

STARK BROADENING PARAMETER TABLES FOR NEUTRAL CALCIUM
SPECTRAL LINES. IIM. S. Dimitrijević¹ and S. Sahal-Bréchet²¹ *Astronomical Observatory, Volgina 7, 11160 Belgrade-74, Yugoslavia*² *Laboratoire "Astrophysique, Atomes et Molécules"
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SUMMARY: Electron-, proton-, and ionized helium-impact broadening parameter tables for neutral calcium spectral lines, have been presented as a function of the temperature and the perturber density. Calculations have been performed within the semiclassical perturbation approach.

1. INTRODUCTION

Stark broadening parameters of Ca I are of interest for astrophysicists (see *e.g.* Holweger 1972), as well as for plasma physicists (see *e.g.* Griem 1974). Recently, we have calculated within the semiclassical-perturbation formalism (Sahal-Bréchet 1969ab, see also Sahal-Bréchet 1974, Dimitrijević and Sahal-Bréchet 1984) electron-, proton-, ionized helium-, ionized magnesium-, ionized silicon-, and ionized iron-impact line widths and shifts for 189 neutral calcium multiplets (Dimitrijević and Sahal-Bréchet 1999ab) for a perturber density of 10^{11}cm^{-3} , in order to provide data for all principal perturbers in the solar plasma. Since due to the Debye screening Stark broadening parameters are not linear with perturber density at higher densities, and since data for electron-, proton-, and ionized helium-impact broadening are of particular interest not only for solar and stellar plasma but for laboratory plasma as well, here are given tables for such data for perturber densities from 10^{12}cm^{-3} up to 10^{19}cm^{-3} .

2. RESULTS AND DISCUSSION

The used formalism has been reviewed briefly in Dimitrijević and Sahal-Bréchet (1984), and all relevant details concerning the obtained results and the calculation procedure will be published in Dimitrijević and Sahal-Bréchet (1999a).

Atomic energy levels needed for calculations have been taken from Bashkin and Stoner (1975). In Table 1, electron-, proton-, and He II-impact broadening parameters for Ca I for perturber densities of 10^{12}cm^{-3} - 10^{19}cm^{-3} and temperatures from 2,500 up to 50,000 K, are shown. Data for a perturber density of 10^{11}cm^{-3} , have been published in Dimitrijević and Sahal-Bréchet (1999b). For perturber densities 10^{12}cm^{-3} - 10^{14}cm^{-3} , only data where at least one of tabulated quantities is not linear with perturber density, are shown. Data for multiplets existing for the perturber density of 10^{15}cm^{-3} and not existing for 10^{12}cm^{-3} - 10^{14}cm^{-3} , may be scaled linearly with the perturber density. We also specify a parameter C (Dimitrijević and Sahal-Bréchet 1984), which gi-

Table 1. This Table shows electron-, proton-, and He II-impact broadening parameters for Ca I for perturber densities of 10^{12}cm^{-3} - 10^{19}cm^{-3} and temperatures from 2,500 up to 50,000 K. This Table should be used together with the Table for a perturber density of 10^{11}cm^{-3} , published in Dimitrijević and Sahal-Bréchet (1999b). For perturber densities 10^{12}cm^{-3} - 10^{14}cm^{-3} , only data where at least one of tabulated quantities is not linear with perturber density, are shown. Data for multiplets existing for the perturber density of 10^{15}cm^{-3} and not existing for densities 10^{12}cm^{-3} - 10^{14}cm^{-3} , may be scaled linearly with the perturber density. Transitions and averaged wavelengths for the multiplet (in Å) are also given in Table. By dividing C by the corresponding full width at half maximum (Dimitrijević and Sahal-Bréchet 1984), we obtain an estimate for the maximum perturber density for which the line may be treated as isolated and tabulated data may be used. The asterisk identifies cases for which the collision volume multiplied by the perturber density (the condition for validity of the impact approximation) lies between 0.1 and 0.5.

PERTURBER DENSITY = 1.E+12 cm ⁻³							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7D - 9P	2500.	0.672	0.817E-01	0.145	0.121	0.121	0.965E-01
101601.2 Å	5000.	0.704	0.832E-02	0.162	0.137	0.132	0.109
C = 0.18E+16	10000.	0.724	-0.419E-01	0.183	0.154	0.145	0.123
	20000.	0.732	-0.615E-01	0.213	0.173	0.160	0.139
	30000.	0.731	-0.637E-01	0.236	0.186	0.170	0.149
	50000.	0.721	-0.545E-01	0.274	0.204	0.185	0.162
7D - 10P	2500.	0.449	0.234	0.976E-01	0.798E-01	0.823E-01	0.638E-01
68400.9 Å	5000.	0.467	0.218	0.108	0.905E-01	0.895E-01	0.724E-01
C = 0.83E+15	10000.	0.482	0.164	0.121	0.102	0.979E-01	0.819E-01
	20000.	0.502	0.991E-01	0.138	0.115	0.108	0.922E-01
	30000.	0.513	0.670E-01	0.150	0.123	0.114	0.988E-01
	50000.	0.515	0.521E-01	0.170	0.134	0.123	0.108
8S - 8P	2500.	2.23	0.714	0.593	0.539	0.475	0.431
182561.7 Å	5000.	2.22	0.486	0.671	0.610	0.532	0.489
C = 0.60E+16	10000.	2.15	0.167	0.766	0.688	0.595	0.552
	20000.	2.06	0.487E-01	0.891	0.774	0.668	0.622
	30000.	2.00	-0.146E-01	0.986	0.829	0.715	0.666
	50000.	1.91	-0.280E-01	1.14	0.908	0.781	0.726
4P - 8D	2500.	0.616E-03	-0.622E-04	0.796E-04	-0.652E-04	0.674E-04	-0.522E-04
3146.8 Å	5000.	0.725E-03	-0.210E-04	0.879E-04	-0.734E-04	0.732E-04	-0.589E-04
C = 0.35E+13	10000.	0.786E-03	-0.294E-05	0.983E-04	-0.826E-04	0.799E-04	-0.664E-04
	20000.	0.790E-03	0.143E-04	0.112E-03	-0.929E-04	0.877E-04	-0.747E-04
	30000.	0.771E-03	0.142E-04	0.123E-03	-0.995E-04	0.928E-04	-0.800E-04
	50000.	0.729E-03	0.131E-04	0.142E-03	-0.109E-03	0.100E-03	-0.871E-04
5P - 8D	2500.	0.568E-02	-0.600E-03	0.734E-03	-0.601E-03	0.622E-03	-0.481E-03
9545.3 Å	5000.	0.669E-02	-0.255E-03	0.811E-03	-0.677E-03	0.675E-03	-0.543E-03
C = 0.32E+14	10000.	0.727E-02	0.620E-05	0.907E-03	-0.762E-03	0.737E-03	-0.612E-03
	20000.	0.732E-02	0.787E-04	0.104E-02	-0.856E-03	0.809E-03	-0.688E-03
	30000.	0.715E-02	0.102E-03	0.114E-02	-0.917E-03	0.856E-03	-0.737E-03
	50000.	0.677E-02	0.119E-03	0.131E-02	-0.100E-02	0.924E-03	-0.803E-03
8P - 9D	2500.	0.413	-0.674E-01	0.871E-01	-0.701E-01	0.738E-01	-0.560E-01
67849.5 Å	5000.	0.458	-0.283E-01	0.962E-01	-0.794E-01	0.800E-01	-0.636E-01
C = 0.83E+15	10000.	0.508	-0.815E-02	0.108	-0.894E-01	0.872E-01	-0.718E-01
	20000.	0.555	0.657E-02	0.124	-0.101	0.957E-01	-0.808E-01
	30000.	0.575	0.559E-02	0.136	-0.108	0.101	-0.866E-01
	50000.	0.586	0.292E-02	0.156	-0.118	0.109	-0.944E-01
8P - 10D	2500.	0.455	-0.149	0.942E-01	-0.770E-01	0.796E-01	-0.615E-01
57213.1 Å	5000.	0.482	-0.474E-01	0.104	-0.874E-01	0.866E-01	-0.699E-01
C = 0.59E+15	10000.	0.535	-0.258E-01	0.116	-0.987E-01	0.947E-01	-0.792E-01
	20000.	0.581	-0.266E-01	0.131	-0.111	0.104	-0.892E-01
	30000.	0.596	0.191E-02	0.142	-0.119	0.110	-0.956E-01
	50000.	0.605	0.486E-02	0.160	-0.130	0.119	-0.104
9P - 9D	2500.	2.00	1.05	0.407	0.312	0.354	0.250
148451.6 Å	5000.	2.30	0.927	0.442	0.354	0.380	0.283
C = 0.99E+16	10000.	2.63	0.660	0.485	0.398	0.410	0.320
	20000.	2.93	0.443	0.536	0.448	0.445	0.360
	30000.	3.06	0.255	0.573	0.480	0.468	0.386
	50000.	3.15	0.195	0.627	0.524	0.500	0.421

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
8D – 9P	2500.	583.	-164.	61.2	-47.6	52.7	-38.1
	5000.	662.	-143.	67.0	-53.8	56.7	-43.2
C = 0.17E+19	10000.	709.	-107.	74.4	-60.5	61.3	-48.6
	20000.	711.	-74.8	84.1	-68.1	66.7	-54.7
	30000.	695.	-42.0	91.5	-73.0	70.2	-58.6
	50000.	663.	-31.8	104.	-79.5	75.1	-63.9
PERTURBER DENSITY = 1.E+13 cm ⁻³							
4S – 8P	2500.	0.408E-03	0.278E-04	0.156E-03	-0.147E-04	0.156E-03	-0.118E-04
2151.5 Å	5000.	0.549E-03	0.690E-04	0.156E-03	-0.166E-04	0.156E-03	-0.133E-04
C = 0.13E+15	10000.	0.721E-03	0.873E-04	0.156E-03	-0.186E-04	0.156E-03	-0.150E-04
	20000.	0.910E-03	0.892E-04	0.156E-03	-0.210E-04	0.156E-03	-0.168E-04
	30000.	0.101E-02	0.800E-04	0.156E-03	-0.224E-04	0.156E-03	-0.180E-04
	50000.	0.112E-02	0.709E-04	0.156E-03	-0.244E-04	0.156E-03	-0.196E-04
4S – 9P	2500.	0.825E-03	-0.461E-03	0.286E-03	-0.120E-03	0.279E-03	-0.955E-04
2119.3 Å	5000.	0.982E-03	-0.502E-03	0.293E-03	-0.136E-03	0.282E-03	-0.109E-03
C = 0.11E+15	10000.	0.116E-02	-0.483E-03	0.300E-03	-0.153E-03	0.287E-03	-0.123E-03
	20000.	0.135E-02	-0.407E-03	0.310E-03	-0.173E-03	0.293E-03	-0.139E-03
	30000.	0.144E-02	-0.342E-03	0.317E-03	-0.185E-03	0.298E-03	-0.149E-03
	50000.	0.153E-02	-0.266E-03	0.328E-03	-0.202E-03	0.304E-03	-0.162E-03
4S – 10P	2500.	0.216E-02	0.149E-02	0.582E-03	0.379E-03	*0.528E-03	*0.301E-03
2098.1 Å	5000.	0.242E-02	0.159E-02	0.619E-03	0.433E-03	0.555E-03	0.346E-03
C = 0.66E+14	10000.	0.268E-02	0.151E-02	0.664E-03	0.492E-03	0.586E-03	0.394E-03
	20000.	0.298E-02	0.118E-02	0.716E-03	0.558E-03	0.624E-03	0.447E-03
	30000.	0.317E-02	0.965E-03	0.750E-03	0.598E-03	0.649E-03	0.480E-03
	50000.	0.331E-02	0.717E-03	0.799E-03	0.652E-03	0.685E-03	0.524E-03
5S – 8P	2500.	0.510E-02	0.310E-03	0.194E-02	-0.198E-03	0.194E-02	-0.159E-03
7597.3 Å	5000.	0.688E-02	0.777E-03	0.194E-02	-0.223E-03	0.194E-02	-0.179E-03
C = 0.16E+16	10000.	0.906E-02	0.107E-02	0.194E-02	-0.250E-03	0.194E-02	-0.201E-03
	20000.	0.115E-01	0.103E-02	0.195E-02	-0.281E-03	0.194E-02	-0.226E-03
	30000.	0.128E-01	0.930E-03	0.195E-02	-0.301E-03	0.194E-02	-0.242E-03
	50000.	0.142E-01	0.928E-03	0.195E-02	-0.328E-03	0.194E-02	-0.264E-03
5S – 9P	2500.	0.960E-02	-0.535E-02	0.332E-02	-0.139E-02	0.323E-02	-0.111E-02
7211.3 Å	5000.	0.114E-01	-0.583E-02	0.339E-02	-0.158E-02	0.327E-02	-0.126E-02
C = 0.12E+16	10000.	0.135E-01	-0.566E-02	0.348E-02	-0.178E-02	0.333E-02	-0.143E-02
	20000.	0.158E-01	-0.472E-02	0.360E-02	-0.201E-02	0.340E-02	-0.161E-02
	30000.	0.169E-01	-0.382E-02	0.368E-02	-0.215E-02	0.345E-02	-0.173E-02
	50000.	0.179E-01	-0.305E-02	0.380E-02	-0.235E-02	0.353E-02	-0.188E-02
5S – 10P	2500.	0.238E-01	0.165E-01	0.642E-02	0.418E-02	*0.583E-02	*0.332E-02
6971.1 Å	5000.	0.268E-01	0.182E-01	0.683E-02	0.478E-02	0.612E-02	0.381E-02
C = 0.73E+15	10000.	0.297E-01	0.162E-01	0.732E-02	0.543E-02	0.647E-02	0.435E-02
	20000.	0.331E-01	0.113E-01	0.790E-02	0.615E-02	0.689E-02	0.493E-02
	30000.	0.351E-01	0.921E-02	0.828E-02	0.659E-02	0.717E-02	0.530E-02
	50000.	0.368E-01	0.547E-02	0.882E-02	0.720E-02	0.756E-02	0.578E-02
6S – 8P	2500.	0.266E-01	-0.539E-03	0.101E-01	-0.169E-02	0.100E-01	-0.135E-02
17273.0 Å	5000.	0.365E-01	0.996E-03	0.101E-01	-0.190E-02	0.101E-01	-0.153E-02
C = 0.83E+16	10000.	0.491E-01	0.154E-02	0.101E-01	-0.214E-02	0.101E-01	-0.172E-02
	20000.	0.633E-01	0.223E-02	0.101E-01	-0.241E-02	0.101E-01	-0.194E-02
	30000.	0.710E-01	0.202E-02	0.102E-01	-0.258E-02	0.101E-01	-0.207E-02
	50000.	0.787E-01	0.230E-02	0.102E-01	-0.281E-02	0.101E-01	-0.226E-02
6S – 9P	2500.	0.456E-01	-0.250E-01	0.152E-01	-0.654E-02	0.148E-01	-0.522E-02
15399.0 Å	5000.	0.550E-01	-0.275E-01	0.156E-01	-0.743E-02	0.150E-01	-0.594E-02
C = 0.56E+16	10000.	0.655E-01	-0.271E-01	0.160E-01	-0.840E-02	0.153E-01	-0.674E-02
	20000.	0.763E-01	-0.226E-01	0.166E-01	-0.946E-02	0.156E-01	-0.759E-02
	30000.	0.817E-01	-0.191E-01	0.170E-01	-0.101E-01	0.159E-01	-0.814E-02
	50000.	0.865E-01	-0.146E-01	0.176E-01	-0.111E-01	0.162E-01	-0.888E-02
6S – 10P	2500.	0.101	0.693E-01	0.271E-01	0.176E-01	*0.246E-01	*0.140E-01
14343.8 Å	5000.	0.114	0.737E-01	0.288E-01	0.201E-01	0.259E-01	0.161E-01
C = 0.31E+16	10000.	0.127	0.658E-01	0.309E-01	0.229E-01	0.273E-01	0.183E-01
	20000.	0.142	0.431E-01	0.333E-01	0.259E-01	0.291E-01	0.208E-01
	30000.	0.152	0.335E-01	0.349E-01	0.278E-01	0.302E-01	0.223E-01
	50000.	0.159	0.212E-01	0.372E-01	0.303E-01	0.319E-01	0.243E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7S – 7P 87045.8 Å C = 0.33E+18	2500.	0.343	-0.464E-01	0.134	-0.186E-01	0.134	-0.149E-01
	5000.	0.477	-0.529E-01	0.134	-0.209E-01	0.134	-0.168E-01
	10000.	0.661	-0.571E-01	0.134	-0.235E-01	0.134	-0.189E-01
	20000.	0.868	-0.542E-01	0.135	-0.264E-01	0.134	-0.212E-01
	30000.	0.984	-0.493E-01	0.135	-0.283E-01	0.134	-0.227E-01
	50000.	1.11	-0.423E-01	0.135	-0.308E-01	0.134	-0.248E-01
7S – 8P 45387.1 Å C = 0.58E+17	2500.	0.182	-0.157E-01	0.696E-01	-0.133E-01	0.694E-01	-0.106E-01
	5000.	0.250	-0.122E-01	0.698E-01	-0.150E-01	0.695E-01	-0.120E-01
	10000.	0.339	-0.122E-01	0.700E-01	-0.169E-01	0.697E-01	-0.135E-01
	20000.	0.441	-0.660E-02	0.703E-01	-0.190E-01	0.698E-01	-0.152E-01
	30000.	0.497	-0.645E-02	0.706E-01	-0.203E-01	0.700E-01	-0.163E-01
	50000.	0.553	-0.361E-02	0.709E-01	-0.221E-01	0.702E-01	-0.178E-01
7S – 9P 34389.9 Å C = 0.28E+17	2500.	0.229	-0.126	0.760E-01	-0.331E-01	0.737E-01	-0.264E-01
	5000.	0.277	-0.139	0.778E-01	-0.375E-01	0.749E-01	-0.300E-01
	10000.	0.330	-0.140	0.801E-01	-0.424E-01	0.763E-01	-0.340E-01
	20000.	0.386	-0.124	0.830E-01	-0.478E-01	0.781E-01	-0.384E-01
	30000.	0.414	-0.105	0.850E-01	-0.512E-01	0.794E-01	-0.411E-01
	50000.	0.439	-0.864E-01	0.880E-01	-0.558E-01	0.813E-01	-0.449E-01
7S – 10P 29537.2 Å C = 0.13E+17	2500.	0.428	0.294	0.115	0.744E-01	*0.104	*0.591E-01
	5000.	0.482	0.319	0.122	0.852E-01	0.110	0.679E-01
	10000.	0.538	0.294	0.131	0.968E-01	0.116	0.774E-01
	20000.	0.605	0.191	0.141	0.110	0.123	0.878E-01
	30000.	0.646	0.153	0.148	0.117	0.128	0.944E-01
	50000.	0.679	0.911E-01	0.157	0.128	0.135	0.103
8S – 8P 168745.0 Å C = 0.80E+18	2500.	3.28	0.434	0.957	0.464E-01	0.957	0.373E-01
	5000.	4.60	0.557	0.958	0.523E-01	0.958	0.420E-01
	10000.	6.33	0.502	0.958	0.587E-01	0.958	0.472E-01
	20000.	8.35	0.430	0.958	0.634E-01	0.958	0.531E-01
	30000.	9.48	0.478	0.958	0.628E-01	0.958	0.569E-01
	50000.	10.6	0.332	0.958	0.563E-01	0.958	0.617E-01
8S – 9P 77090.9 Å C = 0.14E+18	2500.	1.23	-0.582	0.377	-0.153	0.368	-0.122
	5000.	1.55	-0.636	0.384	-0.173	0.372	-0.139
	10000.	1.95	-0.625	0.394	-0.196	0.378	-0.157
	20000.	2.38	-0.531	0.406	-0.220	0.385	-0.177
	30000.	2.60	-0.461	0.415	-0.236	0.391	-0.190
	50000.	2.81	-0.349	0.427	-0.257	0.399	-0.207
8S – 10P 56341.2 Å C = 0.48E+17	2500.	1.65	1.08	0.421	0.275	*0.382	*0.218
	5000.	1.90	1.13	0.448	0.314	0.401	0.251
	10000.	2.16	0.964	0.480	0.357	0.424	0.286
	20000.	2.46	0.651	0.518	0.405	0.452	0.324
	30000.	2.65	0.434	0.543	0.434	0.470	0.348
	50000.	2.81	0.336	0.579	0.473	0.496	0.380
9S – 9P 286278.7 Å C = 0.19E+19	2500.	21.3	-10.3	5.45	-2.68	5.22	-2.14
	5000.	27.1	-11.5	5.62	-3.05	5.33	-2.44
	10000.	34.1	-11.5	5.84	-3.45	5.47	-2.77
	20000.	41.5	-9.76	6.12	-3.89	5.65	-3.12
	30000.	45.5	-8.31	6.31	-4.16	5.77	-3.34
	50000.	49.5	-6.10	6.58	-4.54	5.96	-3.65
9S – 10P 120913.1 Å C = 0.22E+18	2500.	7.63	4.56	1.89	1.21	*1.73	*0.958
	5000.	8.97	4.33	2.01	1.38	1.81	1.10
	10000.	10.6	3.47	2.15	1.57	1.91	1.25
	20000.	12.6	2.18	2.31	1.78	2.02	1.42
	30000.	13.7	1.69	2.42	1.90	2.10	1.53
	50000.	14.7	1.22	2.57	2.08	2.21	1.67
10S – 10P 445176.5 Å C = 0.30E+19	2500.	104.	56.2	24.1	14.3	*22.4	*11.3
	5000.	131.	55.8	25.4	16.3	23.3	13.0
	10000.	164.	43.6	26.9	18.5	24.3	14.8
	20000.	204.	29.8	28.7	20.9	25.6	16.8
	30000.	224.	20.0	29.9	22.5	26.4	18.0
	50000.	242.	15.5	31.6	24.5	27.6	19.7

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
8P – 9S	2500.	11.9	4.17	2.82	1.17	2.75	0.938
281491.9 Å	5000.	16.5	3.49	2.88	1.33	2.79	1.06
C = 0.22E+19	10000.	23.2	2.60	2.96	1.50	2.83	1.20
	20000.	30.9	1.60	3.05	1.68	2.89	1.35
	30000.	35.1	1.07	3.12	1.80	2.93	1.45
	50000.	39.5	0.704	3.22	1.97	2.99	1.58
8P – 10S	2500.	2.82	1.44	0.526	0.375	0.469	0.299
104421.2 Å	5000.	3.67	1.39	0.565	0.426	0.497	0.341
C = 0.24E+18	10000.	4.83	0.929	0.611	0.482	0.530	0.386
	20000.	6.36	0.618	0.665	0.543	0.570	0.436
	30000.	7.16	0.419	0.700	0.582	0.596	0.467
	50000.	7.93	0.260	0.749	0.635	0.633	0.510
9P – 10S	2500.	56.5	28.9	11.8	7.45	10.9	5.93
395100.8 Å	5000.	71.7	32.0	12.5	8.48	11.3	6.78
C = 0.35E+19	10000.	89.6	30.8	13.3	9.62	11.9	7.70
	20000.	109.	24.3	14.3	10.8	12.6	8.72
	30000.	120.	20.3	15.0	11.6	13.1	9.33
	50000.	130.	13.6	15.9	12.7	13.7	10.2
4P – 6D	2500.	0.143E-02	-0.318E-03	0.308E-03	-0.202E-03	0.281E-03	-0.162E-03
4686.6 Å	5000.	0.178E-02	-0.126E-03	0.327E-03	-0.229E-03	0.294E-03	-0.183E-03
C = 0.41E+15	10000.	0.202E-02	0.743E-04	0.351E-03	-0.257E-03	0.310E-03	-0.207E-03
	20000.	0.221E-02	0.211E-03	0.382E-03	-0.289E-03	0.329E-03	-0.232E-03
	30000.	0.227E-02	0.245E-03	0.404E-03	-0.310E-03	0.341E-03	-0.249E-03
	50000.	0.230E-02	0.252E-03	0.438E-03	-0.338E-03	0.360E-03	-0.271E-03
4P – 7D	2500.	0.101E-01	-0.286E-02	0.271E-02	-0.236E-02	*0.216E-02	-0.187E-02
4435.0 Å	5000.	0.954E-02	-0.152E-02	0.307E-02	-0.271E-02	0.242E-02	-0.216E-02
C = 0.35E+14	10000.	0.897E-02	-0.768E-02	0.352E-02	-0.309E-02	0.271E-02	-0.247E-02
	20000.	0.831E-02	-0.870E-04	0.414E-02	-0.350E-02	0.305E-02	-0.280E-02
	30000.	0.789E-02	0.324E-04	0.461E-02	-0.377E-02	0.327E-02	-0.303E-02
	50000.	0.732E-02	0.950E-04	0.536E-02	-0.414E-02	0.357E-02	-0.330E-02
4P – 8D	2500.	0.852E-02	0.590E-02	0.195E-02	0.166E-02	0.161E-02	0.131E-02
4292.5 Å	5000.	0.884E-02	0.535E-02	0.217E-02	0.190E-02	0.178E-02	0.151E-02
C = 0.12E+15	10000.	0.916E-02	0.418E-02	0.243E-02	0.215E-02	0.197E-02	0.172E-02
	20000.	0.948E-02	0.294E-02	0.272E-02	0.244E-02	0.219E-02	0.195E-02
	30000.	0.947E-02	0.229E-02	0.293E-02	0.262E-02	0.233E-02	0.210E-02
	50000.	0.926E-02	0.147E-02	0.323E-02	0.286E-02	0.252E-02	0.229E-02
4P – 9D	2500.	0.896E-02	0.583E-02	0.227E-02	0.149E-02	*0.206E-02	*0.118E-02
4139.1 Å	5000.	0.105E-01	0.571E-02	0.242E-02	0.171E-02	0.216E-02	0.136E-02
C = 0.19E+15	10000.	0.125E-01	0.451E-02	0.259E-02	0.194E-02	0.229E-02	0.155E-02
	20000.	0.150E-01	0.323E-02	0.280E-02	0.220E-02	0.244E-02	0.176E-02
	30000.	0.161E-01	0.260E-02	0.294E-02	0.235E-02	0.254E-02	0.189E-02
	50000.	0.170E-01	0.169E-02	0.314E-02	0.257E-02	0.268E-02	0.206E-02
4P – 10D	2500.	0.101E-01	0.269E-02	0.254E-02	0.591E-03	*0.252E-02	*0.472E-03
4093.1 Å	5000.	0.136E-01	0.272E-02	0.255E-02	0.672E-03	*0.253E-02	*0.537E-03
C = 0.14E+15	10000.	0.178E-01	0.238E-02	0.257E-02	0.761E-03	0.254E-02	0.609E-03
	20000.	0.219E-01	0.178E-02	0.259E-02	0.857E-03	0.255E-02	0.689E-03
	30000.	0.238E-01	0.146E-02	0.260E-02	0.919E-03	0.256E-02	0.738E-03
	50000.	0.253E-01	0.102E-02	0.262E-02	0.100E-02	0.257E-02	0.805E-03
5P – 6D	2500.	0.101E-01	-0.262E-02	0.215E-02	-0.143E-02	0.195E-02	-0.115E-02
12109.2 Å	5000.	0.126E-01	-0.112E-02	0.228E-02	-0.162E-02	0.204E-02	-0.130E-02
C = 0.27E+16	10000.	0.146E-01	0.343E-03	0.246E-02	-0.182E-02	0.216E-02	-0.146E-02
	20000.	0.160E-01	0.119E-02	0.268E-02	-0.205E-02	0.229E-02	-0.165E-02
	30000.	0.165E-01	0.181E-02	0.283E-02	-0.219E-02	0.238E-02	-0.176E-02
	50000.	0.168E-01	0.180E-02	0.308E-02	-0.239E-02	0.252E-02	-0.192E-02
5P – 7D	2500.	0.574E-01	-0.137E-01	0.154E-01	-0.134E-01	*0.123E-01	-0.106E-01
10561.3 Å	5000.	0.546E-01	-0.832E-02	0.174E-01	-0.154E-01	0.138E-01	-0.123E-01
C = 0.20E+15	10000.	0.516E-01	-0.182E-02	0.200E-01	-0.175E-01	0.154E-01	-0.140E-01
	20000.	0.481E-01	-0.172E-03	0.235E-01	-0.199E-01	0.173E-01	-0.159E-01
	30000.	0.458E-01	0.276E-03	0.262E-01	-0.214E-01	0.185E-01	-0.171E-01
	50000.	0.425E-01	0.136E-02	0.304E-01	-0.235E-01	0.203E-01	-0.187E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P – 8D 9787.3 Å C = 0.63E+15	2500.	0.445E-01	0.304E-01	0.101E-01	0.859E-02	0.837E-02	0.682E-02
	5000.	0.464E-01	0.274E-01	0.113E-01	0.984E-02	0.925E-02	0.784E-02
	10000.	0.483E-01	0.204E-01	0.126E-01	0.112E-01	0.102E-01	0.894E-02
	20000.	0.501E-01	0.134E-01	0.141E-01	0.127E-01	0.114E-01	0.101E-01
	30000.	0.501E-01	0.990E-02	0.152E-01	0.136E-01	0.121E-01	0.109E-01
	50000.	0.490E-01	0.589E-02	0.168E-01	0.148E-01	0.131E-01	0.119E-01
5P – 9D 9024.6 Å C = 0.92E+15	2500.	0.429E-01	0.276E-01	0.108E-01	0.708E-02	*0.978E-02	*0.562E-02
	5000.	0.503E-01	0.268E-01	0.115E-01	0.810E-02	0.103E-01	0.646E-02
	10000.	0.602E-01	0.204E-01	0.123E-01	0.921E-02	0.109E-01	0.736E-02
	20000.	0.721E-01	0.136E-01	0.133E-01	0.104E-01	0.116E-01	0.835E-02
	30000.	0.775E-01	0.103E-01	0.140E-01	0.112E-01	0.121E-01	0.898E-02
	50000.	0.815E-01	0.627E-02	0.149E-01	0.122E-01	0.127E-01	0.979E-02
5P – 10D 8809.2 Å C = 0.67E+15	2500.	0.469E-01	0.124E-01	0.118E-01	0.272E-02	*0.117E-01	*0.217E-02
	5000.	0.635E-01	0.123E-01	0.118E-01	0.309E-02	*0.117E-01	*0.247E-02
	10000.	0.831E-01	0.104E-01	0.119E-01	0.350E-02	0.118E-01	0.280E-02
	20000.	0.102	0.727E-02	0.120E-01	0.394E-02	0.118E-01	0.316E-02
	30000.	0.111	0.569E-02	0.121E-01	0.422E-02	0.119E-01	0.339E-02
	50000.	0.118	0.389E-02	0.122E-01	0.461E-02	0.119E-01	0.370E-02
6P – 6D 30204.0 Å C = 0.17E+17	2500.	0.630E-01	-0.156E-01	0.140E-01	-0.889E-02	0.129E-01	-0.711E-02
	5000.	0.790E-01	-0.668E-02	0.148E-01	-0.100E-01	0.134E-01	-0.806E-02
	10000.	0.929E-01	0.145E-02	0.159E-01	-0.113E-01	0.141E-01	-0.907E-02
	20000.	0.105	0.794E-02	0.171E-01	-0.127E-01	0.149E-01	-0.102E-01
	30000.	0.111	0.842E-02	0.181E-01	-0.136E-01	0.154E-01	-0.109E-01
	50000.	0.116	0.798E-02	0.195E-01	-0.148E-01	0.162E-01	-0.119E-01
6P – 7D 22118.4 Å C = 0.87E+15	2500.	0.252	-0.702E-01	0.675E-01	-0.588E-01	*0.540E-01	-0.465E-01
	5000.	0.240	-0.431E-01	0.765E-01	-0.675E-01	0.604E-01	-0.538E-01
	10000.	0.228	-0.227E-01	0.878E-01	-0.769E-01	0.676E-01	-0.614E-01
	20000.	0.215	-0.872E-02	0.103	-0.872E-01	0.759E-01	-0.698E-01
	30000.	0.206	-0.203E-02	0.115	-0.938E-01	0.814E-01	-0.751E-01
	50000.	0.193	0.743E-03	0.133	-0.103	0.890E-01	-0.821E-01
6P – 8D 18975.4 Å C = 0.24E+16	2500.	0.168	0.117	0.382E-01	0.323E-01	0.316E-01	0.256E-01
	5000.	0.175	0.107	0.424E-01	0.370E-01	0.348E-01	0.295E-01
	10000.	0.183	0.803E-01	0.474E-01	0.420E-01	0.386E-01	0.336E-01
	20000.	0.191	0.522E-01	0.532E-01	0.476E-01	0.428E-01	0.381E-01
	30000.	0.192	0.396E-01	0.572E-01	0.510E-01	0.456E-01	0.410E-01
	50000.	0.189	0.212E-01	0.630E-01	0.557E-01	0.493E-01	0.447E-01
6P – 9D 16304.2 Å C = 0.30E+16	2500.	0.140	0.910E-01	0.353E-01	0.231E-01	*0.320E-01	*0.183E-01
	5000.	0.165	0.898E-01	0.376E-01	0.264E-01	0.336E-01	0.211E-01
	10000.	0.198	0.686E-01	0.403E-01	0.301E-01	0.356E-01	0.240E-01
	20000.	0.238	0.453E-01	0.435E-01	0.340E-01	0.379E-01	0.273E-01
	30000.	0.256	0.350E-01	0.457E-01	0.365E-01	0.394E-01	0.293E-01
	50000.	0.269	0.198E-01	0.487E-01	0.398E-01	0.416E-01	0.320E-01
6P – 10D 15614.3 Å C = 0.21E+16	2500.	0.148	0.392E-01	0.371E-01	0.854E-02	*0.368E-01	*0.681E-02
	5000.	0.200	0.406E-01	0.372E-01	0.970E-02	*0.370E-01	*0.776E-02
	10000.	0.262	0.323E-01	0.375E-01	0.110E-01	0.371E-01	0.880E-02
	20000.	0.323	0.218E-01	0.378E-01	0.124E-01	0.373E-01	0.993E-02
	30000.	0.351	0.177E-01	0.380E-01	0.133E-01	0.374E-01	0.107E-01
	50000.	0.374	0.109E-01	0.383E-01	0.145E-01	0.376E-01	0.116E-01
7P – 7D 129070.6 Å C = 0.30E+17	2500.	8.85	-2.67	2.32	-2.01	*1.86	-1.59
	5000.	8.70	-1.66	2.63	-2.30	2.08	-1.83
	10000.	8.57	-0.821	3.01	-2.62	2.33	-2.10
	20000.	8.40	-0.205	3.53	-2.97	2.61	-2.38
	30000.	8.24	-0.139	3.93	-3.20	2.79	-2.56
	50000.	7.97	-0.154	4.56	-3.52	3.05	-2.80
7P – 8D 65633.2 Å C = 0.28E+17	2500.	2.08	1.37	0.463	0.385	0.385	0.306
	5000.	2.22	1.23	0.513	0.441	0.423	0.352
	10000.	2.38	0.864	0.571	0.501	0.467	0.401
	20000.	2.56	0.518	0.640	0.568	0.517	0.455
	30000.	2.61	0.315	0.687	0.608	0.549	0.489
	50000.	2.61	0.164	0.756	0.664	0.594	0.533

