difficulty has been that the ozone column density is generally not obtainable directly from measurements of the total pressure, because ozone is difficult to prepare free from oxygen and because it decomposes, especially under irradiation, into oxygen. However, we have found that, when special precautions are taken to prepare pure ozone and to prevent its subsequent decomposition, the column density can be obtained accurately from measurement of the total pressure, which can be used with measurements of the optical depth to yield accurate absorption cross sections of ozone.

In the present research, we have measured the absolute cross sections of ozone at 293 K, 228 K, and 195 K at the important mercury-line reference wavelength of 253.7 nm. Many cross section measurements of ozone have been made relative to the cross section at this wavelength. However, existing measurements of the absolute cross section at 253.7 nm are adequate only at room temperature and are unsatisfactory at lower temperatures. The determination of the temperature dependence of the absolute cross section at 253.7 nm would permit many relative cross section measurements in other wavelength region, such as of Bass and Paur (1981, 1985) and our own (Freeman et al., 1981), to be put on a firm absolute basis.

In addition to this investigation at 253.7 nm, which is the usually accepted reference wavelength, we have measured the cross sections of ozone and their temperature dependences at the wavelengths 238.28, 245.83 and 263.66 nm, at the same temperatures (293 K, 228 K and 195 K) at which the study at 253.7 nm is conducted. The results have been combined with the absolute cross sections of ozone at several discrete wavelengths in the region 289-335 nm made earlier. These results permit renormalization of

the full relative cross section of ozone between 240 and 350 nm. We have constructed a tabular computer-accessible array of ozone cross sections at intervals of 5 cm^{-1}.

3. Absorption Cross Section Measurements of Ozone

3.1 Ozone Absorption Cell and Preparation of Ozone

A specially designed ozone absorption cell, made primarily of Pyrex glass but possessing fused silica windows, has been constructed. The vacuum-tight cell has been out-gassed by baking under vacuum, and passivated by prolonged exposure to ozone. The entire ozone column is cooled to 228 K or 195 K by immersing the cell in stirred methanol which is cooled by a cold finger connected to an external refrigeration unit. The experimental arrangement is shown in Fig. 1. Tubes with silica windows at each end are mounted to the end of the absorption cell. The tubes are evacuated to prevent condensation of atmospheric water on the cooled windows and also to provide thermal insulation.

Ozone is prepared from pure oxygen (Airco grade 4.5 passed through a liquid nitrogen trap) at 78 K in a Tesla discharge, by cooling liquid ozone at 78 K, and purifying it by pumping off residual oxygen from the oxygen/ozone mixture at 78 K. The ozone was not stored on silica gel because it absorbs not only ozone but also oxygen.

3.2 Optical Depth Measurements

The background continuum is provided by a hydrogen discharge lamp that is connected to the entrance slit assembly of a 0.3 m Czerny-Turner monochrometer. The hollow cathode or mercury lamp are set behind the

hydrogen discharge lamp and are used to locate the required wavelengths. A thermally controlled mercury lamp is also used as the background source at 253.7 nm. Slit heights are limited to 2 mm to cut down scattered light which is estimated to be about 2% with continuum radiation as the background source. At 253.7 nm, the mercury line is also used as background radiation in which case there is negligible scattered light.

The incident intensity (I_0) was measured after ozone in the absorption cell was pumped out through traps cooled with liquid nitrogen. Ozone trapped at liquid nitrogen temperature has a vapour pressure of 2.5 m Torr at 78 K (Hanson and Mauersberger, 1986) and was measured as 3 m Torr in our experiment. It should be noted that with 2.5 m Torr of ozone in the 10 cm cell about 1% absorption is expected at 253.7 nm where the cross section of ozone is 1.15×10^{-17} cm^2. This significant absorption was taken into account when the incident intensity I_0 was measured.

4. Results

The absolute cross sections at the wavelengths 238.28, 245.83, 253.73 and 263.66 nm have been measured at 295 K, 228 K and 195 K. Those numbers are listed in Table 1 with the absolute cross sections measured previously for the longer wavelength region. All measurements except the one at 253.7 nm were obtained with the background continuum radiation from a hydrogen discharge or xenon arc. The optical depth, $\ln I_0/I$, has been limited to the range 2.0-0.5 in the entire set of measurements. The 0.7% uncertainty in the cross sections arises from the statistical scatter of 0.3-0.5% in the optical depths, uncertainty of 0.2% in the optical path length, uncertainties of 0.1-0.4% in the temperatures, and an uncertainty of 0.5% in the pressure measurement. Another possible source of error is the

purity of ozone which we assumed to be 100% pure to obtain the column density.

The absorption cross section of ozone at five mercury wavelengths are compared with those of previous work in Table 2, where only photoelectric measurements are collected. The agreement is reasonable at most wavelengths. All measurements are scattered within 2.5% of the average values but the values by Molina and Molina (1986) are slightly higher than other measurements, though by less than 1%. Without the values of Molina and Molina, all would agree within 1.5%. It should be emphasized that it is very difficult to achieve better than 1% uncertainty in photoabsorption cross section measurements and an additional problem is presented in the case of ozone because of its tendency to decompose. This agreement with many different techniques is quite satisfactory.

The values of the absolute cross sections of ozone at 195 K are compared with those from the our published relative cross section measurements throughout the region 238-344 nm (Freeman et al., 1984). The ratio of the absolute to the published numbers are listed in the sixth column of Table 1 of Quarterly Status Report No. 9. The cubic least-squares fit to those ratio leads to the smooth conversion factors for every wavelength and the conversion factors put our published numbers on an absolute bases. The results are shown in Table 3 at intervals of 5 cm^{-1} throughout the region of measurements and also are plotted in Fig. 2. In the same table, the calculated cross sections at 195 K from the parameters supplied by Bass are listed and their ratios are also listed in the same table. The calculated cross sections at 195 K by Bass are also plotted in Fig. 3. Except for the very longer wavelengths, both sets of numbers agree within 2-3%. In the longer wavelengths where band structures appear,

differences increase to around 20%, especially at the minimum absorption of the bands. We believe that the differences in the longer wavelengths are due to the limited sensitivity of Bass's technique for such weak absorption.

5. Presentations

5.1 Publications

Absolute Absorption Cross Section Measurements of Ozone in the Wavelength Region 238-335 nm and the Temperature Dependence, K. Yoshino, D.E. Freeman, J.R. Esmond, and W.H. Parkinson, Planet. Space Sci., accepted for publication.

5.2 Presentation at Meetings and Seminars

3/25/87 Seminar at Dalhousie University, Halifax, Canada.
High Resolution Ultraviolet Absorption Cross Sections of Atmospheric Molecules.
K. Yoshino

5/18-20/87 The Cambridge Meeting of the American Physical Society
The 18th Annual Meeting of the Division of Atomic, Molecular, and Optical Physics
High Resolution Absorption Cross Sections of Atmospheric Molecules in the Wavelength Region 175-350 nm
K. Yoshino, D.E. Freeman, A.S.-C. Cheung, J.R. Esmond and W.H. Parkinson

6/2-4/87 The 10th Annual Review Conference, AFGL, Bedford, MA

Absolute Absorption Cross Section Measurements of Ozone and the Temperature Dependence

K. Yoshino, D.E. Freeman, and W.H. Parkinson

6/15-19/87 42nd Symposium on Molecular Spectroscopy

Absolute Absorption Cross Section Measurements of Ozone and the Temperature Dependence.

K. Yoshino, D.E. Freeman, and W.H. Parkinson

10/27/87 Seminar at Herzberg Institute of Astrophysics, NRC, Canada

High-Resolution VUV Studies of the Atmospheric Transmittance

K. Yoshino

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ultraviolet and visible region, J. Opt. Soc. Am. 43, 870.

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Table 1. Absorption Cross Sections of Ozone, in Units of 10^{-x} cm^2

Wavelength (nm)			Cross Sections[a]		
Vacuum	Air	x	295 K	228 K	195 K
238.2762	238.2035	18	7.45 [15]	7.51 [15]	7.51 [52]
245.8341	245.7597	17	1.010 [9]	1.006 [11]	1.017 [9]
253.7279	253.6517	17	1.144 [8]	1.154 [10]	1.152 [10]
253.7279	253.6517(Hg)	17	1.145 [26]	1.155 [18]	1.151 [15]
263.6594	263.5809	18	9.71 [9]	9.66 [9]	9.64 [11]
272.1708	272.0902	18	6.82 [4]	6.70 [4]	6.67 [2]
281.4115	281.3286	18	3.52 [6]	3.31 [4]	3.30 [5]
289.4446[b]	289.3598	18	1.488 [5]	1.402 [4]	1.399 [5]
296.8150[b]	296.7284	19	5.97 [6]	5.60 [4]	5.50 [5]
302.2380[b]	302.1500	19	2.91 [5]	2.65 [5]	2.58 [5]
314.2242	314.1332	20	5.86 [5]	4.86 [5]	4.80 [5]
322.1649	322.0719	20	2.39 [6]	2.15 [4]	2.20 [3]
334.2442[b]	334.1481	21	4.37 [3]	3.11 [3]	2.93 [3]
344.3526	344.2539	21	1.132 [3]	0.974 [3]	0.843 [3]

[a]The numbers in the brackets are the numbers of optical depth measurements.

[b]Cross sections were presented previously [Freeman et al., 1985].

Table 2. Absorption Cross Sections of Ozone in Units of 10^{-x} cm^2, at Hg I Wavelengths

		Temperature K	x=17	18	19	19	21
			Cross Section				
			λ253.6	λ289.3	λ296.7	λ302.1	λ334.1
YFEP[a]	(1988)	295	1.145	1.488	5.97	2.91	4.37
		228	1.155	1.402	5.60	2.65	3.11
MM[b]	(1986)	298	1.157	1.540	6.229	3.027	4.46
		226	1.166	1.468	5.766	2.720	3.22
MBHM[c]	(1986)	297	1.137				
BM[d]	(1987)	297	1.136				
		221	1.144				
BP[e]	(1985)	298		1.501	6.07	2.94	4.7
		228		1.423	5.59	2.64	3.5
MBD[f]	(1985)	298		1.436	5.83	2.83	4.28
H[g]	(1961)	294	1.147	1.47	5.971	2.860	4.27
IT[h]	(1953)	295	1.140	1.46	5.76	2.84	5.22

[a]Yoshino, Freeman, Esmond and Parkinson, present work
[b]Molina and Molina (1986)
[c]Mauersberger, Barnes, Hanson and Morton (1986)
[d]Barnes and Mauersberger (1987)
[e]Bass and Paur (1985)
[f]Malicet, Brion and Daumont (1985)
[g]Hearn (1961)
[h]Inn and Tanaka (1953)

Table 3

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (1)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
28600.000	3.21E-23			28875.000	9.90E-23			29150.000	2.26E-22	5.12E-22	2.266
28605.000	3.10E-23			28880.000	1.01E-22			29155.000	2.01E-22	5.14E-22	2.558
28610.000	2.65E-23			28885.000	1.05E-22			29160.000	1.94E-22	4.90E-22	2.524
28615.000	2.62E-23			28890.000	1.09E-22			29165.000	1.77E-22	4.65E-22	2.628
28620.000	3.01E-23			28895.000	1.24E-22			29170.000	1.63E-22	4.41E-22	2.704
28625.000	3.29E-23			28900.000	1.27E-22			29175.000	1.54E-22	4.16E-22	2.703
28630.000	3.08E-23			28905.000	1.37E-22			29180.000	1.58E-22	3.92E-22	2.479
28635.000	3.47E-23			28910.000	1.47E-22			29185.000	1.55E-22	3.67E-22	2.369
28640.000	3.47E-23			28915.000	1.53E-22			29190.000	1.51E-22	3.52E-22	2.334
28645.000	3.76E-23			28920.000	1.54E-22			29195.000	1.61E-22	3.61E-22	2.244
28650.000	3.58E-23			28925.000	1.63E-22			29200.000	1.69E-22	3.70E-22	2.191
28655.000	4.17E-23			28930.000	1.66E-22			29205.000	1.69E-22	3.79E-22	2.244
28660.000	3.98E-23			28935.000	1.65E-22			29210.000	1.77E-22	3.88E-22	2.193
28665.000	4.46E-23			28940.000	1.67E-22			29215.000	1.81E-22	3.97E-22	2.194
28670.000	4.75E-23			28945.000	1.79E-22			29220.000	1.96E-22	4.06E-22	2.071
28675.000	5.95E-23			28950.000	1.95E-22			29225.000	2.00E-22	4.15E-22	2.074
28680.000	5.53E-23			28955.000	2.13E-22			29230.000	2.13E-22	4.24E-22	1.990
28685.000	5.53E-23			28960.000	2.24E-22			29235.000	2.11E-22	4.20E-22	1.990
28690.000	6.21E-23			28965.000	2.38E-22			29240.000	2.20E-22	4.12E-22	1.871
28695.000	6.67E-23			28970.000	2.56E-22			29245.000	2.21E-22	4.04E-22	1.826
28700.000	6.27E-23			28975.000	2.67E-22			29250.000	2.29E-22	3.95E-22	1.727
28705.000	7.16E-23			28980.000	2.99E-22			29255.000	2.35E-22	3.87E-22	1.648
28710.000	7.71E-23			28985.000	3.19E-22			29260.000	2.49E-22	3.79E-22	1.523
28715.000	9.02E-23			28990.000	3.56E-22	3.68E-22	1.035	29265.000	2.50E-22	3.71E-22	1.484
28720.000	8.88E-23			28995.000	3.75E-22	3.88E-22	1.035	29270.000	2.69E-22	4.02E-22	1.494
28725.000	1.07E-22			29000.000	4.08E-22	4.08E-22	1.001	29275.000	2.75E-22	4.36E-22	1.586
28730.000	1.15E-22			29005.000	4.68E-22	4.28E-22	0.915	29280.000	2.93E-22	4.71E-22	1.606
28735.000	1.24E-22			29010.000	4.97E-22	4.48E-22	0.902	29285.000	3.23E-22	5.05E-22	1.563
28740.000	1.33E-22			29015.000	5.33E-22	4.68E-22	0.878	29290.000	3.39E-22	5.39E-22	1.591
28745.000	1.42E-22			29020.000	5.96E-22	4.88E-22	0.819	29295.000	3.81E-22	5.74E-22	1.506
28750.000	1.60E-22			29025.000	6.53E-22	5.08E-22	0.778	29300.000	3.96E-22	6.08E-22	1.535
28755.000	1.82E-22			29030.000	7.10E-22	5.28E-22	0.744	29305.000	4.32E-22	6.42E-22	1.487
28760.000	1.94E-22			29035.000	7.79E-22	5.48E-22	0.703	29310.000	4.71E-22	6.77E-22	1.437
28765.000	2.06E-22			29040.000	8.40E-22	5.68E-22	0.676	29315.000	5.09E-22	7.11E-22	1.397
28770.000	2.38E-22			29045.000	9.08E-22	5.88E-22	0.647	29320.000	5.62E-22	7.46E-22	1.327
28775.000	2.49E-22			29050.000	9.71E-22	6.08E-22	0.626	29325.000	6.02E-22	7.80E-22	1.296
28780.000	2.61E-22			29055.000	1.04E-21	6.28E-22	0.603	29330.000	6.56E-22	8.14E-22	1.241
28785.000	2.76E-22			29060.000	1.09E-21	6.48E-22	0.594	29335.000	6.99E-22	8.49E-22	1.214
28790.000	2.91E-22			29065.000	1.11E-21	6.68E-22	0.601	29340.000	7.76E-22	8.83E-22	1.138
28795.000	3.01E-22			29070.000	1.08E-21	6.87E-22	0.637	29345.000	8.50E-22	9.17E-22	1.079
28800.000	2.91E-22			29075.000	9.60E-22	7.07E-22	0.737	29350.000	9.31E-22	9.52E-22	1.022
28805.000	2.35E-22			29080.000	7.19E-22	6.93E-22	0.964	29355.000	1.03E-21	9.86E-22	0.957
28810.000	1.53E-22			29085.000	5.21E-22	6.16E-22	1.181	29360.000	1.11E-21	1.02E-21	0.919
28815.000	1.11E-22			29090.000	4.26E-22	5.38E-22	1.264	29365.000	1.23E-21	1.06E-21	0.858
28820.000	8.22E-23			29095.000	3.88E-22	4.61E-22	1.188	29370.000	1.31E-21	1.09E-21	0.832
28825.000	8.22E-23			29100.000	3.67E-22	4.64E-22	1.263	29375.000	1.42E-21	1.12E-21	0.791
28830.000	6.53E-23			29105.000	3.50E-22	4.68E-22	1.338	29380.000	1.54E-21	1.16E-21	0.752
28835.000	6.44E-23			29110.000	3.53E-22	4.73E-22	1.341	29385.000	1.61E-21	1.19E-21	0.741
28840.000	6.43E-23			29115.000	3.58E-22	4.78E-22	1.336	29390.000	1.66E-21	1.23E-21	0.739
28845.000	6.22E-23			29120.000	3.66E-22	4.83E-22	1.320	29395.000	1.68E-21	1.26E-21	0.751
28850.000	7.12E-23			29125.000	3.70E-22	4.88E-22	1.319	29400.000	1.60E-21	1.23E-21	0.768
28855.000	7.97E-23			29130.000	3.76E-22	4.93E-22	1.310	29405.000	1.36E-21	1.14E-21	0.836
28860.000	8.75E-23			29135.000	3.62E-22	4.98E-22	1.375	29410.000	1.02E-21	8.64E-22	0.847
28865.000	8.23E-23			29140.000	3.19E-22	5.02E-22	1.575	29415.000	7.73E-22	6.87E-22	0.889
28870.000	9.34E-23			29145.000	2.70E-22	5.07E-22	1.879	29420.000	6.57E-22	6.65E-22	1.012

