COO-2326-19

MASTER

Lines in the Spectrum of ^{7}LiH(4728-5298 Å)*

K. C. Li†

Department of Chemistry
University of Iowa
Iowa City, Iowa 52242

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† Present address, College of Pharmacy, University of Iowa, Iowa City, Iowa 52242.

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The emission spectra of the $A^1\Sigma^+ - X^1\Sigma^+$ bands of ^7LiH were photographed in the 4728 Å - 5298 Å region with a 3.4 meter Ebert Spectrograph of theoretical resolution of about 0.07 cm^{-1}. High purity ^7LiH crystals were obtained from Oak Ridge National Laboratory. The atomic percent of ^7Li in ^7LiH and ^7LiD was 99.93%. The discharge source was a demountable stainless steel hollow cathode lamp. A detailed description of the discharge tube is given in [1]. The lithium hydride crystals were packed into the cathode. Pressure in the discharge tube was about 10 to 20 torr of H_2. The discharge was run at about 600 volts and 1.25-1.75 amperes. Acceptable spectra were obtained with exposure time of 6 hours. A Westinghouse iron hollow cathode was used to produce the iron spectrum for calibration. The plates were measured on the Gaertner photoplate comparator with an encoder system and on-line computer service at Argonne National Laboratory. I would like to acknowledge the help of Dr. Fred Tomkins of Argonne National Laboratory in using the comparator.

The measured lines in the spectra of ^7LiH are given in this report (COO-2326-19). Similar spectra for ^6LiH and ^6LiD are given in companion reports (COO-2326-17) and (COO-2326-18), respectively. The relative intensities of the lines are applicable only to short regions and do not extend over the whole spectrum. The assigned lines along with those reported in Jogensen's thesis [2] are listed in Report (COO-2326-20). These spectra are now being compared with spectra obtained in this laboratory from collisions of fast

(~ 5 eV) H atoms with a Li_2 crossed beam.

References

1. K. C. Li, Ph.D. Thesis, University of Iowa (1976).

2. T. Jorgensen Jr., Ph.D. Thesis, Harvard University (1935).

Lines in the Spectra of ^{7}LiH

(4728 - 5298 Å)

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
P1141.019	4726.8182	84.	0.614	
P1140.312	4728.9762	43.	0.351	
P1139.472	4729.1642	16.	0.263	
P1138.747	4729.3263	12.	0.307	
P1138.159	4729.4556	12.	0.307	
P1137.620	4729.5785	12.	0.219	
P1136.856	4729.7495	13.	0.789	
P1135.449	4730.0644	19.	0.526	
P1133.573	4730.4619	14.	0.307	
P1132.216	4730.7879	49.	0.920	
P1131.222	4731.0104	14.	0.394	
P1130.707	4731.1259	12.	0.219	
P1127.726	4731.7935	12.	0.175	
P1126.662	4732.0317	30.	0.513	
P1125.562	4732.2556	14.	0.394	
P1124.596	4732.4944	12.	0.263	
P1123.570	4732.7243	13.	0.394	
P1122.830	4732.8902	14.	0.569	
P1120.613	4733.3870	14.	0.481	
P1119.551	4733.6249	12.	0.262	
P1118.589	4733.8407	47.	0.612	2,4P7
P1117.223	4734.1470	13.	0.700	
P1115.948	4734.4328	58.	0.700	
P1114.964	4734.6534	38.	0.481	3,4P13
P1114.260	4734.8113	19.	0.394	
P1112.814	4735.1356	18.	0.393	
P1111.896	4735.3415	38.	0.556	
P1111.043	4735.5327	12.	0.262	
P1109.588	4735.8591	19.	0.306	
P1108.097	4736.1936	14.	0.555	
P1106.173	4736.6255	12.	0.218	
P1105.368	4736.8061	24.	0.565	
P1102.827	4737.3765	22.	0.480	
P1100.346	4737.9334	39.	0.524	
P1099.533	4738.1162	18.	0.437	
P1097.401	4738.5948	72.	0.555	
P1094.959	4739.1344	85.	0.742	
P1093.653	4739.4368	17.	0.480	
P1092.708	4739.6492	13.	0.393	
P1090.914	4740.0524	12.	0.305	
P1029.970	4740.2646	97.	0.595	2,4R9
P1087.905	4740.8635	127.	0.698	