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7P – 9D 41893.1 Å C = 0.20E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.957 1.14 1.38 1.68 1.81 1.92	0.592 0.575 0.412 0.243 0.177 0.811E-01	0.237 0.251 0.269 0.290 0.304 0.323	0.152 0.174 0.198 0.224 0.240 0.262	*0.216 0.226 0.238 0.253 0.263 0.278	*0.121 0.139 0.158 0.179 0.193 0.210
7P – 10D 37621.6 Å C = 0.12E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.884 1.20 1.59 1.96 2.14 2.28	0.225 0.223 0.161 0.100 0.615E-01 0.387E-01	0.219 0.220 0.221 0.223 0.224 0.226	0.489E-01 0.556E-01 0.629E-01 0.709E-01 0.760E-01 0.830E-01	*0.218 *0.219 0.220 0.220 0.221 0.222	*0.390E-01 *0.444E-01 0.504E-01 0.569E-01 0.610E-01 0.665E-01
8P – 8D 213142.4 Å C = 0.30E+18	2500. 5000. 10000. 20000. 30000. 50000.	23.3 25.7 28.3 31.3 32.3 32.8	14.5 12.9 8.65 5.38 2.98 1.53	5.08 5.60 6.21 6.93 7.42 8.14	4.10 4.69 5.33 6.05 6.48 7.07	*4.30 4.68 5.13 5.65 5.98 6.44	*3.25 3.74 4.27 4.84 5.20 5.68
8P – 9D 75042.4 Å C = 0.63E+17	2500. 5000. 10000. 20000. 30000. 50000.	3.25 3.92 4.81 5.89 6.39 6.79	1.90 1.84 1.28 0.785 0.498 0.236	0.786 0.833 0.888 0.954 0.998 1.06	0.492 0.564 0.641 0.725 0.777 0.849	*0.720 *0.753 0.791 0.839 0.870 0.916	*0.391 *0.450 0.512 0.581 0.625 0.681
8P – 10D 62359.7 Å C = 0.33E+17	2500. 5000. 10000. 20000. 30000. 50000.	2.55 3.49 4.61 5.74 6.27 6.71	0.605 0.612 0.417 0.257 0.146 0.890E-01	0.622 0.625 0.628 0.633 0.636 0.641	0.140 0.159 0.180 0.202 0.217 0.237	*0.618 *0.620 0.623 0.625 0.627 0.630	*0.111 *0.127 0.144 0.163 0.174 0.190
9P – 9D 159230.6 Å C = 0.29E+18	2500. 5000. 10000. 20000. 30000. 50000.	16.8 20.2 24.4 29.0 31.2 33.0	9.55 9.84 8.43 5.85 4.09 2.70	3.95 4.18 4.45 4.77 4.99 5.29	2.44 2.79 3.17 3.60 3.86 4.21	*3.63 *3.79 3.97 4.21 4.36 4.58	*1.93 *2.22 2.54 2.88 3.09 3.38
9P – 10D 111229.8 Å C = 0.11E+18	2500. 5000. 10000. 20000. 30000. 50000.	9.05 12.2 15.9 19.4 21.1 22.4	2.56 2.86 2.68 2.03 1.68 1.08	2.14 2.16 2.18 2.21 2.23 2.26	0.606 0.691 0.783 0.883 0.947 1.03	*2.12 *2.13 2.14 2.16 2.17 2.19	*0.483 *0.552 0.627 0.710 0.760 0.829
10P – 10D 237354.9 Å C = 0.48E+18	2500. 5000. 10000. 20000. 30000. 50000.	47.4 64.9 85.6 106. 115. 123.	-15.0 -15.0 -12.5 -8.94 -5.86 -4.39	*11.3 11.4 11.7 12.0 12.2 12.5	-4.00 -4.57 -5.19 -5.87 -6.29 -6.86	*11.1 *11.2 *11.3 11.5 11.6 11.8	-3.18 -3.65 -4.15 -4.71 -5.05 -5.51
4D – 9P 10115.2 Å C = 0.24E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.192E-01 0.229E-01 0.270E-01 0.314E-01 0.336E-01 0.355E-01	-0.104E-01 -0.114E-01 -0.109E-01 -0.906E-02 -0.725E-02 -0.580E-02	0.653E-02 0.667E-02 0.685E-02 0.707E-02 0.723E-02 0.747E-02	-0.271E-02 -0.307E-02 -0.347E-02 -0.391E-02 -0.419E-02 -0.457E-02	0.636E-02 0.644E-02 0.655E-02 0.669E-02 0.679E-02 0.694E-02	-0.216E-02 -0.246E-02 -0.279E-02 -0.314E-02 -0.337E-02 -0.367E-02
4D – 10P 9649.0 Å C = 0.14E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.462E-01 0.518E-01 0.574E-01 0.638E-01 0.677E-01 0.708E-01	0.316E-01 0.344E-01 0.318E-01 0.227E-01 0.180E-01 0.114E-01	0.123E-01 0.131E-01 0.141E-01 0.152E-01 0.159E-01 0.169E-01	0.802E-02 0.917E-02 0.104E-01 0.118E-01 0.127E-01 0.138E-01	*0.112E-01 0.117E-01 0.124E-01 0.132E-01 0.138E-01 0.145E-01	*0.636E-02 0.732E-02 0.834E-02 0.946E-02 0.102E-01 0.111E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5D – 8P 28083.9 Å C = 0.22E+17	2500.	0.780E-01	0.925E-02	0.273E-01	-0.861E-03	0.273E-01	-0.691E-03
	5000.	0.105	0.173E-01	0.273E-01	-0.970E-03	0.273E-01	-0.778E-03
	10000.	0.137	0.237E-01	0.273E-01	-0.110E-02	0.273E-01	-0.875E-03
	20000.	0.172	0.209E-01	0.273E-01	-0.125E-02	0.273E-01	-0.984E-03
	30000.	0.192	0.209E-01	0.274E-01	-0.136E-02	0.273E-01	-0.106E-02
	50000.	0.212	0.178E-01	0.274E-01	-0.154E-02	0.273E-01	-0.116E-02
5D – 9P 23444.9 Å C = 0.13E+17	2500.	0.104	-0.553E-01	0.354E-01	-0.143E-01	0.345E-01	-0.114E-01
	5000.	0.125	-0.598E-01	0.361E-01	-0.163E-01	0.349E-01	-0.130E-01
	10000.	0.149	-0.569E-01	0.370E-01	-0.184E-01	0.355E-01	-0.147E-01
	20000.	0.175	-0.448E-01	0.381E-01	-0.207E-01	0.362E-01	-0.166E-01
	30000.	0.189	-0.373E-01	0.389E-01	-0.222E-01	0.367E-01	-0.178E-01
	50000.	0.201	-0.275E-01	0.402E-01	-0.242E-01	0.374E-01	-0.194E-01
5D – 10P 21083.5 Å C = 0.67E+16	2500.	0.223	0.151	0.591E-01	0.384E-01	*0.537E-01	*0.305E-01
	5000.	0.251	0.156	0.629E-01	0.439E-01	0.563E-01	0.350E-01
	10000.	0.279	0.130	0.674E-01	0.499E-01	0.595E-01	0.399E-01
	20000.	0.311	0.100	0.726E-01	0.565E-01	0.634E-01	0.453E-01
	30000.	0.331	0.657E-01	0.762E-01	0.606E-01	0.659E-01	0.487E-01
	50000.	0.346	0.500E-01	0.811E-01	0.661E-01	0.695E-01	0.531E-01
6D – 7P 229605.3 Å C = 0.98E+18	2500.	4.94	1.49	1.25	0.561	1.21	0.449
	5000.	6.36	1.08	1.29	0.635	1.23	0.509
	10000.	8.03	0.748	1.33	0.714	1.26	0.574
	20000.	9.65	0.341	1.39	0.804	1.29	0.646
	30000.	10.5	0.226	1.43	0.861	1.31	0.692
	50000.	11.2	0.177E-01	1.50	0.938	1.34	0.754
6D – 8P 67115.0 Å C = 0.83E+17	2500.	0.599	0.110	0.167	0.358E-01	0.167	0.286E-01
	5000.	0.794	0.101	0.168	0.403E-01	0.167	0.324E-01
	10000.	1.03	0.687E-01	0.169	0.454E-01	0.167	0.365E-01
	20000.	1.27	0.489E-01	0.171	0.511E-01	0.168	0.410E-01
	30000.	1.39	0.348E-01	0.172	0.547E-01	0.168	0.440E-01
	50000.	1.51	0.219E-01	0.175	0.596E-01	0.169	0.479E-01
6D – 9P 45567.6 Å C = 0.38E+17	2500.	0.462	-0.182	0.135	-0.478E-01	0.133	-0.382E-01
	5000.	0.577	-0.206	0.137	-0.542E-01	0.134	-0.434E-01
	10000.	0.697	-0.213	0.139	-0.612E-01	0.135	-0.491E-01
	20000.	0.808	-0.191	0.143	-0.689E-01	0.137	-0.553E-01
	30000.	0.861	-0.166	0.146	-0.738E-01	0.138	-0.593E-01
	50000.	0.904	-0.135	0.150	-0.805E-01	0.140	-0.647E-01
6D – 10P 37421.4 Å C = 0.21E+17	2500.	0.759	0.488	0.189	0.123	*0.172	*0.976E-01
	5000.	0.860	0.531	0.201	0.141	0.180	0.112
	10000.	0.959	0.485	0.216	0.160	0.191	0.128
	20000.	1.07	0.310	0.233	0.181	0.203	0.145
	30000.	1.13	0.256	0.245	0.194	0.211	0.156
	50000.	1.18	0.144	0.261	0.212	0.223	0.170
7D – 8P 357551.5 Å C = 0.23E+18	2500.	72.3	19.2	18.0	15.3	*14.6	*12.1
	5000.	73.2	11.6	20.3	17.6	16.2	14.0
	10000.	75.2	6.67	23.2	20.0	18.1	16.0
	20000.	76.7	1.86	27.2	22.7	20.2	18.2
	30000.	76.9	1.91	30.2	24.4	21.6	19.5
	50000.	76.4	1.72	35.0	26.8	23.5	21.4
7D – 9P 101601.2 Å C = 0.18E+17	2500.	6.72	0.771	1.45	1.16	*1.21	*0.917
	5000.	7.04	0.612E-01	1.62	1.33	1.32	1.06
	10000.	7.24	-0.424	1.83	1.51	1.45	1.21
	20000.	7.32	-0.616	2.13	1.71	1.60	1.37
	30000.	7.31	-0.638	2.36	1.84	1.70	1.48
	50000.	7.21	-0.545	2.74	2.03	1.85	1.61
7D – 10P 68400.9 Å C = 0.83E+16	2500.	4.49	2.30	*0.975	*0.759	*0.822	*0.599
	5000.	4.67	2.17	1.08	0.876	*0.895	*0.696
	10000.	4.82	1.63	1.21	1.000	*0.978	*0.798
	20000.	5.02	0.989	1.38	1.13	1.08	0.908
	30000.	5.13	0.669	1.50	1.22	1.14	0.977
	50000.	5.15	0.521	1.70	1.34	1.23	1.07

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
8D – 9P 424826.9 Å C = 0.12E+19	2500.	111.	-66.2	23.4	-17.8	*20.2	-14.1
	5000.	123.	-65.3	25.5	-20.4	21.8	-16.3
	10000.	134.	-55.4	28.1	-23.2	23.6	-18.6
	20000.	143.	-38.8	31.1	-26.3	25.7	-21.1
	30000.	147.	-27.4	33.1	-28.2	27.1	-22.7
	50000.	149.	-18.0	36.1	-30.8	29.1	-24.7
8D – 10P 140228.9 Å C = 0.13E+18	2500.	12.1	1.70	2.23	-0.295	*2.22	-0.236
	5000.	15.6	2.56	2.24	-0.334	2.23	-0.268
	10000.	18.8	2.77	2.25	-0.377	2.23	-0.302
	20000.	21.7	2.19	2.28	-0.425	2.23	-0.340
	30000.	22.9	1.92	2.31	-0.458	2.23	-0.365
	50000.	23.7	1.29	2.37	-0.508	2.24	-0.398
9D – 10P 665380.3 Å C = 0.50E+19	2500.	265.	26.0	67.1	-2.82	*67.0	-2.26
	5000.	378.	41.2	67.2	-3.18	*67.2	-2.55
	10000.	506.	46.6	67.3	-3.59	67.2	-2.87
	20000.	630.	40.1	67.3	-4.08	67.3	-3.23
	30000.	689.	35.3	67.3	-4.43	67.3	-3.47
	50000.	737.	25.7	67.3	-5.00	67.3	-3.80
5S – 7P 7451.4 Å C = 0.51E+15	2500.	0.895E-02	0.607E-02	0.215E-02	0.187E-02	0.177E-02	0.149E-02
	5000.	0.932E-02	0.520E-02	0.240E-02	0.212E-02	0.196E-02	0.170E-02
	10000.	0.966E-02	0.406E-02	0.268E-02	0.240E-02	0.217E-02	0.192E-02
	20000.	0.958E-02	0.287E-02	0.302E-02	0.270E-02	0.241E-02	0.217E-02
	30000.	0.940E-02	0.208E-02	0.325E-02	0.290E-02	0.257E-02	0.233E-02
	50000.	0.910E-02	0.144E-02	0.360E-02	0.316E-02	0.278E-02	0.254E-02
5S – 8P 6781.1 Å C = 0.83E+14	2500.	0.300E-01	0.137E-01	0.829E-02	0.717E-02	*0.664E-02	*0.566E-02
	5000.	0.292E-01	0.105E-01	0.937E-02	0.827E-02	*0.743E-02	*0.657E-02
	10000.	0.272E-01	0.684E-02	0.107E-01	0.943E-02	0.832E-02	0.753E-02
	20000.	0.249E-01	0.413E-02	0.124E-01	0.107E-01	0.934E-02	0.857E-02
	30000.	0.235E-01	0.292E-02	0.138E-01	0.115E-01	0.100E-01	0.922E-02
	50000.	0.216E-01	0.165E-02	0.159E-01	0.126E-01	0.109E-01	0.101E-01
5S – 9P 6432.0 Å C = 0.19E+15	2500.	0.256E-01	-0.165E-01	0.611E-02	-0.512E-02	*0.504E-02	-0.405E-02
	5000.	0.266E-01	-0.138E-01	0.680E-02	-0.588E-02	*0.557E-02	-0.468E-02
	10000.	0.277E-01	-0.106E-01	0.760E-02	-0.670E-02	0.617E-02	-0.536E-02
	20000.	0.275E-01	-0.737E-02	0.857E-02	-0.760E-02	0.685E-02	-0.608E-02
	30000.	0.270E-01	-0.527E-02	0.924E-02	-0.817E-02	0.729E-02	-0.654E-02
	50000.	0.260E-01	-0.349E-02	0.102E-01	-0.890E-02	0.789E-02	-0.715E-02
5S – 10P 6224.3 Å C = 0.60E+15	2500.	0.175E-01	0.121E-01	0.473E-02	0.305E-02	*0.431E-02	*0.242E-02
	5000.	0.197E-01	0.130E-01	0.502E-02	0.348E-02	0.451E-02	0.278E-02
	10000.	0.219E-01	0.122E-01	0.537E-02	0.396E-02	0.476E-02	0.316E-02
	20000.	0.246E-01	0.950E-02	0.579E-02	0.448E-02	0.506E-02	0.359E-02
	30000.	0.261E-01	0.728E-02	0.606E-02	0.480E-02	0.526E-02	0.385E-02
	50000.	0.274E-01	0.545E-02	0.645E-02	0.524E-02	0.554E-02	0.420E-02
6S – 6P 48818.1 Å C = 0.53E+17	2500.	0.112	0.722E-01	0.269E-01	0.225E-01	0.228E-01	0.180E-01
	5000.	0.121	0.588E-01	0.297E-01	0.254E-01	0.248E-01	0.204E-01
	10000.	0.138	0.390E-01	0.328E-01	0.286E-01	0.272E-01	0.229E-01
	20000.	0.150	0.240E-01	0.366E-01	0.322E-01	0.299E-01	0.258E-01
	30000.	0.153	0.159E-01	0.392E-01	0.344E-01	0.317E-01	0.277E-01
	50000.	0.157	0.868E-02	0.430E-01	0.375E-01	0.341E-01	0.302E-01
6S – 7P 22294.2 Å C = 0.45E+16	2500.	0.794E-01	0.524E-01	0.191E-01	0.166E-01	0.158E-01	0.132E-01
	5000.	0.833E-01	0.433E-01	0.213E-01	0.188E-01	0.174E-01	0.151E-01
	10000.	0.878E-01	0.311E-01	0.238E-01	0.213E-01	0.193E-01	0.171E-01
	20000.	0.885E-01	0.193E-01	0.268E-01	0.240E-01	0.215E-01	0.193E-01
	30000.	0.877E-01	0.960E-02	0.289E-01	0.257E-01	0.228E-01	0.207E-01
	50000.	0.859E-01	0.636E-02	0.320E-01	0.281E-01	0.247E-01	0.225E-01
6S – 8P 17205.2 Å C = 0.53E+15	2500.	0.193	0.873E-01	0.533E-01	0.461E-01	*0.427E-01	*0.364E-01
	5000.	0.188	0.662E-01	0.603E-01	0.532E-01	*0.478E-01	*0.423E-01
	10000.	0.176	0.424E-01	0.688E-01	0.607E-01	0.535E-01	0.485E-01
	20000.	0.162	0.242E-01	0.801E-01	0.688E-01	0.601E-01	0.551E-01
	30000.	0.153	0.145E-01	0.885E-01	0.741E-01	0.643E-01	0.593E-01
	50000.	0.142	0.789E-02	0.102	0.811E-01	0.702E-01	0.650E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
6S – 9P 15123.0 Å C = 0.10E+16	2500.	0.142	-0.917E-01	0.338E-01	-0.283E-01	*0.279E-01	-0.224E-01
	5000.	0.148	-0.773E-01	0.376E-01	-0.326E-01	*0.308E-01	-0.259E-01
	10000.	0.155	-0.587E-01	0.421E-01	-0.371E-01	0.341E-01	-0.296E-01
	20000.	0.154	-0.368E-01	0.474E-01	-0.421E-01	0.379E-01	-0.337E-01
	30000.	0.151	-0.297E-01	0.511E-01	-0.452E-01	0.403E-01	-0.362E-01
	50000.	0.146	-0.138E-01	0.567E-01	-0.493E-01	0.437E-01	-0.396E-01
6S – 10P 14022.6 Å C = 0.30E+16	2500.	0.887E-01	0.611E-01	0.240E-01	0.154E-01	*0.218E-01	*0.123E-01
	5000.	0.100	0.659E-01	0.255E-01	0.176E-01	0.229E-01	0.141E-01
	10000.	0.112	0.595E-01	0.272E-01	0.200E-01	0.241E-01	0.160E-01
	20000.	0.126	0.405E-01	0.293E-01	0.227E-01	0.257E-01	0.182E-01
	30000.	0.134	0.321E-01	0.307E-01	0.243E-01	0.267E-01	0.195E-01
	50000.	0.141	0.197E-01	0.327E-01	0.265E-01	0.281E-01	0.213E-01
7S – 7P 102150.3 Å C = 0.95E+17	2500.	1.64	0.919	0.390	0.337	0.322	0.269
	5000.	1.81	0.588	0.434	0.383	0.356	0.306
	10000.	1.99	0.362	0.485	0.433	0.394	0.347
	20000.	2.06	0.178	0.547	0.488	0.437	0.392
	30000.	2.10	0.682E-01	0.589	0.523	0.465	0.420
	50000.	2.11	0.220E-02	0.653	0.570	0.504	0.458
7S – 8P 43371.3 Å C = 0.34E+16	2500.	1.23	0.391	0.338	0.292	*0.271	*0.231
	5000.	1.21	0.169	0.382	0.337	*0.303	*0.268
	10000.	1.14	0.106	0.436	0.384	0.339	0.307
	20000.	1.07	0.616E-01	0.507	0.436	0.381	0.349
	30000.	1.02	0.368E-02	0.561	0.469	0.407	0.376
	50000.	0.956	-0.316E-02	0.647	0.514	0.445	0.412
7S – 9P 32196.8 Å C = 0.47E+16	2500.	0.656	-0.420	0.154	-0.129	*0.127	-0.102
	5000.	0.686	-0.357	0.171	-0.148	*0.140	-0.118
	10000.	0.720	-0.273	0.191	-0.169	0.155	-0.135
	20000.	0.722	-0.178	0.216	-0.191	0.172	-0.153
	30000.	0.714	-0.919E-01	0.233	-0.206	0.184	-0.165
	50000.	0.695	-0.710E-01	0.258	-0.224	0.199	-0.180
7S – 10P 27587.7 Å C = 0.12E+17	2500.	0.344	0.222	0.924E-01	0.592E-01	*0.843E-01	*0.470E-01
	5000.	0.389	0.224	0.981E-01	0.677E-01	0.882E-01	0.540E-01
	10000.	0.440	0.196	0.105	0.769E-01	0.930E-01	0.615E-01
	20000.	0.499	0.127	0.113	0.870E-01	0.988E-01	0.697E-01
	30000.	0.536	0.898E-01	0.118	0.932E-01	0.103	0.748E-01
	50000.	0.566	0.669E-01	0.126	0.102	0.108	0.817E-01
8S – 8P 182561.7 Å C = 0.60E+17	2500.	22.3	7.02	5.93	5.13	*4.75	*4.05
	5000.	22.2	4.81	6.70	5.91	*5.31	*4.70
	10000.	21.5	1.66	7.66	6.75	5.95	5.39
	20000.	20.6	0.487	8.91	7.65	6.68	6.13
	30000.	20.0	-0.146	9.86	8.24	7.15	6.59
	50000.	19.1	-0.280	11.4	9.02	7.81	7.22
8S – 9P 74184.5 Å C = 0.25E+17	2500.	3.65	-2.29	0.826	-0.694	*0.682	-0.549
	5000.	3.86	-1.90	0.920	-0.797	*0.753	-0.635
	10000.	4.08	-1.33	1.03	-0.908	0.834	-0.726
	20000.	4.13	-1.05	1.16	-1.03	0.927	-0.824
	30000.	4.13	-0.589	1.25	-1.11	0.987	-0.887
	50000.	4.06	-0.450	1.39	-1.21	1.07	-0.970
8S – 10P 53565.0 Å C = 0.44E+17	2500.	1.29	0.854	0.344	0.217	*0.315	*0.172
	5000.	1.48	0.880	0.364	0.248	0.329	0.198
	10000.	1.71	0.766	0.389	0.282	0.346	0.225
	20000.	2.00	0.478	0.418	0.319	0.367	0.255
	30000.	2.17	0.342	0.437	0.341	0.381	0.274
	50000.	2.31	0.234	0.464	0.373	0.400	0.299
9S – 9P 295517.0 Å C = 0.39E+18	2500.	63.5	-38.6	13.5	-11.4	*11.1	-8.99
	5000.	68.1	-33.4	15.0	-13.1	*12.3	-10.4
	10000.	72.4	-24.1	16.8	-14.9	13.6	-11.9
	20000.	74.9	-13.3	19.0	-16.9	15.2	-13.5
	30000.	75.8	-10.7	20.5	-18.2	16.1	-14.5
	50000.	75.7	-8.06	22.7	-19.8	17.5	-15.9

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
9S – 10P 116646.6 Å C = 0.21E+18	2500. 5000. 10000. 20000. 30000. 50000.	6.08 7.26 8.75 10.7 11.7 12.5	3.77 3.81 3.20 2.05 1.50 0.961	1.57 1.66 1.76 1.88 1.97 2.08	0.952 1.09 1.23 1.40 1.50 1.63	*1.45 1.51 1.58 1.67 1.73 1.81	*0.757 0.868 0.988 1.12 1.20 1.31
10S – 10P 447387.3 Å C = 0.31E+19	2500. 5000. 10000. 20000. 30000. 50000.	88.6 115. 150. 189. 209. 226.	43.9 44.0 36.4 25.0 18.7 12.1	21.4 22.3 23.3 24.6 25.4 26.7	11.3 12.9 14.6 16.6 17.7 19.3	*20.3 20.8 21.5 22.4 23.0 23.8	*9.01 10.3 11.7 13.3 14.2 15.5
4P – 9S 3176.1 Å C = 0.34E+15	2500. 5000. 10000. 20000. 30000. 50000.	0.132E-02 0.147E-02 0.167E-02 0.195E-02 0.219E-02 0.242E-02	0.954E-03 0.103E-02 0.990E-03 0.771E-03 0.636E-03 0.492E-03	0.264E-03 0.296E-03 0.332E-03 0.373E-03 0.399E-03 0.435E-03	0.243E-03 0.276E-03 0.312E-03 0.351E-03 0.376E-03 0.410E-03	0.212E-03 0.238E-03 0.267E-03 0.300E-03 0.321E-03 0.349E-03	0.194E-03 0.221E-03 0.250E-03 0.282E-03 0.302E-03 0.329E-03
4P – 10S 3113.4 Å C = 0.22E+15	2500. 5000. 10000. 20000. 30000. 50000.	0.231E-02 0.259E-02 0.301E-02 0.364E-02 0.407E-02 0.446E-02	0.163E-02 0.169E-02 0.155E-02 0.114E-02 0.928E-03 0.681E-03	0.456E-03 0.512E-03 0.575E-03 0.646E-03 0.691E-03 0.753E-03	0.417E-03 0.474E-03 0.538E-03 0.606E-03 0.649E-03 0.709E-03	0.367E-03 0.412E-03 0.462E-03 0.519E-03 0.555E-03 0.605E-03	0.332E-03 0.379E-03 0.430E-03 0.487E-03 0.521E-03 0.569E-03
5P – 10S 9244.9 Å C = 0.19E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.215E-01 0.229E-01 0.266E-01 0.327E-01 0.365E-01 0.399E-01	0.148E-01 0.148E-01 0.136E-01 0.940E-02 0.723E-02 0.536E-02	0.401E-02 0.450E-02 0.505E-02 0.567E-02 0.607E-02 0.662E-02	0.366E-02 0.417E-02 0.473E-02 0.532E-02 0.571E-02 0.623E-02	0.322E-02 0.362E-02 0.406E-02 0.456E-02 0.488E-02 0.531E-02	0.292E-02 0.333E-02 0.378E-02 0.428E-02 0.458E-02 0.500E-02
6P – 10S 20578.7 Å C = 0.94E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.105 0.122 0.145 0.179 0.198 0.215	0.686E-01 0.690E-01 0.583E-01 0.384E-01 0.317E-01 0.198E-01	0.186E-01 0.208E-01 0.234E-01 0.263E-01 0.282E-01 0.308E-01	0.169E-01 0.192E-01 0.218E-01 0.245E-01 0.263E-01 0.287E-01	0.150E-01 0.168E-01 0.188E-01 0.211E-01 0.226E-01 0.246E-01	0.135E-01 0.154E-01 0.174E-01 0.197E-01 0.211E-01 0.230E-01
7P – 8S 128376.3 Å C = 0.15E+18	2500. 5000. 10000. 20000. 30000. 50000.	2.71 3.30 3.71 4.07 4.27 4.43	-0.920 -0.535 -0.176 0.537E-01 0.137 0.231	0.555 0.616 0.688 0.775 0.836 0.929	-0.473 -0.537 -0.608 -0.684 -0.733 -0.800	0.462 0.508 0.560 0.620 0.659 0.713	-0.378 -0.430 -0.487 -0.549 -0.589 -0.643
7P – 9S 55910.9 Å C = 0.29E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.644 0.793 0.940 1.09 1.17 1.23	0.137E-01 0.616E-01 0.106 0.941E-01 0.894E-01 0.800E-01	0.737E-01 0.806E-01 0.891E-01 0.100E+00 0.108 0.122	-0.575E-01 -0.651E-01 -0.734E-01 -0.827E-01 -0.885E-01 -0.965E-01	0.637E-01 0.685E-01 0.742E-01 0.808E-01 0.852E-01 0.914E-01	-0.459E-01 -0.521E-01 -0.589E-01 -0.664E-01 -0.711E-01 -0.776E-01
7P – 10S 41282.6 Å C = 0.16E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.504 0.624 0.751 0.901 0.980 1.04	0.161 0.186 0.160 0.109 0.902E-01 0.597E-01	0.428E-01 0.469E-01 0.518E-01 0.578E-01 0.618E-01 0.676E-01	0.341E-01 0.387E-01 0.436E-01 0.492E-01 0.527E-01 0.575E-01	0.366E-01 0.396E-01 0.430E-01 0.470E-01 0.496E-01 0.532E-01	0.273E-01 0.310E-01 0.351E-01 0.395E-01 0.423E-01 0.461E-01
8P – 9S 216525.2 Å C = 0.84E+17	2500. 5000. 10000. 20000. 30000. 50000.	34.1 34.0 33.9 33.8 33.6 32.8	-8.69 -4.32 -1.16 0.273 0.913 0.676	8.13 9.20 10.5 12.3 13.6 15.7	-7.04 -8.11 -9.25 -10.5 -11.3 -12.4	*6.52 *7.29 8.17 9.16 9.81 10.7	-5.56 -6.45 -7.39 -8.40 -9.04 -9.89