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (2)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
29425.000	6.03E-22	5.95E-22	0.987	29700.000	1.67E 21	1.75E 21	1.048	29975.000	3.95E-21	4.03E-21	1.021
29430.000	5.70E-22	5.13E 22	0.900	29705.000	1.75E 21	1.67E 21	0.957	29980.000	2.95E-21	3.16E-21	1.071
29435.000	5.53E-22	5.10E 22	0.922	29710.000	1.81E 21	1.80E 21	0.993	29985.000	2.51E-21	2.53E-21	1.008
29440.000	5.68E-22	6.11E-22	1.075	29715.000	1.83E 21	1.75E 21	0.959	29990.000	2.24E-21	2.15E-21	0.961
29445.000	5.78E-22	6.48E-22	1.122	29720.000	1.72E-21	1.66E-21	0.966	29995.000	2.14E-21	1.97E-21	0.921
29450.000	5.76E-22	5.88E 22	1.021	29725.000	1.53E 21	1.36E-21	0.887	30000.000	2.14E-21	1.88E-21	0.877
29455.000	5.68E-22	5.35E 22	0.943	29730.000	1.23E 21	1.06E-21	0.860	30005.000	2.16E-21	1.90E-21	0.877
29460.000	5.69E-22	5.42E-22	0.952	29735.000	9.93E 22	9.46E 22	0.953	30010.000	2.22E 21	1.94E-21	0.875
29465.000	5.48E-22	4.87E 22	0.889	29740.000	8.54E 22	8.62E 22	1.009	30015.000	2.17E 21	2.00E-21	0.920
29470.000	5.07E-22	4.91E 22	0.968	29745.000	7.85E 22	7.63E-22	0.972	30020.000	2.24E-21	2.03E-21	0.906
29475.000	4.63E-22	4.92E-22	1.062	29750.000	7.01E 22	7.81E 22	1.114	30025.000	2.23E-21	2.02E-21	0.907
29480.000	4.40E-22	3.62E-22	0.822	29755.000	6.99E-22	7.20E 22	1.029	30030.000	2.15E-21	1.97E-21	0.917
29485.000	4.39E-22	4.74E-22	1.080	29760.000	6.67E 22	7.06E 22	1.058	30035.000	2.00E-21	1.95E-21	0.975
29490.000	4.37E-22	5.27E 22	1.205	29765.000	6.62E 22	6.72E 22	1.016	30040.000	1.84E 21	1.70E-21	0.922
29495.000	4.45E-22	4.48E 22	1.007	29770.000	6.84E 22	6.69E-22	0.979	30045.000	1.57E 21	1.58E-21	1.008
29500.000	4.58E 22	4.55E-22	0.994	29775.000	7.13E 22	6.92E 22	0.971	30050.000	1.49E 21	1.45E-21	0.976
29505.000	4.71E-22	5.47E-22	1.162	29780.000	7.39E 22	6.52E 22	0.882	30055.000	1.40E-21	1.35E-21	0.961
29510.000	4.74E-22	4.14E-22	0.873	29785.000	7.41E 22	6.73E 22	0.908	30060.000	1.37E-21	1.28E-21	0.933
29515.000	5.01E-22	4.87E-22	0.972	29790.000	7.56E 22	7.02E 22	0.928	30065.000	1.38E-21	1.22E-21	0.887
29520.000	5.18E-22	5.41E-22	1.044	29795.000	7.37E 22	7.33E-22	0.995	30070.000	1.45E-21	1.26E-21	0.868
29525.000	5.34E-22	5.41E 22	1.013	29800.000	7.40E 22	6.55E 22	0.885	30075.000	1.53E-21	1.33E-21	0.867
29530.000	5.71E-22	6.15E 22	1.077	29805.000	7.65E 22	6.74E 22	0.882	30080.000	1.59E-21	1.35E-21	0.846
29535.000	6.14E 22	6.55E 22	1.066	29810.000	7.83E 22	7.22E 22	0.922	30085.000	1.62E-21	1.38E 21	0.855
29540.000	6.51E-22	7.42E 22	1.140	29815.000	8.09E 22	7.60E 22	0.940	30090.000	1.81E 21	1.49E-21	0.826
29545.000	7.06E-22	6.70E 22	0.949	29820.000	8.44E 22	7.89E 22	0.935	30095.000	1.90E-21	1.58E-21	0.832
29550.000	7.61E-22	7.88E 22	1.035	29825.000	8.86E 22	8.30E-22	0.937	30100.000	1.91E-21	1.64E-21	0.861
29555.000	8.24E-22	8.91E 22	1.081	29830.000	9.59E 22	9.67E 22	1.008	30105.000	2.17E-21	1.80E 21	0.828
29560.000	9.21E-22	9.93E 22	1.078	29835.000	1.03E 21	9.83E 22	0.955	30110.000	2.35E 21	1.92E-21	0.816
29565.000	9.97E-22	9.95E 22	0.998	29840.000	1.11E 21	9.97E 22	0.898	30115.000	2.49E-21	2.02E-21	0.813
29570.000	1.08E 21	1.02E 21	0.947	29845.000	1.19E 21	1.02E 21	0.861	30120.000	2.70E-21	2.15E-21	0.796
29575.000	1.19E 21	1.21E 21	1.015	29850.000	1.27E 21	1.11E 21	0.872	30125.000	2.87E 21	2.34E-21	0.814
29580.000	1.30E-21	1.26E 21	0.972	29855.000	1.37E 21	1.24E 21	0.908	30130.000	3.16E-21	2.55E-21	0.808
29585.000	1.41E-21	1.35E 21	0.961	29860.000	1.50E 21	1.35E-21	0.903	30135.000	3.41E-21	2.75E-21	0.805
29590.000	1.52E 21	1.54E 21	1.014	29865.000	1.61E 21	1.43E 21	0.888	30140.000	3.69E-21	2.89E-21	0.784
29595.000	1.67E 21	1.75E 21	1.051	29870.000	1.71E 21	1.54E 21	0.900	30145.000	4.10E-21	3.09E-21	0.754
29600.000	1.84E 21	1.98E 21	1.077	29875.000	1.83E 21	1.65E 21	0.901	30150.000	4.39E-21	3.52E-21	0.801
29605.000	2.00E 21	1.92E 21	0.958	29880.000	1.96E 21	1.75E 21	0.892	30155.000	4.77E-21	3.79E-21	0.795
29610.000	2.15E 21	2.22E 21	1.033	29885.000	2.01E 21	1.84E 21	0.918	30160.000	5.15E-21	4.05E-21	0.787
29615.000	2.38E-21	2.34E 21	0.981	29890.000	2.09E 21	1.85E 21	0.884	30165.000	5.74E-21	4.40E-21	0.766
29620.000	2.56E-21	2.65E 21	1.035	29895.000	2.22E 21	1.94E 21	0.873	30170.000	6.14E-21	4.83E-21	0.786
29625.000	2.79E-21	2.82E 21	1.009	29900.000	2.35E 21	2.10E 21	0.895	30175.000	6.69E-21	5.45E-21	0.815
29630.000	3.00E-21	3.07E 21	1.024	29905.000	2.53E 21	2.31E 21	0.913	30180.000	7.26E-21	5.96E-21	0.820
29635.000	3.21E-21	3.29E-21	1.024	29910.000	2.73E 21	2.48E 21	0.907	30185.000	7.72E-21	6.10E-21	0.790
29640.000	3.37E-21	3.45E-21	1.024	29915.000	3.06E-21	2.59E 21	0.846	30190.000	8.20E-21	6.62E-21	0.808
29645.000	3.48E-21	3.44E-21	0.988	29920.000	3.34E-21	2.89E 21	0.865	30195.000	8.50E-21	7.21E-21	0.848
29650.000	3.49E-21	3.29E 21	0.944	29925.000	3.62E 21	3.10E 21	0.855	30200.000	8.65E-21	7.28E-21	0.842
29655.000	3.29E-21	2.71E 21	0.824	29930.000	3.98E 21	3.46E-21	0.869	30205.000	8.33E-21	7.22E-21	0.866
29660.000	2.70E-21	2.38E 21	0.880	29935.000	4.34E 21	3.70E 21	0.853	30210.000	7.04E-21	6.93E-21	0.985
29665.000	1.99E 21	2.04E 21	1.023	29940.000	4.67E 21	3.95E-21	0.846	30215.000	5.72E-21	5.88E-21	1.028
29670.000	1.69E-21	1.69E 21	1.001	29945.000	5.07E 21	4.40E 21	0.867	30220.000	5.26E-21	4.88E-21	0 928
29675.000	1.52E-21	1.66E 21	1.095	29950.000	5.38E 21	4.75E 21	0.883	30225.000	5.25E-21	4.50E-21	0.857
29680.000	1.49E-21	1.57E-21	1.054	29955.000	5.64E 21	5.00E 21	0.887	30230.000	5.32E-21	4.41E-21	0.830
29685.000	1.51E 21	1.57E 21	1.037	29960.000	5.71E 21	5.00E 21	0.875	30235.000	5.53E-21	4.54E-21	0.821
29690.000	1.55E 21	1.56E 21	1.003	29965.000	5.59E 21	5.11E 21	0.915	30240.000	5.90E-21	4.63E-21	0.785
29695.000	1.62E 21	1.66E 21	1.024	29970.000	5.13E 21	4.84E 21	0.943	30245.000	6.17E-21	4.96E 21	0.804

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (3)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
30250.000	6.56E-21	5.38E-21	0.820	30525.000	7.07E-21	6.03E-21	0.853	30800.000	9.59E-21	9.52E-21	0.993
30255.000	6.94E-21	5.49E-21	0.791	30530.000	7.29E-21	6.02E-21	0.826	30805.000	9.26E-21	8.88E-21	0.959
30260.000	7.18E-21	5.85E-21	0.814	30535.000	7.64E-21	6.13E-21	0.802	30810.000	9.23E-21	8.60E-21	0.932
30265.000	7.25E-21	6.13E-21	0.845	30540.000	8.04E-21	6.63E-21	0.825	30815.000	9.21E-21	8.58E-21	0.931
30270.000	7.07E-21	6.11E-21	0.864	30545.000	8.32E-21	6.88E-21	0.826	30820.000	9.22E-21	8.53E-21	0.925
30275.000	6.25E-21	5.85E-21	0.935	30550.000	8.52E-21	7.06E-21	0.829	30825.000	9.26E-21	8.65E-21	0.934
30280.000	4.78E-21	5.08E-21	1.062	30555.000	8.63E-21	7.09E-21	0.822	30830.000	9.46E-21	8.81E-21	0.932
30285.000	3.77E-21	3.72E-21	0.987	30560.000	8.37E-21	7.17E-21	0.857	30835.000	9.44E-21	8.89E-21	0.942
30290.000	3.22E-21	2.97E-21	0.921	30565.000	7.93E-21	6.84E-21	0.863	30840.000	9.20E-21	8.89E-21	0.967
30295.000	2.92E-21	2.65E-21	0.908	30570.000	6.91E-21	6.23E-21	0.902	30845.000	8.75E-21	8.61E-21	0.984
30300.000	2.79E-21	2.28E-21	0.817	30575.000	5.72E-21	5.45E-21	0.953	30850.000	7.96E-21	8.16E-21	1.025
30305.000	2.78E-21	2.25E-21	0.810	30580.000	5.01E-21	4.79E-21	0.956	30855.000	7.11E-21	7.38E-21	1.038
30310.000	2.84E-21	2.29E-21	0.806	30585.000	4.65E-21	4.05E-21	0.872	30860.000	6.52E-21	6.85E-21	1.051
30315.000	2.87E-21	2.29E-21	0.798	30590.000	4.40E-21	3.73E-21	0.848	30865.000	6.26E-21	6.35E-21	1.015
30320.000	2.80E-21	2.36E-21	0.842	30595.000	4.36E-21	3.70E-21	0.850	30870.000	6.19E-21	6.15E-21	0.994
30325.000	2.96E-21	2.42E-21	0.817	30600.000	4.46E-21	3.78E-21	0.848	30875.000	6.22E-21	6.07E-21	0.976
30330.000	3.04E-21	2.49E-21	0.818	30605.000	4.50E-21	3.76E-21	0.835	30880.000	6.29E-21	6.07E-21	0.965
30335.000	2.85E-21	2.45E-21	0.858	30610.000	4.58E-21	3.86E-21	0.843	30885.000	6.67E-21	6.18E-21	0.927
30340.000	2.77E-21	2.34E-21	0.845	30615.000	4.82E-21	3.99E-21	0.829	30890.000	6.74E-21	6.45E-21	0.958
30345.000	2.63E-21	2.22E-21	0.844	30620.000	4.89E-21	4.14E-21	0.847	30895.000	7.14E-21	6.68E-21	0.936
30350.000	2.55E-21	2.22E-21	0.870	30625.000	5.13E-21	4.33E-21	0.845	30900.000	7.51E-21	7.09E-21	0.945
30355.000	2.56E-21	2.12E-21	0.827	30630.000	5.25E-21	4.54E-21	0.865	30905.000	7.71E-21	7.45E-21	0.967
30360.000	2.60E-21	2.26E-21	0.868	30635.000	5.21E-21	4.66E-21	0.894	30910.000	8.38E-21	7.73E-21	0.922
30365.000	2.71E-21	2.25E-21	0.831	30640.000	5.52E-21	4.72E-21	0.855	30915.000	8.79E-21	8.16E-21	0.929
30370.000	2.83E-21	2.32E-21	0.819	30645.000	5.60E-21	4.97E-21	0.887	30920.000	9.17E-21	8.83E-21	0.963
30375.000	2.93E-21	2.36E-21	0.806	30650.000	5.89E-21	5.14E-21	0.873	30925.000	9.73E-21	9.39E-21	0.965
30380.000	3.13E-21	2.53E-21	0.809	30655.000	6.19E-21	5.42E-21	0.875	30930.000	1.03E-20	9.75E-21	0.946
30385.000	3.30E-21	2.72E-21	0.825	30660.000	6.58E-21	5.78E-21	0.878	30935.000	1.11E-20	1.02E-20	0.923
30390.000	3.54E-21	2.87E-21	0.812	30665.000	7.17E-21	6.17E-21	0.860	30940.000	1.18E-20	1.11E-20	0.937
30395.000	3.83E-21	3.06E-21	0.798	30670.000	7.39E-21	6.56E-21	0.888	30945.000	1.27E-20	1.20E-20	0.949
30400.000	3.99E-21	3.35E-21	0.839	30675.000	8.26E-21	6.94E-21	0.841	30950.000	1.37E-20	1.30E-20	0.947
30405.000	4.30E-21	3.52E-21	0.818	30680.000	8.79E-21	7.59E-21	0.863	30955.000	1.50E-20	1.37E-20	0.913
30410.000	4.68E-21	3.89E-21	0.831	30685.000	9.58E-21	8.30E-21	0.867	30960.000	1.58E-20	1.49E-20	0.943
30415.000	5.06E-21	4.03E-21	0.797	30690.000	1.04E-20	8.82E-21	0.848	30965.000	1.74E-20	1.60E-20	0.918
30420.000	5.48E-21	4.39E-21	0.801	30695.000	1.09E-20	9.56E-21	0.877	30970.000	1.84E-20	1.74E-20	0.945
30425.000	5.86E-21	4.85E-21	0.827	30700.000	1.18E-20	1.01E-20	0.853	30975.000	1.98E-20	1.84E-20	0.930
30430.000	6.48E-21	5.28E-21	0.814	30705.000	1.25E-20	1.11E-20	0.890	30980.000	2.05E-20	1.92E-20	0.939
30435.000	7.01E-21	5.69E-21	0.811	30710.000	1.30E-20	1.16E-20	0.894	30985.000	2.16E-20	2.02E-20	0.934
30440.000	7.50E-21	6.03E-21	0.804	30715.000	1.34E-20	1.20E-20	0.892	30990.000	2.11E-20	2.10E-20	0.996
30445.000	8.14E-21	6.62E-21	0.813	30720.000	1.28E-20	1.21E-20	0.948	30995.000	1.92E-20	2.04E-20	1.065
30450.000	9.02E-21	7.31E-21	0.810	30725.000	1.13E-20	1.18E-20	1.041	31000.000	1.65E-20	1.90E-20	1.153
30455.000	9.69E-21	7.98E-21	0.823	30730.000	1.11E-20	1.08E-20	0.971	31005.000	1.58E-20	1.69E-20	1.070
30460.000	1.06E-20	8.51E-21	0.803	30735.000	1.13E-20	1.04E-20	0.919	31010.000	1.61E-20	1.61E-20	0.959
30465.000	1.14E-20	9.07E-21	0.796	30740.000	1.19E-20	1.06E-20	0.887	31015.000	1.70E-20	1.64E-20	0.967
30470.000	1.22E-20	1.02E-20	0.838	30745.000	1.26E-20	1.10E-20	0.876	31020.000	1.78E-20	1.73E-20	0.972
30475.000	1.31E-20	1.09E-20	0.832	30750.000	1.40E-20	1.21E-20	0.864	31025.000	1.88E-20	1.82E-20	0.966
30480.000	1.37E-20	1.15E-20	0.839	30755.000	1.47E-20	1.32E-20	0.895	31030.000	2.03E-20	1.92E-20	0.946
30485.000	1.41E-20	1.17E-20	0.832	30760.000	1.57E-20	1.42E-20	0.904	31035.000	2.11E-20	2.04E-20	0.965
30490.000	1.42E-20	1.20E-20	0.847	30765.000	1.66E-20	1.49E-20	0.896	31040.000	2.21E-20	2.15E-20	0.972
30495.000	1.35E-20	1.17E-20	0.864	30770.000	1.76E-20	1.55E-20	0.879	31045.000	2.23E-20	2.21E-20	0.990
30500.000	1.21E-20	1.05E-20	0.869	30775.000	1.81E-20	1.64E-20	0.907	31050.000	2.16E-20	2.21E-20	1.022
30505.000	1.05E-20	9.31E-21	0.887	30780.000	1.79E-20	1.65E-20	0.922	31055.000	1.92E-20	2.16E-20	1.124
30510.000	8.32E-21	8.32E-21	1.000	30785.000	1.68E-20	1.66E-20	0.985	31060.000	1.59E-20	1.87E-20	1.175
30515.000	7.27E-21	6.69E-21	0.920	30790.000	1.32E-20	1.50E-20	1.138	31065.000	1.38E-20	1.54E-20	1.113
30520.000	7.07E-21	5.97E-21	0.845	30795.000	1.08E-20	1.17E-20	1.084	31070.000	1.25E-20	1.34E-20	1.072

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (4)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
31075.000	1.19E 20	1.28E 20	1.073	31350.000	1.81E-20	2.02E-20	1.117	31625.000	3.34E-20	3.50E-20	1.048
31080.000	1.16E 20	1.21E 20	1.042	31355.000	1.85E 20	2.06E-20	1.111	31630.000	3.37E-20	3.61E-20	1.070
31085.000	1.18E 20	1.18E 20	1.003	31360.000	1.90E-20	2.06E-20	1.084	31635.000	3.45E-20	3.78E-20	1.095
31090.000	1.20E-20	1.20E 20	0.998	31365.000	1.94E-20	2.14E-20	1.105	31640.000	3.57E-20	3.87E-20	1.084
31095.000	1.23E-20	1.22E 20	0.996	31370.000	1.96E 20	2.15E-20	1.097	31645.000	3.72E-20	3.93E-20	1.058
31100.000	1.24E-20	1.23E 20	0.995	31375.000	2.01E-20	2.10E-20	1.046	31650.000	3.83E-20	4.09E-20	1.068
31105.000	1.25E-20	1.26E 20	1.006	31380.000	2.00E-20	2.15E-20	1.076	31655.000	3.96E-20	4.22E-20	1.065
31110.000	1.23E-20	1.27E 20	1.030	31385.000	2.01E-20	2.28E 20	1.136	31660.000	4.10E-20	4.39E-20	1.071
31115.000	1.20E-20	1.24E 20	1.037	31390.000	2.01E-20	2.29E 20	1.138	31665.000	4.20E-20	4.40E-20	1.047
31120.000	1.18E 20	1.22E-20	1.036	31395.000	2.10E-20	2.35E-20	1.120	31670.000	4.34E-20	4.44E-20	1.023
31125.000	1.15E 20	1.20E 20	1.044	31400.000	2.14E 20	2.42E 20	1.132	31675.000	4.48E-20	4.58E-20	1.023
31130.000	1.13E-20	1.17E-20	1.032	31405.000	2.28E 20	2.59E-20	1.134	31680.000	4.60E-20	4.68E-20	1.017
31135.000	1.12E-20	1.15E-20	1.028	31410.000	2.36E-20	2.73E-20	1.159	31685.000	4.63E-20	4.57E-20	0.988
31140.000	1.12E-20	1.15E 20	1.031	31415.000	2.48E-20	2.82E-20	1.137	31690.000	4.59E-20	4.43E-20	0.964
31145.000	1.16E-20	1.16E-20	0.997	31420.000	2.57E-20	2.89E-20	1.125	31695.000	4.47E-20	4.27E-20	0.954
31150.000	1.20E-20	1.18E 20	0.985	31425 000	2.72E 20	2.92E 20	1.074	31700.000	4.25E-20	4.08E-20	0.960
31155.000	1.26E-20	1.23E 20	0.979	31430.000	2.83E-20	2.93E 20	1.035	31705.000	4.07E-20	3.98E-20	0.977
31160.000	1.35E-20	1.30E-20	0.965	31435.000	2.82E 20	2.97E-20	1.051	31710.000	3.93E-20	3.83E-20	0.976
31165.000	1.40E-20	1.39E-20	0.992	31440.000	2.77E-20	3.07E 20	1.110	31715.000	3.85E-20	3.84E-20	0.998
31170.000	1.48E-20	1.45E-20	0.978	31445.000	2.84E 20	3.19E-20	1.122	31720.000	3.80E-20	3.86E-20	1.015
31175.000	1.58E-20	1.52E 20	0.959	31450.000	2.91E 20	3.31E-20	1.139	31725.000	3.81E-20	3.87E-20	1.016
31180.000	1.66E-20	1.61E-20	0.970	31455.000	3.06E 20	3.44E-20	1.125	31730.000	3.77E-20	4.00E-20	1.061
31185.000	1.72E-20	1.70E-20	0.991	31460.000	3.22E-20	3.60E-20	1.118	31735.000	3.83E-20	4.06E-20	1.060
31190.000	1.77E-20	1.77E-20	0.999	31465.000	3.34E 20	3.66E-20	1.096	31740.000	3.86E-20	4.02E-20	1.042
31195.000	1.74E 20	1.81E-20	1.038	31470.000	3.48E-20	3.63E-20	1.042	31745.000	3.90E-20	4.00E-20	1.027
31200.000	1.79E-20	1.81E-20	1.013	31475.000	3.50E-20	3.55E-20	1.013	31750.000	3.95E-20	4.01E-20	1.014
31205.000	1.86E-20	1.84E-20	0.989	31480.000	3.56E 20	3.33E-20	0.936	31755.000	3.96E-20	3.95E-20	0.998
31210.000	1.99E-20	1.95E 20	0.981	31485.000	3.44E-20	3.16E-20	0.917	31760.000	3.90E-20	3.97E-20	1.018
31215.000	2.10E-20	2.07E-20	0.986	31490.000	3.16E-20	3.05E-20	0.966	31765.000	3.87E-20	3.90E-20	1.009
31220.000	2.26E-20	2.18E-20	0.963	31495.000	3.00E 20	3.07E-20	1.024	31770.000	3.82E-20	3.86E-20	1.011
31225.000	2.39E 20	2.28E-20	0.955	31500.000	2.92E 20	3.13E 20	1.072	31775.000	3.79E-20	3.83E-20	1.011
31230.000	2.56E 20	2.46E-20	0.962	31505.000	2.96E 20	3.20E 20	1.080	31780.000	3.77E-20	3.85E-20	1.021
31235.000	2.70E 20	2.62E-20	0.969	31510.000	3.02E 20	3.22E 20	1.066	31785.000	3.80E-20	3.94E-20	1.038
31240.000	2.79E 20	2.74E 20	0.980	31515.000	3.11E 20	3.19E-20	1.025	31790.000	3.86E-20	4.00E-20	1.035
31245.000	2.81E-20	2.45E 20	0.874	31520.000	3.16E 20	3.22E 20	1.019	31795.000	3.95E-20	4.13E-20	1.045
31250.000	2.64E 20	2.33E 20	0.882	31525.000	3.21E-20	3.28E 20	1.022	31800.000	4.08E-20	4.28E-20	1.048
31255.000	2.34E-20	2.35E 20	1.006	31530.000	3.21E-20	3.22E-20	1.005	31805.000	4.15E-20	4.34E-20	1.046
31260.000	2.25E 20	2.43E 20	1.081	31535.000	3.19E 20	3.10E-20	0.971	31810.000	4.32E-20	4.44E-20	1.028
31265.000	2.25E-20	2.44E 20	1.082	31540.000	3.11E-20	3.02E 20	0.971	31815.000	4.43E-20	4.60E-20	1.039
31270.000	2.25E 20	2.52E 20	1.119	31545.000	2.99E 20	2.90E-20	0.971	31820.000	4.48E-20	4.74E-20	1.059
31275.000	2.36E 20	2.64E 20	1.117	31550.000	2.87E 20	2.81E 20	0.979	31825.000	4.62E-20	4.86E 20	1.053
31280.000	2.47E 20	2.68E 20	1.086	31555.000	2.77E 20	2.86E 20	1.032	31830.000	4.74E-20	5.03E-20	1.062
31285.000	2.48E 20	2.61E 20	1.051	31560.000	2.71E 20	2.90E 20	1.069	31835.000	4.84E-20	5.13E-20	1.061
31290.000	2.57E 20	2.50E 20	0.973	31565.000	2.73E 20	2.94E 20	1.078	31840.000	4.95E-20	5.14E-20	1.039
31295.000	2.61E-20	2.50E 20	0.956	31570.000	2.78E 20	2.97E 20	1.070	31845.000	5.07E-20	5.19E-20	1.023
31300.000	2.55E 20	2.24E 20	0.877	31575.000	2.84E 20	3.03E 20	1.066	31850.000	5.16E-20	5.22E-20	1.011
31305.000	2.39E 20	2.04E 20	0.852	31580.000	2.90E 20	3.14E 20	1.083	31855.000	5.25E-20	5.39E-20	1.026
31310.000	2.16E 20	1.85E 20	0.858	31585.000	2.97E 20	3.21E 20	1.081	31860.000	5.34E-20	5.58E-20	1.044
31315.000	1.94E 20	1.77E 20	0.912	31590.000	3.04E 20	3.23E 20	1.064	31865.000	5.47E-20	5.64E-20	1.032
31320.000	1.82E 20	1.79E 20	0.981	31595.000	3.13E 20	3.23E-20	1.032	31870.000	5.60E-20	5.65E-20	1 009
31325.000	1.73E 20	1.79E 20	1.033	31600.000	3.17E 20	3.32E-20	1.049	31875.000	5.69E-20	5.74E-20	1.008
31330.000	1.70E 20	1.85E 20	1.086	31605.000	3.19E 20	3.47E 20	1.087	31880.000	5.80E-20	5.84E-20	1.006
31335.000	1.70E 20	1.86E 20	1.094	31610.000	3.27E 20	3.49E 20	1.067	31885.000	5.84E 20	5.89E-20	1.008
31340.000	1.72E 20	1.81E 20	1.054	31615.000	3.31E 20	3.44E 20	1.040	31890.000	5.84E 20	6.01E-20	1.028
31345.000	1.78E 20	1.94E 20	1.092	31620.000	3.34E 20	3.43E 20	1.026	31895.000	5.85E 20	5.97E-20	1.020