Wavenumber	Wavelength	Intensity	Width(K)	Assignment (v', v", Branch J)
P1086.172	4741.1155	22.	0.523	
P1085.169	4741.5445	13.	0.392	
P1083.867	4741.9368	27.	0.610	
P1082.950	4741.6426	12.	0.305	
P1081.625	4742.1410	27.	0.654	
P1080.508	4742.3822	15.	0.654	
P1079.651	4742.5550	15.	0.305	
P1078.706	4742.7977	16.	0.610	
P1076.311	4743.3367	14.	0.392	
P1075.665	4743.4820	18.	0.305	
P1075.091	4743.6113	18.	0.566	
P1073.135	4744.0514	14.	0.827	
P1071.576	4744.4025	12.	1.089	
P1070.343	4744.6350	12.	0.435	
P1069.952	4744.7682	13.	0.305	
P1067.551	4745.3090	14.	0.392	
P1066.620	4745.5135	17.	0.435	3,4P12
P1065.701	4745.7257	12.	0.218	
P1065.286	4745.8192	13.	0.305	
P1062.713	4746.3989	12.	0.392	
P1061.808	4746.6028	15.	0.522	
P1060.953	4746.7955	12.	0.565	
P1058.836	4747.2726	12.	0.565	
P1057.934	4747.4762	18.	0.522	1,4R0
P1056.715	4747.7511	24.	0.695	
P1055.823	4747.9520	14.	0.304	1,4R1
P1054.496	4748.1611	94.	0.738	2,4P8
P1053.859	4748.3571	16.	0.304	
P1052.481	4748.7059	26.	0.522	
P1051.830	4748.8527	19.	0.348	
P1050.114	4749.2398	114.	0.739	
P1048.952	4749.5020	19.	0.478	
P1047.830	4749.7560	65.	0.752	
P1046.678	4750.0151	12.	0.174	
P1045.964	4750.1764	42.	0.478	1,4R2
P1045.133	4750.3640	14.	0.447	
P1044.616	4750.4806	12.	0.217	
P1041.715	4751.1355	14.	0.521	
P1040.469	4751.4169	14.	0.174	
P1039.702	4751.5901	31.	0.565	
P1038.667	4751.8194	17.	0.304	1,4P1
P1037.568	4752.0721	19.	0.564	
P1036.739	4752.4175	12.	0.391	
P1035.458	4752.5458	13.	0.260	
P1034.265	4752.8184	78.	0.824	
P1033.744	4753.0342	12.	0.651	
P1031.868	4753.3601	14.	0.390	
P1030.501	4753.6691	19.	0.347	
P1029.069	4753.9825	1544.	1.773	1,4R3
P1027.530	4754.3406	14.	0.347	
P1025.880	4754.7116	12.	0.347	
P1024.967	4754.9157	12.	0.650	
P1022.832	4755.3390	109.	0.693	2,4R10
P1019.853	4756.1353	78.	0.866	3,4R14
P1018.156	4756.4612	22.	0.390	
P1017.226	4756.6716	29.	0.433	1,4P2
P1016.370	4756.8654	27.	0.520	
P1015.468	4757.0696	16.	0.346	
P1013.838	4757.4356	18.	0.823	
P1012.508	4757.7397	15.	0.346	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
21011.515	4757.9644	13.	0.519	
21010.126	4758.2790	23.	0.433	
21009.211	4758.4862	152.	0.779	
21008.375	4758.6756	21.	0.303	
21007.263	4758.9275	14.	0.433	
21005.591	4759.3064	90.	0.735	1,4R4
21004.725	4759.5025	23.	0.303	
21004.233	4759.6142	19.	0.260	
21003.658	4759.7443	15.	0.260	
21002.278	4760.0570	16.	0.735	
21000.571	4760.4441	99.	0.692	
20999.678	4760.6465	16.	0.303	
20998.661	4760.8772	21.	0.476	
20997.805	4761.0711	14.	0.432	
20997.054	4761.2415	19.	0.519	
20995.880	4761.5077	149.	0.691	
20994.963	4761.7156	15.	0.389	
20993.655	4762.0123	22.	0.475	
20992.146	4762.3546	645.	0.994	
20991.094	4762.5932	20.	0.518	
20990.213	4762.7933	14.	0.432	
20989.375	4762.9834	38.	0.648	1,4P3
20988.167	4763.2576	14.	0.432	
20987.263	4763.4626	15.	0.389	
20986.777	4763.6000	23.	0.475	
20985.018	4763.9723	26.	0.432	
20984.002	4764.2030	71.	0.648	2,4P9
20983.146	4764.3973	21.	0.302	
20979.625	4765.1970	30.	0.777	
20977.477	4765.5940	112.	0.777	
20976.771	4765.8453	276.	0.737	
20975.850	4766.0546	14.	0.173	
20974.306	4766.4054	485.	0.292	1,4R5
20973.398	4766.6117	14.	0.216	
20972.833	4766.7403	14.	0.302	
20972.223	4766.8788	14.	0.389	
20971.636	4767.0119	19.	0.259	
20970.511	4767.2679	17.	0.304	
20968.344	4767.7596	30.	0.305	3,4P13
20967.516	4767.9480	19.	0.302	
20966.877	4768.0943	14.	0.216	
20966.103	4768.2702	14.	0.302	
20964.985	4768.5474	27.	0.388	
20964.279	4768.7081	20.	0.360	
20963.224	4768.9483	12.	0.172	
20962.339	4769.1264	14.	0.517	
20961.370	4769.3468	14.	0.256	
20960.568	4769.5295	20.	0.431	
20959.743	4769.7082	13.	0.215	
20959.323	4769.7991	12.	0.172	
20958.405	4770.0217	25.	0.560	
20956.250	4770.5123	13.	0.215	
20955.812	4770.6119	13.	0.215	
20955.011	4770.7944	15.	0.172	
20954.248	4770.9681	54.	0.646	1,4P4
20953.515	4771.1349	14.	0.172	
20951.717	4771.5443	14.	0.430	
20950.800	4771.7532	13.	0.774	
20949.258	4772.1044	12.	0.301	
20948.141	4772.3588	37.	0.645	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20947.183	4772.5772	108.	0.543	2,4R11
20946.276	4772.7538	12.	0.301	
20944.957	4773.0822	59.	0.731	
20942.309	4773.6440	64.	0.545	
20940.689	4774.0572	15.	0.516	
20939.487	4774.3313	17.	0.430	
20938.113	4774.6446	34.	0.545	
20936.397	4775.0360	28.	0.430	
20935.441	4775.2539	95.	0.601	1,4R6
20934.457	4775.4783	17.	0.601	
20933.474	4775.7027	13.	0.387	
20932.799	4775.8568	14.	0.387	
20931.926	4776.0560	14.	0.387	
20930.771	4776.3194	16.	0.429	
20929.003	4776.7230	13.	0.472	
20927.906	4776.9733	16.	0.687	
20926.131	4777.3786	34.	0.773	
20924.135	4777.8341	119.	0.815	
20923.067	4778.0781	18.	0.429	
20922.350	4778.2418	14.	0.172	
20921.861	4778.3535	14.	0.257	
20921.181	4778.5088	14.	0.343	
20920.542	4778.6547	13.	0.429	
20919.220	4778.9568	16.	0.729	
20918.010	4779.2333	17.	0.472	
20916.972	4779.4703	59.	0.643	3,4R16
20916.143	4779.6599	12.	0.172	
20915.553	4779.7947	12.	0.257	
20914.471	4780.0420	44.	0.557	
20913.698	4780.2187	14.	0.214	
20912.939	4780.3922	24.	0.472	
20911.767	4780.6601	74.	0.686	1,4P5
20910.512	4780.9470	47.	0.857	
20908.900	4781.3157	24.	0.557	
20907.449	4781.6475	19.	0.386	
20906.005	4781.9773	106.	0.771	2,4P10
20904.752	4782.2644	15.	0.171	
20903.957	4782.4463	29.	0.857	
20902.321	4782.8205	17.	0.514	
20901.615	4782.9821	16.	0.214	
20900.025	4783.3458	2577.	1.841	
20897.739	4783.8693	134.	0.685	
20896.768	4784.0915	14.	0.300	
20895.937	4784.2818	13.	0.727	
20894.862	4784.5278	29.	0.513	
20893.771	4784.7778	17.	0.556	
20892.877	4784.9825	12.	0.342	
20892.363	4785.1003	13.	0.257	
20891.691	4785.2540	13.	0.556	
20890.406	4785.5484	17.	0.385	
20889.122	4785.8427	119.	0.727	1,4R7
20887.651	4786.1798	105.	0.598	
20886.351	4786.4777	24.	0.513	
20885.009	4786.7851	13.	0.342	
20884.168	4786.9734	13.	0.641	
20883.360	4787.1631	13.	0.342	
20881.774	4787.5267	12.	0.556	
20880.937	4787.7156	12.	0.214	
20879.254	4788.1046	30.	0.726	
20878.048	4788.3813	13.	0.214	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20877.268	4785.555*	14.	0.512	
20875.268	4789.0139	14.	0.340	
20874.741	4789.3014	134.	0.641	
20873.196	4789.4943	22.	0.256	
20872.704	4789.6072	18.	0.256	
20871.886	4789.7950	28.	0.640	
20870.957	4790.0060	28.	0.427	
20870.379	4790.1407	14.	0.171	
20869.436	4790.3572	24.	0.768	
20868.668	4790.5334	13.	0.213	
20867.596	4790.7795	61.	0.683	
20865.920	4791.1643	15.	0.256	
20864.928	4791.3923	158.	0.811	2,4R12
20863.702	4791.6738	62.	0.853	3,4P14
20862.743	4791.8939	16.	0.171	
20862.028	4792.0581	33.	0.682	1,4P6
20860.060	4792.5104	48.	0.768	
20858.646	4792.7652	14.	0.384	
20857.587	4793.0785	13.	0.256	
20856.585	4793.2389	43.	0.554	
20855.821	4793.4844	13.	0.384	
20855.200	4793.6279	16.	0.341	
20854.223	4793.8518	29.	0.724	
20852.979	4794.1377	27.	0.511	
20852.150	4794.3284	20.	0.341	
20851.130	4794.5628	16.	0.682	
20850.572	4794.6911	13.	0.170	
20849.584	4794.9154	19.	0.426	
20848.584	4795.1455	34.	0.767	
20847.818	4795.3245	17.	0.213	
20847.078	4795.4949	15.	0.511	
20845.959	4795.7452	16.	0.554	
20844.512	4796.0852	74.	0.598	
20843.112	4796.4073	14.	0.341	
20842.521	4796.5434	13.	0.298	
20841.415	4796.7979	27.	0.469	
20840.153	4797.0513	40.	0.723	
20839.512	4797.2360	18.	0.170	
20838.909	4797.3745	16.	0.383	
20838.192	4797.5398	21.	0.340	
20837.389	4797.7247	32.	0.596	
20836.556	4797.9163	14.	0.213	