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
8P – 10S	2500.	6.67	-0.850	1.36	-1.18	*1.09	-0.934
91273.4 Å	5000.	6.95	-0.285	1.54	-1.36	*1.22	-1.08
C = 0.15E+17	10000.	7.20	0.214	1.77	-1.55	1.37	-1.24
	20000.	7.51	0.271	2.06	-1.76	1.54	-1.41
	30000.	7.65	0.331	2.29	-1.89	1.65	-1.51
	50000.	7.65	0.182	2.66	-2.08	1.80	-1.66
9P – 10S	2500.	95.9	55.9	18.8	15.9	*15.5	*12.6
338547.0 Å	5000.	104.	50.3	21.0	18.3	*17.1	*14.6
C = 0.52E+18	10000.	112.	36.3	23.5	20.9	19.0	16.7
	20000.	120.	19.0	26.5	23.7	21.2	19.0
	30000.	123.	15.2	28.6	25.5	22.6	20.4
	50000.	125.	11.7	31.6	27.8	24.5	22.3
4P – 6D	2500.	0.149E-02	-0.914E-03	0.346E-03	-0.301E-03	0.285E-03	-0.240E-03
3357.1 Å	5000.	0.153E-02	-0.743E-03	0.385E-03	-0.341E-03	0.315E-03	-0.273E-03
C = 0.10E+15	10000.	0.160E-02	-0.524E-03	0.431E-03	-0.386E-03	0.349E-03	-0.309E-03
	20000.	0.163E-02	-0.362E-03	0.487E-03	-0.434E-03	0.388E-03	-0.349E-03
	30000.	0.160E-02	-0.222E-03	0.525E-03	-0.465E-03	0.413E-03	-0.374E-03
	50000.	0.156E-02	-0.124E-03	0.583E-03	-0.507E-03	0.447E-03	-0.408E-03
4P – 7D	2500.	0.530E-02	-0.268E-02	0.143E-02	-0.124E-02	*0.114E-02	-0.985E-03
3221.5 Å	5000.	0.506E-02	-0.197E-02	0.162E-02	-0.143E-02	0.128E-02	-0.114E-02
C = 0.19E+14	10000.	0.489E-02	-0.121E-02	0.185E-02	-0.163E-02	0.143E-02	-0.130E-02
	20000.	0.459E-02	-0.581E-03	0.217E-02	-0.185E-02	0.161E-02	-0.148E-02
	30000.	0.437E-02	-0.407E-03	0.241E-02	-0.199E-02	0.172E-02	-0.159E-02
	50000.	0.408E-02	-0.235E-03	0.278E-02	-0.218E-02	0.188E-02	-0.174E-02
4P – 8D	2500.	0.616E-02	-0.609E-03	0.795E-03	-0.631E-03	0.674E-03	-0.502E-03
3146.8 Å	5000.	0.725E-02	-0.207E-03	0.879E-03	-0.720E-03	0.731E-03	-0.575E-03
C = 0.35E+14	10000.	0.786E-02	-0.290E-04	0.984E-03	-0.817E-03	0.799E-03	-0.654E-03
	20000.	0.790E-02	0.143E-03	0.112E-02	-0.923E-03	0.877E-03	-0.741E-03
	30000.	0.771E-02	0.142E-03	0.123E-02	-0.989E-03	0.928E-03	-0.795E-03
	50000.	0.729E-02	0.131E-03	0.142E-02	-0.108E-02	0.100E-02	-0.867E-03
4P – 9D	2500.	0.304E-02	0.131E-02	0.917E-03	0.342E-03	*0.899E-03	*0.272E-03
3077.2 Å	5000.	0.399E-02	0.129E-02	0.932E-03	0.388E-03	0.908E-03	0.310E-03
C = 0.15E+15	10000.	0.522E-02	0.110E-02	0.952E-03	0.440E-03	0.920E-03	0.352E-03
	20000.	0.658E-02	0.814E-03	0.976E-03	0.495E-03	0.935E-03	0.398E-03
	30000.	0.725E-02	0.661E-03	0.994E-03	0.531E-03	0.945E-03	0.426E-03
	50000.	0.786E-02	0.470E-03	0.102E-02	0.579E-03	0.962E-03	0.465E-03
5P – 6D	2500.	0.188E-01	-0.118E-01	0.430E-02	-0.373E-02	0.355E-02	-0.298E-02
11784.4 Å	5000.	0.194E-01	-0.924E-02	0.479E-02	-0.423E-02	0.392E-02	-0.339E-02
C = 0.13E+16	10000.	0.203E-01	-0.651E-02	0.536E-02	-0.479E-02	0.434E-02	-0.384E-02
	20000.	0.209E-01	-0.379E-02	0.604E-02	-0.539E-02	0.482E-02	-0.433E-02
	30000.	0.207E-01	-0.263E-02	0.652E-02	-0.577E-02	0.513E-02	-0.464E-02
	50000.	0.203E-01	-0.144E-02	0.723E-02	-0.630E-02	0.556E-02	-0.506E-02
5P – 7D	2500.	0.541E-01	-0.264E-01	0.145E-01	-0.126E-01	*0.116E-01	-0.100E-01
10267.8 Å	5000.	0.518E-01	-0.178E-01	0.165E-01	-0.145E-01	0.130E-01	-0.116E-01
C = 0.19E+15	10000.	0.501E-01	-0.122E-01	0.189E-01	-0.165E-01	0.146E-01	-0.132E-01
	20000.	0.473E-01	-0.551E-02	0.220E-01	-0.188E-01	0.163E-01	-0.150E-01
	30000.	0.451E-01	-0.371E-02	0.245E-01	-0.202E-01	0.175E-01	-0.162E-01
	50000.	0.422E-01	-0.193E-02	0.283E-01	-0.221E-01	0.191E-01	-0.177E-01
5P – 8D	2500.	0.568E-01	-0.588E-02	0.734E-02	-0.582E-02	0.622E-02	-0.463E-02
9545.3 Å	5000.	0.669E-01	-0.252E-02	0.810E-02	-0.664E-02	0.675E-02	-0.530E-02
C = 0.32E+15	10000.	0.727E-01	0.658E-04	0.907E-02	-0.753E-02	0.737E-02	-0.603E-02
	20000.	0.732E-01	0.787E-03	0.104E-01	-0.851E-02	0.809E-02	-0.683E-02
	30000.	0.715E-01	0.102E-02	0.114E-01	-0.912E-02	0.856E-02	-0.733E-02
	50000.	0.677E-01	0.119E-02	0.131E-01	-0.999E-02	0.924E-02	-0.799E-02
5P – 9D	2500.	0.257E-01	0.114E-01	0.774E-02	0.287E-02	*0.759E-02	*0.229E-02
8932.6 Å	5000.	0.338E-01	0.107E-01	0.787E-02	0.326E-02	0.767E-02	0.260E-02
C = 0.12E+16	10000.	0.444E-01	0.902E-02	0.803E-02	0.369E-02	0.776E-02	0.295E-02
	20000.	0.559E-01	0.624E-02	0.823E-02	0.416E-02	0.788E-02	0.334E-02
	30000.	0.616E-01	0.493E-02	0.838E-02	0.445E-02	0.797E-02	0.358E-02
	50000.	0.668E-01	0.336E-02	0.860E-02	0.486E-02	0.811E-02	0.390E-02

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P – 10D 8719.1 Å C = 0.55E+15	2500.	0.569E-01	-0.344E-01	*0.145E-01	-0.972E-02	*0.130E-01	-0.769E-02
	5000.	0.649E-01	-0.250E-01	0.155E-01	-0.112E-01	*0.138E-01	-0.890E-02
	10000.	0.810E-01	-0.147E-01	0.167E-01	-0.127E-01	*0.146E-01	-0.102E-01
	20000.	0.956E-01	-0.878E-02	0.181E-01	-0.144E-01	0.157E-01	-0.116E-01
	30000.	0.102	-0.565E-02	0.191E-01	-0.155E-01	0.163E-01	-0.124E-01
	50000.	0.107	-0.120E-02	0.204E-01	-0.169E-01	0.173E-01	-0.136E-01
6P – 6D 39550.7 Å C = 0.14E+17	2500.	0.278	-0.163	0.552E-01	-0.477E-01	0.456E-01	-0.381E-01
	5000.	0.293	-0.137	0.614E-01	-0.542E-01	0.503E-01	-0.433E-01
	10000.	0.298	-0.995E-01	0.687E-01	-0.613E-01	0.557E-01	-0.491E-01
	20000.	0.307	-0.598E-01	0.775E-01	-0.690E-01	0.618E-01	-0.554E-01
	30000.	0.304	-0.448E-01	0.836E-01	-0.739E-01	0.658E-01	-0.594E-01
	50000.	0.295	-0.282E-01	0.928E-01	-0.806E-01	0.712E-01	-0.648E-01
6P – 7D 26442.6 Å C = 0.13E+16	2500.	0.386	-0.160	0.978E-01	-0.850E-01	*0.783E-01	-0.673E-01
	5000.	0.374	-0.104	0.111	-0.977E-01	0.876E-01	-0.778E-01
	10000.	0.362	-0.675E-01	0.127	-0.111	0.981E-01	-0.889E-01
	20000.	0.346	-0.418E-01	0.148	-0.126	0.110	-0.101
	30000.	0.330	-0.200E-01	0.164	-0.136	0.118	-0.109
	50000.	0.309	-0.918E-02	0.190	-0.149	0.129	-0.119
6P – 8D 22128.6 Å C = 0.17E+16	2500.	0.316	-0.426E-01	0.408E-01	-0.324E-01	0.345E-01	-0.258E-01
	5000.	0.374	-0.237E-01	0.451E-01	-0.370E-01	0.375E-01	-0.295E-01
	10000.	0.408	-0.103E-01	0.504E-01	-0.420E-01	0.409E-01	-0.356E-01
	20000.	0.413	-0.266E-02	0.576E-01	-0.474E-01	0.450E-01	-0.381E-01
	30000.	0.404	0.119E-02	0.632E-01	-0.508E-01	0.476E-01	-0.409E-01
	50000.	0.384	0.261E-02	0.726E-01	-0.556E-01	0.514E-01	-0.446E-01
6P – 9D 19092.6 Å C = 0.56E+16	2500.	0.122	0.456E-01	0.353E-01	0.119E-01	*0.347E-01	*0.948E-02
	5000.	0.163	0.442E-01	0.357E-01	0.135E-01	0.350E-01	0.108E-01
	10000.	0.215	0.336E-01	0.363E-01	0.153E-01	0.354E-01	0.123E-01
	20000.	0.269	0.220E-01	0.371E-01	0.172E-01	0.358E-01	0.138E-01
	30000.	0.296	0.183E-01	0.377E-01	0.185E-01	0.361E-01	0.148E-01
	50000.	0.320	0.102E-01	0.386E-01	0.201E-01	0.366E-01	0.162E-01
6P – 10D 18143.5 Å C = 0.24E+16	2500.	0.256	-0.146	*0.634E-01	-0.426E-01	*0.569E-01	-0.337E-01
	5000.	0.293	-0.114	0.679E-01	-0.490E-01	*0.601E-01	-0.390E-01
	10000.	0.363	-0.649E-01	0.732E-01	-0.558E-01	*0.639E-01	-0.446E-01
	20000.	0.428	-0.399E-01	0.794E-01	-0.633E-01	0.685E-01	-0.507E-01
	30000.	0.455	-0.195E-01	0.836E-01	-0.681E-01	0.715E-01	-0.545E-01
	50000.	0.478	-0.703E-02	0.894E-01	-0.742E-01	0.757E-01	-0.596E-01
7P – 7D 74364.9 Å C = 0.10E+17	2500.	3.69	-1.70	0.834	-0.722	*0.669	-0.571
	5000.	3.62	-1.19	0.944	-0.831	*0.748	-0.661
	10000.	3.51	-0.851	1.08	-0.947	0.837	-0.756
	20000.	3.37	-0.368	1.26	-1.07	0.938	-0.859
	30000.	3.22	-0.274	1.39	-1.15	1.00	-0.924
	50000.	3.02	-0.181	1.61	-1.27	1.10	-1.01
7P – 8D 48031.4 Å C = 0.82E+16	2500.	1.72	-0.358	0.224	-0.181	0.188	-0.144
	5000.	2.02	-0.234	0.248	-0.207	0.205	-0.165
	10000.	2.18	-0.138	0.278	-0.235	0.225	-0.188
	20000.	2.20	-0.537E-01	0.318	-0.266	0.248	-0.213
	30000.	2.15	-0.199E-01	0.348	-0.285	0.263	-0.229
	50000.	2.04	-0.709E-02	0.398	-0.311	0.284	-0.250
7P – 9D 35707.0 Å C = 0.12E+17	2500.	0.501	0.727E-01	0.122	0.101E-01	*0.122	*0.810E-02
	5000.	0.676	0.804E-01	0.123	0.114E-01	0.122	0.917E-02
	10000.	0.876	0.637E-01	0.123	0.132E-01	0.122	0.103E-01
	20000.	1.07	0.462E-01	0.124	0.151E-01	0.122	0.116E-01
	30000.	1.17	0.397E-01	0.125	0.156E-01	0.123	0.125E-01
	50000.	1.25	0.244E-01	0.126	0.147E-01	0.123	0.136E-01
7P – 10D 32524.9 Å C = 0.77E+16	2500.	0.939	-0.463	*0.213	-0.146	*0.190	-0.116
	5000.	1.07	-0.352	0.229	-0.168	*0.201	-0.134
	10000.	1.29	-0.175	0.248	-0.192	*0.215	-0.153
	20000.	1.50	-0.665E-01	0.270	-0.218	0.231	-0.174
	30000.	1.58	-0.411E-01	0.285	-0.234	0.241	-0.187
	50000.	1.64	-0.267E-01	0.306	-0.255	0.256	-0.205

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
8P – 8D 132406.5 Å C = 0.32E+17	2500.	21.8	-5.17	*3.73	-3.16	*3.01	-2.49
	5000.	23.7	-3.12	4.21	-3.65	*3.36	-2.90
	10000.	23.9	-1.59	4.80	-4.17	*3.74	-3.33
	20000.	23.1	-0.464	5.59	-4.73	4.18	-3.78
	30000.	22.2	-0.282	6.19	-5.09	4.47	-4.07
	50000.	20.8	-0.120	7.18	-5.58	4.87	-4.46
8P – 9D 67849.5 Å C = 0.83E+16	2500.	4.13	-0.658	*0.870	-0.668	*0.737	-0.528
	5000.	4.58	-0.280	0.962	-0.770	*0.800	-0.612
	10000.	5.08	-0.798E-01	1.08	-0.878	*0.872	-0.701
	20000.	5.55	0.660E-01	1.24	-0.996	0.957	-0.797
	30000.	5.75	0.559E-01	1.36	-1.07	1.01	-0.858
	50000.	5.86	0.292E-01	1.56	-1.17	1.09	-0.938
8P – 10D 57213.1 Å C = 0.59E+16	2500.	4.55	-1.47	*0.941	-0.726	*0.794	-0.571
	5000.	4.82	-0.470	*1.04	-0.842	*0.865	-0.668
	10000.	5.35	-0.255	1.16	-0.964	*0.946	-0.769
	20000.	5.81	-0.266	1.31	-1.10	*1.04	-0.876
	30000.	5.96	0.191E-01	1.42	-1.18	*1.10	-0.943
	50000.	6.05	0.486E-01	1.60	-1.29	1.19	-1.03
9P – 9D 148451.6 Å C = 0.99E+17	2500.	20.0	10.4	*4.06	*2.98	*3.54	*2.36
	5000.	23.0	9.22	4.42	3.43	*3.79	*2.73
	10000.	26.3	6.59	4.85	3.91	4.09	3.13
	20000.	29.3	4.42	5.36	4.44	4.45	3.55
	30000.	30.6	2.55	5.73	4.77	4.68	3.82
	50000.	31.5	1.95	6.27	5.21	5.00	4.18
9P – 10D 105527.5 Å C = 0.50E+17	2500.	11.5	-1.08	1.75	-0.198	*1.74	-0.158
	5000.	14.6	-0.549	1.75	-0.225	*1.74	-0.180
	10000.	18.0	-0.239	1.77	-0.246	1.74	-0.203
	20000.	20.5	0.148	1.79	-0.239	1.75	-0.229
	30000.	21.5	0.181	1.82	-0.219	1.75	-0.244
	50000.	22.2	0.349	1.87	-0.170	1.75	-0.257
10P – 10D 233252.5 Å C = 0.40E+18	2500.	60.8	-34.1	*13.4	-8.92	*12.0	-7.04
	5000.	71.4	-28.5	*14.3	-10.3	*12.7	-8.18
	10000.	84.2	-23.2	15.5	-11.7	*13.5	-9.38
	20000.	99.3	-9.87	16.8	-13.3	14.5	-10.7
	30000.	107.	-8.39	17.6	-14.3	15.1	-11.5
	50000.	112.	-7.10	18.8	-15.7	16.0	-12.6
4D – 7P 13877.4 Å C = 0.18E+16	2500.	0.318E-01	0.212E-01	0.749E-02	0.649E-02	0.618E-02	0.518E-02
	5000.	0.331E-01	0.183E-01	0.834E-02	0.737E-02	0.683E-02	0.590E-02
	10000.	0.343E-01	0.144E-01	0.933E-02	0.835E-02	0.757E-02	0.669E-02
	20000.	0.340E-01	0.101E-01	0.105E-01	0.940E-02	0.840E-02	0.755E-02
	30000.	0.334E-01	0.734E-02	0.113E-01	0.101E-01	0.895E-02	0.809E-02
	50000.	0.324E-01	0.506E-02	0.125E-01	0.110E-01	0.969E-02	0.883E-02
4D – 8P 11719.6 Å C = 0.25E+15	2500.	0.901E-01	0.409E-01	0.248E-01	0.214E-01	*0.198E-01	*0.169E-01
	5000.	0.878E-01	0.312E-01	0.280E-01	0.247E-01	*0.222E-01	*0.196E-01
	10000.	0.819E-01	0.202E-01	0.320E-01	0.282E-01	0.249E-01	0.225E-01
	20000.	0.750E-01	0.122E-01	0.372E-01	0.320E-01	0.279E-01	0.256E-01
	30000.	0.707E-01	0.874E-02	0.411E-01	0.344E-01	0.299E-01	0.275E-01
	50000.	0.651E-01	0.536E-02	0.474E-01	0.377E-01	0.326E-01	0.302E-01
4D – 9P 10714.7 Å C = 0.52E+15	2500.	0.713E-01	-0.458E-01	0.169E-01	-0.142E-01	*0.140E-01	-0.112E-01
	5000.	0.741E-01	-0.381E-01	0.189E-01	-0.163E-01	*0.155E-01	-0.130E-01
	10000.	0.773E-01	-0.291E-01	0.211E-01	-0.186E-01	0.171E-01	-0.149E-01
	20000.	0.767E-01	-0.200E-01	0.238E-01	-0.211E-01	0.190E-01	-0.169E-01
	30000.	0.753E-01	-0.140E-01	0.256E-01	-0.227E-01	0.202E-01	-0.182E-01
	50000.	0.727E-01	-0.925E-02	0.284E-01	-0.247E-01	0.219E-01	-0.198E-01
4D – 10P 10150.4 Å C = 0.16E+16	2500.	0.467E-01	0.319E-01	0.126E-01	0.811E-02	*0.115E-01	*0.644E-02
	5000.	0.527E-01	0.347E-01	0.134E-01	0.927E-02	0.120E-01	0.739E-02
	10000.	0.588E-01	0.325E-01	0.143E-01	0.105E-01	0.127E-01	0.842E-02
	20000.	0.657E-01	0.251E-01	0.154E-01	0.119E-01	0.135E-01	0.955E-02
	30000.	0.699E-01	0.184E-01	0.161E-01	0.128E-01	0.140E-01	0.102E-01
	50000.	0.733E-01	0.143E-01	0.172E-01	0.139E-01	0.148E-01	0.112E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5D – 6P 448510.9 Å C = 0.45E+19	2500.	17.3	10.7	3.29	2.78	2.76	2.22
	5000.	18.3	9.51	3.63	3.14	3.02	2.52
	10000.	18.9	7.59	4.04	3.54	3.32	2.84
	20000.	19.7	5.25	4.52	3.99	3.66	3.20
	30000.	19.8	4.37	4.85	4.27	3.88	3.43
	50000.	19.4	2.77	5.34	4.65	4.19	3.74
5D – 7P 45165.1 Å C = 0.19E+17	2500.	0.404	0.249	0.845E-01	0.731E-01	0.698E-01	0.583E-01
	5000.	0.423	0.219	0.941E-01	0.830E-01	0.770E-01	0.664E-01
	10000.	0.435	0.167	0.105	0.940E-01	0.853E-01	0.753E-01
	20000.	0.435	0.108	0.119	0.106	0.948E-01	0.851E-01
	30000.	0.429	0.875E-01	0.128	0.114	0.101	0.912E-01
	50000.	0.414	0.461E-01	0.142	0.124	0.109	0.994E-01
5D – 8P 28242.0 Å C = 0.14E+16	2500.	0.548	0.250	*0.145	*0.125	*0.116	*0.988E-01
	5000.	0.537	0.190	0.164	0.144	*0.130	*0.115
	10000.	0.503	0.132	0.187	0.165	0.145	0.131
	20000.	0.464	0.767E-01	0.217	0.187	0.163	0.150
	30000.	0.439	0.552E-01	0.240	0.201	0.175	0.161
	50000.	0.406	0.287E-01	0.277	0.220	0.191	0.176
5D – 9P 23035.9 Å C = 0.24E+16	2500.	0.335	-0.207	0.778E-01	-0.651E-01	*0.643E-01	-0.515E-01
	5000.	0.353	-0.170	0.866E-01	-0.748E-01	*0.710E-01	-0.595E-01
	10000.	0.372	-0.130	0.969E-01	-0.852E-01	0.786E-01	-0.681E-01
	20000.	0.371	-0.862E-01	0.109	-0.966E-01	0.872E-01	-0.773E-01
	30000.	0.366	-0.618E-01	0.118	-0.104	0.928E-01	-0.832E-01
	50000.	0.354	-0.365E-01	0.131	-0.113	0.100	-0.909E-01
5D – 10P 20576.3 Å C = 0.66E+16	2500.	0.204	0.134	0.523E-01	0.339E-01	*0.476E-01	*0.269E-01
	5000.	0.231	0.147	0.556E-01	0.387E-01	0.499E-01	0.309E-01
	10000.	0.257	0.134	0.596E-01	0.440E-01	0.527E-01	0.352E-01
	20000.	0.286	0.928E-01	0.643E-01	0.498E-01	0.561E-01	0.399E-01
	30000.	0.303	0.768E-01	0.674E-01	0.534E-01	0.583E-01	0.429E-01
	50000.	0.316	0.451E-01	0.718E-01	0.583E-01	0.615E-01	0.468E-01
6D – 7P C = 0.11E+20	2500.	351.	202.	66.1	57.1	54.3	45.5
	5000.	365.	183.	73.7	65.1	60.1	52.0
	10000.	371.	116.	82.6	73.8	66.7	59.0
	20000.	373.	85.4	93.4	83.2	74.1	66.9
	30000.	367.	48.8	101.	89.2	78.9	71.6
	50000.	353.	32.5	112.	97.3	85.5	78.1
6D – 8P 80946.8 Å C = 0.12E+17	2500.	5.12	2.37	*1.23	*1.06	*0.990	*0.840
	5000.	5.03	1.87	1.40	1.23	*1.11	*0.977
	10000.	4.77	1.25	1.59	1.40	*1.24	*1.12
	20000.	4.44	0.736	1.85	1.59	1.39	1.27
	30000.	4.22	0.380	2.05	1.71	1.49	1.37
	50000.	3.92	0.268	2.36	1.87	1.62	1.50
6D – 9P 49125.3 Å C = 0.11E+17	2500.	1.59	-0.841	0.338	-0.280	*0.281	-0.222
	5000.	1.76	-0.661	0.376	-0.321	0.309	-0.256
	10000.	1.88	-0.501	0.420	-0.366	0.341	-0.293
	20000.	1.89	-0.302	0.474	-0.415	0.378	-0.332
	30000.	1.87	-0.241	0.512	-0.445	0.402	-0.357
	50000.	1.82	-0.108	0.571	-0.486	0.434	-0.391
6D – 10P 39146.5 Å C = 0.14E+17	2500.	0.873	0.533	0.201	0.135	*0.181	*0.107
	5000.	0.983	0.575	0.215	0.155	0.191	0.123
	10000.	1.08	0.517	0.232	0.176	0.202	0.140
	20000.	1.18	0.354	0.252	0.199	0.217	0.159
	30000.	1.24	0.221	0.265	0.213	0.226	0.171
	50000.	1.28	0.170	0.284	0.233	0.239	0.187
7D – 9P 127839.6 Å C = 0.29E+17	2500.	15.4	-2.90	1.07	-0.278	1.03	-0.221
	5000.	17.0	-2.42	1.11	-0.243	1.04	-0.254
	10000.	17.6	-2.08	1.19	-0.184	1.04	-0.276
	20000.	17.5	-1.35	1.37	-0.366E-01	1.04	-0.242
	30000.	17.1	-1.15	1.56	-0.163E-01	1.04	-0.212
	50000.	16.4	-0.619	1.95	0.239E-01	1.06	-0.125

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7D – 10P	2500.	5.58	2.83	*1.18	*0.928	*0.997	*0.733
76856.3 Å	5000.	5.87	2.67	1.31	1.07	*1.09	*0.851
C = 0.11E+17	10000.	6.07	2.09	1.47	1.22	*1.19	*0.975
	20000.	6.26	1.17	1.67	1.39	1.31	1.11
	30000.	6.38	0.902	1.82	1.49	1.39	1.19
	50000.	6.40	0.681	2.06	1.63	1.50	1.31
8D – 10P	2500.	32.3	12.1	5.02	3.52	*4.44	*2.79
177342.7 Å	5000.	37.5	11.8	5.42	4.04	*4.71	*3.22
C = 0.11E+18	10000.	41.3	9.26	5.92	4.60	5.04	3.68
	20000.	43.8	5.88	6.56	5.21	5.44	4.17
	30000.	44.5	3.90	7.02	5.59	5.70	4.49
	50000.	44.2	3.01	7.75	6.11	6.06	4.90
9D – 10P	2500.	242.	102.	62.9	26.0	*61.1	*20.7
646328.9 Å	5000.	320.	104.	64.3	29.6	*62.0	*23.7
C = 0.65E+19	10000.	416.	87.3	66.0	33.6	63.1	26.9
	20000.	519.	62.1	68.2	38.0	64.5	30.5
	30000.	570.	40.5	69.8	40.7	65.4	32.7
	50000.	614.	30.9	72.0	44.4	66.9	35.7
PERTURBER DENSITY = 1.E+14 cm ⁻³							
4S – 7P	2500.	0.227E-02	0.683E-03	0.860E-03	0.172E-03	0.856E-03	0.138E-03
2201.4 Å	5000.	0.297E-02	0.851E-03	0.863E-03	0.196E-03	0.859E-03	0.157E-03
C = 0.21E+16	10000.	0.381E-02	0.932E-03	0.867E-03	0.222E-03	0.861E-03	0.178E-03
	20000.	0.471E-02	0.889E-03	0.872E-03	0.250E-03	0.864E-03	0.201E-03
	30000.	0.523E-02	0.776E-03	0.875E-03	0.268E-03	0.866E-03	0.215E-03
	50000.	0.579E-02	0.650E-03	0.880E-03	0.292E-03	0.869E-03	0.235E-03
4S – 8P	2500.	0.408E-02	0.282E-03	0.155E-02	-0.144E-03	*0.155E-02	-0.115E-03
2151.5 Å	5000.	0.549E-02	0.691E-03	0.156E-02	-0.164E-03	*0.155E-02	-0.131E-03
C = 0.13E+16	10000.	0.721E-02	0.874E-03	0.156E-02	-0.185E-03	0.156E-02	-0.148E-03
	20000.	0.910E-02	0.892E-03	0.156E-02	-0.209E-03	0.156E-02	-0.167E-03
	30000.	0.101E-01	0.800E-03	0.156E-02	-0.224E-03	0.156E-02	-0.179E-03
	50000.	0.112E-01	0.709E-03	0.156E-02	-0.244E-03	0.156E-02	-0.196E-03
4S – 9P	2500.	0.825E-02	-0.453E-02	*0.285E-02	-0.112E-02		
2119.3 Å	5000.	0.982E-02	-0.497E-02	*0.292E-02	-0.130E-02	*0.281E-02	-0.103E-02
C = 0.11E+16	10000.	0.116E-01	-0.481E-02	0.300E-02	-0.150E-02	*0.287E-02	-0.119E-02
	20000.	0.135E-01	-0.407E-02	0.310E-02	-0.170E-02	*0.293E-02	-0.136E-02
	30000.	0.144E-01	-0.342E-02	0.317E-02	-0.183E-02	0.298E-02	-0.147E-02
	50000.	0.153E-01	-0.266E-02	0.328E-02	-0.201E-02	0.304E-02	-0.161E-02
4S – 10P	2500.	0.216E-01	0.145E-01				
2098.1 Å	5000.	0.242E-01	0.157E-01	*0.617E-02	*0.403E-02		
C = 0.66E+15	10000.	0.268E-01	0.150E-01	*0.663E-02	*0.471E-02		
	20000.	0.298E-01	0.118E-01	*0.715E-02	*0.541E-02	*0.623E-02	*0.431E-02
	30000.	0.317E-01	0.964E-02	*0.750E-02	*0.585E-02	*0.649E-02	*0.467E-02
	50000.	0.331E-01	0.716E-02	*0.799E-02	*0.643E-02	*0.685E-02	*0.514E-02
5S – 5P	2500.	0.736E-01	0.377E-01	0.187E-01	0.133E-01	0.167E-01	0.106E-01
29288.1 Å	5000.	0.921E-01	0.230E-01	0.201E-01	0.151E-01	0.177E-01	0.121E-01
C = 0.49E+18	10000.	0.114	0.102E-01	0.218E-01	0.170E-01	0.188E-01	0.136E-01
	20000.	0.127	0.190E-02	0.238E-01	0.191E-01	0.202E-01	0.154E-01
	30000.	0.134	-0.306E-02	0.252E-01	0.205E-01	0.211E-01	0.165E-01
	50000.	0.140	-0.470E-02	0.273E-01	0.223E-01	0.224E-01	0.179E-01
5S – 6P	2500.	0.183E-01	0.850E-02	0.649E-02	0.213E-02	0.640E-02	0.170E-02
11959.2 Å	5000.	0.224E-01	0.906E-02	0.656E-02	0.241E-02	0.644E-02	0.193E-02
C = 0.14E+18	10000.	0.283E-01	0.910E-02	0.665E-02	0.271E-02	0.650E-02	0.218E-02
	20000.	0.354E-01	0.707E-02	0.678E-02	0.305E-02	0.657E-02	0.245E-02
	30000.	0.399E-01	0.625E-02	0.687E-02	0.327E-02	0.662E-02	0.263E-02
	50000.	0.449E-01	0.565E-02	0.700E-02	0.356E-02	0.670E-02	0.286E-02
5S – 7P	2500.	0.320E-01	0.935E-02	0.121E-01	0.227E-02	0.120E-01	0.181E-02
8258.9 Å	5000.	0.419E-01	0.116E-01	0.121E-01	0.258E-02	0.121E-01	0.206E-02
C = 0.30E+17	10000.	0.541E-01	0.115E-01	0.122E-01	0.292E-02	0.121E-01	0.234E-02
	20000.	0.677E-01	0.106E-01	0.122E-01	0.329E-02	0.121E-01	0.264E-02
	30000.	0.756E-01	0.947E-02	0.123E-01	0.353E-02	0.122E-01	0.283E-02
	50000.	0.840E-01	0.807E-02	0.123E-01	0.385E-02	0.122E-01	0.309E-02