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (5)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
31900.000	5.76E-20	5.83E 20	1.012	32175.000	7.75E-20	7.81E-20	1.008	32450.000	1.15E-19	1.15E-19	0.998
31905.000	5.71E-20	5.64E 20	0.987	32180.000	7.77E-20	7.83E 20	1.007	32455.000	1.15E-19	1.14E-19	0.995
31910.000	5.57E-20	5.52E-20	0.991	32185.000	7.80E-20	7.83E 20	1.004	32460.000	1.15E-19	1.14E-19	0.996
31915.000	5.38E-20	5.38E-20	1.000	32190.000	7.80E-20	7.88E-20	1.011	32465.000	1.15E-19	1.14E-19	0.992
31920.000	5.29E-20	5.36E-20	1.013	32195.000	7.87E-20	7.98E-20	1.014	32470.000	1.15E-19	1.14E-19	0.990
31925.000	5.25E-20	5.39E-20	1.026	32200.000	7.93E-20	8.01E-20	1.010	32475.000	1.14E-19	1.14E-19	0.997
31930.000	5.27E-20	5 48E-20	1.039	32205.000	8.09E-20	8.11E-20	1.002	32480.000	1.14E-19	1.13E-19	0.994
31935.000	5.28E-20	5.38E-20	1.020	32210.000	8.23E-20	8.30E-20	1.008	32485.000	1.13E-19	1.12E-19	0.995
31940.000	5.34E-20	5.25E 20	0.984	32215.000	8.26E-20	8.33E-20	1.009	32490.000	1.12E-19	1.13E-19	1.005
31945.000	5.36E-20	5.40E-20	1.007	32220.000	8.35E 20	8.35E-20	1.000	32495.000	1.13E-19	1.12E-19	0.992
31950.000	5.37E-20	5.42E-20	1.009	32225.000	8.37E 20	8.36E 20	0.999	32500.000	1.13E-19	1.11E-19	0.985
31955.000	5.36E-20	5.48E-20	1.022	32230.000	8.29E-20	8.29E-20	1.000	32505.000	1.14E-19	1.12E-19	0.983
31960.000	5.32E-20	5.39E 20	1.013	32235.000	8.18E-20	8.26E-20	1.010	32510.000	1.13E-19	1.13E-19	1.004
31965.000	5.35E-20	5.52E 20	1.031	32240.000	8.16E 20	8.22E-20	1.007	32515.000	1.14E-19	1.14E-19	1.002
31970.000	5.38E-20	5.51E 20	1.025	32245.000	8.05E 20	8.16E 20	1.014	32520.000	1.15E-19	1.15E-19	0.996
31975.000	5.44E-20	5.50E 20	1.012	32250.000	8.12E-20	8.11E 20	0.999	32525.000	1.18E-19	1.16E-19	0.981
31980.000	5.48E 20	5.55E-20	1.013	32255.000	8.21E 20	8.21E 20	1.000	32530.000	1.18E-19	1.17E-19	0.995
31985.000	5.51E 20	5.59E 20	1.015	32260.000	8.09E 20	8.24E 20	1.018	32535.000	1.19E-19	1.18E-19	0.993
31990.000	5.60E-20	5.71E 20	1.020	32265.000	8.16E 20	8.22E 20	1.008	32540.000	1.21E-19	1.19E-19	0.985
31995.000	5.64E-20	5.74E 20	1.018	32270.000	8.24E 20	8.23E-20	0.999	32545.000	1.22E-19	1.21E-19	0.990
32000.000	5.73E-20	5.80E 20	1.012	32275.000	8.17E 20	8.30E 20	1.017	32550.000	1.23E-19	1.22E-19	0.990
32005.000	5.80E-20	5.92E 20	1.021	32280.000	8.18E 20	8.27E 20	1.011	32555.000	1.25E 19	1.23E-19	0.988
32010.000	5.90E 20	6.02E 20	1.020	32285.000	8.29E 20	8.32E 20	1.004	32560.000	1.28E-19	1.26E-19	0.986
32015.000	5.94E 20	6.09E 20	1.026	32290.000	8.42E 20	8.36E 20	0.993	32565.000	1.29E-19	1.28E-19	0.995
32020.000	5.99E-20	6.16E 20	1.028	32295.000	8.43E 20	8.57E 20	1.017	32570.000	1.31E-19	1.30E-19	0.990
32025.000	6.08E 20	6.11E 20	1.005	32300.000	8.63E 20	8.75E 20	1.014	32575.000	1.35E 19	1.31E-19	0.974
32030.000	6.01E 20	6.18E 20	1.029	32305.000	8.84E 20	8.84E 20	1.000	32580.000	1.36E-19	1.34E-19	0.987
32035.000	6.08E 20	6.21E 20	1.021	32310.000	8.98E 20	8.98E 20	1.000	32585.000	1.37E 19	1.35E-19	0.988
32040.000	6.17E 20	6.23E 20	1.010	32315.000	9.31E 20	9.33E 20	1.002	32590.000	1.37E 19	1.37E-19	1.001
32045.000	6.24E 20	6.35E 20	1.017	32320.000	9.63E 20	9.62E 20	0.999	32595.000	1.38E 19	1.38E-19	1.001
32050.000	6.35E 20	6.44E 20	1.014	32325.000	9.76E 20	9.72E 20	0.996	32600.000	1.39E-19	1.39E-19	0.998
32055.000	6.40E 20	6.48E 20	1.012	32330.000	9.82E 20	9.83E 20	1.001	32605.000	1.40E 19	1.40E-19	0.999
32060.000	6.52E 20	6.56E 20	1.006	32335.000	9.94E 20	9.91E 20	0.997	32610.000	1.41E 19	1.42E-19	1.004
32065.000	6.61E 20	6.72E 20	1.017	32340.000	1.00E 19	1.00E 19	1.004	32615.000	1.43E-19	1.43E-19	0.998
32070.000	6.74E 20	6.91E 20	1.026	32345.000	1.02E 19	1.02E 19	1.000	32620.000	1.46E-19	1.44E-19	0.989
32075.000	6.90E 20	7.04E 20	1.020	32350.000	1.03E 19	1.03E 19	1.003	32625.000	1.46E-19	1.46E-19	0.997
32080.000	7.01E 20	7.13E 20	1.017	32355.000	1.04E 19	1.04E 19	0.999	32630.000	1.48E-19	1.47E-19	0.996
32085.000	7.22E 20	7.27E 20	1.008	32360.000	1.03E 19	1.03E 19	1.000	32635.000	1.50E-19	1.50E-19	0.999
32090.000	7.34E 20	7.42E 20	1.011	32365.000	1.05E 19	1.04E 19	0.987	32640.000	1.51E-19	1.51E-19	0.997
32095.000	7.42E 20	7.52E 20	1.013	32370.000	1.05E 19	1.05E 19	0.999	32645.000	1.51E 19	1.51E-19	0.999
32100.000	7.52E 20	7.57E 20	1.007	32375.000	1.06E 19	1.05E 19	0.990	32650.000	1.52E-19	1.52E 19	1.000
32105.000	7.64E 20	7.69E 20	1.007	32380.000	1.06E 19	1.06E 19	1.003	32655.000	1.51E-19	1.51E-19	0.998
32110.000	7.59E 20	7.65E 20	1.008	32385.000	1.06E 19	1.07E 19	1.012	32660.000	1.50E-19	1.5.E-19	1.004
32115.000	7.59E 20	7.54E 20	0.993	32390.000	1.07E 19	1.07E 19	0 997	32665.000	1.50E 19	1.51E-19	1.005
32120.000	7.51E 20	7.56E 20	1.007	32395.000	1.07E 19	1.08E 19	1.005	32670.000	1.50E-19	1.50E-19	0.999
32125.000	7.45E 20	7.45E 20	1.000	32400.000	1.06E 19	1.07E 19	1.010	32675.000	1.51E 19	1.51E-19	0.998
32130.000	7.31E 20	7.38E 20	1.009	32405.000	1.05E 19	1.05E 19	1.003	32680.000	1.52E-19	1.51E-19	0.991
32135.000	7.33E 20	7.41E 20	1 011	32410.000	1.06E 19	1.05E 19	0.994	32685.000	1.52E 19	1.52E-19	1.001
32140.000	7.37E 20	7.49E 20	1.016	32415.000	1.08E 19	1 06E 19	0.981	32690.000	1.53E 19	1.54E-19	1.004
32145.000	7.41E 20	7.40E 20	0.999	32420.000	1.09E 19	1.07E 19	0.985	32695.000	1.55E 19	1.54E-19	0.995
32150.000	7.44E 20	7.43E 20	0.999	32425.000	1.10E 19	1.09E 19	0.994	32700.000	1.56E 19	1.55E-19	0.991
32155.000	7.50E 20	7.61E 20	1.015	32430.000	1.13E 19	1.12E 19	0.990	32705.000	1.54E 19	1.55E-19	1.007
32160.000	7.50E 20	7.53E 20	1.003	32435.000	1.14E 19	1.13E 19	0.991	32710.000	1.55E 19	1.55E 19	0.999
32165.000	7.59E 20	7.70E 20	1.014	32440.000	1.14E 19	1 14E 19	0.996	32715.000	1.54E 19	1.55E 19	1.004
32170.000	7.69E 20	7.76E 20	1.009	32445.000	1.16E 19	1 14E 19	0.987	32720.000	1.53E 19	1.55E-19	1.010

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (6)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
32725.000	1.53E-19	1.54E-19	1.009	33000.000	2.18E 19	2.21E-19	1.013	33275.000	3.24E-19	3.28E-19	1.012
32730.000	1.52E-19	1.56E-19	1.027	33005.000	2.21E-19	2.23E-19	1.009	33280.000	3.29E-19	3.26E-19	0.996
32735.000	1.55E-19	1.56E-19	1.003	33010.000	2.24E-19	2.25E-19	1.004	33285.000	3.23E-19	3.29E-19	1.020
32740.000	1.54E-19	1.55E-19	1.008	33015.000	2.26E-19	2.29E-19	1.011	33290.000	3.32E-19	3.31E-19	0.998
32745.000	1.56E-19	1.57E-19	1.009	33020.000	2.27E-19	2.31E-19	1.019	33295.000	3.30E-19	3.33E-19	1.010
32750.000	1.56E-19	1.58E-19	1.012	33025.000	2.32E-19	2.33E-19	1.004	33300.000	3.37E-19	3.34E-19	0.993
32755.000	1.59E-19	1.58E-19	0.995	33030.000	2.34E-19	2.35E-19	1.003	33305.000	3.35E-19	3.38E-19	1.008
32760.000	1.61E-19	1.60E-19	0.994	33035.000	2.36E-19	2.37E-19	1.006	33310.000	3.36E-19	3.40E-19	1.012
32765.000	1.64E-19	1.62E-19	0.986	33040.000	2.40E 19	2.40E-19	1 001	33315.000	3.42E-19	3.42E-19	1.000
32770.000	1.63E-19	1.63E-19	1.002	33045.000	2.43E 19	2.42E-19	0.997	33320.000	3.39E-19	3.44E-19	1.015
32775.000	1.65E-19	1.65E-19	0.998	33050.000	2.43E-19	2.44E-19	1.004	33325.000	3.47E-19	3.46E-19	0.996
32780.000	1.67E-19	1.66E-19	0.996	33055.000	2.45E 19	2.46E-19	1.005	33330.000	3.47E-19	3.50E-19	1.007
32785.000	1.68E-19	1.68E-19	0.998	33060.000	2.47E 19	2.49E-19	1.006	33335.000	3.48E-19	3.50E-19	1.006
32790.000	1.72E-19	1.69E-19	0.981	33065.000	2.51E 19	2.52E 19	1.003	33340.000	3.50E-19	3.44E-19	0.982
32795.000	1.74E-19	1.71E-19	0.980	33070.000	2.53E 19	2.53E 19	1.000	33345.000	3.48E 19	3.47E-19	0.997
32800.000	1.75E 19	1.73E-19	0.986	33075.000	2.56E 19	2.56E 19	0.999	33350.000	3.47E 19	3.53E-19	1.016
32805.000	1.76E-19	1.76E-19	1.003	33080.000	2.57E 19	2.56E 1	0.997	33355.000	3.52E 19	3.55E-19	1.008
32810.000	1.79E-19	1.78E 19	0.996	33085.000	2.58E 19	2.59E 9	1.002	33360.000	3.54E 19	3.55E-19	1.002
32815.000	1.80E-19	1.80E-19	0.997	33090.000	2.60E 19	2.60E-19	1.001	33365.000	3.55E-19	3.57E-19	1.005
32820.000	1.84E-19	1.84E-19	1.001	33095.000	2.62E 19	2.62E-19	0.999	33370.000	3.55E-19	3.62E-19	1.019
32825.000	1.87E-19	1.86E-19	0.994	33100.000	2.63E 19	2.63E 19	1.002	33375.000	3.57E-19	3.64E-19	1.021
32830.000	1.87E-19	1.87E-19	1.003	33105.000	2.65E 19	2.65E 19	1.000	33380.000	3.61E 19	3.63E-19	1.006
32835.000	1.89E-19	1.89E 19	1.000	33110.000	2.67E 19	2.66E 19	0.996	33385.000	3.67E-19	3.69E-19	1.004
32840.000	1.90E-19	1.90E-19	1.002	33115.000	2.66E 19	2.67E 19	1.005	33390.000	3.68E-19	3.69E-19	1.003
32845.000	1.90E 19	1.91E-19	1.007	33120.000	2.67E 19	2.69E 19	1.008	33395.000	3.73E 19	3.75E-19	1.005
32850.000	1.92E 19	1.93E-19	1.003	33125.000	2.68E 19	2.70E 19	1.006	33400.000	3.75E 19	3.81E-19	1.017
32855.000	1.94E 19	1.94E-19	1.000	33130.000	2.68E 19	2.68E 19	1.002	33405.000	3.78E-19	3.87E-19	1.025
32860.000	1.95E 19	1.95E-19	1.002	33135.000	2.69E 19	2.70E 19	1.002	33410.000	3.81E-19	3.88E-19	1.018
32865.000	1.97E-19	1.97E 19	1.000	33140.000	2.69E 19	2.70E 19	1.004	33415.000	3.88E-19	3.89E-19	1.002
32870.000	1.97E 19	1.99E-19	1.012	33145.000	2.70E 19	2.70E 19	1.000	33420.000	3.88E 19	3.91E-19	1.009
32875.000	2.01E 19	2.02E-19	1.007	33150.000	2.70E 19	2.70E 19	1.002	33425.000	3.93E 19	3.94E-19	1.003
32880.000	2.03E 19	2.03E 19	1.000	33155.000	2.72E 19	2.71E 19	0.997	33430.000	4.00E 19	4.04E-19	1.011
32885.000	2.05E-19	2.04E-19	0.997	33160.000	2.74E 19	2.72E 19	0.994	33435.000	4.03E 19	4.10E-19	1.016
32890.000	2.05E 19	2.07E 19	1.008	33165.000	2.75E 19	2.73E 19	0.994	33440.000	4.07E 19	4.02E-19	0.988
32895.000	2.05E 19	2.06E-19	1.004	33170.000	2.75E 19	2.75E 19	1.000	33445.000	4.10E 19	4.09E-19	0.997
32900.000	2.04E 19	2.06E 19	1.008	33175.000	2.78E 19	2.77E 19	0.998	33450.000	4.11E 19	4.16E-19	1.011
32905.000	2.03E 19	2.05E 19	1.009	33180.000	2.79E 19	2.79E 19	1.000	33455.000	4.15E-19	4.18E-19	1.008
32910.000	2.04E 19	2.05E 19	1.005	33185.000	2.82E 19	2.81E 19	0.997	33460.000	4.18E 19	4.19E-19	1.002
32915.000	2.03E 19	2.05E-19	1.012	33190.000	2.84E 19	2.83E 19	0.995	33465.000	4.19E-19	4.19E-19	0.999
32920.000	2.04E 19	2.06E 19	1.010	33195.000	2.84E 19	2.84E 19	1.001	33470.000	4.20E 19	4.18E-19	0.995
32925.000	2.03E 19	2.07E 19	1.017	33200.000	2.87E 19	2.86E 19	0.996	33475.000	4.20E-19	4.21E 19	1.003
32930.000	2.05E 19	2.06E-19	1.006	33205.000	2.91E 19	2.90E 19	0.996	33480.000	4.21E-19	4.26E-19	1.013
32935.000	2.07E 19	2.06E 19	0.998	33210.000	2.96E 19	2.93E 19	0.990	33485.000	4.20E 19	4.28E-19	1.018
32940.000	2.06E 19	2.08E 19	1.012	33215.000	2.97E 19	2.96E 19	0.995	33490.000	4.25E-19	4.28E-19	1.008
32945.000	2.07E-19	2.10E 19	1.013	33220.000	3.02E 19	2.99E 19	0.991	33495.000	4.25E 19	4.29E 19	1.009
32950.000	2.06E 19	2.10E 19	1.022	33225.000	3.07E 19	3.03E 19	0.987	33500.000	4.26E 19	4.30E-19	1.010
32955.000	2.09E 19	2.11E 19	1.012	33230.000	3.09E 19	3.06E 19	0.991	33505.000	4.31E 19	4.33E-19	1.005
32960.000	2.09E 19	2.12E 19	1.017	33235.000	3.12E 19	3.07E 19	0.985	33510.000	4.34E 19	4.37E-19	1.006
32965.000	2.10E 19	2.13E 19	1.014	33240.000	3.12E 19	3.12E 19	1.002	33515.000	4.35E 19	4.39E-19	1.009
32970.000	2.11E 19	2.14E 19	1.014	33245.000	3 19E 19	3.15E 19	0.989	33520.000	4.36E 19	4.41E-19	1.013
32975.000	2.13E 19	2.15E 19	1.008	33250.000	3.21E 19	3 18E 19	0.989	33525.000	4.39E 19	4.45E-19	1.014
32980.000	2.14E 19	2.15E 19	1.006	33255.000	3.20E 19	3.21E 19	1.003	33530.000	4.41E 19	4.43E-19	1.006
32985.000	2.12E 19	2.17E 19	1.022	33260.000	3.23E 19	3.24E 19	1 004	33535.000	4.40E 19	4.42E-19	1.005
32990.000	2.17E 19	2.18E 19	1.006	33265.000	3.23E 19	3 27E 19	1.011	33540.000	4.45E 19	4.44E-19	0.997
32995.000	2.16E 19	2.20E 19	1.017	33270.000	3.25E 19	3.27E 19	1.008	33545.000	4.46E 19	4.48E-19	1.004