20835.293	4798.2072	143.	0.681	1,4R8
20834.508	4798.3882	24.	0.298	
20833.534	4798.6125	14.	0.340	
20832.679	4798.7883	16.	0.383	
20832.139	4798.9338	12.	0.255	
20831.393	4799.1056	16.	0.723	
20830.375	4799.3403	27.	0.553	
20829.759	4799.4729	17.	0.213	
20829.126	4799.6187	13.	0.340	
20828.074	4799.8704	12.	0.298	
20827.451	4800.0139	15.	0.340	
20826.360	4800.2607	40.	0.765	
20825.280	4800.5143	14.	0.595	
20824.311	4800.7378	14.	0.297	
20823.075	4801.0219	25.	0.637	
20821.954	4801.2812	17.	0.255	
20821.111	4801.4756	205.	0.765	2,4P11
20819.726	4801.7789	43.	0.552	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20818.973	4801.9667	17.	0.513	
20817.970	4802.2001	13.	0.467	
20816.986	4802.6346	22.	0.425	
20815.559	4802.7562	14.	0.173	
20814.875	4802.9141	14.	0.424	
20814.000	4803.1159	15.	0.467	
20813.407	4803.2528	16.	0.297	
20812.585	4803.4425	17.	0.340	
20811.891	4803.6026	13.	0.212	
20811.594	4803.6712	13.	0.212	
20810.318	4803.9657	34.	0.552	
20809.404	4804.1768	18.	0.339	
20808.553	4804.3734	81.	0.551	
20807.535	4804.6084	71.	0.594	3,4R16
20806.466	4804.8551	14.	0.594	
20805.353	4805.1816	97.	0.679	1,4P7
20804.362	4805.4105	14.	0.339	
20803.300	4805.5864	12.	0.254	
20802.575	4805.7538	16.	0.466	
20801.600	4805.9792	23.	0.551	
20800.836	4806.1556	16.	0.297	
20799.712	4806.4154	23.	0.381	
20799.195	4806.5350	18.	0.254	
20797.344	4806.9628	81.	0.720	
20796.018	4807.2693	118.	1.059	
20794.648	4807.5859	13.	0.254	
20794.038	4807.7270	14.	0.466	
20792.374	4808.1118	14.	0.593	
20791.550	4808.3023	13.	0.424	
20790.720	4808.4942	31.	0.551	
20789.600	4808.7532	25.	0.593	
20788.115	4809.0967	15.	0.381	
20787.458	4809.2488	17.	0.506	
20786.687	4809.4272	17.	0.296	
20785.734	4809.6477	49.	0.593	
20784.748	4809.8759	13.	0.592	
20782.017	4810.5080	59.	0.465	
20781.104	4810.7193	28.	0.677	
20780.316	4810.9016	17.	0.296	
20779.301	4811.1367	16.	0.254	
20778.554	4811.3098	38.	0.550	
20777.406	4811.5756	37.	0.888	0,4R0
20775.441	4812.0308	143.	0.719	2,4R13
20774.609	4812.2233	39.	0.211	0,4R1
20773.902	4812.3871	143.	0.634	1,4R9
20772.396	4812.7362	23.	0.972	
20771.112	4813.0335	12.	0.254	
20769.514	4813.4038	28.	0.507	
20768.640	4813.6063	15.	0.254	
20767.904	4813.7771	51.	0.591	
20765.842	4814.2551	14.	0.422	
20764.632	4814.5355	22.	0.549	0,4R2
20763.697	4814.7523	26.	0.380	
20762.894	4814.9387	63.	0.549	
20761.522	4815.2568	41.	0.507	
20760.050	4815.5983	13.	0.253	
20759.108	4815.8167	30.	0.507	
20758.249	4816.0160	16.	0.380	
20757.563	4816.1752	13.	0.253	0,4R1
20756.788	4816.3550	28.	0.422	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20756.050	4816.5263	13.	0.295	
20754.884	4816.7969	89.	0.675	
20753.296	4817.1654	18.	0.380	
20752.223	4817.4146	31.	0.464	3,4P15
20751.392	4817.6073	12.	0.211	
20749.976	4817.9362	29.	0.590	
20748.929	4818.1794	13.	0.253	
20747.774	4818.4476	46.	0.590	0,4R3
20746.971	4818.6574	14.	0.422	
20745.634	4818.9446	19.	0.632	
20744.566	4819.1927	12.	0.211	
20743.611	4819.4145	17.	0.421	
20742.664	4819.6346	16.	0.506	
20740.817	4820.0638	106.	0.632	1,4P8
20740.089	4820.2330	17.	0.211	
20738.737	4820.5472	85.	0.590	
20736.883	4820.9782	13.	0.168	
20736.251	4821.1252	35.	0.505	0,4P2
20734.320	4821.5741	32.	0.758	
20733.102	4821.8574	18.	0.463	
20731.907	4822.1353	13.	0.421	
20730.386	4822.4891	12.	0.210	
20729.242	4822.7553	112.	0.673	2,4P12
20728.454	4822.9387	22.	0.295	
20726.336	4823.4314	2145.	1.809	
20725.015	4823.7390	29.	0.168	
20724.428	4823.8757	17.	0.252	
20723.454	4824.0954	34.	0.925	0,4R4
20722.449	4824.3363	14.	0.168	
20721.421	4824.5338	39.	0.757	
20720.545	4824.7797	12.	0.168	
20719.650	4824.9879	18.	0.252	
20718.854	4825.1711	75.	0.757	
20716.979	4825.6100	37.	0.546	
20715.516	4825.9508	13.	0.462	
20714.656	4826.1514	14.	0.294	
20713.204	4826.4895	14.	0.252	
20712.706	4826.6057	14.	0.420	
20711.939	4826.7843	18.	0.336	
20711.365	4826.9180	25.	0.378	
20710.464	4827.1280	14.	0.294	
20710.021	4827.2360	13.	0.210	
20709.462	4827.3616	13.	0.168	
20709.105	4827.4449	15.	0.294	
20708.241	4827.6463	22.	0.504	0,4P3
20707.185	4827.8924	31.	0.504	
20706.344	4828.0886	14.	0.294	
20705.086	4828.3820	119.	0.672	1,4R10
20704.020	4828.6306	12.	0.210	
20703.616	4828.7248	12.	0.252	
20702.549	4828.9736	24.	0.504	
20701.044	4829.3248	88.	0.671	
20700.153	4829.5327	13.	0.336	
20699.415	4829.7047	12.	0.336	
20698.796	4829.8492	12.	0.336	
20697.824	4830.1460	13.	0.252	
20696.943	4830.2817	16.	0.461	
20695.405	4830.6407	15.	0.419	
20693.138	4831.1581	13.	0.335	
20692.364	4831.3505	15.	0.210	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20691.394	4831.5770	112.	1.043	3,4R17, 04R5
20688.932	4832.1521	19.	0.503	
20688.154	4832.3337	19.	0.377	
20687.193	4832.5541	48.	0.461	
20686.250	4832.7745	151.	0.838	
20684.820	4833.1127	54.	0.587	
20683.767	4833.3586	36.	0.754	
20682.827	4833.5783	12.	0.377	
20682.222	4833.7198	12.	0.251	
20681.217	4833.9546	16.	0.419	
20680.656	4834.0857	14.	0.251	
20678.736	4834.5347	134.	0.754	2,4R14
20677.748	4834.7656	13.	0.209	
20676.930	4834.9569	12.	0.419	
20675.600	4835.2678	20.	0.544	
20674.918	4835.4275	15.	0.167	
20674.423	4835.5432	20.	0.335	
20673.753	4835.6998	16.	0.293	
20672.794	4835.9243	24.	0.460	0,4P4
20671.165	4836.3054	12.	0.251	
20669.248	4836.7538	159.	0.675	1,4P9
20668.339	4836.9667	21.	0.251	
20666.758	4837.3367	13.	0.293	
20664.101	4837.9586	13.	0.167	
20662.933	4838.2321	78.	0.962	
20661.675	4838.5267	14.	0.209	
20660.788	4838.7345	26.	0.418	
20659.969	4838.9263	27.	0.543	
20658.676	4839.2292	26.	0.417	
20655.488	4839.9761	16.	0.376	
20651.243	4840.9709	29.	0.501	0,4R6
20650.350	4841.1804	13.	0.376	
20649.240	4841.4404	14.	0.501	
20648.291	4841.6630	14.	0.626	
20645.446	4842.3302	22.	0.543	
20643.875	4842.6987	13.	0.167	
20643.344	4842.8234	18.	0.542	
20641.931	4843.1547	21.	0.626	
20640.897	4843.3975	15.	0.251	
20639.573	4843.7082	25.	0.626	
20637.200	4844.2650	14.	0.375	
20636.557	4844.4160	18.	0.334	
20635.871	4844.5771	50.	0.459	
20634.286	4844.9493	32.	0.459	3,4P16
20633.109	4845.2257	77.	0.875	
20632.047	4845.4751	12.	0.333	
20631.452	4845.6147	19.	0.250	
20630.323	4845.8798	187.	1.043	2,4P13
20628.818	4846.2336	99.	0.667	1,4R11
20627.765	4846.4810	19.	0.458	
20625.994	4846.8971	29.	0.417	
20625.185	4847.0872	50.	0.541	
20624.361	4847.2809	13.	0.333	
20623.062	4847.5862	29.	0.708	
20621.910	4847.8568	12.	0.167	
20621.103	4848.0467	23.	0.749	
20619.972	4848.3125	35.	0.499	
20617.234	4848.9565	27.	0.666	
20616.036	4849.2382	25.	0.541	
20615.025	4849.4761	45.	0.749	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20613.679	4849.7927	14.	0.[illegible]5[illegible]	
20612.719	4850.0185	40.	0.341	
20611.659	4850.2679	12.	0.20[illegible]	
20606.421	4851.5010	24.	0.457	
20605.412	4851.7385	19.	0.291	
20604.706	4851.9047	15.	0.20[illegible]	
20604.175	4852.0297	29.	0.33[illegible]	
20603.574	4852.1712	32.	0.41[illegible]	0,4R7
20602.844	4852.3423	14.	0.24[illegible]	
20602.123	4852.5130	13.	0.457	
20600.524	4852.8898	20.	0.49[illegible]	
20598.859	4853.2818	12.	0.41[illegible]	
20598.319	4853.4092	12.	0.16[illegible]	
20597.529	4853.5952	23.	0.41[illegible]	
20595.585	4853.9827	12.	0.20[illegible]	
20594.944	4854.2045	51.	0.747	
20594.071	4854.4102	12.	0.166	
20592.457	4854.7909	13.	0.374	
20590.588	4855.2316	106.	0.564	1,4P10
20589.814	4855.4141	17.	0.29[illegible]	