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5S – 8P 7597.3 Å C = 0.16E+17	2500.	0.510E-01	0.316E-02	0.194E-01	-0.193E-02	*0.193E-01	-0.154E-02
	5000.	0.688E-01	0.779E-02	0.194E-01	-0.220E-02	*0.194E-01	-0.176E-02
	10000.	0.906E-01	0.107E-01	0.194E-01	-0.249E-02	0.194E-01	-0.199E-02
	20000.	0.115	0.103E-01	0.195E-01	-0.280E-02	0.194E-01	-0.225E-02
	30000.	0.128	0.930E-02	0.195E-01	-0.300E-02	0.194E-01	-0.241E-02
	50000.	0.142	0.928E-02	0.195E-01	-0.327E-02	0.194E-01	-0.263E-02
5S – 9P 7211.3 Å C = 0.12E+17	2500.	0.960E-01	-0.526E-01	*0.330E-01	-0.130E-01	*0.326E-01	-0.120E-01
	5000.	0.114	-0.578E-01	*0.338E-01	-0.152E-01	*0.326E-01	-0.120E-01
	10000.	0.135	-0.563E-01	0.348E-01	-0.174E-01	*0.332E-01	-0.138E-01
	20000.	0.158	-0.472E-01	0.360E-01	-0.198E-01	*0.340E-01	-0.158E-01
	30000.	0.169	-0.382E-01	0.368E-01	-0.213E-01	0.345E-01	-0.170E-01
	50000.	0.179	-0.305E-01	0.380E-01	-0.233E-01	0.353E-01	-0.187E-01
5S – 10P 6971.1 Å C = 0.73E+16	2500.	0.238	0.161				
	5000.	0.268	0.181	*0.681E-01	*0.444E-01		
	10000.	0.297	0.161	*0.731E-01	*0.519E-01		
	20000.	0.331	0.113	*0.789E-01	*0.597E-01	*0.688E-01	*0.476E-01
	30000.	0.351	0.919E-01	*0.828E-01	*0.645E-01	*0.716E-01	*0.515E-01
	50000.	0.368	0.546E-01	*0.882E-01	*0.709E-01	*0.756E-01	*0.567E-01
6S – 6P 101156.2 Å C = 0.10E+20	2500.	2.13	-1.19	0.533	-0.306	0.499	-0.244
	5000.	2.61	-1.22	0.558	-0.348	0.515	-0.278
	10000.	3.29	-1.14	0.588	-0.394	0.536	-0.315
	20000.	4.15	-0.851	0.624	-0.443	0.561	-0.356
	30000.	4.66	-0.762	0.649	-0.475	0.578	-0.381
	50000.	5.16	-0.625	0.683	-0.518	0.603	-0.416
6S – 7P 21119.7 Å C = 0.19E+18	2500.	0.203	0.108E-01	0.786E-01	-0.413E-02	0.785E-01	-0.331E-02
	5000.	0.281	0.172E-01	0.787E-01	-0.467E-02	0.787E-01	-0.374E-02
	10000.	0.384	0.154E-01	0.788E-01	-0.525E-02	0.787E-01	-0.422E-02
	20000.	0.500	0.175E-01	0.788E-01	-0.591E-02	0.788E-01	-0.475E-02
	30000.	0.563	0.155E-01	0.788E-01	-0.633E-02	0.788E-01	-0.509E-02
	50000.	0.627	0.147E-01	0.788E-01	-0.707E-02	0.788E-01	-0.554E-02
6S – 8P 17273.0 Å C = 0.83E+17	2500.	0.266	-0.502E-02	0.100	-0.164E-01	*0.998E-01	-0.131E-01
	5000.	0.365	0.100E-01	0.101	-0.187E-01	*0.100	-0.149E-01
	10000.	0.491	0.154E-01	0.101	-0.212E-01	0.101	-0.170E-01
	20000.	0.633	0.223E-01	0.101	-0.240E-01	0.101	-0.192E-01
	30000.	0.710	0.202E-01	0.102	-0.257E-01	0.101	-0.206E-01
	50000.	0.787	0.230E-01	0.102	-0.280E-01	0.101	-0.225E-01
6S – 9P 15399.0 Å C = 0.56E+17	2500.	0.456	-0.246	*0.151	-0.613E-01		
	5000.	0.550	-0.273	*0.155	-0.713E-01	*0.149	-0.565E-01
	10000.	0.655	-0.270	0.160	-0.818E-01	*0.152	-0.652E-01
	20000.	0.763	-0.226	0.166	-0.931E-01	*0.156	-0.744E-01
	30000.	0.817	-0.191	0.170	-0.100	0.159	-0.802E-01
	50000.	0.865	-0.145	0.175	-0.110	0.162	-0.880E-01
6S – 10P 14343.8 Å C = 0.31E+17	2500.	1.01	0.676				
	5000.	1.14	0.729	*0.288	*0.187		
	10000.	1.27	0.657	*0.309	*0.219		
	20000.	1.42	0.430	*0.333	*0.252	*0.290	*0.200
	30000.	1.52	0.335	*0.349	*0.272	*0.302	*0.217
	50000.	1.59	0.212	*0.372	*0.299	*0.319	*0.239
7S – 7P 87045.8 Å C = 0.33E+19	2500.	3.43	-0.462	1.34	-0.182	1.33	-0.146
	5000.	4.77	-0.528	1.34	-0.207	1.34	-0.166
	10000.	6.61	-0.570	1.34	-0.234	1.34	-0.188
	20000.	8.68	-0.542	1.35	-0.263	1.34	-0.211
	30000.	9.84	-0.493	1.35	-0.282	1.34	-0.226
	50000.	11.1	-0.423	1.35	-0.307	1.34	-0.247
7S – 8P 45387.1 Å C = 0.58E+18	2500.	1.82	-0.154	0.694	-0.129	*0.690	-0.102
	5000.	2.50	-0.120	0.697	-0.147	*0.694	-0.117
	10000.	3.39	-0.122	0.700	-0.167	0.696	-0.133
	20000.	4.41	-0.660E-01	0.703	-0.188	0.698	-0.151
	30000.	4.97	-0.645E-01	0.706	-0.202	0.700	-0.162
	50000.	5.53	-0.361E-01	0.709	-0.220	0.701	-0.177

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7S – 9P 34389.9 Å C = 0.28E+18	2500.	2.29	-1.24	*0.756	-0.310		
	5000.	2.77	-1.38	*0.777	-0.360	*0.745	-0.285
	10000.	3.30	-1.40	0.801	-0.413	*0.761	-0.329
	20000.	3.86	-1.24	0.830	-0.470	*0.780	-0.376
	30000.	4.14	-1.05	0.850	-0.506	0.794	-0.405
	50000.	4.39	-0.864	0.880	-0.555	0.813	-0.444
7S – 10P 29537.2 Å C = 0.13E+18	2500.	4.28	2.88				
	5000.	4.82	3.16	*1.22	*0.792		
	10000.	5.38	2.94	*1.31	*0.925		
	20000.	6.05	1.91	*1.41	*1.06	*1.23	*0.847
	30000.	6.46	1.53	*1.48	*1.15	*1.28	*0.917
	50000.	6.79	0.911	*1.57	*1.26	*1.35	*1.01
8S – 8P 168745.0 Å C = 0.80E+19	2500.	32.8	4.34	9.54	0.457	*9.50	*0.366
	5000.	46.0	5.57	9.56	0.519	*9.55	*0.415
	10000.	63.3	5.02	9.57	0.584	9.57	0.469
	20000.	83.5	4.30	9.58	0.632	9.57	0.528
	30000.	94.8	4.78	9.58	0.627	9.58	0.567
	50000.	106.	3.32	9.58	0.562	9.58	0.616
8S – 9P 77090.9 Å C = 0.14E+19	2500.	12.3	-5.72	*3.75	-1.43		
	5000.	15.5	-6.30	*3.83	-1.66	*3.71	-1.32
	10000.	19.5	-6.23	3.93	-1.91	*3.77	-1.52
	20000.	23.8	-5.30	4.06	-2.17	*3.85	-1.74
	30000.	26.0	-4.61	4.15	-2.34	3.91	-1.87
	50000.	28.1	-3.49	4.27	-2.56	3.99	-2.05
8S – 10P 56341.2 Å C = 0.48E+18	2500.	16.5	10.5				
	5000.	18.9	11.2	*4.47	*2.92		
	10000.	21.6	9.62	*4.80	*3.41		
	20000.	24.6	6.51	*5.18	*3.93	*4.51	*3.13
	30000.	26.5	4.33	*5.43	*4.24	*4.70	*3.39
	50000.	28.1	3.36	*5.79	*4.66	*4.96	*3.73
9S – 9P 286278.7 Å C = 0.19E+20	2500.	213.	-101.	*54.2	-25.0		
	5000.	271.	-114.	*56.1	-29.2	*53.1	-23.1
	10000.	341.	-115.	58.4	-33.5	*54.6	-26.7
	20000.	415.	-97.4	61.2	-38.2	*56.4	-30.5
	30000.	455.	-83.0	63.1	-41.1	*57.7	-32.9
	50000.	495.	-61.0	65.8	-45.1	*59.6	-36.1
9S – 10P 120913.1 Å C = 0.22E+19	2500.	76.3	44.4				
	5000.	89.7	42.8	*20.0	*12.9		
	10000.	106.	34.6	*21.4	*15.0		
	20000.	126.	21.8	*23.1	*17.3	*20.2	*13.7
	30000.	137.	16.9	*24.2	*18.6	*21.0	*14.9
	50000.	147.	12.2	*25.7	*20.5	*22.1	*16.4
4P – 6S 5869.2 Å C = 0.34E+17	2500.	0.668E-02	0.505E-02	0.145E-02	0.132E-02	0.117E-02	0.106E-02
	5000.	0.756E-02	0.591E-02	0.163E-02	0.151E-02	0.131E-02	0.120E-02
	10000.	0.790E-02	0.599E-02	0.183E-02	0.171E-02	0.147E-02	0.137E-02
	20000.	0.821E-02	0.554E-02	0.205E-02	0.192E-02	0.165E-02	0.154E-02
	30000.	0.848E-02	0.479E-02	0.219E-02	0.206E-02	0.176E-02	0.165E-02
	50000.	0.908E-02	0.401E-02	0.239E-02	0.225E-02	0.192E-02	0.180E-02
4P – 7S 4848.7 Å C = 0.27E+17	2500.	0.548E-02	0.414E-02	0.122E-02	0.111E-02	0.983E-03	0.887E-03
	5000.	0.652E-02	0.491E-02	0.137E-02	0.127E-02	0.110E-02	0.101E-02
	10000.	0.716E-02	0.554E-02	0.154E-02	0.144E-02	0.124E-02	0.115E-02
	20000.	0.746E-02	0.548E-02	0.173E-02	0.162E-02	0.139E-02	0.130E-02
	30000.	0.766E-02	0.516E-02	0.185E-02	0.174E-02	0.149E-02	0.139E-02
	50000.	0.787E-02	0.446E-02	0.201E-02	0.190E-02	0.162E-02	0.152E-02
4P – 8S 4497.4 Å C = 0.93E+16	2500.	0.789E-02	-0.120E-02	0.848E-03	-0.774E-03	0.682E-03	-0.617E-03
	5000.	0.115E-01	-0.107E-03	0.952E-03	-0.880E-03	0.765E-03	-0.704E-03
	10000.	0.158E-01	0.811E-03	0.107E-02	-0.998E-03	0.859E-03	-0.799E-03
	20000.	0.210E-01	0.129E-02	0.120E-02	-0.112E-02	0.964E-03	-0.903E-03
	30000.	0.240E-01	0.129E-02	0.129E-02	-0.120E-02	0.103E-02	-0.967E-03
	50000.	0.274E-01	0.146E-02	0.141E-02	-0.131E-02	0.112E-02	-0.106E-02

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P – 9S 4313.6 Å C = 0.65E+16	2500.	0.181E-01	0.994E-02	0.277E-02	0.246E-02	0.223E-02	0.195E-02
	5000.	0.230E-01	0.105E-01	0.311E-02	0.283E-02	0.250E-02	0.225E-02
	10000.	0.298E-01	0.988E-02	0.349E-02	0.322E-02	0.281E-02	0.258E-02
	20000.	0.383E-01	0.806E-02	0.392E-02	0.366E-02	0.315E-02	0.293E-02
	30000.	0.436E-01	0.679E-02	0.420E-02	0.393E-02	0.337E-02	0.315E-02
	50000.	0.491E-01	0.521E-02	0.457E-02	0.429E-02	0.367E-02	0.344E-02
4P – 10S 4204.3 Å C = 0.40E+16	2500.	0.369E-01	0.228E-01	0.650E-02	0.555E-02	*0.523E-02	*0.435E-02
	5000.	0.444E-01	0.236E-01	0.730E-02	0.648E-02	*0.587E-02	*0.513E-02
	10000.	0.557E-01	0.213E-01	0.819E-02	0.746E-02	0.659E-02	0.594E-02
	20000.	0.703E-01	0.160E-01	0.920E-02	0.850E-02	0.739E-02	0.679E-02
	30000.	0.790E-01	0.131E-01	0.985E-02	0.915E-02	0.791E-02	0.732E-02
	50000.	0.873E-01	0.946E-02	0.107E-01	0.100E-01	0.862E-02	0.803E-02
5P – 6S 25260.1 Å C = 0.36E+18	2500.	0.133	0.715E-01	0.223E-01	0.188E-01	0.186E-01	0.150E-01
	5000.	0.166	0.841E-01	0.246E-01	0.214E-01	0.204E-01	0.171E-01
	10000.	0.191	0.903E-01	0.273E-01	0.242E-01	0.225E-01	0.194E-01
	20000.	0.211	0.843E-01	0.304E-01	0.272E-01	0.248E-01	0.218E-01
	30000.	0.220	0.738E-01	0.325E-01	0.291E-01	0.264E-01	0.234E-01
	50000.	0.233	0.628E-01	0.354E-01	0.318E-01	0.285E-01	0.255E-01
5P – 7S 13254.0 Å C = 0.10E+18	2500.	0.439E-01	0.256E-01	0.795E-02	0.694E-02	0.655E-02	0.553E-02
	5000.	0.559E-01	0.309E-01	0.885E-02	0.789E-02	0.725E-02	0.631E-02
	10000.	0.651E-01	0.361E-01	0.987E-02	0.894E-02	0.805E-02	0.716E-02
	20000.	0.711E-01	0.361E-01	0.110E-01	0.101E-01	0.895E-02	0.809E-02
	30000.	0.739E-01	0.355E-01	0.118E-01	0.108E-01	0.953E-02	0.867E-02
	50000.	0.769E-01	0.308E-01	0.129E-01	0.118E-01	0.103E-01	0.946E-02
5P – 8S 10922.3 Å C = 0.55E+17	2500.	0.516E-01	-0.121E-01	0.626E-02	-0.552E-02	0.513E-02	-0.440E-02
	5000.	0.743E-01	-0.450E-02	0.699E-02	-0.628E-02	0.570E-02	-0.502E-02
	10000.	0.103	0.840E-02	0.782E-02	-0.712E-02	0.634E-02	-0.570E-02
	20000.	0.135	0.502E-02	0.876E-02	-0.803E-02	0.707E-02	-0.645E-02
	30000.	0.153	0.629E-02	0.939E-02	-0.861E-02	0.754E-02	-0.691E-02
	50000.	0.174	0.688E-02	0.103E-01	-0.939E-02	0.819E-02	-0.754E-02
5P – 9S 9897.6 Å C = 0.34E+17	2500.	0.973E-01	0.498E-01	0.142E-01	0.125E-01	0.114E-01	0.991E-02
	5000.	0.125	0.529E-01	0.159E-01	0.144E-01	0.128E-01	0.115E-01
	10000.	0.163	0.489E-01	0.178E-01	0.164E-01	0.143E-01	0.131E-01
	20000.	0.211	0.386E-01	0.200E-01	0.186E-01	0.161E-01	0.149E-01
	30000.	0.239	0.319E-01	0.214E-01	0.200E-01	0.172E-01	0.160E-01
	50000.	0.268	0.251E-01	0.234E-01	0.218E-01	0.187E-01	0.175E-01
5P – 10S 9340.7 Å C = 0.20E+17	2500.	0.184	0.111	0.318E-01	0.272E-01	*0.256E-01	*0.213E-01
	5000.	0.223	0.115	0.357E-01	0.317E-01	*0.287E-01	*0.251E-01
	10000.	0.279	0.100	0.401E-01	0.365E-01	0.323E-01	0.291E-01
	20000.	0.355	0.707E-01	0.451E-01	0.416E-01	0.362E-01	0.332E-01
	30000.	0.399	0.556E-01	0.483E-01	0.448E-01	0.387E-01	0.358E-01
	50000.	0.440	0.406E-01	0.526E-01	0.491E-01	0.422E-01	0.393E-01
6P – 7S 38498.1 Å C = 0.15E+19	2500.	0.378	0.224	0.877E-01	0.591E-01	0.793E-01	0.471E-01
	5000.	0.469	0.262	0.935E-01	0.672E-01	0.834E-01	0.537E-01
	10000.	0.571	0.283	0.100	0.762E-01	0.883E-01	0.610E-01
	20000.	0.688	0.276	0.109	0.858E-01	0.942E-01	0.689E-01
	30000.	0.758	0.246	0.114	0.920E-01	0.982E-01	0.739E-01
	50000.	0.846	0.207	0.121	0.100	0.104	0.806E-01
6P – 8S 23763.2 Å C = 0.26E+18	2500.	0.241	-0.568E-01	0.362E-01	-0.259E-01	0.322E-01	-0.206E-01
	5000.	0.347	-0.293E-01	0.390E-01	-0.295E-01	0.341E-01	-0.236E-01
	10000.	0.498	-0.144E-01	0.422E-01	-0.334E-01	0.365E-01	-0.268E-01
	20000.	0.679	-0.118E-02	0.460E-01	-0.377E-01	0.393E-01	-0.303E-01
	30000.	0.787	0.583E-02	0.485E-01	-0.404E-01	0.412E-01	-0.324E-01
	50000.	0.901	0.145E-01	0.520E-01	-0.441E-01	0.438E-01	-0.354E-01
6P – 9S 19394.7 Å C = 0.13E+18	2500.	0.374	0.200	0.561E-01	0.482E-01	0.460E-01	0.381E-01
	5000.	0.478	0.202	0.626E-01	0.554E-01	0.511E-01	0.441E-01
	10000.	0.633	0.180	0.699E-01	0.631E-01	0.568E-01	0.504E-01
	20000.	0.839	0.131	0.781E-01	0.716E-01	0.634E-01	0.573E-01
	30000.	0.961	0.110	0.834E-01	0.769E-01	0.676E-01	0.616E-01
	50000.	1.08	0.835E-01	0.907E-01	0.839E-01	0.733E-01	0.674E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
6P – 10S 17365.8 Å C = 0.68E+17	2500.	0.637	0.384	0.111	0.940E-01	*0.892E-01	*0.736E-01
	5000.	0.770	0.391	0.124	0.110	*0.100E+00	*0.868E-01
	10000.	0.970	0.341	0.139	0.126	0.112	0.100
	20000.	1.25	0.234	0.156	0.144	0.126	0.115
	30000.	1.41	0.183	0.167	0.155	0.134	0.124
	50000.	1.56	0.123	0.182	0.170	0.146	0.136
7P – 8S 216525.2 Å C = 0.20E+20	2500.	34.8	-10.2	8.50	-2.72	8.37	-2.17
	5000.	48.3	-9.77	8.60	-3.10	8.45	-2.48
	10000.	67.7	-7.49	8.73	-3.52	8.52	-2.82
	20000.	90.7	-5.77	8.89	-3.98	8.62	-3.19
	30000.	104.	-4.97	9.01	-4.26	8.69	-3.42
	50000.	117.	-3.39	9.18	-4.65	8.79	-3.73
7P – 9S 70937.1 Å C = 0.18E+19	2500.	5.77	2.40	1.06	0.607	0.990	0.480
	5000.	7.90	2.48	1.12	0.697	1.03	0.555
	10000.	10.9	1.93	1.18	0.794	1.07	0.634
	20000.	14.7	1.37	1.26	0.900	1.12	0.721
	30000.	16.8	1.03	1.31	0.966	1.16	0.775
	50000.	18.9	0.687	1.38	1.06	1.21	0.848
7P – 10S 49699.1 Å C = 0.55E+18	2500.	5.61	3.17	*0.968	*0.759	*0.811	*0.594
	5000.	7.06	3.12	1.07	0.886	*0.890	*0.701
	10000.	9.12	2.24	1.18	1.02	0.979	0.811
	20000.	12.0	1.52	1.31	1.16	1.08	0.927
	30000.	13.5	1.09	1.40	1.25	1.15	0.999
	50000.	15.0	0.700	1.52	1.37	1.24	1.10
8P – 9S 281491.9 Å C = 0.22E+20	2500.	119.	41.6	28.1	11.2	*27.3	*8.85
	5000.	165.	34.8	28.8	12.9	*27.8	*10.3
	10000.	232.	26.0	29.5	14.7	28.3	11.7
	20000.	309.	16.0	30.5	16.7	28.9	13.3
	30000.	351.	10.7	31.2	17.9	29.3	14.4
	50000.	395.	7.04	32.2	19.6	29.9	15.7
8P – 10S 104421.2 Å C = 0.24E+19	2500.	28.2	14.2	*5.25	*3.49	*4.66	*2.73
	5000.	36.7	13.8	5.64	4.07	*4.96	*3.22
	10000.	48.3	9.27	6.11	4.68	*5.30	*3.73
	20000.	63.6	6.18	6.64	5.34	5.70	4.26
	30000.	71.6	4.19	7.00	5.75	5.96	4.60
	50000.	79.3	2.60	7.49	6.30	6.33	5.04
4P – 4D 7328.2 Å C = 0.30E+17	2500.	0.394E-02	-0.183E-02	0.881E-03	-0.647E-03	0.780E-03	-0.518E-03
	5000.	0.428E-02	-0.118E-02	0.951E-03	-0.733E-03	0.828E-03	-0.587E-03
	10000.	0.466E-02	-0.631E-03	0.103E-02	-0.825E-03	0.887E-03	-0.662E-03
	20000.	0.475E-02	-0.279E-03	0.114E-02	-0.928E-03	0.956E-03	-0.746E-03
	30000.	0.481E-02	-0.471E-04	0.121E-02	-0.994E-03	0.100E-02	-0.799E-03
	50000.	0.488E-02	0.320E-04	0.132E-02	-0.108E-02	0.107E-02	-0.871E-03
4P – 5D 5190.3 Å C = 0.16E+17	2500.	0.460E-02	-0.260E-02	0.141E-02	-0.727E-03	0.134E-02	-0.581E-03
	5000.	0.511E-02	-0.237E-02	0.146E-02	-0.825E-03	0.137E-02	-0.660E-03
	10000.	0.581E-02	-0.169E-02	0.152E-02	-0.933E-03	0.141E-02	-0.749E-03
	20000.	0.697E-02	-0.121E-02	0.161E-02	-0.105E-02	0.146E-02	-0.843E-03
	30000.	0.758E-02	-0.106E-02	0.167E-02	-0.113E-02	0.150E-02	-0.904E-03
	50000.	0.825E-02	-0.808E-03	0.175E-02	-0.123E-02	0.155E-02	-0.986E-03
4P – 6D 4686.6 Å C = 0.41E+16	2500.	0.143E-01	-0.309E-02	0.308E-02	-0.195E-02	0.281E-02	-0.155E-02
	5000.	0.178E-01	-0.122E-02	0.327E-02	-0.223E-02	0.294E-02	-0.178E-02
	10000.	0.202E-01	0.757E-03	0.351E-02	-0.254E-02	0.309E-02	-0.203E-02
	20000.	0.221E-01	0.211E-02	0.382E-02	-0.288E-02	0.329E-02	-0.230E-02
	30000.	0.227E-01	0.245E-02	0.404E-02	-0.308E-02	0.341E-02	-0.247E-02
	50000.	0.230E-01	0.252E-02	0.438E-02	-0.336E-02	0.360E-02	-0.270E-02
4P – 7D 4435.0 Å C = 0.35E+15	2500.	0.101	-0.258E-01				
	5000.	0.953E-01	-0.140E-01	*0.307E-01	-0.248E-01		
	10000.	0.896E-01	-0.726E-02	*0.352E-01	-0.293E-01		
	20000.	0.831E-01	-0.734E-03	*0.413E-01	-0.338E-01	*0.305E-01	-0.269E-01
	30000.	0.788E-01	0.391E-03	*0.460E-01	-0.367E-01	*0.326E-01	-0.293E-01
	50000.	0.731E-01	0.950E-03	*0.535E-01	-0.406E-01	*0.357E-01	-0.322E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P – 8D 4292.5 Å C = 0.12E+16	2500.	0.852E-01	0.580E-01	*0.195E-01	*0.146E-01		
	5000.	0.884E-01	0.533E-01	*0.217E-01	*0.176E-01		
	10000.	0.916E-01	0.417E-01	*0.242E-01	*0.206E-01	*0.197E-01	*0.163E-01
	20000.	0.948E-01	0.294E-01	*0.272E-01	*0.237E-01	*0.219E-01	*0.188E-01
	30000.	0.947E-01	0.229E-01	*0.293E-01	*0.256E-01	*0.233E-01	*0.204E-01
	50000.	0.926E-01	0.147E-01	*0.323E-01	*0.281E-01	*0.252E-01	*0.225E-01
4P – 9D 4139.1 Å C = 0.19E+16	2500.	0.896E-01	0.574E-01				
	5000.	0.105	0.569E-01	*0.241E-01	*0.159E-01		
	10000.	0.125	0.451E-01	*0.259E-01	*0.185E-01		
	20000.	0.150	0.322E-01	*0.280E-01	*0.213E-01	*0.244E-01	*0.170E-01
	30000.	0.161	0.260E-01	*0.294E-01	*0.230E-01	*0.254E-01	*0.184E-01
	50000.	0.170	0.169E-01	*0.314E-01	*0.253E-01	*0.268E-01	*0.203E-01
4P – 10D 4093.1 Å C = 0.14E+16	2500.	0.101	0.267E-01				
	5000.	0.136	0.270E-01	*0.254E-01	*0.642E-02		
	10000.	0.178	0.237E-01	*0.256E-01	*0.739E-02		
	20000.	0.219	0.178E-01	*0.258E-01	*0.842E-02	*0.255E-01	*0.673E-02
	30000.	0.238	0.146E-01	*0.260E-01	*0.907E-02	*0.256E-01	*0.725E-02
	50000.	0.253	0.102E-01	0.262E-01	0.995E-02	*0.257E-01	*0.796E-02
5P – 5D 16161.8 Å C = 0.15E+18	2500.	0.651E-01	-0.363E-01	0.159E-01	-0.948E-02	0.148E-01	-0.756E-02
	5000.	0.730E-01	-0.331E-01	0.168E-01	-0.108E-01	0.154E-01	-0.862E-02
	10000.	0.811E-01	-0.270E-01	0.178E-01	-0.122E-01	0.160E-01	-0.978E-02
	20000.	0.942E-01	-0.201E-01	0.191E-01	-0.138E-01	0.168E-01	-0.111E-01
	30000.	0.101	-0.180E-01	0.200E-01	-0.147E-01	0.174E-01	-0.118E-01
	50000.	0.107	-0.136E-01	0.213E-01	-0.161E-01	0.182E-01	-0.129E-01
5P – 6D 12109.2 Å C = 0.27E+17	2500.	0.101	-0.257E-01	0.214E-01	-0.138E-01	0.195E-01	-0.109E-01
	5000.	0.126	-0.109E-01	0.228E-01	-0.158E-01	0.204E-01	-0.126E-01
	10000.	0.146	0.353E-02	0.246E-01	-0.180E-01	0.215E-01	-0.144E-01
	20000.	0.160	0.119E-01	0.268E-01	-0.203E-01	0.229E-01	-0.163E-01
	30000.	0.165	0.181E-01	0.283E-01	-0.218E-01	0.238E-01	-0.175E-01
	50000.	0.168	0.180E-01	0.308E-01	-0.238E-01	0.252E-01	-0.191E-01
5P – 7D 10561.3 Å C = 0.20E+16	2500.	0.574	-0.128				
	5000.	0.546	-0.763E-01	*0.174	-0.141		
	10000.	0.516	-0.170E-01	*0.200	-0.166		
	20000.	0.481	-0.965E-03	*0.235	-0.192	*0.173	-0.153
	30000.	0.457	0.306E-02	*0.261	-0.208	*0.185	-0.166
	50000.	0.425	0.136E-01	*0.304	-0.231	*0.203	-0.183
5P – 8D 9787.3 Å C = 0.63E+16	2500.	0.445	0.299	*0.101	*0.759E-01		
	5000.	0.464	0.273	*0.113	*0.913E-01		
	10000.	0.483	0.204	*0.126	*0.107	*0.102	*0.844E-01
	20000.	0.501	0.134	*0.141	*0.123	*0.114	*0.978E-01
	30000.	0.501	0.990E-01	*0.152	*0.133	*0.121	*0.106
	50000.	0.490	0.589E-01	*0.168	*0.146	*0.131	*0.117
5P – 9D 9024.6 Å C = 0.92E+16	2500.	0.429	0.271				
	5000.	0.503	0.268	*0.115	*0.753E-01		
	10000.	0.602	0.203	*0.123	*0.880E-01		
	20000.	0.721	0.136	*0.133	*0.101	*0.116	*0.806E-01
	30000.	0.775	0.103	*0.140	*0.109	*0.121	*0.872E-01
	50000.	0.815	0.627E-01	*0.149	*0.120	*0.127	*0.961E-01
5P – 10D 8809.2 Å C = 0.67E+16	2500.	0.469	0.123				
	5000.	0.635	0.123	*0.118	*0.295E-01		
	10000.	0.831	0.104	*0.119	*0.339E-01		
	20000.	1.02	0.727E-01	*0.120	*0.387E-01	*0.118	*0.309E-01
	30000.	1.11	0.569E-01	*0.120	*0.417E-01	*0.119	*0.333E-01
	50000.	1.18	0.389E-01	0.121	0.457E-01	*0.119	*0.366E-01
6P – 6D 30204.0 Å C = 0.17E+18	2500.	0.630	-0.152	0.140	-0.855E-01	0.129	-0.678E-01
	5000.	0.790	-0.651E-01	0.148	-0.980E-01	0.134	-0.781E-01
	10000.	0.929	0.151E-01	0.159	-0.111	0.141	-0.891E-01
	20000.	1.05	0.795E-01	0.171	-0.126	0.149	-0.101
	30000.	1.11	0.843E-01	0.181	-0.135	0.154	-0.109
	50000.	1.16	0.798E-01	0.195	-0.148	0.162	-0.119

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
6P – 7D 22118.4 Å C = 0.87E+16	2500.	2.52	-0.661				
	5000.	2.40	-0.421	*0.765	-0.618		
	10000.	2.28	-0.222	*0.878	-0.728		
	20000.	2.15	-0.839E-01	*1.03	-0.842	*0.759	-0.669
	30000.	2.06	-0.203E-01	*1.15	-0.913	*0.813	-0.726
	50000.	1.93	0.743E-02	*1.33	-1.01	*0.890	-0.801
6P – 8D 18975.4 Å C = 0.24E+17	2500.	1.68	1.13	*0.381	*0.285		
	5000.	1.75	1.06	*0.424	*0.343		
	10000.	1.83	0.800	*0.474	*0.401	*0.385	*0.317
	20000.	1.91	0.522	*0.532	*0.462	*0.428	*0.368
	30000.	1.92	0.396	*0.572	*0.499	*0.455	*0.398
	50000.	1.89	0.212	*0.630	*0.549	*0.493	*0.439
6P – 9D 16304.2 Å C = 0.30E+17	2500.	1.40	0.886				
	5000.	1.65	0.889	*0.375	*0.246		
	10000.	1.98	0.683	*0.403	*0.287		
	20000.	2.38	0.453	*0.435	*0.330	*0.379	*0.263
	30000.	2.56	0.350	*0.456	*0.357	*0.394	*0.285
	50000.	2.69	0.198	*0.487	*0.392	*0.416	*0.314
6P – 10D 15614.3 Å C = 0.21E+17	2500.	1.48	0.386				
	5000.	2.00	0.405	*0.370	*0.927E-01		
	10000.	2.62	0.323	*0.374	*0.107		
	20000.	3.23	0.218	*0.377	*0.122	*0.372	*0.971E-01
	30000.	3.51	0.177	*0.379	*0.131	*0.374	*0.105
	50000.	3.74	0.109	0.383	0.144	*0.376	*0.115
7P – 7D 129070.6 Å C = 0.30E+18	2500.	88.4	-24.1				
	5000.	86.9	-15.8	*26.3	-21.1		
	10000.	85.6	-8.16	*30.1	-24.9		
	20000.	84.0	-2.04	*35.3	-28.7	*26.1	-22.8
	30000.	82.3	-1.39	*39.2	-31.1	*27.9	-24.8
	50000.	79.6	-1.54	*45.6	-34.5	*30.5	-27.3
7P – 8D 65633.2 Å C = 0.28E+18	2500.	20.8	13.3	*4.62	*3.40		
	5000.	22.2	12.1	*5.12	*4.09		
	10000.	23.8	8.57	*5.71	*4.79	*4.67	*3.78
	20000.	25.6	5.16	*6.40	*5.51	*5.17	*4.38
	30000.	26.1	3.15	*6.87	*5.95	*5.49	*4.75
	50000.	26.1	1.64	*7.56	*6.54	*5.94	*5.23
7P – 9D 41893.1 Å C = 0.20E+18	2500.	9.57	5.75				
	5000.	11.4	5.66	*2.51	*1.62		
	10000.	13.8	4.09	*2.69	*1.89		
	20000.	16.8	2.42	*2.90	*2.17	*2.53	*1.73
	30000.	18.1	1.77	*3.04	*2.35	*2.63	*1.87
	50000.	19.2	0.811	*3.23	*2.58	*2.78	*2.06
7P – 10D 37621.6 Å C = 0.12E+18	2500.	8.84	2.22				
	5000.	12.0	2.22	*2.19	*0.531		
	10000.	15.9	1.61	*2.21	*0.611		
	20000.	19.6	1.00	*2.23	*0.696	*2.20	*0.556
	30000.	21.4	0.615	*2.24	*0.750	*2.21	*0.600
	50000.	22.8	0.387	2.26	0.823	*2.22	*0.658
8P – 8D 213142.4 Å C = 0.30E+19	2500.	233.	140.	*50.7	*36.2		
	5000.	257.	127.	*56.0	*43.5		
	10000.	283.	85.7	*62.0	*50.9	*51.3	*40.3
	20000.	313.	53.7	*69.2	*58.6	*56.4	*46.6
	30000.	323.	29.8	*74.2	*63.3	*59.8	*50.5
	50000.	328.	15.3	*81.4	*69.6	*64.4	*55.7
9P – 9D 159230.6 Å C = 0.29E+19	2500.	168.	92.6				
	5000.	202.	96.6				
	10000.	244.	83.5	*44.4	*30.2		
	20000.	290.	58.4	*47.7	*34.8	*42.0	*27.7
	30000.	312.	40.8	*49.9	*37.7	*43.6	*30.0
	50000.	330.	26.9	*52.9	*41.4	*45.8	*33.1