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (7)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
33550.000	4.52E-19	4.52E-19	1.000	33825.000	6.21E-19	6.28E-19	1.010	34100.000	8.72E-19	8.76E-19	1.005
33555.000	4.54E-19	4.55E-19	1.001	33830.000	6.28E-19	6.32E-19	1.006	34105.000	8.79E-19	8.87E-19	1.009
33560.000	4.56E-19	4.57E-19	1.002	33835.000	6.29E-19	6.34E-19	1.008	34110.000	8.85E-19	8.97E-19	1.014
33565.000	4.57E-19	4.61E-19	1.009	33840.000	6.35E-19	6.38E-19	1.005	34115.000	8.90E-19	9.01E-19	1.012
33570.000	4.59E-19	4.67E-19	1.016	33845.000	6.42E-19	6.41E-19	0.998	34120.000	8.96E-19	8.98E-19	1.002
33575.000	4.71E-19	4.66E-19	0.989	33850.000	6.48E-19	6.47E-19	0.999	34125.000	9.07E-19	9.11E-19	1.004
33580.000	4.70E-19	4.67E-19	0.994	33855.000	6.52E-19	6.59E-19	1.011	34130.000	9.18E-19	9.15E-19	0.997
33585.000	4.70E-19	4.74E-19	1.009	33860.000	6.61E-19	6.70E-19	1.014	34135.000	9.23E-19	9.26E-19	1.003
33590.000	4.77E-19	4.78E-19	1.003	33865.000	6.68E-19	6.73E-19	1.007	34140.000	9.26E-19	9.36E-19	1.010
33595.000	4.79E-19	4.79E-19	1.001	33870.000	6.69E-19	6.72E-19	1.004	34145.000	9.33E-19	9.44E-19	1.012
33600.000	4.83E-19	4.83E-19	0.999	33875.000	6.79E-19	6.83E-19	1.005	34150.000	9.36E-19	9.48E-19	1.013
33605.000	4.89E-19	4.87E-19	0.995	33880.000	6.81E-19	6.89E-19	1.012	34155.000	9.42E-19	9.49E-19	1.008
33610.000	4.88E-19	4.90E-19	1.005	33885.000	6.89E-19	6.96E-19	1.011	34160.000	9.46E-19	9.57E-19	1.011
33615.000	4.93E-19	4.98E-19	1.011	33890.000	7.00E-19	7.02E-19	1.002	34165.000	9.50E-19	9.60E-19	1.011
33620.000	4.96E-19	5.02E-19	1.012	33895.000	7.02E-19	7.03E-19	1.002	34170.000	9.51E-19	9.61E-19	1.011
33625.000	4.98E-19	5.06E-19	1.016	33900.000	7.02E-19	7.05E-19	1.004	34175.000	9.54E-19	9.62E-19	1.009
33630.000	5.03E-19	5.09E-19	1.012	33905.000	7.05E-19	7.13E-19	1.011	34180.000	9.53E-19	9.65E-19	1.013
33635.000	5.09E-19	5.09E-19	1.001	33910.000	7.10E-19	7.21E-19	1.016	34185.000	9.54E-19	9.66E-19	1.013
33640.000	5.10E-19	5.11E-19	1.001	33915.000	7.20E-19	7.24E-19	1.006	34190.000	9.51E-19	9.65E-19	1.015
33645.000	5.15E-19	5.16E-19	1.003	33920.000	7.21E-19	7.27E-19	1.009	34195.000	9.58E-19	9.68E-19	1.010
33650.000	5.18E-19	5.23E-19	1.010	33925.000	7.29E-19	7.27E-19	0.998	34200.000	9.59E-19	9.72E-19	1.014
33655.000	5.20E-19	5.27E-19	1.013	33930.000	7.30E-19	7.28E-19	0.997	34205.000	9.58E-19	9.67E-19	1.009
33660.000	5.29E-19	5.31E-19	1.003	33935.000	7.31E-19	7.34E-19	1.004	34210.000	9.68E-19	9.75E-19	1.007
33665.000	5.34E-19	5.33E-19	0.999	33940.000	7.41E-19	7.42E-19	1.001	34215.000	9.68E-19	9.80E-19	1.012
33670.000	5.37E-19	5.37E-19	1.001	33945.000	7.41E-19	7.46E-19	1.007	34220.000	9.73E-19	9.82E-19	1.009
33675.000	5.45E-19	5.48E-19	1.005	33950.000	7.50E-19	7.56E-19	1.007	34225.000	9.75E-19	9.90E-19	1.015
33680.000	5.43E-19	5.51E-19	1.015	33955.000	7.46E-19	7.53E-19	1.010	34230.000	9.87E-19	9.98E-19	1.012
33685.000	5.51E-19	5.51E-19	1.000	33960.000	7.49E-19	7.53E-19	1.006	34235.000	9.87E-19	1.00E-18	1.017
33690.000	5.52E-19	5.51E-19	0.998	33965.000	7.60E-19	7.56E-19	0.995	34240.000	9.98E-19	1.00E-18	1.004
33695.000	5.55E-19	5.54E-19	0.998	33970.000	7.58E-19	7.61E-19	1.004	34245.000	1.00E-18	1.01E-18	1.007
33700.000	5.56E-19	5.58E-19	1.004	33975.000	7.68E-19	7.68E-19	1.000	34250.000	1.01E-18	1.01E-18	1.005
33705.000	5.52E-19	5.59E-19	1.012	33980.000	7.71E-19	7.75E-19	1.006	34255.000	1.01E-18	1.02E-18	1.011
33710.000	5.54E-19	5.56E-19	1.003	33985.000	7.71E-19	7.78E-19	1.009	34260.000	1.00E-18	1.03E-18	1.026
33715.000	5.54E-19	5.56E-19	1.004	33990.000	7.71E-19	7.80E-19	1.012	34265.000	1.01E-18	1.03E-18	1.021
33720.000	5.55E-19	5.64E-19	1.017	33995.000	7.75E-19	7.81E-19	1.008	34270.000	1.02E-18	1.03E-18	1.013
33725.000	5.56E-19	5.60E-19	1.007	34000.000	7.77E-19	7.81E-19	1.005	34275.000	1.02E-18	1.04E-18	1.018
33730.000	5.56E-19	5.60E-19	1.007	34005.000	7.75E-19	7.84E-19	1.011	34280.000	1.04E-18	1.05E-18	1.006
33735.000	5.60E-19	5.67E-19	1.013	34010.000	7.81E-19	7.87E-19	1.008	34285.000	1.05E-18	1.06E-18	1.008
33740.000	5.62E-19	5.68E-19	1.011	34015.000	7.73E-19	7.86E-19	1.017	34290.000	1.06E-18	1.07E-18	1.011
33745.000	5.66E-19	5.70E-19	1.008	34020.000	7.79E-19	7.87E-19	1.010	34295.000	1.07E-18	1.07E-18	1.004
33750.000	5.66E-19	5.69E-19	1.006	34025.000	7.85E-19	7.93E-19	1.011	34300.000	1.08E-18	1.08E-18	1.001
33755.000	5.66E-19	5.75E-19	1.016	34030.000	7.90E-19	7.93E-19	1.004	34305.000	1.09E-18	1.09E-18	1.002
33760.000	5.79E-19	5.80E-19	1.003	34035.000	7.93E-19	7.96E-19	1.003	34310.000	1.09E-18	1.10E-18	1.011
33765.000	5.82E-19	5.85E-19	1.006	34040.000	7.96E-19	8.03E-19	1.009	34315.000	1.10E-18	1.11E-18	1.012
33770.000	5.93E-19	5.93E-19	1.000	34045.000	8.06E-19	8.11E-19	1.006	34320.000	1.11E-18	1.12E-18	1.012
33775.000	5.96E-19	6.02E-19	1.010	34050.000	8.14E-19	8.13E-19	0.999	34325.000	1.11E-18	1.13E-18	1.016
33780.000	6.03E-19	6.06E-19	1.005	34055.000	8.10E-19	8.16E-19	1.007	34330.000	1.13E-18	1.13E-18	1.003
33785.000	6.05E-19	6.05E-19	1.001	34060.000	8.27E-19	8.18E-19	0.989	34335.000	1.13E-18	1.14E-18	1.005
33790.000	6.08E-19	6.11E-19	1.005	34065.000	8.27E-19	8.30E-19	1.003	34340.000	1.14E-18	1.15E-18	1.005
33795.000	6.14E-19	6.18E-19	1.006	34070.000	8.32E-19	8.39E-19	1.008	34345.000	1.16E-18	1.16E-18	1.000
33800.000	6.15E-19	6.22E-19	1.011	34075.000	8.37E-19	8.48E-19	1.013	34350.000	1.16E-18	1.17E-18	1.007
33805.000	6.21E-19	6.24E-19	1.004	34080.000	8.51E-19	8.55E-19	1.005	34355.000	1.16E-18	1.17E-18	1.010
33810.000	6.16E-19	6.25E-19	1.014	34085.000	8.56E-19	8.59E-19	1.004	34360.000	1.17E-18	1.18E-18	1.008
33815.000	6.19E-19	6.25E-19	1.010	34090.000	8.58E-19	8.66E-19	1.009	34365.000	1.17E-18	1.19E-18	1.013
33820.000	6.21E-19	6.27E-19	1.009	34095.000	8.63E-19	8.67E-19	1.005	34370.000	1.18E-18	1.20E-18	1.016

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (8)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
34375.000	1.18E-18	1.20E-18	1.019	34650.000	1.54E-18	1.54E-18	1.001	34925.000	2.05E-18	2.06E-18	1.005
34380.000	1.20E-18	1.21E-18	1.008	34655.000	1.54E-18	1.56E-18	1.011	34930.000	2.05E-18	2.06E-18	1.007
34385.000	1.21E-18	1.21E-18	1.003	34660.000	1.55E-18	1.56E-18	1.009	34935.000	2.06E-18	2.07E-18	1.007
34390.000	1.22E-18	1.22E-18	0.996	34665.000	1.56E-18	1.57E-18	1.004	34940.000	2.08E-18	2.10E-18	1.008
34395.000	1.22E-18	1.23E-18	1.007	34670.000	1.57E-18	1.57E-18	1.001	34945.000	2.08E-18	2.11E-18	1.013
34400.000	1.22E-18	1.23E-18	1.006	34675.000	1.56E-18	1.57E-18	1.006	34950.000	2.11E-18	2.12E-18	1.003
34405.000	1.23E-18	1.24E-18	1.008	34680.000	1.57E-18	1.58E-18	1.004	34955.000	2.09E-18	2.13E-18	1.019
34410.000	1.22E-18	1.24E-18	1.019	34685.000	1.58E-18	1.58E-18	1.001	34960.000	2.12E-18	2.15E-18	1.013
34415.000	1.22E-18	1.24E-18	1.020	34690.000	1.58E-18	1.59E-18	1.005	34965.000	2.13E-18	2.14E-18	1.005
34420.000	1.25E-18	1.25E-18	1.000	34695.000	1.58E-18	1.59E-18	1.009	34970.000	2.14E-18	2.15E-18	1.003
34425.000	1.25E-18	1.26E-18	1.007	34700.000	1.60E-18	1.60E-18	1.001	34975.000	2.14E-18	2.16E-18	1.008
34430.000	1.25E-18	1.26E-18	1.012	34705.000	1.61E-18	1.60E-18	0.997	34980.000	2.15E-18	2.17E-18	1.007
34435.000	1.26E-18	1.27E-18	1.010	34710.000	1.62E-18	1.61E-18	0.993	34985.000	2.14E-18	2.16E-18	1.012
34440.000	1.26E-18	1.27E-18	1.011	34715.000	1.63E-18	1.63E-18	0.999	34990.000	2.15E-18	2.17E-18	1.010
34445.000	1.26E-18	1.28E-18	1.014	34720.000	1.62E-18	1.64E-18	1.011	34995.000	2.14E-18	2.17E-18	1.015
34450.000	1.27E-18	1.28E-18	1.011	34725.000	1.64E-18	1.64E-18	1.003	35000.000	2.13E-18	2.17E-18	1.018
34455.000	1.27E-18	1.29E-18	1.014	34730.000	1.65E-18	1.66E-18	1.004	35005.000	2.14E-18	2.16E-18	1.012
34460.000	1.29E-18	1.30E-18	1.006	34735.000	1.66E-18	1.67E-18	1.005	35010.000	2.13E-18	2.17E-18	1.017
34465.000	1.29E-18	1.30E-18	1.011	34740.000	1.67E-18	1.68E-18	1.008	35015.000	2.13E-18	2.17E-18	1.019
34470.000	1.29E-18	1.31E-18	1.017	34745.000	1.68E-18	1.69E-18	1.004	35020.000	2.14E-18	2.17E-18	1.016
34475.000	1.30E-18	1.31E-18	1.010	34750.000	1.70E-18	1.70E-18	0.999	35025.000	2.14E-18	2.18E-18	1.019
34480.000	1.30E-18	1.32E-18	1.013	34755.000	1.72E-18	1.72E-18	0.998	35030.000	2.17E-18	2.19E-18	1.008
34485.000	1.31E-18	1.32E-18	1.009	34760.000	1.74E-18	1.73E-18	0.997	35035.000	2.16E-18	2.20E-18	1.017
34490.000	1.31E-18	1.32E-18	1.008	34765.000	1.74E-18	1.75E-18	1.005	35040.000	2.16E-18	2.21E-18	1.025
34495.000	1.31E-18	1.33E-18	1.013	34770.000	1.76E-18	1.77E-18	1.005	35045.000	2.20E-18	2.22E-18	1.009
34500.000	1.32E-18	1.33E-18	1.006	34775.000	1.78E-18	1.78E-18	1.002	35050.000	2.22E-18	2.24E-18	1.007
34505.000	1.32E-18	1.33E-18	1.009	34780.000	1.81E-18	1.80E-18	0.994	35055.000	2.23E-18	2.25E-18	1.010
34510.000	1.33E-18	1.34E-18	1.007	34785.000	1.82E-18	1.82E-18	0.999	35060.000	2.25E-18	2.27E-18	1.011
34515.000	1.34E-18	1.35E-18	1.008	34790.000	1.84E-18	1.84E-18	1.000	35065.000	2.26E-18	2.30E-18	1.016
34520.000	1.35E-18	1.36E-18	1.008	34795.000	1.84E-18	1.85E-18	1.006	35070.000	2.29E-18	2.31E-18	1.007
34525.000	1.35E-18	1.37E-18	1.012	34800.000	1.85E-18	1.86E-18	1.005	35075.000	2.30E-18	2.32E-18	1.008
34530.000	1.36E-18	1.37E-18	1.008	34805.000	1.87E-18	1.87E-18	1.001	35080.000	2.31E-18	2.33E-18	1.007
34535.000	1.38E-18	1.38E-18	1.000	34810.000	1.86E-18	1.88E-18	1.012	35085.000	2.35E-18	2.33E-18	0.993
34540.000	1.38E-18	1.39E-18	1.010	34815.000	1.88E-18	1.89E-18	1.005	35090.000	2.35E-18	2.35E-18	0.998
34545.000	1.39E-18	1.40E-18	1.007	34820.000	1.88E-18	1.89E-18	1.007	35095.000	2.37E-18	2.36E-18	0.994
34550.000	1.40E-18	1.40E-18	0.997	34825.000	1.90E-18	1.89E-18	0.996	35100.000	2.36E-18	2.37E-18	1.006
34555.000	1.40E-18	1.42E-18	1.013	34830.000	1.89E-18	1.91E-18	1.009	35105.000	2.38E-18	2.39E-18	1.003
34560.000	1.42E-18	1.43E-18	1.008	34835.000	1.90E-18	1.92E-18	1.008	35110.000	2.40E-18	2.40E-18	0.998
34565.000	1.43E-18	1.43E-18	1.001	34840.000	1.92E-18	1.91E-18	0.997	35115.000	2.41E-18	2.40E-18	0.996
34570.000	1.43E-18	1.44E-18	1.004	34845.000	1.91E-18	1.91E-18	1.000	35120.000	2.41E-18	2.41E-18	0.998
34575.000	1.43E-18	1.44E-18	1.010	34850.000	1.92E-18	1.92E-18	0.998	35125.000	2.41E-18	2.41E-18	0.999
34580.000	1.44E-18	1.45E-18	1.009	34855.000	1.90E-18	1.92E-18	1.013	35130.000	2.41E-18	2.42E-18	1.004
34585.000	1.45E-18	1.47E-18	1.013	34860.000	1.92E-18	1.93E-18	1.005	35135.000	2.42E-18	2.43E-18	1.003
34590.000	1.45E-18	1.47E-18	1.011	34865.000	1.93E-18	1.93E-18	1.001	35140.000	2.45E-18	2.43E-18	0.993
34595.000	1.46E-18	1.46E-18	1.003	34870.000	1.93E-18	1.93E-18	1.002	35145.000	2.46E-18	2.45E-18	0.995
34600.000	1.47E-18	1.47E-18	1.003	34875.000	1.94E-18	1.95E-18	1.004	35150.000	2.46E-18	2.46E-18	0.998
34605.000	1.48E-18	1.49E-18	1.004	34880.000	1.95E-18	1.95E-18	1.001	35155.000	2.46E-18	2.46E-18	1.002
34610.000	1.49E-18	1.49E-18	1.002	34885.000	1.96E-18	1.97E-18	1.003	35160.000	2.46E-18	2.47E-18	1.005
34615.000	1.50E-18	1.50E-18	1.003	34890.000	1.99E-18	1.98E-18	0.996	35165.000	2.46E-18	2.48E-18	1.006
34620.000	1.50E-18	1.50E-18	1.003	34895.000	1.98E-18	1.99E-18	1.007	35170.000	2.46E-18	2.47E-18	1.006
34625.000	1.51E-18	1.51E-18	1.002	34900.000	2.00E-18	2.00E-18	1.002	35175.000	2.46E-18	2.47E-18	1.002
34630.000	1.51E-18	1.52E-18	1.007	34905.000	2.01E-18	2.01E-18	1.002	35180.000	2.49E-18	2.48E-18	0.998
34635.000	1.51E-18	1.53E-18	1.012	34910.000	2.02E-18	2.03E-18	1.004	35185.000	2.48E-18	2.49E-18	1.003
34640.000	1.52E-18	1.54E-18	1.012	34915.000	2.03E-18	2.04E-18	1.006	35190.000	2.51E-18	2.49E-18	0.992
34645.000	1.53E-18	1.54E-18	1.004	34920.000	2.03E-18	2.05E-18	1.012	35195.000	2.53E-18	2.50E-18	0.987