20588.726	4855.6705	13.	0.29[illegible]	
20588.103	4855.8175	12.	0.29[illegible]	
20587.629	4855.9293	13.	0.249	
20587.068	4856.0617	14.	0.53[illegible]	
20586.359	4856.2290	12.	0.33[illegible]	
20585.148	4856.5147	93.	0.954	
20584.171	4856.7452	13.	0.16[illegible]	
20583.667	4856.8640	13.	0.415	
20582.013	4857.2544	28.	0.413	
20581.239	4857.4251	14.	0.207	
20580.597	4857.5765	15.	0.413	
20579.612	4857.8210	139.	0.663	0,4P6
20577.953	4858.2127	55.	0.53[illegible]	
20576.826	4858.4758	12.	0.16[illegible]	
20575.873	4858.7038	13.	0.331	
20574.900	4858.9336	132.	0.70[illegible]	2,4R15
20573.429	4859.2810	71.	0.45[illegible]	
20572.690	4859.4556	52.	0.373	
20571.566	4859.7211	45.	0.456	
20570.628	4859.9435	14.	0.207	
20570.037	4860.0704	22.	0.331	
20569.654	4860.1658	15.	0.166	
20568.459	4860.4552	94.	0.538	3,4R18
20566.648	4861.0432	9580.	2.153	
20564.589	4861.5699	9580.	1.573	
20562.875	4861.7750	4290.	1.407	
20561.634	4862.0695	37.	0.331	
20561.039	4862.2091	25.	0.414	
20560.067	4862.4392	15.	0.455	
20559.027	4862.6852	22.	0.414	
20558.074	4862.9124	13.	0.165	
20557.529	4863.0393	14.	0.379	
20556.717	4863.2315	14.	0.289	
20556.292	4863.3321	13.	0.165	
20555.929	4863.4179	12.	0.207	
20555.120	4863.6094	17.	0.496	
20553.976	4863.8800	12.	0.207	
20553.479	4863.9976	13.	0.331	
20552.424	4864.2475	13.	0.45[illegible]	
20551.959	4864.4994	12.	0.248	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20550.332	4364.7426	15.	0.537	
20549.376	4364.9625	51.	0.579	
20548.171	4365.2342	54.	0.496	0,4R8
20548.212	4365.2250	41.	0.826	
20544.927	4366.0224	122.	0.702	1,4R12
20543.839	4366.2659	16.	0.578	
20542.906	4366.5011	12.	0.165	
20542.151	4366.6801	17.	0.413	
20541.271	4366.8855	21.	0.206	
20540.744	4367.0133	27.	0.537	
20539.429	4367.3248	19.	0.495	
20538.902	4367.4497	13.	0.206	
20538.444	4367.5585	12.	0.248	
20537.367	4367.8135	43.	0.495	
20536.722	4367.9665	16.	0.248	
20535.903	4368.1607	24.	0.454	
20535.247	4368.3161	14.	0.206	
20534.297	4368.5415	24.	0.413	
20533.416	4368.7503	12.	0.289	
20531.994	4369.0874	12.	0.536	
20530.606	4369.4167	40.	0.701	
20529.738	4369.6226	22.	0.289	
20528.765	4369.9721	12.	0.206	
20527.489	4370.1561	12.	0.289	
20525.788	4370.5596	13.	0.247	
20524.782	4370.7953	122.	0.701	2,4P14
20522.726	4371.2865	144.	0.577	
20521.826	4371.5000	64.	0.577	0,4P7
20520.401	4371.8364	13.	0.494	
20519.241	4372.1136	64.	0.536	
20515.572	4372.9551	96.	0.947	
20514.292	4373.2591	24.	0.535	
20513.306	4373.5234	12.	0.206	
20510.640	4374.1568	19.	0.412	
20509.534	4374.3465	37.	0.453	3,4P17
20508.196	4374.7377	40.	0.782	
20506.857	4375.0560	14.	0.329	
20506.755	4375.3180	59.	0.617	
20504.802	4375.5447	119.	0.617	1,4P11
20503.137	4375.9407	42.	0.781	
20502.047	4376.1997	17.	0.411	
20501.259	4376.3849	17.	0.370	
20500.606	4376.5425	24.	0.370	
20499.008	4376.9228	49.	0.493	
20496.571	4377.5025	14.	0.370	
20495.818	4377.6818	16.	0.452	
20493.659	4378.1956	32.	0.452	
20492.388	4378.4952	12.	0.493	
20490.735	4378.8919	21.	0.411	
20488.971	4379.3118	24.	0.411	
20486.943	4379.7948	16.	0.493	
20484.871	4380.2884	29.	0.493	0,4R9
20484.047	4380.4848	13.	0.411	
20483.251	4380.6745	12.	0.205	
20481.688	4381.0467	13.	0.492	
20480.021	4381.4441	34.	0.328	
20479.372	4381.5990	37.	0.451	
20477.464	4382.0536	16.	0.492	
20476.503	4382.2828	15.	0.369	
20474.629	4382.7297	19.	0.738	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20473.655	4882.3619	14.	0.451	
20471.443	4883.4295	14.	0.369	
20470.334	4883.7543	51.	0.861	
20469.413	4883.9739	15.	0.246	
20468.459	4884.2017	13.	0.492	
20467.723	4884.3771	15.	0.328	
20467.266	4884.4863	13.	0.328	
20465.486	4884.9112	13.	0.574	
20464.063	4885.2507	107.	0.655	2,4R16
20463.336	4885.4244	14.	0.205	
20461.968	4885.7509	25.	0.451	
20460.777	4886.0353	15.	0.450	
20459.397	4886.3649	14.	0.655	
20458.077	4886.6803	13.	0.328	
20456.418	4887.0287	39.	0.655	0,4P8
20455.051	4887.4033	13.	0.327	
20453.650	4887.7379	85.	0.655	1,4R13
20451.469	4888.2592	42.	0.532	
20450.459	4888.5006	15.	0.286	
20447.720	4889.1554	35.	0.573	
20445.243	4889.7479	41.	0.532	
20444.490	4889.9279	13.	0.245	
20441.089	4890.7414	103.	0.513	
20438.948	4891.2538	72.	0.492	3,4R19
20437.973	4891.4870	347.	0.817	
20436.761	4891.7772	31.	0.613	
20435.978	4891.9646	13.	0.245	
20433.395	4892.5830	25.	0.490	
20431.910	4892.9387	41.	0.572	
20430.704	4893.3472	23.	0.408	
20429.504	4893.5149	14.	0.245	
20428.213	4893.8241	15.	0.531	
20427.247	4894.0556	16.	0.449	
20426.079	4894.3355	18.	0.286	
20425.191	4894.5482	45.	0.894	
20424.219	4894.7813	15.	0.326	
20422.716	4895.1175	13.	0.409	
20421.649	4895.3971	15.	0.367	
20420.772	4895.6074	13.	0.285	
20419.582	4895.8927	13.	0.449	
20417.275	4896.4460	52.	0.856	
20416.095	4896.7239	12.	0.245	
20413.697	4897.3042	87.	0.408	0,4R10
20412.534	4897.5831	109.	0.530	2,4P15
20411.786	4897.7628	94.	0.489	1,4P12
20408.688	4898.5063	13.	0.244	
20407.461	4898.8006	32.	0.733	
20404.355	4899.5457	13.	0.163	
20403.898	4899.6561	16.	0.407	
20402.874	4899.9021	32.	0.692	
20401.522	4900.2267	51.	0.936	
20400.522	4900.4669	12.	0.163	
20399.813	4900.6373	21.	0.529	
20398.561	4900.9380	59.	0.570	
20396.648	4901.3978	47.	0.551	
20395.081	4901.7743	13.	0.366	
20394.399	4901.9382	17.	0.366	
20393.031	4902.2670	12.	0.325	
20389.650	4903.0801	16.	0.163	
20388.990	4903.2411	35.	0.513	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20387.735	4905.0477	54.	0.569	
20385.729	4904.1231	12.	0.163	
20385.318	4904.1219	13.	0.366	
20384.218	4904.3865	15.	0.163	
20383.754	4904.4982	29.	0.485	0,4P9
20381.966	4904.9284	15.	0.325	
20381.303	4905.0881	16.	0.406	
20379.068	4905.6260	34.	0.528	3,4P18
20377.130	4906.0925	14.	0.203	
20376.607	4906.2185	17.	0.609	
20375.680	4906.4416	15.	0.284	
20374.781	4906.6581	24.	0.528	
20370.609	4907.6631	16.	0.406	
20368.963	4908.0597	14.	1.176	
20367.945	4908.3291	15.	0.406	
20365.914	4908.7945	112.	1.257	
20363.487	4909.3795	13.	0.446	
20359.619	4910.3122	19.	0.486	
20357.217	4910.8916	13.	0.162	
20356.421	4911.0837	17.	0.891	
20354.995	4911.4276	72.	0.567	1,4R14
20354.360	4911.5809	24.	0.203	
20353.661	4911.7497	26.	0.405	
20351.769	4912.2063	39.	0.526	
20350.404	4912.5358	13.	0.243	
20349.611	4912.7272	21.	0.405	
20348.947	4912.8876	14.	0.243	
20346.258	4913.5369	93.	0.583	2,4R17
20344.483	4913.9655	15.	0.324	
20343.424	4914.2213	12.	0.243	
20339.995	4915.0490	12.	0.485	
20337.784	4915.7534	14.	0.404	
20334.679	4916.5049	24.	0.404	0,4R11
20334.219	4916.4456	17.	0.202	
20333.448	4916.6324	27.	0.364	
20332.862	4916.7741	40.	0.404	
20331.465	4917.1113	19.	0.202	
20330.883	4917.2526	17.	0.404	
20328.615	4917.8013	25.	0.485	
20326.316	4918.3576	19.	0.242	
20325.742	4918.4963	16.	0.404	
20324.427	4918.8146	22.	0.242	
20323.785	4918.9774	151.	0.528	
20323.038	4919.1589	58.	0.485	
20321.700	4919.4747	19.	0.202	
20321.276	4919.5773	14.	0.242	
20320.812	4919.6896	12.	0.202	
20319.534	4919.9993	29.	0.484	
20318.738	4920.1916	19.	0.202	
20317.483	4920.4958	347.	0.847	
20316.029	4920.8479	19.	0.605	
20314.546	4921.2073	15.	0.766	
20312.632	4921.6709	13.	0.282	
20311.808	4921.8705	74.	0.645	1,4P13
20310.206	4922.2587	33.	0.403	
20308.636	4922.6395	17.	0.323	
20308.012	4922.7905	13.	0.282	
20306.730	4923.1015	16.	0.403	
20303.567	4923.8685	37.	0.363	0,4P10
20302.459	4924.0401	99.	0.645	3,4R20