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
9P – 10D 111229.8 Å C = 0.11E+19	2500.	90.5	25.0				
	5000.	122.	28.3				
	10000.	159.	26.7	*21.7	*7.56		
	20000.	194.	20.3	*22.1	*8.65		
	30000.	211.	16.8	*22.3	*9.32	*21.7	*7.45
	50000.	224.	10.8	*22.6	*10.2	*21.9	*8.18
4D – 5P 176469.6 Å C = 0.18E+20	2500.	4.85	2.69	0.997	0.764	0.867	0.610
	5000.	5.23	2.47	1.08	0.867	0.930	0.694
	10000.	5.66	1.77	1.19	0.980	1.00	0.786
	20000.	6.07	1.34	1.31	1.10	1.09	0.886
	30000.	6.10	1.05	1.40	1.18	1.15	0.949
	50000.	6.11	0.726	1.53	1.29	1.23	1.04
4D – 6P 22827.3 Å C = 0.30E+18	2500.	0.103	0.481E-01	0.266E-01	0.125E-01	0.256E-01	0.100E-01
	5000.	0.119	0.545E-01	0.274E-01	0.142E-01	0.261E-01	0.114E-01
	10000.	0.138	0.540E-01	0.284E-01	0.161E-01	0.267E-01	0.129E-01
	20000.	0.157	0.463E-01	0.297E-01	0.181E-01	0.274E-01	0.145E-01
	30000.	0.169	0.400E-01	0.306E-01	0.194E-01	0.280E-01	0.155E-01
	50000.	0.183	0.342E-01	0.320E-01	0.211E-01	0.288E-01	0.170E-01
4D – 7P 12304.6 Å C = 0.66E+17	2500.	0.798E-01	0.236E-01	0.272E-01	0.603E-02	0.270E-01	0.481E-02
	5000.	0.103	0.288E-01	0.274E-01	0.686E-02	0.272E-01	0.549E-02
	10000.	0.129	0.303E-01	0.275E-01	0.778E-02	0.273E-01	0.623E-02
	20000.	0.158	0.283E-01	0.277E-01	0.876E-02	0.274E-01	0.704E-02
	30000.	0.174	0.257E-01	0.279E-01	0.939E-02	0.275E-01	0.754E-02
	50000.	0.192	0.213E-01	0.282E-01	0.102E-01	0.276E-01	0.823E-02
4D – 8P 10891.4 Å C = 0.33E+17	2500.	0.111	0.941E-02	0.400E-01	-0.311E-02	*0.398E-01	-0.248E-02
	5000.	0.148	0.195E-01	0.401E-01	-0.352E-02	*0.400E-01	-0.282E-02
	10000.	0.193	0.232E-01	0.401E-01	-0.398E-02	0.401E-01	-0.320E-02
	20000.	0.242	0.238E-01	0.402E-01	-0.449E-02	0.401E-01	-0.360E-02
	30000.	0.269	0.231E-01	0.402E-01	-0.481E-02	0.401E-01	-0.386E-02
	50000.	0.296	0.193E-01	0.403E-01	-0.526E-02	0.401E-01	-0.421E-02
4D – 9P 10115.2 Å C = 0.24E+17	2500.	0.192	-0.103	*0.650E-01	-0.254E-01		
	5000.	0.229	-0.113	*0.666E-01	-0.295E-01	*0.642E-01	-0.234E-01
	10000.	0.270	-0.109	0.684E-01	-0.339E-01	*0.654E-01	-0.270E-01
	20000.	0.314	-0.905E-01	0.707E-01	-0.385E-01	*0.669E-01	-0.308E-01
	30000.	0.336	-0.724E-01	0.723E-01	-0.415E-01	0.679E-01	-0.332E-01
	50000.	0.355	-0.580E-01	0.747E-01	-0.454E-01	0.694E-01	-0.364E-01
4D – 10P 9649.0 Å C = 0.14E+17	2500.	0.461	0.307				
	5000.	0.518	0.338	*0.131	*0.853E-01		
	10000.	0.574	0.316	*0.140	*0.996E-01		
	20000.	0.638	0.227	*0.152	*0.115	*0.132	*0.912E-01
	30000.	0.677	0.180	*0.159	*0.124	*0.137	*0.988E-01
	50000.	0.708	0.114	*0.169	*0.136	*0.145	*0.109
5D – 6P 80642.6 Å C = 0.37E+19	2500.	1.80	0.899	0.487	0.233	0.468	0.186
	5000.	2.11	0.996	0.502	0.265	0.477	0.212
	10000.	2.51	0.963	0.522	0.301	0.489	0.241
	20000.	2.98	0.845	0.546	0.339	0.504	0.272
	30000.	3.28	0.726	0.563	0.363	0.515	0.291
	50000.	3.61	0.621	0.589	0.396	0.530	0.318
5D – 7P 39899.3 Å C = 0.69E+18	2500.	0.943	0.313	0.305	0.787E-01	0.302	0.627E-01
	5000.	1.22	0.390	0.307	0.896E-01	0.304	0.716E-01
	10000.	1.55	0.420	0.310	0.102	0.305	0.813E-01
	20000.	1.90	0.374	0.313	0.115	0.307	0.921E-01
	30000.	2.10	0.337	0.316	0.123	0.309	0.986E-01
	50000.	2.33	0.292	0.320	0.134	0.311	0.108
5D – 8P 28083.9 Å C = 0.22E+18	2500.	0.780	0.928E-01	0.272	-0.851E-02	*0.271	-0.681E-02
	5000.	1.05	0.173	0.273	-0.963E-02	*0.272	-0.772E-02
	10000.	1.37	0.237	0.273	-0.109E-01	0.273	-0.870E-02
	20000.	1.72	0.209	0.273	-0.124E-01	0.273	-0.981E-02
	30000.	1.92	0.209	0.274	-0.136E-01	0.273	-0.105E-01
	50000.	2.12	0.178	0.274	-0.154E-01	0.273	-0.116E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5D – 9P 23444.9 Å C = 0.13E+18	2500.	1.04	-0.544	*0.352	-0.135		
	5000.	1.25	-0.593	*0.360	-0.156	*0.348	-0.124
	10000.	1.49	-0.567	0.369	-0.179	*0.354	-0.143
	20000.	1.75	-0.448	0.381	-0.204	*0.361	-0.163
	30000.	1.89	-0.373	0.389	-0.219	0.367	-0.176
	50000.	2.01	-0.274	0.402	-0.240	0.374	-0.193
5D – 10P 21083.5 Å C = 0.67E+17	2500.	2.22	1.47				
	5000.	2.51	1.54	*0.627	*0.408		
	10000.	2.79	1.30	*0.673	*0.477		
	20000.	3.11	1.00	*0.726	*0.549	*0.633	*0.437
	30000.	3.31	0.656	*0.761	*0.593	*0.659	*0.473
	50000.	3.46	0.500	*0.811	*0.651	*0.695	*0.521
6D – 7P 229605.3 Å C = 0.98E+19	2500.	49.4	14.7	12.5	5.40	*12.1	*4.28
	5000.	63.6	10.7	12.8	6.19	12.3	4.93
	10000.	80.3	7.47	13.3	7.04	12.5	5.63
	20000.	96.5	3.41	13.9	7.98	12.9	6.38
	30000.	105.	2.26	14.3	8.56	13.1	6.87
	50000.	112.	0.177	15.0	9.33	13.4	7.49
6D – 8P 67115.0 Å C = 0.83E+18	2500.	5.99	1.09	1.67	0.345	*1.65	*0.274
	5000.	7.94	1.00	1.68	0.395	*1.67	*0.315
	10000.	10.3	0.685	1.69	0.448	1.67	0.359
	20000.	12.7	0.489	1.71	0.508	1.68	0.407
	30000.	13.9	0.348	1.72	0.544	1.68	0.437
	50000.	15.1	0.219	1.75	0.593	1.69	0.477
6D – 9P 45567.6 Å C = 0.38E+18	2500.	4.62	-1.80	*1.34	-0.451		
	5000.	5.77	-2.04	*1.36	-0.522	*1.33	-0.414
	10000.	6.97	-2.12	1.39	-0.598	*1.35	-0.477
	20000.	8.08	-1.91	1.43	-0.680	*1.37	-0.543
	30000.	8.61	-1.65	1.45	-0.731	1.38	-0.585
	50000.	9.04	-1.35	1.50	-0.800	1.40	-0.642
6D – 10P 37421.4 Å C = 0.21E+18	2500.	7.59	4.75				
	5000.	8.60	5.25	*2.01	*1.31		
	10000.	9.59	4.84	*2.16	*1.53		
	20000.	10.7	3.10	*2.33	*1.76	*2.03	*1.40
	30000.	11.3	2.55	*2.45	*1.90	*2.11	*1.52
	50000.	11.8	1.44	*2.61	*2.09	*2.23	*1.67
5S – 5P 19897.4 Å C = 0.47E+18	2500.	0.224E-01	0.159E-01	0.715E-02	0.429E-02	0.666E-02	0.343E-02
	5000.	0.264E-01	0.154E-01	0.750E-02	0.485E-02	0.689E-02	0.389E-02
	10000.	0.313E-01	0.108E-01	0.793E-02	0.546E-02	0.718E-02	0.438E-02
	20000.	0.393E-01	0.697E-02	0.845E-02	0.614E-02	0.754E-02	0.493E-02
	30000.	0.434E-01	0.600E-02	0.880E-02	0.658E-02	0.779E-02	0.529E-02
	50000.	0.472E-01	0.390E-02	0.929E-02	0.717E-02	0.814E-02	0.576E-02
5S – 6P 9104.8 Å C = 0.18E+17	2500.	0.406E-01	0.289E-01	0.976E-02	0.792E-02	0.822E-02	0.628E-02
	5000.	0.428E-01	0.265E-01	0.108E-01	0.907E-02	0.898E-02	0.723E-02
	10000.	0.453E-01	0.215E-01	0.119E-01	0.103E-01	0.986E-02	0.825E-02
	20000.	0.471E-01	0.158E-01	0.133E-01	0.117E-01	0.109E-01	0.936E-02
	30000.	0.474E-01	0.123E-01	0.143E-01	0.125E-01	0.115E-01	0.101E-01
	50000.	0.470E-01	0.893E-02	0.156E-01	0.137E-01	0.124E-01	0.110E-01
5S – 7P 7451.4 Å C = 0.51E+16	2500.	0.895E-01	0.596E-01	0.215E-01	0.174E-01	*0.177E-01	*0.136E-01
	5000.	0.932E-01	0.515E-01	0.240E-01	0.203E-01	*0.196E-01	*0.160E-01
	10000.	0.966E-01	0.405E-01	0.268E-01	0.233E-01	0.217E-01	0.186E-01
	20000.	0.958E-01	0.286E-01	0.302E-01	0.266E-01	0.241E-01	0.212E-01
	30000.	0.940E-01	0.208E-01	0.326E-01	0.286E-01	0.257E-01	0.229E-01
	50000.	0.910E-01	0.144E-01	0.360E-01	0.314E-01	0.279E-01	0.251E-01
5S – 8P 6781.1 Å C = 0.83E+15	2500.	0.300	0.127				
	5000.	0.292	0.100				
	10000.	0.272	0.676E-01				
	20000.	0.249	0.409E-01	*0.124	*0.103		
	30000.	0.235	0.291E-01	*0.138	*0.112		
	50000.	0.216	0.165E-01	*0.159	*0.124	*0.109	*0.982E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5S – 9P 6432.0 Å C = 0.19E+16	2500.	0.256	-0.158				
	5000.	0.266	-0.135				
	10000.	0.277	-0.106	*0.760E-01	-0.634E-01		
	20000.	0.275	-0.734E-01	*0.857E-01	-0.734E-01	*0.684E-01	-0.583E-01
	30000.	0.270	-0.526E-01	*0.924E-01	-0.794E-01	*0.728E-01	-0.633E-01
	50000.	0.260	-0.349E-01	*0.102	-0.874E-01	*0.789E-01	-0.698E-01
5S – 10P 6224.3 Å C = 0.60E+16	2500.	0.174	0.119				
	5000.	0.197	0.128	*0.501E-01	*0.325E-01		
	10000.	0.219	0.122	*0.537E-01	*0.379E-01		
	20000.	0.246	0.948E-01	*0.579E-01	*0.435E-01	*0.506E-01	*0.347E-01
	30000.	0.261	0.728E-01	*0.606E-01	*0.470E-01	*0.526E-01	*0.375E-01
	50000.	0.274	0.544E-01	0.645E-01	0.516E-01	*0.554E-01	*0.413E-01
6S – 6P 48818.1 Å C = 0.53E+18	2500.	1.12	0.715	0.269	0.216	0.228	0.172
	5000.	1.21	0.586	0.296	0.248	0.248	0.198
	10000.	1.38	0.389	0.328	0.282	0.272	0.225
	20000.	1.50	0.240	0.366	0.319	0.299	0.256
	30000.	1.53	0.159	0.392	0.342	0.317	0.275
	50000.	1.57	0.868E-01	0.430	0.373	0.341	0.300
6S – 7P 22294.2 Å C = 0.45E+17	2500.	0.794	0.514	0.191	0.154	*0.158	*0.121
	5000.	0.833	0.429	0.213	0.180	*0.174	*0.143
	10000.	0.878	0.310	0.238	0.207	0.193	0.165
	20000.	0.885	0.193	0.268	0.236	0.214	0.189
	30000.	0.877	0.960E-01	0.289	0.254	0.228	0.203
	50000.	0.859	0.636E-01	0.320	0.279	0.248	0.223
6S – 8P 17205.2 Å C = 0.53E+16	2500.	1.93	0.809				
	5000.	1.88	0.644				
	10000.	1.76	0.424				
	20000.	1.62	0.240	*0.800	*0.662		
	30000.	1.53	0.145	*0.885	*0.718		
	50000.	1.42	0.789E-01	*1.02	*0.795	*0.702	*0.632
6S – 9P 15123.0 Å C = 0.10E+17	2500.	1.42	-0.877				
	5000.	1.48	-0.750				
	10000.	1.55	-0.579	*0.421	-0.351		
	20000.	1.54	-0.367	*0.474	-0.406	*0.379	-0.322
	30000.	1.51	-0.296	*0.511	-0.440	*0.403	-0.350
	50000.	1.46	-0.138	*0.567	-0.484	*0.437	-0.387
6S – 10P 14022.6 Å C = 0.30E+17	2500.	0.887	0.596				
	5000.	1.00	0.653	*0.254	*0.165		
	10000.	1.12	0.595	*0.272	*0.192		
	20000.	1.26	0.405	*0.293	*0.220	*0.256	*0.176
	30000.	1.34	0.320	*0.307	*0.238	*0.267	*0.190
	50000.	1.41	0.197	0.327	0.262	*0.281	*0.209
7S – 7P 102150.3 Å C = 0.95E+18	2500.	16.4	9.07	3.90	3.14	*3.22	*2.46
	5000.	18.1	5.86	4.34	3.66	*3.55	*2.90
	10000.	19.9	3.60	4.85	4.21	3.94	3.35
	20000.	20.6	1.78	5.47	4.80	4.37	3.83
	30000.	21.0	0.682	5.89	5.16	4.65	4.13
	50000.	21.1	0.220E-01	6.53	5.66	5.04	4.53
7S – 8P 43371.3 Å C = 0.34E+17	2500.	12.2	3.67				
	5000.	12.1	1.65				
	10000.	11.4	1.05				
	20000.	10.7	0.608	*5.07	*4.19		
	30000.	10.2	0.368E-01	*5.61	*4.55		
	50000.	9.55	-0.316E-01	*6.47	*5.04	*4.45	*4.00
7S – 9P 32196.8 Å C = 0.47E+17	2500.	6.56	-4.02				
	5000.	6.86	-3.46				
	10000.	7.20	-2.69	*1.91	-1.60		
	20000.	7.22	-1.77	*2.16	-1.85	*1.72	-1.47
	30000.	7.14	-0.914	*2.33	-2.00	*1.83	-1.59
	50000.	6.95	-0.708	*2.58	-2.20	*1.99	-1.76

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7S – 10P 27587.7 Å C = 0.12E+18	2500.	3.44	2.19				
	5000.	3.89	2.24	*0.978	*0.631		
	10000.	4.40	1.95	*1.05	*0.736		
	20000.	4.99	1.27	*1.13	*0.846	*0.987	*0.674
	30000.	5.36	0.898	*1.18	*0.914	*1.03	*0.729
	50000.	5.66	0.669	1.26	1.00	*1.08	*0.802
8S – 8P 182561.7 Å C = 0.60E+18	2500.	222.	66.0				
	5000.	222.	45.1				
	10000.	214.	16.1				
	20000.	206.	4.54	*89.1	*73.6		
	30000.	200.	-1.46	*98.6	*79.8		
	50000.	191.	-2.80	*114.	*88.4	*78.1	*70.2
8S – 10P 53565.0 Å C = 0.44E+18	2500.	12.9	8.34				
	5000.	14.8	8.72	*3.63	*2.32		
	10000.	17.1	7.64	*3.88	*2.70		
	20000.	20.0	4.77	*4.17	*3.10	*3.66	*2.47
	30000.	21.7	3.41	*4.37	*3.35	*3.80	*2.67
	50000.	23.1	2.34	4.64	3.68	*4.00	*2.94
4P – 5S 6143.9 Å C = 0.19E+18	2500.	0.820E-03	0.672E-03	0.209E-03	0.189E-03	0.171E-03	0.151E-03
	5000.	0.983E-03	0.789E-03	0.233E-03	0.212E-03	0.190E-03	0.170E-03
	10000.	0.114E-02	0.930E-03	0.259E-03	0.239E-03	0.211E-03	0.192E-03
	20000.	0.124E-02	0.996E-03	0.290E-03	0.269E-03	0.235E-03	0.216E-03
	30000.	0.130E-02	0.100E-02	0.310E-03	0.288E-03	0.251E-03	0.231E-03
	50000.	0.136E-02	0.913E-03	0.336E-03	0.313E-03	0.272E-03	0.252E-03
4P – 6S 3966.5 Å C = 0.32E+17	2500.	0.146E-02	0.111E-02	0.327E-03	0.302E-03	0.263E-03	0.241E-03
	5000.	0.172E-02	0.131E-02	0.367E-03	0.342E-03	0.295E-03	0.274E-03
	10000.	0.190E-02	0.151E-02	0.412E-03	0.386E-03	0.331E-03	0.310E-03
	20000.	0.202E-02	0.151E-02	0.462E-03	0.434E-03	0.372E-03	0.349E-03
	30000.	0.211E-02	0.143E-02	0.494E-03	0.465E-03	0.398E-03	0.374E-03
	50000.	0.222E-02	0.121E-02	0.538E-03	0.507E-03	0.433E-03	0.408E-03
4P – 7S 3482.2 Å C = 0.12E+17	2500.	0.329E-02	0.239E-02	0.690E-03	0.628E-03	0.554E-03	0.500E-03
	5000.	0.377E-02	0.278E-02	0.774E-03	0.715E-03	0.622E-03	0.571E-03
	10000.	0.410E-02	0.293E-02	0.869E-03	0.811E-03	0.699E-03	0.649E-03
	20000.	0.459E-02	0.276E-02	0.975E-03	0.915E-03	0.784E-03	0.735E-03
	30000.	0.489E-02	0.243E-02	0.104E-02	0.981E-03	0.839E-03	0.787E-03
	50000.	0.550E-02	0.202E-02	0.114E-02	0.107E-02	0.914E-03	0.859E-03
4P – 8S 3281.3 Å C = 0.59E+16	2500.	0.692E-02	0.501E-02	0.141E-02	0.126E-02	0.114E-02	0.999E-03
	5000.	0.801E-02	0.575E-02	0.159E-02	0.145E-02	0.128E-02	0.115E-02
	10000.	0.863E-02	0.572E-02	0.178E-02	0.165E-02	0.143E-02	0.132E-02
	20000.	0.977E-02	0.485E-02	0.200E-02	0.187E-02	0.161E-02	0.150E-02
	30000.	0.108E-01	0.409E-02	0.214E-02	0.201E-02	0.172E-02	0.161E-02
	50000.	0.122E-01	0.330E-02	0.233E-02	0.219E-02	0.187E-02	0.176E-02
4P – 9S 3176.1 Å C = 0.34E+16	2500.	0.132E-01	0.946E-02	0.264E-02	0.229E-02	*0.212E-02	*0.180E-02
	5000.	0.147E-01	0.102E-01	0.296E-02	0.266E-02	0.238E-02	0.211E-02
	10000.	0.167E-01	0.990E-02	0.332E-02	0.304E-02	0.267E-02	0.243E-02
	20000.	0.195E-01	0.770E-02	0.373E-02	0.346E-02	0.300E-02	0.277E-02
	30000.	0.219E-01	0.635E-02	0.399E-02	0.372E-02	0.321E-02	0.298E-02
	50000.	0.242E-01	0.492E-02	0.435E-02	0.407E-02	0.349E-02	0.327E-02
4P – 10S 3113.4 Å C = 0.22E+16	2500.	0.231E-01	0.160E-01	*0.456E-02	*0.384E-02	*0.367E-02	*0.299E-02
	5000.	0.259E-01	0.169E-01	0.512E-02	0.451E-02	*0.412E-02	*0.356E-02
	10000.	0.301E-01	0.154E-01	0.575E-02	0.520E-02	*0.462E-02	*0.414E-02
	20000.	0.364E-01	0.114E-01	0.645E-02	0.594E-02	0.519E-02	0.474E-02
	30000.	0.407E-01	0.927E-02	0.691E-02	0.640E-02	0.555E-02	0.512E-02
	50000.	0.446E-01	0.681E-02	0.753E-02	0.702E-02	0.605E-02	0.562E-02
5P – 6S 25582.3 Å C = 0.78E+18	2500.	0.554E-01	0.270E-01	0.120E-01	0.740E-02	0.111E-01	0.592E-02
	5000.	0.752E-01	0.338E-01	0.127E-01	0.837E-02	0.116E-01	0.672E-02
	10000.	0.960E-01	0.403E-01	0.134E-01	0.943E-02	0.121E-01	0.757E-02
	20000.	0.117	0.405E-01	0.143E-01	0.106E-01	0.127E-01	0.852E-02
	30000.	0.129	0.367E-01	0.149E-01	0.114E-01	0.132E-01	0.913E-02
	50000.	0.144	0.311E-01	0.158E-01	0.124E-01	0.138E-01	0.995E-02

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P – 7S 13485.3 Å C = 0.18E+18	2500.	0.491E-01	0.338E-01	0.978E-02	0.865E-02	0.800E-02	0.689E-02
	5000.	0.578E-01	0.395E-01	0.109E-01	0.985E-02	0.889E-02	0.787E-02
	10000.	0.662E-01	0.399E-01	0.122E-01	0.112E-01	0.991E-02	0.894E-02
	20000.	0.768E-01	0.353E-01	0.136E-01	0.126E-01	0.111E-01	0.101E-01
	30000.	0.855E-01	0.315E-01	0.146E-01	0.135E-01	0.118E-01	0.108E-01
	50000.	0.970E-01	0.259E-01	0.158E-01	0.147E-01	0.128E-01	0.118E-01
5P – 8S 10901.1 Å C = 0.65E+17	2500.	0.768E-01	0.544E-01	0.153E-01	0.136E-01	0.124E-01	0.108E-01
	5000.	0.871E-01	0.617E-01	0.172E-01	0.156E-01	0.139E-01	0.124E-01
	10000.	0.987E-01	0.615E-01	0.193E-01	0.178E-01	0.155E-01	0.142E-01
	20000.	0.114	0.488E-01	0.216E-01	0.202E-01	0.174E-01	0.161E-01
	30000.	0.128	0.417E-01	0.232E-01	0.216E-01	0.186E-01	0.174E-01
	50000.	0.144	0.334E-01	0.252E-01	0.236E-01	0.203E-01	0.190E-01
5P – 9S 9820.3 Å C = 0.33E+17	2500.	0.126	0.885E-01	0.250E-01	0.217E-01	0.201E-01	0.171E-01
	5000.	0.140	0.984E-01	0.281E-01	0.252E-01	0.226E-01	0.200E-01
	10000.	0.163	0.928E-01	0.315E-01	0.289E-01	0.254E-01	0.230E-01
	20000.	0.192	0.687E-01	0.354E-01	0.328E-01	0.285E-01	0.262E-01
	30000.	0.216	0.539E-01	0.379E-01	0.353E-01	0.305E-01	0.282E-01
	50000.	0.240	0.427E-01	0.413E-01	0.386E-01	0.332E-01	0.310E-01
5P – 10S 9244.9 Å C = 0.19E+17	2500.	0.215	0.147	*0.401E-01	*0.337E-01	*0.322E-01	*0.263E-01
	5000.	0.229	0.147	0.450E-01	0.396E-01	*0.362E-01	*0.313E-01
	10000.	0.266	0.136	0.505E-01	0.457E-01	*0.406E-01	*0.364E-01
	20000.	0.327	0.939E-01	0.567E-01	0.522E-01	0.456E-01	0.417E-01
	30000.	0.365	0.723E-01	0.607E-01	0.562E-01	0.488E-01	0.450E-01
	50000.	0.399	0.536E-01	0.662E-01	0.617E-01	0.532E-01	0.494E-01
6P – 7S 68581.9 Å C = 0.10E+19	2500.	2.24	-0.615	0.435	-0.330	0.378	-0.262
	5000.	2.90	-0.262	0.474	-0.377	0.406	-0.301
	10000.	3.46	0.402E-02	0.521	-0.428	0.439	-0.342
	20000.	3.95	0.205	0.577	-0.484	0.478	-0.388
	30000.	4.24	0.242	0.617	-0.518	0.503	-0.416
	50000.	4.53	0.332	0.677	-0.566	0.538	-0.454
6P – 8S 31094.3 Å C = 0.22E+18	2500.	0.715	0.227	0.719E-01	0.474E-01	0.651E-01	0.378E-01
	5000.	0.917	0.284	0.766E-01	0.540E-01	0.683E-01	0.432E-01
	10000.	1.12	0.313	0.825E-01	0.612E-01	0.722E-01	0.490E-01
	20000.	1.32	0.267	0.898E-01	0.691E-01	0.769E-01	0.555E-01
	30000.	1.45	0.229	0.949E-01	0.741E-01	0.800E-01	0.594E-01
	50000.	1.58	0.208	0.102	0.810E-01	0.843E-01	0.649E-01
6P – 9S 23665.2 Å C = 0.12E+18	2500.	0.783	0.434	0.123	0.105	0.999E-01	0.825E-01
	5000.	0.932	0.457	0.137	0.121	0.111	0.961E-01
	10000.	1.11	0.435	0.153	0.138	0.124	0.110
	20000.	1.34	0.315	0.172	0.157	0.139	0.126
	30000.	1.49	0.252	0.185	0.169	0.148	0.135
	50000.	1.62	0.197	0.202	0.185	0.161	0.148
6P – 10S 20578.7 Å C = 0.94E+17	2500.	1.05	0.678	*0.186	*0.156	*0.150	*0.122
	5000.	1.22	0.689	0.208	0.183	*0.168	*0.145
	10000.	1.45	0.582	0.234	0.211	*0.188	*0.168
	20000.	1.79	0.383	0.263	0.241	0.211	0.192
	30000.	1.98	0.317	0.282	0.259	0.226	0.207
	50000.	2.15	0.198	0.308	0.284	0.246	0.227
7P – 8S 128376.3 Å C = 0.15E+19	2500.	27.1	-9.03	5.55	-4.43	*4.61	-3.48
	5000.	33.0	-5.24	6.16	-5.16	*5.07	-4.09
	10000.	37.1	-1.74	6.88	-5.92	5.60	-4.72
	20000.	40.7	0.548	7.75	-6.74	6.20	-5.39
	30000.	42.7	1.37	8.36	-7.25	6.59	-5.80
	50000.	44.3	2.31	9.29	-7.94	7.13	-6.36
7P – 9S 55910.9 Å C = 0.29E+18	2500.	6.44	0.152	0.736	-0.545	*0.635	-0.430
	5000.	7.93	0.628	0.806	-0.630	0.684	-0.500
	10000.	9.40	1.06	0.891	-0.719	0.741	-0.574
	20000.	10.9	0.942	1.00	-0.817	0.808	-0.654
	30000.	11.7	0.894	1.08	-0.879	0.852	-0.703
	50000.	12.3	0.800	1.22	-0.960	0.914	-0.771