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (9)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
35200.000	2.52E-18	2.51E-18	0.997	35475.000	3.12E-18	3.08E 18	0.987	35750.000	4.04E-18	4.01E-18	0.993
35205.000	2.54E-18	2.53E-18	0.99?	35480.000	3.15E-18	3.08E 18	0.977	35755.000	4.03E-18	4.00E-18	0.991
35210.000	2.57E-18	2.54E-18	0.990	35485.000	3.14E-18	3.08E 18	0.981	35760.000	4.02E-18	4.00E-18	0.996
35215.000	2.60E-18	2.57E-18	0.989	35490.000	3.15E-18	3.09E 18	0.982	35765.000	4.02E-18	4.01E-18	0.998
35220.000	2.61E-18	2.60E-18	0.997	35495.000	3.15E-18	3.11E-18	0.988	35770.000	4.04E-18	4.03E-18	0.996
35225.000	2.64E-18	2.62E-18	0.993	35500.000	3.19E-18	3.13E 18	0.980	35775.000	4.02E-18	4.03E-18	1.004
35230.000	2.65E-18	2.66E-18	1.003	35505.000	3.22E 18	3.14E 18	0.976	35780.000	4.05E-18	4.04E-18	0.997
35235.000	2.70E-18	2.67E-18	0.990	35510.000	3.21E-18	3.15E 18	0.983	35785.000	4.03E-18	4.07E-18	1.009
35240.000	2.72E 18	2.69E-18	0.990	35515.000	3.25E 18	3.18E 18	0.977	35790.000	4.07E-18	4.06E-18	0.998
35245.000	2.77E-18	2.72E-18	0.982	35520.000	3.28E 18	3.20E 18	0.975	35795.000	4.06E-18	4.07E-18	1.003
35250.000	2.79E 18	2.75E-18	0.984	35525.000	3.28E 18	3.20E 18	0.976	35800.000	4.04E-18	4.09E-18	1.012
35255.000	2.79E-18	2.79E-18	1.000	35530.000	3.31E 18	3.24E 18	0.978	35805.000	4.06E-18	4.09E-18	1.008
35260.000	2.84E-18	2.82E-18	0.992	35535.000	3.36E 18	3.27E-18	0.974	35810.000	4.11E-18	4.10E-18	0.999
35265.000	2.83E-18	2.83E-18	1.000	35540.000	3.40E 18	3.31E 18	0.972	35815.000	4.11E-18	4.13E-18	1.004
35270.000	2.84E 18	2.84E-18	0.999	35545.000	3.45E 18	3.33E 18	0.966	35820.000	4.14E 18	4.14E-18	1.000
35275.000	2.88E-18	2.96E-18	0.993	35550.000	3.45E 18	3.35E 18	0.972	35825.000	4.15E-18	4.14E-18	0.997
35280.000	2.90E-18	2.90E-18	0.999	35555.000	3.48E 18	3.37E 18	0.969	35830.000	4.16E-18	4.15E-18	0.997
35285.000	2.91E-18	2.90E-18	0.997	35560.000	3.49E 18	3.40E 18	0.974	35835.000	4.18E-18	4.18E-18	1.000
35290.000	2.90E-18	2.90E-18	1.001	35565.000	3.51E 18	3.42E 18	0.976	35840.000	4.19E-18	4.21E-18	1.004
35295.000	2.89E-18	2 90E-18	1.005	35570.000	3.53E 18	3.45E 18	0.976	35845.000	4.24E-18	4.24E-18	0.999
35300.000	2.88E-18	2 90E-18	1.008	35575.000	3.54E 18	3.47E 18	0.981	35850.000	4.24E-18	4.28E-18	1.010
35305.000	2.89E-18	2 88E-18	0.998	35580.000	3.54E 18	3.46E 18	0.978	35855.000	4.30E-18	4.29E-18	0.998
35310.000	2.87E 18	2.88E-18	1.004	35585.000	3.57E 18	3.47E 18	0.972	35860.000	4.28E-18	4.29E-18	1.002
35315.000	2.88E-18	2.88E-18	0.999	35590.000	3.54E 18	3.48E 18	0.984	35865.000	4.29E-18	4.27E-18	0.996
35320.000	2.89E-18	2.87E 18	0.992	35595.000	3.55E 18	3.49E 18	0.984	35870.000	4.31E-18	4.27E-18	0.990
35325.000	2.87E-18	2.86E-18	0.998	35600.000	3.57E 18	3.49E 18	0.978	35875.000	4.31E-18	4.31E-18	0.999
35330.000	2.85E-18	2.87E 18	1.008	35605.000	3.56E 18	3.50E 18	0.982	35880.000	4.34E-18	4.34E-18	0.999
35335.000	2.88E-18	2.86E 18	0.993	35610.000	3.58E 18	3.50E 18	0.978	35885.000	4.38E-18	4.35E-18	0.993
35340.000	2.87E-18	2.86E-18	0.995	35615.000	3.60E 18	3.50E 18	0.972	35890.000	4.36E-18	4.36E-18	0.999
35345.000	2.88E-18	2.86E-18	0.991	35620.000	3.58E 18	3.50E 18	0.977	35895.000	4.37E 18	4.39E-18	1.004
35350.000	2.91E-18	2.86E 18	0.982	35625.000	3.58E 18	3.49E 18	0.975	35900.000	4.42E-18	4.38E-18	0.991
35355.000	2.89E-18	2.86E-18	0.990	35630.000	3.57E 18	3.50E 18	0.980	35905.000	4.40E-18	4.40E-18	0.999
35360.000	2.92E 18	2.88E-18	0.985	35635.000	3.62E 18	3.52E 18	0.972	35910.000	4.41E-18	4.42E-18	1.002
35365.000	2.92E-18	2.89E 18	0.989	35640.000	3.59E 18	3.54E 18	0.985	35915.000	4.42E 18	4.44E-18	1.004
35370.000	2.93E-18	2.89E-18	0.987	35645.000	3.62E 18	3.53E 18	0.975	35920.000	4.47E-18	4.44E-18	0.993
35375.000	2.97E 18	2.90E 18	0.975	35650.000	3.59E 18	3.55E 18	0.989	35925.000	4.42E-18	4.44E-18	1.004
35380.000	2.97E-18	2.93E 18	0.986	35655.000	3.67E 18	3.57E 18	0.972	35930.000	4.44E-18	4.43E-18	0.998
35385.000	3.00E 18	2 94E-18	0.981	35660.000	3.64E 18	3.58E 18	0.984	35935.000	4.48E 18	4.42E-18	0.987
35390.000	3.03E 18	2.96E-18	0.976	35665.000	3.63E 18	3.59E 18	0.990	35940.000	4.49E 18	4.43E-18	0.987
35395.000	3.00E 18	2.97E-18	0.991	35670.000	3.68E 18	3.61E 18	0.981	35945.000	4.49E 18	4.47E-18	0.996
35400.000	3.05E 18	2.99E 18	0.981	35675.000	3.73E 18	3.62E 18	0.971	35950.000	4.50E-18	4.47E-18	0.992
35405.000	3.06E-18	3.02E 18	0.987	35680.000	3.75E 18	3.64E 18	0.970	35955.000	4.49E-18	4.49E-18	0.999
35410.000	3.07E-18	3.03E 18	0.988	35685.000	3.78E 18	3.66E 18	0.968	35960.000	4.53E-18	4.55E-18	1.004
35415.000	3.09E 18	3.04E 18	0.985	35690.000	3.83E 18	3.69E 18	0.963	35965.000	4.55E 18	4.52E 18	0.993
35420.000	3.09E 18	3.05E 18	0.988	35695.000	3.83E 18	3.74E 18	0.977	35970.000	4.57E 18	4.51E 18	0.987
35425.000	3.10E 18	3.06E 18	0.986	35700.000	3.88E 18	3.76E 18	0.969	35975.000	4.55E 18	4.56E-18	1.002
35430.000	3.10E 18	3.06E 18	0.988	35705.000	3.92E 18	3.82E 18	0.975	35980.000	4.59E 18	4.62E 18	1.007
35435.000	3.11E 18	3.07E 18	0.987	35710.000	3.91E 18	3.92E 18	1.001	35985.000	4.58E 18	4.61E 18	1.008
35440.000	3.09E 18	3.07E 18	0.994	35715.000	3.95E 18	3.91E 18	0.989	35990.000	4.63E 18	4.65E-18	1.004
35445.000	3.10E 18	3.07E 18	0.989	35720.000	3.96E 18	3.95E 18	0.996	35995.000	4.67E 18	4.67E-18	1.001
35450.000	3.11E 18	3.06E 18	0.985	35725.000	3.98E 18	3.95E 18	0.992	36000.000	4.69E 18	4.69E 18	1.001
35455.000	3.10E 18	3.07E 18	0.990	35730.000	4.00E 18	3.96E 18	0.990	36005.000	4.73E 18	4.72E 18	0.998
35460.000	3.12E 18	3.07E 18	0.983	35735.000	4.00E 18	4.01E 18	1.002	36010.000	4.79E 18	4.75E 18	0.992
35465.000	3.13E 18	3.07E 18	0.981	35740.000	4.02E 18	3.98E 18	0.990	36015.000	4.80E 18	4.78E 18	0.997
35470.000	3.12E 18	3.07E 18	0.985	35745.000	4.04E 18	4.01E 18	0.992	36020.000	4.81E 18	4.80E 18	0.998

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (10)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
36025.000	4.84E-18	4.79E-18	0.990	36300.000	5.54E-18	5.51E-18	0.994	36575.000	6.40E-18	6.43E-18	1.005
36030.000	4.86E-18	4.79E-18	0.986	36305.000	5.55E-18	5.54E-18	0.999	36580.000	6.48E-18	6.44E-18	0.994
36035.000	4.84E-18	4.84E-18	0.999	36310.000	5.59E-18	5.57E-18	0.996	36585.000	6.52E-18	6.48E-18	0.994
36040.000	4.88E-18	4.86E-18	0.996	36315.000	5.59E-18	5.61E-18	1.003	36590.000	6.47E-18	6.48E-18	1.002
36045.000	4.89E-18	4.87E-18	0.995	36320.000	5.61E-18	5.64E-18	1.005	36595.000	6.51E-18	6.50E-18	0.998
36050.000	4.91E-18	4.87E-18	0.991	36325.000	5.65E-18	5.6 E-18	0.997	36600.000	6.50E-18	6.51E-18	1.002
36055.000	4.91E-18	4.91E-18	1.000	36330.000	5.68E-18	5.66E-18	0.996	36605.000	6.54E-18	6.54E-18	0.999
36060.000	4.93E-18	4.91E-18	0.995	36335.000	5.67E-18	5.68E-18	1.002	36610.000	6.54E-18	6.57E-18	1.005
36065.000	4.95E-18	4.90E-18	0.989	36340.000	5.72E-18	5.71E-18	0.998	36615.000	6.54E-18	6.54E-18	1.000
36070.000	4.95E-18	4.91E-18	0.993	36345.000	5.74E-18	5.76E-18	1.004	36620.000	6.58E-18	6.52E-18	0.991
36075.000	4.89E-18	4.90E-18	1.001	36350.000	5.73E-18	5.79E-18	1.010	36625.000	6.55E-18	6.53E-18	0.998
36080.000	4.93E-18	4.92E-18	0.998	36355.000	5.81E-18	5.78E-18	0.995	36630.000	6.52E-18	6.47E-18	0.992
36085.000	4.94E-18	4.93E-18	0.999	36360.000	5.83E-18	5.78E-18	0.991	36635.000	6.55E-18	6.53E-18	0.997
36090.000	4.94E-18	4.92E-18	0.996	36365.000	5.83E-18	5.79E-18	0.994	36640.000	6.53E-18	6.60E-18	1.011
36095.000	4.97E-18	4.94E-18	0.994	36370.000	5.87E-18	5.85E-18	0.996	36645.000	6.53E-18	6.60E-18	1.011
36100.000	5.00E-18	4.93E-18	0.986	36375.000	5.83E-18	5.83E-18	1.000	36650.000	6.57E-18	6.63E-18	1.009
36105.000	5.00E-18	4.95E-18	0.990	36380.000	5.84E-18	5.81E-18	0.994	36655.000	6.62E-18	6.64E-18	1.003
36110.000	5.01E-18	4.99E-18	0.996	36385.000	5.89E-18	5.81E-18	0.986	36660.000	6.63E-18	6.64E-18	1.002
36115.000	5.03E-18	5.03E-18	1.000	36390.000	5.90E-18	5.87E-18	0.995	36665.000	6.66E-18	6.66E-18	1.000
36120.000	5.01E-18	5.03E-18	1.003	36395.000	5.84E-18	5.88E-18	1.006	36670.000	6.66E-18	6.71E-18	1.008
36125.000	5.04E-18	5.02E-18	0.997	36400.000	5.86E-18	5.87E-18	1.001	36675.000	6.73E-18	6.73E-18	1.000
36130.000	5.04E-18	5.03E-18	0.998	36405.000	5.88E-18	5.86E-18	0.997	36680.000	6.75E-18	6.74E-18	0.998
36135.000	5.01E-18	5.04E-18	1.007	36410.000	5.84E-18	5.83E-18	0.998	36685.000	6.74E-18	6.75E-18	1.002
36140.000	5.10E-18	5.02E-18	0.985	36415.000	5.82E-18	5.79E-18	0.996	36690.000	6.78E-18	6.77E-18	0.998
36145.000	5.09E-18	5.05E-18	0.992	36420.000	5.82E-18	5.78E-18	0.993	36695.000	6.76E-18	6.80E-18	1.006
36150.000	5.11E-18	5.08E-18	0.994	36425.000	5.84E-18	5.79E-18	0.991	36700.000	6.80E-18	6.83E-18	1.005
36155.000	5.13E-18	5.10E-18	0.994	36430.000	5.82E-18	5.80E-18	0.996	36705.000	6.77E-18	6.85E-18	1.012
36160.000	5.11E-18	5.12E-18	1.003	36435.000	5.77E-18	5.78E-18	1.002	36710.000	6.81E-18	6.84E-18	1.005
36165.000	5.15E-18	5.15E-18	1.001	36440.000	5.80E-18	5.78E-18	0.997	36715.000	6.82E-18	6.85E-18	1.005
36170.000	5.17E-18	5.18E-18	1.001	36445.000	5.82E-18	5.79E-18	0.995	36720.000	6.79E-18	6.87E-18	1.012
36175.000	5.23E-18	5.19E-18	0.993	36450.000	5.80E-18	5.74E-18	0.990	36725.000	6.87E-18	6.87E-18	1.000
36180.000	5.26E-18	5.21E-18	0.990	36455.000	5.81E-18	5.79E-18	0.997	36730.000	6.87E-18	6.93E-18	1.009
36185.000	5.27E-18	5.22E-18	0.990	36460.000	5.84E-18	5.83E-18	0.998	36735.000	6.95E-18	6.98E-18	1.004
36190.000	5.30E-18	5.22E-18	0.984	36465.000	5.86E-18	5.82E-18	0.993	36740.000	6.98E-18	7.01E-18	1.005
36195.000	5.31E-18	5.22E-18	0.982	36470.000	5.85E-18	5.86E-18	1.002	36745.000	7.00E-18	7.06E-18	1.009
36200.000	5.31E-18	5.24E-18	0.988	36475.000	5.91E-18	5.87E-18	0.993	36750.000	7.04E-18	7.09E-18	1.007
36205.000	5.32E-18	5.26E-18	0.990	36480.000	5.94E-18	5.92E-18	0.996	36755.000	7.06E-18	7.09E-18	1.005
36210.000	5.31E-18	5.27E-18	0.992	36485.000	5.96E-18	5.99E-18	1.006	36760.000	7.13E-18	7.08E-18	0.994
36215.000	5.31E-18	5.27E-18	0.993	36490.000	5.95E-18	5.98E-18	1.005	36765.000	7.17E-18	7.16E-18	0.999
36220.000	5.27E-18	5.30E-18	1.006	36495.000	6.01E-18	6.02E-18	1.001	36770.000	7.16E-18	7.16E-18	1.000
36225.000	5.28E-18	5.27E-18	0.998	36500.000	6.03E-18	6.04E-18	1.002	36775.000	7.17E-18	7.16E-18	0.999
36230.000	5.28E-18	5.28E-18	0.999	36505.000	6.06E-18	6.05E-18	0.999	36780.000	7.19E-18	7.18E-18	0.999
36235.000	5.29E-18	5.28E-18	0.998	36510.000	6.11E-18	6.11E-18	1.000	36785.000	7.18E-18	7.17E-18	0.999
36240.000	5.30E-18	5.26E-18	0.992	36515.000	6.13E-18	6.13E-18	0.999	36790.000	7.16E-18	7.16E-18	0.999
36245.000	5.31E-18	5.25E-18	0.989	36520.000	6.14E-18	6.14E-18	0.999	36795.000	7.19E-18	7.15E-18	0.994
36250.000	5.31E-18	5.28E-18	0.995	36525.000	6.17E-18	6.16E-18	0.998	36800.000	7.15E-18	7.16E-18	1.001
36255.000	5.36E-18	5.31E-18	0.990	36530.000	6.22E-18	6.20E-18	0.996	36805.000	7.18E-18	7.13E-18	0.993
36260.000	5.36E-18	5.31E-18	0.991	36535.000	6.22E-18	6.23E-18	1.002	36810.000	7.14E-18	7.11E-18	0.995
36265.000	5.37E-18	5.35E-18	0.996	36540.000	6.24E-18	6.28E-18	1.006	36815.000	7.19E-18	7.11E-18	0.989
36270.000	5.40E-18	5.42E-18	1.003	36545.000	6.30E-18	6.32E-18	1.004	36820.000	7.13E-18	7.17E-18	1.005
36275.000	5.42E-18	5.45E-18	1.005	36550.000	6.31E-18	6.34E-18	1.004	36825.000	7.12E-18	7.14E-18	1.003
36280.000	5.48E-18	5.44E-18	0.993	36555.000	6.33E-18	6.31E-18	0.996	36830.000	7.13E-18	7.17E-18	1.005
36285.000	5.44E-18	5.47E-18	1.006	36560.000	6.37E-18	6.35E-18	0.996	36835.000	7.17E-18	7.19E-18	1.003
36290.000	5.51E-18	5.46E-18	0.991	36565.000	6.38E-18	6.45E-18	1.012	36840.000	7.18E-18	7.17E-18	0.998
36295.000	5.51E-18	5.47E-18	0.993	36570.000	6.44E-18	6.45E-18	1.002	36845.000	7.14E-18	7.20E-18	1.009