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
P0301.655	4924.3320	14.	0.322	
P0299.557	4924.7643	12.	0.282	
P0298.541	4925.0076	27.	0.483	
P0297.583	4925.2472	17.	0.201	
P0296.407	4925.5054	12.	0.483	
P0295.548	4925.7140	15.	0.403	
P0293.327	4926.3530	103.	0.684	2,4P16
P0292.193	4926.6284	17.	0.362	
P0290.504	4927.0343	13.	0.443	
P0289.800	4927.2094	13.	0.322	
P0288.774	4927.4585	13.	0.282	
P0287.976	4927.6524	33.	0.483	
P0285.188	4928.3297	17.	0.282	
P0283.712	4928.6881	246.	1.568	
P0282.159	4929.0552	15.	0.643	
P0280.457	4929.4792	15.	0.402	
P0278.668	4929.8655	14.	0.442	
P0277.563	4930.1829	12.	0.201	
P0277.062	4930.3047	13.	0.362	
P0273.940	4931.0639	12.	0.402	
P0270.967	4931.7870	33.	0.562	
P0269.210	4932.2147	41.	0.603	
P0267.993	4932.5108	16.	0.442	
P0266.586	4932.7802	15.	0.401	
P0265.822	4933.0391	12.	0.161	
P0265.139	4933.2054	35.	0.482	
P0264.040	4933.4731	72.	1.003	
P0262.616	4933.8197	23.	0.602	
P0260.960	4934.2220	128.	0.963	
P0260.042	4934.4465	17.	0.201	
P0259.568	4934.5620	14.	0.241	
P0257.038	4935.1763	12.	0.561	
P0253.924	4935.9370	13.	0.441	
P0252.759	4936.2210	13.	0.200	
P0252.099	4936.3820	17.	0.601	
P0251.173	4936.6074	26.	0.441	
P0249.411	4937.0372	34.	0.361	
P0248.430	4937.1768	62.	0.441	1,4R15
P0248.124	4937.2513	21.	0.200	
P0247.759	4937.4400	22.	0.320	0,4R12
P0246.323	4937.7901	24.	0.601	
P0245.486	4937.9935	12.	0.162	
P0244.604	4938.2078	13.	0.481	
P0243.661	4938.4375	21.	0.440	
P0243.042	4938.5885	17.	0.400	
P0242.098	4938.8205	48.	0.520	3,4P19
P0241.403	4938.9903	18.	0.160	
P0240.818	4939.1331	31.	0.440	
P0240.113	4939.3051	13.	0.160	
P0238.998	4939.5772	14.	0.240	
P0238.417	4939.7189	14.	0.520	
P0237.955	4939.9784	14.	0.400	
P0236.956	4940.0758	12.	0.160	
P0235.929	4940.3264	15.	0.400	
P0232.475	4941.1699	24.	0.480	
P0231.258	4941.5160	12.	0.360	
P0229.758	4941.8825	23.	0.440	
P0228.833	4942.0595	14.	0.580	
P0226.574	4942.5136	39.	0.580	
P0225.598	4942.7454	25.	0.442	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
P0224.563	4943.2252	34.	0.799	
P0222.[illegible]0	4943.5144	13.	0.519	
P0221.595	4943.8276	155.	0.639	2,4R18
P0220.954	4944.0779	29.	0.280	
P0219.901	4944.2426	14.	0.360	
P0217.908	4944.7300	14.	0.479	
P0217.437	4944.8453	12.	0.160	
P0216.903	4944.9758	13.	0.519	
P0215.744	4945.2593	26.	0.479	0,4P11
P0214.950	4945.4537	12.	0.519	
P0214.173	4945.6437	12.	0.240	
P0212.694	4946.0056	13.	0.319	
P0211.917	4946.1956	42.	0.519	
P0211.125	4946.3896	13.	0.239	
P0209.438	4946.6024	13.	0.439	
P0207.034	4947.3509	12.	0.279	
P0204.715	4947.9588	73.	0.598	1,4P14
P0203.861	4948.1679	17.	0.319	
P0203.302	4948.3049	13.	0.239	
P0202.429	4948.5188	12.	0.478	
P0201.481	4948.7509	13.	0.478	
P0200.721	4948.9372	13.	0.159	
P0200.424	4949.0098	13.	0.239	
P0196.384	4949.5999	12.	0.199	
P0195.984	4950.0979	12.	0.279	
P0193.188	4950.7833	13.	0.279	
P0192.359	4950.9866	33.	0.438	
P0191.468	4951.2050	14.	0.319	
P0191.159	4951.2807	13.	0.159	
P0190.385	4951.4706	12.	0.398	
P0189.461	4951.6923	15.	0.355	
P0185.909	4952.5687	13.	0.199	
P0185.541	4952.6589	13.	0.239	
P0184.399	4952.9391	13.	0.279	
P0183.825	4953.2027	22.	0.637	
P0182.417	4953.4256	23.	0.398	
P0179.809	4954.0657	15.	0.436	
P0177.740	4954.5736	12.	0.392	
P0176.890	4954.7823	17.	0.318	
P0176.099	4954.9767	22.	0.716	
P0174.910	4955.4697	13.	0.199	
P0173.232	4955.8815	33.	0.477	
P0172.178	4956.9397	32.	0.556	
P0171.503	4956.1057	14.	0.199	
P0171.191	4956.1823	14.	0.199	
P0168.768	4956.7776	42.	0.715	
P0167.582	4957.0446	77.	0.556	2,4P17
P0166.685	4957.2687	100.	0.477	
P0165.394	4957.6071	460.	0.794	
P0164.562	4957.8117	14.	0.159	
P0164.130	4957.9179	13.	0.318	
P0162.984	4958.1956	12.	0.238	
P0161.657	4958.5259	21.	0.516	
P0160.526	4958.8042	59.	0.635	3,4R21
P0159.734	4958.9990	13.	0.238	2,5R3
P0157.245	4959.6105	15.	0.516	
P0154.519	4960.2084	14.	0.436	
P0153.793	4960.4608	12.	0.198	
P0153.180	4960.6118	25.	0.436	0,4R13
P0152.552	4960.7344	24.	0.278	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
P0152.154	4960.2644	14.	0.278	
P0149.794	4961.4454	16.	0.519	
P0149.320	4961.5620	14.	0.153	
P0146.938	4961.6541	12.	0.159	
P0144.722	4962.6945	12.	0.257	
P0142.998	4963.1152	13.	0.476	
P0140.868	4963.6443	13.	0.436	
P0137.696	4964.4260	15.	0.356	2,5R4
P0137.038	4964.5760	12.	0.158	
P0135.533	4964.9592	63.	0.634	1,4R16
P0134.548	4965.2023	13.	0.158	
P0133.582	4965.4403	22.	0.475	
P0132.736	4965.6491	14.	0.475	
P0131.886	4965.8589	18.	0.277	
P0130.931	4966.0943	17.	0.435	
P0130.373	4966.2320	15.	0.198	
P0130.019	4966.3193	14.	0.198	
P0129.424	4966.4660	13.	0.198	
P0128.817	4966.6158	16.	0.317	
P0127.606	4966.9147	32.	0.752	
P0126.667	4967.1463	17.	0.633	
P0126.070	4967.2938	15.	0.158	
P0125.595	4967.4110	15.	0.356	
P0124.795	4967.6084	17.	0.435	
P0124.263	4967.7398	18.	0.158	
P0123.622	4967.8981	22.	0.237	
P0123.147	4968.0154	19.	0.237	
P0121.954	4968.3100	23.	0.395	
P0120.461	4968.6786	28.	0.395	0,4P12
P0119.248	4968.9781	22.	0.356	
P0118.276	4969.2183	24.	0.514	
P0116.745	4969.5964	17.	0.593	
P0115.783	4969.8341	14.	0.751	
P0114.735	4970.0929	13.	0.395	
P0113.948	4970.2874	13.	0.198	
P0113.203	4970.4715	23.	0.474	
P0112.251	4970.7068	15.	0.671	
P0110.992	4971.0180	33.	0.513	
P0107.927	4971.7756	10590.	3.830	
P0104.446	4972.6366	49.	0.513	
P0103.344	4972.9092	19.	0.434	
P0102.555	4973.1043	18.	0.276	
P0101.767	4973.2994	39.	0.671	
P0100.503	4973.6120	14.	0.197	
P0099.896	4973.7375	14.	0.355	
P0098.944	4973.9979	39.	0.473	3,4P20
P0098.077	4974.2124	12.	0.316	
P0097.263	4974.4139	14.	0.394	
P0096.344	4974.6414	14.	0.394	
P0095.549	4974.8382	13.	0.155	
P0094.465	4975.1066	15.	0.434	
P0093.746	4975.2846	14.	0.158	
P0093.360	4975.3803	17.	0.276	
P0092.749	4975.5267	16.	0.315	
P0091.906	4975.7402	21.	0.355	
P0091.301	4975.8901	29.	0.236	
P0090.644	4976.0529	80.	0.433	1,4P15
P0089.972	4976.2198	90.	0.473	2,4R19
P0089.089	4976.4388	30.	0.512	
P0087.111	4976.9281	14.	0.473	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
P0086.459	4977.2544	13.	0.394	
P0085.734	4977.2569	14.	0.473	2,5P4
P0085.029	4977.4440	21.	0.394	
P0084.327	4977.7419	13.	0.394	
P0083.091	4977.9242	17.	0.394	
P0082.522	4978.0653	13.	0.157	
P0081.829	4978.2371	14.	0.591	
P0080.552	4978.5836	129.	0.709	
P0079.025	4978.9322	14.	0.197	
P0078.343	4979.1014	18.	0.512	
P0077.291	4979.3622	13.	0.236	
P0075.871	4979.7146	13.	0.472	
P0074.405	4980.0781	13.	0.315	
P0073.970	4980.1862	14.	0.236	
P0072.986	4980.4303	35.	0.590	
P0072.391	4980.5778	21.	0.197	2,5R6
P0071.650	4980.7542	25.	0.511	
P0070.524	4981.0411	13.	0.472	
P0068.961	4981.4291	13.	0.197	
P0066.487	4982.0434	13.	0.197	
P0064.622	4982.5064	19.	0.314	
P0063.390	4982.8124	260.	0.786	
P0062.676	4982.9896	29.	0.275	
P0062.065	4983.1414	14.	0.157	
P0061.618	4983.2525	16.	0.432	
P0060.826	4983.5237	17.	0.864	
P0059.142	4983.8676	16.	0.275	
P0058.112	4984.1234	13.	0.393	
P0057.217	4984.3460	16.	0.357	
P0055.931	4984.6656	20.	0.550	
P0054.268	4985.0789	13.	0.432	
P0053.564	4985.2538	17.	0.353	
P0052.468	4985.5264	33.	0.510	
P0051.716	4985.7134	14.	0.314	
P0050.801	4985.9410	19.	0.549	0,4R14
P0049.890	4986.1674	13.	0.392	
P0049.181	4986.3437	17.	0.275	
P0048.514	4986.5097	32.	0.471	
P0046.687	4986.9640	13.	0.431	
P0040.360	4988.5356	29.	0.431	
P0039.390	4988.7799	13.	0.314	
P0037.659	4989.2110	13.	0.353	
P0037.283	4989.3046	13.	0.196	