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7P – 10S 41282.6 Å C = 0.16E+18	2500. 5000. 10000. 20000. 30000. 50000.	5.04 6.24 7.51 9.01 9.80 10.4	1.59 1.85 1.60 1.09 0.901 0.597	0.427 0.469 0.518 0.578 0.618 0.676	0.323 0.374 0.427 0.485 0.523 0.572	*0.366 0.396 0.430 0.470 0.496 0.532	*0.255 0.297 0.341 0.388 0.418 0.458
4P – 4D 4446.3 Å C = 0.23E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.943E-03 0.106E-02 0.126E-02 0.141E-02 0.149E-02 0.157E-02	-0.329E-03 -0.183E-03 -0.291E-04 0.107E-03 0.135E-03 0.164E-03	0.247E-03 0.253E-03 0.262E-03 0.273E-03 0.281E-03 0.294E-03	-0.113E-03 -0.127E-03 -0.143E-03 -0.161E-03 -0.173E-03 -0.188E-03	0.239E-03 0.243E-03 0.248E-03 0.254E-03 0.259E-03 0.265E-03	-0.906E-04 -0.102E-03 -0.115E-03 -0.130E-03 -0.139E-03 -0.151E-03
4P – 5D 3638.7 Å C = 0.30E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.511E-02 0.530E-02 0.577E-02 0.599E-02 0.598E-02 0.595E-02	-0.304E-02 -0.252E-02 -0.164E-02 -0.101E-02 -0.652E-03 -0.336E-03	0.116E-02 0.128E-02 0.142E-02 0.159E-02 0.170E-02 0.187E-02	-0.944E-03 -0.108E-02 -0.122E-02 -0.138E-02 -0.148E-02 -0.162E-02	0.984E-03 0.107E-02 0.118E-02 0.129E-02 0.137E-02 0.148E-02	-0.750E-03 -0.861E-03 -0.980E-03 -0.111E-02 -0.119E-02 -0.130E-02
4P – 6D 3357.1 Å C = 0.10E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.149E-01 0.153E-01 0.160E-01 0.163E-01 0.160E-01 0.156E-01	-0.898E-02 -0.737E-02 -0.522E-02 -0.362E-02 -0.222E-02 -0.124E-02	0.346E-02 0.385E-02 0.431E-02 0.487E-02 0.525E-02 0.583E-02	-0.282E-02 -0.328E-02 -0.376E-02 -0.428E-02 -0.460E-02 -0.504E-02	*0.285E-02 0.315E-02 0.349E-02 0.388E-02 0.413E-02 0.447E-02	-0.222E-02 -0.260E-02 -0.300E-02 -0.342E-02 -0.368E-02 -0.404E-02
4P – 7D 3221.5 Å C = 0.19E+15	2500. 5000. 10000. 20000. 30000. 50000.	0.529E-01 0.506E-01 0.489E-01 0.459E-01 0.436E-01 0.408E-01	-0.250E-01 -0.188E-01 -0.118E-01 -0.577E-02 -0.406E-02 -0.235E-02	*0.162E-01 *0.185E-01 *0.217E-01 *0.241E-01 *0.278E-01	-0.131E-01 -0.154E-01 -0.178E-01 -0.193E-01 -0.214E-01	*0.161E-01 *0.172E-01 *0.188E-01	-0.142E-01 -0.154E-01 -0.170E-01
4P – 8D 3146.8 Å C = 0.35E+15	2500. 5000. 10000. 20000. 30000. 50000.	0.616E-01 0.725E-01 0.786E-01 0.790E-01 0.771E-01 0.729E-01	-0.556E-02 -0.184E-02 -0.170E-03 0.146E-02 0.144E-02 0.131E-02	*0.793E-02 *0.878E-02 *0.983E-02 *0.112E-01 0.123E-01 0.142E-01	-0.570E-02 -0.677E-02 -0.786E-02 -0.900E-02 -0.971E-02 -0.107E-01	*0.730E-02 *0.798E-02 *0.876E-02 *0.928E-02 *0.100E-01	-0.532E-02 -0.623E-02 -0.718E-02 -0.776E-02 -0.853E-02
4P – 9D 3077.2 Å C = 0.15E+16	2500. 5000. 10000. 20000. 30000. 50000.	0.304E-01 0.399E-01 0.522E-01 0.658E-01 0.725E-01 0.786E-01	0.129E-01 0.128E-01 0.110E-01 0.813E-02 0.660E-02 0.470E-02	*0.909E-02 *0.929E-02 *0.950E-02 0.976E-02 0.994E-02 0.102E-01	*0.317E-02 *0.371E-02 *0.427E-02 0.486E-02 0.524E-02 0.574E-02	*0.917E-02 *0.934E-02 *0.945E-02 *0.961E-02	*0.340E-02 *0.389E-02 *0.419E-02 *0.460E-02
4P – 10D 3051.5 Å C = 0.68E+15	2500. 5000. 10000. 20000. 30000. 50000.	0.695E-01 0.791E-01 0.987E-01 0.117 0.124 0.131	-0.411E-01 -0.281E-01 -0.202E-01 -0.115E-01 -0.755E-02 -0.393E-02	*0.204E-01 *0.222E-01 *0.233E-01 *0.249E-01	-0.147E-01 -0.171E-01 -0.185E-01 -0.203E-01	*0.212E-01	-0.162E-01
5P – 5D 16180.3 Å C = 0.58E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.111 0.118 0.126 0.136 0.137 0.138	-0.675E-01 -0.600E-01 -0.430E-01 -0.297E-01 -0.217E-01 -0.141E-01	0.244E-01 0.268E-01 0.297E-01 0.331E-01 0.354E-01 0.389E-01	-0.196E-01 -0.224E-01 -0.254E-01 -0.287E-01 -0.308E-01 -0.336E-01	0.207E-01 0.225E-01 0.246E-01 0.270E-01 0.286E-01 0.308E-01	-0.155E-01 -0.178E-01 -0.203E-01 -0.230E-01 -0.247E-01 -0.270E-01
5P – 6D 11784.4 Å C = 0.13E+17	2500. 5000. 10000. 20000. 30000. 50000.	0.188 0.194 0.203 0.209 0.207 0.203	-0.116 -0.917E-01 -0.648E-01 -0.379E-01 -0.263E-01 -0.144E-01	0.430E-01 0.479E-01 0.536E-01 0.604E-01 0.652E-01 0.723E-01	-0.350E-01 -0.407E-01 -0.467E-01 -0.531E-01 -0.571E-01 -0.626E-01	*0.355E-01 0.392E-01 0.434E-01 0.482E-01 0.513E-01 0.556E-01	-0.275E-01 -0.322E-01 -0.372E-01 -0.424E-01 -0.457E-01 -0.501E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P - 7D 10267.8 Å C = 0.19E+16	2500.	0.540	-0.249				
	5000.	0.517	-0.172	*0.165	-0.133		
	10000.	0.501	-0.119	*0.188	-0.157		
	20000.	0.472	-0.548E-01	*0.220	-0.181	*0.163	-0.144
	30000.	0.451	-0.369E-01	*0.245	-0.196	*0.175	-0.156
	50000.	0.422	-0.193E-01	*0.283	-0.217	*0.191	-0.172
5P - 8D 9545.3 Å C = 0.32E+16	2500.	0.568	-0.540E-01	*0.732E-01	-0.525E-01		
	5000.	0.669	-0.231E-01	*0.810E-01	-0.624E-01	*0.674E-01	-0.490E-01
	10000.	0.727	0.102E-02	*0.906E-01	-0.724E-01	*0.736E-01	-0.574E-01
	20000.	0.732	0.809E-02	*0.104	-0.830E-01	*0.808E-01	-0.662E-01
	30000.	0.715	0.104E-01	0.114	-0.895E-01	*0.856E-01	-0.716E-01
	50000.	0.677	0.119E-01	0.131	-0.987E-01	*0.924E-01	-0.787E-01
5P - 9D 8932.6 Å C = 0.12E+17	2500.	0.257	0.114	*0.767E-01	*0.266E-01		
	5000.	0.338	0.107	*0.784E-01	*0.311E-01		
	10000.	0.444	0.901E-01	*0.802E-01	*0.358E-01	*0.774E-01	*0.285E-01
	20000.	0.559	0.623E-01	0.823E-01	0.408E-01	*0.788E-01	*0.326E-01
	30000.	0.616	0.493E-01	0.838E-01	0.439E-01	*0.797E-01	*0.352E-01
	50000.	0.668	0.336E-01	0.860E-01	0.482E-01	*0.811E-01	*0.386E-01
5P - 10D 8719.1 Å C = 0.55E+16	2500.	0.569	-0.333				
	5000.	0.649	-0.245				
	10000.	0.810	-0.146	*0.167	-0.120		
	20000.	0.956	-0.872E-01	*0.181	-0.139		
	30000.	1.02	-0.561E-01	*0.191	-0.151		
	50000.	1.07	-0.120E-01	*0.204	-0.166	*0.173	-0.133
6P - 6D 39550.7 Å C = 0.14E+18	2500.	2.78	-1.60	0.551	-0.445	*0.455	-0.349
	5000.	2.93	-1.36	0.614	-0.519	*0.503	-0.411
	10000.	2.98	-0.992	0.687	-0.596	0.557	-0.475
	20000.	3.07	-0.598	0.775	-0.679	0.618	-0.543
	30000.	3.04	-0.448	0.836	-0.731	0.658	-0.585
	50000.	2.95	-0.282	0.928	-0.801	0.712	-0.641
6P - 7D 26442.6 Å C = 0.13E+17	2500.	3.85	-1.54				
	5000.	3.74	-1.03	*1.11	-0.894		
	10000.	3.62	-0.667	*1.27	-1.05		
	20000.	3.45	-0.417	*1.48	-1.22	*1.10	-0.968
	30000.	3.30	-0.200	*1.64	-1.32	*1.18	-1.05
	50000.	3.09	-0.918E-01	*1.90	-1.46	*1.29	-1.16
6P - 8D 22128.6 Å C = 0.17E+17	2500.	3.16	-0.409	*0.407	-0.292		
	5000.	3.74	-0.234	*0.450	-0.347	*0.374	-0.273
	10000.	4.08	-0.101	*0.504	-0.403	*0.409	-0.320
	20000.	4.13	-0.255E-01	*0.576	-0.462	*0.449	-0.369
	30000.	4.04	0.119E-01	0.632	-0.499	*0.476	-0.399
	50000.	3.84	0.261E-01	0.726	-0.549	*0.514	-0.438
6P - 9D 19092.6 Å C = 0.56E+17	2500.	1.22	0.452	*0.350	*0.111		
	5000.	1.63	0.441	*0.356	*0.129		
	10000.	2.15	0.335	*0.363	*0.149	*0.353	*0.118
	20000.	2.69	0.219	0.371	0.169	*0.358	*0.135
	30000.	2.96	0.183	0.377	0.182	*0.361	*0.146
	50000.	3.20	0.102	0.386	0.200	*0.366	*0.160
6P - 10D 18143.5 Å C = 0.24E+17	2500.	2.56	-1.43				
	5000.	2.93	-1.12				
	10000.	3.63	-0.646	*0.731	-0.528		
	20000.	4.28	-0.397	*0.794	-0.611		
	30000.	4.55	-0.193	*0.835	-0.662		
	50000.	4.78	-0.703E-01	*0.894	-0.729	*0.757	-0.582
7P - 7D 74364.9 Å C = 0.10E+18	2500.	36.9	-16.1				
	5000.	36.2	-11.6				
	10000.	35.1	-8.37	*10.8	-8.95		
	20000.	33.7	-3.67	*12.6	-10.4		
	30000.	32.2	-2.74	*13.9	-11.2	*10.0	-8.93
	50000.	30.2	-1.81	*16.1	-12.4	*10.9	-9.86

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
7P – 8D 48031.4 Å C = 0.82E+17	2500.	17.2	-3.48	*2.23	-1.61		
	5000.	20.2	-2.32	*2.48	-1.93		
	10000.	21.8	-1.37	*2.78	-2.25	*2.25	-1.78
	20000.	22.0	-0.537	*3.17	-2.59	*2.48	-2.06
	30000.	21.5	-0.199	*3.48	-2.79	*2.63	-2.23
	50000.	20.4	-0.709E-01	3.98	-3.07	*2.84	-2.45
7P – 9D 35707.0 Å C = 0.12E+18	2500.	5.01	0.725	*1.21	*0.978E-01		
	5000.	6.76	0.804	*1.22	*0.112		
	10000.	8.76	0.637	*1.23	*0.130	*1.22	*0.102
	20000.	10.7	0.462	1.24	0.150	*1.22	*0.115
	30000.	11.7	0.397	1.25	0.156	*1.22	*0.124
	50000.	12.5	0.244	1.26	0.146	*1.23	*0.135
7P – 10D 32524.9 Å C = 0.77E+17	2500.	9.38	-4.52				
	5000.	10.7	-3.50				
	10000.	12.9	-1.73				
	20000.	15.0	-0.665	*2.70	-2.10		
	30000.	15.8	-0.411	*2.85	-2.27		
	50000.	16.4	-0.267	*3.06	-2.50	*2.56	-2.00
9P – 9D 148451.6 Å C = 0.99E+18	2500.	200.	99.8				
	5000.	230.	89.8				
	10000.	263.	64.8	*48.4	*37.0		
	20000.	293.	44.0	*53.6	*42.8		
	30000.	306.	25.3	*57.2	*46.4		
	50000.	315.	19.5	*62.7	*51.1	*50.0	*40.8
4D – 5P 84142.5 Å C = 0.84E+19	2500.	0.724	0.416	0.175	0.108	0.162	0.867E-01
	5000.	0.797	0.411	0.184	0.123	0.168	0.984E-01
	10000.	0.882	0.366	0.196	0.138	0.176	0.111
	20000.	1.01	0.266	0.210	0.156	0.185	0.125
	30000.	1.09	0.227	0.219	0.167	0.192	0.134
	50000.	1.16	0.191	0.233	0.182	0.201	0.146
4D – 6P 20969.1 Å C = 0.98E+17	2500.	0.233	0.157	0.529E-01	0.427E-01	0.447E-01	0.338E-01
	5000.	0.247	0.147	0.583E-01	0.489E-01	0.488E-01	0.390E-01
	10000.	0.261	0.123	0.647E-01	0.556E-01	0.535E-01	0.445E-01
	20000.	0.269	0.911E-01	0.721E-01	0.630E-01	0.589E-01	0.505E-01
	30000.	0.270	0.713E-01	0.772E-01	0.676E-01	0.624E-01	0.542E-01
	50000.	0.268	0.527E-01	0.846E-01	0.738E-01	0.672E-01	0.592E-01
4D – 7P 13877.4 Å C = 0.18E+17	2500.	0.318	0.208	0.749E-01	0.604E-01	*0.618E-01	*0.473E-01
	5000.	0.331	0.181	0.834E-01	0.705E-01	*0.683E-01	*0.558E-01
	10000.	0.343	0.143	0.933E-01	0.811E-01	0.756E-01	0.646E-01
	20000.	0.340	0.101	0.105	0.924E-01	0.840E-01	0.738E-01
	30000.	0.334	0.733E-01	0.113	0.995E-01	0.895E-01	0.796E-01
	50000.	0.324	0.506E-01	0.125	0.109	0.969E-01	0.873E-01
4D – 8P 11719.6 Å C = 0.25E+16	2500.	0.899	0.379				
	5000.	0.877	0.299				
	10000.	0.818	0.200				
	20000.	0.749	0.121	*0.372	*0.307		
	30000.	0.706	0.870E-01	*0.411	*0.334		
	50000.	0.651	0.536E-01	*0.474	*0.369	*0.326	*0.293
4D – 9P 10714.7 Å C = 0.52E+16	2500.	0.712	-0.439				
	5000.	0.741	-0.372				
	10000.	0.773	-0.290	*0.211	-0.176		
	20000.	0.767	-0.199	*0.238	-0.204	*0.190	-0.162
	30000.	0.753	-0.139	*0.256	-0.220	*0.202	-0.176
	50000.	0.727	-0.925E-01	*0.284	-0.243	*0.219	-0.194
4D – 10P 10150.4 Å C = 0.16E+17	2500.	0.467	0.310				
	5000.	0.527	0.341	*0.133	*0.864E-01		
	10000.	0.588	0.323	*0.143	*0.101		
	20000.	0.657	0.250	*0.154	*0.116	*0.135	*0.922E-01
	30000.	0.699	0.184	*0.161	*0.125	*0.140	*0.998E-01
	50000.	0.733	0.142	0.172	0.137	*0.148	*0.110

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5D - 6P 448510.9 Å C = 0.45E+20	2500.	173.	106.	32.9	26.5	27.6	21.0
	5000.	183.	94.6	36.3	30.5	30.2	24.3
	10000.	189.	75.8	40.4	34.8	33.2	27.8
	20000.	197.	52.4	45.2	39.5	36.6	31.6
	30000.	198.	43.7	48.5	42.4	38.8	34.0
	50000.	194.	27.7	53.4	46.3	41.9	37.2
5D - 7P 45165.1 Å C = 0.19E+18	2500.	4.04	2.45	*0.845	*0.678	*0.697	*0.530
	5000.	4.23	2.17	0.941	0.793	*0.770	*0.627
	10000.	4.35	1.67	1.05	0.913	*0.853	*0.726
	20000.	4.35	1.07	1.19	1.04	0.947	0.831
	30000.	4.29	0.874	1.28	1.12	1.01	0.896
	50000.	4.14	0.461	1.42	1.23	1.09	0.983
5D - 8P 28242.0 Å C = 0.14E+17	2500.	5.47	2.31				
	5000.	5.36	1.89				
	10000.	5.03	1.30				
	20000.	4.63	0.759	*2.17	*1.80		
	30000.	4.39	0.548	*2.40	*1.95		
	50000.	4.06	0.287	*2.77	*2.16	*1.91	*1.71
5D - 9P 23035.9 Å C = 0.24E+17	2500.	3.35	-1.98				
	5000.	3.53	-1.65				
	10000.	3.72	-1.28	*0.968	-0.807		
	20000.	3.71	-0.860	*1.09	-0.933	*0.872	-0.741
	30000.	3.66	-0.618	*1.18	-1.01	*0.928	-0.804
	50000.	3.54	-0.365	*1.31	-1.11	*1.00	-0.888
5D - 10P 20576.3 Å C = 0.66E+17	2500.	2.04	1.31				
	5000.	2.31	1.46	*0.555	*0.361		
	10000.	2.57	1.34	*0.595	*0.421		
	20000.	2.86	0.926	*0.642	*0.484	*0.560	*0.386
	30000.	3.03	0.767	*0.674	*0.523	*0.583	*0.417
	50000.	3.16	0.451	0.718	0.575	*0.615	*0.459
6D - 9P 49125.3 Å C = 0.11E+18	2500.	15.9	-8.03				
	5000.	17.6	-6.38	*3.75	-2.95		
	10000.	18.8	-4.94	*4.20	-3.47		
	20000.	18.9	-3.01	*4.74	-4.01	*3.78	-3.19
	30000.	18.7	-2.41	*5.12	-4.34	*4.01	-3.46
	50000.	18.2	-1.08	*5.71	-4.77	*4.34	-3.82
6D - 10P 39146.5 Å C = 0.14E+18	2500.	8.73	5.20				
	5000.	9.83	5.69	*2.14	*1.44		
	10000.	10.8	5.16	*2.31	*1.68		
	20000.	11.8	3.53	*2.51	*1.93	*2.16	*1.54
	30000.	12.4	2.20	*2.65	*2.09	*2.26	*1.66
	50000.	12.8	1.70	*2.84	*2.29	*2.39	*1.83
PERTURBER DENSITY = 1.E+15 cm ⁻³							
4S - 4P 4227.9 Å C = 0.17E+19	2500.	0.103E-02	0.583E-03	0.583E-03	0.161E-03	0.579E-03	0.129E-03
	5000.	0.115E-02	0.667E-03	0.587E-03	0.182E-03	0.581E-03	0.146E-03
	10000.	0.124E-02	0.797E-03	0.593E-03	0.205E-03	0.584E-03	0.165E-03
	20000.	0.143E-02	0.807E-03	0.600E-03	0.231E-03	0.588E-03	0.185E-03
	30000.	0.162E-02	0.724E-03	0.605E-03	0.247E-03	0.591E-03	0.198E-03
	50000.	0.193E-02	0.585E-03	0.613E-03	0.269E-03	0.595E-03	0.216E-03
4S - 5P 2722.5 Å C = 0.42E+17	2500.	0.672E-02	0.496E-02	0.182E-02	0.132E-02	0.159E-02	0.104E-02
	5000.	0.726E-02	0.471E-02	0.198E-02	0.153E-02	0.170E-02	0.121E-02
	10000.	0.798E-02	0.371E-02	0.216E-02	0.175E-02	0.184E-02	0.139E-02
	20000.	0.864E-02	0.290E-02	0.239E-02	0.198E-02	0.200E-02	0.159E-02
	30000.	0.878E-02	0.246E-02	0.254E-02	0.213E-02	0.210E-02	0.171E-02
	50000.	0.887E-02	0.185E-02	0.276E-02	0.233E-02	0.224E-02	0.187E-02
4S - 6P 2399.3 Å C = 0.57E+17	2500.	0.778E-02	0.386E-02	0.265E-02	0.996E-03	*0.258E-02	*0.785E-03
	5000.	0.946E-02	0.460E-02	0.271E-02	0.115E-02	0.263E-02	0.913E-03
	10000.	0.114E-01	0.507E-02	0.277E-02	0.131E-02	0.267E-02	0.105E-02
	20000.	0.135E-01	0.475E-02	0.286E-02	0.149E-02	0.272E-02	0.119E-02
	30000.	0.147E-01	0.441E-02	0.291E-02	0.160E-02	0.276E-02	0.128E-02
	50000.	0.160E-01	0.369E-02	0.300E-02	0.175E-02	0.281E-02	0.141E-02

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4S – 7P 2201.4 Å C = 0.21E+17	2500.	0.227E-01	0.669E-02	*0.844E-02	*0.160E-02		
	5000.	0.297E-01	0.844E-02	*0.858E-02	*0.187E-02	*0.848E-02	*0.148E-02
	10000.	0.381E-01	0.929E-02	*0.865E-02	*0.215E-02	*0.858E-02	*0.171E-02
	20000.	0.471E-01	0.889E-02	0.871E-02	0.246E-02	*0.863E-02	*0.196E-02
	30000.	0.523E-01	0.776E-02	0.875E-02	0.264E-02	*0.865E-02	*0.212E-02
	50000.	0.579E-01	0.650E-02	0.880E-02	0.290E-02	0.869E-02	0.232E-02
4S – 8P 2151.5 Å C = 0.13E+17	2500.	0.408E-01	0.289E-02				
	5000.	0.549E-01	0.694E-02	*0.154E-01	-0.157E-02		
	10000.	0.721E-01	0.877E-02	*0.155E-01	-0.180E-02		
	20000.	0.910E-01	0.892E-02	*0.156E-01	-0.205E-02	*0.155E-01	-0.164E-02
	30000.	0.101	0.801E-02	*0.156E-01	-0.221E-02	*0.156E-01	-0.177E-02
	50000.	0.112	0.709E-02	0.156E-01	-0.242E-02	*0.156E-01	-0.194E-02
4S – 9P 2119.3 Å C = 0.11E+17	2500.	0.825E-01	-0.430E-01				
	5000.	0.982E-01	-0.482E-01				
	10000.	0.116	-0.474E-01				
	20000.	0.135	-0.404E-01	*0.309E-01	-0.162E-01		
	30000.	0.144	-0.341E-01	*0.317E-01	-0.176E-01		
	50000.	0.153	-0.265E-01	*0.327E-01	-0.195E-01		
4S – 10P 2098.1 Å C = 0.66E+16	2500.	*0.216	*0.131				
	5000.	*0.242	*0.152				
	10000.	0.268	0.146				
	20000.	0.298	0.117				
	30000.	0.317	0.958E-01				
	50000.	0.331	0.712E-01				
5S – 5P 29288.1 Å C = 0.49E+19	2500.	0.736	0.370	0.187	0.127	0.167	0.100
	5000.	0.921	0.227	0.201	0.146	0.177	0.116
	10000.	1.14	0.100	0.218	0.167	0.188	0.133
	20000.	1.27	0.185E-01	0.238	0.189	0.202	0.151
	30000.	1.34	-0.308E-01	0.252	0.203	0.211	0.163
	50000.	1.40	-0.471E-01	0.273	0.222	0.224	0.178
5S – 6P 11959.2 Å C = 0.14E+19	2500.	0.183	0.842E-01	0.646E-01	0.203E-01	*0.634E-01	*0.160E-01
	5000.	0.224	0.902E-01	0.655E-01	0.234E-01	0.642E-01	0.186E-01
	10000.	0.283	0.910E-01	0.665E-01	0.266E-01	0.649E-01	0.213E-01
	20000.	0.354	0.706E-01	0.677E-01	0.302E-01	0.656E-01	0.242E-01
	30000.	0.399	0.625E-01	0.686E-01	0.325E-01	0.662E-01	0.260E-01
	50000.	0.449	0.565E-01	0.700E-01	0.354E-01	0.670E-01	0.285E-01
5S – 7P 8258.9 Å C = 0.30E+18	2500.	0.320	0.917E-01	*0.119	*0.211E-01		
	5000.	0.419	0.115	*0.121	*0.247E-01	*0.119	*0.195E-01
	10000.	0.541	0.114	*0.121	*0.284E-01	*0.121	*0.226E-01
	20000.	0.677	0.105	0.122	0.323E-01	*0.121	*0.258E-01
	30000.	0.756	0.946E-01	0.123	0.348E-01	*0.122	*0.279E-01
	50000.	0.840	0.807E-01	0.123	0.382E-01	0.122	0.306E-01
5S – 8P 7597.3 Å C = 0.16E+18	2500.	0.510	0.327E-01				
	5000.	0.687	0.786E-01	*0.192	-0.210E-01		
	10000.	0.906	0.108	*0.193	-0.242E-01		
	20000.	1.15	0.104	*0.194	-0.275E-01	*0.194	-0.220E-01
	30000.	1.28	0.931E-01	*0.195	-0.296E-01	*0.194	-0.237E-01
	50000.	1.42	0.928E-01	0.195	-0.325E-01	*0.194	-0.260E-01
5S – 9P 7211.3 Å C = 0.12E+18	2500.	0.959	-0.499				
	5000.	1.14	-0.559				
	10000.	1.35	-0.552				
	20000.	1.58	-0.467	*0.359	-0.188		
	30000.	1.69	-0.379	*0.367	-0.205		
	50000.	1.79	-0.304	*0.379	-0.227		
5S – 10P 6971.1 Å C = 0.73E+17	2500.	*2.38	*1.46				
	5000.	*2.68	*1.75				
	10000.	2.97	1.57				
	20000.	3.31	1.13				
	30000.	3.51	0.914				
	50000.	3.68	0.541				

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
6S – 7P 21119.7 Å C = 0.19E+19	2500.	2.03	0.110	*0.772	-0.398E-01		
	5000.	2.81	0.172	*0.782	-0.456E-01	*0.777	-0.363E-01
	10000.	3.84	0.154	*0.786	-0.518E-01	*0.784	-0.414E-01
	20000.	5.00	0.175	0.787	-0.587E-01	*0.787	-0.470E-01
	30000.	5.63	0.155	0.788	-0.630E-01	*0.787	-0.505E-01
	50000.	6.27	0.147	0.788	-0.704E-01	0.788	-0.551E-01
6S – 8P 17273.0 Å C = 0.83E+18	2500.	2.66	-0.402E-01				
	5000.	3.65	0.101	*0.995	-0.177		
	10000.	4.91	0.154	*1.01	-0.205		
	20000.	6.33	0.223	*1.01	-0.234	*1.01	-0.187
	30000.	7.10	0.202	*1.02	-0.252	*1.01	-0.202
	50000.	7.87	0.230	1.02	-0.277	*1.01	-0.222
6S – 9P 15399.0 Å C = 0.56E+18	2500.	4.55	-2.33				
	5000.	5.50	-2.64				
	10000.	6.55	-2.64				
	20000.	7.63	-2.24				
	30000.	8.17	-1.90	*1.69	-0.964		
	50000.	8.65	-1.45	*1.75	-1.07		
6S – 10P 14343.8 Å C = 0.31E+18	2500.	*10.1	*6.17				
	5000.	*11.4	*7.02				
	10000.	12.7	6.52				
	20000.	14.2	4.27				
	30000.	15.2	3.32				
	50000.	15.9	2.12				
4P – 5S 12678.8 Å C = 0.83E+19	2500.	0.363E-01	0.222E-01	0.827E-02	0.628E-02	0.722E-02	0.500E-02
	5000.	0.407E-01	0.278E-01	0.898E-02	0.714E-02	0.774E-02	0.571E-02
	10000.	0.441E-01	0.325E-01	0.979E-02	0.809E-02	0.835E-02	0.648E-02
	20000.	0.496E-01	0.322E-01	0.107E-01	0.911E-02	0.906E-02	0.732E-02
	30000.	0.535E-01	0.290E-01	0.113E-01	0.977E-02	0.953E-02	0.784E-02
	50000.	0.618E-01	0.241E-01	0.122E-01	0.107E-01	0.102E-01	0.856E-02
4P – 6S 5869.2 Å C = 0.34E+18	2500.	0.668E-01	0.494E-01	0.145E-01	0.123E-01	0.117E-01	0.957E-02
	5000.	0.756E-01	0.588E-01	0.163E-01	0.144E-01	0.131E-01	0.113E-01
	10000.	0.790E-01	0.596E-01	0.182E-01	0.165E-01	0.147E-01	0.132E-01
	20000.	0.821E-01	0.554E-01	0.205E-01	0.189E-01	0.165E-01	0.151E-01
	30000.	0.848E-01	0.479E-01	0.219E-01	0.203E-01	0.176E-01	0.163E-01
	50000.	0.908E-01	0.401E-01	0.239E-01	0.223E-01	0.192E-01	0.178E-01
4P – 7S 4848.7 Å C = 0.27E+18	2500.	0.547E-01	0.405E-01	0.122E-01	0.102E-01	0.983E-02	0.794E-02
	5000.	0.652E-01	0.485E-01	0.137E-01	0.120E-01	0.110E-01	0.948E-02
	10000.	0.716E-01	0.552E-01	0.154E-01	0.139E-01	0.124E-01	0.110E-01
	20000.	0.746E-01	0.547E-01	0.173E-01	0.159E-01	0.139E-01	0.127E-01
	30000.	0.766E-01	0.516E-01	0.185E-01	0.171E-01	0.149E-01	0.137E-01
	50000.	0.787E-01	0.446E-01	0.201E-01	0.188E-01	0.162E-01	0.150E-01
4P – 8S 4497.4 Å C = 0.93E+17	2500.	0.789E-01	-0.115E-01	0.848E-02	-0.717E-02	0.682E-02	-0.560E-02
	5000.	0.115	-0.731E-03	0.951E-02	-0.840E-02	0.765E-02	-0.663E-02
	10000.	0.158	0.818E-02	0.107E-01	-0.967E-02	0.859E-02	-0.769E-02
	20000.	0.210	0.129E-01	0.120E-01	-0.110E-01	0.964E-02	-0.881E-02
	30000.	0.240	0.130E-01	0.129E-01	-0.119E-01	0.103E-01	-0.950E-02
	50000.	0.274	0.146E-01	0.141E-01	-0.130E-01	0.112E-01	-0.104E-01
4P – 9S 4313.6 Å C = 0.65E+17	2500.	0.181	0.970E-01	*0.277E-01	*0.210E-01	*0.222E-01	*0.159E-01
	5000.	0.230	0.103	*0.311E-01	*0.258E-01	*0.250E-01	*0.200E-01
	10000.	0.298	0.979E-01	*0.349E-01	*0.305E-01	*0.281E-01	*0.240E-01
	20000.	0.383	0.804E-01	0.392E-01	0.353E-01	*0.315E-01	*0.280E-01
	30000.	0.436	0.679E-01	0.419E-01	0.382E-01	*0.337E-01	*0.304E-01
	50000.	0.491	0.520E-01	0.457E-01	0.421E-01	*0.367E-01	*0.336E-01
4P – 10S 4204.3 Å C = 0.40E+17	2500.	0.369	0.216				
	5000.	0.444	0.230				
	10000.	0.557	0.212	*0.819E-01	*0.680E-01		
	20000.	0.703	0.159	*0.920E-01	*0.803E-01		
	30000.	0.790	0.131	*0.985E-01	*0.877E-01		
	50000.	0.873	0.946E-01	*0.107	*0.972E-01	*0.862E-01	*0.773E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P – 6S 25260.1 Å C = 0.36E+19	2500.	1.33	0.703	0.222	0.176	0.186	0.138
	5000.	1.66	0.834	0.246	0.205	0.204	0.162
	10000.	1.91	0.902	0.273	0.235	0.225	0.187
	20000.	2.11	0.842	0.304	0.268	0.248	0.214
	30000.	2.20	0.737	0.325	0.288	0.264	0.231
	50000.	2.33	0.628	0.354	0.316	0.285	0.253
5P – 7S 13254.0 Å C = 0.10E+19	2500.	0.439	0.250	0.795E-01	0.641E-01	0.654E-01	0.501E-01
	5000.	0.559	0.306	0.885E-01	0.752E-01	0.725E-01	0.594E-01
	10000.	0.651	0.359	0.987E-01	0.866E-01	0.804E-01	0.689E-01
	20000.	0.711	0.360	0.110	0.988E-01	0.894E-01	0.789E-01
	30000.	0.739	0.355	0.118	0.106	0.953E-01	0.851E-01
	50000.	0.769	0.308	0.129	0.117	0.103	0.934E-01
5P – 8S 10922.3 Å C = 0.55E+18	2500.	0.516	-0.117	0.626E-01	-0.507E-01	0.512E-01	-0.394E-01
	5000.	0.743	-0.432E-01	0.699E-01	-0.596E-01	0.569E-01	-0.470E-01
	10000.	1.03	0.885E-02	0.781E-01	-0.689E-01	0.634E-01	-0.547E-01
	20000.	1.35	0.504E-01	0.876E-01	-0.787E-01	0.707E-01	-0.628E-01
	30000.	1.53	0.631E-01	0.939E-01	-0.848E-01	0.754E-01	-0.678E-01
	50000.	1.74	0.688E-01	0.103	-0.930E-01	0.819E-01	-0.744E-01
5P – 9S 9897.6 Å C = 0.34E+18	2500.	0.973	0.483	*0.141	*0.108	*0.114	*0.813E-01
	5000.	1.25	0.522	*0.159	*0.131	*0.128	*0.102
	10000.	1.63	0.488	*0.178	*0.155	*0.143	*0.122
	20000.	2.11	0.385	0.200	0.180	*0.161	*0.143
	30000.	2.39	0.318	0.214	0.194	*0.172	*0.155
	50000.	2.68	0.251	0.234	0.214	0.187	0.171
5P – 10S 9340.7 Å C = 0.20E+18	2500.	1.84	1.06				
	5000.	2.23	1.14				
	10000.	2.79	0.988	*0.401	*0.333		
	20000.	3.55	0.704	*0.451	*0.393		
	30000.	3.99	0.556	*0.482	*0.429		
	50000.	4.40	0.405	*0.526	*0.476	*0.422	*0.378
6P – 7S 38498.1 Å C = 0.15E+20	2500.	3.77	2.19	0.874	0.546	*0.787	*0.426
	5000.	4.69	2.59	0.934	0.640	0.832	0.506
	10000.	5.71	2.82	1.00	0.738	0.882	0.587
	20000.	6.88	2.76	1.09	0.842	0.942	0.672
	30000.	7.58	2.46	1.14	0.907	0.982	0.725
	50000.	8.46	2.07	1.21	0.995	1.04	0.796
6P – 8S 23763.2 Å C = 0.26E+19	2500.	2.41	-0.548	0.361	-0.238	*0.319	-0.185
	5000.	3.47	-0.286	0.389	-0.280	0.341	-0.221
	10000.	4.98	-0.141	0.422	-0.323	0.365	-0.257
	20000.	6.79	-0.118E-01	0.460	-0.369	0.393	-0.295
	30000.	7.87	0.583E-01	0.485	-0.398	0.411	-0.318
	50000.	9.01	0.145	0.520	-0.437	0.438	-0.349
6P – 9S 19394.7 Å C = 0.13E+19	2500.	3.74	1.93	*0.560	*0.413	*0.458	*0.313
	5000.	4.78	1.98	*0.626	*0.506	*0.510	*0.393
	10000.	6.33	1.78	*0.698	*0.597	*0.568	*0.470
	20000.	8.39	1.31	0.781	0.691	*0.633	*0.548
	30000.	9.61	1.10	0.834	0.748	*0.676	*0.596
	50000.	10.8	0.835	0.906	0.824	0.733	0.658
6P – 10S 17365.8 Å C = 0.68E+18	2500.	6.37	3.62				
	5000.	7.70	3.76				
	10000.	9.70	3.35	*1.39	*1.15		
	20000.	12.5	2.33	*1.56	*1.36		
	30000.	14.1	1.83	*1.67	*1.48		
	50000.	15.6	1.23	*1.82	*1.64	*1.46	*1.31
4P – 4D 7328.2 Å C = 0.30E+18	2500.	0.394E-01	-0.180E-01	0.880E-02	-0.621E-02	0.778E-02	-0.492E-02
	5000.	0.428E-01	-0.117E-01	0.950E-02	-0.713E-02	0.828E-02	-0.568E-02
	10000.	0.466E-01	-0.630E-02	0.103E-01	-0.812E-02	0.886E-02	-0.649E-02
	20000.	0.475E-01	-0.278E-02	0.114E-01	-0.920E-02	0.956E-02	-0.736E-02
	30000.	0.481E-01	-0.468E-03	0.121E-01	-0.988E-02	0.100E-01	-0.792E-02
	50000.	0.488E-01	0.320E-03	0.132E-01	-0.108E-01	0.107E-01	-0.865E-02