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (11)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
36850.000	7.23E-18	7.23E-18	1.000	37125.000	7.99E-18	7.91E-18	0.990	37400.000	8.95E-18	8.72E-18	0.974
36855.000	7.17E-18	7.23E-18	1.009	37130.000	7.96E-18	7.91E-18	0.994	37405.000	8.82E-18	8.67E-18	0.984
36860.000	7.20E-18	7.21E-18	1.001	37135.000	7.95E-18	7.91E-18	0.995	37410.000	8.78E-18	8.64E-18	0.984
36865.000	7.21E-18	7.23E-18	1.003	37140.000	7.96E-18	7.91E-18	0.994	37415.000	8.78E-18	8.60E-18	0.980
36870.000	7.25E-18	7.25E-18	1.001	37145.000	7.95E-18	7.89E-18	0.993	37420.000	8.74E-18	8.56E-18	0.979
36875.000	7.30E-18	7.26E-18	0.994	37150.000	7.96E-18	7.87E-18	0.989	37425.000	8.79E-18	8.57E-18	0.975
36880.000	7.27E-18	7.21E-18	0.992	37155.000	7.98E-18	7.84E-18	0.983	37430.000	8.79E-18	8.58E-18	0.976
36885.000	7.26E-18	7.25E-18	0.998	37160.000	7.93E-18	7.89E-18	0.995	37435.000	8.78E-18	8.58E-18	0.977
36890.000	7.28E-18	7.29E-18	1.001	37165.000	8.04E-18	7.92E-18	0.985	37440.000	8.72E-18	8.57E-18	0.983
36895.000	7.32E-18	7.28E-18	0.995	37170.000	7.98E-18	7.92E-18	0.993	37445.000	8.75E-18	8.60E-18	0.982
36900.000	7.30E-18	7.25E-18	0.993	37175.000	8.05E-18	7.94E-18	0.986	37450.000	8.81E-18	8.62E-18	0.979
36905.000	7.33E-18	7.29E-18	0.994	37180.000	8.04E-18	7.98E-18	0.993	37455.000	8.84E-18	8.65E-18	0.979
36910.000	7.35E-18	7.35E-18	1.000	37185.000	8.04E-18	8.02E-18	0.998	37460.000	8.88E-18	8.69E-18	0.979
36915.000	7.33E-18	7.39E-18	1.008	37190.000	8.10E-18	8.05E-18	0.994	37465.000	8.92E-18	8.75E-18	0.981
36920.000	7.31E-18	7.35E-18	1.005	37195.000	8.11E-18	8.08E-18	0.996	37470.000	8.95E-18	8.81E-18	0.985
36925.000	7.35E-18	7.33E-18	0.997	37200.000	8.16E-18	8.08E-18	0.990	37475.000	9.00E-18	8.85E-18	0.983
36930.000	7.34E-18	7.33E-18	0.998	37205.000	8.15E-18	8.07E-18	0.991	37480.000	9.06E-18	8.88E-18	0.980
36935.000	7.37E-18	7.36E-18	0.998	37210.000	8.19E-18	8.12E-18	0.991	37485.000	9.07E-18	8.91E-18	0.982
36940.000	7.42E-18	7.38E-18	0.995	37215.000	8.18E-18	8.14E-18	0.995	37490.000	9.11E-18	8.95E-18	0.982
36945.000	7.40E-18	7.39E-18	0.999	37220.000	8.19E-18	8.14E-18	0.994	37495.000	9.18E-18	9.05E-18	0.986
36950.000	7.45E-18	7.40E-18	0.994	37225.000	8.22E-18	8.11E-18	0.987	37500.000	9.22E-18	9.06E-18	0.983
36955.000	7.50E-18	7.41E-18	0.988	37230.000	8.20E-18	8.15E-18	0.994	37505.000	9.28E-18	9.04E-18	0.974
36960.000	7.48E-18	7.45E-18	0.995	37235.000	8.25E-18	8.14E-18	0.987	37510.000	9.28E-18	9.06E-18	0.977
36965.000	7.59E-18	7.50E-18	0.988	37240.000	8.28E-18	8.13E-18	0.982	37515.000	9.22E-18	9.16E-18	0.994
36970.000	7.54E-18	7.58E-18	1.005	37245.000	8.30E-18	8.17E-18	0.985	37520.000	9.26E-18	9.19E-18	0.992
36975.000	7.59E-18	7.55E-18	0.995	37250.000	8.33E-18	8.23E-18	0.988	37525.000	9.29E-18	9.11E-18	0.980
36980.000	7.60E-18	7.62E-18	1.002	37255.000	8.41E-18	8.26E-18	0.983	37530.000	9.28E-18	9.12E-18	0.983
36985.000	7.67E-18	7.69E-18	1.002	37260.000	8.36E-18	8.27E-18	0.989	37535.000	9.32E-18	9.13E-18	0.979
36990.000	7.65E-18	7.66E-18	1.001	37265.000	8.50E-18	8.30E-18	0.976	37540.000	9.33E-18	9.12E-18	0.978
36995.000	7.72E-18	7.67E-18	0.993	37270.000	8.50E-18	8.35E-18	0.982	37545.000	9.38E-18	9.16E-18	0.976
37000.000	7.69E-18	7.68E-18	0.999	37275.000	8.54E-18	8.40E-18	0.983	37550.000	9.37E-18	9.16E-18	0.977
37005.000	7.74E-18	7.70E-18	0.995	37280.000	8.53E-18	8.42E-18	0.987	37555.000	9.40E-18	9.16E-18	0.974
37010.000	7.80E-18	7.75E-18	0.994	37285.000	8.60E-18	8.44E-18	0.981	37560.000	9.30E-18	9.16E-18	0.985
37015.000	7.85E-18	7.80E-18	0.994	37290.000	8.71E-18	8.50E-18	0.976	37565.000	9.33E-18	9.18E-18	0.984
37020.000	7.81E-18	7.85E-18	1.005	37295.000	8.68E-18	8.58E-18	0.989	37570.000	9.38E-18	9.24E-18	0.985
37025.000	7.90E-18	7.89E-18	0.999	37300.000	8.72E-18	8.60E-18	0.987	37575.000	9.43E-18	9.30E-18	0.987
37030.000	7.95E-18	7.93E-18	0.997	37305.000	8.73E-18	8.62E-18	0.987	37580.000	9.52E-18	9.26E-18	0.973
37035.000	7.98E-18	7.99E-18	1.001	37310.000	8.78E-18	8.64E-18	0.984	37585.000	9.55E-18	9.28E-18	0.971
37040.000	8.03E-18	8.04E-18	1.001	37315.000	8.87E-18	8.66E-18	0.976	37590.000	9.57E-18	9.31E-18	0.973
37045.000	8.00E-18	8.04E-18	1.005	37320.000	8.92E-18	8.70E-18	0.976	37595.000	9.60E-18	9.34E-18	0.973
37050.000	8.02E-18	8.05E-18	1.004	37325.000	8.89E-18	8.74E-18	0.983	37600.000	9.65E-18	9.35E-18	0.968
37055.000	8.11E-18	8.10E-18	0.999	37330.000	8.89E-18	8.78E-18	0.988	37605.000	9.69E-18	9.39E-18	0.970
37060.000	8.15E-18	8.16E-18	1.002	37335.000	8.92E-18	8.85E-18	0.993	37610.000	9.74E-18	9.48E-18	0.974
37065.000	8.19E-18	8.20E-18	1.001	37340.000	9.01E-18	8.86E-18	0.983	37615.000	9.67E-18	9.48E-18	0.981
37070.000	8.21E-18	8.20E-18	0.999	37345.000	8.97E-18	8.85E-18	0.987	37620.000	9.69E-18	9.48E-18	0.978
37075.000	8.19E-18	8.19E-18	1.000	37350.000	9.09E-18	8.85E-18	0.973	37625.000	9.73E-18	9.48E-18	0.975
37080.000	8.23E-18	8.16E-18	0.991	37355.000	9.03E-18	8.92E-18	0.988	37630.000	9.73E-18	9.50E-18	0.976
37085.000	8.28E-18	8.11E-18	0.979	37360.000	9.07E-18	8.93E-18	0.984	37635.000	9.75E-18	9.51E-18	0.976
37090.000	8.20E-18	8.08E-18	0.985	37365.000	9.01E-18	8.90E-18	0.988	37640.000	9.76E-18	9.51E-18	0.974
37095.000	8.16E-18	8.06E-18	0.988	37370.000	9.09E-18	8.88E-18	0.977	37645.000	9.69E-18	9.47E-18	0.978
37100.000	8.09E-18	8.05E-18	0.995	37375.000	9.06E-18	8.88E-18	0.980	37650.000	9.75E-18	9.52E-18	0.976
37105.000	8.12E-18	8.02E-18	0.987	37380.000	9.03E-18	8.88E-18	0.983	37655.000	9.72E-18	9.54E-18	0.981
37110.000	8.06E-18	7.98E-18	0.990	37385.000	9.02E-18	8.88E-18	0.984	37660.000	9.75E-18	9.54E-18	0.978
37115.000	8.06E-18	7.93E-18	0.984	37390.000	9.04E-18	8.85E-18	0.979	37665.000	9.69E-18	9.52E-18	0.982
37120.000	7.96E-18	7.91E-18	0.993	37395.000	8.96E-18	8.78E-18	0.980	37670.000	9.70E-18	9.52E-18	0.981

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (12)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
37675.000	9.71E-18	9.51E-18	0.980	37950.000	9.79E-18	9.70E-18	0.991	38225.000	1.04E-17	1.03E-17	0.992
37680.000	9.74E-18	9.49E-18	0.974	37955.000	9.89E-18	9.70E-18	0.981	38230.000	1.04E-17	1.03E-17	0.992
37685.000	9.67E-18	9.44E-18	0.976	37960.000	9.82E-18	9.71E-18	0.989	38235.000	1.04E-17	1.04E-17	0.999
37690.000	9.64E-18	9.41E-18	0.977	37965.000	9.84E-18	9.75E-18	0.990	38240.000	1.04E-17	1.04E-17	0.997
37695.000	9.63E-18	9.42E-18	0.978	37970.000	9.94E-18	9.74E-18	0.980	38245.000	1.05E-17	1.04E-17	0.986
37700.000	9.66E-18	9.39E-18	0.972	37975.000	9.87E-18	9.72E-18	0.985	38250.000	1.04E-17	1.04E-17	0.997
37705.000	9.55E-18	9.39E-18	0.983	37980.000	9.92E-18	9.73E-18	0.980	38255.000	1.05E-17	1.04E-17	0.992
37710.000	9.58E-18	9.38E-18	0.980	37985.000	9.82E-18	9.76E-18	0.994	38260.000	1.05E-17	1.04E-17	0.994
37715.000	9.52E-18	9.31E-18	0.978	37990.000	9.92E-18	9.79E-18	0.987	38265.000	1.05E-17	1.05E-17	0.996
37720.000	9.54E-18	9.32E-18	0.977	37995.000	9.98E-18	9.79E-18	0.980	38270.000	1.06E-17	1.05E-17	0.990
37725.000	9.52E-18	9.33E-18	0.980	38000.000	9.92E-18	9.79E-18	0.987	38275.000	1.07E-17	1.05E-17	0.985
37730.000	9.55E-18	9.33E-18	0.977	38005.000	9.85E-18	9.81E-18	0.996	38280.000	1.07E-17	1.06E-17	0.989
37735.000	9.61E-18	9.41E-18	0.979	38010.000	1.00E-17	9.86E-18	0.986	38285.000	1.06E-17	1.06E-17	0.998
37740.000	9.65E-18	9.44E-18	0.978	38015.000	1.01E-17	9.89E-18	0.979	38290.000	1.08E-17	1.06E-17	0.983
37745.000	9.68E-18	9.43E-18	0.975	38020.000	1.01E-17	9.93E-18	0.983	38295.000	1.08E-17	1.07E-17	0.990
37750.000	9.75E-18	9.54E-18	0.979	38025.000	1.02E-17	9.96E-18	0.977	38300.000	1.08E-17	1.08E-17	0.998
37755.000	9.86E-18	9.58E-18	0.972	38030.000	1.02E-17	1.00E-17	0.983	38305.000	1.08E-17	1.08E-17	1.001
37760.000	9.94E-18	9.60E-18	0.966	38035.000	1.02E-17	1.01E-17	0.987	38310.000	1.09E-17	1.08E-17	0.994
37765.000	9.94E-18	9.66E-18	0.972	38040.000	1.02E-17	1.01E-17	0.992	38315.000	1.09E-17	1.09E-17	1.000
37770.000	1.00E-17	9.71E-18	0.971	38045.000	1.03E-17	1.02E-17	0.989	38320.000	1.10E-17	1.10E-17	0.997
37775.000	1.01E-17	9.75E-18	0.965	38050.000	1.04E-17	1.02E-17	0.984	38325.000	1.11E-17	1.10E-17	0.993
37780.000	1.01E-17	9.76E-18	0.966	38055.000	1.04E-17	1.03E-17	0.987	38330.000	1.11E-17	1.10E-17	0.995
37785.000	1.02E-17	9.83E-18	0.963	38060.000	1.05E-17	1.03E-17	0.980	38335.000	1.11E-17	1.11E-17	1.000
37790.000	1.01E-17	9.89E-18	0.979	38065.000	1.06E-17	1.04E-17	0.977	38340.000	1.12E-17	1.11E-17	0.993
37795.000	1.02E-17	9.94E-18	0.974	38070.000	1.06E-17	1.04E-17	0.982	38345.000	1.12E-17	1.11E-17	0.992
37800.000	1.02E-17	9.94E-18	0.975	38075.000	1.06E-17	1.04E-17	0.986	38350.000	1.12E-17	1.11E-17	0.995
37805.000	1.02E-17	9.96E-18	0.977	38080.000	1.06E-17	1.05E-17	0.995	38355.000	1.13E-17	1.11E-17	0.986
37810.000	1.03E-17	9.99E-18	0.970	38085.000	1.06E-17	1.06E-17	0.997	38360.000	1.12E-17	1.11E-17	0.992
37815.000	1.03E-17	1.00E-17	0.973	38090.000	1.07E-17	1.05E-17	0.984	38365.000	1.10E-17	1.11E-17	1.013
37820.000	1.02E-17	1.00E-17	0.981	38095.000	1.07E-17	1.05E-17	0.984	38370.000	1.11E-17	1.11E-17	1.003
37825.000	1.03E-17	1.00E-17	0.971	38100.000	1.07E-17	1.06E-17	0.989	38375.000	1.12E-17	1.11E-17	0.991
37830.000	1.03E-17	1.00E-17	0.973	38105.000	1.07E-17	1.06E-17	0.995	38380.000	1.12E-17	1.11E-17	0.994
37835.000	1.03E-17	1.00E-17	0.972	38110.000	1.08E-17	1.06E-17	0.982	38385.000	1.11E-17	1.11E-17	1.002
37840.000	1.03E-17	1.00E-17	0.972	38115.000	1.07E-17	1.06E-17	0.991	38390.000	1.10E-17	1.11E-17	1.009
37845.000	1.03E-17	1.00E-17	0.973	38120.000	1.07E-17	1.06E-17	0.992	38395.000	1.11E-17	1.11E-17	0.998
37850.000	1.03E-17	1.00E-17	0.975	38125.000	1.07E-17	1.06E-17	0.990	38400.000	1.11E-17	1.10E-17	0.993
37855.000	1.03E-17	1.00E-17	0.974	38130.000	1.06E-17	1.05E-17	0.994	38405.000	1.10E-17	1.10E-17	0.996
37860.000	1.02E-17	1.00E-17	0.981	38135.000	1.07E-17	1.05E-17	0.983	38410.000	1.10E-17	1.10E-17	1.000
37865.000	1.02E-17	1.00E-17	0.980	38140.000	1.07E-17	1.06E-17	0.988	38415.000	1.09E-17	1.09E-17	1.004
37870.000	1.02E-17	9.97E-18	0.977	38145.000	1.06E-17	1.05E-17	0.995	38420.000	1.09E-17	1.09E-17	0.996
37875.000	1.02E-17	9.94E-18	0.974	38150.000	1.06E-17	1.05E-17	0.992	38425.000	1.09E-17	1.08E-17	0.994
37880.000	1.01E-17	9.92E-18	0.982	38155.000	1.06E-17	1.05E-17	0.989	38430.000	1.08E-17	1.08E-17	1.001
37885.000	1.01E-17	9.90E-18	0.980	38160.000	1.04E-17	1.05E-17	1.009	38435.000	1.07E-17	1.08E-17	1.008
37890.000	1.00E-17	9.88E-18	0.988	38165.000	1.04E-17	1.05E-17	1.006	38440.000	1.07E-17	1.07E-17	1.002
37895.000	9.96E-18	9.87E-18	0.991	38170.000	1.04E-17	1.04E-17	1.001	38445.000	1.07E-17	1.07E-17	0.997
37900.000	1.01E-17	9.85E-18	0.976	38175.000	1.05E-17	1.04E-17	0.993	38450.000	1.07E-17	1.06E-17	0.994
37905.000	9.99E-18	9.82E-18	0.983	38180.000	1.04E-17	1.04E-17	1.001	38455.000	1.07E-17	1.06E-17	0.993
37910.000	1.00E-17	9.79E-18	0.979	38185.000	1.04E-17	1.04E-17	0.999	38460.000	1.06E-17	1.06E-17	1.002
37915.000	1.00E-17	9.84E-18	0.984	38190.000	1.05E-17	1.05E-17	0.996	38465.000	1.06E-17	1.06E-17	1.001
37920.000	9.96E-18	9.80E-18	0.984	38195.000	1.05E-17	1.05E-17	0.996	38470.000	1.05E-17	1.06E-17	1.011
37925.000	9.89E-18	9.74E-18	0.984	38200.000	1.05E-17	1.04E-17	0.993	38475.000	1.05E-17	1.06E-17	1.010
37930.000	9.91E-18	9.70E-18	0.978	38205.000	1.04E-17	1.04E-17	0.997	38480.000	1.05E-17	1.06E-17	1.009
37935.000	9.86E-18	9.66E-18	0.980	38210.000	1.04E-17	1.04E-17	0.999	38485.000	1.05E-17	1.06E-17	1.008
37940.000	9.90E-18	9.66E-18	0.976	38215.000	1.03E-17	1.04E-17	1.011	38490.000	1.05E-17	1.05E-17	1.004
37945.000	9.80E-18	9.69E-18	0.989	38220.000	1.04E-17	1.04E-17	0.998	38495.000	1.05E-17	1.06E-17	1.005