P0036.568	4989.7317	55.	0.549	2,4P18
P0034.862	4989.9576	20.	0.313	
P0032.651	4990.4584	13.	0.548	
P0030.853	4990.8967	14.	0.587	
P0029.366	4991.2747	14.	0.392	2,5R7
P0028.071	4991.5994	25.	0.509	
P0023.528	4992.7319	13.	0.313	
P0019.910	4993.6344	30.	0.509	
P0017.794	4994.1621	19.	0.469	0,4P13
P0014.951	4994.8716	34.	0.508	1,4R17
P0013.774	4995.1652	13.	0.195	
P0013.396	4995.2596	13.	0.274	
P0012.004	4995.6070	59.	0.625	3,4R22
P0009.729	4996.1752	13.	0.274	
P0008.393	4996.5088	15.	0.352	
P0006.959	4996.8668	13.	0.742	
P0002.722	4997.9254	44.	0.781	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
20011.259	4999.2795	12.	0.505	
19956.317	4993.0242	12.	0.312	2,5P6
19995.446	4998.7242	14.	0.390	
19993.690	5000.1831	12.	0.429	
19992.041	5000.5956	24.	0.468	
19989.454	5001.2427	14.	0.390	
19987.695	5001.6829	17.	0.390	
19986.980	5001.8618	38.	0.429	
19986.049	5002.0948	12.	0.429	
19981.526	5003.2270	27.	0.429	
19980.913	5003.3805	18.	0.351	
19979.429	5003.7523	17.	0.506	2,5R8
19974.815	5004.9080	14.	0.389	
19972.934	5005.3795	15.	0.350	
19972.443	5005.5025	13.	0.350	
19971.602	5005.7133	25.	0.389	
19970.042	5006.1043	36.	0.311	
19969.511	5006.2375	49.	0.425	1,4P16
19968.561	5006.4755	13.	0.389	
19967.757	5006.6771	19.	0.428	
19966.595	5006.9685	12.	0.272	
19965.350	5007.2808	12.	0.506	
19962.524	5007.9896	14.	0.505	
19959.821	5008.6677	18.	0.933	
19956.922	5009.3955	17.	0.894	
19953.294	5010.3063	22.	0.466	
19951.897	5010.6572	43.	0.777	2,4R20
19949.855	5011.1689	34.	0.582	3,4P21
19947.358	5011.7972	12.	0.621	
19946.412	5012.0350	15.	0.560	
19944.841	5012.4297	12.	0.233	
19944.360	5012.5505	12.	0.194	2,5P7
19942.434	5013.0196	26.	0.662	
19941.335	5013.3110	17.	0.343	
19940.539	5013.5113	14.	0.504	
19934.524	5015.0241	43.	1.205	
19928.722	5016.4860	15.	0.542	
19926.749	5016.9558	19.	0.238	
19926.341	5017.0835	14.	0.194	
19925.809	5017.2174	18.	0.424	
19924.353	5017.5840	13.	0.310	
19923.496	5017.6991	12.	0.232	
19922.353	5018.0776	21.	0.357	2,5R9
19917.383	5019.3399	17.	0.310	
19916.746	5019.5006	13.	0.387	
19912.641	5020.5362	12.	0.155	
19912.033	5020.6885	17.	0.619	
19910.128	5021.1690	13.	0.309	
19909.645	5021.2909	12.	0.271	
19907.672	5021.7854	18.	0.426	0,4P14
19905.939	5022.2291	16.	0.309	
19900.595	5023.5742	13.	0.309	
19898.259	5024.1640	19.	0.426	
19897.009	5024.4797	44.	0.541	2,4P19
19895.114	5024.9583	16.	0.386	
19892.063	5025.7290	12.	0.733	
19890.642	5026.0880	14.	0.463	
19887.299	5026.9329	25.	0.463	1,4R18
19876.518	5027.1305	14.	0.386	
19884.473	5027.5967	25.	0.386	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19828.403	5041.8645	14.	0.153	
19827.945	5041.9811	15.	0.307	
19827.360	5042.1297	14.	0.422	
19826.690	5042.3001	13.	0.345	
19825.889	5042.5039	13.	0.192	
19825.332	5042.6455	13.	0.153	
19824.654	5042.8180	15.	0.153	
19824.162	5042.9433	29.	0.345	
19823.564	5043.0953	53.	0.345	1,5R4
19822.804	5043.2886	29.	0.460	
19822.068	5043.4760	13.	0.268	
19821.369	5043.6537	13.	0.460	
19820.414	5043.8967	14.	0.460	
19819.581	5044.1087	13.	0.345	
19819.134	5044.2225	13.	0.191	
19818.758	5044.3183	13.	0.230	
19818.052	5044.4979	12.	0.727	
19817.233	5044.7065	13.	0.536	
19816.295	5044.9452	14.	0.421	2,5P9
19815.547	5045.1357	12.	0.383	
19814.969	5045.2827	13.	0.383	
19814.516	5045.3983	12.	0.230	
19814.044	5045.5183	12.	0.191	
19813.689	5045.6089	12.	0.191	
19813.326	5045.7012	12.	0.191	
19807.435	5047.2019	32.	0.497	2,4R21
19806.730	5047.3817	16.	0.229	
19806.243	5047.5058	17.	0.382	1,5P3
19805.324	5047.7400	13.	0.583	
19802.590	5048.4367	13.	0.382	
19801.965	5048.7491	12.	0.191	
19801.000	5048.8421	13.	0.229	
19800.138	5049.0619	13.	0.420	
19799.022	5049.3465	18.	0.459	
19797.293	5049.7875	14.	0.611	
19794.823	5050.4177	41.	0.587	1,5R5, 3,4P22
19793.374	5050.7874	15.	0.382	
19790.112	5051.6199	17.	0.496	0,4P15
19787.761	5052.2201	19.	0.382	2,5R11
19787.077	5052.3948	19.	0.382	
19785.068	5052.9079	12.	0.153	
19784.780	5052.9814	13.	0.191	
19784.327	5053.0971	14.	0.343	
19777.805	5054.7633	12.	0.305	
19776.446	5055.0596	13.	0.539	
19772.691	5056.0705	18.	0.419	1,5P4
19771.628	5056.2915	13.	0.572	
19770.945	5056.5429	15.	0.343	
19769.772	5054.8174	12.	0.686	
19769.121	5056.9839	12.	0.229	
19768.092	5057.2624	13.	0.305	
19767.185	5057.4792	12.	0.609	
19762.478	5058.6838	13.	0.305	
19761.056	5059.0401	12.	1.028	
19758.218	5059.7745	25.	0.457	1,5R6
19752.734	5061.1791	22.	0.266	1,4R19
19752.172	5061.3232	32.	0.380	2,4P20
19750.712	5061.6974	12.	0.646	
19744.387	5063.3158	12.	0.570	
19742.794	5063.7234	15.	0.190	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19884.137	5027.7324	17.	0.308	
19883.897	5027.8688	13.	0.231	2,5P8
19882.134	5028.2389	17.	0.385	
19880.569	5028.6373	13.	0.231	
19875.865	5029.8198	14.	0.501	
19873.893	5030.3239	22.	0.616	
19873.318	5030.4695	14.	0.154	
19871.916	5030.8245	12.	0.578	
19871.030	5031.0487	13.	0.424	
19869.887	5031.3382	16.	0.347	1,5R1
19866.810	5032.1173	13.	0.269	
19866.047	5032.3106	12.	0.577	
19865.494	5032.4507	12.	0.154	
19864.773	5032.6335	12.	0.423	
19863.950	5032.8419	14.	0.462	
19863.151	5033.0444	12.	0.192	
19862.311	5033.2571	13.	0.192	
19861.636	5033.4282	18.	0.423	1,5R2
19860.556	5033.7020	13.	0.731	
19859.652	5033.9312	14.	0.462	
19858.526	5034.2165	19.	0.385	2,5R10
19857.407	5034.5003	38.	0.500	3,4R23
19856.418	5034.7511	19.	0.461	
19855.676	5034.9391	13.	0.231	
19854.905	5035.1346	13.	0.346	
19854.506	5035.2358	13.	0.154	
19854.035	5035.3554	16.	0.307	
19852.798	5035.6691	26.	0.500	1,5P1
19851.130	5036.0921	21.	0.384	
19850.239	5036.3183	13.	0.231	
19849.718	5036.4505	13.	0.346	
19849.165	5036.5907	15.	0.230	
19848.841	5036.6729	15.	0.192	
19848.396	5036.7858	15.	0.461	
19847.895	5036.9131	13.	0.154	
19847.550	5037.0005	13.	0.154	
19846.409	5037.2903	25.	0.384	1,5R3
19845.566	5037.5135	14.	0.384	
19844.955	5037.6692	14.	0.230	
19844.408	5037.7961	24.	0.307	
19843.020	5038.1516	23.	0.346	
19841.871	5038.4422	148.	0.653	1,4P17
19840.485	5038.7943	14.	0.192	
19839.786	5038.9717	14.	0.806	
19839.007	5039.1695	13.	0.230	
19838.334	5039.2772	14.	0.230	
19838.241	5039.3643	14.	0.153	
19837.820	5039.4713	14.	0.230	
19837.205	5039.6275	17.	0.537	
19836.509	5039.8041	18.	0.460	
19835.467	5040.0690	14.	0.806	
19834.781	5040.2433	13.	0.192	
19834.347	5040.3537	13.	0.192	
19833.607	5040.5417	17.	0.384	
19832.932	5040.7132	17.	0.307	1,5P2
19832.263	5040.8831	15.	0.230	
19831.652	5041.0386	15.	0.230	
19830.576	5041.3121	96.	0.613	
19829.436	5041.6019	15.	0.462	
19828.863	5041.7476	15.	0.268	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19742.258	5063.8694	20.	0.373	2,5P10
19740.944	5064.2276	14.	0.380	
19739.066	5064.6758	16.	0.494	
19735.975	5065.5027	14.	0.418	
19734.290	5065.9095	13.	0.455	
19733.037	5066.2313	15.	0.493	
19732.227	5066.4392	20.	0.417	1,5P5
19730.953	5066.7663	12.	0.303	
19728.280	5067.4529	17.	0.455	
19727.344	5067.6934	13.	0.265	
19726.349	5067.9488	12.	0.152	
19725.771	5068.0974	14.	0.507	
19723.243	5068.7471	14.	0.379	
19722.051	5069.0533	12.	0.303	
19720.698	5069.4011	12.	0.417	
19718.694	5069.9163	17.	0.341	
19717.296	5070.2757	14.	0.417	
19716.864	5070.3869	13.	0.189	
19714.680	5070.9486	27.	0.454	1,5R7
19711.003	5071.8945	12.	0.492	
19710.156	5072.1127	19.	0.379	2,5R12
19709.358	5072.3179	12.	0.227	
19708.575	5072.5194	13.	0.378	