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P - 5D 5190.3 Å C = 0.16E+18	2500.	0.460E-01	-0.256E-01	0.140E-01	-0.682E-02	*0.133E-01	-0.536E-02
	5000.	0.511E-01	-0.235E-01	0.146E-01	-0.793E-02	0.137E-01	-0.629E-02
	10000.	0.581E-01	-0.169E-01	0.152E-01	-0.910E-02	0.141E-01	-0.725E-02
	20000.	0.697E-01	-0.120E-01	0.161E-01	-0.103E-01	0.146E-01	-0.827E-02
	30000.	0.758E-01	-0.106E-01	0.167E-01	-0.111E-01	0.150E-01	-0.891E-02
	50000.	0.825E-01	-0.808E-02	0.175E-01	-0.122E-01	0.155E-01	-0.977E-02
4P - 6D 4686.6 Å C = 0.41E+17	2500.	0.143	-0.288E-01	*0.305E-01	-0.172E-01	*0.275E-01	-0.132E-01
	5000.	0.178	-0.108E-01	*0.326E-01	-0.207E-01	*0.292E-01	-0.162E-01
	10000.	0.202	0.818E-02	0.351E-01	-0.242E-01	*0.309E-01	-0.192E-01
	20000.	0.221	0.212E-01	0.382E-01	-0.279E-01	*0.328E-01	-0.222E-01
	30000.	0.227	0.246E-01	0.404E-01	-0.301E-01	*0.341E-01	-0.240E-01
	50000.	0.230	0.252E-01	0.438E-01	-0.331E-01	0.360E-01	-0.265E-01
4P - 7D 4435.0 Å C = 0.35E+16	2500.	*0.932	-0.157				
	5000.	0.901	-0.977E-01				
	10000.	0.859	-0.427E-01				
	20000.	0.805	-0.242E-02				
	30000.	0.767	0.793E-02				
	50000.	0.715	0.118E-01				
4P - 8D 4292.5 Å C = 0.12E+17	2500.	*0.850	*0.523				
	5000.	0.883	0.509				
	10000.	0.915	0.413				
	20000.	0.947	0.294				
	30000.	0.946	0.229				
	50000.	0.926	0.147				
4P - 9D 4139.1 Å C = 0.19E+17	2500.	*0.896	*0.522				
	5000.	*1.05	*0.543				
	10000.	*1.25	*0.448				
	20000.	1.50	0.319				
	30000.	1.61	0.260				
	50000.	1.70	0.169				
4P - 10D 4093.1 Å C = 0.14E+17	2500.	*1.01	*0.256				
	5000.	*1.36	*0.264				
	10000.	*1.78	*0.237				
	20000.	*2.19	*0.177				
	30000.	*2.38	*0.145				
	50000.	2.53	0.102				
5P - 5D 16161.8 Å C = 0.15E+19	2500.	0.651	-0.357	0.159	-0.880E-01	*0.147	-0.688E-01
	5000.	0.730	-0.328	0.167	-0.103	0.153	-0.814E-01
	10000.	0.811	-0.268	0.178	-0.118	0.160	-0.943E-01
	20000.	0.942	-0.200	0.190	-0.135	0.168	-0.108
	30000.	1.01	-0.180	0.200	-0.145	0.174	-0.116
	50000.	1.07	-0.136	0.213	-0.160	0.182	-0.128
5P - 6D 12109.2 Å C = 0.27E+18	2500.	1.01	-0.240	*0.212	-0.121		
	5000.	1.26	-0.990E-01	*0.228	-0.146	*0.203	-0.114
	10000.	1.46	0.398E-01	0.245	-0.171	*0.215	-0.135
	20000.	1.60	0.122	0.267	-0.197	*0.229	-0.157
	30000.	1.65	0.181	0.283	-0.213	*0.238	-0.170
	50000.	1.68	0.181	0.308	-0.234	0.252	-0.187
5P - 7D 10561.3 Å C = 0.20E+17	2500.	*5.32	-0.937				
	5000.	5.16	-0.524				
	10000.	4.95	-0.131				
	20000.	4.66	0.183E-01				
	30000.	4.45	0.534E-01				
	50000.	4.16	0.136				
5P - 8D 9787.3 Å C = 0.63E+17	2500.	*4.44	*2.70				
	5000.	4.64	2.63				
	10000.	4.82	2.02				
	20000.	5.01	1.34				
	30000.	5.01	0.990				
	50000.	4.90	0.589				

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P – 9D 9024.6 Å C = 0.92E+17	2500.	*4.28	*2.47				
	5000.	*5.03	*2.57				
	10000.	*6.02	*2.00				
	20000.	7.21	1.36				
	30000.	7.75	1.03				
50000.	8.15	0.627					
5P – 10D 8809.2 Å C = 0.67E+17	2500.	*4.68	*1.18				
	5000.	*6.34	*1.20				
	10000.	*8.31	*1.04				
	20000.	*10.2	*0.724				
	30000.	*11.1	*0.566				
50000.	11.8	0.389					
6P – 6D 30204.0 Å C = 0.17E+19	2500.	6.30	-1.42	*1.39	-0.753		
	5000.	7.90	-0.590	*1.48	-0.907	*1.33	-0.709
	10000.	9.29	0.178	*1.58	-1.06	*1.41	-0.840
	20000.	10.5	0.800	1.71	-1.22	*1.49	-0.974
	30000.	11.1	0.846	1.81	-1.32	*1.54	-1.06
50000.	11.6	0.801	1.95	-1.45	1.62	-1.16	
6P – 7D 22118.4 Å C = 0.87E+17	2500.	*23.4	-3.93				
	5000.	22.7	-2.45				
	10000.	21.9	-1.56				
	20000.	20.8	-0.716				
	30000.	20.0	-0.158				
50000.	18.9	0.812E-01					
6P – 8D 18975.4 Å C = 0.24E+18	2500.	*16.7	*10.1				
	5000.	17.5	9.76				
	10000.	18.3	7.56				
	20000.	19.1	5.09				
	30000.	19.2	3.93				
50000.	18.9	2.11					
6P – 9D 16304.2 Å C = 0.30E+18	2500.	*14.0	*8.01				
	5000.	*16.5	*8.30				
	10000.	*19.8	*6.52				
	20000.	23.7	4.43				
	30000.	25.6	3.47				
50000.	26.9	1.97					
4D – 5P 176469.6 Å C = 0.18E+21	2500.	48.5	26.5	9.95	7.19	8.65	5.65
	5000.	52.3	24.4	10.8	8.35	9.29	6.62
	10000.	56.6	17.6	11.9	9.56	10.0	7.62
	20000.	60.7	13.4	13.1	10.9	10.9	8.69
	30000.	61.0	10.5	14.0	11.7	11.5	9.36
50000.	61.1	7.26	15.3	12.8	12.3	10.3	
4D – 6P 22827.3 Å C = 0.30E+19	2500.	1.03	0.474	0.265	0.118	*0.254	*0.927E-01
	5000.	1.19	0.542	0.273	0.137	0.260	0.109
	10000.	1.38	0.539	0.283	0.157	0.266	0.125
	20000.	1.57	0.462	0.296	0.178	0.274	0.142
	30000.	1.69	0.400	0.306	0.192	0.280	0.153
50000.	1.83	0.342	0.320	0.210	0.288	0.168	
4D – 7P 12304.6 Å C = 0.66E+18	2500.	0.798	0.231	*0.267	*0.558E-01		
	5000.	1.03	0.285	*0.272	*0.654E-01	*0.268	*0.516E-01
	10000.	1.29	0.301	*0.275	*0.753E-01	*0.271	*0.599E-01
	20000.	1.58	0.283	0.277	0.860E-01	*0.273	*0.687E-01
	30000.	1.74	0.257	0.279	0.926E-01	*0.274	*0.741E-01
50000.	1.92	0.213	0.282	0.102	0.276	0.813E-01	
4D – 8P 10891.4 Å C = 0.33E+18	2500.	1.11	0.954E-01				
	5000.	1.48	0.196	*0.396	-0.339E-01		
	10000.	1.93	0.232	*0.399	-0.388E-01		
	20000.	2.42	0.239	*0.401	-0.442E-01	*0.400	-0.353E-01
	30000.	2.69	0.231	*0.402	-0.476E-01	*0.401	-0.381E-01
50000.	2.96	0.193	0.403	-0.523E-01	*0.401	-0.417E-01	

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4D - 9P 10115.2 Å C = 0.24E+18	2500.	1.92	-0.974				
	5000.	2.29	-1.09				
	10000.	2.70	-1.07				
	20000.	3.14	-0.897	*0.705	-0.367		
	30000.	3.36	-0.720	*0.722	-0.399		
	50000.	3.55	-0.578	*0.746	-0.442		
4D - 10P 9649.0 Å C = 0.14E+18	2500.	*4.61	*2.78				
	5000.	*5.18	*3.20				
	10000.	5.74	3.08				
	20000.	6.38	2.25				
	30000.	6.77	1.79				
	50000.	7.08	1.13				
5D - 7P 39899.3 Å C = 0.69E+19	2500.	9.43	3.06	*2.99	*0.720		
	5000.	12.2	3.87	*3.05	*0.849		
	10000.	15.5	4.19	*3.09	*0.982	*3.04	*0.780
	20000.	19.0	3.74	3.13	1.12	*3.07	*0.895
	30000.	21.0	3.37	3.16	1.21	*3.08	*0.967
	50000.	23.3	2.92	3.20	1.33	3.11	1.06
5D - 8P 28083.9 Å C = 0.22E+19	2500.	7.79	0.928				
	5000.	10.5	1.73	*2.69	-0.939E-01		
	10000.	13.7	2.37	*2.72	-0.107		
	20000.	17.2	2.09	*2.73	-0.124	*2.72	-0.970E-01
	30000.	19.2	2.09	*2.73	-0.135	*2.73	-0.105
	50000.	21.2	1.78	2.74	-0.154	*2.73	-0.115
5D - 9P 23444.9 Å C = 0.13E+19	2500.	10.4	-5.16				
	5000.	12.5	-5.73				
	10000.	14.9	-5.55				
	20000.	17.5	-4.43	*3.80	-1.94		
	30000.	18.9	-3.71	*3.89	-2.11		
	50000.	20.1	-2.74	*4.01	-2.34		
5S - 5P 19897.4 Å C = 0.47E+19	2500.	0.224	0.158	0.714E-01	0.412E-01	0.664E-01	0.327E-01
	5000.	0.264	0.153	0.750E-01	0.473E-01	0.689E-01	0.377E-01
	10000.	0.313	0.108	0.793E-01	0.538E-01	0.718E-01	0.430E-01
	20000.	0.393	0.697E-01	0.845E-01	0.609E-01	0.754E-01	0.488E-01
	30000.	0.434	0.600E-01	0.880E-01	0.654E-01	0.779E-01	0.525E-01
	50000.	0.472	0.390E-01	0.929E-01	0.714E-01	0.814E-01	0.573E-01
5S - 6P 9104.8 Å C = 0.18E+18	2500.	0.406	0.279	*0.973E-01	*0.696E-01	*0.817E-01	*0.532E-01
	5000.	0.428	0.259	*0.108	*0.840E-01	*0.896E-01	*0.656E-01
	10000.	0.453	0.213	0.119	0.984E-01	*0.985E-01	*0.777E-01
	20000.	0.471	0.157	0.133	0.113	*0.109	*0.901E-01
	30000.	0.474	0.122	0.143	0.122	0.115	0.977E-01
	50000.	0.470	0.893E-01	0.156	0.135	0.124	0.108
5S - 7P 7451.4 Å C = 0.51E+17	2500.	0.895	0.554				
	5000.	0.932	0.489				
	10000.	0.966	0.396	*0.268	*0.213		
	20000.	0.958	0.284	*0.302	*0.251		
	30000.	0.940	0.207	*0.325	*0.274		
	50000.	0.910	0.144	*0.360	*0.304	*0.278	*0.242
5S - 8P 6781.1 Å C = 0.83E+16	2500.	*2.76	*0.891				
	5000.	*2.75	*0.768				
	10000.	2.60	0.589				
	20000.	2.40	0.392				
	30000.	2.28	0.277				
	50000.	2.11	0.165				
5S - 9P 6432.0 Å C = 0.19E+17	2500.	*2.54	-1.34				
	5000.	*2.64	-1.18				
	10000.	2.76	-0.964				
	20000.	2.74	-0.704				
	30000.	2.69	-0.518				
	50000.	2.60	-0.345				

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5S – 10P 6224.3 Å C = 0.60E+17	2500.	*1.74	*1.09				
	5000.	*1.97	*1.21				
	10000.	2.19	1.18				
	20000.	2.46	0.943				
	30000.	2.61	0.728				
50000.	2.74	0.541					
6S – 6P 48818.1 Å C = 0.53E+19	2500.	11.2	6.90	*2.68	*1.91	*2.26	*1.46
	5000.	12.1	5.70	*2.96	*2.30	*2.48	*1.80
	10000.	13.8	3.83	3.28	2.69	*2.72	*2.13
	20000.	15.0	2.39	3.66	3.10	*2.99	*2.46
	30000.	15.3	1.58	3.92	3.35	3.16	2.67
50000.	15.7	0.864	4.30	3.68	3.41	2.94	
6S – 7P 22294.2 Å C = 0.45E+18	2500.	7.94	4.77				
	5000.	8.33	4.05				
	10000.	8.78	2.99	*2.38	*1.89		
	20000.	8.85	1.90	*2.68	*2.23		
	30000.	8.77	0.950	*2.89	*2.44		
50000.	8.59	0.631	*3.20	*2.70	*2.47	*2.15	
6S – 8P 17205.2 Å C = 0.53E+17	2500.	*17.7	*5.65				
	5000.	17.7	4.79				
	10000.	16.8	3.48				
	20000.	15.6	2.13				
	30000.	14.9	1.40				
50000.	13.8	0.764					
6S – 9P 15123.0 Å C = 0.10E+18	2500.	*14.1	-7.43				
	5000.	*14.7	-6.56				
	10000.	15.4	-5.24				
	20000.	15.3	-3.45				
	30000.	15.1	-2.87				
50000.	14.6	-1.35					
6S – 10P 14022.6 Å C = 0.30E+18	2500.	*8.86	*5.43				
	5000.	*10.0	*6.19				
	10000.	11.2	5.88				
	20000.	12.6	4.02				
	30000.	13.4	3.18				
50000.	14.1	1.97					
4P – 5S 6143.9 Å C = 0.19E+19	2500.	0.820E-02	0.668E-02	0.209E-02	0.183E-02	0.171E-02	0.146E-02
	5000.	0.983E-02	0.786E-02	0.232E-02	0.209E-02	0.190E-02	0.167E-02
	10000.	0.114E-01	0.929E-02	0.260E-02	0.237E-02	0.211E-02	0.190E-02
	20000.	0.124E-01	0.995E-02	0.290E-02	0.267E-02	0.235E-02	0.215E-02
	30000.	0.130E-01	0.100E-01	0.310E-02	0.286E-02	0.251E-02	0.230E-02
50000.	0.136E-01	0.913E-02	0.336E-02	0.313E-02	0.272E-02	0.251E-02	
4P – 6S 3966.5 Å C = 0.32E+18	2500.	0.146E-01	0.109E-01	0.327E-02	0.286E-02	0.263E-02	0.226E-02
	5000.	0.172E-01	0.130E-01	0.367E-02	0.331E-02	0.295E-02	0.263E-02
	10000.	0.190E-01	0.150E-01	0.412E-02	0.378E-02	0.331E-02	0.301E-02
	20000.	0.202E-01	0.150E-01	0.462E-02	0.429E-02	0.372E-02	0.343E-02
	30000.	0.211E-01	0.143E-01	0.494E-02	0.462E-02	0.398E-02	0.369E-02
50000.	0.222E-01	0.121E-01	0.538E-02	0.505E-02	0.433E-02	0.405E-02	
4P – 7S 3482.2 Å C = 0.12E+18	2500.	0.329E-01	0.233E-01	0.689E-02	0.573E-02	*0.554E-02	*0.445E-02
	5000.	0.377E-01	0.275E-01	0.774E-02	0.676E-02	0.622E-02	0.533E-02
	10000.	0.410E-01	0.292E-01	0.869E-02	0.783E-02	0.698E-02	0.621E-02
	20000.	0.459E-01	0.276E-01	0.975E-02	0.895E-02	0.784E-02	0.714E-02
	30000.	0.489E-01	0.243E-01	0.104E-01	0.965E-02	0.839E-02	0.771E-02
50000.	0.550E-01	0.202E-01	0.114E-01	0.106E-01	0.914E-02	0.847E-02	
4P – 8S 3281.3 Å C = 0.59E+17	2500.	0.692E-01	0.487E-01	*0.141E-01	*0.109E-01	*0.114E-01	*0.828E-02
	5000.	0.801E-01	0.569E-01	*0.159E-01	*0.133E-01	*0.128E-01	*0.103E-01
	10000.	0.863E-01	0.571E-01	0.178E-01	0.156E-01	*0.143E-01	*0.123E-01
	20000.	0.977E-01	0.484E-01	0.200E-01	0.181E-01	*0.161E-01	*0.144E-01
	30000.	0.108	0.408E-01	0.214E-01	0.196E-01	*0.172E-01	*0.156E-01
50000.	0.122	0.329E-01	0.233E-01	0.215E-01	0.187E-01	0.172E-01	

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P – 9S 3176.1 Å C = 0.34E+17	2500.	0.132	0.923E-01				
	5000.	0.147	0.101	*0.296E-01	*0.234E-01		
	10000.	0.167	0.987E-01	*0.332E-01	*0.282E-01		
	20000.	0.195	0.768E-01	*0.373E-01	*0.330E-01	*0.300E-01	*0.261E-01
	30000.	0.219	0.633E-01	*0.399E-01	*0.359E-01	*0.321E-01	*0.285E-01
	50000.	0.242	0.492E-01	*0.435E-01	*0.397E-01	*0.349E-01	*0.316E-01
4P – 10S 3113.4 Å C = 0.22E+17	2500.	0.231	0.150				
	5000.	0.259	0.168				
	10000.	0.301	0.154				
	20000.	0.364	0.114	*0.645E-01	*0.557E-01		
	30000.	0.407	0.923E-01	*0.691E-01	*0.610E-01		
	50000.	0.446	0.681E-01	*0.753E-01	*0.678E-01		
5P – 6S 25582.3 Å C = 0.78E+19	2500.	0.554	0.268	0.120	0.711E-01	0.111	0.563E-01
	5000.	0.752	0.338	0.126	0.816E-01	0.116	0.650E-01
	10000.	0.960	0.402	0.134	0.928E-01	0.121	0.742E-01
	20000.	1.17	0.404	0.143	0.105	0.127	0.842E-01
	30000.	1.29	0.366	0.149	0.113	0.132	0.906E-01
	50000.	1.44	0.311	0.158	0.123	0.138	0.989E-01
5P – 7S 13485.3 Å C = 0.18E+19	2500.	0.491	0.331	0.978E-01	0.793E-01	*0.799E-01	*0.617E-01
	5000.	0.578	0.393	0.109	0.934E-01	0.889E-01	0.736E-01
	10000.	0.662	0.399	0.122	0.108	0.990E-01	0.857E-01
	20000.	0.768	0.353	0.136	0.123	0.110	0.984E-01
	30000.	0.855	0.315	0.146	0.133	0.118	0.106
	50000.	0.970	0.259	0.158	0.146	0.128	0.117
5P – 8S 10901.1 Å C = 0.65E+18	2500.	0.767	0.527	*0.153	*0.118	*0.123	*0.896E-01
	5000.	0.871	0.609	*0.172	*0.143	*0.138	*0.112
	10000.	0.987	0.614	0.193	0.169	*0.155	*0.133
	20000.	1.14	0.488	0.216	0.195	*0.174	*0.155
	30000.	1.28	0.416	0.231	0.211	*0.186	*0.168
	50000.	1.44	0.334	0.252	0.232	0.203	0.185
5P – 9S 9820.3 Å C = 0.33E+18	2500.	1.26	0.844				
	5000.	1.40	0.968	*0.281	*0.222		
	10000.	1.63	0.923	*0.315	*0.267		
	20000.	1.92	0.687	*0.354	*0.313	*0.284	*0.247
	30000.	2.16	0.537	*0.379	*0.340	*0.304	*0.270
	50000.	2.40	0.427	*0.412	*0.376	*0.331	*0.300
5P – 10S 9244.9 Å C = 0.19E+18	2500.	2.15	1.38				
	5000.	2.29	1.42				
	10000.	2.66	1.35				
	20000.	3.27	0.934	*0.567	*0.490		
	30000.	3.65	0.723	*0.607	*0.536		
	50000.	3.99	0.536	*0.661	*0.596		
6P – 8S 31094.3 Å C = 0.22E+19	2500.	7.15	2.23	0.715	0.434	*0.645	*0.338
	5000.	9.17	2.82	0.765	0.512	*0.681	*0.403
	10000.	11.2	3.12	0.825	0.592	0.721	0.470
	20000.	13.2	2.66	0.898	0.676	0.768	0.540
	30000.	14.5	2.29	0.949	0.729	0.800	0.583
	50000.	15.8	2.08	1.02	0.801	0.843	0.640
6P – 9S 23665.2 Å C = 0.12E+19	2500.	7.83	4.17	*1.22	*0.863		
	5000.	9.32	4.47	*1.37	*1.08		
	10000.	11.1	4.32	*1.53	*1.29	*1.24	*1.01
	20000.	13.4	3.14	*1.72	*1.50	*1.39	*1.19
	30000.	14.9	2.51	*1.85	*1.63	*1.48	*1.30
	50000.	16.2	1.97	2.02	1.80	*1.61	*1.44
6P – 10S 20578.7 Å C = 0.94E+18	2500.	10.5	6.37				
	5000.	12.2	6.66				
	10000.	14.5	5.74				
	20000.	17.9	3.81	*2.63	*2.26		
	30000.	19.8	3.17	*2.82	*2.47		
	50000.	21.5	1.98	*3.08	*2.75		

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P – 4D 4446.3 Å C = 0.23E+18	2500.	0.943E-02	-0.325E-02	0.247E-02	-0.110E-02	0.238E-02	-0.874E-03
	5000.	0.106E-01	-0.181E-02	0.253E-02	-0.125E-02	0.242E-02	-0.100E-02
	10000.	0.126E-01	-0.281E-03	0.262E-02	-0.142E-02	0.248E-02	-0.114E-02
	20000.	0.141E-01	0.107E-02	0.273E-02	-0.160E-02	0.254E-02	-0.129E-02
	30000.	0.149E-01	0.135E-02	0.281E-02	-0.172E-02	0.259E-02	-0.138E-02
	50000.	0.157E-01	0.164E-02	0.294E-02	-0.187E-02	0.265E-02	-0.150E-02
4P – 5D 3638.7 Å C = 0.30E+17	2500.	0.511E-01	-0.295E-01	*0.116E-01	-0.847E-02	*0.979E-02	-0.653E-02
	5000.	0.530E-01	-0.246E-01	0.128E-01	-0.101E-01	*0.107E-01	-0.792E-02
	10000.	0.577E-01	-0.161E-01	0.142E-01	-0.118E-01	*0.117E-01	-0.931E-02
	20000.	0.599E-01	-0.101E-01	0.159E-01	-0.135E-01	0.129E-01	-0.107E-01
	30000.	0.598E-01	-0.649E-02	0.170E-01	-0.146E-01	0.137E-01	-0.116E-01
	50000.	0.595E-01	-0.335E-02	0.187E-01	-0.160E-01	0.148E-01	-0.128E-01
4P – 6D 3357.1 Å C = 0.10E+17	2500.	0.149	-0.847E-01				
	5000.	0.153	-0.710E-01	*0.384E-01	-0.287E-01		
	10000.	0.160	-0.507E-01	*0.431E-01	-0.347E-01		
	20000.	0.163	-0.353E-01	*0.486E-01	-0.407E-01	*0.388E-01	-0.321E-01
	30000.	0.160	-0.220E-01	*0.525E-01	-0.443E-01	*0.413E-01	-0.351E-01
	50000.	0.156	-0.122E-01	*0.583E-01	-0.490E-01	*0.447E-01	-0.390E-01
4P – 7D 3221.5 Å C = 0.19E+16	2500.	*0.496	-0.195				
	5000.	0.483	-0.153				
	10000.	0.473	-0.102				
	20000.	0.447	-0.551E-01				
	30000.	0.427	-0.385E-01				
	50000.	0.400	-0.220E-01				
4P – 8D 3146.8 Å C = 0.35E+16	2500.	*0.603	-0.369E-01				
	5000.	*0.716	-0.107E-01				
	10000.	*0.780	0.380E-02				
	20000.	0.786	0.155E-01				
	30000.	0.767	0.151E-01				
	50000.	0.726	0.136E-01				
4P – 9D 3077.2 Å C = 0.15E+17	2500.	0.304	0.122				
	5000.	0.399	0.125				
	10000.	0.522	0.109				
	20000.	0.658	0.809E-01				
	30000.	0.725	0.657E-01				
	50000.	0.786	0.470E-01	*0.102	*0.556E-01		
4P – 10D 3051.5 Å C = 0.68E+16	2500.	*0.693	-0.357				
	5000.	*0.791	-0.263				
	10000.	*0.987	-0.188				
	20000.	*1.16	-0.113				
	30000.	*1.24	-0.736E-01				
	50000.	1.31	-0.377E-01				
5P – 5D 16180.3 Å C = 0.58E+18	2500.	1.11	-0.654	*0.243	-0.175	*0.206	-0.135
	5000.	1.18	-0.587	0.268	-0.209	*0.225	-0.164
	10000.	1.26	-0.425	0.297	-0.243	*0.246	-0.193
	20000.	1.36	-0.294	0.331	-0.279	0.270	-0.223
	30000.	1.37	-0.216	0.354	-0.302	0.286	-0.241
	50000.	1.38	-0.141	0.389	-0.331	0.308	-0.265
5P – 6D 11784.4 Å C = 0.13E+18	2500.	1.88	-1.10				
	5000.	1.94	-0.890	*0.478	-0.355		
	10000.	2.03	-0.629	*0.535	-0.430		
	20000.	2.09	-0.375	*0.604	-0.505	*0.482	-0.399
	30000.	2.07	-0.260	*0.652	-0.550	*0.513	-0.436
	50000.	2.03	-0.143	*0.723	-0.608	*0.555	-0.484
5P – 7D 10267.8 Å C = 0.19E+17	2500.	*5.07	-1.98				
	5000.	4.94	-1.49				
	10000.	4.84	-1.03				
	20000.	4.61	-0.521				
	30000.	4.41	-0.348				
	50000.	4.15	-0.179				

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P - 8D 9545.3 Å C = 0.32E+17	2500.	*5.56	-0.349				
	5000.	*6.61	-0.146				
	10000.	*7.21	0.220E-01				
	20000.	7.28	0.892E-01				
	30000.	7.12	0.110				
50000.	6.75	0.119					
5P - 9D 8932.6 Å C = 0.12E+18	2500.	2.57	1.08				
	5000.	3.38	1.03				
	10000.	4.44	0.892				
	20000.	5.59	0.620				
	30000.	6.16	0.493				
50000.	6.68	0.336	*0.859	*0.467			
5P - 10D 8719.1 Å C = 0.55E+17	2500.	*5.68	-2.92				
	5000.	*6.48	-2.29				
	10000.	*8.09	-1.43				
	20000.	*9.56	-0.852				
	30000.	*10.2	-0.545				
50000.	10.7	-0.120					
4D - 5P 84142.5 Å C = 0.84E+20	2500.	7.24	4.11	1.75	1.03	1.61	0.817
	5000.	7.97	4.08	1.84	1.19	1.68	0.947
	10000.	8.82	3.65	1.96	1.36	1.76	1.08
	20000.	10.1	2.66	2.10	1.54	1.85	1.23
	30000.	10.9	2.26	2.19	1.66	1.92	1.33
50000.	11.6	1.91	2.33	1.81	2.01	1.45	
4D - 6P 20969.1 Å C = 0.98E+18	2500.	2.33	1.52	*0.528	*0.375	*0.444	*0.286
	5000.	2.47	1.44	*0.583	*0.452	*0.487	*0.353
	10000.	2.61	1.22	0.646	0.530	*0.534	*0.419
	20000.	2.69	0.911	0.721	0.611	*0.588	*0.486
	30000.	2.70	0.711	0.772	0.660	0.623	0.527
50000.	2.68	0.527	0.846	0.726	0.672	0.580	
4D - 7P 13877.4 Å C = 0.18E+18	2500.	3.18	1.93				
	5000.	3.31	1.72				
	10000.	3.43	1.41	*0.932	*0.740		
	20000.	3.40	1.00	*1.05	*0.874		
	30000.	3.34	0.728	*1.13	*0.953		
50000.	3.24	0.506	*1.25	*1.06	*0.969	*0.841	
4D - 8P 11719.6 Å C = 0.25E+17	2500.	*8.28	*2.67				
	5000.	*8.27	*2.31				
	10000.	7.82	1.78				
	20000.	7.24	1.16				
	30000.	6.86	0.828				
50000.	6.35	0.510					
4D - 9P 10714.7 Å C = 0.52E+17	2500.	*7.06	-3.72				
	5000.	*7.37	-3.25				
	10000.	7.70	-2.65				
	20000.	7.65	-1.91				
	30000.	7.52	-1.37				
50000.	7.26	-0.915					
4D - 10P 10150.4 Å C = 0.16E+18	2500.	*4.67	*2.82				
	5000.	*5.27	*3.23				
	10000.	5.88	3.15				
	20000.	6.57	2.49				
	30000.	6.99	1.83				
50000.	7.33	1.42					
PERTURBER DENSITY = 1.E+16 cm ⁻³							
4S - 4P 4227.9 Å C = 0.17E+20	2500.	0.103E-01	0.578E-02	0.581E-02	0.155E-02	0.575E-02	0.123E-02
	5000.	0.115E-01	0.665E-02	0.587E-02	0.178E-02	0.580E-02	0.142E-02
	10000.	0.124E-01	0.795E-02	0.592E-02	0.202E-02	0.583E-02	0.162E-02
	20000.	0.143E-01	0.807E-02	0.600E-02	0.229E-02	0.588E-02	0.183E-02
	30000.	0.162E-01	0.724E-02	0.605E-02	0.245E-02	0.591E-02	0.197E-02
50000.	0.193E-01	0.585E-02	0.613E-02	0.268E-02	0.595E-02	0.215E-02	