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (13)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
38500.000	1.05E-17	1.06E-17	1.012	38775.000	1.11E-17	1.11E-17	1.004	39050.000	1.14E-17	1.14E-17	1.001
38505.000	1.05E-17	1.06E-17	1.012	38780.000	1.11E-17	1.12E-17	1.005	39055.000	1.15E-17	1.15E-17	0.996
38510.000	1.06E-17	1.06E-17	1.003	38785.000	1.11E-17	1.12E-17	1.007	39060.000	1.15E-17	1.15E-17	0.998
38515.000	1.06E-17	1.06E-17	1.003	38790.000	1.11E-17	1.12E-17	1.006	39065.000	1.14E-17	1.15E-17	1.008
38520.000	1.06E-17	1.07E-17	1.007	38795.000	1.10E-17	1.12E-17	1.014	39070.000	1.16E-17	1.15E-17	0.991
38525.000	1.06E-17	1.07E-17	1.010	38800.000	1.11E-17	1.12E-17	1.005	39075.000	1.15E-17	1.15E-17	1.001
38530.000	1.07E-17	1.07E-17	1.002	38805.000	1.10E-17	1.12E-17	1.017	39080.000	1.15E-17	1.15E-17	1.004
38535.000	1.07E-17	1.08E-17	1.006	38810.000	1.10E-17	1.12E-17	1.017	39085.000	1.15E-17	1.16E-17	1.005
38540.000	1.08E-17	1.08E-17	1.002	38815.000	1.11E-17	1.12E-17	1.008	39090.000	1.16E-17	1.16E-17	0.997
38545.000	1.07E-17	1.09E-17	1.019	38820.000	1.11E-17	1.12E-17	1.009	39095.000	1.17E-17	1.16E-17	0.990
38550.000	1.09E-17	1.10E-17	1.006	38825.000	1.11E-17	1.12E-17	1.010	39100.000	1.16E-17	1.16E-17	0.999
38555.000	1.10E-17	1.10E-17	1.001	38830.000	1.12E-17	1.12E-17	1.003	39105.000	1.17E-17	1.16E-17	0.993
38560.000	1.10E-17	1.10E-17	1.003	38835.000	1.11E-17	1.13E-17	1.014	39110.000	1.17E-17	1.16E-17	0.996
38565.000	1.11E-17	1.11E-17	0.999	38840.000	1.12E-17	1.13E-17	1.007	39115.000	1.17E-17	1.17E-17	0.997
38570.000	1.10E-17	1.11E-17	1.011	38845.000	1.12E-17	1.13E-17	1.008	39120.000	1.18E-17	1.17E-17	0.991
38575.000	1.11E-17	1.12E-17	1.005	38850.000	1.12E-17	1.13E-17	1.010	39125.000	1.17E-17	1.17E-17	1.003
38580.000	1.12E-17	1.13E-17	1.006	38855.000	1.12E-17	1.13E-17	1.011	39130.000	1.18E-17	1.18E-17	0.997
38585.000	1.13E-17	1.13E-17	1.002	38860.000	1.13E-17	1.13E-17	1.004	39135.000	1.18E-17	1.18E-17	0.998
38590.000	1.13E-17	1.14E-17	1.006	38865.000	1.12E-17	1.14E-17	1.015	39140.000	1.18E-17	1.18E-17	0.996
38595.000	1.13E-17	1.14E-17	1.008	38870.000	1.12E-17	1.14E-17	1.015	39145.000	1.18E-17	1.18E-17	0.996
38600.000	1.14E-17	1.14E-17	1.002	38875.000	1.12E-17	1.14E-17	1.014	39150.000	1.18E-17	1.18E-17	0.997
38605.000	1.14E-17	1.15E-17	1.005	38880.000	1.13E-17	1.14E-17	1.005	39155.000	1.19E-17	1.18E-17	0.992
38610.000	1.15E-17	1.15E-17	1.001	38885.000	1.12E-17	1.14E-17	1.014	39160.000	1.19E-17	1.18E-17	0.992
38615.000	1.16E-17	1.15E-17	0.995	38890.000	1.12E-17	1.14E-17	1.015	39165.000	1.18E-17	1.18E-17	0.999
38620.000	1.15E-17	1.16E-17	1.007	38895.000	1.12E-17	1.13E-17	1.013	39170.000	1.18E-17	1.18E-17	1.000
38625.000	1.16E-17	1.16E-17	1.000	38900.000	1.13E-17	1.13E-17	1.004	39175.000	1.18E-17	1.17E-17	0.995
38630.000	1.16E-17	1.16E-17	1.002	38905.000	1.12E-17	1.13E-17	1.013	39180.000	1.18E-17	1.17E-17	0.991
38635.000	1.16E-17	1.16E-17	1.003	38910.000	1.12E-17	1.13E-17	1.010	39185.000	1.18E-17	1.17E-17	0.993
38640.000	1.16E-17	1.16E-17	1.004	38915.000	1.11E-17	1.13E-17	1.017	39190.000	1.16E-17	1.17E-17	1.011
38645.000	1.17E-17	1.17E-17	0.996	38920.000	1.12E-17	1.13E-17	1.006	39195.000	1.16E-17	1.17E-17	1.009
38650.000	1.17E-17	1.17E-17	0.997	38925.000	1.10E-17	1.12E-17	1.019	39200.000	1.16E-17	1.16E-17	1.002
38655.000	1.16E-17	1.16E-17	1.003	38930.000	1.11E-17	1.12E-17	1.007	39205.000	1.15E-17	1.16E-17	1.008
38660.000	1.16E-17	1.16E-17	1.003	38935.000	1.11E-17	1.12E-17	1.007	39210.000	1.15E-17	1.16E-17	1.008
38665.000	1.16E-17	1.16E-17	1.003	38940.000	1.10E-17	1.12E-17	1.017	39215.000	1.15E-17	1.15E-17	1.004
38670.000	1.16E-17	1.15E-17	0.994	38945.000	1.10E-17	1.12E-17	1.018	39220.000	1.15E-17	1.15E-17	1.000
38675.000	1.15E-17	1.15E-17	1.002	38950.000	1.10E-17	1.12E-17	1.018	39225.000	1.14E-17	1.14E-17	1.004
38680.000	1.15E-17	1.15E-17	1.003	38955.000	1.10E-17	1.12E-17	1.017	39230.000	1.13E-17	1.14E-17	1.009
38685.000	1.15E-17	1.15E-17	1.002	38960.000	1.10E-17	1.12E-17	1.014	39235.000	1.14E-17	1.14E-17	0.998
38690.000	1.15E-17	1.15E-17	0.999	38965.000	1.11E-17	1.11E-17	1.002	39240.000	1.13E-17	1.14E-17	1.005
38695.000	1.14E-17	1.14E-17	1.003	38970.000	1.10E-17	1.11E-17	1.010	39245.000	1.12E-17	1.13E-17	1.013
38700.000	1.14E-17	1.14E-17	0.998	38975.000	1.10E-17	1.11E-17	1.010	39250.000	1.12E-17	1.13E-17	1.012
38705.000	1.13E-17	1.13E-17	1.004	38980.000	1.11E-17	1.11E-17	1.001	39255.000	1.11E-17	1.13E-17	1.019
38710.000	1.13E-17	1.13E-17	1.002	38985.000	1.11E-17	1.12E-17	1.006	39260.000	1.12E-17	1.13E-17	1.008
38715.000	1.12E-17	1.13E-17	1.012	38990.000	1.11E-17	1.12E-17	1.010	39265.000	1.12E-17	1.13E-17	1.007
38720.000	1.11E-17	1.13E-17	1.017	38995.000	1.12E-17	1.12E-17	0.999	39270.000	1.11E-17	1.13E-17	1.017
38725.000	1.11E-17	1.12E-17	1.012	39000.000	1.12E-17	1.12E-17	1.004	39275.000	1.12E-17	1.13E-17	1.007
38730.000	1.12E-17	1.12E-17	0.999	39005.000	1.12E-17	1.13E-17	1.008	39280.000	1.11E-17	1.13E-17	1.015
38735.000	1.11E-17	1.12E-17	1.006	39010.000	1.12E-17	1.13E-17	1.009	39285.000	1.12E-17	1.13E-17	1.007
38740.000	1.10E-17	1.12E-17	1.015	39015.000	1.13E-17	1.13E-17	1.001	39290.000	1.12E-17	1.13E-17	1.008
38745.000	1.11E-17	1.12E-17	1.005	39020.000	1.13E-17	1.13E-17	1.003	39295.000	1.12E-17	1.13E-17	1.008
38750.000	1.10E-17	1.11E-17	1.012	39025.000	1.13E-17	1.14E-17	1.006	39300.000	1.12E-17	1.13E-17	1.012
38755.000	1.10E-17	1.11E-17	1.011	39030.000	1.13E-17	1.14E-17	1.008	39305.000	1.14E-17	1.14E-17	0.999
38760.000	1.10E-17	1.11E-17	1.013	39035.000	1.13E-17	1.14E-17	1.009	39310.000	1.14E-17	1.15E-17	1.005
38765.000	1.10E-17	1.12E-17	1.014	39040.000	1.13E-17	1.14E-17	1.010	39315.000	1.13E-17	1.15E-17	1.014
38770.000	1.11E-17	1.12E-17	1.005	39045.000	1.14E-17	1.14E-17	1.001	39320.000	1.13E-17	1.14E-17	1.013

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (14)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
39325.000	1.14E-17	1.14E-17	1.004	39600.000	1.10E-17	1.13E-17	1.030	39875.000	1.09E-17	1.11E-17	1.014
39330.000	1.14E-17	1.15E-17	1.006	39605.000	1.10E-17	1.13E-17	1.031	39880.000	1.08E-17	1.10E-17	1.020
39335.000	1.14E-17	1.15E-17	1.009	39610.000	1.12E-17	1.13E-17	1.013	39885.000	1.08E-17	1.10E-17	1.019
39340.000	1.14E-17	1.16E-17	1.014	39615.000	1.12E-17	1.14E-17	1.014	39890.000	1.08E-17	1.10E-17	1.020
39345.000	1.14E-17	1.16E-17	1.014	39620.000	1.12E-17	1.14E-17	1.016	39895.000	1.08E-17	1.10E-17	1.021
39350.000	1.14E-17	1.15E-17	1.013	39625.000	1.13E-17	1.14E-17	1.007	39900.000	1.09E-17	1.10E-17	1.011
39355.000	1.15E-17	1.16E-17	1.007	39630.000	1.13E-17	1.14E-17	1.007	39905.000	1.08E-17	1.10E-17	1.018
39360.000	1.15E-17	1.16E-17	1.006	39635.000	1.12E-17	1.14E-17	1.018	39910.000	1.09E-17	1.10E-17	1.010
39365.000	1.14E-17	1.16E-17	1.014	39640.000	1.12E-17	1.14E-17	1.019	39915.000	1.09E-17	1.10E-17	1.013
39370.000	1.15E-17	1.16E-17	1.005	39645.000	1.13E-17	1.14E-17	1.011	39920.000	1.09E-17	1.10E-17	1.013
39375.000	1.15E-17	1.16E-17	1.007	39650.000	1.14E-17	1.14E-17	1.004	39925.000	1.09E-17	1.10E-17	1.014
39380.000	1.15E-17	1.16E-17	1.009	39655.000	1.14E-17	1.15E-17	1.005	39930.000	1.09E-17	1.11E-17	1.016
39385.000	1.15E-17	1.16E-17	1.005	39660.000	1.13E-17	1.14E-17	1.013	39935.000	1.08E-17	1.11E-17	1.027
39390.000	1.15E-17	1.16E-17	1.004	39665.000	1.14E-17	1.15E-17	1.006	39940.000	1.09E-17	1.11E-17	1.019
39395.000	1.15E-17	1.16E-17	1.007	39670.000	1.14E-17	1.15E-17	1.009	39945.000	1.10E-17	1.11E-17	1.009
39400.000	1.15E-17	1.16E-17	1.005	39675.000	1.15E-17	1.15E-17	1.002	39950.000	1.10E-17	1.11E-17	1.011
39405.000	1.15E-17	1.15E-17	1.003	39680.000	1.16E-17	1.15E-17	0.995	39955.000	1.10E-17	1.11E-17	1.014
39410.000	1.12E-17	1.15E-17	1.030	39685.000	1.15E-17	1.16E-17	1.005	39960.000	1.11E-17	1.11E-17	1.004
39415.000	1.13E-17	1.15E-17	1.021	39690.000	1.15E-17	1.16E-17	1.009	39965.000	1.10E-17	1.11E-17	1.013
39420.000	1.14E-17	1.15E-17	1.013	39695.000	1.14E-17	1.16E-17	1.020	39970.000	1.10E-17	1.12E-17	1.014
39425.000	1.15E-17	1.15E-17	1.004	39700.000	1.15E-17	1.16E-17	1.011	39975.000	1.10E-17	1.11E-17	1.013
39430.000	1.14E-17	1.16E-17	1.014	39705.000	1.15E-17	1.16E-17	1.011	39980.000	1.11E-17	1.12E-17	1.006
39435.000	1.13E-17	1.16E-17	1.022	39710.000	1.16E-17	1.16E-17	1.002	39985.000	1.11E-17	1.12E-17	1.011
39440.000	1.14E-17	1.15E-17	1.010	39715.000	1.16E-17	1.17E-17	1.006	39990.000	1.11E-17	1.12E-17	1.012
39445.000	1.14E-17	1.15E-17	1.009	39720.000	1.16E-17	1.17E-17	1.005	39995.000	1.10E-17	1.12E-17	1.020
39450.000	1.13E-17	1.15E-17	1.017	39725.000	1.15E-17	1.16E-17	1.012	40000.000	1.11E-17	1.12E-17	1.010
39455.000	1.13E-17	1.15E-17	1.014	39730.000	1.15E-17	1.16E-17	1.009	40005.000	1.09E-17	1.12E-17	1.028
39460.000	1.13E-17	1.14E-17	1.012	39735.000	1.14E-17	1.16E-17	1.017	40010.000	1.10E-17	1.12E-17	1.019
39465.000	1.13E-17	1.14E-17	1.013	39740.000	1.15E-17	1.16E-17	1.007	40015.000	1.11E-17	1.12E-17	1.010
39470.000	1.13E-17	1.14E-17	1.012	39745.000	1.13E-17	1.16E-17	1.023	40020.000	1.10E-17	1.12E-17	1.019
39475.000	1.12E-17	1.14E-17	1.020	39750.000	1.14E-17	1.15E-17	1.013	40025.000	1.10E-17	1.12E-17	1.018
39480.000	1.12E-17	1.14E-17	1.018	39755.000	1.14E-17	1.15E-17	1.010	40030.000	1.11E-17	1.12E-17	1.008
39485.000	1.12E-17	1.14E-17	1.018	39760.000	1.14E-17	1.15E-17	1.008	40035.000	1.10E-17	1.12E-17	1.015
39490.000	1.12E-17	1.14E-17	1.017	39765.000	1.12E-17	1.15E-17	1.023	40040.000	1.10E-17	1.11E-17	1.013
39495.000	1.13E-17	1.13E-17	1.004	39770.000	1.12E-17	1.14E-17	1.016	40045.000	1.11E-17	1.11E-17	1.002
39500.000	1.12E-17	1.14E-17	1.013	39775.000	1.12E-17	1.13E-17	1.012	40050.000	1.10E-17	1.11E-17	1.009
39505.000	1.12E-17	1.14E-17	1.016	39780.000	1.11E-17	1.13E-17	1.018	40055.000	1.09E-17	1.11E-17	1.018
39510.000	1.11E-17	1.14E-17	1.027	39785.000	1.11E-17	1.13E-17	1.015	40060.000	1.09E-17	1.11E-17	1.019
39515.000	1.12E-17	1.14E-17	1.018	39790.000	1.11E-17	1.12E-17	1.013	40065.000	1.08E-17	1.11E-17	1.030
39520.000	1.11E-17	1.14E-17	1.026	39795.000	1.10E-17	1.12E-17	1.020	40070.000	1.08E-17	1.11E-17	1.027
39525.000	1.11E-17	1.13E-17	1.022	39800.000	1.10E-17	1.12E-17	1.017	40075.000	1.09E-17	1.11E-17	1.016
39530.000	1.11E-17	1.13E-17	1.018	39805.000	1.10E-17	1.12E-17	1.014	40080.000	1.08E-17	1.11E-17	1.027
39535.000	1.11E-17	1.13E-17	1.015	39810.000	1.10E-17	1.11E-17	1.013	40085.000	1.08E-17	1.11E-17	1.025
39540.000	1.11E-17	1.13E-17	1.014	39815.000	1.10E-17	1.11E-17	1.012	40090.000	1.08E-17	1.10E-17	1.023
39545.000	1.12E-17	1.13E-17	1.006	39820.000	1.09E-17	1.11E-17	1.020	40095.000	1.08E-17	1.11E-17	1.026
39550.000	1.11E-17	1.13E-17	1.019	39825.000	1.09E-17	1.11E-17	1.021	40100.000	1.08E-17	1.11E-17	1.025
39555.000	1.10E-17	1.13E-17	1.027	39830.000	1.08E-17	1.11E-17	1.031	40105.000	1.08E-17	1.10E-17	1.020
39560.000	1.10E-17	1.13E-17	1.025	39835.000	1.09E-17	1.11E-17	1.022	40110.000	1.08E-17	1.10E-17	1.022
39565.000	1.10E-17	1.13E-17	1.024	39840.000	1.09E-17	1.11E-17	1.019	40115.000	1.08E-17	1.11E-17	1.023
39570.000	1.11E-17	1.13E-17	1.014	39845.000	1.08E-17	1.11E-17	1.026	40120.000	1.09E-17	1.11E-17	1.016
39575.000	1.10E-17	1.12E-17	1.022	39850.000	1.09E-17	1.11E-17	1.017	40125.000	1.08E-17	1.11E-17	1.027
39580.000	1.10E-17	1.12E-17	1.022	39855.000	1.09E-17	1.11E-17	1.015	40130.000	1.08E-17	1.11E-17	1.029
39585.000	1.10E-17	1.12E-17	1.022	39860.000	1.09E-17	1.11E-17	1.014	40135.000	1.09E-17	1.11E-17	1.022
39590.000	1.11E-17	1.13E-17	1.014	39865.000	1.09E-17	1.11E-17	1.016	40140.000	1.09E-17	1.12E-17	1.025
39595.000	1.10E-17	1.13E-17	1.027	39870.000	1.09E-17	1.11E-17	1.016	40145.000	1.09E-17	1.12E-17	1.027

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (15)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
40150.000	1.09E-17	1.12E-17	1.024	40425.000	1.04E-17	1.06E-17	1.023	40700.000	1.01E-17	1.03E-17	1.015
40155.000	1.09E-17	1.11E-17	1.022	40430.000	1.04E-17	1.07E-17	1.026	40705.000	1.01E-17	1.02E-17	1.015
40160.000	1.09E-17	1.11E-17	1.021	40435.000	1.03E-17	1.06E-17	1.034	40710.000	1.02E-17	1.03E-17	1.006
40165.000	1.09E-17	1.11E-17	1.016	40440.000	1.04E-17	1.06E-17	1.022	40715.000	1.01E-17	1.03E-17	1.017
40170.000	1.09E-17	1.10E-17	1.008	40445.000	1.05E-17	1.06E-17	1.010	40720.000	1.01E-17	1.03E-17	1.017
40175.000	1.09E-17	1.11E-17	1.015	40450.000	1.03E-17	1.06E-17	1.027	40725.000	1.01E-17	1.02E-17	1.015
40180.000	1.08E-17	1.11E-17	1.029	40455.000	1.03E-17	1.06E-17	1.026	40730.000	1.00E-17	1.02E-17	1.024
40185.000	1.08E-17	1.11E-17	1.028	40460.000	1.03E-17	1.05E-17	1.023	40735.000	9.99E-18	1.02E-17	1.024
40190.000	1.09E-17	1.11E-17	1.016	40465.000	1.03E-17	1.05E-17	1.021	40740.000	1.00E-17	1.02E-17	1.022
40195.000	1.08E-17	1.10E-17	1.022	40470.000	1.04E-17	1.05E-17	1.009	40745.000	1.00E-17	1.02E-17	1.020
40200.000	1.08E-17	1.10E-17	1.021	40475.000	1.02E-17	1.05E-17	1.027	40750.000	1.00E-17	1.02E-17	1.019
40205.000	1.07E-17	1.10E-17	1.027	40480.000	1.02E-17	1.05E-17	1.026	40755.000	9.96E-18	1.02E-17	1.022
40210.000	1.07E-17	1.09E-17	1.022	40485.000	1.02E-17	1.04E-17	1.024	40760.000	1.01E-17	1.02E-17	1.008
40215.000	1.07E-17	1.09E-17	1.019	40490.000	1.02E-17	1.04E-17	1.020	40765.000	1.00E-17	1.01E-17	1.014
40220.000	1.07E-17	1.09E-17	1.016	40495.000	1.01E-17	1.04E-17	1.025	40770.000	1.01E-17	1.01E-17	1.002
40225.000	1.06E-17	1.09E-17	1.024	40500.000	1.02E-17	1.04E-17	1.015	40775.000	9.88E-18	1.01E-17	1.025
40230.000	1.06E-17	1.08E-17	1.023	40505.000	1.01E-17	1.03E-17	1.024	40780.000	9.84E-18	1.01E-17	1.025
40235.000	1.06E-17	1.08E-17	1.022	40510.000	1.01E-17	1.03E-17	1.022	40785.000	9.88E-18	1.00E-17	1.016
40240.000	1.06E-17	1.08E-17	1.018	40515.000	1.00E-17	1.03E-17	1.030	40790.000	9.88E-18	1.00E-17	1.013
40245.000	1.05E-17	1.08E-17	1.025	40520.000	1.01E-17	1.03E-17	1.018	40795.000	9.81E-18	9.97E-18	1.016
40250.000	1.04E-17	1.07E-17	1.031	40525.000	1.01E-17	1.03E-17	1.017	40800.000	9.69E-18	9.93E-18	1.025
40255.000	1.05E-17	1.07E-17	1.018	40530.000	1.01E-17	1.03E-17	1.016	40805.000	9.66E-18		
40260.000	1.05E-17	1.07E-17	1.014	40535.000	1.01E-17	1.03E-17	1.018	40810.000	9.68E-18		
40265.000	1.04E-17	1.06E-17	1.024	40540.000	1.00E-17	1.03E-17	1.028	40815.000	9.69E-18		
40270.000	1.04E-17	1.06E-17	1.022	40545.000	1.01E-17	1.03E-17	1.018	40820.000	9.61E-18		
40275.000	1.04E-17	1.06E-17	1.020	40550.000	1.01E-17	1.03E-17	1.020	40825.000	9.57E-18		
40280.000	1.04E-17	1.06E-17	1.023	40555.000	1.00E-17	1.03E-17	1.029	40830.000	9.56E-18		
40285.000	1.04E-17	1.06E-17	1.024	40560.000	9.91E-18	1.03E-17	1.035	40835.000	9.58E-18		
40290.000	1.04E-17	1.06E-17	1.023	40565.000	1.00E-17	1.03E-17	1.026	40840.000	9.51E-18		
40295.000	1.04E-17	1.06E-17	1.023	40570.000	1.01E-17	1.03E-17	1.016	40845.000	9.60E-18		
40300.000	1.04E-17	1.06E-17	1.022	40575.000	1.01E-17	1.02E-17	1.012	40850.000	9.59E-18		
40305.000	1.04E-17	1.06E-17	1.020	40580.000	1.01E-17	1.02E-17	1.012	40855.000	9.46E-18		
40310.000	1.05E-17	1.06E-17	1.012	40585.000	1.01E-17	1.02E-17	1.015	40860.000	9.58E-18		
40315.000	1.05E-17	1.07E-17	1.018	40590.000	1.01E-17	1.02E-17	1.012	40865.000	9.50E-18		
40320.000	1.05E-17	1.07E-17	1.020	40595.000	1.01E-17	1.02E-17	1.010	40870.000	9.55E-18		
40325.000	1.06E-17	1.07E-17	1.010	40600.000	1.01E-17	1.02E-17	1.010	40875.000	9.59E-18		
40330.000	1.05E-17	1.07E-17	1.017	40605.000	1.01E-17	1.02E-17	1.011	40880.000	9.65E-18		
40335.000	1.06E-17	1.07E-17	1.010	40610.000	1.00E-17	1.02E-17	1.023	40885.000	9.56E-18		
40340.000	1.05E-17	1.08E-17	1.025	40615.000	1.00E-17	1.02E-17	1.024	40890.000	9.54E-18		
40345.000	1.04E-17	1.08E-17	1.036	40620.000	1.01E-17	1.02E-17	1.015	40895.000	9.55E-18		
40350.000	1.05E-17	1.08E-17	1.026	40625.000	1.00E-17	1.03E-17	1.025	40900.000	9.52E-18	9.76E-18	1.026
40355.000	1.05E-17	1.07E-17	1.023	40630.000	1.01E-17	1.02E-17	1.014	40905.000	9.59E-18		
40360.000	1.05E-17	1.08E-17	1.024	40635.000	1.00E-17	1.02E-17	1.022	40910.000	9.54E-18		
40365.000	1.04E-17	1.08E-17	1.035	40640.000	1.01E-17	1.03E-17	1.015	40915.000	9.58E-18		
40370.000	1.04E-17	1.07E-17	1.025	40645.000	1.01E-17	1.03E-17	1.018	40920.000	9.63E-18		
40375.000	1.02E-17	1.06E-17	1.042	40650.000	1.02E-17	1.03E-17	1.008	40925.000	9.58E-18		
40380.000	1.03E-17	1.07E-17	1.038	40655.000	1.02E-17	1.03E-17	1.006	40930.000	9.52E-18		
40385.000	1.04E-17	1.07E-17	1.026	40660.000	1.01E-17	1.02E-17	1.014	40935.000	9.47E-18		
40390.000	1.05E-17	1.06E-17	1.014	40665.000	1.01E-17	1.03E-17	1.016	40940.000	9.53E-18		
40395.000	1.04E-17	1.07E-17	1.026	40670.000	1.02E-17	1.03E-17	1.008	40945.000	9.63E-18		
40400.000	1.05E-17	1.07E-17	1.017	40675.000	1.02E-17	1.03E-17	1.010	40950.000	9.57E-18		
40405.000	1.05E-17	1.07E-17	1.017	40680.000	1.02E-17	1.03E-17	1.009	40955.000	9.58E-18		
40410.000	1.05E-17	1.07E-17	1.016	40685.000	1.01E-17	1.03E-17	1.017	40960.000	9.55E-18		
40415.000	1.05E-17	1.07E-17	1.015	40690.000	1.03E-17	1.03E-17	0.999	40965.000	9.59E-18		
40420.000	1.05E-17	1.06E-17	1.012	40695.000	1.02E-17	1.03E-17	1.008	40970.000	9.57E-18		