19708.129	5072.6343	12.	0.189	
19707.111	5072.8963	28.	0.492	1,4P18
19699.842	5074.7662	14.	0.416	
19698.673	5075.0694	13.	0.505	
19697.876	5075.2747	12.	0.340	
19696.875	5075.5326	22.	0.454	3,4R24
19694.754	5076.0782	12.	0.453	
19688.652	5077.6525	12.	0.264	
19686.517	5078.2032	12.	0.340	
19684.560	5078.6285	22.	0.453	1,5P6
19683.638	5078.9457	14.	0.491	
19680.564	5079.7134	12.	0.302	
19678.495	5080.2734	13.	0.226	
19677.755	5080.4643	16.	0.679	
19675.314	5081.0945	12.	0.264	
19673.952	5081.4463	13.	0.490	
19673.139	5081.6565	12.	0.226	
19672.174	5081.9057	14.	0.526	
19671.301	5082.1311	15.	0.377	
19670.393	5082.3141	12.	0.302	
19669.050	5082.7128	12.	0.525	
19666.411	5083.3948	12.	0.226	
19665.457	5083.6415	13.	0.339	
19664.017	5084.0138	24.	0.527	1,5R8
19661.589	5084.6415	14.	0.339	2,5P11
19660.719	5084.8666	14.	0.565	
19660.097	5085.0273	12.	0.226	
19659.474	5085.1887	13.	0.264	
19658.569	5085.4174	16.	0.678	
19656.528	5085.9509	36.	0.527	2,4R22
19655.749	5086.2518	10.	0.263	
19654.281	5086.6323	14.	0.452	
19653.395	5086.7615	12.	0.263	
19652.382	5087.0237	12.	0.226	
19651.604	5087.2252	12.	0.263	
19651.154	5087.3337	12.	0.226	
19643.635	5089.2889	13.	0.451	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19634.254	5091.1567	22.	0.563	3,4P23
19633.122	5092.0141	15.	0.488	
19631.308	5092.4847	13.	0.225	
19630.511	5092.6656	22.	0.413	1,5P7
19629.369	5092.9878	12.	0.263	
19627.060	5093.5872	12.	0.263	
19625.762	5093.9237	21.	0.563	2,5R13
19622.790	5094.6954	12.	0.337	
19620.755	5095.2236	16.	0.450	
19616.029	5096.4512	13.	0.412	
19611.286	5097.6839	17.	0.337	1,4R20
19609.465	5098.1573	12.	0.225	
19607.726	5098.6094	12.	0.786	
19606.251	5098.9931	26.	0.449	1,5R9
19602.196	5100.0479	12.	0.337	
19601.227	5100.3000	25.	0.449	2,4P21
19597.437	5101.2863	13.	0.449	
19596.325	5101.5758	12.	0.449	
19589.922	5103.2432	15.	0.598	
19589.154	5103.4432	13.	0.187	
19588.748	5103.5490	13.	0.224	0,5R1
19585.893	5104.2931	14.	0.374	
19582.824	5105.0929	12.	0.411	
19581.848	5105.3475	17.	0.336	
19581.216	5105.5121	18.	0.336	
19580.251	5105.7638	13.	0.261	0,5R2
19579.078	5106.0697	15.	0.373	
19577.741	5106.4186	14.	0.299	
19576.744	5106.6786	12.	0.261	
19576.338	5106.7898	12.	0.187	
19574.491	5107.2642	14.	0.373	2,5P12
19571.605	5108.0195	12.	0.224	0,5P1
19569.559	5108.5535	19.	0.447	1,5P8
19565.869	5109.5116	19.	0.410	1,4P19
19564.648	5109.8357	14.	0.373	0,5R3
19563.283	5110.1925	13.	0.224	
19562.397	5110.4239	16.	0.335	
19559.063	5112.8634	14.	0.372	
19558.283	5111.1171	16.	0.409	0,5P2
19551.555	5113.2579	13.	0.296	
19549.842	5113.7059	12.	0.484	
19544.149	5115.1954	12.	0.706	
19543.423	5115.3853	12.	0.372	
19541.794	5115.8119	14.	0.184	0,5R4
19541.039	5115.9310	25.	0.446	1,5R10
19539.514	5116.4089	14.	0.260	
19539.094	5116.5186	15.	0.260	
19537.696	5116.8843	12.	0.357	
19534.420	5117.7429	18.	0.409	2,5R14
19533.715	5117.9277	13.	0.371	
19532.251	5118.3088	14.	0.334	
19530.647	5118.7310	17.	0.371	3,4R25
19525.180	5120.1649	13.	0.334	0,5P3
19524.251	5120.4086	13.	0.334	
19521.112	5121.2321	12.	0.631	
19517.113	5122.2812	12.	0.334	
19514.801	5122.8891	12.	0.593	
19513.706	5123.1756	13.	0.445	
19511.609	5123.7261	17.	0.519	0,5R5
19506.519	5125.0632	12.	0.370	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19501.[illegible]	5124.[illegible]	25.	0.444	1,5P9
19500.448	5124.6579	12.	0.407	
19499.341	5125.0459	19.	0.444	2,4R23
19492.273	5126.9516	13.	0.370	
19491.252	5129.0777	14.	0.333	0,5P4
19487.091	5130.1729	13.	0.296	
19486.456	5130.3294	15.	0.406	
19485.293	5130.6462	13.	0.259	
19480.732	5131.8475	14.	0.406	2,5P13
19473.975	5133.6282	16.	0.554	0,5R6
19472.323	5134.0637	12.	0.406	
19469.329	5134.8531	27.	0.406	1,5R11
19468.038	5135.1938	16.	0.406	3,4P24
19464.543	5136.1158	12.	0.184	
19463.949	5136.2724	12.	0.221	
19463.133	5136.4878	13.	0.295	1,4R21
19456.509	5138.2366	13.	0.553	
19452.824	5139.2099	13.	0.295	
19451.988	5139.4309	18.	0.331	
19450.389	5139.8533	14.	0.405	0,5P5
19444.164	5141.4989	18.	0.331	2,4P22
19443.117	5141.7756	13.	0.294	
19437.111	5143.3646	14.	0.441	
19436.416	5143.5486	16.	0.441	2,5R15
19434.050	5144.1746	13.	0.257	
19431.116	5144.9516	12.	0.220	
19429.277	5145.4383	15.	0.441	0,5R7
19426.999	5146.0418	24.	0.477	1,5P10
19422.807	5147.1526	12.	0.294	
19421.092	5147.6071	13.	0.220	
19419.597	5148.1358	13.	0.185	
19418.748	5148.2282	14.	0.220	
19418.076	5148.4065	16.	0.367	1,4P20
19416.575	5148.8045	13.	0.330	
19413.835	5149.5313	13.	0.367	
19410.035	5150.5392	17.	0.183	
19405.065	5151.8586	13.	0.256	
19402.519	5152.5346	14.	0.586	0,5P6
19400.012	5153.2003	18.	0.293	
19399.264	5153.3727	17.	0.256	
19390.216	5155.8040	20.	0.366	1,5R12
19380.547	5158.3761	14.	0.439	2,5P14
19379.456	5158.6665	14.	0.402	
19376.989	5159.3233	15.	0.256	0,5R8
19372.628	5160.4847	13.	0.329	
19371.142	5160.8807	12.	0.292	
19369.531	5161.3099	12.	0.365	
19368.343	5161.6256	12.	0.219	
19367.936	5161.7344	12.	0.255	
19367.901	5161.7342	12.	0.182	
19366.020	5162.2456	14.	0.329	
19364.045	5162.7721	13.	0.511	
19362.569	5163.1657	12.	0.219	
19361.870	5163.3521	12.	0.146	
19361.446	5163.4651	14.	0.365	
19360.821	5163.6318	13.	0.401	
19360.096	5163.8253	12.	0.474	
19359.620	5163.9789	12.	0.292	
19358.786	5164.1747	16.	0.364	3,4R26
19358.189	5164.3341	12.	0.182	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19357.667	5164.4733	12.	0.152	
19356.904	5164.6769	13.	0.364	
19356.467	5164.7935	12.	0.146	
19355.537	5165.0256	12.	0.182	
19355.284	5165.1090	12.	0.182	
19354.839	5165.2279	13.	0.219	
19354.332	5165.3631	14.	0.364	
19353.878	5165.4843	13.	0.146	
19352.995	5165.7201	29.	0.765	
19352.046	5165.9733	14.	0.401	
19351.377	5166.1520	12.	0.437	
19350.858	5166.2905	12.	0.255	
19350.297	5166.4402	12.	0.328	
19349.030	5166.7786	12.	0.255	
19347.477	5167.1933	15.	0.473	0,5P7
19346.395	5167.4824	32.	0.510	
19345.436	5167.7384	19.	0.328	1,5P11
19343.772	5168.1830	12.	0.473	
19342.688	5168.4726	12.	0.400	
19341.656	5168.7485	13.	0.291	
19340.814	5168.9734	12.	0.346	
19339.439	5169.3409	12.	0.473	
19338.916	5169.4807	12.	0.182	
19338.573	5169.5725	13.	0.218	
19336.190	5170.2094	15.	0.364	2,4R24
19333.781	5170.8538	14.	0.436	
19331.772	5171.3911	14.	0.327	2,5R16
19330.991	5171.6001	14.	0.254	
19327.069	5172.6495	12.	0.400	
19319.572	5174.6569	12.	0.218	
19317.272	5175.2731	13.	0.506	0,5R9
19309.548	5177.3432	13.	0.435	
19308.406	5177.6493	13.	0.254	1,4R22
19306.629	5178.1259	12.	0.399	
19305.452	5178.4549	12.	0.254	
19303.983	5178.8356	13.	0.435	1,5R13
19297.573	5180.5561	13.	0.326	
19296.284	5180.9020	13.	0.471	3,4P25
19289.415	5182.7470	13.	0.470	
19285.290	5183.8555	13.	0.289	0,5P8
19282.795	5184.5263	13.	0.325	
19281.110	5184.9793	16.	0.434	2,4P23
19273.886	5186.9228	13.	0.289	2,5P15
19269.748	5189.6525	13.	0.397	1,4P21
19267.842	5189.3946	27.	0.182	
19257.122	5191.4331	19.	0.361	1,5P12
19253.804	5192.3329	15.	0.285	
19249.965	5193.3653	13.	0.216	0,5R10
19241.886	5195.5488	48.	0.180	
19233.718	5197.7552	12.	0.216	
19233.120	5197.9168	12.	0.216	
19220.388	5201.3603	14.	0.323	2,5R17
19216.039	5202.5373	13.	0.215	0,5P9
19211.147	5203.8621	13.	0.179	
19210.583	5204.0150	14.	0.251	1,5R14
19208.795	5204.4994	269.	0.753	
19203.160	5206.0256	370.	0.860	
19202.128	5206.3065	12.	0.215	
19198.705	5207.2346	13.	0.358	
19194.360	5208.4135	417.	0.967	