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4S – 5P 2722.5 Å C = 0.42E+18	2500.	0.672E-01	0.474E-01	*0.180E-01	*0.110E-01	*0.155E-01	*0.817E-02
	5000.	0.726E-01	0.456E-01	*0.197E-01	*0.137E-01	*0.169E-01	*0.105E-01
	10000.	0.798E-01	0.364E-01	0.216E-01	0.163E-01	*0.183E-01	*0.128E-01
	20000.	0.864E-01	0.289E-01	0.238E-01	0.190E-01	*0.199E-01	*0.151E-01
	30000.	0.878E-01	0.245E-01	0.254E-01	0.206E-01	0.210E-01	0.164E-01
	50000.	0.887E-01	0.185E-01	0.276E-01	0.228E-01	0.224E-01	0.182E-01
4S – 6P 2399.3 Å C = 0.57E+18	2500.	0.777E-01	0.369E-01	*0.254E-01	*0.828E-02		
	5000.	0.946E-01	0.449E-01	*0.267E-01	*0.103E-01		
	10000.	0.114	0.501E-01	*0.276E-01	*0.123E-01	*0.264E-01	*0.965E-02
	20000.	0.135	0.472E-01	0.285E-01	0.143E-01	*0.271E-01	*0.113E-01
	30000.	0.147	0.440E-01	0.291E-01	0.155E-01	*0.275E-01	*0.123E-01
	50000.	0.160	0.369E-01	0.299E-01	0.171E-01	*0.281E-01	*0.137E-01
4S – 7P 2201.4 Å C = 0.21E+18	2500.	0.227	0.630E-01				
	5000.	0.297	0.817E-01				
	10000.	0.381	0.913E-01				
	20000.	0.471	0.887E-01				
	30000.	0.523	0.774E-01	*0.871E-01	*0.253E-01		
	50000.	0.579	0.649E-01	*0.878E-01	*0.281E-01		
4S – 8P 2151.5 Å C = 0.13E+18	2500.	*0.406	*0.325E-01				
	5000.	*0.548	*0.719E-01				
	10000.	*0.721	*0.892E-01				
	20000.	0.910	0.896E-01				
	30000.	1.01	0.802E-01				
	50000.	1.12	0.710E-01				
4S – 9P 2119.3 Å C = 0.11E+18	2500.	*0.819	-0.355				
	5000.	*0.979	-0.428				
	10000.	*1.16	-0.437				
	20000.	*1.35	-0.386				
	30000.	*1.44	-0.332				
	50000.	1.53	-0.263				
5S – 5P 29288.1 Å C = 0.49E+20	2500.	7.36	3.52	*1.85	*1.07	*1.62	*0.807
	5000.	9.21	2.15	2.00	1.32	*1.75	*1.02
	10000.	11.4	0.952	2.17	1.57	*1.88	*1.23
	20000.	12.7	0.146	2.38	1.82	2.02	1.44
	30000.	13.4	-0.315	2.52	1.97	2.11	1.57
	50000.	14.0	-0.477	2.73	2.17	2.24	1.74
5S – 6P 11959.2 Å C = 0.14E+20	2500.	1.82	0.810	*0.616	*0.172		
	5000.	2.24	0.884	*0.644	*0.212		
	10000.	2.83	0.902	*0.661	*0.251	*0.642	*0.197
	20000.	3.54	0.705	0.676	0.291	*0.654	*0.231
	30000.	3.99	0.624	0.686	0.315	*0.661	*0.251
	50000.	4.49	0.565	0.700	0.347	*0.669	*0.277
5S – 7P 8258.9 Å C = 0.30E+19	2500.	3.19	0.868				
	5000.	4.19	1.12				
	10000.	5.41	1.12				
	20000.	6.77	1.05				
	30000.	7.56	0.942	*1.22	*0.334		
	50000.	8.40	0.806	*1.23	*0.370		
5S – 8P 7597.3 Å C = 0.16E+19	2500.	*5.08	*0.377				
	5000.	*6.87	*0.821				
	10000.	*9.06	*1.10				
	20000.	11.5	1.04				
	30000.	12.8	0.935				
	50000.	14.2	0.929				
5S – 9P 7211.3 Å C = 0.12E+19	2500.	*9.52	-4.11				
	5000.	*11.4	-4.97				
	10000.	*13.5	-5.09				
	20000.	*15.7	-4.44				
	30000.	*16.9	-3.67				
	50000.	*17.9	-3.01				

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
6S – 6P 101156.2 Å C = 0.10E+22	2500.	213.	-110.	*50.9	-22.3		
	5000.	261.	-116.	*54.9	-28.9		
	10000.	329.	-111.	*58.5	-35.1	*53.0	-27.3
	20000.	415.	-83.9	*62.3	-41.4	*55.9	-32.6
	30000.	466.	-75.6	*64.8	-45.1	*57.7	-35.7
50000.	516.	-62.3	68.3	-49.9	*60.2	-39.7	
6S – 7P 21119.7 Å C = 0.19E+20	2500.	20.3	1.14				
	5000.	28.1	1.75				
	10000.	38.4	1.55				
	20000.	49.9	1.75				
	30000.	56.3	1.55	*7.84	-0.615		
50000.	62.7	1.47	*7.86	-0.694			
6S – 8P 17273.0 Å C = 0.83E+19	2500.	*26.5	*0.107				
	5000.	*36.5	*1.35				
	10000.	*49.1	*1.64				
	20000.	63.2	2.25				
	30000.	71.0	2.03				
50000.	78.6	2.30					
6S – 9P 15399.0 Å C = 0.56E+19	2500.	*45.2	-19.1				
	5000.	*54.8	-23.5				
	10000.	*65.5	-24.7				
	20000.	*76.2	-21.6				
	30000.	*81.7	-18.9				
50000.	*86.5	-14.4					
4P – 5S 12678.8 Å C = 0.83E+20	2500.	0.363	0.219	0.826E-01	0.581E-01	0.719E-01	0.453E-01
	5000.	0.407	0.275	0.897E-01	0.680E-01	0.773E-01	0.537E-01
	10000.	0.441	0.325	0.979E-01	0.784E-01	0.834E-01	0.624E-01
	20000.	0.496	0.321	0.107	0.894E-01	0.906E-01	0.714E-01
	30000.	0.535	0.290	0.113	0.963E-01	0.953E-01	0.770E-01
50000.	0.618	0.241	0.122	0.106	0.102	0.845E-01	
4P – 6S 5869.2 Å C = 0.34E+19	2500.	0.668	0.463	*0.144	*0.914E-01		
	5000.	0.756	0.567	*0.163	*0.122	*0.131	*0.914E-01
	10000.	0.790	0.582	*0.182	*0.150	*0.147	*0.116
	20000.	0.821	0.548	*0.205	*0.178	*0.165	*0.140
	30000.	0.848	0.476	*0.219	*0.194	*0.176	*0.154
50000.	0.908	0.400	0.239	0.216	*0.192	*0.171	
4P – 7S 4848.7 Å C = 0.27E+19	2500.	0.547	0.375	*0.121	*0.728E-01		
	5000.	0.652	0.465	*0.137	*0.995E-01		
	10000.	0.716	0.542	*0.154	*0.124	*0.124	*0.957E-01
	20000.	0.746	0.546	*0.173	*0.148	*0.139	*0.116
	30000.	0.766	0.515	*0.185	*0.163	*0.149	*0.128
50000.	0.787	0.445	*0.201	*0.181	*0.162	*0.144	
4P – 8S 4497.4 Å C = 0.93E+18	2500.	0.788	-0.964E-01	*0.844E-01	-0.535E-01		
	5000.	1.15	0.585E-02	*0.950E-01	-0.711E-01	*0.764E-01	-0.535E-01
	10000.	1.58	0.882E-01	*0.107	-0.876E-01	*0.858E-01	-0.678E-01
	20000.	2.10	0.131	*0.120	-0.104	*0.964E-01	-0.817E-01
	30000.	2.40	0.130	*0.129	-0.114	*0.103	-0.898E-01
50000.	2.74	0.146	0.141	-0.126	*0.112	-0.100	
4P – 9S 4313.6 Å C = 0.65E+18	2500.	*1.81	*0.853				
	5000.	*2.30	*0.949				
	10000.	*2.98	*0.928				
	20000.	3.83	0.789				
	30000.	4.36	0.674				
50000.	4.91	0.517					
4P – 10S 4204.3 Å C = 0.40E+18	2500.	*3.67	*1.72				
	5000.	*4.43	*1.99				
	10000.	*5.56	*1.93				
	20000.	*7.02	*1.51				
	30000.	*7.90	*1.27				
50000.	*8.73	*0.946					

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P – 6S 25260.1 Å C = 0.36E+20	2500.	13.3	6.64	*2.20	*1.37		
	5000.	16.6	8.07	*2.45	*1.78	*2.03	*1.35
	10000.	19.1	8.90	*2.73	*2.16	*2.24	*1.68
	20000.	21.1	8.38	3.04	2.54	*2.48	*2.00
	30000.	22.0	7.36	3.25	2.77	*2.64	*2.19
	50000.	23.3	6.28	3.54	3.07	*2.84	*2.44
5P – 7S 13254.0 Å C = 0.10E+20	2500.	4.39	2.34	*0.787	*0.476		
	5000.	5.59	2.96	*0.882	*0.635		
	10000.	6.51	3.55	*0.986	*0.783	*0.803	*0.606
	20000.	7.11	3.57	*1.10	*0.930	*0.894	*0.731
	30000.	7.39	3.54	*1.18	*1.02	*0.952	*0.803
	50000.	7.69	3.07	1.29	1.13	*1.03	*0.897
5P – 8S 10922.3 Å C = 0.55E+19	2500.	5.16	-1.03	*0.619	-0.363		
	5000.	7.43	-0.380	*0.697	-0.495		
	10000.	10.3	0.952E-01	*0.781	-0.617	*0.633	-0.476
	20000.	13.5	0.511	*0.876	-0.736	*0.706	-0.577
	30000.	15.3	0.637	*0.938	-0.806	*0.754	-0.636
	50000.	17.4	0.688	*1.03	-0.897	*0.818	-0.712
5P – 9S 9897.6 Å C = 0.34E+19	2500.	*9.72	*4.26				
	5000.	*12.5	*4.87				
	10000.	*16.3	*4.78				
	20000.	21.1	3.83				
	30000.	23.9	3.16				
	50000.	26.8	2.51				
6P – 8S 23763.2 Å C = 0.26E+20	2500.	24.1	-4.79				
	5000.	34.7	-2.40	*3.85	-2.33		
	10000.	49.8	-1.18	*4.20	-2.90		
	20000.	67.9	-0.440E-01	*4.59	-3.46	*3.92	-2.71
	30000.	78.7	0.601	*4.84	-3.79	*4.11	-2.99
	50000.	90.1	1.46	*5.20	-4.21	*4.37	-3.34
4P – 4D 7328.2 Å C = 0.30E+19	2500.	0.394	-0.172	0.873E-01	-0.537E-01	*0.764E-01	-0.408E-01
	5000.	0.428	-0.111	0.948E-01	-0.654E-01	*0.823E-01	-0.509E-01
	10000.	0.466	-0.625E-01	0.103	-0.770E-01	0.885E-01	-0.607E-01
	20000.	0.475	-0.263E-01	0.114	-0.889E-01	0.955E-01	-0.707E-01
	30000.	0.481	-0.437E-02	0.121	-0.962E-01	0.100	-0.767E-01
	50000.	0.488	0.320E-02	0.132	-0.106	0.107	-0.846E-01
4P – 5D 5190.3 Å C = 0.16E+19	2500.	0.460	-0.241	*0.134	-0.540E-01		
	5000.	0.511	-0.225	*0.143	-0.693E-01		
	10000.	0.581	-0.164	*0.151	-0.838E-01	*0.140	-0.654E-01
	20000.	0.697	-0.119	*0.160	-0.984E-01	*0.146	-0.777E-01
	30000.	0.758	-0.105	0.166	-0.107	*0.150	-0.850E-01
	50000.	0.825	-0.808E-01	0.175	-0.119	*0.155	-0.944E-01
4P – 6D 4686.6 Å C = 0.41E+18	2500.	1.42	-0.209				
	5000.	1.77	-0.556E-01				
	10000.	2.02	0.108				
	20000.	2.20	0.215				
	30000.	2.27	0.248	*0.403	-0.281		
	50000.	2.30	0.254	*0.438	-0.315		
4P – 7D 4435.0 Å C = 0.35E+17	2500.						
	5000.						
	10000.	*6.72	*0.280				
	20000.	*6.73	*0.265				
	30000.	*6.60	*0.264				
	50000.	6.32	0.220				
4P – 8D 4292.5 Å C = 0.12E+18	2500.						
	5000.						
	10000.						
	20000.	*9.13	*2.51				
	30000.	*9.18	*2.09				
	50000.	*9.04	*1.44				

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
5P - 5D 16161.8 Å C = 0.15E+20	2500.	6.51	-3.36				
	5000.	7.30	-3.20	*1.65	-0.876		
	10000.	8.11	-2.63	*1.77	-1.08		
	20000.	9.42	-1.99	*1.90	-1.27	*1.68	-1.00
	30000.	10.1	-1.79	*1.99	-1.39	*1.74	-1.10
	50000.	10.7	-1.36	*2.13	-1.54	*1.82	-1.23
5P - 6D 12109.2 Å C = 0.27E+19	2500.	10.0	-1.83				
	5000.	12.6	-0.658				
	10000.	14.6	0.534				
	20000.	16.0	1.32				
	30000.	16.5	1.83				
	50000.	16.8	1.82	*3.08	-2.23		
4D - 6P 22827.3 Å C = 0.30E+20	2500.	10.3	4.51	*2.53	*0.949		
	5000.	11.9	5.26	*2.69	*1.21		
	10000.	13.7	5.31	*2.82	*1.45	*2.63	*1.13
	20000.	15.7	4.59	*2.96	*1.70	*2.73	*1.34
	30000.	16.9	3.99	3.05	1.85	*2.79	*1.47
	50000.	18.3	3.42	3.20	2.04	*2.87	*1.63
4D - 7P 12304.6 Å C = 0.66E+19	2500.	7.97	2.17				
	5000.	10.3	2.75				
	10000.	12.9	2.95				
	20000.	15.8	2.80				
	30000.	17.4	2.56	*2.78	*0.884		
	50000.	19.2	2.13	*2.81	*0.982		
4D - 8P 10891.4 Å C = 0.33E+19	2500.	*11.0	*1.04				
	5000.	*14.8	*2.01				
	10000.	*19.3	*2.35				
	20000.	24.2	2.40				
	30000.	26.9	2.32				
	50000.	29.6	1.93				
5S - 5P 19897.4 Å C = 0.47E+20	2500.	2.24	1.53	0.704	0.360	*0.646	*0.274
	5000.	2.64	1.49	0.746	0.436	*0.682	*0.340
	10000.	3.13	1.05	0.791	0.511	0.716	0.404
	20000.	3.93	0.687	0.844	0.590	0.753	0.469
	30000.	4.34	0.593	0.879	0.638	0.778	0.509
	50000.	4.72	0.388	0.929	0.702	0.814	0.561
5S - 6P 9104.8 Å C = 0.18E+19	2500.	4.05	2.48				
	5000.	4.27	2.37				
	10000.	4.53	1.98				
	20000.	4.71	1.52				
	30000.	4.74	1.18	*1.43	*1.14		
	50000.	4.70	0.886	*1.56	*1.28		
5S - 7P 7451.4 Å C = 0.51E+18	2500.	*8.56	*4.11				
	5000.	*9.05	*3.88				
	10000.	*9.47	*3.28				
	20000.	9.44	2.51				
	30000.	9.29	1.89				
	50000.	9.01	1.41				
4P - 5S 6143.9 Å C = 0.19E+20	2500.	0.820E-01	0.652E-01	0.208E-01	0.168E-01	0.171E-01	0.131E-01
	5000.	0.983E-01	0.777E-01	0.232E-01	0.198E-01	0.190E-01	0.156E-01
	10000.	0.114	0.925E-01	0.259E-01	0.229E-01	0.211E-01	0.182E-01
	20000.	0.124	0.993E-01	0.290E-01	0.262E-01	0.235E-01	0.209E-01
	30000.	0.130	0.100	0.309E-01	0.282E-01	0.251E-01	0.225E-01
	50000.	0.136	0.912E-01	0.336E-01	0.309E-01	0.272E-01	0.248E-01
4P - 6S 3966.5 Å C = 0.32E+19	2500.	0.146	0.104	*0.326E-01	*0.237E-01	*0.262E-01	*0.176E-01
	5000.	0.172	0.127	0.367E-01	0.296E-01	*0.295E-01	*0.228E-01
	10000.	0.190	0.149	0.411E-01	0.353E-01	*0.331E-01	*0.277E-01
	20000.	0.202	0.150	0.462E-01	0.411E-01	0.371E-01	0.326E-01
	30000.	0.211	0.143	0.494E-01	0.447E-01	0.397E-01	0.355E-01
	50000.	0.222	0.121	0.538E-01	0.493E-01	0.433E-01	0.393E-01

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P – 7S	2500.	0.329	0.216				
3482.2 Å	5000.	0.377	0.263	*0.773E-01	*0.554E-01		
C = 0.12E+19	10000.	0.410	0.286	*0.868E-01	*0.696E-01		
	20000.	0.459	0.275	*0.975E-01	*0.834E-01	*0.784E-01	*0.653E-01
	30000.	0.489	0.243	*0.104	*0.915E-01	*0.839E-01	*0.721E-01
	50000.	0.550	0.201	*0.114	*0.102	*0.913E-01	*0.808E-01
4P – 8S	2500.	0.692	0.432				
3281.3 Å	5000.	0.801	0.533				
C = 0.59E+18	10000.	0.863	0.555				
	20000.	0.977	0.481				
	30000.	1.08	0.406				
	50000.	1.22	0.328	*0.233	*0.203		
4P – 9S	2500.	*1.32	*0.774				
3176.1 Å	5000.	*1.47	*0.909				
C = 0.34E+18	10000.	*1.67	*0.936				
	20000.	1.95	0.753				
	30000.	2.19	0.628				
	50000.	2.42	0.492				
4P – 10S	2500.						
3113.4 Å	5000.	*2.58	*1.45				
C = 0.22E+18	10000.	*3.01	*1.41				
	20000.	*3.64	*1.10				
	30000.	*4.07	*0.911				
	50000.	*4.45	*0.681				
5P – 6S	2500.	5.54	2.60	1.18	0.619	*1.08	*0.471
25582.3 Å	5000.	7.51	3.34	1.26	0.750	*1.14	*0.585
C = 0.78E+20	10000.	9.60	4.02	1.34	0.882	1.20	0.696
	20000.	11.7	4.04	1.43	1.02	1.27	0.809
	30000.	12.9	3.66	1.49	1.10	1.32	0.878
	50000.	14.4	3.11	1.58	1.21	1.38	0.968
5P – 7S	2500.	4.91	3.08				
13485.3 Å	5000.	5.78	3.78	*1.09	*0.773		
C = 0.18E+20	10000.	6.62	3.92	*1.22	*0.965	*0.989	*0.743
	20000.	7.68	3.52	*1.36	*1.15	*1.10	*0.904
	30000.	8.55	3.14	*1.46	*1.26	*1.18	*0.997
	50000.	9.70	2.59	*1.58	*1.41	*1.28	*1.12
5P – 8S	2500.	7.67	4.69				
10901.1 Å	5000.	8.71	5.69				
C = 0.65E+19	10000.	9.87	5.92				
	20000.	11.4	4.80				
	30000.	12.8	4.14				
	50000.	14.4	3.33	*2.52	*2.19		
5P – 9S	2500.	*12.6	*7.08				
9820.3 Å	5000.	*14.0	*8.72				
C = 0.33E+19	10000.	*16.3	*8.68				
	20000.	19.2	6.68				
	30000.	21.6	5.32				
	50000.	24.0	4.25				
4P – 4D	2500.	0.943E-01	-0.316E-01	0.244E-01	-0.998E-02	*0.233E-01	-0.774E-02
4446.3 Å	5000.	0.106	-0.174E-01	0.252E-01	-0.118E-01	0.241E-01	-0.929E-02
C = 0.23E+19	10000.	0.126	-0.237E-02	0.261E-01	-0.137E-01	0.247E-01	-0.109E-01
	20000.	0.141	0.108E-01	0.273E-01	-0.157E-01	0.254E-01	-0.125E-01
	30000.	0.149	0.137E-01	0.281E-01	-0.169E-01	0.258E-01	-0.135E-01
	50000.	0.157	0.164E-01	0.294E-01	-0.185E-01	0.265E-01	-0.148E-01
4P – 5D	2500.	0.510	-0.263				
3638.7 Å	5000.	0.530	-0.229				
C = 0.30E+18	10000.	0.577	-0.153				
	20000.	0.599	-0.994E-01	*0.159	-0.124		
	30000.	0.598	-0.637E-01	*0.170	-0.137		
	50000.	0.595	-0.326E-01	*0.187	-0.153	*0.147	-0.121

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P - 6D 3357.1 Å C = 0.10E+18	2500.	*1.44	-0.648				
	5000.	*1.49	-0.618				
	10000.	1.58	-0.455				
	20000.	1.61	-0.317				
	30000.	1.59	-0.213				
50000.	1.55	-0.117					
4P - 7D 3221.5 Å C = 0.19E+17	2500.						
	5000.						
	10000.	*3.86	-0.694				
	20000.	*3.86	-0.466				
	30000.	*3.77	-0.315				
50000.	*3.62	-0.166					
5P - 5D 16180.3 Å C = 0.58E+19	2500.	11.0	-5.87				
	5000.	11.8	-5.47				
	10000.	12.6	-4.06				
	20000.	13.6	-2.82	*3.31	-2.56		
	30000.	13.7	-2.14	*3.54	-2.83		
50000.	13.8	-1.39	*3.89	-3.17	*3.08	-2.50	
5P - 6D 11784.4 Å C = 0.13E+19	2500.	*18.1	-8.65				
	5000.	*18.9	-8.01				
	10000.	20.0	-5.66				
	20000.	20.7	-3.65				
	30000.	20.5	-2.52				
50000.	20.2	-1.36					
PERTURBER DENSITY = 1.E+17 cm ⁻³							
4S - 4P 4227.9 Å C = 0.17E+21	2500.	0.103	0.559E-01	0.562E-01	0.138E-01	*0.538E-01	*0.105E-01
	5000.	0.115	0.652E-01	0.580E-01	0.165E-01	*0.566E-01	*0.129E-01
	10000.	0.124	0.786E-01	0.590E-01	0.193E-01	0.579E-01	0.153E-01
	20000.	0.143	0.802E-01	0.599E-01	0.222E-01	0.586E-01	0.177E-01
	30000.	0.162	0.722E-01	0.604E-01	0.240E-01	0.590E-01	0.192E-01
50000.	0.193	0.584E-01	0.612E-01	0.264E-01	0.595E-01	0.211E-01	
4S - 5P 2722.5 Å C = 0.42E+19	2500.	0.669	0.398				
	5000.	0.724	0.402				
	10000.	0.797	0.326				
	20000.	0.863	0.262	*0.238	*0.165		
	30000.	0.877	0.228	*0.253	*0.186		
50000.	0.886	0.179	*0.275	*0.212			
4S - 6P 2399.3 Å C = 0.57E+19	2500.	0.774	0.316				
	5000.	0.945	0.411				
	10000.	1.14	0.474				
	20000.	1.35	0.454				
	30000.	1.47	0.429				
50000.	1.60	0.364					
4S - 7P 2201.4 Å C = 0.21E+19	2500.	*2.13	*0.514				
	5000.	*2.89	*0.735				
	10000.	*3.75	*0.855				
	20000.	*4.68	*0.845				
	30000.	*5.21	*0.747				
50000.	*5.76	*0.637					
4P - 5S 12678.8 Å C = 0.83E+21	2500.	3.63	2.03	*0.805	*0.432	*0.679	*0.304
	5000.	4.06	2.64	*0.890	*0.575	*0.760	*0.432
	10000.	4.41	3.17	0.976	0.709	*0.830	*0.549
	20000.	4.96	3.19	1.07	0.842	0.904	0.662
	30000.	5.35	2.88	1.13	0.920	0.952	0.727
50000.	6.18	2.41	1.22	1.02	1.02	0.812	
4P - 6S 5869.2 Å C = 0.34E+20	2500.	*6.66	*3.62				
	5000.	7.55	4.95				
	10000.	7.90	5.32				
	20000.	8.20	5.18				
	30000.	8.48	4.54				
50000.	9.08	3.89					

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P – 7S 4848.7 Å C = 0.27E+20	2500.	*5.45	*2.82				
	5000.	*6.51	*3.99				
	10000.	7.16	4.96				
	20000.	7.46	5.19				
	30000.	7.66	5.02				
50000.	7.87	4.42					
4P – 8S 4497.4 Å C = 0.93E+19	2500.	*7.24	-0.246				
	5000.	*11.1	*0.566				
	10000.	*15.5	*1.24				
	20000.	*20.8	*1.53				
	30000.	*23.8	*1.40				
50000.	*27.3	*1.52					
4P – 4D 7328.2 Å C = 0.30E+20	2500.	3.92	-1.44				
	5000.	4.27	-0.911				
	10000.	4.65	-0.477	*1.02	-0.638		
	20000.	4.74	-0.183	*1.13	-0.796		
	30000.	4.80	-0.714E-02	*1.21	-0.886	*0.998	-0.691
50000.	4.88	0.369E-01	*1.32	-1.000	*1.06	-0.787	
4P – 5D 5190.3 Å C = 0.16E+20	2500.	*4.56	-1.95				
	5000.	5.09	-1.92				
	10000.	5.80	-1.40				
	20000.	6.97	-1.05				
	30000.	7.58	-0.984				
50000.	8.25	-0.765					
4P – 6D 4686.6 Å C = 0.41E+19	2500.						
	5000.						
	10000.	*18.7	*2.29				
	20000.	*21.0	*2.92				
	30000.	*21.8	*2.88				
50000.	*22.4	*2.77					
4P – 5S 6143.9 Å C = 0.19E+21	2500.	0.820	0.603	*0.206	*0.119	*0.166	*0.819E-01
	5000.	0.983	0.741	*0.232	*0.163	*0.188	*0.122
	10000.	1.14	0.913	0.259	0.204	*0.211	*0.157
	20000.	1.24	0.983	0.290	0.244	*0.235	*0.191
	30000.	1.30	0.998	0.309	0.268	0.251	0.211
50000.	1.36	0.911	0.336	0.298	0.272	0.237	
4P – 6S 3966.5 Å C = 0.32E+20	2500.	1.46	0.884				
	5000.	1.72	1.16				
	10000.	1.90	1.41				
	20000.	2.02	1.46	*0.462	*0.356		
	30000.	2.11	1.41	*0.494	*0.401		
50000.	2.22	1.21	*0.538	*0.458			
4P – 7S 3482.2 Å C = 0.12E+20	2500.	*3.27	*1.60				
	5000.	*3.76	*2.23				
	10000.	*4.10	*2.58				
	20000.	4.59	2.58				
	30000.	4.89	2.35				
50000.	5.50	1.96					
4P – 8S 3281.3 Å C = 0.59E+19	2500.						
	5000.						
	10000.	*8.56	*4.62				
	20000.	*9.73	*4.25				
	30000.	*10.8	*3.66				
50000.	*12.1	*3.11					
4P – 4D 4446.3 Å C = 0.23E+20	2500.	0.942	-0.284	*0.215	-0.685E-01		
	5000.	1.06	-0.152	*0.242	-0.959E-01		
	10000.	1.26	-0.838E-02	*0.258	-0.121		
	20000.	1.41	0.109	*0.272	-0.145	*0.251	-0.114
	30000.	1.49	0.141	*0.281	-0.160	*0.257	-0.126
50000.	1.57	0.165	0.294	-0.178	*0.265	-0.141	

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
4P - 5D	2500.	*4.52	-1.56				
3638.7 Å	5000.	*4.94	-1.48				
C = 0.30E+19	10000.	*5.54	-0.997				
	20000.	5.83	-0.705				
	30000.	5.85	-0.503				
	50000.	5.84	-0.297				
4P - 6D	2500.						
3357.1 Å	5000.						
C = 0.10E+19	10000.						
	20000.	*14.0	-1.71				
	30000.	*14.2	-1.38				
	50000.	*14.2	-0.978				
PERTURBER DENSITY = 1.E+18 cm ⁻³							
4S - 4P	2500.	1.03	0.503	*0.384	*0.812E-01		
4227.9 Å	5000.	1.15	0.656	*0.512	*0.125		
C = 0.17E+22	10000.	1.24	0.758	*0.566	*0.165		
	20000.	1.43	0.782	*0.590	*0.202	*0.570	*0.157
	30000.	1.62	0.707	*0.600	*0.224	*0.581	*0.175
	50000.	1.93	0.577	0.610	0.251	*0.591	*0.198
4S - 5P	2500.	*5.06	*1.62				
2722.5 Å	5000.	*6.20	*2.34				
C = 0.42E+20	10000.	*7.23	*2.07				
	20000.	*8.09	*1.79				
	30000.	8.33	1.68				
	50000.	8.52	1.29				
4S - 6P	2500.						
2399.3 Å	5000.						
C = 0.57E+20	10000.	*10.9	*3.85				
	20000.	*13.1	*3.92				
	30000.	*14.4	*3.77				
	50000.	*15.8	*3.29				
4P - 5S	2500.	8.16	4.47				
6143.9 Å	5000.	9.82	6.31				
C = 0.19E+22	10000.	11.4	8.23				
	20000.	12.4	9.32				
	30000.	13.0	9.72	*3.09	*2.23		
	50000.	13.6	8.91	*3.36	*2.64		
4P - 6S	2500.	*13.6	*3.73				
3966.5 Å	5000.	*17.0	*7.96				
C = 0.32E+21	10000.	*18.9	*11.5				
	20000.	*20.1	*12.8				
	30000.	*21.1	*12.7				
	50000.	22.2	11.4				
4P - 4D	2500.	*8.36	-1.67				
4446.3 Å	5000.	*10.2	-0.687				
C = 0.23E+21	10000.	12.4	0.506				
	20000.	13.9	1.50				
	30000.	14.8	1.72				
	50000.	15.6	1.79				
PERTURBER DENSITY = 1.E+19 cm ⁻³							
4S - 4P	2500.	9.66	3.22				
4227.9 Å	5000.	11.3	5.45				
C = 0.17E+23	10000.	12.4	6.67				
	20000.	14.3	7.19				
	30000.	16.2	6.63				
	50000.	19.3	5.38				

ves an estimate for the maximum perturber density for which the line may be treated as isolated when divided by the corresponding full width at half maximum. For each value given in Table 1, the collision volume (V) multiplied by the perturber density (N) is much less than one and the impact approximation is valid (Sahal-Bréchet, 1969ab). Values for $NV > 0.5$ are not given and values for $0.1 < NV \leq 0.5$ are denoted by an asterisk. Stark broadening parameters for densities lower than tabulated, are linear with perturber density. When the impact approximation is not valid, the ion broadening contribution may be estimated by using quasistatic approach (Sahal-Bréchet 1991 or Griem 1974). In the region between where neither of these two approximations is valid, a unified type theory should be used. For example in Barnard *et al.* (1974), a simple analytical formula for such a case is given. The accuracy of the results obtained decreases when broadening by ion interactions becomes important. The discussion of obtained results, and the comparison with available experimental (Kusch and Pritschow 1970, Hühn and Kusch 1973) and theoretical (Griem 1974) data, will be published in Dimitrijević and Sahal-Bréchet (1999a).

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ТАБЕЛЕ ПАРАМЕТАРА ШТАРКОВОГ ШИРЕЊА СПЕКТРАЛНИХ ЛИНИЈА
 НЕУТРАЛНОГ КАЛЦИЈУМА. II

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 Претходно саопштење

Користећи семикласичан прилаз, недавно су израчунате ширине и помераји спектралних линија, проузроковани сударима са електронима, протонима, као и јонима хелијума, магнезијума, силицијума и гвожђа за 189 мултиплета Ca I. (Dimitrijević и Sahal-Bréchet,

1999ab). У овом раду дати су резултати за ширине и помераје спектралних линија неутралног калцијума, услед судара са електронима, протонима и јонима хелијума, за концентрације пертурбера од 10^{12}cm^{-3} до 10^{19}cm^{-3} .