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (16)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
40975.000	9.58E-18			41250.000	8.96E-18			41525.000	8.39E-18		
40980.000	9.57E-18			41255.000	8.95E-18			41530.000	8.41E-18		
40985.000	9.59E-18			41260.000	8.91E-18			41535.000	8.34E-18		
40990.000	9.57E-18			41265.000	8.92E-18			41540.000	8.32E-18		
40995.000	9.48E-18			41270.000	8.91E-18			41545.000	8.26E-18		
41000.000	9.47E-18	9.72E-18	1.026	41275.000	8.87E-18			41550.000	8.32E-18		
41005.000	9.55E-18			41280.000	8.96E-18			41555.000	8.29E-18		
41010.000	9.55E-18			41285.000	8.95E-18			41560.000	8.24E-18		
41015.000	9.61E-18			41290.000	9.01E-18			41565.000	8.22E-18		
41020.000	9.54E-18			41295.000	9.01E-18			41570.000	8.26E-18		
41025.000	9.53E-18			41300.000	8.97E-18	9.02E-18	1.006	41575.000	8.18E-18		
41030.000	9.53E-18			41305.000	8.93E-18			41580.000	8.23E-18		
41035.000	9.50E-18			41310.000	8.85E-18			41585.000	8.25E-18		
41040.000	9.48E-18			41315.000	8.77E-18			41590.000	8.22E-18		
41045.000	9.38E-18			41320.000	8.85E-18			41595.000	8.21E-18		
41050.000	9.38E-18			41325.000	8.83E-18			41600.000	8.17E-18	8.39E-18	1.027
41055.000	9.41E-18			41330.000	8.81E-18			41605.000	8.14E-18		
41060.000	9.46E-18			41335.000	8.85E-18			41610.000	8.11E-18		
41065.000	9.42E-18			41340.000	8.86E-18			41615.000	8.16E-18		
41070.000	9.43E-18			41345.000	8.88E-18			41620.000	8.25E-18		
41075.000	9.44E-18			41350.000	8.86E-18			41625.000	8.23E-18		
41080.000	9.32E-18			41355.000	8.81E-18			41630.000	8.18E-18		
41085.000	9.41E-18			41360.000	8.74E-18			41635.000	8.15E-18		
41090.000	9.43E-18			41365.000	8.85E-18			41640.000	8.16E-18		
41095.000	9.44E-18			41370.000	8.78E-18			41645.000	8.17E-18		
41100.000	9.32E-18	9.51E-18	1.020	41375.000	8.78E-18			41650.000	8.17E-18		
41105.000	9.32E-18			41380.000	8.71E-18			41655.000	8.23E-18		
41110.000	9.34E-18			41385.000	8.70E-18			41660.000	8.19E-18		
41115.000	9.28E-18			41390.000	8.75E-18			41665.000	8.19E-18		
41120.000	9.21E-18			41395.000	8.68E-18			41670.000	8.17E-18		
41125.000	9.27E-18			41400.000	8.69E-18	8.91E-18	1.025	41675.000	8.15E-18		
41130.000	9.27E-18			41405.000	8.68E-18			41680.000	8.18E-18		
41135.000	9.25E-18			41410.000	8.63E-18			41685.000	8.08E-18		
41140.000	9.24E-18			41415.000	8.61E-18			41690.000	8.13E-18		
41145.000	9.22E-18			41420.000	8.59E-18			41695.000	8.13E-18		
41150.000	9.20E-18			41425.000	8.62E-18			41700.000	8.14E-18	8.28E-18	1.017
41155.000	9.19E-18			41430.000	8.62E-18			41705.000	8.16E-18		
41160.000	9.22E-18			41435.000	8.58E-18			41710.000	8.06E-18		
41165.000	9.18E-18			41440.000	8.60E-18			41715.000	8.08E-18		
41170.000	9.14E-18			41445.000	8.56E-18			41720.000	8.09E-18		
41175.000	9.07E-18			41450.000	8.48E-18			41725.000	8.00E-18		
41180.000	9.08E-18			41455.000	8.49E-18			41730.000	7.95E-18		
41185.000	9.14E-18			41460.000	8.53E-18			41735.000	7.96E-18		
41190.000	9.16E-18			41465.000	8.58E-18			41740.000	8.00E-18		
41195.000	9.04E-18			41470.000	8.52E-18			41745.000	7.96E-18		
41200.000	9.03E-18	9.24E-18	1.023	41475.000	8.57E-18			41750.000	7.96E-18		
41205.000	9.05E-18			41480.000	8.45E-18			41755.000	7.95E-18		
41210.000	8.96E-18			41485.000	8.45E-18			41760.000	7.93E-18		
41215.000	9.02E-18			41490.000	8.44E-18			41765.000	7.91E-18		
41220.000	9.07E-18			41495.000	8.45E-18			41770.000	7.86E-18		
41225.000	8.98E-18			41500.000	8.41E-18	8.60E-18	1.023	41775.000	7.80E-18		
41230.000	8.98E-18			41505.000	8.39E-18			41780.000	7.83E-18		
41235.000	8.93E-18			41510.000	8.36E-18			41785.000	7.79E-18		
41240.000	8.97E-18			41515.000	8.32E-18			41790.000	7.81E-18		
41245.000	8.92E-18			41520.000	8.39E-18			41795.000	7.77E-18		

Comparison of ozone cross sections at 195 K: HCO and Bass data with RATIO = Bass / HCO (17)

Wavenumber	HCO	BASS	RATIO	Wavenumber	HCO	BASS	RATIO
41800.000	7.71E-18	7.96E-18	1.032	42075.000	7.24E-18		
41805.000	7.70E-18			42080.000	7.25E-18		
41810.000	7.76E-18			42085.000	7.17E-18		
41815.000	7.80E-18			42090.000	7.07E-18		
41820.000	7.72E-18			42095.000	7.09E-18		
41825.000	7.65E-18			42100.000	7.09E-18	7.31E-18	1.031
41830.000	7.61E-18			42105.000	7.15E-18		
41835.000	7.67E-18			42110.000	7.18E-18		
41840.000	7.71E-18			42115.000	7.13E-18		
41845.000	7.68E-18			42120.000	7.08E-18		
41850.000	7.64E-18			42125.000	7.11E-18		
41855.000	7.64E-18			42130.000	7.11E-18		
41860.000	7.63E-18			42135.000	6.97E-18		
41865.000	7.61E-18			42140.000	7.03E-18		
41870.000	7.63E-18			42145.000	7.08E-18		
41875.000	7.60E-18			42150.000	7.06E-18		
41880.000	7.56E-18			42155.000	7.07E-18		
41885.000	7.67E-18			42160.000	7.02E-18		
41890.000	7.56E-18			42165.000	7.00E-18		
41895.000	7.59E-18			42170.000	7.07E-18		
41900.000	7.56E-18	7.74E-18	1.023	42175.000	7.04E-18		
41905.000	7.50E-18			42180.000	6.96E-18		
41910.000	7.48E-18			42185.000	6.98E-18		
41915.000	7.53E-18			42190.000	6.97E-18		
41920.000	7.48E-18			42195.000	7.03E-18		
41925.000	7.50E-18			42200.000	6.98E-18	7.10E 18	1.018
41930.000	7.49E-18			42205.000	6.93E-18		
41935.000	7.53E-18			42210.000	6.86E-18		
41940.000	7.47E-18			42215.000	6.93E-18		
41945.000	7.46E-18			42220.000	6.88E-18		
41950.000	7.47E-18			42225.000	6.91E-18		
41955.000	7.45E-18			42230.000	6.92E-18		
41960.000	7.40E-18			42235.000	6.81E-18		
41965.000	7.44E-18			42240.000	6.84E-18		
41970.000	7.56E-18			42245.000	6.86E-18		
41975.000	7.45E-18			42250.000	6.76E-18		
41980.000	7.39E-18			42255.000	6.73E-18		
41985.000	7.44E-18			42260.000	6.81E-18		
41990.000	7.36E-18			42265.000	6.76E-18		
41995.000	7.35E-18			42265.000	6.76E-18		
42000.000	7.33E-18	7.55E-18	1.030				
42005.000	7.31E-18						
42010.000	7.40E-18						
42015.000	7.34E-18						
42020.000	7.28E-18						
42025.000	7.24E-18						
42030.000	7.35E-18						
42035.000	7.32E-18						
42040.000	7.32E-18						
42045.000	7.33E-18						
42050.000	7.25E-18						
42055.000	7.21E-18						
42060.000	7.25E 18						
42065.000	7.20E 18						
42070.000	7.19E 18						

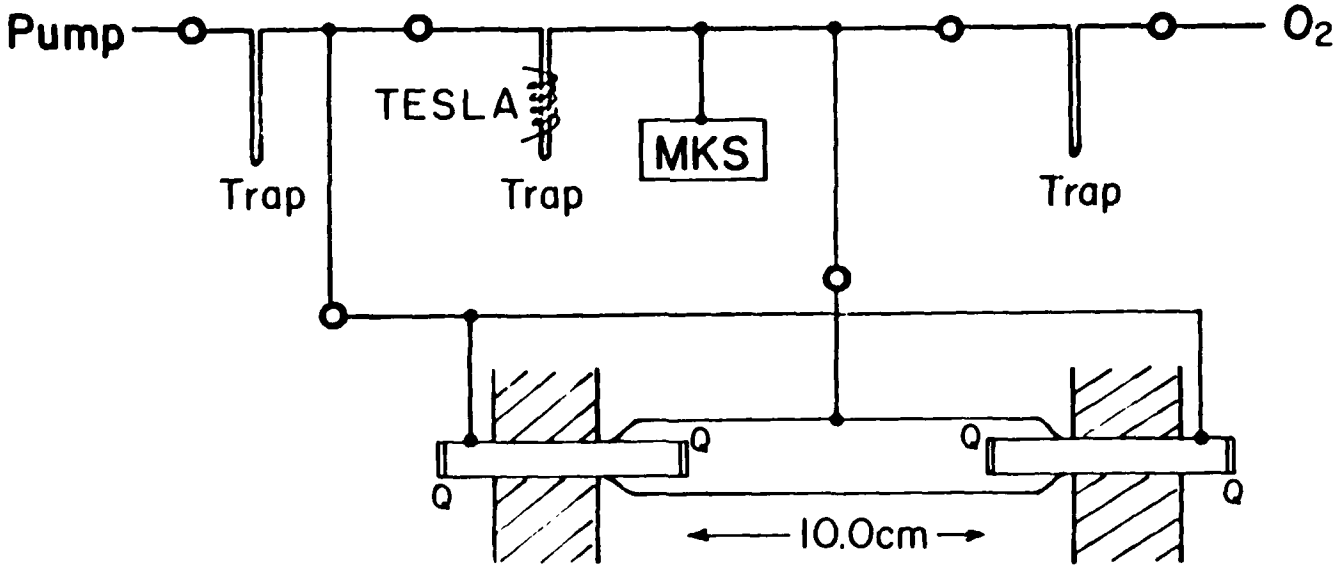

Figure 1. Experimental arrangement for preparation of ozone

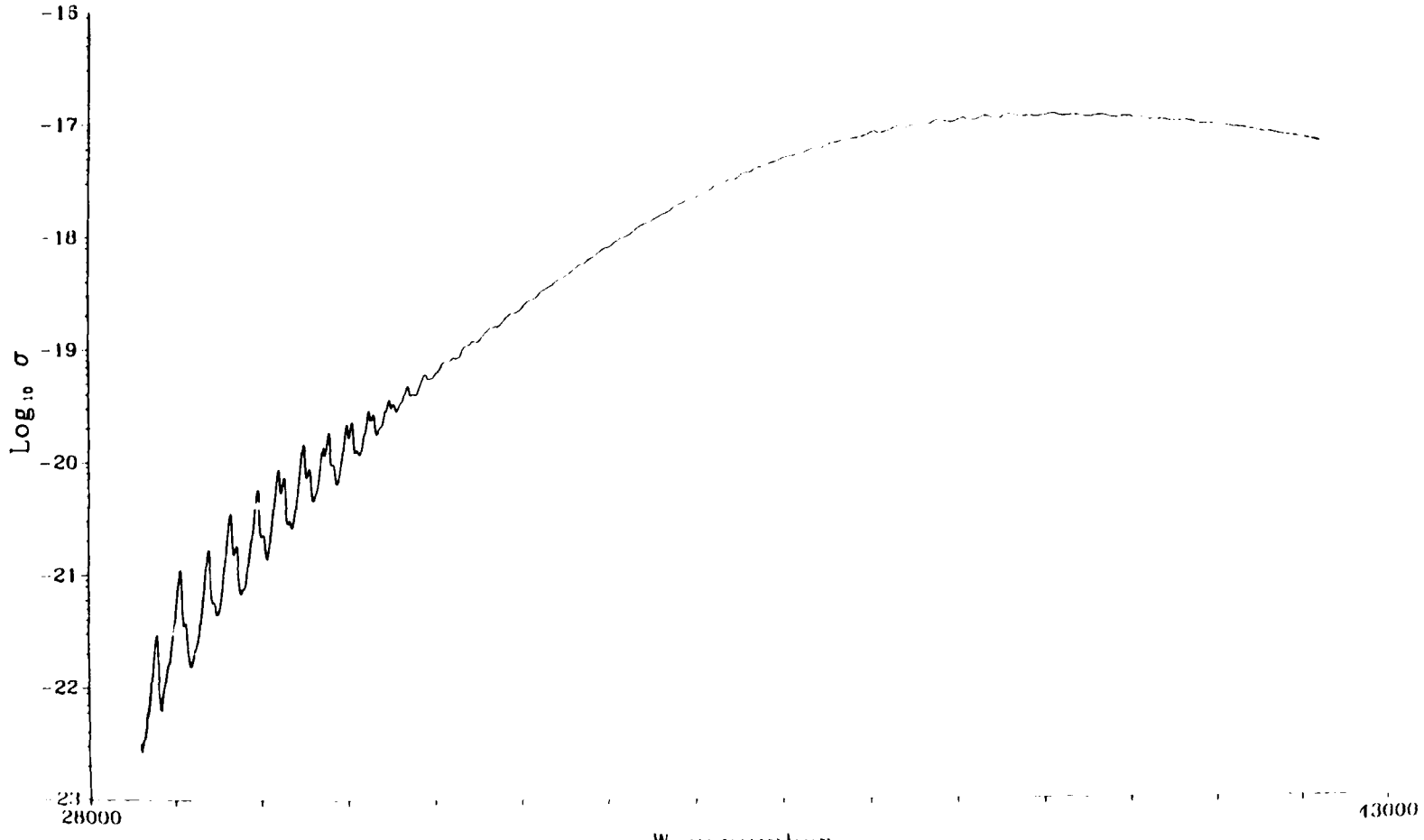

Figure 2. The cross sections of ozone at 195 K in the absolute base by the present measurements from our published relative measurements.

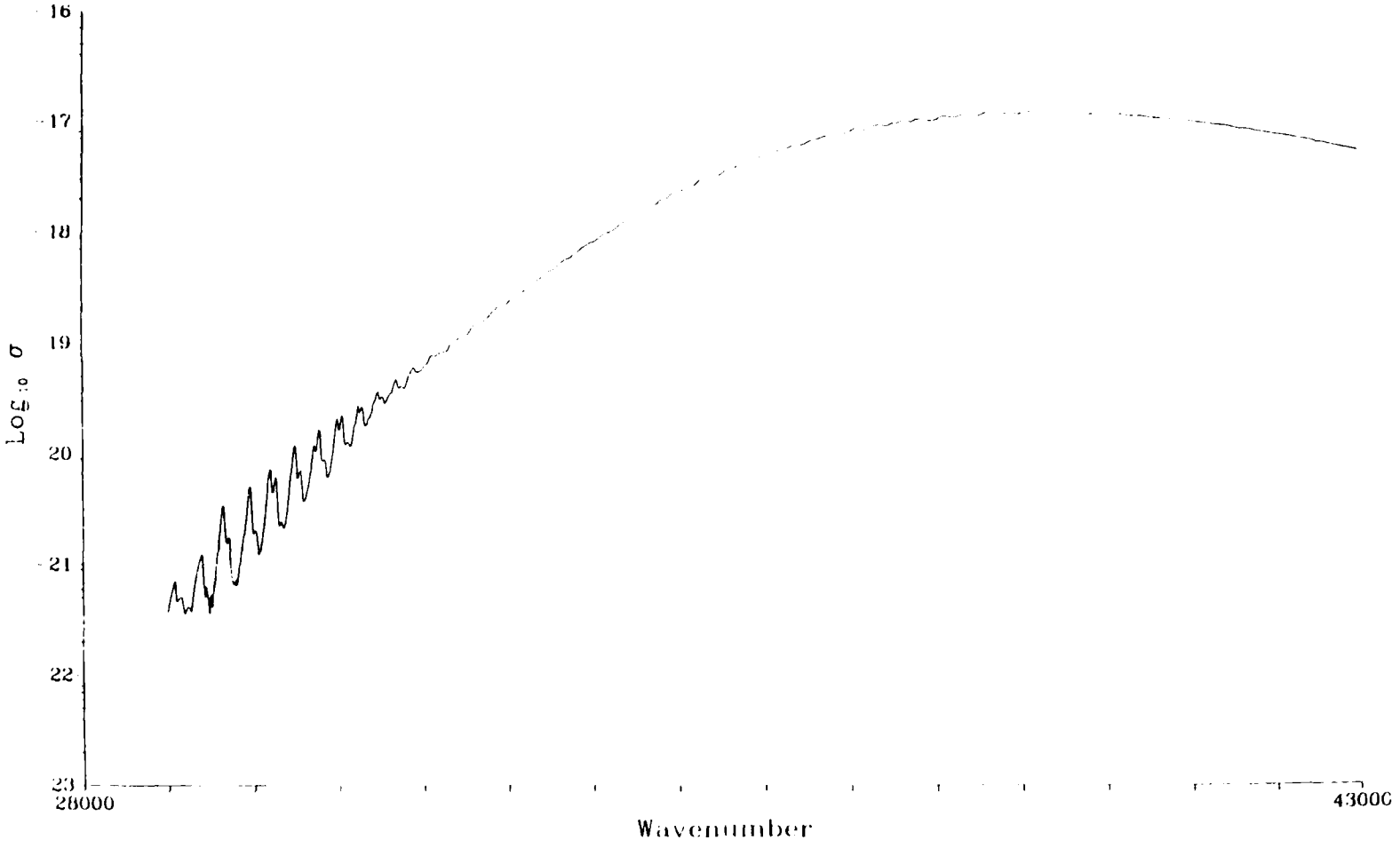

Figure 3. The cross sections of ozone at 195 K calculated from parameters supplied by Bass.