WAVENUMBER	WAVELENGTH	INTENSITY	WIDTH(K)	ASSIGNMENT (v', v", Branch J)
19121.509	5211.9031	14.	0.535	
19179.391	5210.4785	47.	0.179	
19166.975	5215.8581	13.	0.464	
19162.048	5217.1962	14.	0.393	1,5P13
19161.131	5217.4458	13.	0.749	2,5P16
19158.231	5218.2302	15.	0.321	
19133.632	5224.9445	13.	0.249	
19133.134	5225.0806	13.	0.391	
19126.549	5226.8796	13.	0.391	
19125.193	5227.2502	14.	0.391	
19124.639	5227.4015	17.	0.178	
19112.238	5230.7934	13.	0.390	2,4R24
19110.167	5231.3602	14.	0.355	1,5R15
19104.259	5232.9781	19.	0.319	
19102.348	5233.5015	13.	0.319	2,5R18
19095.052	5235.5012	13.	0.213	
19092.923	5236.0850	13.	0.213	0,5R12
19085.593	5238.0960	27.	0.177	
19078.171	5240.1339	17.	0.177	
19074.574	5241.1220	47.	0.177	
19067.230	5243.1408	27.	0.177	
19060.139	5245.0915	13.	0.382	1,5P14
19050.842	5247.6511	15.	0.317	
19047.760	5248.5001	17.	0.176	
19042.878	5249.8458	17.	0.176	
19039.261	5250.8432	17.	0.176	
19034.276	5252.2153	17.	0.176	
19017.856	5256.7532	13.	0.246	
19016.919	5257.0122	17.	0.176	
19014.243	5257.7519	28.	0.176	
19002.838	5260.9077	13.	0.526	1,5R16
18990.651	5264.2837	15.	0.315	
18978.991	5267.5181	17.	0.175	
18978.462	5267.6647	47.	0.175	
18976.893	5268.1005	47.	0.175	
18975.534	5268.4777	17.	0.175	
18974.349	5268.8067	17.	0.175	
18973.029	5269.1733	48.	0.140	
18972.758	5269.2498	17.	0.140	
18971.139	5269.6983	18.	0.385	
18968.013	5270.5665	13.	0.210	
18948.763	5276.9210	13.	0.482	
18947.561	5277.2558	13.	0.314	
18940.766	5279.1456	119.	0.174	
18894.149	5291.1715	17.	0.173	
18890.418	5294.2634	27.	0.173	
18890.343	5295.2407	17.	0.173	
18874.099	5296.7924	17.	0.173	
18870.983	5297.6670	15.	0.311	
18868.667	5298.3117	13.	0.345	
18867.883	5298.5458	14.	0.380	